Everton Carr Wind Farm – EIA Scoping Report

Main Text

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Acronyms and Abbreviations

Acronym / Abbreviation	Definition
µg	Micrograms
AADT	Annual Average Daily Traffic
ACB	Areas that Could Become of Particular Importance for Biodiversity
AD	Anaerobic Digestion
AGL	Above Ground Level
AI	Artificial Intelligence
AIL	Abnormal Indivisible Load
AILV	Abnormal Indivisible Load Vehicle
AIP	Aeronautical Information Publication
ALC	Agricultural Land Classification
ANSP	Air Navigation Service Provider
AOD	Above Ordnance Datum
AoI	Area of Influence
AONB	Area of Outstanding Natural Beauty
APDO	Approved Procedure Design Organisation
APIA	Air Pollution Information System
APIB	Areas of Particular Importance for Biodiversity
AQMA	Air Quality Management Area
AQO	Air Quality Objective
AQSR	The Air Quality Standards Regulations
ARWTN	Assessment and Rating of Wind Turbine Noise
ASR	Annual Status Report
ATC	Automatic Traffic Count
ATS	Air Traffic Service(s)
AW	Ancient woodland
BBS	Breeding Bird Survey
BDC	Bassetlaw District Council
BDMP	Bird Disturbance Management Plan
BGL	Below Ground Level
BGS	British Geological Survey
BIMP	Biosecurity and Invasive Non-Native Species Management Plan
BMV	Best and Most Versatile
BoCC	Birds of Conservation Concern
BS	British Standard
BSI	British Standards Institution
BTO	British Trust for Ornithology
CA	Conservation Area
CAA	Civil Aviation Authority
CAP	Civil Aviation Publication

Acronym / Abbreviation	Definition
CAST	Combined Aerodrome Safeguarding Team
CCTV	Closed-Circuit Television
CD&E	Construction, Demolition and Excavation
CDC	City of Doncaster Council
CDM	Construction (Design and Management) Regulations
CEA	Cumulative Effects Assessment
CEH	Centre for Ecology and Hydrology
CEMP	Construction Environmental Management Plan
CIEEM	Chartered Institute of Ecology and Environmental Management
CIfA	Chartered Institute for Archaeologists
CIRIA	Construction Industry Research and Information Association
CIRIA	Construction Industry Research, and Information Association
CLVIA	Cumulative Landscape and Visual Impact Assessment
CNS	Communication, Navigation and Surveillance
COMAH	Control of Major Accident Hazards
CPP	Construction Phase Plan
CRH	Collision Risk Height
CROW	Countryside and Rights of Way Act 2000
CROW Act	Countryside and Rights of Way Act
CTMP	Construction Traffic Management Plan
DAS	Discretionary Advice Service
DBW	Daytime Bat Walkover
DCO	Development Consent Order
DECC	Department of Energy and Climate Change. Now (DESNEZ) the Department for Energy Security and Net Zero.
DEFRA	Department for Environment, Food, and Rural Affairs
DESNZ	Department for Energy Security and Net Zero
DfT	Department for Transport
DMP	Dust Management Plan
DMRB	Design Manual for Roads and Bridges
DMT	Decision-Making Threshold
DNO	Distribution Network Operator
DP	Decommissioning Plan
DRA	Detailed Risk Assessment (Unexploded Ordnance)
DSA	Doncaster Sheffield Airport
DTM	Digital Terrain Model
DWP	Decommissioning Waste Plan
DWPA	Drinking Water Protected Area
EA	Environment Agency
EC	European Commission
ECoW	Ecological Clerk of Works

Acronym / Abbreviation	Definition
EEA	European Economic Association
EHO	Environmental Health Officer
EIA	Environmental Impact Assessment
ELC	European Landscape Convention
EMCCA	East Midlands Combined County Authority
EMF	Electromagnetic fields
EN-1	Overarching National Policy Statement for Energy
EN-3	National Policy Statement for Renewable Energy Infrastructure
EOD	Explosive Ordnance Disposal
EPD	Environmental Product Declaration
EPUK	Environmental Protection UK
ERYC	East Riding of Yorkshire Council
ES	Environmental Statement
ETSU-R-97	The Assessment and Rating of Noise from Wind Farms (ETSU-R-97)
EU	European Union
FCD	Field Capacity Days
FRA	Flood Risk Assessment
GCN	Great Crested Newt
GCR	Geological Conservation Review
GHG	Greenhouse Gas
GIS	Geographic Information System
GLNP	Greater Lincolnshire Nature Partnership
GLVIA3	Guidelines for Landscape and Visual Impact Assessment: Third Edition
GPA	Good Practice Advice in Planning
GPG	Good Practice Guide
GPS	Global Positioning System
GVA	Gross Value Added
GW	Gigawatt
GWD	Groundwater Directive
GWDTE	Groundwater Dependent Terrestrial Ecosystems
Ha	Hectares
HB	Height Band
HCA	Homes and Communities Agency
HDV	Heavy Duty Vehicle
HE	Historic England
HER	Historic Environment Record
HGV	Heavy Goods Vehicle
HMP	Habitat Management Plan
HRA	Habitats Regulations Assessment
HSE	Health and Safety Executive

Acronym / Abbreviation	Definition
HSI	Habitat Suitability Index
HV	Heavy Vehicle
Hz	Hertz
I&C	Industrial and Commercial (waste)
IAQM	Institute of Air Quality Management
ICAO	International Civil Aviation Organization
ICNIRP	International Commission on Non-Ionizing Radiation Protection
IDB	Internal Drainage Board
IEC	International Electrotechnical Commission
IEF	Important Ecological Features
IEMA	Institute of Environmental Management and Assessment
IfA	Institute of Field Archaeologists
IFP	Instrument Flight Procedure
IHBC	Institute of Historic Building Conservation
IHS	Inner Horizontal Surface
IMD	Indices of Multiple Deprivation
INNS	Invasive Non-Native Species
IOA	Institute of Acoustics
IOF	Important Ornithological Feature
ISEP	Institute of Sustainability and Environmental Professionals
IUCN	International Union for the Conservation of Nature
JNCC	Joint Nature Conservation Committee
JRC	Joint Radio Company
km	Kilometre
LA90,T	A-weighted sound level exceeded for 90% of the measurement period T
LAQM	Local Air Quality Management
LCA	Landscape Character Area
LCC	Lincolnshire County Council
LCRM	Land Contamination Risk Management
LEMP	Landscape and Ecology Management Plan
LI	Landscape Institute
LiDAR	Light Detection and Ranging
LITGN	Landscape Institute Technical Guidance Note
LLFA	Lead Local Flood Authority
LLV	Lower Limiting Value (ARWTN)
LNR	Local Nature Reserve
LNRS	Local Nature Recovery Strategy
LPA	Local Planning Authority
LSE	Likely Significant Effect
LSOA	Lower Layer Super Output Areas

Acronym / Abbreviation	Definition
LTP	Local Transport Plan
LVIA	Landscape and Visual Impact Assessment
LWS	Local Wildlife Site
m	Metres
MAGIC	Multi Agency Geographic Information for the Countryside
MAVRIC	Mapping Application for Visualising Road Injury Casualties
MHCLG	Ministry of Housing, Communities and Local Government
Mm^3	Million Cubic Metres
MMP	Materials Management Plan
MOD	Ministry of Defence
MRA	Mining Remediation Authority
MSA	Mineral Safeguarding Area
MW	MegaWatts
NATS	NATS (En Route) plc
NATS	National Air Traffic Services
NBRC	Nottingham Biological Records Centre
NBRC	Nottinghamshire Biological Records Centre
NCA	National Character Area
NCC	Nottinghamshire County Council
NCN	National Cycle Network
NERC	Natural Environment and Rural Communities Act 2006
NESO	National Energy System Operator
NEYEDC	North and East Yorkshire Environmental Data Centre
NGR	National Grid Reference
NH	National Highways
NH_3	Ammonia
NHLE	National Heritage List for England
NLC	North Lincolnshire Council
NM	Nautical Mile
NNR	National Nature Reserves
NNR	National Nature Reserve
NO_2	Nitrogen dioxide
NO_x	Nitrogen oxides
NPPF	National Planning Policy Framework
NPPG	National Planning Practice Guidance
NPS	National Policy Statement
NRMM	Non-road mobile machinery
NSIP	Nationally Significant Infrastructure Project
NSR	Noise Sensitive Receptor
OCA	Obstacle Clearance Altitude

Acronym / Abbreviation	Definition
OHL	Overhead Line
OIA	Ornithological Impact Assessment
OLS	Obstacle Limitation Surface
OMP	Operational Management Plan
ONS	Office of National Statistics
OPEMP	Operational Phase Environmental Management Plan
OS	Ordnance Survey
OWMP	Operational Waste Management Plan
PAMP	Public Access Management Plan
PANS-OPS	Procedures for Air Navigation Services - Aircraft Operations
PC	Principal Contractor
PCA	Peat Condition Assessment
PCI	Pre-Construction Information
PLQRA	Preliminary Land Quality Risk Assessment
PM	Particulate Matter
PM_{10}	Particulate matter with an aerodynamic diameter of 10 micrometres or less
$PM_{2.5}$	Particulate matter with an aerodynamic diameter of 2.5 micrometres or less
PMP	Peat Management Plan
PPEIRP	Pollution Prevention and Emergency Incident Response Plan
PPG	Planning Practice Guidance
PRA	Preliminary Roost Assessment
PRoW	Public Rights of Way
PSR	Primary Surveillance Radar
PWS	Private Water Supply
RAF	Royal Air Force
Ramsar	Wetland of International Importance designated under the Ramsar Convention
RCA	River Condition Assessment
RCP	Representative Concentration Pathway
RDB	Red Data Book
REAC	Register of Environmental Actions and Commitments
RES	Renewable Energy Systems
RICS	Royal Institution of Chartered Surveyors
RIGS	Regionally Important Geodiversity Sites
RLoS	Radar Line of Sight
RPG	Registered Park and Garden
RPZ	Root Protection Zone
RQF	Regulated Qualifications Framework
RSPB	Royal Society for the Protection of Birds
RVAA	Residential Visual Amenity Assessment
SAC	Special Area of Conservation

Acronym / Abbreviation	Definition
SCI	Site of Community Importance
SEPA	Scottish Environment Protection Agency
SIS	Spectrum Information System
SLR	SLR Consulting Limited
SM	Scheduled Monument
SMP	Soil Management Plan
SNH	Scottish Natural Heritage
SOP	Standard Operating Procedure
SoS	Secretary of State for Energy Security and Net Zero
SoS	Secretary of State
SPA	Special Protection Area
SPZ	Source Protection Zone
SQ	Special Qualities
SRN	Strategic Road Network
SSNL	Site-Specific Noise Limit
SSR	Secondary Surveillance Radar
SSSI	Site of Special Scientific Interest
SuDS	Sustainable Urban Drainage System
SWDS	Surface Water Drainage Strategy
SWMP	Site Waste Management Plan
SYC	South Yorkshire Council
TCPA	The Town and Country Planning Act 1990
TNAC	Total Noise Assessment Criteria
UGC	Underground Grid Connection
UHF	Ultra High Frequency
UK	United Kingdom
UKHab	UK Habitat Classification
UKHSA	UK Health Security Agency
UNESCO	United Nations Educational, Scientific and Cultural Organization
UXO	Unexploded Ordnance
VHF	Very High Frequency
VP	Vantage Point
WC	Wetness Class
WFD	Water Framework Directive
WHO	World Health Organisation
WTG	Wind Turbine Generator
ZoI	Zone of Influence
ZTV	Zone of Theoretical Visibility

1. Introduction

1.1 Project Background

1.1.1 The Everton Carr Wind Farm (hereafter 'the Proposed Development') is a proposal by Vattenfall Wind Power Ltd (hereafter 'the Applicant') to construct and operate an onshore wind turbine generating station, which would be located on a Site within the administrative area of Bassetlaw District Council (BDC), within the administrative county of Nottinghamshire.

1.1.2 The Proposed Development is situated on a large area of flat, low-lying agricultural land ('the Site') dominated by arable farmland and extensive drainage infrastructure. The Site is bounded to the north by the River Idle, with the village of Misson immediately to the north-west and Gringley on the Hill to the south. The Site covers approximately 770 hectares (ha) and is centred on National Grid Reference (NGR) SK 71327 93614. The Proposed Development location is shown in **Figure 1.1 (Volume A)**, which shows the boundary for scoping purposes, and **Figure 1.2 (Volume A)** which shows the Site in its wider context.

1.1.3 For the purposes of identifying scope, the Proposed Development is anticipated to include a maximum of 16 wind turbines, with a tip height of up to 220 metres (m) and associated development which may include but not be limited to: hardstanding areas; access tracks and site accesses; watercourse crossings; haul route for construction vehicles; on-site substation(s) and compound(s); temporary construction compounds; drainage; CCTV; fencing; off-site street works to mitigate Abnormal Indivisible Load Vehicle (AILV) overrun and oversail; services and internal cabling work. The requirement for borrow pits and a temporary concrete batching plant will be confirmed as the design develops.

1.1.4 The Proposed Development would have a gross electrical output capacity of more than 100MW (currently anticipated to be in the region of 112MW, although this number is subject to the final number and / or power rating of turbines installed).

1.1.5 The Proposed Development would also include a range of environmental and ecological mitigation measures, alongside proposals for environmental enhancement. These measures are intended to support the overarching aim of the Proposed Development, which is to ensure that Everton Carr Wind Farm is integrated within the wider cultural and environmental landscape, such that the Proposed Development and its surroundings can co-exist.

1.1.6 The Proposed Development would directly contribute to the UK Government's clean energy mission by generating clean, renewable electricity and supporting the transition to a low-carbon energy system. In doing so, the Proposed Development would play a role in reducing greenhouse gas emissions, strengthening national energy security and accelerating progress towards achieving the UK's legally binding net-zero target.

1.1.7 Further information about the Proposed Development is provided in **Chapter 2: Proposed Development Description**.

1.2 Nationally Significant Infrastructure Project

1.2.1 The Proposed Development comprises an onshore wind turbine generating station in England with a gross electrical output capacity exceeding 100 MW. On this basis, it falls within the definition of a Nationally Significant Infrastructure Project

under section 15 of the Planning Act (2008), as amended by the Infrastructure Planning (Onshore Wind and Solar Generation) Order (2025).

1.2.2 As the Proposed Development exceeds the relevant 100 MW threshold, development consent is required under the Planning Act 2008. The Applicant therefore intends to make an application for a Development Consent Order to the Planning Inspectorate for the Proposed Development.

1.2.3 The Planning Inspectorate will examine the Development Consent Order application and make a recommendation to the Secretary of State on whether development consent should be granted or refused.

1.3 The Need for an Environmental Impact Assessment

1.3.1 In the context of NSIPs, the requirement to undertake an Environmental Impact Assessment (EIA) is established by the Infrastructure Planning (Environmental Impact Assessment) Regulations (2017) . Schedule 1 of the EIA Regulations identifies development for which EIA is mandatory, while development listed in Schedule 2 may require an EIA if it is likely to have significant effects on the environment. This determination is made with regard to the criteria set out in Schedule 3, including the nature, size and location of the development.

1.3.2 Installations for the harnessing of wind power for energy production (wind farms) fall within Schedule 2, paragraph 3(i) (“Energy Industry”) of the EIA Regulations (2017). Having regard to its nature, scale and location, the Proposed Development is considered likely to give rise to significant environmental effects and therefore the Proposed Development constitutes EIA development.

1.3.3 In accordance with Regulation 8(1)(b) of the EIA Regulations (2017), the Applicant hereby gives notice that an Environmental Statement (ES) will be submitted in support of the application for development consent. The ES will identify, describe and assess the likely significant environmental effects of the Proposed Development. It will also set out measures to avoid, prevent or reduce significant adverse effects and, where necessary, offset residual effects.

1.4 Purpose of the Scoping Report

1.4.1 Scoping is an established stage of the EIA process that provides the framework for determining the scope and level of detail of the information to be included in the ES. In accordance with the EIA Regulations 2017 and the Planning Act 2008 Act, this Scoping Report seeks to establish an agreed and proportionate basis for the assessment of the Proposed Development.

1.4.2 This Scoping Report forms a request by the Applicant, made under Regulation 10(1) of the EIA Regulations 2017, for a written Scoping Opinion from the Secretary of State for Energy Security and Net Zero (SoS) as to the scope and level of detail of the information to be provided in the ES.

1.4.3 The purpose of this Scoping Report is to provide the information required under the EIA Regulations 2017 to enable the SoS to issue a Scoping Opinion. It sets out an overview and description of the Proposed Development, together with an initial appraisal of the potential impacts of the Proposed Development on the environment that could arise during construction, operation, maintenance, and decommissioning. The Scoping Report also sets out a proportionate approach to assessing these potential impacts through the EIA process, including the use of mitigation measures where appropriate. In addition, the Scoping Report provides the justification and rationale for scoping out environmental aspects or receptors

where significant environmental effects are considered unlikely to arise as a result of the Proposed Development.

1.4.4 This Scoping Report has been prepared with due regard to relevant Planning Inspectorate guidance, including the Planning Inspectorate's Pre-Application Advice on Environmental Impact Assessment (2026). It contains the information stipulated in Regulation 10(3) of the EIA Regulations (2017), as presented in **Table 1-1**.

Table 1-1: Regulation 10(3) Scoping Information

Regulation 10(3) Requirement	Information Provided
(a) a plan sufficient to identify the land	Figure 1.1, Figure 1.2, Figure 2.1, Figure 2.2 **(Volume A)**
(b) a description of the proposed development, including its location and technical capacity	Chapter 2: Proposed Development Description
(c) an explanation of the likely significant effects of the development on the environment	Technical topic Chapters 5 to 17
(d) such other information or representations as the person making the request may wish to provide or make.	Technical topic Chapters 5 to 17

1.5 The Applicant

1.5.1 Vattenfall is one of Europe's largest producers and retailers of electricity and heat. Vattenfall's main markets are Sweden, Germany, the Netherlands, UK and Denmark, with a total of approximately 21,000 employees. The parent company, Vattenfall AB, is 100% owned by the Swedish state, and its headquarters are in Solna, Sweden.

1.5.2 For over a century, Vattenfall has electrified industries, supplied energy to people's homes and modernised our way of living through innovation and collaboration. Vattenfall's goal is to achieve net zero emissions across its entire value chain by 2040 at the latest. The company is working to enable the fossil freedom that drives society forward.

1.5.3 Vattenfall has been operating in the UK for over 15 years, and currently operates 13 battery storage, onshore wind and offshore wind projects, with an installed capacity of 1.1 GW. Each year, these projects combined can:

- power 800,000 homes;
- save approximately 1.35 million tonnes of CO_2; and
- take the equivalent of 680,000 cars off the road.

1.5.4 Vattenfall maintains a strong and growing wind portfolio, with over 3 GW of capacity in operation and development.

1.5.5 Further information on Vattenfall can be found at https://group.vattenfall.com.

1.6 The EIA Project Team and Competency

1.6.1 Regulation 14(4) of the EIA Regulations 2017 requires that an ES is prepared by "competent experts" and that the ES is accompanied by a competent expert statement outlining the relevant expertise or qualifications of such experts.

1.6.2 This Scoping Report has been led by SLR Consulting Ltd ('SLR') with input from other specialist technical and environmental consultants (see **Table 1-2**).

1.6.3 SLR is one of the UK's fastest growing multi-disciplinary environmental consultancies. Within the energy sector, SLR provides a wide range of planning, environmental and technical services relating to the design and development of wind farms and other renewable energy projects. The company becomes involved in all aspects of facilitating development, from initial concept design, through planning and consenting to the detailed design, construction management and closure stages.

1.6.4 SLR is a registered Environmental Impact Assessor, Member of the Institute of Sustainability and Environmental Professionals (ISEP) and holder of the ISEP EIA Quality Mark. SLR is also a Registered Organisation validated by the Institute of Archaeologists (IfA), a member of the Association of Geotechnical and Geoenvironmental Specialists, and a Landscape Institute (LI) Registered Practice.

1.6.5 Further information on SLR can be found on its corporate website at www.slrconsulting.com.

1.7 Scoping Report Structure

1.7.1 The structure of the Scoping Report is presented in **Table 1-2.**

Table 1-2: Scoping Report Structure and Author Qualifications

Chapter	Chapter Title	Lead Author	Lead Author Qualifications	Lead Author Years of Experience
1	Introduction	SLR	BSc (Hons), MSc	19+
2	Proposed Development Description	SLR	BSc (Hons), MSc	19+
3	Approach to EIA	SLR	BSc (Hons), MSc	19+
4	Legislation and Policy Context	SLR	MA (Hons), MRTPI	20+
5	Geology Soils, Ground Conditions and Peat	SLR	BSc(Hons) MSc PhD	10+
6	Ecology	SLR	MSci, MCIEEM	7+
7	Ornithology	SLR	BSc (Hons), PhD, CEnv, MCIEEM	20+
8	Archaeology and Cultural Heritage	SLR	BA (Hons) ACIfA	10
9	Air Quality and Greenhouse Gases	SLR	MSc, BSc (Hons), CEnv MIAQM, MIEnvSc	18
10	Human Health	SLR	BSc, PGCert, PISEP, AFPH	10+
11	Landscape and Visual	SLR	MLPM (Hons	25+
12	Noise and Vibration	SLR	BSc. (Hons), MSc., MIOA	18+

Chapter	Chapter Title	Lead Author	Lead Author Qualifications	Lead Author Years of Experience
13	Socio-economics, Tourism and Recreation	SLR	BSc, PGCert, PISEP, AFPH	10+
14	Access, Traffic and Transport	SLR	BSc (Hons) MSc MCIHT, MTPS	20+
15	Hydrology, Hydrogeology, Water Resources and Flood Risk	SLR	BTEC HND BEng	25+
16	Other Environmental Topics	SLR	BSc (Hons), MSc BSc (Hons), MSc	3 19
17	Aviation	Straten Consulting	ABA, ATC, CBCP	38
18	Summary	SLR	BSc (Hons), MSc	19

2. Proposed Development Description

2.1 Introduction

2.1.1 This Chapter provides an overview of the Proposed Development, its location and the surrounding area. The design of the Proposed Development is being developed and will continue to evolve and be refined from the completion of Environmental Impact Assessment (EIA) scoping, through to the completion of detailed design. However, the key components that would form the Proposed Development are outlined below together with the key activities and methodologies that would be undertaken and employed during the construction, operation and maintenance, and decommissioning phases of the Proposed Development. Indicative key parameters and timescales are detailed where possible at this early stage in the design development of the Proposed Development.

2.2 Proposed Development Site Description

Proposed Development Location

2.2.1 The Proposed Development is located near the village of Misson within the administrative area of Bassetlaw District Council (BDC), Nottinghamshire, in the East Midlands region of England. The Site is situated approximately 15 km south-east of Doncaster and approximately 8 km north-west of Gainsborough, close to the administrative boundary between Nottinghamshire and Lincolnshire.

2.2.2 The Site is centred at approximately National Grid Reference (NGR) SK 71327 93614 and occupies land within the Humberhead Levels. The Site comprises approximately 770 Ha of relatively flat agricultural land and is located within a predominantly rural part of north Nottinghamshire. **Figure 2.1 (Volume A)** shows the location of the Site within its local and regional context.

Proposed Development Site and Surrounding Area

2.2.3 The Site is located within Everton Carr, a large, open and low-lying agricultural landscape characteristic of the Humberhead Levels. The Site comprises predominantly arable farmland and is characterised by extensive drainage infrastructure, including a network of managed drains, ditches and watercourses associated with the wider River Idle catchment. The Site is relatively flat, with limited topographical variation, contributing to expansive views across the surrounding agricultural landscape. The area is strongly influenced by agricultural use, historical land drainage and contemporary water management practices, which have shaped the present-day landscape character.

2.2.4 The northern boundary of the Site is defined by the River Idle and its associated washlands. The village of Misson is located immediately to the north-west of the Site and Gringley on the Hill to the south. The wider surrounding area comprises predominantly agricultural land interspersed with scattered farmsteads, rural roads and small settlements.

2.2.5 The Site lies within Flood Zone 3 and is closely associated with the active floodplain of the River Idle. Consequently, the local landscape is characterised by engineered flood management and drainage features which form a prominent component of the surrounding environment. At the wider scale, the Site forms part of the agricultural landscapes of north Nottinghamshire, situated between

Doncaster to the north-west and Gainsborough to the east. The surrounding landscape generally exhibits a strong sense of openness, with limited woodland cover and few prominent topographic features.

2.3 Scoping Boundary

2.3.1 The land potentially required for the Proposed Development at this EIA Scoping stage is illustrated in **Figure 2.1 (Volume A)**.

2.3.2 For the purposes of scoping, this land, referred to as the "Scoping Boundary", captures what the Applicant considers to be the reasonable worst-case scenario in terms of the extent of land required to construct, operate and maintain the Proposed Development. This is to allow design flexibility for the following reasons:

- to take account of ongoing design development;
- to allow for design changes in light of on-going environmental surveys and technical assessments; and
- to take account of feedback received through the stakeholder engagement progress.

2.3.3 The Scoping Boundary includes land required for the principal Proposed Development components, including wind turbines (land take and oversail), access tracks, crane hardstandings, underground electrical and communication cabling, the on-site substation compound, temporary construction compounds, borrow pits (if required), drainage infrastructure, site accesses and associated development.

2.3.4 The design of the Proposed Development will continue to be refined following EIA scoping through to completion of detailed design, and this would lead to the optimisation of the Site boundary in the period up to the submission of the application for development consent. The draft Order Limits, that would be applied for in the application for development consent, would cover sufficient area and depth to enable the Proposed Development to take place and allow the construction contractor reasonable flexibility to alter the precise location of the infrastructure (micro-siting). This flexibility is required so that later detailed design is able to account of localised variations found in ground conditions and thus would enable small changes to the infrastructure locations or location of construction activities within the draft Order Limits. The draft Order Limits would include all permanent infrastructure and would also include all necessary temporary construction works.

2.3.5 Each technical chapter where relevant will refer to a "Study Area" which is the area used for baseline data collection and assessment. This may extend beyond the Scoping Boundary where required to identify relevant receptors and assess the potential for likely significant effects.

2.4 Managing Design Uncertainty and Flexibility

2.4.1 Design uncertainty will be addressed within the development of the Proposed Development by adopting a precautionary approach to identify likely significant effects. This would be achieved through the establishment of a series of maximum development parameters known as a 'design envelope' or using the 'Rochdale Envelope' methodology. Maximum design parameters will be established to define the reasonable worst-case scenario for assessment purposes. The Rochdale

Envelope is an established principle, recognised by the Planning Inspectorate's Pre-Application Advice on Environmental Impact Assessment (2026).

2.4.2 At this stage, elements of the Proposed Development remain subject to ongoing design development, including the precise locations of wind turbines and associated infrastructure, access arrangements, temporary construction compounds, borrow pits and other ancillary development. These details will continue to be refined as environmental surveys, technical assessments and stakeholder engagement progress during pre-application. Therefore, the Proposed Development description is necessarily indicative at this stage to accommodate further refinement prior to submission of the application for development consent.

2.4.3 The ES will present a detailed Proposed Development description and defined design envelope and identify the parameters assessed. Where flexibility remains necessary, assessments will be based on reasonable worst-case assumptions to provide a robust assessment of likely significant environmental effects. The level of flexibility applied to individual components of the Proposed Development will reflect environmental sensitivities and the degree of design certainty available at the time of assessment.

2.4.4 The iterative design process will seek to avoid or minimise environmental effects where practicable, taking account of environmental constraints, engineering requirements, operational considerations and consultation feedback. A micro-siting allowance is likely to be proposed for wind turbines and associated infrastructure and will be included within the design envelope and assessed as part of the EIA.

2.5 Key Components of the Proposed Development

2.5.1 It is currently anticipated that the Proposed Development would comprise the following key components, which are described in further detail in the subsequent sections:

- Up to 16 three-bladed horizontal axis wind turbines with a tip height of up to 220 m, including associated foundations, external transformers and a network of underground electrical and communication cabling routed alongside access tracks and connecting the turbines to the on-site substation.
- Associated development including, but not limited to, crane hard-standing areas at each turbine location, permanent access tracks, watercourse crossings, passing places, turning heads, site access arrangements, borrow pits (subject to the availability of suitable stone within the Site), an on-site substation compound, control building, welfare facilities, , drainage infrastructure, lighting, fencing, security measures and temporary construction compounds, potentially including a concrete batching plant.
- Environmental and ecological mitigation measures, together with landscape, biodiversity and cultural heritage enhancement measures where appropriate.

2.5.2 An indicative Site layout has been developed for the Proposed Development for the purposes of EIA Scoping. The layout has been informed by environmental and technical constraints identified to date, whilst seeking to meet the operational requirements of the Proposed Development. The indicative Site layout is presented in **Figure 2.1 (Volume A)**.

2.5.3 The final selection of turbine model will be determined following procurement and will reflect the turbine technologies available at the time of project delivery. Construction is currently anticipated to commence in 2033, with the Proposed

Development expected to operate for approximately 35 years following commissioning. Subject to any future extension of operational life or repowering of the Proposed Development would subsequently be decommissioned at the end of the consented operational period.

2.5.4 The grid connection infrastructure required to connect the Proposed Development to the wider transmission or distribution network would be subject to a separate consenting process and does not form part of the Proposed Development for which development consent is being sought. This approach has been informed by the fact that engagement with NGED is ongoing with regards to the location of the Proposed Development's point of connection to the wider electricity system. Whilst this engagement will continue during the pre-application period, it is not expected that certainty regarding the location of the point of connection will be obtained timescales that would enable the grid connection to form part of the application for development consent for the Proposed Development. This approach to consenting the offsite grid connection is recognised by, and is consistent with, paragraph 4.11.8 of the Overarching National Policy Statement for Energy (EN-1).

2.5.5 It is anticipated that the Environmental Statement will identify an appropriate grid connection corridor, where sufficient information is available, and will include a robust assessment of any cumulative environmental effects associated with the proposed grid connection infrastructure. Further information is provided in **Sections 2.5.55-2.5.61** below.

Wind Turbines

2.5.6 **Table 2.1** presents the key indicative turbine parameters being considered for scoping purposes, as well as the turbine coordinates for the indicative site layout shown in **Figure 2.1 (Volume A)**.

Table 2-1: Wind Turbine Specifications

Turbine Co-ordinates			Maximum Rotor Diameter (m)	Maximum Hub Height (m)	Maximum Tip Height (m)	Indicative Turbine Capacity (MW)
Turbine ID	Easting	Northing				
WTG1	470802	394219	175	132	219.5	7
WTG2	473583	393536	175	132	219.5	
WTG3	469938	394422	175	132	219.5	
WTG4	470487	393233	175	132	219.5	
WTG5	471034	394590	175	132	219.5	
WTG6	471476	395046	175	132	219.5	
WTG7	469989	393922	175	132	219.5	
WTG8	471988	395860	175	132	219.5	
WTG9	472418	395982	175	132	219.5	
WTG10	470475	393903	175	132	219.5	
WTG11	471167	394136	175	132	219.5	
WTG12	470361	394314	175	132	219.5	
WTG13	473171	393375	175	132	219.5	

Turbine Co-ordinates			Maximum Rotor Diameter (m)	Maximum Hub Height (m)	Maximum Tip Height (m)	Indicative Turbine Capacity (MW)
Turbine ID	Easting	Northing				
WTG14	471833	395426	175	132	219.5	
WTG15	470169	393596	175	132	219.5	
WTG16	472247	393872	175	132	219.5	

2.5.7 An indicative Site layout has been developed for the Proposed Development for the purposes of EIA Scoping. The layout has been informed by environmental and technical constraints identified to date, whilst seeking to meet the operational requirements of the Proposed Development. The indicative Site layout is presented in **Figure 2.1 (Volume A)**.

2.5.8 The indicative Site layout will be subject to ongoing refinement through an iterative design process as the Environmental Impact Assessment (EIA) progresses. The design of the Proposed Development will continue to evolve throughout the pre-application stage in response to environmental surveys, engineering considerations, stakeholder consultation and discussions with statutory consultees. The final layout brought forward as part of the DCO application may therefore differ from the layout presented at the Scoping stage.

Micro-siting

2.5.9 A micro-siting allowance will be sought for the Proposed Development to provide flexibility in the final positioning of Proposed Development infrastructure following the completion of detailed pre-construction surveys and ground investigations. Micro-siting enables limited adjustments to the location of infrastructure within a defined tolerance, allowing for the avoidance or minimisation of environmental, engineering, geotechnical, hydrological or other site-specific constraints that may not be identified until the detailed design and construction stages.

2.5.10 The Proposed Development is anticipated to include a micro-siting allowance for wind turbines and associated infrastructure. The extent of any permitted micro-siting and the circumstances under which it may be applied will be defined within the DCO application and reported in the ES.

2.5.11 The use of micro-siting would not alter the overall nature or extent of the Proposed Development but would provide the flexibility necessary to respond to local ground conditions and site constraints identified through further surveys and investigations undertaken during the detailed design process. Any micro-siting allowance will be considered within the EIA and assessed as part of the Proposed Development envelope.

Wind Turbine Foundations and Hardstandings

2.5.12 The detailed design of the wind turbine foundations will be developed following the selection of the final turbine model and completion of site-specific geotechnical investigations. Foundation design will take account of the ground conditions encountered across the Site, as well as the technical requirements of the turbine manufacturer.

2.5.13 For the purposes of the EIA Scoping Report, a precautionary assumption has been adopted whereby turbine foundations may have a diameter of approximately 20 m. At this stage, and in advance of detailed ground investigations, it is

anticipated that the turbines would be supported by reinforced concrete gravity or piled foundations. The final foundation design, dimensions and construction methodology will be confirmed during the detailed design phase. Foundation construction is expected to require excavation to suitable bearing strata, installation of the reinforced concrete structure and subsequent reinstatement of surrounding ground levels. A portion of each foundation would remain visible above ground level to enable the connection of the turbine tower and accommodate both current and anticipated future hydrological conditions.

2.5.14 Each wind turbine would be served by an adjacent hardstanding area to support construction, operational and maintenance activities. During the construction phase, these areas would provide working platforms for cranes, construction vehicles and the temporary storage and assembly of turbine components prior to installation.

2.5.15 The size and configuration of the hardstandings would be determined during detailed design and would vary depending on the turbine supplier, their installation requirements and preferred construction methodology. For the purposes of the EIA Scoping Report, it is assumed that each hardstanding could comprise a permanent crane pad of approximately 2,400 m², together with temporary laydown and ancillary working areas of approximately 2,750 m².

2.5.16 Temporary working areas required for turbine erection, including blade storage areas and auxiliary crane platforms, would be removed following completion of construction and the land reinstated as appropriate. The permanent crane pad would remain for the duration of the operational life of the Proposed Development, providing access for routine maintenance, major component replacement and, ultimately, decommissioning activities at the end of the Proposed Development 's operational period.

Aviation Lighting

2.5.17 Given the proposed maximum turbine tip height of up to 220 m, the wind turbines are anticipated to require aviation lighting in accordance with the requirements set out in the Air Navigation Order (ANO) 2016, as amended, CAA Policy and any MOD requirements in force at the time of consent and construction. The precise specification, location and operational characteristics of any aviation lighting would be determined through ongoing consultation with relevant stakeholders, including civil and military aviation interests.

2.5.18 Opportunities to implement an aviation lighting mitigation strategy, such as a reduced-intensity lighting system, will be explored where technically feasible and subject to the agreement of the relevant aviation authorities. The final aviation lighting strategy will be presented within the DCO application and assessed, where required, within the ES.

Artificial Lighting

2.5.19 Temporary artificial lighting may be required during the construction phase of the Proposed Development to support safe working practices during periods of low natural light and to facilitate specific construction activities. Lighting requirements may include illumination associated with construction compounds, plant and machinery, vehicle movements, welfare facilities and other temporary work areas.

2.5.20 Any construction lighting would be designed and managed to minimise light spill beyond the active working areas. Where practicable, lighting would be directed away from nearby properties, transport routes, ecological receptors and other

sensitive features. Appropriate mitigation measures, such as directional lighting, shielding and the use of lower-intensity luminaires, would be incorporated to reduce potential effects on the surrounding area.

2.5.21 The requirement for operational lighting is expected to be limited, with permanent lighting generally restricted to essential health, safety and security purposes associated with Proposed Development infrastructure. The detailed lighting strategy for both the construction and operational phases will be developed as the design progresses and will be described and assessed, as necessary, within the ES.

Underground and On-Site Electrical Cabling

2.5.22 Each wind turbine would be connected to the on-site substation through a network of underground electrical cables located within the Site. The cable network would also accommodate communication infrastructure and earthing cables required for the operation of the Proposed Development.

2.5.23 The cables would generally be installed within excavated trenches, with the cable route expected to follow the internal access track network where practicable. Where cable routes intersect access tracks, hardstandings or other infrastructure, suitable ducts or protective conduits would be used to facilitate installation and protect the cabling system.

2.5.24 The detailed alignment of the underground cable network would be developed during the design process and would take account of environmental, engineering and operational considerations.

Site Access

2.5.25 Access to the Proposed Development will be required throughout the construction, operational and decommissioning phases. During construction, access will be necessary for the delivery of wind turbine components, construction materials, plant and equipment, as well as for workforce and general construction traffic. At this stage, access to the Site is currently anticipated to be taken from three potential points of access:

- A631 to the west of Gringley on the Hill and before Everton Village;
- Everton Sluice Lane (off A631 in the village of Everton); and
- Idle Bank (via Westgate to the north of the Site).

2.5.26 Turbine components are likely to be transported from the Port of Immingham. The proposed construction access strategy and preferred routeing of abnormal indivisible loads (AILs) will be developed as the design process progresses.

2.5.27 The provision of Site access may require modifications to the existing highway network, including the creation of permanent and/or temporary access points and any associated highway improvement works necessary to safely accommodate construction traffic. The nature and extent of any highway works will be determined through consultation with the relevant Highway Authority and informed by detailed transport assessments undertaken during the EIA process. Any areas required for substantive works will be included in the draft Order Limits, which may include areas along the main access route between the port of entry and main site, to facilitate AIL over-run and over-sail areas.

2.5.28 A Construction Traffic Management Plan (CTMP) will be prepared to set out the proposed traffic management measures, construction traffic routes, abnormal load

delivery arrangements and other measures designed to manage potential effects on the local and strategic highway network.

2.5.29 The Proposed Development may also include temporary construction haul routes and internal access infrastructure to facilitate the movement of construction vehicles within the Site and minimise the use of local roads where practicable. The location, alignment and design of any such infrastructure will be developed through an iterative design process taking account of environmental, engineering and landownership considerations.

2.5.30 The final access strategy, including any highway modifications, temporary traffic management measures and internal haul routes, will be refined as the EIA progresses and informed by detailed technical assessments, stakeholder engagement and consultation with relevant Prescribed Bodies. Further details will be provided within the ES.

Access Tracks

2.5.31 A network of internal access tracks would be constructed to provide access to the wind turbine locations and associated infrastructure throughout the construction, operational and decommissioning phases of the Proposed Development. The access track network would facilitate access to key components of the Proposed Development, including turbine locations, the on-site substation compound, temporary construction compounds, borrow pits (if required) and other ancillary infrastructure.

2.5.32 The access tracks would be designed to accommodate the transportation of turbine components, construction materials, plant and maintenance vehicles. The track design would ensure that the network is capable of supporting the anticipated vehicle loads and operational requirements over the lifetime of the Proposed Development. Passing places and turning areas may be incorporated where necessary to facilitate the safe movement of vehicles within the Site.

2.5.33 The alignment and design of individual sections of access track would be developed through the iterative design process, taking account of local environmental and engineering constraints. Considerations are expected to include existing drainage features, ground conditions, watercourse crossings, ecological sensitivities, flood risk requirements, construction feasibility and operational access needs. The design process would seek to minimise disturbance to existing land uses and environmental features whilst maintaining safe and efficient access across the Site.

2.5.34 Construction materials for the access track network may be sourced from on-site borrow pits, subject to the availability and suitability of material within the Site. Where on-site sources are not available or appropriate, construction materials would be imported from suitable off-site suppliers.

2.5.35 The access track network would remain in use throughout the operational life of the Proposed Development to facilitate routine inspection, maintenance and repair activities, as well as providing access for decommissioning works at the end of the operational period.

Watercourse Crossings

2.5.36 The layout of the Proposed Development will seek to minimise interactions with existing watercourses and drainage features where practicable. However, given the extensive network of drains, ditches and watercourses present across the Site,

a number of watercourse crossings are likely to be required to facilitate access to Proposed Development infrastructure and maintain connectivity across the Site.

2.5.37 The design process will seek to avoid or minimise potential effects on the hydrological regime and water environment through careful routing of access tracks and associated infrastructure. Appropriate stand-off distances from watercourses will be maintained where practicable and in accordance with relevant guidance and regulatory requirements. Exceptions to these stand-off distances may be required where watercourse crossings are necessary and cannot reasonably be avoided.

2.5.38 The location, number and design of watercourse crossings will be developed during the detailed design stage and informed by site-specific hydrological, hydraulic, ecological and engineering considerations. The selection of crossing types, which may include culverts, bridges or other suitable structures, will take account of local conditions and operational requirements.

2.5.39 The detailed design of all watercourse crossings will be undertaken in consultation with the relevant regulatory authorities, including the Environment Agency, Lead Local Flood Authority (LLFA) and other relevant stakeholders as appropriate. Further information on the proposed crossing arrangements and any associated mitigation measures will be provided within the ES.

Borrow Pits

2.5.40 Borrow pits may be developed within the Site to provide suitable construction materials for the Proposed Development, subject to the availability of sufficient quantities of appropriate material. Material extracted from borrow pits could be used in the construction of Proposed Development infrastructure, including access tracks, crane hardstandings, construction compounds and other ancillary development. The use of on-site materials, where feasible, would help reduce the volume of imported aggregate required and minimise construction traffic associated with the transportation of materials to the Site.

2.5.41 At this stage, the requirement for borrow pits, together with their size, location and capacity, has not been determined. The suitability of on-site materials will be established through further ground investigations and engineering assessments undertaken as part of the iterative design process. Potential borrow pit locations will be identified following consideration of environmental, technical and operational constraints.

2.5.42 Where borrow pits are proposed, details of their location, extent, extraction volumes and restoration proposals will be presented within the ES. The assessment will also consider the potential environmental effects associated with borrow pit excavation and operation, together with any necessary mitigation measures.

2.5.43 Measures to minimise potential impacts on the surrounding environment during borrow pit construction and operation would be incorporated into the CEMP. These measures may include controls relating to surface water management, erosion and sediment control, pollution prevention, restoration and reinstatement of excavated areas, and the management of construction activities during and following extraction operations.

Temporary Construction Compounds

2.5.44 Temporary construction compounds would be established for the duration of the construction phase to support the delivery of the Proposed Development. These compounds would provide a central location for construction management, storage and welfare facilities required during the works.

2.5.45 The temporary construction compounds are expected to accommodate a range of facilities, which may include:

- temporary site offices, meeting rooms and administrative facilities;
- workforce welfare and welfare support facilities;
- parking areas for construction personnel, visitors and service vehicles;
- site reception and security facilities;
- fuel storage and refuelling facilities, where required;
- secure storage areas for plant, equipment and construction materials; and
- waste management, storage and recycling facilities.

2.5.46 The temporary construction compounds would be secured to prevent unauthorised access and may incorporate temporary lighting, security infrastructure and other operational facilities necessary to support construction activities.

2.5.47 Following completion of construction and commissioning of the Proposed Development, the temporary compounds would be dismantled and removed. The land would subsequently be reinstated in accordance with the agreed restoration strategy and any relevant planning or environmental requirements.

2.5.48 The location, size and layout of the temporary construction compounds have not yet been finalised and will be determined through the ongoing design process. The selection of compound locations will take account of environmental, technical and operational considerations, including existing land use, drainage infrastructure, access requirements, sensitive receptors, ecological constraints and construction logistics. Details of the proposed construction compounds and any associated mitigation measures will be presented within the ES.

Batching Plant

2.5.49 At this stage, it has not been confirmed whether concrete would be produced on-site during the construction phase of the Proposed Development. Should on-site concrete production be required, a temporary concrete batching plant may be established within the Site to support construction activities and reduce the transportation of ready-mix concrete from off-site suppliers.

2.5.50 The requirement for, and location of, any concrete batching plant would be determined as the design develops, and construction requirements are refined. If required, the batching plant may include the following components:

- cement and aggregate storage facilities;
- concrete mixing and batching equipment;
- vehicle and equipment washout facilities;
- material testing and quality control facilities;
- water supply infrastructure; and

- waste storage and management areas.

On-Site Substations(s)

2.5.51 An on-site substation compound would be required to facilitate the connection of the Proposed Development to the electricity network. The compound would accommodate the electrical infrastructure necessary for the collection, control and export of electricity generated by the wind farm, including transformers, switchgear, protection and control systems, a control building, parking facilities and other ancillary equipment. The internal layout of the substation compound would be developed as the design progresses and presented within the ES.

2.5.52 Construction of the substation compound is anticipated to require reinforced concrete foundations, where necessary, to support buildings and electrical infrastructure. The type and specification of foundations would be informed by site-specific ground conditions and engineering requirements. Foundation designs would vary according to the size, weight and operational function of the individual structures and equipment to be installed.

2.5.53 The substation compound would be secured by perimeter fencing, which may comprise palisade fencing or a similar arrangement, with a height of up to approximately 2.7m. Access to the compound would be controlled and additional security measures, such as CCTV, may be provided. Operational and security lighting may also be required, with appropriate measures incorporated into the design to minimise light spill beyond the Site boundary.

2.5.54 Access to the substation compound would be provided via the internal access track network associated with the Proposed Development.

Grid Connection

2.5.55 The electrical connection associated with the Proposed Development can be broadly divided into two distinct elements:

- **Proposed Development -specific electrical infrastructure**, comprising the electrical infrastructure required to connect the wind turbines to the on-site substation, including underground electrical and communication cables within the Site boundary.
- **Offsite Grid Connection Infrastructure**, comprising the infrastructure required to connect the Proposed Development to the wider electricity transmission or distribution network.

2.5.56 The Proposed Development -specific electrical infrastructure forms part of the Proposed Development and will be included within the application for development consent and assessed within the EIA.

2.5.57 Discussions to date with NGED regarding the offsite grid connection infrastructure have centred on the existing West Burton Substation as a potential point of connection between the Proposed Development and the wider electricity system. This remains subject to further engagement with, and confirmation from, NGED. Accordingly, any route alignment associated with the grid connection to the Proposed Development's point of connection, together with the detailed design and technology to be employed, has not yet been determined and would be subject to separate detailed appraisal, assessment and stakeholder engagement, led by NGED. The information currently available suggests the most likely scenario is an underground cable together with associated infrastructure.

2.5.58 The Offsite Grid Connection is not, as noted, expected to form part of the application for development consent for the Proposed Development and would instead be promoted, designed and consented separately. The Offsite Grid Connection would therefore be subject to its own applicable consenting and environmental assessment requirements in these circumstances.

2.5.59 In addition, the relationship between the offsite grid connection and the Proposed Development would be considered cumulatively as part of the EIA. The assessment will be undertaken at a level proportionate to the information reasonably available to the Applicant regarding the Offsite Grid Connection at the time the ES is prepared.

2.5.60 On the basis of the information available, the assessment will use an identified grid connection corridor and available desk-based environmental information to consider, on a topic-by-topic basis, whether the Proposed Development, together with the Offsite Grid Connection, could give rise to relevant indirect, secondary, cumulative or other significant environmental effects. Where detailed information regarding the Offsite Grid Connection is unavailable, the assessment will clearly identify the assumptions made and any limitations arising from the maturity of the proposals. Reasonable precautionary assumptions will be adopted where appropriate and where these can be established from the available information.

2.5.61 The Applicant will keep the available information regarding the Offsite Grid Connection under review as the Proposed Development progresses. The approach to its consideration within the ES will also take account of the Scoping Opinion and any relevant engagement with the Planning Inspectorate, statutory environmental bodies, the relevant network operator and other consultees.

Off-Site Highways Works

2.5.62 The construction of the Proposed Development would require the transportation of wind turbine components and other oversized equipment to the Site using AIL vehicles. At this stage, turbine components are anticipated to be delivered via the Port of Immingham, although the final port of entry and transportation arrangements will be confirmed as the design and procurement processes progress.

2.5.63 Potential delivery routes between the port of entry and the Site will be identified and assessed as part of the ongoing design and EIA process. The selection of preferred routes will be informed by discussions with the relevant highway authorities, statutory consultees and other stakeholders, taking account of route suitability, safety considerations, engineering constraints and potential environmental effects.

2.5.64 Route assessments will also consider whether any temporary or permanent highway modifications are required to accommodate AIL movements. Such works may include junction improvements, localised road widening, management of street furniture, temporary traffic management measures, oversailing requirements and other modifications necessary to facilitate the safe transport of turbine components to the Site.

2.5.65 The Site boundary and associated development parameters may be refined as the Proposed Development design evolves. Should highway improvements or access modifications be required to facilitate AIL deliveries, the extent of land required for such works will be confirmed through the design process and reflected within the proposed Order Limits. The final Site boundary to be assessed within the ES will be defined prior to submission of the DCO application.

2.6 Construction Phase

Construction Approach

2.6.1 Subject to development consent being granted, construction of the Proposed Development is currently anticipated to commence in 2033. The duration of the construction programme has not yet been confirmed and is expected to be approximately 18-24 months, depending on the final design, construction methodology and programme requirements.

2.6.2 Construction activities are anticipated to include, but would not be limited to, the following:

- site preparation works, including vegetation clearance, earthworks, drainage works and ground preparation activities;
- formation and upgrading of Site access points and associated highway works, where required;
- formation of temporary construction compounds, including welfare facilities, offices, storage areas, parking and construction laydown areas;
- formation of borrow pits, if required and subject to the availability of suitable materials within the Site;
- construction of the internal access track network, including watercourse crossings, passing places, turning heads and other associated infrastructure;
- excavation and construction of wind turbine foundations and other supporting infrastructure;
- installation of underground electrical and communication cabling throughout the Site;
- construction of the on-site substation compound and associated electrical infrastructure;
- delivery and installation of wind turbine components, including towers, nacelles and blades, using specialist lifting equipment and AILV; and
- testing, commissioning and energisation of the Proposed Development prior to operation.

2.6.3 A detailed construction programme, together with information on construction methodologies, workforce requirements and management measures, will be provided within the ES.

Construction Hours

2.6.4 Construction activities associated with the Proposed Development are expected to be undertaken during standard daytime working hours. At this stage, core construction working hours are anticipated to be 07:00 to 19:00 Monday to Friday and 07:00 to 16:00 on Saturdays, with no routine working expected on Sundays or Public Holidays.

2.6.5 Certain construction activities may, however, need to take place outside of these hours due to practical, operational or safety requirements. Such activities could include the delivery of AILs, specific concrete works, turbine erection activities, commissioning works, or other operations that are constrained by weather conditions, road network requirements or technical considerations.

2.6.6 The final construction hours and any requirements for out-of-hours working will be confirmed as the design and construction programme develop. Where activities outside the standard working hours are required, appropriate notification procedures and management measures will be implemented in consultation with the relevant local authorities and other relevant stakeholders, as appropriate.

2.6.7 Measures to communicate construction activities to nearby receptors, including any planned out-of-hours works or abnormal load deliveries, will be outlined within the CEMP and other relevant construction management documents.

Construction Environmental Management

2.6.8 A series of environmental management plans would be prepared to manage and control potential environmental effects associated with the construction phase of the Proposed Development. These plans would establish the procedures, mitigation measures and good practice controls required to ensure construction activities are undertaken in accordance with relevant legislation, regulatory requirements and commitments identified through the EIA process.

2.6.9 The environmental management plans are expected to cover a range of environmental topics; however, the list remains subject to ongoing design development and environmental assessment. Additional plans, mitigation measures or management requirements may be identified as the Proposed Development evolves and would be reported within the ES.

2.7 Construction Environmental Management Plan

2.7.1 A CEMP would be prepared to establish the framework for the environmental management of the Proposed Development during the construction phase. The CEMP would set out the procedures, mitigation measures and good practice controls that would be implemented to avoid, minimise and manage potential environmental effects arising from construction activities. The CEMP would provide the overarching framework for the delivery of more detailed topic-specific management plans.

2.7.2 The CEMP would define the roles and responsibilities of personnel responsible for environmental management during construction, including appropriately qualified environmental and ecological specialists responsible for overseeing compliance with environmental commitments, mitigation measures and relevant legislative requirements.

2.7.3 The CEMP, in outline form (outline CEMP), would be developed alongside the EIA and submitted as part of the DCO application. The outline CEMP would establish the principles and commitments that would be incorporated into the final CEMP following consent.

2.7.4 It is likely that a number of topic specific environmental plans would be provided, in outline form, as appendices to the outline CEMP, however, this would be reviewed and updated as necessary through the EIA process:

- outline Pollution Prevention and Emergency Incident Response Plan (outline PPEIRP) - setting out pollution prevention measures and emergency response procedures to be implemented during construction;
- outline Soil Management Plan (outline SMP) - detailing measures for the handling, storage, protection and reinstatement of soils;

- subject to the identification of any peat and potential disturbance by the Proposed Development, a Peat Management Plan (PMP) will be prepared to outline the overall approach to minimising disruption to peatland present on Site
- outline Materials Management Plan (outline MMP) - setting out procedures for the efficient management and reuse of excavated materials and construction resources;
- outline Dust Management Plan (outline DMP) - identifying measures to minimise and control dust emissions generated during construction activities;
- outline Site Waste Management Plan (outline SWMP) - outlining arrangements for the segregation, storage, transport and disposal of construction waste;
- outline Biosecurity and Invasive Non-Native Species Management Plan (outline BIMP) - setting out measures to prevent the introduction and spread of invasive non-native species within the Site;
- outline Bird Disturbance Management Plan (outline BDMP) - identifying measures to protect nesting, breeding and overwintering birds during construction activities; and
- any other topic-specific management plans identified through the EIA process, consultation and detailed design development.

2.7.5 Production of the final CEMP would be secured through a Requirement in the DCO, stipulating the final document must be implemented substantially in accordance with the outline CEMP.

2.8 Construction Traffic and Transport Management Plan

2.8.1 The movement of construction personnel, materials, plant and equipment associated with the Proposed Development would require careful management to minimise potential effects on the local and strategic highway network. Traffic management measures would be set out within a CTMP, which would be developed in consultation with the relevant Highway Authorities and other stakeholders, as appropriate.

2.8.2 The CTMP would establish the measures to be implemented during construction to manage the movement of construction traffic, including Heavy Goods Vehicles (HGVs), AILs, workforce traffic and deliveries associated with the Proposed Development. The CTMP would seek to minimise disruption to local communities and road users, maintain highway safety and reduce potential impacts on the operation of the surrounding road network.

2.8.3 The CTMP would include details of construction traffic routing, traffic management measures, AIL delivery arrangements, construction access points, workforce travel arrangements and any temporary highway works, or traffic restrictions required to facilitate construction activities. The document would also set out procedures for communication with relevant stakeholders and management of traffic-related issues during construction.

2.8.4 The CTMP, in outline form (outline CTMP), would be developed alongside the EIA as a key construction management document and would form part of the DCO application. Production of a final version of the CTMP would be secured through a Requirement in the DCO, stipulating the final document must be implemented substantially in accordance with the outline CTMP.

2.9 Public Access Management Plan

2.9.1 A Public Access Management Plan (PAMP) would be prepared to set out the approach to managing interactions between the Proposed Development and members of the public, including users of Public Rights of Way (PRoW), permissive routes and other publicly accessible areas within and surrounding the Site.

2.9.2 The PAMP would seek to maintain public safety, minimise disruption to existing access arrangements where reasonably practicable and provide appropriate information regarding temporary restrictions or diversions required during construction. The plan would also identify measures to manage public access during the operational and decommissioning phases of the Proposed Development, where appropriate.

2.9.3 The PAMP, in outline form (outline PAMP), would be developed alongside the EIA as a key access management document and would form part of the DCO application. Production of a final version of the PAMP would be secured through a Requirement in the DCO, requiring the final document to be implemented substantially in accordance with the outline PAMP.

2.10 Landscape and Ecology Management Plan

2.10.1 In addition to the outline CEMP and associated construction management plans, the DCO application is anticipated to include proposals for the long-term management of landscape, biodiversity and ecological resources associated with the Proposed Development. These measures would seek to avoid, reduce, mitigate or compensate for potential effects identified through the EIA and deliver environmental enhancement opportunities where appropriate.

2.10.2 The management proposals would be presented in an outline Landscape and Ecology Management Plan (LEMP), which would set out the principles for habitat management, ecological mitigation, biodiversity enhancement and landscape reinstatement during the construction, operational and, where relevant, decommissioning phases of the Proposed Development.

2.10.3 The outline LEMP would be developed alongside the EIA and submitted as part of the DCO application. The document would establish the objectives, management measures and monitoring requirements necessary to support the delivery of ecological and landscape commitments identified through the EIA process.

2.10.4 The production of a final version of the LEMP would be secured through a Requirement in the DCO, stipulating that the final document must be implemented substantially in accordance with the outline LEMP. A detailed Habitat Management Plan (HMP) may subsequently be prepared and secured as a Requirement in the DCO linked to the LEMP, to provide detailed prescriptions for habitat management, monitoring and long-term biodiversity objectives during operation.

2.10.5 Consultation is anticipated with Natural England to confirm the detail in respect of meeting statutory requirements for Biodiversity Net Gain (BNG).

2.11 Operation and Maintenance Phase

Duration

2.11.1 Subject to development consent being granted, the Proposed Development is anticipated to become operational following completion of construction and

commissioning activities, with an approximate year to commence operation scheduled in 2035. The Proposed Development is expected to have an operational life of approximately 35 years from the date of commissioning, after which it would be decommissioned unless a further consent is obtained to extend the operational period or repower the Site.

2.12 Operation and Maintenance Phase On-Site Activities and Management

2.12.1 During the operational phase, activities within the Site would be limited in nature and extent when compared with the construction phase. The wind turbines and associated electrical infrastructure would operate automatically and would be subject to remote monitoring and control.

2.12.2 Routine site visits would be undertaken as required to inspect, operate and maintain the wind turbines, substation compound, underground electrical network, access tracks, drainage infrastructure and other ancillary infrastructure associated with the Proposed Development. Maintenance activities may include periodic inspections, testing, servicing, repair works and the replacement of equipment or components where necessary.

2.12.3 Additional site management activities may also be undertaken throughout the operational life of the Proposed Development. These could include vegetation management, maintenance of drainage features, environmental monitoring activities and the implementation of any mitigation, compensation or enhancement measures secured through the DCO.

2.12.4 Access to operational infrastructure would be provided via the internal access track network developed as part of the Proposed Development. Operational traffic levels are anticipated to be low and would generally be associated with routine maintenance, inspection activities and occasional specialist maintenance works.

2.13 Operational Environmental Management Plan

2.13.1 An Operational Environmental Management Plan (OPEMP), in outline form (outline OPEMP), would be developed alongside the EIA to establish the framework for environmental management during the operational life of the Proposed Development. The outline OPEMP would describe the overarching principles, procedures and mitigation measures through which environmental effects associated with the operation and maintenance of the Proposed Development would be managed.

2.13.2 The outline OPEMP would set out how environmental commitments identified through the EIA and secured through the DCO would be implemented, monitored and maintained throughout the operational phase. The document would also establish responsibilities for environmental management and identify procedures for monitoring, reporting and reviewing environmental performance.

2.13.3 Production of a final OPEMP would be secured through a Requirement in the DCO, stipulating that the final document must be implemented substantially in accordance with the outline OPEMP.

2.13.4 It is anticipated that the outline OPEMP may comprise a suite of topic-specific management plans and operational mitigation measures, including but not limited to:

- an Operational Waste Management Plan (OWMP);

- operational pollution prevention and incident response procedures;
- a LEMP;
- environmental monitoring requirements; and
- any other operational mitigation, management or enhancement measures identified through the EIA process.

2.13.5 Each plan would establish the principles and procedures required to manage operational risks, protect environmental receptors and deliver environmental commitments throughout the operational life of the Proposed Development.

2.14 Community Benefit

2.14.1 The Government's Community Benefits Guidance for Onshore Wind in England (2025) sets an expectation that qualifying projects provide community benefits to host communities. However, the Applicant notes that community benefits remain voluntary, are separate from the planning system and are not material planning considerations in the determination of planning applications.

2.14.2 Should the Proposed Development receive development consent, the Applicant would support the community to establish a Community Benefit arrangement that supported local neighbouring community priorities. The Applicant would continue to engage with local communities and other stakeholders to understand local needs through a paced and measured dialogue that would determine how any community benefit arrangements could best support the area.

2.14.3 The purpose and structure of Community Benefit will be discussed at the appropriate time with the community which tends to be within the development window of the Proposed Development, before submission into planning. This community conversation is to understand the needs and aspirations of the neighbouring communities. Community benefit funding will be linked to the installed generating capacity of the Proposed Development, which is currently anticipated to comprise up to 16 wind turbines with an installed capacity of up to 112 MW.

2.14.4 The applicant will support and facilitate local communities, to have meaningful conversations about priorities, allocation and structure of any funds, resulting in agreement across all parties. This process can take time, however it is important that anything that is developed, ensures benefits are delivered against agreed local priorities and community objectives.

2.14.5 Details of community benefit discussions and their development will be provided as the Proposed Development progresses but are outside the scope of the EIA.

2.15 Decommissioning Phase

2.15.1 At the end of its operational life, the Proposed Development would be decommissioned unless a further consent is obtained to extend the operational period or to repower the Site. The operational life of the Proposed Development is currently anticipated to be approximately 35 years from commissioning.

2.15.2 The duration and methodology of decommissioning activities have not yet been determined and will be developed closer to the end of the operational life of the Proposed Development. Decommissioning activities are expected to be undertaken in accordance with relevant legislation, guidance and industry good practice applicable at the time.

2.15.3 Decommissioning is anticipated to include the removal of wind turbines, above-ground electrical infrastructure, the on-site substation compound and associated ancillary infrastructure. Foundations, hardstandings, access tracks and underground cabling may be removed in full or in part, depending on environmental considerations, landowner requirements, regulatory requirements and best practice applicable at the time of decommissioning.

2.15.4 Materials arising from decommissioning activities would be reused, recycled or disposed of appropriately in accordance with the waste management requirements in force at the time. Land disturbed during decommissioning would be reinstated, where required, in accordance with an approved restoration strategy.

2.15.5 In 2021, Vattenfall committed to an immediate landfill ban and set a goal to recycle 50 per cent of all wind turbine blades from its owned wind farms by 2025, with a target of 100 per cent by 2030. Building on this commitment, the company is now incorporating nacelle canopies and nose cones into its strategy, enforcing an immediate ban on landfilling these materials. The expanded target is already being integrated into existing wind farm decommissioning contracts.

2.15.6 The detailed decommissioning methodology and associated environmental management measures would be set out within a Decommissioning Plan prepared closer to the end of the operational life of the Proposed Development.

2.16 Decommissioning Plan

2.16.1 A Decommissioning Plan would be prepared to set out the approach to the removal of the Proposed Development at the end of its operational life, unless consent is obtained to extend the operational period. The Decommissioning Plan would establish the principles, mitigation measures and management procedures required to avoid, minimise and manage potential environmental effects associated with decommissioning activities.

2.16.2 The Decommissioning Plan would describe the anticipated decommissioning methodology, including the removal of above-ground infrastructure, management of materials and waste, reinstatement of land and any environmental protection measures required during the decommissioning phase. The plan would also identify any assessment, monitoring or consultation requirements necessary at the time of decommissioning.

2.16.3 An outline Decommissioning Plan would be prepared as part of the DCO application and would establish the principles to be followed when the final Decommissioning Plan is developed. Production of a final version of the Decommissioning Plan would be secured through a Requirement in the DCO, requiring the final document to be implemented substantially in accordance with the outline Decommissioning Plan and relevant legislation, guidance and best practice applicable at the time of decommissioning.

2.17 Site Selection, Consideration of Alternatives and Design Evolution

2.17.1 Schedule 4, paragraph 2 of the Infrastructure Planning (Environmental Impact Assessment) Regulations (the EIA Regulations 2017) requires the ES to contain:

"A description of the reasonable alternatives (for example in terms of development design, technology, location, size and scale) studied by the developer, which are relevant to the proposed project and its specific characteristics, and an indication

of the main reasons for selecting the chosen option, including a comparison of environmental effects."

2.17.2 National Policy Statement for Renewable Energy Infrastructure (EN-3) (Department for Energy Security and Net Zero 2025) acknowledges that there may be several factors influencing site selection by an applicant. Including but not limited to, predicted wind speed, proximity to dwellings, accessibility, and public rights of way. EN-3 (Department for Energy Security and Net Zero 2025) also identifies that the siting of an onshore wind farm and its design evolution will be influenced by a range of technical considerations that inform site layout design and appearance, such as topography, environmental designations, geological conditions, landscape and visual designations, and ecological and ornithological interest.

2.17.3 The EIA Regulations 2017 do not require consideration of alternatives; but where reasonable alternatives have been considered these should be described within the ES. In particular, the ES should explain the reasons for the chosen site selection and design approach, including a comparison of the likely significant environmental effects of the selected option against any reasonable alternatives identified.

Proposed Approach

2.17.4 A detailed description of the site selection process, design evolution and consideration of reasonable alternatives would be presented within the ES. This would include the rationale for selecting the Site and the iterative design process undertaken during the pre-application stage to develop the Proposed Development having regard to environmental, technical, engineering and commercial considerations.

2.17.5 For the Proposed Development, consideration of alternatives is anticipated to include different site layouts, turbine numbers, turbine dimensions and locations, infrastructure siting, access arrangements and other design refinements identified through the iterative EIA process. The assessment of alternatives will also reflect consultation feedback received from statutory consultees, local authorities, stakeholders and local communities. An appraisal of the alternatives considered will be presented to explain the rationale for the design taken forward within the DCO application.

2.17.6 A 'do nothing' or 'no development' scenario, whereby the Proposed Development is not constructed, is not considered to represent a reasonable alternative because it would not meet the Proposed Development 's principal objective of generating renewable electricity and contributing towards national and local decarbonisation targets. As such, this scenario would not be assessed as a reasonable alternative within the ES. However, future environmental conditions in the absence of the Proposed Development would be considered as part of the future baseline for each environmental topic and would provide the basis against which the likely significant effects of the Proposed Development are assessed.

2.17.7 Where aspects of the Proposed Development remain subject to further design development at the time of submission of the DCO application, the EIA will adopt a precautionary approach and assess the likely significant effects based on the reasonable worst-case scenario. This approach will accord with the principles of the 'Rochdale Envelope' and relevant Planning Inspectorate guidance relating to design flexibility within the Nationally Significant Infrastructure Project (NSIP) consenting process.

3. Approach to EIA

3.1 Introduction

3.1.1 Environmental Impact Assessment (EIA) is a structured process for identifying, predicting and evaluating the likely beneficial and adverse significant effects of a proposed project. Through the EIA, environmental information is systematically gathered and assessed, which promotes the early identification and evaluation of potential effects. This information enables appropriate mitigation measures to be identified and incorporated into the design of the development. The information compiled during the EIA is presented in an Environmental Statement (ES) which accompanies the application for consent and supports the determining authority in the decision-making process.

3.1.2 EIA is an iterative process and typically, a number of design iterations take place in response to environmental constraints and feedback received during the preparation of the EIA prior to the final design being defined. This will be important for the Proposed Development as the design and layout are still being refined. Further changes are expected following submission of this Scoping Report.

3.1.3 This chapter sets out the proposed approach to the EIA for the Proposed Development, noting that for specific environmental topics a different approach may be adopted where prevailing standards, thresholds and/ or established criteria exist. Where this is the case, this is identified in the topic specific chapters (**Chapters 5 to 17**) of this Scoping Report. In all cases, the approach to EIA will be developed and refined in response to engagement with relevant stakeholders.

3.1.4 The approach to EIA for the Proposed Development and the production of the ES will be prepared in compliance with the requirements of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (Infrastructure Planning EIA Regulations 2017 2017) (“Other environmental topics (includes Telecommunications, Utilities, Shadow Flicker, Major Accidents & Disasters, Material Assets and Waste”) and with due regard to the relevant advice notes prepared by the Planning Inspectorate, including:

- Nationally Significant Infrastructure Projects: Advice on the Preparation and Submission of Application Documents (Planning Inspectorate 2026);
- Nationally Significant Infrastructure Projects: Pre-Application Advice on Environmental Impact Assessment (Planning Inspectorate 2026); and
- Nationally Significant Infrastructure Projects: Advice on Cumulative Effects Assessment (CEA) (Planning Inspectorate 2026).

3.2 The EIA Process

3.2.1 The EIA process follows a series of stages:

Scoping

3.2.2 The purpose of scoping is to ensure the EIA focuses on the likely and relevant significant environmental effects of the Proposed Development, drawing on the identification of sensitive environmental receptors and agreement of the EIA scope.

Baseline Data Collection

3.2.3 This stage involves undertaking desk and field surveys to provide information on the current environmental conditions, against which the impacts of the Proposed Development will be measured.

Assessment

3.2.4 Impact assessment is undertaken to predict and evaluate the likely beneficial and adverse significant effects of the Proposed Development on the surrounding environment during the construction, operation and maintenance, and decommissioning phases.

Mitigation, Enhancement and Design Iteration

3.2.5 Measures are identified and proposed to avoid, minimise, compensate for, or provide enhancement in relation to predicted likely significant effects. These measures form part of the iterative EIA process and will feed back into refinements to the design of the Proposed Development.

Preparation of the ES

3.2.6 The findings of the EIA process are collated to produce the ES. This includes outlining the design evolution process, the assessment outcomes for each environmental topic, any mitigation measures proposed, further monitoring required, and the management of potential environmental effects. The ES would accompany the application for development consent.

3.3 EIA Scoping

3.3.1 The EIA scoping process identifies which aspects of the environment are likely to be significantly affected by the Proposed Development. This involves determining:

- the environmental and human receptors that could be significantly affected by the Proposed Development; and
- the work required to undertake assessment of these potential significant effects in detail.

3.3.2 Relevant stakeholders are invited to provide feedback on the proposed EIA scope for the Proposed Development, including on topics that are proposed to be included and excluded (‘scoped in’ and ‘scoped out’), the assessment methodologies, and the receptors identified.

3.3.3 The approach adopted in preparing this Scoping Report has been guided by Nationally Significant Infrastructure Projects: Pre-Application Advice on Environmental Impact Assessment (Planning Inspectorate 2026) and reflects the requirement of the EIA Regulations that the ES focuses on those aspects of the environment that are likely to be subject to significant effects. Accordingly, this Scoping Report seeks, where appropriate and with suitable justification, to scope out certain matters from further assessment. This ensures the EIA remains proportionate and targeted, consistent with the Institute of Sustainability and Environmental Professionals’ (ISEP) (formerly the Institute of Environmental Management and Assessment (IEMA)) Delivering Proportionate EIA guidance document.

3.3.4 An Artificial Intelligence (AI) Statement of usage which describes what, if any, AI tool has been used for each technical topic, the purpose which used it was used for, and the verification applied is included in **Appendix 3B (Volume B)**.

3.4 Rochdale Envelope Approach

3.4.1 During the early stages of scheme design, certain aspects may remain subject to change, as set out in the Inspectorate's pre- application EIA guidance (Planning Inspectorate 2026). Design uncertainty will be managed within the EIA by applying a precautionary approach to the identification of significant environmental effects, using a defined set of maximum development parameters, known as a 'design envelope' or 'Rochdale Envelope'. The Rochdale Envelope is an established principle, recognised in the Inspectorate's pre- application EIA guidance (Planning Inspectorate 2026), that allows a project to retain design flexibility at the application stage.

3.4.2 Derived from UK case law (R v Rochdale Metropolitan Borough Council ex parte Milne [2000] EWHC 650 (Admin) [2001] 81 P & CR 27), the Rochdale Envelope enables a project to be defined through a set of maximum and minimum parameters that limit its potential scope. This approach allows the EIA to assess a reasonable worst-case scenario, ensuring that a robust ES is provided to the decision-makers to consider when determining the acceptability or otherwise of the environmental effects of a development project.

3.4.3 This approach is founded on the principle that, provided the technical and engineering parameters of a development project remain within the defined limits of the design envelope, and the EIA assesses the likely significant effects of a development that could come forward within that envelope (using a reasonable worst-case scenario), flexibility within those parameters is considered acceptable under the terms of any consent granted.

3.4.4 When using the design envelope approach for EIA, consideration must be given to whether development in accordance with one parameter might result in a more significant adverse effect than another. When a range of parameters are included, the assessment must consider the parameter that is likely to generate the greatest potential adverse effect for each receptor. This means that the 'worst-case' parameter may differ between environmental topics ensuring that the assessment remains robust, transparent and precautionary.

3.4.5 The parameters for the Proposed Development will be defined within the Proposed Development description in the ES and may include, for example, the maximum land take to accommodate environmental mitigation, as well as horizontal and vertical limits of deviation within which the Proposed Development design may be adjusted if necessary.

3.4.6 The use of a clearly defined design envelope enables a proportionate degree of flexibility to be retained as the Proposed Development is refined, while ensuring that any post-submission design refinement remains within the assessed parameters. This approach ensures that the conclusions of the ES remain robust and that any design changes do not undermine the adequacy or validity of the ES.

3.5 Defining the Study Area

3.5.1 Each environmental topic within the EIA will define the Study Area to be considered and will provide a rationale to support its selection. In each case, the Study Area represents the area within which environmental impacts arising from

the Proposed Development could be predicted to occur. The extent of each Study Area is determined by the nature of the potential effects and the location of receptors that could be affected. In defining these areas, consideration is given to:

- the physical footprint of the Proposed Development;
- the characteristics and sensitivities of the existing baseline environment;
- the manner and extent to which environmental effects may occur; and
- any relevant topic specific guidance.

3.5.2 The Study Area for each environmental topic is described within its respective chapter (**Chapters 5 to 17**) of this Scoping Report and has been informed by the indicative Site layout (shown on **Figure 2.1, Volume A**), the Site boundary, and other topic specific considerations. The Study Area for each environmental topic may be refined in response to comments from engagement, design evolution of the Proposed Development through the EIA process, or as a consequence of further assessment work. Study areas will then be confirmed in the ES.

3.6 Temporal Scope

3.6.1 National Policy Statement (NPS) for Renewable Energy Infrastructure (EN-3) (Department for Energy Security and Net Zero 2025) recognises that wind farms are temporary developments as they are subject to a time-limited consent period. The EIA will therefore consider the temporary nature of the consent (should development consent be forthcoming for the Proposed Development), including the potential for effects to remain following decommissioning and restoration.

3.6.2 The temporal scope of the EIA will define the period over which changes to the environment and the resulting effects are predicted to occur as a result of the Proposed Development. These effects may be beneficial or adverse and may occur over different timeframes.

3.6.3 The assessment will therefore have regard to the Proposed Development programme and the lifecycle phases (construction, operation and maintenance, and decommissioning). The environmental effects associated with each phase will be identified and evaluated, with their duration potential for reversibility considered on an effect-by-effect basis:

- Construction effects may occur both from construction activities themselves and from the temporary occupation of land. These effects are typically short-term in nature and limited to the construction phase. However, some effects may persist into the operational phase and beyond, for example, land take associated with the wind turbines and associated infrastructure, which would remain for the duration of the lifetime of the Proposed Development.
- Operational effects may be permanent or temporary in nature, occurring only for the duration of the Proposed Development's operational life. This is particularly relevant to onshore wind developments, where development consent is granted for a defined number of years as acknowledged by EN-3 (Department for Energy Security and Net Zero 2025). The assessment of operational effects in the EIA will assess the maximum development parameters, or those representing the reasonable worst case where this differs.
- Decommissioning effects may occur during decommissioning activities or from the temporary use of land during this period. For the purposes of the EIA, the

decommissioning assessment will be based on an assumption that the Proposed Development will be operational for approximately 35 years.

3.7 Baseline Characterisation

3.7.1 To assess the potential environmental effects of the Proposed Development, it is first necessary to establish the existing environmental conditions (the baseline) within the defined Study Area for each environmental topic.

3.7.2 Appropriate understanding of the baseline for each environmental topic through an information gathering exercise, using some or all of the following sources:

- review and collation of existing desk-based information, including existing reports and published datasets;
- undertaking appropriate baseline surveys; and
- stakeholder engagement to determine the sufficiency of baseline information and the need for and scope of additional studies.

3.7.3 In accordance with Schedule 4(3) of the EIA Regulations (Infrastructure Planning EIA Regulations 2017 2017), the ES will consider how the existing environmental baseline is likely to evolve if the Proposed Development does not proceed. This future baseline will be established using available information on planned development and relevant historic land uses. It will be clearly described within the ES and applied, where relevant, to each environmental topic assessment.

3.8 Environmental Effects

3.8.1 Impacts are the changes that arise as a result of a development, and environmental effects are the consequences of those changes. For an effect to occur there has to be a pathway between the impact and the resource or receptor.

3.8.2 The EIA Regulations (Infrastructure Planning EIA Regulations 2017 2017) (Schedule 4, Part 5) require consideration of a range of types of effect. These include direct and indirect, secondary, cumulative, and transboundary effects, as well as short, medium, long-term, permanent and temporary effects.

3.8.3 In the EIA, effects will be assessed by considering the importance, value or sensitivity of the affected environmental resource or receptor alongside the scale or magnitude of the predicted impact or change. The significance criteria outlined in **Section 3.9** will be used to report the significance of effects. The definition and evaluation of effects will draw on professional judgement, defined thresholds, established criteria and relevant standards.

3.8.4 In determining the significance of adverse effects, account will be taken of the extent to which the environmental measures described in **Section 3.10** would avoid, prevent or reduce those effects.

3.9 Assessing Significance

3.9.1 As significance is not defined within the EIA Regulations (Infrastructure Planning EIA Regulations 2017 2017), the approach to determining significance for the EIA must be clearly defined. Development proposals may result in varying levels of change to different environmental resources and receptors, and not every change will be of sufficient concern to warrant detailed investigation or assessment through the EIA process. In accordance with Schedule 4(4) of the EIA Regulations (Infrastructure Planning EIA Regulations 2017 2017), the assessment will focus on

those environmental resources and receptors that are *"likely to be significantly affected by development"*.

3.9.2 In determining the significance of effect, consideration will be given to two key factors:

- the **sensitivity** (or importance, value or vulnerability) of the receptor; and
- the **magnitude** of the predicted change arising from the Proposed Development.

3.9.3 Sensitivity reflects the susceptibility of a receptor to change and the importance of its functions or values. Magnitude describes the scale, extent and nature of the anticipated impact. Where sensitivity or magnitude cannot be quantified, the assessment will draw on professional judgement and relative experience, and a qualitative approach to assessment will be applied.

3.9.4 The significance of an effect can be either adverse or beneficial and is determined through combining sensitivity and magnitude using a matrix approach, an example of which is shown in **Table 3-1**. Reference is made to:

- 'Major' effects, which would always be considered as significant;
- 'Moderate' effects, which can be significant based on specific scenarios and professional judgement; and
- 'Minor' or 'Negligible' effects, which would be deemed as 'not significant'.

Table 3-1: Generic Guidelines for the Assessment of Sensitivity

		Sensitivity of Receptor			
		High	**Medium**	**Low**	**Negligible**
Magnitude of Change	**High**	Major (significant)	Major (significant)	Moderate (potentially significant)	Minor (not significant)
	Medium	Major (significant)	Moderate (potentially significant)	Minor (not significant)	Negligible (not significant)
	Low	Moderate (potentially significant)	Minor (not significant)	Minor (not significant)	Negligible (not significant)
	Negligible	Minor (not significant)	Minor (not significant)	Negligible (not significant)	Negligible (not significant)

3.9.5 The methods for predicting the nature and magnitude of potential effects may vary between environmental topics, where other recognised standards, thresholds or established criteria must be applied.

3.9.6 The specific methodologies used for each environmental topic, and the exact definition of terms used to determine significance, are outlined in the relevant technical assessment chapters (**Chapters 5 to 17**) of this Scoping Report. Further detail and justification will be presented within the individual topic assessment methodologies in the ES.

3.10 Environmental Measures

3.10.1 The ES will be based on an EIA mitigation hierarchy which sets out the "measures envisaged in order to avoid, prevent or reduce and, if possible, offset likely significant adverse effects on the environment", in accordance with Regulation 14(2)(c) of the EIA Regulations (Infrastructure Planning EIA Regulations 2017 2017).

3.10.2 Each environmental topic assessed within the EIA will systematically identify potential impacts and effects with consideration given to the environmental measures proposed as part of the Proposed Development. The environmental measures include avoidance, best practice and design commitments as follows:

- **Embedded Mitigation Measures**: modifications made to the siting, design or operation of development components during the pre-application phase that are inherent to the Proposed Development and require no further additional action;
- **Standard Mitigation Measures**: management practices and techniques that will be applied during the construction phase to limit environmental impacts through the adherence of good site practice and compliance with legal requirements; and
- **Additional Mitigation Measures**: measures identified through the EIA process as necessary to avoid, prevent or further reduce significant environmental effects, beyond the embedded and standard mitigation already proposed.

3.10.3 Where the embedded and standard mitigation measures form an integral part of the design of the Proposed Development and/ or the approach to its construction, the assessment of likely significant effects within the ES will only report the effects following the implementation of this mitigation.

3.10.4 Where the EIA identifies a need for additional mitigation, the effect will be reassessed to establish to determine whether there is likely to be a residual effect and if it remains significant. Where a residual effect remains Moderate or Major following the application of additional mitigation, further analysis and engagement will normally be undertaken to determine whether further practicable mitigation can be introduced. If further mitigation is not feasible, the significant residual effect will be clearly reported in the ES.

3.10.5 A Commitments Register will be prepared to provide a consolidated summary of the environmental measures and commitments within the ES and will form part of the application for development consent. A draft Register of Environmental Actions and Commitments (REAC), setting out the measures identified at the scoping stage, is included in **Appendix 3A (Volume B)**.

3.11 Cumulative Effects

Approach to Cumulative Effects Assessment

3.11.1 A Cumulative Effects Assessment (CEA) will be undertaken for the Proposed Development. The CEA will assess the combined (or inter-project) effects of the Proposed Development together with other existing or reasonably foreseeable projects on shared receptors or environmental resources. This assessment will be undertaken in accordance with paragraph 5(e) of Schedule 4 of the EIA Regulations (Infrastructure Planning EIA Regulations 2017 2017). The CEA will also assess the interaction of environmental effects resulting from different

aspects of the Proposed Development (or the intra-project effects) in accordance with Regulation 5(2).

3.11.2 It is anticipated that the Environmental Statement will identify an appropriate grid connection corridor, where sufficient information is available, and will include a robust assessment of any cumulative environmental effects associated with the proposed grid connection infrastructure. The findings of this assessment will be used to inform the CEA, ensuring that the potential cumulative effects of the Proposed Development in combination with the proposed grid connection infrastructure are considered alongside other existing and reasonably foreseeable developments.

3.11.3 In accordance with the Inspectorate's Advice (Planning Inspectorate 2026) the assessment will be informed by the best available information relating to proposed and committed developments. This information will be obtained from publicly available sources and data provided to the Project team and will be assumed to be accurate. Engagement with key stakeholders, neighbouring authorities and other developers will also inform the assessment and help identify any relevant changes to the available information.

Inter-Project Effects

3.11.4 The approach to the CEA would follow the process set out in the Inspectorate's Advice on Cumulative Effects Assessment (Planning Inspectorate 2026) The four-stage process comprises:

1) establishing the Zone of Influence (ZoI) for the Proposed Development and identifying a 'longlist' of other existing and/ or approved development;
2) establishing a 'shortlist' of 'other existing and/ or approved development';
3) information gathering; and
4) assessing potential cumulative effects.

3.11.5 The longlist would be compiled by identifying relevant other existing and/or approved development within the CEA search area. The search area will be determined by establishing the Proposed Development's ZoI for each of the environmental topic areas assessed with the EIA. The developments included in the longlist would be grouped into three tiers according to the degree of certainty that they will proceed, as outlined below:

- Tier 1:
    - developments under construction;
    - consented developments (not yet under construction);
    - developments for which consent applications have been submitted but not yet determined; and
    - refused applications that remain subject to undetermined appeal procedures.
- Tier 2:
    - projects on the Inspectorate's Programme of Projects where a Scoping Report has been submitted.
- Tier 3:

- projects on the Inspectorate's Programme of Projects where a Scoping Report has not been submitted;
- developments identified in the relevant Development Plans; and
- developments identified in other plans and programmes which set the framework for future development consent/ approvals, where such development is reasonably likely to come forward.

3.11.6 The longlist would be refined through consultation with the local planning authorities and key stakeholders. To keep the CEA as proportionate, a shortlist would then be prepared, focussing on projects likely to generate impacts that could combine with the Proposed Development and give rise to cumulative effects. The selection criteria would vary by discipline, but would consider the scale, nature, and timing of the developments. At an agreed date prior to submission of the application for development consent, the cumulative development list and associated data will be fixed to allow completion of impacts assessments for the ES.

3.11.7 It is proposed that developments that have been constructed or are operational when baseline survey data is collected would be classified as part of the baseline conditions for the purposes of the EIA. Where developments are expected to be completed before the construction of the Proposed Development and their effects are fully defined, these would be considered as part of the future baseline within the construction and operational assessments presented in the ES. The ES would clearly distinguish between developments included in the future baseline and those considered in the CEA.

3.11.8 At this stage, the Applicant is aware of the following large-scale developments that have the potential to form part of the Stage 1 'long list' (see **Table 3-2**) and illustrated in **Figure 3.1** (**Volume A**), and this will be kept under review as the Proposed Development progresses. It is proposed that a detailed cumulative development search will be carried out during the later stages of the EIA, closer to the application submission date which will take account of consultation feedback from key consultees. It is anticipated this search and selection will be concluded approximately five months prior to submission to enable the assessment to be carried out.

Table 3-2: Initial Stage Long List of Cumulative Projects

Development	Approximate Distance and Direction from Site Boundary	Status
Wind Farms (Source: Renewable Energy Planning Database, Department of Net Zero, updated April 2026)		
*Indicates a development where its primary purpose is not wind energy generation, but has at least one wind turbine		
Mill Hill Farm, Greenspotts Lane - Wind Turbine*	14.9 km S	Consented
Worksop - B&Q*	16.2 km SSW	Operational
Twin Rivers Wind Farm	16.5 km N	Operational
Tween Bridge Wind Farm	18.1 km N	Operational
Keadby Wind Farm	19.3 km NNE	Operational

Development	Approximate Distance and Direction from Site Boundary	Status
Marr Wind Farm	21.1 km WNW	Operational
Trentholme Farm, North Clifton - Wind Turbine*	22.8 km SSE	Application
Goole Fields Wind Farm	22.9 km N	Operational
Loscar Farm Wind Farm	23.0 km SW	Operational
Penny Hill Lane Wind Farm	23.5 km WSW	Operational
Foxhills Industrial Estate - Wind Turbine*	23.7 km NE	Application
Grange Wind Farm	24.0 km NNE	Operational
Goole Fields II Wind Farm	24.1 km N	Operational
Bagmoor Wind Farm	24.5 km NE	Operational
Hampole Wind Farm	24.5 km NW	Operational
Croda Chemicals Europe*	25.6 km NNW	Operational
Celcon Blocks Ltd*	26.7 km NNW	Operational
Advanced Manufacturing Research Centre*	28.6 km W	Operational
Rusholme Wind Farm	30.2 km N	Operational
Stonish Hill (Bilsthorpe) Wind Farm	30.4 km S	Operational
Sixpenny Wood Wind Farm	31.6 km NNE	Operational
Park Spring Wind Farm	32.8 km WNW	Operational
Loftsome Bridge Wind Farm	33.1 km N	Operational
Lindhurst Wind Farm	36.5 km SSW	Operational
Melton Common Wind Cluster	37.3 km NE	Operational
Melton Common Wind Cluster	37.5 km NE	Consented
Melton Waste Park	37.8 km NE	Operational
Melton Common Wind Cluster	37.8 km NE	Application
Spaldington Airfield*	37.9 km N	Operational
Melton - Wind Turbines	39.8 km NE	Consented
Hawton Wind Farm	42.2 km S	Operational
Braffords Farm, Riplingham Road - Wind Turbine*	42.2 km NE	Consented
Newstead and Annesley Wind Turbine*	42.6 km SSW	Operational
Nationally Significant Infrastructure Projects (within 45km)		
Tween Bridge Solar Farm	12.4 km N	Pre Application
Tillbridge Solar Project	14.5 km ESE	Pre Application
Fenwick Solar Farm	16.3 km NNW	Pre Application

Development	Approximate Distance and Direction from Site Boundary	Status
Helios Renewable Energy Project	29.2 km NNW	Pre Application
Yorkshire Green Electricity Network Reinforcement	39.3 km NNW	Post Decision

Intra-Project Effects

3.11.9 The assessment of intra-project effects will examine whether a single environmental receptor or resource is likely to be affected by more than one source of impact arising from different aspects of the Proposed Development. Potential interactions will be identified by reviewing the conclusions of the individual environmental topic assessments set out in this Scoping Report to determine whether separate impacts could act in combination to give rise to likely significant effects. The significance of any identified intra-project effects will be evaluated using professional judgement, informed by input from the relevant topic assessment author.

3.11.10 Whether or not the Offsite Grid Connection falls within any of the tiers described above, it will be assessed cumulatively in the ES. As set out in **Chapter 2**, the assessment of the Offsite Grid Connection will be undertaken at a level of detail proportionate to the information reasonably available to the Applicant at the time of preparation of the ES.

3.12 Transboundary Effects

3.12.1 Schedule 4(5) of the Infrastructure Planning (Environmental Impact Assessment) Regulations (Infrastructure Planning EIA Regulations 2017 2017) requires that an ES considers the transboundary effects of a development. Given the nature and location of the Proposed Development, significant transboundary effects on the environment of another European Economic Association (EEA) member state are considered unlikely. Agreement is therefore sought that transboundary effects are scoped out of the EIA.

3.13 Consultation and Engagement

3.13.1 A broad range of stakeholders with differing interests will be involved in the Proposed Development, requiring consultation to be tailored in both its form and level of detail. As a result, communication activities will be tailored to address the specific needs of individual stakeholders and groups. This approach will be informed by a clear understanding of the relevant stakeholders and how their interests relate to the Proposed Development.

Pre-Application Consultation

3.13.2 Following the changes introduced by the Planning and Infrastructure Act (2025), the Applicant is no longer subject to the statutory requirement under section 42 of the Planning Act (2008) to consult prescribed consultees. However, the Applicant nonetheless proposes to undertake proportionate pre-application consultation and engagement with key stakeholders whose interests relate to the Proposed Development. These would include, but not be limited to:

- regulatory consultees;

- local authorities;
- landowners
- local communities;
- other key interest groups; and
- seldom heard groups.

3.13.3 Consultation and engagement will play a key role in progressing the design of the Proposed Development by identifying environmental matters, local considerations and stakeholder priorities at an early stage. The Applicant is committed to maintaining open, constructive and ongoing engagement throughout the design and assessment process, ensuring that stakeholders are given continued opportunities to contribute to the Proposed Development as the design progresses.

3.13.4 The Applicant would adopt a structured and proportionate approach to consultation and engagement, having regard to the Government's *Planning Act 2008: Guidance on Preparing an Application: Part 1 – Pre-application Steps* (UK Government 2024). It is proposed that the Applicant will undertake a two-stage consultation process, with the first stage focusing on early engagement with technical stakeholder, political stakeholder and key community groups including Parish Councils and local interest groups, whilst the second stage would comprise of consultation on the progressed Proposed Development with the wider public. The timing and scope of each stage would be designed to enable feedback to inform the Proposed Development design, environmental assessment and mitigation. The consultation and engagement undertaken, together with the Applicant's consideration of the feedback received, would be appropriately documented to support the DCO application.

Technical Engagement

3.13.5 The Applicant will undertake engagement with the key technical stakeholders, as appropriate, to inform the refinement of the Proposed Development and the EIA. This engagement will also assist in the identification and development of any required mitigation or other environmental measures. Specific information on this is presented in the environmental topic chapters (**Chapters 5 to 17**) of this Scoping Report.

3.13.6 Technical stakeholder engagement will be summarised within the individual technical chapters of the ES. In addition, the Applicant will seek to agree draft Statements of Common Ground with key technical stakeholders to document matters agreed prior to submission of the DCO application.

Consultation and Engagement to Date

3.13.7 The Applicant is committed to constructive engagement with the local community and other stakeholders. Engagement has already commenced with key political representatives, technical consultees and other relevant stakeholders. This dialogue will continue as the Proposed Development progresses and will include the public, local interest groups and the surrounding communities.

3.13.8 The Applicant has commenced targeted engagement with local representatives and planning authorities and established a website for the Proposed Development. Engagement to date has comprised:

- offering a project briefing to key political stakeholders and holding a briefing with the local MP;
- introductory calls with a number of the prescribed consultees to introduce the Proposed Development, allow them to meet the project team and ask any initial questions;
- early engagement and meeting with the Proposed Development landowner;
- responding to enquiries from local stakeholders; and
- ongoing political engagement.

3.14 Limitations and Assumptions

3.14.1 Each technical chapter of the ES will set out any assumptions made and limitations encountered with the preparation and reporting of the individual assessments.

3.15 Other Assessment Requirements

3.15.1 At this stage in the EIA process, the need to undertake a range of other assessments to inform the EIA and/or other consent requirements has been identified. These are detailed below, as well as within the relevant topic chapters of this Scoping Report.

Habitat Regulations Assessment

3.15.2 Under the Conservation of Habitats and Species Regulations 2017 (as amended) (the 'Habitats Regulations') (Habitats Regulations 2017 2017), the Secretary of State (SoS), as the competent authority, must consider the potential for the Proposed Development to give rise to a likely significant effect (LSE) on a European site when considering the merits of the DCO application. European sites include Special Areas of Conservation (SAC), candidate SACs, Site of Community Importance (SCI) and Special Protection Areas (SPA). UK policy extends the requirements pertaining to European sites to include Ramsar sites and potential SPAs, which include proposed extensions or alterations to existing SPAs.

3.15.3 If the SoS concludes that the Proposed Development has the potential for LSE on a European site, an Appropriate Assessment must be carried out. This assessment looks at how the Proposed Development could affect the identified European site's conservation objectives, either on its own or in combination with other plans or projects. The screening stage, the Appropriate Assessment and any further assessments together make up the Habitats Regulations Assessment (HRA) process.

3.15.4 To support the HRA process, the Applicant will provide sufficient information with the DCO application to enable the SoS to determine whether an Appropriate Assessment is required and, if so, to undertake that assessment. The Applicant will also liaise with Natural England and other relevant bodies during the preparation of this information, as appropriate.

Flood Risk Assessment

3.15.5 A Flood Risk Assessment (FRA) will be submitted with the DCO application. The FRA will assess the flood risk both and from the Proposed Development and demonstrate how that flood risk would be managed over the Proposed Development's lifetime. The FRA will give due regard to climate change and will

form an appendix to the ES. For further information see **Chapter 15: Hydrology, Hydrogeology, Water Resources and Flood Risk.**

Water Framework Directive Assessment

3.15.6 A Water Framework Directive (WFD) screening assessment will be undertaken for the River Idle. The assessment will be presented as a technical appendix to the ES, and will inform the requirements for any further WFD assessment, where required. For further information see **Chapter 15: Hydrology, Hydrogeology, Water Resources and Flood Risk.**

Mineral Resource Assessment

3.15.7 A Mineral Resource Assessment may be required in order to determine whether mineral resources are present, whether the Proposed Development would result in sterilisation of those minerals, and whether the Proposed Development would be compliant with the relevant mineral safeguarding policies.

3.15.8 A detailed desk study would be undertaken to determine and confirm the baseline characteristics of the Site by reviewing available information relating to geology, soils and ground conditions. This would include review of published geological maps, Ordnance Survey maps, aerial photographs, digital terrain models (slope plans) and geological literature.

3.15.9 The desk study would identify sensitive features which may potentially be affected by the Proposed Development and will confirm the geological and environmental baseline.

3.15.10 This would include Preliminary Land Quality Risk Assessment (PLQRA) undertaken in accordance with Land Contamination Risk Management (LCRM) guidance. For further information see **Chapter 5: Geology, Soils, Ground Conditions and Peat.**

Peat Condition Assessment

3.15.11 A Peat Condition Assessment (PCA) to classify peatland type and condition will be undertaken subject to the identification of peat and potential disturbance by the Proposed Development, as part of a Stage 1 Peat Management Plan (PMP). **Chapter 5: Geology, Soils, Ground Conditions and Peat.**

Residential Visual Amenity Assessment (RVAA)

3.15.12 In relation to residential properties, a RVAA will be carried out for properties within 2 km, in line with Landscape Institute technical guidance. See **Chapter 11: Landscape and Visual Impact Assessment (LVIA)** for further information.

3.16 Approach to the Environmental Statement

3.16.1 The Inspectorate's *Nationally Significant Infrastructure Projects: Pre-Application Advice on Environmental Impact Assessment* (Planning Inspectorate 2026) requires the Applicant to provide an outline of the proposed structure of the ES. The structure of the ES for the Proposed Development would broadly follow the order of the chapters presented in this Scoping Report. However, changes may be made to reflect the Scoping Opinion, including any agreement to scope out particular environmental topics, improve the presentation and understanding of the Proposed Development, and respond to the design requirements as they evolve.

3.16.2 An indicative outline structure of the ES is set out in **Table 3-3.**

Table 3-3: Indicative Outline ES Structure

ES Document	Likely Content
Non-Technical Summary	
A standalone document that would provide a concise description of the Proposed Development, the considered alternatives, baseline conditions, the assessment methodology, potential environmental effects and mitigation measures. The Non-Technical Summary (NTS) would be designed to provide the information regarding the Proposed Development in an accessible format which can be understood by a wider audience and to assist interested parties with their familiarisation with the Proposed Development.	
Volume 1: Main Report	
Introduction	This chapter would set out an overview of the Proposed Development, including the Project need. The purpose and structure of the ES and a brief summary of the other relevant assessments and documents.
Proposed Development t Description	This chapter would provide a description of the Proposed Development and how the it would be constructed, operated and maintained, and decommissioned.
Site Selection, Design Evolution and Consideration of Alternatives	This chapter would set out the reasonable alternatives considered and the environmental reasons for the selection of the preferred options.
Approach to EIA	This chapter would provide a description of the overall methodology for this EIA, in terms of determining the significance of likely environmental effects.
Approach to EIA	This chapter would provide a description of the overall methodology for this EIA, in terms of determining the significance of likely environmental effects.
Environmental Topic Chapters	The environmental topics are currently expected to be as follows: • Landscape and Visual • Archaeology and Cultural Heritage • Ecology • Ornithology • Hydrology, Hydrogeology, Water Resources and Flood Risk • Geology, Soils and Ground Conditions • Access, Traffic and Transport • Noise and Vibration • Aviation, Radar and Telecommunications • Shadow Flicker • Air Quality • Carbon and Climate Change • Other environmental topics (includes Telecommunications, Utilities, Shadow Flicker, Major Accidents & Disasters) • Each environmental topic chapter would provide the following information: • Relevant topic specific legislation, policy and guidance • Consultation and engagement • Baseline description (current and future) • Scope of the assessment

ES Document	Likely Content
	• Embedded Design and Standard Mitigation Measures • Assessment methodology • Limitations and assumptions • Assessment of potential impacts and effects • Additional mitigation • Assessment of residual effects • Cumulative (inter-project) effects assessment • Summary of assessment.
Cumulative Assessment	This chapter will detail the cumulative (intra-project) effects as a result of two or more environmental aspects impacts acting together to result in a new or changed impacts on a single receptor.
Volume 2: Figures	
This would present a complete set of all figures for reference that have been prepared to support the ES chapters provided in **Volume 1**.	
Volume 3: Technical Appendices	
This would contain a complete set of technical appendices for reference. These would comprise of background data, technical reports, tables, and surveys which would support the environmental topic assessments provided in **Volume 1**.	

4. Legislation and Policy Context

4.1 Introduction

4.1.1 This chapter provides an overview of the consenting process for the Proposed Development including policy relevant to renewable development in the UK with particular regard to the relevant National Policy Statement(s) (NPS) and specifically any requirement stated in the NPS(s) to inform the proposed scope of the EIA. Further information on planning policy where it is applicable to a particular technical aspect, is provided in the technical sections themselves (see **Chapters 5 to 17** of this Scoping Report).

4.1.2 This chapter also identifies the policies that will underpin the relevant chapter of the Environmental Statement (ES) setting out the legislative and policy context relevant to the Proposed Development. These policies will inform the assessment of effects and will also be included within the Planning Statement, a separate document to the EIA that will support the Development Consent Order (DCO) application, which will demonstrate compliance with relevant planning policies.

4.2 Principle and Need for the Proposed Development

4.2.1 The UK Government has made expanding onshore wind a central part of its plan to achieve clean power by 2030.To support this ambition, the UK Government has already taken several important steps to remove barriers and accelerate deployment.

4.2.2 The National Planning Policy Framework was updated in December 2024 (hereinafter called ‘NPPF24’) (UK Government 2024) which sought to afford onshore wind development the same level of policy support as other forms of energy infrastructure. Critically, NPPF24 introduced provisions requiring decision-makers to attribute ‘significant weight’ to the benefits of renewable and low-carbon energy developments and their contribution towards achieving net-zero objectives.

4.2.3 More recently, the revised National Planning Policy Framework, adopted on 17 August 2026 (hereinafter called the ‘adopted NPPF’) (UK Government 2026) takes the Government’s ambition to increase renewable energy generation a step further by requiring decision-makers to give ‘substantial weight’ to the environmental and economic benefits of renewable energy development. This represents a materially stronger policy presumption in favour of such proposals. As discussed below, unlike previous iterations of the Framework, the adopted NPPF now includes a dedicated section of policy relating specifically to renewable energy, further demonstrating the Government’s clear commitment to accelerating the deployment of renewable energy infrastructure.

4.2.4 Alongside this, the Infrastructure Planning (Onshore Wind and Solar Generation) Order 2025 (the ‘2025 Order’) has amended section 15 of the Planning Act 2008 (the ‘2008 Act’) to bring onshore wind projects over 100 MW back into the Nationally Significant Infrastructure Project (NSIP) regime. This enables larger onshore wind projects to be progressed through a more streamlined and centralised consenting process.

4.2.5 In January 2026, the Government published revised versions of NPS EN-1 (Overarching National Policy Statement for Energy) (UK Government 2025) and EN-3 (National Policy Statement for Renewable Energy Infrastructure) (UK Government 2025), which embed the Clean Power 2030 (UK Government 2024)

ambition and strengthen the policy need case for low-carbon infrastructure, including onshore wind.

4.2.6 The Government also established the Onshore Wind Taskforce to identify and address the key barriers developers face. In July 2025, the Taskforce published its Strategy (UK Government 2025), setting out more than 40 actions aimed at delivering up to 29 GW of onshore wind capacity by 2030. While the primary focus is on accelerating deployment in England, the Strategy also recognises wider challenges across the UK and the need for coordinated action.

4.2.7 In addition, the Government has also enacted the Planning and Infrastructure Act 2025, which introduces a series of reforms intended to accelerate the delivery of NSIPs, including changes to the consenting process and the review of National Policy Statements. These reforms further demonstrate the Government's commitment to facilitating the timely delivery of energy infrastructure required to meet its clean power ambitions.

4.2.8 The UK's statutory climate targets further reinforce the need for the Proposed Development. The Climate Change Act 2008, amended in 2019, requires the UK to achieve net zero emissions by 2050, with the Sixth Carbon Budget (Climate Change Committee 2020) mandating a 78% reduction by 2035. Meeting these legally binding commitments depends on rapidly expanding renewable electricity generation.

4.2.9 In addition to generating significant quantities of clean electricity, the Proposed Development would deliver a range of wider benefits, including positive socio-economic effects through job creation, the delivery of environmental gain, and contributions to long term energy security and affordability for consumers.

4.3 The Consenting and EIA Context

The Planning Act 2008

4.3.1 The 2008 Act establishes the statutory framework for the consenting of NSIPs through the DCO regime. The 2008 Act sets out the criteria by which projects are classified as NSIPs and requires developers of such projects to obtain a DCO from the relevant Secretary of State to authorise their construction, operation and maintenance.

4.3.2 In December 2025, section 15 of the 2008 Act was amended to bring onshore wind generating stations with a generating capacity exceeding 100 MW within the NSIP regime. The Proposed Development with a generating capacity of approximately 112 MW exceeds this threshold and therefore constitutes an NSIP for which development consent is required under the 2008 Act. Accordingly, an application for a DCO will be submitted to the Planning Inspectorate.

4.3.3 The Planning Inspectorate will examine the DCO application and prepare a recommendation to the Secretary of State, who will ultimately determine whether development consent should be granted or refused.

The Infrastructure Planning (EIA) Regulations 2017

4.3.4 The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (the 'EIA Regulations') (Infrastructure Planning EIA Regulations 2017 2017) govern the EIA process relevant to NSIPs. Schedule 1 of the EIA Regulations lists those projects for which an EIA is required and Schedule 2 lists projects which may be considered EIA development, based on the selection criteria provided in

Schedule 3 on characteristics of the development, its location and the types and characteristics of the potential impacts.

4.3.5 Installations for the harnessing of wind power for energy production (wind farms) fall within Schedule 2, Paragraph 3(i) (Energy Industry) of the EIA Regulations (Infrastructure Planning EIA Regulations 2017 2017). Having regard to its nature, scale, characteristics and location, the Proposed Development is considered to have the potential to give rise to significant environmental effects. It therefore constitutes EIA development.

4.3.6 This Scoping Report provides formal notification to the SoS, under Regulation 8(1)(b) of the EIA Regulations (Infrastructure Planning EIA Regulations 2017 2017), that the Applicant proposes to provide an ES in respect of the Proposed Development. Therefore, the Proposed Development is EIA development pursuant to Regulation 6(2) of the EIA Regulations (Infrastructure Planning EIA Regulations 2017 2017).

4.4 Key Policy

4.4.1 Under Section 104(2) of the 2008 Act, the SoS must have regard to any relevant NPSs when deciding whether to grant a DCO, with NPSs forming the primary policy basis for examining and determining NSIP applications.

4.4.2 In accordance with Section 104 (2) of the 2008 Act, the following NPSs are material considerations in relation to the Proposed Development:

- Overarching National Policy Statement for Energy (EN-1) (UK Government 2025); and
- National Policy Statement for Renewable Energy Infrastructure (EN-3) (UK Government 2025).

4.4.3 General policies within the NPSs relating to onshore wind farm development are discussed below, with context on how the policies will shape the proposed scope of the ES. The ES will set out the NPS policies of relevance to each environmental topic and supporting information on how each item is addressed.

Overarching National Policy Statement for Energy (EN-1)

4.4.4 EN-1 (UK Government 2025) was originally adopted by the Department of Energy and Climate Change (DECC) in July 2011, with an updated version coming into force in January 2026 as discussed above. The document sets out the national policy for delivering major energy infrastructure in England and Wales and comprises the primary document that informs the Examining Authority's recommendation to the SoS regarding decisions to grant or refuse Development Consent.

4.4.5 EN-1 (UK Government 2025) aligns with the Governments' Clean Power 2030 Action Plan (UK Government 2024) , which as per Paragraph 2.2.6 of EN-1:

"Sets out infrastructure deployment pathways and generation capacity ranges that will ensure by 2030 clean sources produce at least 95% of Great Britain's generation, meeting the sixth Carbon Budget advice and pushing the country towards net zero 2050".

4.4.6 Part 3 of EN-1 (UK Government 2025) identifies the need that exists for NSIP, with Paragraph 3.1.1 stating:

"the government sees a need for significant amounts of new large-scale energy infrastructure to meet its energy objectives and why the government considers that the need for such infrastructure is urgent."

4.4.7 Directly relevant to the Proposed Development is Paragraph 3.3.23 which outlines the role of wind:

"Wind and solar are the lowest cost ways of generating electricity, helping reduce costs and providing a clean and secure source of electricity supply (as they are not reliant on fuel for generation)".

4.4.8 Paragraph 3.3.24 acknowledges that energy sources like wind are intermittent and not reliable on their own and as a result "*need to be complemented with technologies which supply electricity, or reduce demand, when the wind is not blowing".* Paragraph 3.3.26 subsequently outlines the role energy storage can play in addressing intermittence, however, Paragraph 3.3.28 outlines its limitations including availability.

4.4.9 Part 4 of EN-1 (UK Government 2025) sets out the general policies for the submission and assessment of applications relating to energy infrastructure. In considering project impacts, Paragraph 4.1.6 confirms that:

"The Secretary of State should take into account environmental, social and economic benefits and adverse impacts, at national, regional and local levels."

4.4.10 Paragraph 4.1.5 expands on this and states that in considering any proposed development, in particular when weighing its adverse impacts against its benefits, the SoS should take into account:

"Its potential benefits including its contribution to meeting the need for the Clean Power 2030 Mission and net zero, energy infrastructure, job creation, reduction of geographical disparities, environmental enhancements, and any long-term or wider benefits; and

Its potential adverse impacts, including on the environment, and including any long-term and cumulative adverse impacts, as well as any measures to avoid, reduce, mitigate or compensate for any adverse impacts, following the mitigation hierarchy."

4.4.11 Section 4.2 of EN-1 (UK Government 2025) further emphasises there is a Critical National Priority (CNP) for low carbon infrastructure. This infrastructure is identified as all "*onshore and offshore generation that does not involve fossil fuel combustion…"* (Paragraph 4.2.17) which includes the Proposed Development.

4.4.12 Section 4.3 of EN-1 is (UK Government 2025) concerned with the requirement for assessment of likely significant environmental effects and reporting within the ES. Paragraph 4.3.4 outlines that:

"To consider the potential effects, including benefits, of a proposal for a project, the applicant must set out information on the likely significant environmental, social and economic effects of the development, and show how any likely significant negative effects would be avoided, reduced, mitigated or compensated for, following the mitigation hierarchy. This information could include matters such as employment, equality, biodiversity net gain, community cohesion, health and well being".

4.4.13 Paragraph 4.3.5 further explains that:

"For the purposes of this NPS and the technology specific NPSs the ES should cover the environmental, social and economic effects arising from pre-construction, construction, operation and decommissioning of the project."

4.4.14 Paragraph 4.3.10 states:

"The applicant must provide information proportionate to the scale of the project, ensuring the information is sufficient to meet the requirements of the EIA Regulations."

4.4.15 Section 5 of EN-1 (UK Government 2025) considers generic impacts that arise from the development of all the types of infrastructure covered by the energy NPSs (such as landscape and visual impacts). It also includes Paragraph 5.5.4 which emphasises that wind farms are an integral part of the Government's plan to achieve Net Zero, as well as delivering affordable clean energy to consumers.

National Policy Statement for Renewable Energy Infrastructure (EN-3)

4.4.16 EN-3 (UK Government 2025) provides guidance for applicants on factors influencing site selection, technical considerations, mitigation measures and the SoS decision-making process.

4.4.17 EN-3 (UK Government 2025) is directly relevant to the Proposed Development as it contains technology-specific policy requirements for renewable electricity generation NSIPs. Section 2.12 specifically relates to onshore wind and explains the role it plays within the UK's energy mix, with Paragraph 2.12.2 stating:

"The deployment of onshore wind farms is critical in meeting the government's Clean Power 2030 Mission. The Clean Power Action Plan estimates the need for 27-29GW of operational onshore wind capacity by 2030."

4.4.18 This section of EN-3 (UK Government 2025) also explains the key factors that will influence site selection – the primary factor being "*predicted wind resource as the electricity generated on site is directly affected by the wind speed*" (Paragraph 2.12.8). This site selection criteria are also discussed in Paragraphs 2.4.13-2.4.14 which state:

"Onshore wind farms will be in the windiest available locations, and in particular, applicants should set out how the proposal would be resilient to increased storms.

Projects may be proposed in high lying exposed sites that are unlikely to be affected by flooding, but where there is potential risk, applicants should set out how the layout of the infrastructure has been designed to be resilient."

4.4.19 Additionally, EN-3 (UK Government 2025) includes broader requirements that apply to all renewable NSIPs. These include demonstrating that site selection and design has been informed by environmental constraints, technical considerations and opportunities for efficient grid connection; showing that the project has been designed to be resilient to climate change over its operational lifetime; and ensuring that the scheme reflects the principles of good design, minimising environmental effects while supporting efficient and reliable energy generation.

4.4.20 Paragraph 2.3.6 also discusses projects that are located within National designations, stating:

"When considering applications for CNP Infrastructure in sites with nationally recognised designations (such as SSSIs, National Nature Reserves, National Parks, the Broads, National Landscapes, Registered Parks and Gardens, Listed Buildings and Scheduled Monuments, designated Marine Protected Areas (MPAs)

and World Heritage Sites), the Secretary of State will take as the starting point that the relevant tests in Sections 5.4 and 5.10 of EN-1 have been met, and any significant adverse effects on the qualities for which the area has been designated are clearly outweighed by the urgent need for this type of infrastructure."

4.5 Other Policy Considerations

The Land Use Framework for England (March 2026)

4.5.1 The Land Use Framework for England (UK Government 2026) was adopted in March 2026 and is the country's first national plan to coordinate land use across several development sectors in recognition that there is a need to increase the resilience of homes, communities, infrastructure, and food systems, while speeding up development and restoring nature.

4.5.2 With respect to energy and clean power development, Section I of the plan 'The Land Use Framework' establishes the following vision:

"By 2030, renewable energy infrastructure will drive increased energy security; at least 95% of electricity will come from clean power sources (…) Solar and wind will remain a small proportion of land use, and much of this land will be managed sustainably to boost and deliver other outcomes

By 2050, we will have an energy sector based on renewable and nuclear power, and the windfarms that powered the economy in 2030 have been repowered with more efficient technology. Strategic spatial planning will ensure a fairer and more efficient distribution of solar and wind infrastructure across England."

4.5.3 The plan includes a comprehensive land-use analysis demonstrating that sufficient land is available to support the delivery of the above vision. It identifies five distinct land-use categories, with wind farm development falling under Category D (Renewables). The projected land requirements for this category across England are:

- 2035: 129,000 ha; and
- 2050: 155,000 ha.

4.5.4 Although these figures indicate substantial growth in renewable energy infrastructure, such as the Proposed Development, renewable energy installations are still expected to occupy only around 1% of England's total landmass by 2050.

4.5.5 Section II of the plan, titled 'Better Land Use Decisions' sets out four key principles that should inform decisions relating to, or having an impact on, land in England and are as follows:

- **Multifunctionality:** land use should be planned and managed to deliver greater benefits across a range of outcomes;
- **Right use, right place**: land should be used in ways that align with local context and account for natural, social and economic factors;
- **Future-ready decisions**: land use decisions should take a long-term view, aiming to meet the needs of the present without compromising the ability of future generations to meet their own needs; and
- **Adaptive by design**: land use policy and delivery should be flexible enough to incorporate new evidence, respond to emerging needs and challenges, and evolve with changing local and national priorities.

4.5.6 Section III 'Implementing the Framework' thereafter sets out a series of actions the Government is taking to start applying the above principles, and to help others do the same. The actions relate to the following:

- consistent spatial plans: joining-up decisions on land use;
- supporting multifunctional and efficient land use;
- making land digital; and
- sharing responsibility for the stewardship of land.

4.5.7 The plan encourages all land managers to factor in these principles in the way land is managed.

4.5.8 The Proposed Development aligns with the principles set out in The Land Use Framework for England (UK Government 2026). In particular, Principle 2 – 'Right use, right place' is achieved, as the Proposed Development has been identified as occupying a suitable location, given the:

- Site's location within a large, open and low-lying agricultural landscape characteristic of the Humberhead Levels;
- Predominantly arable agricultural land use and extensive network of managed drains, ditches and watercourses associated with the wider River Idle catchment;
- Relatively flat topography and limited topographical variation, contributing to expansive views across the surrounding landscape and providing sufficient land to accommodate the Proposed Development and associated infrastructure;
- Predominantly rural setting within north Nottinghamshire, surrounded by agricultural land interspersed with scattered farmsteads, rural roads and small settlements;
- Absence of any overriding ecological, heritage or environmental constraints that would preclude wind energy development, with potential effects capable of being appropriately assessed and mitigated through the design process; and
- Existing agricultural land uses and drainage infrastructure that are generally compatible with wind farm development, allowing renewable energy generation to coexist alongside ongoing land management activities.

National Planning Policy Framework (adopted August 2026)

4.5.9 The NPPF (UK Government 2026) sets out the Government's planning policies for England and how these are expected to be applied. Although the NPPF primarily relates to the application of the Government's planning policies to the determination of applications under the Town and Country Planning Act 1990 (as amended), NPS EN-1 (UK Government 2025) sets out in Paragraph 4.1.11 that the NPPF and Planning Practice Guidance (PPG) is also considered important and relevant to decision making under the 2008 Act.

4.5.10 At paragraph 4.1.11, NPS EN-1 (UK Government 2025) states that the energy NPSs have taken account of the NPPF (UK Government 2024) where appropriate. However, in the event of any conflict between the NPPF (UK Government 2026) and an NPS, the NPS prevails (paragraph 4.1.16 of NPS EN 1 (UK Government 2025)). The NPPF itself states that *"The Framework does not contain specific policies for NSIPs."* Nonetheless, the potentially relevant policies from the NPPF

(UK Government 2024) will be set out within the topic chapters of the ES, where relevant. In addition, they will be considered within the Planning Statement and supporting policy trackers to be submitted as part of the application for development consent.

4.5.11 As discussed earlier in this report, the latest NPPF was adopted in August 2026 and strengthens the policy basis for the Proposed Development by signalling a clear national intention to accelerate the deployment of renewable energy infrastructure in support of the UK's transition to net zero by 2050.

4.5.12 In contrast to NPPF24, the adopted NPPF includes a dedicated chapter on energy, entitled 'Section 10: Securing Clean Energy and Water', which supports the delivery and operation of energy and water infrastructure through a series of specific policies. This includes Policy W1: 'Planning for Energy and Water', which requires development plans to align with national net zero objectives and, inter alia, make provision for:

"Development which is required for new or enhanced renewable and low carbon energy development, electricity network infrastructure, water supply, drainage and wastewater infrastructure, whether as part of wider development proposals or as stand-alone developments."

4.5.13 Policy W2: 'Securing Renewable and Low Carbon Energy and Electricity Network Infrastructure' which further strengthens expectations that development plans should proactively facilitate renewable and low-carbon energy development. The policy states that plans should, at the most appropriate level, maximise opportunities for such infrastructure by identifying:

"Areas which are suitable for renewable and low carbon energy development and electricity network infrastructure, including for future re-powering and life extension, where this would help secure their development."

4.5.14 In addition, Policy W3: 'Renewable and Low Carbon Energy Development and Electricity Network Infrastructure' reinforces the strong national support afforded to renewable and low-carbon energy development and confirms that substantial weight should be given to:

"a. The benefits of such development for improving energy security, supporting economic development and moving to a net zero future;

b. In the case of applications for the re-powering and life-extension of existing sites, the additional benefit of utilising an established site for this purpose and

c. The contribution that small-scale and community-led renewable and low carbon energy projects can make to reducing emissions, along with their associated economic and social benefits."

4.5.15 Policy W3 also seeks to remove unnecessary barriers to renewable energy development by making clear that proposals should not be constrained solely because they fall outside areas identified as suitable within development plans. The policy states:

"Applicants should not be required to demonstrate the need for renewable or low carbon energy development and electricity network infrastructure. Where proposals for this form of development come forward outside areas which have been identified as suitable for them in the development plan, their acceptability should be assessed against the national decision-making policies in this Framework, taken as a whole."

4.5.16 Overall, the adopted NPPF significantly strengthens the national policy framework in support of renewable energy development. Through the introduction of a dedicated energy chapter, the requirement to give substantial weight to the benefits of renewable energy proposals, and explicit support for the delivery of new renewable energy infrastructure, the Framework reinforces the Government's commitment to the UK's legally binding net zero targets.

Strategic Spatial Energy Plan (announced October 2024) - Proposed

4.5.17 In October 2024, the UK, Scottish and Welsh Governments jointly commissioned the Strategic Spatial Energy Plan (SSEP) (UK Government 2024) which will provide Great Britain's first long-term strategic framework for identifying the optimal locations, scale and types of electricity generation, energy storage and hydrogen infrastructure required between 2030 and 2050. Once adopted the SSEP will sit at the apex of a new three-tier strategic planning framework the delivery of energy infrastructure across Great Britain and support the transition to a secure, affordable and decarbonised energy system.

4.5.18 The three tiers will comprise:

- **Strategic Spatial Energy Plan (SSEP):** the national tier that will set out long-term spatial priorities, infrastructure requirements and deployment pathways for electricity generation, energy storage and hydrogen infrastructure to 2050.
- **Regional Energy Strategic Plans (RESPs):** regional strategies that will identify infrastructure and network requirements across Scotland, Wales and the regions of England, helping to translate national objectives into regional delivery priorities.
- **Local Area Energy Plans (LAEPs):** locally prepared plans that will consider community energy needs and identify opportunities for energy infrastructure investment and decarbonisation at the local authority level.

4.6 Local Planning Policy

4.6.1 The 2008 Act does not incorporate section 38(6) of the Planning and Compulsory Purchase Act 2004, which provides the principal basis in legislation for the determination of planning applications under the Town and Country Planning Act 1990, namely that they must be determined in accordance with the statutory development plan unless material considerations indicate otherwise.

4.6.2 Nevertheless, EN-1 (UK Government 2025) (at paragraph 4.1.12) states that local planning documents may be considered to be both important and relevant to decision making. Where a project conflicts with a proposal in a draft Development Plan, the SoS should take account of the stage that the Development Plan document has reached in deciding what weight to give to the plan for the purposes of determining the planning significance of what is replaced, prevented, or precluded (paragraph 4.1.13).

4.6.3 Paragraph 4.1.16 of EN-1 (UK Government 2025) states that in the event of a conflict between local planning policy documents and an NPS, the NPS prevails (in line with section 104 of the 2008 Act.

4.6.4 Local planning policies issued by the relevant County and District Authorities have been taken into account in preparing this Scoping Report, as the Proposed Development intersects with several administrative areas. Key local planning policies relevant to the Proposed Development will be considered during the EIA process. These will include those set out below.

4.6.5 The development footprint overlaps the boundaries of the following authorities:

- County Authorities:
  - Nottinghamshire County Council (NCC)
  - Local / District Authorities

Bassetlaw District Council

- Parish / Neighbourhood Areas
  - Everton Parish Council
  - Gringley on the Hill Parish Council

Nottinghamshire County Council

4.6.6 Nottinghamshire County Council (NCC) operates within a two-tier system of local government. As the county authority, NCC is primarily responsible for determining mineral and waste planning applications, together with strategic functions such as highways, education and social care. Responsibility for the determination of most planning applications, including those relating to housing, commercial development and other forms of development, rests with the district, borough and city councils within Nottinghamshire.

4.6.7 The policy documents relevant to the Proposed Development produced by NCC are discussed below:

Policy Documents

4.6.8 The Nottinghamshire Minerals Local Plan was adopted in March 2021 and sets out the land use planning strategy for mineral development within the county for the plan period up to 2036 (Nottinghamshire County Council 2021). Whilst the policy does not include any explicit policy relevant to the development of renewable energy, the interactive map associated with the plan shows that the Site is located within a Minerals Safeguarding Area for Sand and Gravel as per **Policy S7: Minerals Safeguarding, Consultation Areas and Associated Minerals Infrastructure**.

4.6.9 Policy SP7 explains that non-minerals development within minerals safeguarding areas will have to demonstrate that mineral resources will not be needlessly sterilised as a result of the development and that the development would not pose a serious hindrance to future extraction in the vicinity. Where this cannot be demonstrated, and where there is a clear and demonstrable need for the non-minerals development, prior extraction will be sought where practicable.

4.6.10 However, the text that supports Policy SP7 sets out several categories of development that are exempt from both consultation and safeguarding which includes temporary development, although, developments that can be considered ‘temporary’ for the purposes of the policy are not defined explicitly. Nonetheless, the Proposed Development to which this scoping report relates is expected to operate for approximately 35 years and thus a strong case can be made it constitutes ‘temporary’ development.

4.6.11 NCC also adopted its Waste Local Plan in September 2025 which covers the plan period up to 2038 and provides the basis for the determination of all recycling and waste planning applications (Nottinghamshire County Council 2025). The plan, however, includes no relevant policies in relation to the Proposed Development.

NCC's position on Nationally Significant Infrastructure Projects in Nottinghamshire (NSIPs)

4.6.12 NCC has a dedicated webpage relating to NSIPs which explains that NCC, alongside the relevant district or borough council(s), acts as a host authority for NSIP proposals within its administrative area and is required to consider applications and provide representations throughout the examination process (Nottinghamshire County Council 2026).

4.6.13 The webpage further explains that, as a host authority, NCC has responsibility for providing technical advice and submitting a Local Impact Report (LIR) during the examination of an application. The LIR sets out the authority's assessment of the likely impacts of a proposal on its area and must be taken into account by the Examining Authority in its consideration of the application.

4.6.14 Notwithstanding the above, NCC does not currently have any adopted planning policy documents, supplementary guidance or evidence-base documents specifically relating to the assessment of onshore wind farm development.

NCC's Environmental Sustainability Framework (2026)

4.6.15 NCC published its Environmental Sustainability Framework in January 2026 (Nottinghamshire County Council 2025), which sets out the Council's vision, ambitions and priorities for achieving environmental sustainability. The Framework aligns with the Environment Act 2021, Climate Change Act 2008 and the Local Government Outcomes Framework, and identifies a number of infrastructure and energy priorities, including:

- supporting a whole-system energy transition, including energy generation, distribution and consumption;
- delivering clean energy infrastructure to support the transition to a low-carbon future;
- improving energy security through investment in infrastructure;
- supporting future national energy generation and the development of clean energy technologies;
- facilitating infrastructure that contributes towards sustainable growth and economic benefits;
- increasing Nottinghamshire's resilience through investment in strategic infrastructure; and
- supporting collaborative approaches to energy planning through the development of a Local Area Energy Plan with local and regional stakeholders.

Bassetlaw District Council

BDC Local Plan 2020-2038

4.6.16 The BDC Local Plan was adopted in May 2024 and sets out the plan framework for the period 2020-2033 (Bassetlaw District Council 2024). This plan sets out the Council's development strategy, planning policies and proposals, including site allocations, to guide land use and planning decisions in the district within the plan period. Energy is a prominent theme throughout the plan and is incorporated as

one of the strategic objectives underpinning its spatial strategy. Objective 11 states:

***Objective 11**: 'To support Bassetlaw's transition to a net zero carbon District through the efficient use of resources, careful location and design of new development, the use of sustainable construction methods, whilst increasing resilience to impacts from climate change, through; tree planting, reducing exposure to flood risk, promoting energy and water efficiency, integrated water management and by minimising waste generation; whilst maximising opportunities to generate and use a vibrant mix of renewable energy, zero carbon and other alternative technologies'.*

4.6.17 The energy-related policies most relevant to the Proposed Development in the plan are:

- **Policy ST48: Reducing Carbon Emissions, Climate Change Mitigation and Adaption** – Requires all proposals to be designed to improve resilience to the anticipated effects of climate change taking into account the design principles in the Bassetlaw Design Quality SPD and the Bassetlaw Design Code.
- **Policy ST49: Renewable Energy Generation** – supports development that generates, shares, transmits and/or stores zero carbon and/or low carbon renewable energy including community energy schemes will be supported. This is subject to the satisfactory resolution of all relevant site specific and cumulative impacts including in relation to inter alia landscape, air quality and noise.

4.6.18 Other relevant policies are considered in the technical chapters (5 to 17) forming part of this Scoping Report.

4.6.19 In addition, as noted above, the plan includes several allocations to guide land use and planning decisions; the Site boundary is not allocated for any development and thus considered countryside for the purposes of the local plan.

Bassetlaw Design Code (2025)

4.6.20 The Bassetlaw Design Code was adopted in December 2025 and acts as a supplementary planning document (SPD) to support the implementation of various policies within the Bassetlaw Local Plan with respect to design (Bassetlaw District Council 2025).

4.6.21 Various parts of the SPD set out design codes related to energy development including:

- The **Design Vision of the SPD** explains All new development in Bassetlaw will be high quality, well-designed, energy-efficient, and based on a robust understanding of local context, constraints, and distinctiveness that promote healthy placemaking.
- **Design Principles** within the SPD includes the ambition to**:** Promote climate-resilient development, encouraging active, sustainable transport, and enhancing green and blue infrastructure. This will support Bassetlaw's transition to a net-zero carbon future.
- The **'Activity Uses, Use and Resources'** Design code promotes the sustainable design features and development that reduce energy use.

BDC Emerging Local Plan

4.6.22 BDC is currently at an early stage in the preparation of a new Local Plan and undertaking Local Plan Scoping consultation between September 2026 and October 2026. Given the emerging plan's early stage of preparation, there are currently no material evidence base documents that the Applicant considers directly relevant to the Proposed Development.

4.6.23 Nevertheless, the Scoping Report published for consultation indicates that the emerging Local Plan should give substantial weight to the benefits of improving the energy efficiency of existing buildings and securing renewable and low-carbon energy through new development (Bassetlaw District Council 2026). This approach is consistent with the adopted NPPF and the Government's commitment to accelerating progress towards net zero.

4.6.24 As the plan-making process progresses, any emerging policies, evidence base documents, or other material considerations relevant to the Proposed Development will be taken into account and addressed, where necessary, within the forthcoming DCO application.

Everton Parish Council Neighbourhood Plan 2019-2034

4.6.25 The Everton Parish Council Neighbourhood Plan was adopted and covers the period 2019-2034 (Everton Parish Council 2021). The Neighbourhood Plan forms part of the statutory development plan for the area and is used in the determination of planning applications within the Neighbourhood Area. The western fields within the Site boundary fall within the Neighbourhood Area and are located on the eastern edge of the Parish.

4.6.26 Whilst the Neighbourhood Plan does not make explicit reference to renewable energy development, it supports measures that improve energy efficiency. In particular, **Policy E10: Sustainable Design and Tackling Fuel Poverty** encourages development to incorporate energy efficiency measures wherever possible in order to minimise carbon dioxide emissions that contribute to climate change. Although the policy is primarily directed towards residential development, it demonstrates broader support for sustainable development principles.

4.6.27 The Neighbourhood Plan also identifies several key issues that development proposals within the Parish should have regard to, including:

- Issue 1: Environment: Ensuring that new development is sensitively designed and appropriately sited, having regard to the character and appearance of the surrounding landscape.
- Issue 4: Community Services and Facilities: Protecting and supporting locally valued community assets and facilities.
- Issue 5: Infrastructure: Recognising that the Parish is likely to experience growth over the plan period and identifying where investment in infrastructure may be required to accommodate this growth whilst ensuring pressures on existing infrastructure are appropriately managed.

4.6.28 Everton Parish Council is also in the early stages of preparing an updated Neighbourhood Plan. The review process commenced in Autumn 2025 and, at the time of writing, the revised plan is anticipated to be adopted in May 2027 (Everton Parish Council 2025). Given the early stage of preparation, limited weight can currently be afforded to the emerging plan. Nevertheless, any relevant emerging

policies will be reviewed and taken into account as the DCO application progresses.

Gringley on the Hill Neighbourhood Area (no plan prepared yet)

4.6.29 The Gringley on the Hill Neighbourhood Area was designated on 22 June 2003 and covers the majority of the Site's boundary, with the exception of portions of the Site to the west (Bassetlaw District Council 2003).

4.6.30 A Neighbourhood Plan for Gringley on the Hill has not yet been adopted. However, work on the evidence base to inform the emerging Neighbourhood Plan commenced in late 2024 (Gringley on the Hill Parish Council 2024).

4.6.31 Given the early stage of preparation, no draft policies have yet been published and only limited weight can be afforded to the emerging Neighbourhood Plan at this stage.

Key Policy Considerations

Policy Influence on EIA Scope

4.6.32 National policy is explicit that large scale renewable energy projects such as the Proposed Development are urgently required as reflected in the below key policy statements already outlined in this chapter:

- **EN-1 Paragraph 3.3.20** – the UK requires a substantial increase in low-carbon electricity generation;
- **EN-1 Paragraph 3.3.39** – meeting net zero necessitates a rapid expansion of renewable energy infrastructure;
- **EN-1 Paragraph 4.1.2** – there is a presumption in favour of granting consent for energy NSIPs;
- **EN-1 Paragraph 4.3.4** – confirms there is a CNP for low carbon infrastructure; and
- **EN-3 Paragraph 2.1.1** confirms that onshore wind is a key component of renewable energy delivery.

4.6.33 The policy documents outlined in this section have informed the proposed scope of the EIA in line with UK Government Guidance on ‘Nationally Significant Infrastructure Projects: Pre-Application Advice on Environmental Impact Assessment’ (UK Government 2026) which requires applicants to use the relevant NPSs to define the scope of the ES, ensuring that assessments are proportionate, targeted, and focused on likely significant effects.

4.6.34 **Table 4-1** below sets out the proposed EIA scope with reference to the relevant NPS policy requirements. Where a topic is proposed to be scoped out, a clear justification is provided.

Table 4-1: Scope of the EIA and Relevant NPS Policy

EIA Topic	Key Policy Drivers (with Paragraphs)*	Scoped In/Out	Relevance
Chapter 5: Geology, Soils, Ground Conditions and Peat	**EN1** (5.4.1-5.4.39, 5.11.4-5.11.5, 5.11.3-5.11.15), **EN3** (2.8.31-2.8.33, 2.10.20-2.10.26, 2.10.67-2.10.84,	In	Assessment required due to the potential presence of peat and peatland soils, the potential loss and disturbance of agricultural

EIA Topic	Key Policy Drivers (with Paragraphs)*	Scoped In/Out	Relevance
	2.10.119, 2.10.137, 2.12.59-2.12.67), **NPPF** (187, 196-201)		land (including Best and Most Versatile agricultural land where present), ground conditions, and soil disturbance associated with the construction of turbines and supporting infrastructure.
Chapter 6: Ecology	**EN-1** (4.6.1-4.6.21, 5.4.1-5.4.57), **EN3** (2.10.120-2.10.122, 2.11.45-2.11.49, 2.12.52-2.12.58, 2.12.114-2.12.118), **NPPF** (202-221)	In	Impacts on priority habitats, designated sites, protected species and peatland ecology.
Chapter 7: Ornithology	**EN-3** (2.8.125 – 2.8.129, 2.12.52-2.12.67, 2.12.68-2.12.74)	In	Potential disturbance, displacement and collision risk effects on bird species associated with nearby designated sites, including the River Idle washlands and surrounding agricultural habitats.
Chapter 8: Archaeology and Cultural Heritage	**EN-1** (5.9.1–5.9.37), **EN3** (2.10.129, 2.12.81-2.12.93), **NPPF** (202-221)	In	Assessment of effects related to archaeological remains and heritage assets and their settings, including Scheduled Monuments and non-designated assets.
Chapter 9: Air Quality and Greenhouses Gases	**EN-1** (5.2.1-5.2.19, 5.3.1-5.3.12, 5.7.1-5.7.15), **EN3** (2.7.41-2.7.44), **NPPF** (199)	In	Construction-phase traffic and dust emissions that may generate air quality effects.
Chapter 10: Human Health	**EN-1** (4.4.1-4.4.8), **NPPF** (96-108)	In	Assessment required to consider potential effects on human health and wellbeing arising from the construction and operation of the Proposed Development, including direct, indirect and cumulative effects where relevant.
Chapter 11: Landscape and Visual	**EN-1** (5.10.1–5.10.38), **EN-3** (2.7.69-2.7.71, 2.12.94-2.12.99m 2.12.124-2.12.125, 2.12.158-2.12.161), **NPPF** (187-191)	In	Effects on the open, low-lying agricultural landscape of Everton Carr and the Humberhead Levels, including visual effects on surrounding settlements, residential receptors, transport routes and landscape character.
Chapter 12: Noise and Vibration	**EN-1** (5.12.1–5.12.18), **EN-3** (2.12.100-2.12.104, 2.12.126, 2.12.162-2.12.165), **NPPF** (187)	In	Operational and construction noise effects on residential and ecological receptors.
Chapter 13: Socio-economics, Tourism and Recreation	**EN-1** (5.13.1-5.13.12), **NPPF** (85-89)	In	Assessment of potential socio-economic, tourism and recreation effects arising from the Proposed Development, including employment, economic output,

EIA Topic	Key Policy Drivers (with Paragraphs)*	Scoped In/Out	Relevance
			local expenditure and potential effects on recreational receptors.
Chapter 14: Access, Traffic & Transport	**EN-1** (5.14.1–5.14.22), **EN3** (2.12.107- 2.12.113, 2.12.128-2.12.134), **NPPF** (109-123)	In	Effects from construction traffic movements and route modifications on local and strategic road networks.
Chapter 15: Hydrology, Hydrogeology, Water Resources and Flood Risk	**EN-1** (5.6.1-5.6.22, 5.8.1-5.8.42), **EN3** (2.4.13-2.4.14), **NPPF** (161-186)	In	Potential effects on surface water, groundwater, drainage infrastructure, WFD waterbodies and flood risk. Assessment is required given the Site's location within Flood Zone 3 and its association with the River Idle floodplain and wider drainage network.
Chapter 16: Other Environmental Topics	***Policy references to be confirmed following consultation responses and agreement of the final ES scope.*** ***This chapter will address any environmental matters requiring assessment that do not warrant separate standalone technical chapters.***	In	Provides consideration of environmental matters required under the EIA Regulations that do not warrant a standalone technical chapter. The assessment will identify any potential environmental effects and confirm whether additional mitigation or assessment is necessary.
Chapter 17: Aviation, Radar	**EN-1** (5.5.1-5.5.63), **NPPF** (111, 223-224)	In	Potential effects on aviation safeguarding interests, including civil and military radar infrastructure and nearby airport operations, including Doncaster Sheffield Airport.
Material Assets and Waste	**EN-1** (5.15.1, 5.15.18), **National Planning Policy Framework for Waste** [adopted October 2014]	Out	Effects are minimal and managed through standard construction practices; no likely significant effects identified.
Major Accidents & Disasters	**EN-1** (4.13.1-4.13.8), **EIA Regulations** (Reg 4(2)(j) and Schedule 4, Part 1, paragraph 4(e))	Out	Wind energy presents low inherent accident risk; no COMAH, nuclear or major hazard receptors affected. This topic will also be considered in Chapter 16: Other Environmental Topics
Shadow Flicker	**EN-3** (2.1.16–2.12.17, 2.12.105-2.12.106, 2.12.127, 2.12.116-2.12.168)	In	Any shadow flicker effects can be readily mitigated through design and operational controls, and significant environmental effects are not anticipated. This topic will be considered in Chapter 16: Other Environmental Topics

EIA Topic	Key Policy Drivers (with Paragraphs)*	Scoped In/Out	Relevance
Carbon and Climate Change	**EN-1** (4.10.1-4.10.19, 5.3.1-5.3.12), **EN3** (2.4.1-2.4.4), **NPPF** (161-186)	Out	The Proposed Development would make a positive contribution towards decarbonisation and net-zero objectives, with no likely significant adverse effects relating to greenhouse gas emissions or climate resilience. Relevant climate change considerations will be addressed within other topic-specific assessments where appropriate as well as within Chapter 9: Air Quality and Greenhouses Gases

* Paragraph references are not exhaustive and are intended to highlight the key policy provisions. The full policy documents should be read as a whole.

4.7 Other Consents and Notifications

Disapplication of Legislative Provisions

4.7.1 The Planning Act 2008 allows DCO applications to apply, modify or exclude statutory provisions where necessary for NSIPs and acknowledges that such requirements typically become clear only as project design and construction methods develop further.

4.7.2 Consideration is being given to the consents and approvals that may need to be secured through the DCO for the Proposed Development. As the EIA progresses, pre-application discussions will be held with relevant stakeholders to establish an agreed position on which legislative requirements or consents may appropriately be disapplied through the DCO. This process will ensure that any proposed disapplication of legislative requirements is informed by early dialogue and aligned with stakeholder expectations.

4.8 Further Consideration for Consultees

4.8.1 The following questions are provided to help frame consultee comments on the Scoping Report for legislation and policy context:

- Q4.1: Do consultees have any comments on the key policy context set out in **Section 4.4**?
- Q4.2: Do consultees have any comments on the other policy considerations set out in **Section 4.5**?
- Q4.3: Do consultees have any comments on the local planning policy context set out in **Section 4.6**?
- Q4.4: Do consultees have any comments on the key environmental legislation of relevance to the Proposed Development in **Section 4.7**?
- Q4.5: Do consultees have any comments on the relevant NPS policy in the context of the proposed EIA scope set out in **Section 4.8**?

5. Geology, Soils Ground Conditions and Peat

5.1 Introduction

5.1.1 This chapter of the Scoping Report sets out the proposed scope and methodology of the Geology, Soils, Ground Conditions and Peat assessment of the Proposed Development. It identifies the potential likely significant effects arising from the construction, operation and management, and decommissioning of the Proposed Development, in isolation and cumulatively, on Geology, Soils, Ground Conditions and Peat. The chapter also explains how likely significant effects would be assessed for the purposes of the EIA.

5.1.2 Details of the construction, operation and maintenance, and decommissioning of the Proposed Development are set out in **Chapter 2: Proposed Development Description**.

5.1.3 There are interrelationships between the potential effects on Geology, Soils, Ground Conditions and Peat and other environmental topics. Therefore, this chapter should be read alongside the following chapter of the Scoping Report, which has later been cross-referenced as necessary:

- **Chapter 6: Ecology.**
- **Chapter 15: Hydrology, Hydrogeology, Water Resources and Flood Risk.**

5.1.4 This chapter is supported by the following figures in **Volume A**:

- **Figure 5.1: Predictive Agricultural Land Classification.**
- **Figure 5.2: National Soils Map.**
- **Figure 5.3: Peat Probe Depth Plan.**

5.2 Study Area

5.2.1 For the purposes of Scoping, the “Study Area” for Geology, Soils, Ground Conditions and Peat has been defined by the “Site Boundary”. The Site Boundary encompasses all locations where physical ground disturbance could arise from the Proposed Development and therefore represents the maximum foreseeable area within which the Proposed Development could give rise to direct or indirect effects on geological features, agricultural land, soil resources or existing ground conditions.

5.2.2 The Study Area has been used to describe the current baseline conditions in **Section 5.3** in relation to geology, soils, ground conditions and peat. The Proposed Development will continue to evolve through the EIA process as design, assessment and consultation are undertaken. As the Proposed Development is refined, the Study Area for the EIA will be updated accordingly and defined with reference to the draft Order Limits Baseline Environment.

Overview of Available Data Sources

5.2.3 The data sources to be consulted in the production of the Geology, Soils, Ground Conditions and Peat Environmental Statement (ES) chapter include, but are not limited to, those outlined in **Table 5-1.**

Table 5-1: Key sources of information for Geology, Soils, Ground Conditions and Peat

Source	Summary	Spatial Coverage of Study Area
British Geological Survey (BGS) Onshore Geoindex	Provides information on bedrock geology, superficial geology, linear features, and mines and quarries within the Study Area.	Full Coverage
Natural England Peat Map	Provides predicted peaty soil depth and peaty soil extent and condition within the Study Area.	Full Coverage
Met Office	Climatological Data for Agricultural Land Classification - Climatic records used to calculate Agricultural Land Classification (ALC) grades	Full Coverage
National Soil Map for England and Wales	1:250,000 map showing over 300 soil associations	Full Coverage
Natural England	Provisional Agricultural Land Classification	Full Coverage
Natural England	Predictive Agricultural Land Classification for England	Full Coverage
Natural England	Post-1988 Agricultural Land Classification	Full Coverage
Natural England	Likelihood of Best and Most Versatile (BMV) Agricultural Land	Full Coverage
Knox et al. (2015)	Research to develop the evidence base on soil erosion and water use in agriculture	Full Coverage
LandIS Soilscapes	Provides information regarding soils within the Study Area.	Full Coverage
Nottinghamshire County Council (NCC)	Provides information regarding Mineral Safeguarding Areas in the Nottinghamshire County Council area.	Full Coverage
Bassetlaw District Council (BDC)	Provides information regarding the Contaminated Land Register held by Bassetlaw District Council.	Full Coverage
Google Earth imagery (2026)	Used to identify potential soil boundaries; e.g. poorly drained soils, crop wilting etc	Full Coverage
Mining Remediation Authority	Provides information regarding mining within the Study Area.	Full Coverage
Natural England DEFRA open data	Provides information regarding designated sites, and agricultural land classification within the Study Area.	Full Coverage
Zetica, Unexploded Bombs Website	Provides information regarding UXO	Full Coverage
Detailed UXO Risk Assessment by RMS UXO Limited	Detailed UXO Risk Assessment for the Study Area	Full Coverage
Historical Ordnance Survey Extracts (supplied by Groundsure)	Historical Maps of the Study Area	Full Coverage

5.3 Overview of Baseline Environment

Bedrock Geology

5.3.1 BGS Onshore GeoIndex Mapping indicates that the majority of the Site is underlain by the Mercia Mudstone Group, comprising sedimentary mudstones and subordinate siltstones. Thin beds of gypsum/anhydrite are widespread, and thin sandstones are also present. A smaller portion of the western edge of the Site is underlain by the Chester Formation, which in Nottinghamshire comprises pebbly, friable sandstone.

5.3.2 No significant mapped faults, igneous intrusions or linear geological features are present beneath the Site.

Superficial Geology

5.3.3 BGS Onshore GeoIndex Mapping indicates that the bedrock geology is overlain by three primary superficial units.

- Quaternary Alluvium (comprising clay, silt, sand, and gravel) found in the south-eastern corner and a small area in the south-west.
- Quaternary River Terrace Deposits (comprising sand and gravel, with local lenses of silt, clay or peat) in a small area in the north-west, and
- The Devensian Sutton Sand Formation (comprising fine-grained silty sand) also underlies areas within the northern and southern part of the Site.

5.3.4 BGS Onshore GeoIndex indicates no made ground deposits are present across the Study Area.

Soil and Peat

5.3.5 Mapping from the Natural England Peat Map (2025) indicates that extensive areas of peaty soils are present across the Study Area. The deepest deposits, > 1.5 m in depth, appear to be isolated to small pockets in the south-east and south-west. The majority of peat deposits appear to range from 0.2 m to 1.0 m in depth with fewer peat deposits mapped in the north. The Natural England Peat Map does not indicate the presence of peatland drainage and erosional features across the Study Area.

5.3.6 The England Peat Map is a strategic, modelled dataset that predicts the likely extent and characteristics of peat across England. As the mapping is derived from machine-learning models rather than comprehensive ground verification, it should be considered indicative and used only as a scoping tool to assess the potential presence of peat. Site-specific surveys are required to confirm the actual presence, extent and depth of peat within any area of interest.

5.3.7 BGS Onshore GeoIndex records eleven Historical BGS boreholes to be present within the Study Area with peat recorded in all the boreholes, typically between 0.3m and 1.3m below ground level (bgl).

5.3.8 A low-resolution Phase 1 peat depth survey was undertaken by SLR Consulting Ltd in August 2026 across the wind farm array using a 100 m × 100 m probe grid. The survey results indicate that the majority of the Site is underlain by shallow loamy and silty soils, typically less than 0.3 m in depth. Small, isolated areas of residual peat and peaty soils were identified within topographic depressions in the

underlying superficial deposits, with a maximum recorded thickness of 0.9 m (**Figure 5.3, Volume A**).

5.3.9 The peat deposits are characterised by the presence of woody fragments, indicative of former Carr Woodland that is no longer present on Site following agricultural conversion. Historic deep ploughing has resulted in significant disturbance and mixing of the remaining peat soils, creating a thin layer of organically enriched soil, generally less than 0.1 m thick, overlying silts and clays with extensive gleying are evident at the base of the soil profile.

5.3.10 It is considered likely that much larger areas of the Site historically supported peaty soils; however, these have largely been lost as a result of agricultural improvement and are now absent from most of the Site.

5.3.11 Baseline information on the soil resources present within the Study Area are available from the National Soil Map for England and Wales and the LandIS soils datasets. These are based on soil surveys carried out by the Soil Survey of England and Wales in the 1970s. The map has a scale of 1:250,000 which is not sufficiently detailed to show small-scale variation in soil type at the field level. However, it does provide a general indication of the soil types within the wider area which would be verified with the Site-specific soil information from detailed Agricultural Land Classification (ALC) survey.

5.3.12 The National Soil Map indicates that four soil associations occur within the vicinity of the Site:

- Isleham 2 (861b).
- Altcar 2 (1022b).
- Willingham (372).
- Downholland 3 (851c).

5.3.13 Isleham 2 (861b) association soils are mapped across the western and southern areas of the Study Area, characterised by deep permeable sandy and peaty soils affected by groundwater.

5.3.14 Altcar 2 (1022b) association soils are mapped across the central, south-eastern and northern boundaries of the Study Area, characterised by deep peat soils, in part very acid.

5.3.15 Willingham (372) association soils are mapped across an area in the east of the Study Area, characterised by extremely calcareous silty and clayey soils, in places humose, and often over peat.

5.3.16 Downholland 3 (851c) association soils are mapped across the north-eastern extent, characterised by deep stoneless clayey soils with a peaty or humose surface horizon.

5.3.17 All associations are found on flat land where groundwater is controlled by ditches and pumped drainage systems, with the exception of Isleham 2 (861b) which has a very complex soil pattern with hummock and hollow microrelief locally. Buried peat horizons are possible in all soil associations. The presence of such horizons would be further investigated in the proposed detailed soils and ALC survey and will feed into the overall peat assessment. The key characteristics of these soil associations are summarised in **Table 5-2**.

Table 5-2: Soil Associations within the Site

SOIL ASSOCIATION	ISLEHAM 2 (861B)	ALTCAR 2 (1022B)	WILLINGHAM (372)	DOWNHOLLAND 3 (851C)
Geology	Glaciofluvial drift and peat	Fen peat	Lake marl tufa and peat	Marine alluvium and fen peat
Soil Series	Isleham, Adventurers', Ollerton, Blackwood	Altcar, Adventurers', Mendham	Padney, Willingham, Brimpton, Colthrop, Adventurers'	Downholland, Adventurers', Isleham
Soil characteristics	This association consists of deep permeable sandy and peaty soils on low-lying land affected by groundwater with a very complex soil pattern with hummock and hollow microrelief locally. The soils are formed in glaciofluvial sands covered in places by thin remnants of wasted peat. There is frequently a sequence from sandy soils on slightly raised ground to peats in the lowest positions. The Isleham series belongs to the typical humic sandy gley soils and has a dark humose or peaty topsoil and a pale grey subsurface horizon becoming brown and mottled below. The Blackwood series, typical sandy gley soils, is not humose but is mottled grey	This association consists of deep peat soils, in part very acid, on flat low-lying fenland. The main soils are classified with Altcar series, earthy eu-fibrous peat soils, and have peaty topsoils over partly humified semi-fibrous or fibrous peat with recognizable remains of grasses and sedges. In the associated Adventurers' series, which belongs to the earthy eutro-amorphous peat soils, the profiles are humified and amorphous throughout, with very few visible plant remains. The less common Mendham series, earthy sulphuric peat soils, is also in humified peat but subsoils are extremely acid from oxidation of iron sulphides upon drainage.	This association consists of extremely calcareous silty and clayey soils, in places humose, and often over peat with some patches of deep peat on flat land. The main soils belong to the Willingham series, gleyic rendzina-like alluvial soils. Brimpton series, humic gleyic rendzina-like alluvial soils, with a darker topsoil and higher organic matter content are common. The Adventurers' series, earthy eutro-amorphous peat soils, occurs in patches in very variable proportions in the different parcels of the association.	This association consists of deep stoneless clayey soils with a peaty or humose surface horizon and some deep peat and humose sandy soils over gravel on flat land. Stoneless marine clays with peaty or humose upper horizons give humic alluvial gley soils, of which the Downholland series is the most extensive. These are associated with earthy eutro-amorphous peat soils, the Adventurers' series, in deep, well-decomposed peaty containing few or no identifiable plant remains, which formed under conditions of high groundwater. Where humose or peaty deposits overlie sand and gravel the Isleham series, typical humic sandy gley soils, is found. The

SOIL ASSOCIATION	ISLEHAM 2 (861B)	ALTCAR 2 (1022B)	WILLINGHAM (372)	DOWNHOLLAND 3 (851C)
	beneath the topsoil. The associated Ollerton series, a member of the gleyic brown sands, has brown mottled profiles. These soils may be slightly stony and Blackwood and Ollerton soils usually occur on relatively high ground. The earthy eutro-amorphous peat soils of the Adventurers' series are generally less than a metre thick. Loamy and clayey soils also occur.	There is a wide variation in peat thickness, degree of peat decomposition, subsoil acidity and texture of the mineral substrate. Around Misson, Wiseton and Clayworth the peats often have thin clayey or silty alluvial topsoils and, at Misson, woody remains can be encountered at depth.		ground is generally flat and between 1.5 and 7.5 m O.D. The soils form a complex pattern of easily worked peaty and humose sandy soils with more difficult clays and humose clays.
Soil Water Regime	The main soils of this association are permeable and well- drained (Wetness Class I), where the groundwater levels can be controlled by pump drainage.	Some soils in this association are poorly drained and severely waterlogged (Wetness Classes V and VI), They typically occupy narrow strips in valleys lacking efficient arterial drainage. However, where there is a very low rainfall and an efficient pumped drainage system, the soils are mainly well drained (Wetness Class I), but some, particularly where the peat rests on an impermeable substratum, are occasionally	Willingham soils with their permeable topsoils and mineral subsoils overlying humified peat at greater depth are well-drained (Wetness Class I) where there is efficient pumped drainage.	The soils are severely waterlogged (Wetness Class V or VI) in their natural state but are permeable and very responsive to drainage measures. An arterial system with adequate freeboard is usually present resulting in well drained or occasionally waterlogged soils (Wetness Class I or II).

SOIL ASSOCIATION	ISLEHAM 2 (861B)	ALTCAR 2 (1022B)	WILLINGHAM (372)	DOWNHOLLAND 3 (851C)
		waterlogged (Wetness Class II).		
Erodibility*	Moderate risk	Very small risk	Moderate risk	Moderate risk
*Based on Knox et al. (2015)				

Agricultural Land Classification

5.3.18 Provisional ALC data indicate that most of the Study Area consists of Grade 2 (very good) quality agricultural land, with areas of Grade 3 (good to moderate) agricultural land present in the north-eastern and north-western extends. A narrow band of Grade 4 (poor) quality agricultural land is also identified along the northern boundary of the Site.

5.3.19 The predictive ALC map for England indicates that the agricultural land consists predominantly of Grade 1 (excellent) quality agricultural land, with areas of Grade 2 in the north-west and north-east and areas of Subgrade 3a in the south-west and north-east, in addition to small, isolated areas of Grade 5 and Non-agricultural as shown in **Figure 5.1 (Volume A)**. The scale of provisional ALC mapping (1:250,000) is not accurate to the field level and cannot identify variations in ALC grade within an area of less than 80 ha. Similarly, the scale and resolution of the predictive ALC map for England means that it should only be used for strategic or indicative purposes and cannot be used as a replacement for detailed field-based ALC surveys. The ALC grading within the Study Area can only be conclusively determined through a detailed ALC survey.

5.3.20 There are no detailed post-1988 ALC survey data available for the Study Area. The nearest detailed ALC survey was carried out approximately 560 m west of the Study Area. The surveyed areas nearest to the Study Area consisted of Subgrade 3a quality agricultural land respectively, with areas of Grade 4 and Subgrade 3b also recorded further away from the Study Area. This confirms the presence of Best and Most Versatile (BMV) agricultural land within the vicinity of the Site. The Natural England likelihood of BMV agricultural land map for East Midlands Region indicates that land within the majority of the Study Area has a ‘High Likelihood’ of BMV presence (>60% of area BMV), with isolated areas in the north with a ‘Moderate Likelihood’ of BMV presence (20 - 60% area BMV).

5.3.21 Due to the absence of detailed ALC survey data and the likely presence of BMV land within the Site boundary, a detailed ALC survey will be carried out to inform the ES chapter. The methodology for this proposed survey is described further in **Section 5.4.11**.

Mines and Quarries

5.3.22 The Mining Remediation Authority (MRA) interactive map identifies the Site as being located within a Coal Mining Reporting Area but outwith a Development High Risk Area.

5.3.23 No mines or quarries are indicated to be present across the Study Area. There are three active sand and gravel quarries in close proximity to the Site. The closest is Newington South Quarry, located to the northwest of the Site boundary. Just north of that is the Bawtry Road Quarry and further north is the Finningley Quarry, north of the River Idle, east of Doncaster Sheffield Airport.

Mineral Safeguarded Areas

5.3.24 The Nottinghamshire Minerals Local Plan Policies Map (adopted March 2021) indicates the Study Area to be located within a Minerals Safeguarding Consultation Area (Policy SP7 Minerals Safeguarding, Consultation Areas and Associated Minerals Infrastructure). This is related to the superficial deposits of sand and gravel that are present beneath the Study Area.

Designated Sites

5.3.25 There are no designated areas of protection located within the Study Area in relation to sensitive geological or soils receptors.

5.3.26 There is one Site of Special Scientific Interest (SSSI), River Idle Washlands, adjacent to the north-eastern area of the Study Area, classified as “Unfavourable no change”. The Misson Line Bank SSSI is located immediately adjacent to the northeastern area of the Site, beyond the River Idle, and is partly classified as “Unfavourable no change” and partly as “Favourable Condition”.

Unexploded Ordnance (UXO)

5.3.27 The online Zetica UXO database[1] considered the risk from unexploded ordnance (UXO) within the Study Area to be low. However, a Detailed UXO Risk Assessment (DRA) was commissioned due to potential sources of UXO contamination within proximity of the Study Area. The DRA concluded that the Study Area lies within a low-risk zone, for which the following standard mitigation measures shall be implemented:

- Safety awareness briefing;
- Site-specific emergency response plan; and
- On-call Explosive Ordnance Disposal (EOD) engineer.

5.3.28 A small portion of the north-eastern corner has been classified as a medium-risk area, where the following standard mitigation measures shall be applied:

- Project-specific risk mitigation strategy;
- Safety awareness briefings for all site personnel;
- Site-specific emergency response plan;
- On-call EOD engineer (off-site responder);
- On-site EOD engineer support for site investigation works;
- Non-intrusive UXO survey; and

[1] https://zeticauxo.com/guidance/risk-maps/

- Intrusive UXO survey (where non-intrusive methods cannot achieve required depths).

Contaminated Land

5.3.29 The Contaminated Land Public Register maintained by Bassetlaw District Council (BDC) lists no contaminated sites within or near to the Study Area.

Historical past use and industrial activities

5.3.30 Contaminated soils are generally associated with historical or current industrial activities where localised or widespread contamination has occurred. In general, these former activities are concentrated in and around urban areas.

5.3.31 Review of historical Ordnance Survey mapping for the Study Area shows it to have been largely undeveloped, in a rural setting comprising fields with several farmsteads located within and outside the boundary and an extensive network of drainage channels.

5.3.32 No historic landfill sites are recorded to be present within the Study Area. The nearest is recorded to be a Refuse Tip off Bawtry Road approximately 1.1 km north-west of the Study Area, which accepted commercial and household wastes between December 1968 and December 1976.

5.4 Proposed Approach to the Environmental Impact Assessment

5.4.1 The potential significant effects of the Proposed Development on Geology, Soils, Ground Conditions and Peat would be considered in the relevant topic-specific ES chapter, which would follow, as appropriate, relevant legislation, policy and guidance including:

Relevant Policy, Legislation and Guidance

Local Policy

- Nottinghamshire Minerals Local Plan – adopted 25 March 2021
  - Policy SP7: Minerals Safeguarding, Consultation Areas and Associated Minerals Infrastructure
  - MP2: Sand and Gravel Provision
  - DM3: Agricultural Land and Soil Quality
  - DM4: Protection and Enhancement of Biodiversity and Geodiversity
  - DM8: Cumulative Impact
  - DM12: Restoration, aftercare and after-use
  - DM13: Incidental Mineral Extraction
  - DM15: Borrow Pits
  - DM17: Mineral Exploration
- Bassetlaw Local Plan 2020-2038 - adopted by the Council on 29 May 2024
  - Policy ST49 Renewable Energy Generation

Legislation

- Environmental Permitting (England and Wales) (Amendment) Regulations 2023
- Environmental Protection Act 1990
- Infrastructure Planning (Environmental Impact Assessment) Regulations 2017

National Policy

- National Policy Statements (NPS):
  - Overarching National Policy Statement for Energy (EN-1)
  - Renewable Energy Infrastructure (EN-3).
- National Planning Policy Framework, August 2026

Guidance

- CIRIA C811: Environmental Good Practice on Site (fifth edition)
- NatureScot Good Practice During Wind Farm Construction Guidance
- Land contamination risk management (LCRM)
- Defra: Agricultural Land Classification of England and Wales: Guidelines for grading the quality of agricultural land
- Institute of Sustainability and Environmental Professionals (Formerly the Institute of Environmental Management and Assessment – IEMA): A New Perspective on Land and Soil in Environmental Impact Assessment
- Natural England Technical Information Note TIN049: Agricultural Land Classification: protecting the best and most versatile agricultural land
- Institute of Quarrying: Good Practice Guide for Handling Soils in Mineral Workings
- Defra Construction Code of Practice for the Sustainable Use of Soils on Construction Sites

Further Baseline Data

Desk Study

5.4.2 A detailed desk study would be undertaken to determine and confirm the baseline characteristics of the Site by reviewing available information relating to Geology, Soils, Ground Conditions and Peat. This would include review of published geological maps, Ordnance Survey maps, aerial photographs, digital terrain models (slope plans) and geological literature.

5.4.3 The desk study would identify sensitive features which may potentially be affected by the Proposed Development and will confirm the geological and environmental baseline.

5.4.4 This would include Preliminary Land Quality Risk Assessment (PLQRA) undertaken in accordance with Land Contamination Risk Management (LCRM) guidance.

Field Surveys

5.4.5 A targeted site walkover of areas of interest will be undertaken where the findings of the PLQRA identify potential sources of contamination requiring further investigation through a site walkover

5.4.6 Should it not be possible to avoid identified areas of peat or peaty soils through an iterative design process (due to other environmental or technical constraints), detailed peat depth surveys would be undertaken in those areas where the findings of the low-resolution peat surveys identified peat, or peaty soils. In addition to probing, an assessment of peat soils would be gathered in conjunction with targeted ALC surveys, via hand pits.

Peat Management Plan

5.4.7 To enable the avoidance, protection, and mitigation of impacts on peat soils arising from the Proposed Development, an understanding of the extent and condition of peat soils on Site will be required. This will support the approach detailed in the 2025 Environmental Improvement Plan (UK Government, 2025).

5.4.8 Subject to the identification of peat and potential disturbance by the Proposed Development, a Stage 1 Peat Management Plan (PMP) will be prepared as a technical appendix to the ES, in line with NPPF and guidance provided in the SEPA Regulatory Position Statement: Developments on Peat (2012) and NatureScot Good Practice During Wind Farm Construction guidance (2024). The Stage 1 PMP will set out measures including, but not limited to, the following:

- avoiding peat excavation where practicable;
- minimising the volume of peat excavated where disturbance cannot be avoided;
- reusing excavated peat in a manner to which it is suited; and
- peat condition assessment (PCA) to classify peatland type and condition.

5.4.9 The PMP would be undertaken if the design impacts on peat soils. Should the design avoid peat entirely, these assessments may not be required.

Mineral Resource Assessment

5.4.10 To ensure potential impacts associated with the possible sterilisation of safeguarded mineral resources arising from the Proposed Development are appropriately considered, a review of mineral resources and mineral safeguarding designations will be undertaken. If required, a Mineral Resources Assessment will identify whether the Site lies within a Mineral Safeguarding Area (MSA) or contains minerals of economic importance. The assessment will review BGS mapping, and publicly available records to determine the presence, extent and potential viability of safeguarded minerals.

Agricultural Land Classification Survey

5.4.11 Baseline data for assessing impacts on soil resources and functions would be obtained from a detailed soils and ALC survey. It is proposed that the survey would cover each entire field where a wind turbine would be located, in addition to the proposed entry points, and foot print for the cable and access route corridors that extend outside of those fields where practical.

5.4.12 In addition to forming the baseline for the assessment in the ES, the survey can also be used to inform project design by allowing for potential micrositing of wind turbines within fields to avoid areas of higher quality agricultural land or higher sensitivity soil resources. The survey would also provide the necessary detail for soil management planning to safeguard the soil resources from damage or loss during construction.

5.4.13 The survey would be carried out in accordance with the updated ALC guidelines (Defra, 2025). ALC is a standardised method for grading agricultural land based on factors such as soil type, climate, topography, and drainage. The ALC system places land into five Grades (with Grade 3 subdivided into Subgrades 3a and 3b) from Excellent to Very Poor. Grades 1, 2 and Subgrade 3a (Excellent, Very Good and Good quality land) are termed BMV land.

5.4.14 Survey points would be distributed across the areas mapped at Grade 3 on a 100 m x 100 m rectilinear grid, or at 100 m intervals on linear features, ensuring a density of at least one point per hectare as required by Natural England in TIN049. The survey points would consist of a combination of soil auger cores surveyed with a 70 mm diameter Edelman auger, along with representative soil pits, to a depth of 1.2 m. The proposed ALC survey would also involve the collection of samples for laboratory analysis to validate assessments of soil texture made in the field, in line with the IEMA 2022 guidance.

Consultation and Engagement

5.4.15 As part of the consultation phase of the Proposed Development, environmental data and views of the Proposed Development will be sought from:

- Natural England;
- Environment Agency; and
- Local Planning Authorities, Nottinghamshire County Council (NCC), BDC.

Proposed Assessment Methodology

5.4.16 The assessment of effects would reflect the methodology in the Institute of Sustainability and Environmental Professionals (formerly the Institute of Environmental Management and Assessment's, IEMA) 2022 'A New Perspective on Land and Soil in Environmental Impact Assessment', which provides a framework for the inclusion of land and soil in the EIA process. This methodology would be supplemented by industry standard good practice and professional judgement. The assessment methodology allows for the separate assessment of soil resource (both in situ and during handling and storage) and soil functions.

5.4.17 Using the IEMA guidance, three receptors have been identified for assessment:

- soil resources;
- agricultural land (or the soil function 'biomass production' as termed in the IEMA guidance); and
- soil carbon.

5.4.18 The methodology for the assessment is provided below for each receptor.

Assessment of Sensitivity

5.4.19 The criteria for determining the significance of effects is a two-stage process which involves defining the sensitivity of the receptors and the magnitude of the impacts.

This section describes the criteria that will be used to assign values to the sensitivity of receptors and to the magnitude of potential impacts.

5.4.20 **Table 5-3** sets out the scale of sensitivity that has been applied to the receptors identified in relation to this technical assessment.

5.4.21 The land within the Site boundary is primarily used for agriculture. As such, the assessment of impacts on soil functions would include 'biomass production', that is, the land's capacity to provide food, fibre or timber, as defined in the IEMA guidance. Impacts upon the agricultural land receptor would be assessed using the criteria set out in **Table 5-3** which is based on Table 2 of the IEMA guidance. Baseline data to assess the sensitivity of the agricultural land within the Study Area would be obtained from a detailed ALC survey.

5.4.22 Soil carbon would also be included as a receptor, assessed with the sensitivity criteria provided in **Table 5-3** which are based on Table 2 of the IEMA guidance. The IEMA guidance does not distinguish between '"Medium"' and '"Low"' sensitivity mineral soils. The criteria for distinguishing between Medium and Low sensitivity of mineral soils included in **Table 5-3** is therefore based on Figure 7 of the Soil Survey Field Handbook - limiting percentages of organic carbon/matter and clay content for soils.

Table 5-3: Sensitivity of Receptor

Receptor Sensitivity	Receptor Type
Very High	**Agricultural Land:** ALC Grades 1 and 2 - Land with no or very minor limitations to agricultural use. A very wide range of agricultural and horticultural crops can be grown. Yields are high and less variable than on land of lower quality. Grade 2 may comprise soils that show difficulties with the production of more demanding crops (e.g., Winter harvested vegetables and arable root crops). The level of yield is generally high but may be lower or more variable than Grade 1. **Soil Carbon:** Peat soils and highly organic material with minimal mineral content, which are a high-density stable carbon store but subject to rapid wastage and carbon loss if disturbed. **Geology:** very rare and of international importance with no potential for replacement (e.g. UNESCO World Heritage Sites, UNESCO, Global **Geoparks,** SSSIs and Geological Conservation Review (GCR). Where citations indicate features of international importance). Geology meeting international designation citation criteria which is not designated as such. **Contamination:** human health: very high sensitivity land use such as residential or allotments.
High	**Agricultural Land:** ALC Subgrade 3a - Land capable of consistently producing moderate to high yields of a narrow range of arable crops (especially cereals) or moderate yields of a wide range of crops (including cereals, grass, oilseed rape, potatoes, sugar beet) and the less demanding horticultural crops. **Soil Carbon:** Organo-mineral soils which have topsoils with organic matter contents of 10-25% or a surface peat horizon which is <40 cm thick. **Geology:** rare and of national importance with little potential for replacement (e.g. geological SSSI, National Nature Reserves (NNR)). Geology meeting national designation citation criteria which is not designated as such. **Contamination:** human health: high sensitivity land use such as public open space.

Receptor Sensitivity	Receptor Type
Medium	**Agricultural Land:** ALC Subgrade 3b - Land capable of producing moderate yields of a narrow range of crops (principally cereals and grass) or lower yields of a wider range of crops or high yields of grass that can be grazed or harvested over most of the year. **Soil Carbon:** Mineral soils primarily composed of mineral particles (sand, silt and clay) with organic matter levels typically less than 10%, or fine and medium textured mineral soils able to hold moderate levels of organic matter (5 to 10%). **Geology:** of regional importance with limited potential for replacement (e.g. Regionally Important Geodiversity Sites (RIGS) and County Geological Sites). Geology meeting regional designation citation criteria which is not designated as such. **Contamination:** human health: medium sensitivity land use such as commercial or industrial.
Low	**Agricultural Land:** ALC Grades 4 and 5 – Land with severe limitations that significantly restrict the range of crops and / or level of yields. Is mainly suited to grass with occasional arable crops (e.g., cereals and forage crops) the yields of which are variable. In moist climates, yields of grass may be moderate to high, but there may be difficulties in utilisation. Mineral soils; Soils primarily composed of mineral particles (sand, silt and clay) with organic matter levels less than 5%, or coarse textured mineral soils only able to hold low levels of organic matter (typically 0 to 5%). **Geology:** of local importance/interest with potential for replacement (e.g. non designated geological exposures, former quarries/mining sites). Contamination: human health: low sensitivity land use such as highways and rail.
Negligible	**Agricultural Land and Soil Carbon:** as for low sensitivity, but with only indirect, tenuous, and unproven links between sources of impact and soil functions. **Geology:** no geological exposures, little/no local interest. **Contamination:** human health: undeveloped surplus land / no sensitive land use proposed.

5.4.23 Impacts upon the soil resource include the loss of soil through erosion and structural damage caused by improper handing or storage. The susceptibility of the soil resource to structural damage and erosion is related to its texture and degree of development. The sensitivity of the soil resource to structural damage would be evaluated using the criteria set out in **Table 5-4** below, adapted from Table 4 of the IEMA guidance. The sensitivity of the soil resource to erosion would be assessed using the criteria set out in **Table 5-5** which are based on the Knox et al. (2015) soil erosion sensitivity classification. Baseline data to assess the sensitivity of the soil resources to these impacts would be available from the detailed soil and ALC survey.

Table 5-4: Definitions of Receptor Sensitivity for Soil Resources (Structural Damage)

Sensitivity	Description
High	Soils with low resilience to structural damage; Soils with high clay and silt fractions (clays, silty clays, sandy clays, heavy silty clay loams and heavy clay loams) and organo-mineral and peaty soils where the Field Capacity Days (FCDs) are 150 or greater. Medium-textured soils (silt loams, medium silty clay loams, medium clay loams and sandy clay loams) where the FCDs are 225 or greater. All soils in wetness class (WC) WCV or WCVI.
Medium	Soils with medium resilience to structural damage; Clays, silty clays, sandy clays, heavy silty clay loams, heavy clay loams, silty loams, and organo-mineral and peaty soils where the FCDs are fewer than 150. Medium-textured soils (silt loams, medium silty clay loams, medium clay loams and sandy clay loams) where FCDs are fewer than 225. Sands, loamy sands, sandy loams, and sandy silt loams where the FCDs are 225 or greater or are in wetness classes WCIII and WCIV.
Low	Soils with high resilience to structural damage; Soils with a high sand fraction (sands, loamy sands, sandy loams, and sandy silt loams) where the FCDs are fewer than 225 and are in wetness classes WCI to WCII.

Table 5-5: Definitions of Receptor Sensitivity for Soil Resources (Loss through Erosion)

Sensitivity	Description
High	Soils with high risk of erosion: light textured soils, organic soils (peat), soils on steeper gradients. Soils with a high fine sand and silt fraction have inherently weaker development and low aggregate stability. Soils on steep ground are also more susceptible to erosion. Peat has high importance as a carbon store and an active role in carbon sequestration, as well as being of high biodiversity value. Peatlands have little capacity to tolerate change. Increased mitigation requirements beyond standard measures are required for peatland. Development on these soils should be avoided where possible. If this is not possible, they require careful consideration and site-specific planning of construction methods (e.g., use of temporary working surfaces, sensitive storage, protection from drying out) in order to preserve their functions.
Medium	Soils with moderate risk of erosion: organo-mineral soils (peaty soils or peaty gleys, peat < 50 cm), loamy soils, gently undulating topography relief Whilst standard mitigation measures will provide appropriate protection to these soils, loss is likely to occur if worked in less-than-ideal conditions (e.g., when above their plastic limit – the moisture state where soil begins to behave as a plastic material). The soils should be given appropriate consideration due to their importance for agricultural production.
Low	Soils with low risk of erosion: heavier textured soils, soils on level or gently sloping land. These soils are generally more resistant to erosion and may be appropriately managed by standard good practice construction measures.

Assessment of Magnitude

5.4.24 The magnitude of an impact is based on its duration and spatial extent. Data sources, feedback received from consultation, and expert judgement will be used to inform the assessment of magnitude for impacts to Geology, Soils, Ground Conditions and Peat receptors. The criteria for defining magnitude of impacts are defined in **Table 5-6**.

Table 5-6: Scale of Magnitude

Scale of Magnitude	Description of Impact
Major	**Agricultural Land, Soil Carbon, and Soil Resources:** Permanent, irreversible loss of one or more soil functions or soil volumes over an area of more than 20 ha or loss of soil-related features. **Geology:** loss of geological feature/designation and/or quality and integrity, severe damage to key characteristics, features or elements. **Contamination:** human health: significant contamination identified. Contamination levels significantly exceed background levels and relevant screening criteria (e.g. category 4 screening levels) SP1010 (Environment Agency 2020) with potential for significant harm to human health. Contamination heavily restricts future use of land.
Moderate	**Agricultural Land, Soil Carbon, and Soil Resources:** Permanent, irreversible loss of one or more soil functions or soil volumes, over an area of between 5 and 20 ha or loss of soil-related features. **Geology:** partial loss of geological feature/designation, potentially adversely affecting the integrity; partial loss of/damage to key characteristics, features or elements. **Contamination:** human health: contaminant concentrations exceed background levels and are in line with limits of relevant screening criteria (e.g. category 4 screening levels) SP1010 (Environment Agency 2020). Significant contamination can be present. Control / remediation measures are required to reduce risks to human health / make land suitable for intended use.
Minor	**Agricultural Land, Soil Carbon, and Soil Resources:** Permanent, irreversible loss over less than 5ha or a temporary, reversible loss of one or more soil functions or soil volumes), or temporary, reversible loss of soil-related features. **Geology:** minor measurable change in geological feature/designation attributes, quality or vulnerability; minor loss of, or alteration to, one (maybe more) key characteristics, features or elements. **Contamination:** human health: contaminant concentrations are below relevant screening criteria (e.g. category 4 screening levels) SP1010 (Environment Agency 2020). Significant contamination is unlikely with a low risk to human health. Best practice measures can be required to minimise risks to human health.
Negligible	**Agricultural Land, Soil Carbon, and Soil Resources:** No discernible loss or reduction or improvement of soil functions or soil volumes that restrict current or proposed land use. **Geology:** very minor loss or detrimental alteration to one or more characteristics, features or elements of geological feature/designation. Overall integrity of resource not affected. **Contamination:** human health: contaminant concentrations substantially below levels outlined in relevant screening criteria (e.g. category 4 screening levels) SP1010 (Environment Agency 2020). No requirement for control measures to reduce risks to human health / make land suitable for intended use.

Assessment of Significance

5.4.25 The significance of the effect upon Geology, Soils, Ground Conditions and Peat receptors is determined by correlating the sensitivity of the receptor and the

magnitude of the impact, as outlined in **Table 5-7**. For the purposes of this assessment, any effects with a level of Very Large, Large and Moderate are considered significant in EIA terms. Any effect that has a significance of Slight or Neutral are deemed non-significant. The approach to assigning the significance of effect relies on reasoned argument and professional judgement. Where effects are assessed as being Slight/Moderate, professional judgement will be used to determine the significance.

Table 5-7: Significance Matrix

Sensitivity	Magnitude of Impact				
	No Change	Negligible	Minor	Moderate	Major
Very High	Neutral	Slight	Moderate/ Large	Large/ Very Large	Very Large
High	Neutral	Slight	Slight/ Moderate	Moderate/ Large	Large/ Very Large
Medium	Neutral	Neutral/ Slight	Slight	Moderate	Moderate/ Large
Low	Neutral	Neutral/ Slight	Neutral/ Slight	Slight	Slight/ Moderate
Negligible	Neutral	Neutral	Neutral/ Slight	Neutral/ Slight	Slight

5.5 Design, Mitigation and Enhancement Measures

5.5.1 As part of the early design process for the Proposed Development, several embedded and standard mitigation measures are proposed to reduce the potential for impacts on Geology, Soils, Ground Conditions and Peat. These are presented below. It is expected that these may evolve throughout the design evolution of the Proposed Development as the EIA progresses and in response to consultation and as more survey data becomes available.

5.5.2 Measures adopted as part of the Proposed Development would include, but not be limited to, the following:

- Avoidance by design where possible. Inherent in the emerging design of the Proposed Development is the commitment to avoid impacts on peat wherever practicable. The design process will prioritise the routing and siting of infrastructure avoiding areas of deeper peat where technically possible, to minimise excavation volumes and ensure that any peat unavoidably removed is carefully handled, stored and reused on site in accordance with recognised best practice. Reuse measures may include reinstatement in areas identified for peatland restoration or to support habitat enhancement, which will be presented in the outline Landscape and Ecology Management Plan (LEMP), which will form part of the application for development consent.
- During detailed design of the Proposed Development, identified relic peat bodies will be avoided where practicable through the application of a 30 m buffer to minimise the potential for adverse drainage effects.
- Avoidance by design where possible. During design of the Proposed Development, loss of BMV land will be avoided where practicable to minimise the potential for adverse effects.

- An outline Construction Environmental Management Plan (CEMP), which will form part of the application for development consent, which will comprise of:
    - An outline Soil Management Plan (SMP) which will set out how soils will be protected, handled, stored and reinstated during the construction phase of the Proposed Development and the principles to be followed when the SMP is finalised.
    - An outline Materials Management Plan (MMP) which will set out the approach to the handling, storage, movement and reuse of excavated soils and construction materials, so these activities are undertaken in a controlled, efficient and compliant manner throughout the construction phase. The outline MMP will set out the principles to be followed the final MMP is finalised.
- Subject to the identification of peat and potential disturbance by the Proposed Development, a Peat Management Plan (PMP) will be prepared to outline the overall approach to minimising disruption to peatland present on Site. It will aim to identify and take forward all further opportunities to minimise peat disturbance and extraction during detailed design and construction of the Proposed Development. An outline PMP (a Stage 1 PMP), will be developed, as part of the application for development consent, to establish the peat management strategy for the Proposed Development and inform the EIA by identifying peat risks, sensitivities, and likely effects associated with the Proposed Development. A Stage 2 PMP would be developed prior to the construction phase of the Proposed Development.

5.5.3 Additional mitigation measures will be considered where significant effects are anticipated to remain after embedded design measures and standard good-practice controls have been applied. If residual impacts persist, proportionate further actions, such as enhancement, remediation or compensation, will be identified to address those remaining effects.

5.5.4 The Applicant is committed to implementing these measures, and various standard sectoral practices and procedures. It is therefore considered that these measures are inherently part of the design and have been considered in the judgements as to which impacts can be scoped in / out of assessment presented in **Section 5.6 and Section 5.7.**

5.5.5 Further detail on the role of mitigation commitments, as part of a proportionate EIA approach, is provided in **Chapter 3: Approach to EIA.**

5.5.6 The requirement for, and feasibility of, any mitigation measures will be subject to consultation with consultees throughout the pre-application phase of the Proposed Development.

5.6 Potential Impacts Scoped In

5.6.1 A range of potential impacts on Geology, Soils, Ground Conditions and Peat have been identified which may occur during construction, operation and maintenance, and decommissioning phases. The impacts that have been scoped into the EIA are outlined in **Table 5-8**, together with a description of any proposed additional data collection (e.g. site-specific surveys) and/or supporting analyses (e.g. modelling) to enable an assessment of the impact.

Table 5-8: Impacts proposed to be scoped into the assessment for Geology, Soils, Ground Conditions and Peat

Impact	Description	Proposed Approach to Assessment Including Description of Any New Data Collection Required and Any Analyses (Such as Modelling)
Construction		
Disturbance and loss of carbon rich soils and peat deposits.	England Peat Map indicates extensive areas of peaty soils are present across the Study Area, but this was not evident during site visit. Small, isolated areas of residual peat and peaty soils were identified within topographic depressions in the underlying superficial deposits, with a maximum recorded thickness of 0.9m.	Targeted ALC surveys across the site will incorporate a peatland specialist to identify any peat through trial pitting and logging. Peat Management Plan (PMP) to be prepared and will be applied if the design impacts on peat soils.
Disturbance and loss of Agricultural Land.	Agricultural land within the Site would be temporarily lost during the construction phase as the development is constructed. As a worst-case to account for construction compounds, access tracks and other temporary infrastructure required for construction, it is assumed that the entire Site would be removed from agricultural use during this period, but that most of the land would be returned to agricultural use at the end of the construction phase. There would also be localised areas of long-term agricultural land loss within the footprint of the turbines and associated infrastructure. As a reasonable worst-case this is assessed as being permanent due to the degree of soil disturbance and long soil storage period (35-year operational phase).	The soil across the Study Area is mapped as Grade 1, Grade 2, Subgrade 3a, Subgrade 3b and small isolated areas as Non-agricultural in the Predictive ALC map, and Grades 2, Grade 3 and Grade 4 in the provisional ALC data. A detailed ALC survey will be carried out to verify the existing desk-based information, using the methodology described in detail above in **Section 5.4**. The results of the survey will be used to inform the baseline for the ES chapter and provide site-specific information for a SMP. The data can also be used to microsite turbine locations and related infrastructure within fields to avoid areas of higher quality agricultural land and/or higher sensitivity soil resources.
Structural damage to soil resource.	Machinery-induced soil compaction, particularly when moisture is above plasticity thresholds, reduces porosity, pore connectivity, aeration, and hydraulic conductivity,	Data obtained from the detailed ALC survey will be used to form the baseline for this receptor. The assessment will follow the methodology described earlier in this chapter.

Impact	Description	Proposed Approach to Assessment Including Description of Any New Data Collection Required and Any Analyses (Such as Modelling)
	leading to progressive structural degradation.	
Loss of soil resource from erosion.	Disturbed, excavated, translocated, and temporarily stockpiled topsoil is at higher risk of soil erosion, relative to undisturbed in situ soils. In the absence of protective vegetative cover, exposed soil surfaces are subject to detachment and transport by wind-driven and rainfall-runoff mechanisms. This erosive loss can diminish the physical and chemical integrity of the soil mantle, reducing its capacity to support agricultural functions.	Data obtained from the detailed ALC survey will be used to form the baseline for this receptor. The assessment will follow the methodology described earlier in this chapter.
Loss of soil organic carbon.	The disturbance of soils during construction would potentially result in the loss of soil organic carbon.	Data obtained from the detailed ALC survey and laboratory analysis of soil samples will be used to inform the baseline for an ES chapter. The assessment will follow the methodology described earlier in this chapter.
Sterilisation of potential resources within the Mineral Safeguarding Area.	The Study Area lies within a sand and gravel safeguarding area. Where overlaps occur between the permanent infrastructure and minerals safeguarding areas this could sterilise future resources.	A Mineral Resource Assessment may be required in order to determine whether mineral resources are present, whether the Proposed Development would result in sterilisation of those minerals, and whether the Proposed Development would be compliant with the relevant mineral safeguarding policies.
Operation and Maintenance		
No activities during this phase are scoped into the assessment.		
Decommissioning		
Structural Damage to Soil Resources.	The process of removing Site infrastructure during the decommissioning phase will involve soil handling and storage for the re-establishment of temporary compounds and access tracks. This poses a risk of causing structural damage to soils, particularly if the soil moisture is above plasticity thresholds. Potential impacts during this phase are	The assessment methodology will be consistent with that of the construction phase.

Impact	Description	Proposed Approach to Assessment Including Description of Any New Data Collection Required and Any Analyses (Such as Modelling)
	anticipated to be similar to the construction phase.	
Loss of Soil Resources through Erosion.	As described above, soils will again be disturbed, moved, and temporarily stockpiled during this phase, and the disturbed soils will be at higher risk of being lost through erosion. It is anticipated that this impact will be consistent with the construction phase impact on this receptor.	The assessment methodology will be consistent with that of the construction phase.
Loss of soil organic carbon.	Soil disturbance associated with decommissioning activities may result in the loss of soil organic carbon.	The assessment methodology will be consistent with that of the construction phase.
Loss of Agricultural Land.	Agricultural land will be temporarily removed from production during the decommissioning phase. It is assumed that the impacts involved in this phase will be similar to that of the construction phase. There will be no further permanent loss of agricultural land during this phase.	The assessment methodology will be consistent with that of the construction phase.
Cumulative		
Disturbance and Loss of Agricultural Land.	In addition to the consideration of the loss and disturbance of agricultural land as a direct impact from the construction of the Proposed Development, the assessment will also consider impact on agricultural land availability on a regional basis.	A review of potential cumulative projects will be undertaken to determine the impact of the Proposed Development on the loss of agricultural land availability on a regional basis. The methodology for the cumulative impact assessment of agricultural land loss will follow the approach described in the IEMA (2022) guidance.
Sterilisation of Mineral Safeguarding Area.	Potential sterilisation of safeguarded minerals. The Study Area lies within a sand and gravel safeguarding area.	A review of potential cumulative projects will be undertaken to determine the cumulative impact to safeguarded minerals.

5.7 Impacts Proposed to be Scoped Out

5.7.1 Based on the baseline environment information currently available the impacts in **Table 5-9** are proposed to be scoped out of the ES for Geology, Soils, Ground Conditions and Peat.

Table 5-9: Impacts proposed to be scoped out of the assessment for Geology, Soils, Ground Conditions and Peat

Impact	Justification for Scoping Out
Construction	
Impacts to Contaminated Land.	Potential contaminated land from historic activities may be present within the Site. However, preliminary review of freely available mapping indicates the Site has comprised open, undeveloped ground with no contaminative past land uses. Scoped out subject to the results of a PLQRA Assessment. Any contamination encountered during the construction phase would be subject to appropriate risk assessment and if necessary, either removed, treated and/ or mitigated as part of the Proposed Development.
Damage to land drainage systems.	It is proposed that impacts upon this receptor are scoped out based on a commitment within a CEMP or detailed SMP to reinstatement and repair any land drains damaged during construction and restoration.
Impacts on farm businesses.	Affected farm businesses have agreed to the Proposed Development, and it is assumed they would be compensated for the loss of land. Access to surrounding land would not be severed, and all impacts will be contained within the Site boundary and draft order limits. Consequently, significant economic effects on land holdings are not anticipated, and this matter is proposed to be scoped out.
Loss of soil resource through off-site export.	Industry standard good practice guidance encourages the reuse of displaced soils within the Site. Off-site removal of soils is considered a last resort. An outline SMP will be produced alongside the ES chapter as embedded mitigation which will set out the requirements of the final, detailed SMP which would be produced pre-construction. This will include measures to ensure the sustainable use of soils within the Proposed Development and prevent the loss of soils through unauthorised export. It is therefore proposed that this impact is scoped out.
Operation and Maintenance	
Activities associated with the operational and maintenance phase of the Proposed Development are not anticipated to give rise to significant effects on Geology, Soils, Ground Conditions and Peat and are proposed to be scoped out of further assessment. This is because this phase would not involve excavation or large-scale earthworks activities and any ground disturbing activities would be minimal and restricted to maintenance activities on access tracks and other infrastructure areas. Whilst the Proposed Development will involve some areas of permanent loss of agricultural land in the locations of permanent infrastructure, this impact would first occur during the construction phase, and it is not re-assessed during the operational phase to avoid double counting impacts. If necessary, a planning condition requiring an Operational Phase Environmental Management Plan to monitor operation and maintenance activities could be submitted and approved by the local authorities prior to the start of construction.	
Decommissioning	
Potential decommissioning effects.	Decommissioning the Proposed Development will be carried out in accordance with an approved Decommissioning, Restoration and Aftercare Plan which will be expected to include the same safeguards as those provided during the

Impact	Justification for Scoping Out
	construction stage of the Proposed Development which will be outlined in the ES.
Cumulative	
Except for consideration of disturbance and loss of agricultural land on a regional basis and mineral safeguarding (see **Table 5-8**), a cumulative effects assessment relating to all other aspects of geology, soils, ground conditions and peat is proposed to be scoped out of assessment. Cumulative impacts with regards to all other aspects of agricultural land, soils and ground conditions are typically anticipated to be significant only where construction activities associated with nearby developments and the Proposed Development would overlap in both spatial footprint and timelines. This is because activities with the potential to adversely affect receptors identified within this chapter would be substantially minimised post-construction through the implementation of mitigation measures set out within **Section 5.5**.	

5.8 Summary of Next Steps

5.8.1 This scoping assessment has been undertaken based on desk-based information with a review of low-resolution peat survey data and a site walkover. A detailed review and assessment of the Site, required to identify the potential impacts upon agricultural land, soils and ground conditions in relation to the Study Area, will be undertaken and set out in the ES.

5.8.2 The next step for this assessment will be to undertake specific surveys and detailed assessment to inform the design process and support EIA assessment. The survey and assessments will include a high-resolution peat depth survey (should it not be possible to avoid identified areas of peat or peaty soils through an iterative design process) and condition assessment along with preliminary land quality risk assessments to confirm ground conditions and the potential extents of contamination sources within the Study Area.

5.8.3 The extent of potential BMV agricultural land will be further investigated in the proposed detailed soils and ALC survey and presence confirmed and included for further assessment if present.

5.8.4 A mineral resource assessment will be undertaken to confirm the Proposed Development is compliant with mineral safeguarding policies.

5.9 Further Consideration for Consultees

5.9.1 The following questions are provided to help frame consultee comments on the Scoping Report for Geology, Soils, Ground Conditions and Peat

- **Q5.1**: Should any additional investigation or data sources be considered when assessing baseline conditions?
- **Q5.2**: Is the proposed methodology for investigating the baseline conditions suitable?
- **Q5.3**: Do you agree that the scope of the proposed assessment is appropriate?
- **Q5.4**: Do consultees agree with impacts scoped in and impacts scoped out?
- **Q5.5**: Are there any specific projects currently going through the planning process which consultees feel should be considered as part of the cumulative assessment?

6. Ecology

6.1 Introduction

6.1.1 of the ecological impact assessment of the Proposed Development. It identifies the potential likely significant effects arising from the construction, operation and maintenance, and decommissioning of the Proposed Development on ecological receptors. It also sets out the proposed approach to identifying and assessing cumulative effects with other relevant plans and projects as the EIA progresses. This chapter explains how likely significant effects would be assessed for the purposes of the EIA and outlines potential biodiversity enhancement measures that will be integral to the design of the Proposed Development.

6.1.2 There are interrelationships between the potential effects on ecology and other environmental topics. Therefore, this chapter of the Scoping Report should be read alongside the following chapters of this Scoping Report:

- **Chapter 5** – Geology, Soils, Ground Conditions and Peat;
- **Chapter 7** – Ornithology; and
- **Chapter 15** – Hydrology, Hydrogeology, Water Resources and Flood Risk.

6.1.3 This chapter is supported by the following Figures and Technical Appendices:

Figures (Volume A)

- **Figure 6.1** Non-Avian Statutory Designated Sites within 10 km;
- **Figure 6.2** Non-Avian Statutory Designations and Non-Statutory Designated Sites within 2 km;
- **Figure 6.3** Ancient woodland, Priority Habitats and Bluesky National Tree Map within 100 m; and
- **Figure 6.4** Areas of Particular Importance for Biodiversity (APIB) and Areas that Could Become of Particular Importance for Biodiversity (ACB) (from the Local Nature Recovery Strategy (LNRS), where available: https://spectrum.nottscc.gov.uk/connect/analyst/mobile/#/main?mapcfg=%2FAnalyst%2FNamedProjects%2FLocalNatureRecoveryStrategy).

Technical Appendices (Volume B)

- **Appendix 6A** Desk study & Protected /Priority Species Habitat Assessment; and
- **Appendix 6B** Great Crested Newt Survey Report.

6.2 Study Area

6.2.1 For the purposes of this chapter, the “Site Boundary” refers to the land within which the Proposed Development would be located, and is synonymous with the “Scoping Boundary”, i.e. including all land that may be required for associated infrastructure, access, construction activities or mitigation. The “Study Area” refers to the area used for ecology baseline data collection and assessment. This may extend beyond the Site Boundary where required to identify relevant ecological receptors and assess the potential for likely significant effects.

6.2.2 The scoping Study Area for ecology is based on the Proposed Development's realistic zone of influence, in line with Chartered Institute of Ecology and

Environmental Management (CIEEM) guidelines (CIEEM 2018) and is tiered as follows:

- Site Boundary + 10 km (as shown on **Figure 6.1, Volume A**): Special Areas of Conservation (SACs) and Ramsar sites. It should be noted that Special Protection Areas (SPAs) will be discussed in **Chapter 7: Ornithology** given that their qualifying features are exclusively avian related;
- Site Boundary + 2 km (as shown in **Figure 6.2, Volume A**): Sites of Special Scientific Interest (SSSIs) and Local Wildlife Sites (LWSs). No Local Nature Reserves (LNRs) or National Nature Reserves (NNRs) are located within this area; and
- Site Boundary + 2 km (as shown in **Figure 6.3, Volume A**): Irreplaceable habitats, priority habitats (as shown on data.gov.uk datasets), protected and notable floral and faunal species.

6.2.3 This tiered approach ensures that:

- Highly sensitive or wide-ranging receptors (e.g. SAC features) are assessed at an appropriately broad scale.
- Local habitats and species are captured within a focused, proportionate study area.
- Assessment effort matches ecological risk, avoiding both under-scoping and unnecessary over-scoping.
- The study remains aligned with regulatory expectations and established ecological assessment methodologies.

6.3 Baseline Environment

Overview of Available Data Sources

6.3.1 This scoping report has been prepared based upon desk study and field survey data gathered to date, as set out in **Table 6-1**. Certain surveys are ongoing whilst others are scheduled to be undertaken later in 2026 and into 2027, the results of these would also be used to inform the EIA.

Table 6-1: Key sources of information for Ecology

Source	Summary	Spatial Coverage of Study Area
Desk Study		
Multi Agency Geographic Information for the Countryside (MAGIC) web-based mapping tool (Natural England 2026) Data obtained 07/05/2026	For Internationally designated sites – SACs, Ramsar sites.	Site boundary + 10 km
	For nationally designated sites – SSSIs, LNRs, NNRs.	Site boundary + 2 km
	For irreplaceable habitats, priority habitats and licences for protected species.	Site boundary + 2 km
Data.gov.uk website (National Data Library 2026) Data obtained 07/05/2026	Ecological datasets, specifically relating to priority habitats and protected species.	Site boundary + 10 km
Nottingham Biological Records Centre (NBRC) Data obtained 30/04/2026	For protected and notable species records.	Site boundary + 5 km
	For designated sites for wildlife.	Site boundary + 2 km
Aerial imagery from Google Earth and Bing Maps (Google 2026) (Bing 2026) Data obtained 07/05/2026	For habitats and features of nature conservation interest.	Site boundary + 2 km
Bug Life website for B-lines (Buglife 2026) Data obtained 07/05/2026	For habitats recognised as important insect pathways.	Site boundary + 2 km
Environment Agency Ecology & Fish Data Explorer (Environment Agency 2026) Data obtained 29/05/2026	For records of diatoms, invertebrates, fish and macrophytes at Environment Agency survey locations.	Site boundary + 5 km

Source	Summary	Spatial Coverage of Study Area
National Library of Scotland website historical maps: specifically, Ordnance Survey 1st and 2nd edition mapping (National Library of Scotland 2026) Data obtained 31/07/2026	Historical land use of the Site.	Site boundary
Land Information System – Soilscapes soil types viewer (Cranfield University 2026) Data obtained 31/07/2026	Soils and substrate present at the Site.	Site boundary
Source	**Summary**	**Spatial Coverage of Study Area**
Field Survey		
Protected, priority and invasive species habitat-based assessment.	A walkover survey of the Site, to assess the potential of the Site to support priority, protected and/ or invasive species, and the likely importance of the habitat for such species by the Lead Ecologist. The survey was undertaken in May 2026. This site familiarisation will be used to refine the scope of follow-on species survey work, and when later collaborating with the design team and other technical specialists.	Entire Site Boundary (where access allowed).
UK Habitat Classification (UKHab)	Habitat survey of the Site following UKHab methodology (UKHab 2023) in June and July 2026. This method enables robust evaluation against nationally and internationally recognised categories (such as Priority Habitats and Annex 1 Habitats). Ahead of site survey work, a pre-mapping exercise was undertaken using aerial photographs to accurately divide the Site into habitat polygons and linear lengths to aid precision in the field and ensure data captured are of the highest standard. A minimum mapping unit of 400m^2 has been used for this task. Habitat data for the Site is being recorded during the field surveys. For each area, line or point habitat feature the following is recorded:	Entire Site Boundary (where access allowed).

Source	Summary	Spatial Coverage of Study Area
	• primary habitat type; • essential secondary habitat codes; • Biodiversity Net Gain (BNG) Metric specific secondary codes; • project specific additional secondary habitat codes; and • dominant and characteristic species, including relative abundance.	
Condition Assessment, using Natural England Metric Criteria and includes a River Condition Assessment (RCA), where relevant.	The condition of each habitat parcel (or group of adjacent parcels of the same habitat type and condition) at the Site has been/ is being assessed using the criteria produced by Natural England (Natural England 2026). Condition assessment was undertaken alongside the UKHab survey in June and July 2026. RCA was undertaken in July 2026 (Gurnell 2024). The condition assessment includes, for example, collecting information on the physical characteristics of the habitat, the presence of positive indicator species and the presence of invasive non-native species. Each habitat parcel that requires it will be assigned a condition score of 'poor', 'moderate' or 'good'.	Entire Site Boundary (where access allowed) and the River Idle (northern watercourse).
Bat Surveys	The proposed scope of survey work is designed to meet current NatureScot guidelines (NatureScot, et al. 2021). These are applicable across the UK and are considered to be the most appropriate survey guidelines in this instance, based on the type of development and anticipated impacts. **Daytime Bat Walkover (DBW)/ Key features survey** A DBW has been undertaken to identify and record any structures (buildings, bridges, tunnels etc) or trees at the Site that could be suitable for bats to roost in and/ or any habitats that could be suitable for bats to commute, forage or swarm at/ in. The results of the DBW have been used to determine the scope for further surveys. The NatureScot guidelines require key features that could support maternity / hibernation roosts or swarming sites within	Site Boundary [redacted]

Source	Summary	Spatial Coverage of Study Area
	200 m (plus rotor radius) of proposed turbine locations to be subject to further investigation. A search for any such features within the relevant areas has therefore been undertaken. **Automated bat activity survey** In this instance, based on the potential impacts and the practicalities at this Site we propose to answer the following questions: • Which bat species are present at the Site, and where? • How does bat activity (as measured by mean, median and maximum calls per night) for high collision risk species vary across the Site? • Does activity survey indicate the presence of nearby maternity roost(s) for high collision risk species? At this stage the methods we propose to achieve this include automated static detector surveys, noting that bat surveys are iterative and targeted follow up surveys may be required depending on results. The automated survey comprises 15 nights of recording in each of: spring (April-May); summer (June-mid-August) and autumn (mid-August-October). The guidelines recommend the minimum survey effort is 10 suitable nights per recording period; however, we have allowed for 15 nights per period to account for poor weather and minimise the risk of abortive work. A weather station is being deployed at the same time as the bat detectors, to verify conditions are appropriate for baseline data gathering. The guidelines require one detector per turbine for the first ten turbines then one per each three turbines after the first ten – so 12 detectors will be required for the proposed 16 turbine scheme. Given turbine locations are at approximate this stage, detector locations have been located to ensure representative	

Source	Summary	Spatial Coverage of Study Area
	habitats within areas likely to be occupied by turbines are sampled. Recordings will be analysed using Kaleidoscope Pro Auto-ID software with the Bats of Europe filter (UK region) to determine species. Where necessary bat calls will also be checked manually to confirm species identification. The data will then be evaluated to answer the questions set out above. Thereafter, the standardised format for presenting bat activity data given in Appendix 1 of the NatureScot guidelines will be used. This will include a measure of relative bat activity obtained using the secure online tool Ecobat. Preliminary Roost Assessment (PRA) and Emergence Survey One building located to the northeast of the Site has potential to be impacted by the Proposed Development and was subject to a PRA and dusk emergence survey in September 2026. A further dusk emergence survey will be undertaken in May 2027. This assessment will be undertaken in line with Bat Conservation Trust Guidelines (Collins 2023).	
Otter Survey	During summer 2026, watercourses and wetland habitat will be assessed for potential to support otters while resting, foraging, breeding or on passage (Chanin 2003). Searches will be made for evidence of otter activity including spraints, footprints, feeding remains, slides (into water) and resting sites. Where these features are identified their location will be recorded and photographs taken of the evidence. In addition, any structures which could potentially be used as a resting site (breeding or otherwise) but do not display any evidence of current use by otter will also be recorded as these features have the potential to be utilised by otter for resting in the future. One survey visit will be undertaken. Surveys for otter can be done at any time of year, but ideally periods following prolonged heavy rainfall and/or high water will be avoided.	All watercourses within the Site and up to 200 m up and downstream, where accessible.

Source	Summary	Spatial Coverage of Study Area
Water Vole Survey	A habitat-based assessment will be undertaken to record the following: • suitability of bank profile and substrate for burrow excavation; • extent of herbaceous vegetation (within channel and along bank); • water level extent and stability; and • overshading extent. The extent of such habitats will be mapped and photographed. The habitats will then be classified negligible, suitable but poor, suitable, good, optimal, which in turn informs follow on survey effort and design. Survey for water vole will be undertaken on all relevant watercourses, i.e. except for those classed as having negligible potential (M. Dean 2021). This comprises a search for evidence of water voles including burrows, feeding remains and latrines. Evidence of brown rat and American mink will also be recorded during the survey. Two visits are required, one in the first half of the season (mid-April to the end of June) and one in the second half of the season (July to September inclusive). These visits should be undertaken at least two months apart. The first survey was undertaken in June/July and the second survey is planned for September 2026.	All watercourses within the Site and up to 200m up and downstream from it, where accessible.
Great Crested Newt (GCN) Survey – Habitat Suitability Index and eDNA Presence/ Absence test	Our review of local mapping suggested there are ten waterbodies on Site and within 250 m of the Site. In May and June 2026, the identified ponds have been: • assessed using the Habitat Suitability Index (HSI) for potential to support breeding GCN (Oldham et al. 2000); • and sampled using the eDNA technique following standard protocol.	Site Boundary+ 250 m

Source	Summary	Spatial Coverage of Study Area
	This involves the collection of water samples from each waterbody by licensed (or experienced and accredited) surveyors, the samples will then be sent to a specialist laboratory for analysis using qPCR. The results confirm the presence or likely absence of GCN in each waterbody and are detailed in **Appendix 6B (Volume B)**.	
Badger Survey	Field signs of badger were identified on Site during the protected, priority and invasive species survey. Therefore, a survey is planned for Autumn/ Winter 2026 when vegetation [redacted]	Site Boundary [redacted]
Update walkover survey	Given the time elapsed between baseline data gathering and final submission, it is anticipated that an update walkover survey will be required to confirm that baseline data remains valid for informing the impact assessments.	Site Boundary + 200 m

6.3.2 On the basis of the current design of the Proposed Development, surveys for reptiles, invertebrates, and other priority mammal species are not proposed based on lack of significant impacts anticipated. This reflects the anticipated localised nature of any effects on these faunal groups, particularly once standard construction best practice and pollution-prevention measures (as set out in **Section 6.5** Design, Mitigation and Enhancement Measures) are implemented. As a minimum, these measures will include limiting the construction footprint, establishing buffers to watercourses, trees, woodlands and buildings, appointing an Ecological Clerk of Works (ECoW) for the duration of construction, and preparing a detailed Construction and Environmental Management Plan (CEMP).

6.3.3 It should be noted that during all surveys, surveyors have noted / will note the presence of protected, notable, and/ or invasive plant or animal species.

6.3.4 Detailed survey results will be presented in a series of baseline survey reports, which will be appended to the ES.

Overview of Baseline Environment

Designated Sites

6.3.5 There are three SACs, one Ramsar and six SSSIs within the study area. In summary these are:

- **International**: The Humber Estuary is designated as a Ramsar site and SAC and is located 18.1 km northeast. This site contains a series of important estuarine habitats, such as Atlantic slat meadows, coastal lagoons, dunes, mudflats and sandflats as well as supporting lamprey species, grey seal (*Halichoerus grypus*) and numerous bird species. Hatfield Moor SAC is located 8 km north and Thorne Moor SAC is located 16.7 km north. Hatfield Moor is designated for its degraded raised bogs still capable of natural regeneration. Thorne Moor is also designated for this reason as well as active raised bogs.
- **National**: The River Idle Washlands SSSI is located immediately north of the Site to the northeastern corner and comprises wet grassland plant communities which attract large numbers of wintering and passage waterfowl. Misson Line Bank SSSI is located 0.2 km north and contains some of the best remaining examples of eutrophic open water, marsh and base-poor fen communities in Nottinghamshire. Misson Training Area SSSI is located 0.4 km north and supports a diverse range of semi-natural habitats, a notable breeding bird community and rich invertebrate fauna. Haxey Grange Fen SSSI is located 1 km northeast and comprises fen habitats and important invertebrate communities. Barrow Hills Sandpit SSSI is located 2 km west and comprises a fine example of species-rich grassland and scrub developed on freely-draining unconsolidated sands of glacial origin.
- **County**: A total of 29 LWSs are located within 2 km of the Site, nine of which are located on Site associated with the drainage ditches and wetland habitats.

6.3.6 **Figures 6.1** and **6.2** (**Volume A**) present the locations of these designated sites in relation to the Site and **Appendix 6A (Volume B)** provides additional site description details.

Habitats & Flora

6.3.7 At the time of writing the UKHab surveys are ongoing and full details will be provided in a Technical Appendix to the ES Ecology chapter. It has however been

confirmed that the Study Area is predominantly made up of agricultural habitats with field boundaries being defined by an extensive ditch / drain network, with occasional hedgerows, lines of trees, and small plantation woodlands. The ditches, ponds, and field boundaries comprise the habitats of greatest non-avian ecological importance with higher plant species diversity.

6.3.8 No irreplaceable habitat has been recorded within the Study Area, nor is it anticipated based on the available information. Two parcels of lowland fen are located immediately northwest and 1.1 km northwest of the Study Area (Natural England 2026). Two priority habitats are present within the Study Area: deciduous woodland, to the west, and coastal and floodplain grazing marsh, associated with the River Idle. Coastal and floodplain grazing marsh is also located immediately north of the Study Area, with parcels present to the west and northeast associated with the River Idle. Other priority habitats within 2 km of the Study Area include deciduous woodland, traditional orchards, good quality semi-improved grassland, lowland dry acid grassland, lowland heathland and reedbeds (**Figure 6.3, Volume A**).

6.3.9 The whole of the Study Area is noted to be an “Area that Could Become of Particular Importance for Biodiversity” (ACB) within the Nottinghamshire and Nottingham LNRS. A total of nine mapped measures apply to all or parts of the Study Area, and relate to habitat enhancement, habitat connectivity, rewetting, sensitive land management around watercourses and renaturalising watercourses (refer to **Appendix 6A (Volume B)** for further details).

6.3.10 A total of 54 records of county rare plant species occur within the Site Area, predominantly along the ditches and drains at the west. One species is listed as Vulnerable on the GB and England Red Lists, opposite-leaved pondweed (*Groenlandia densa*) with indicative record dates between 2000 and 2010 (JNCC 2026).

6.3.11 No records were returned for floral Invasive Non-Native Species (INNS) within the Study Area; however, the following species were returned along watercourses such as the River Idle and nearby villages:

- water fern (Azolla filiculoides);
- New Zealand pigmyweed (Crassula helmsii);
- Himalayan balsam (Impatiens glandulifera), and;
- Japanese knotweed (Reynoutria japonica).

6.3.12 Further details are included in **Appendix 6A** (**Volume B), Figure 6A** and **Figure 6.4** (**Volume A**).

Invertebrates

6.3.13 The northeastern corner of the Site Boundary is within a Bee-line, connecting Bawtry to Laughton to the east. NBRC returned a total of 426 records of invertebrates within 5 km of the Site Boundary. Priority species included brown hairstreak (*Thelca betulae*), dingy skipper (*Erynnis tages*), small heath (*Coenonympha pamphilus*), wood white (*Leptidea sinapis*) and latticed heath (*Chiasmia clathrata*). The majority of these records are associated with the Idle Valley Nature Reserve located 5 km to the southwest, with one record of brown hairstreak and one record of wood white returned from Walkeringham, located 2.7km southeast. No records of aquatic invertebrates were returned by NBRC.

6.3.14 It is considered possible that priority habitats, the ditch network, deadwood associated with woodlands and/ or bare ground and scrub associated around buildings within the Site Boundary could support notable terrestrial invertebrates. Much of the Site Boundary is intensively agricultural, and of minimal value to this species group. Further details will be provided in the Ecology ES chapter.

Fish

6.3.15 NBRC and the Environment Agency Ecology & Fish Data Explorer returned records for protected and priority fish species including European eel (*Anguilla anguilla*), bullhead (*Cottus gobio*) and spined loach (*Cobitis taenia*). The majority of these are to the west of the Site along the River Idle and Main Drain, a tributary to the River Idle.

6.3.16 However, the on-Site ditch system is managed by a northern pumping station which acts as a barrier to fish movement to/ from the River Idle. Most of the on-Site ditches are of variable quality (many choked with vegetation or with visible signs of poor water quality) with limited potential to support important fish populations. Therefore, they will not be taken forward for detailed assessment in the Ecology ES chapter.

Amphibians

6.3.17 Fourteen records of GCN were returned within 5 km of the Site Boundary, the closest record was located 1.3 km north at Misson Carr Nature Reserve. Common toad (*Bufo bufo*), common frog (*Rana temporaria*) and smooth newt (*Lissotriton vulgaris*) are also recorded locally.

6.3.18 The GCN survey has confirmed that GCN are present within the Site Boundary within one waterbody only (WB6), and are not utilising other water bodies or the nearby ditch network. It is likely that the woodland/ rough grass/ scrub/ field boundaries within 250 m of WB6 will be used by this species for foraging and shelter. The arable land is considered to be sub-optimal due to its active management as agricultural land. Full details are available in **Appendix 6B** and will be assessed within the Ecology ES chapter.

6.3.19 Other locally occurring amphibians such as common toad, common frog, and/ or smooth newt may use the ditch network and wetland habitats for breeding and field boundaries and woodlands for foraging and shelter.

Reptiles

6.3.20 NBRC returned records for grass snake (Natrix helvetica), common lizard (*Zootoca vivipara*), slow worm (Anguis fragilis), and adder (*Vipera berus*). One record was from the Site Boundary, of a grass snake, which was observed at Carr Road in 2024. Six records of grass snake were recorded in the Idle Valley Washlands SSSI, and Nature Reserve, which is connected to the Site Boundary via the River Idle. The wetland and ditch network with connectivity to the field margins are highly suitable for use by grass snake and other reptiles. Further details will be provided in the Ecology ES chapter.

Bats

6.3.21 A total of 9 bat species have been [redacted] of the Site based on records returned by NBRC. This includes the following species:

- Brown long-eared bat (*Plecotus auritus*);

- Daubenton's bat (*Myotis daubentonii*),
- Natterer's bat (*Myotis nattereri)*;
- Whiskered Bat (*Myotis mystacinus*);
- Common pipistrelle (Pipistrellus pipistrellus);
- Soprano pipistrelle (*Pipistrellus pygmaeus)*;
- Nathusius' pipistrelle (*Pipistrellus nathusii)*;
- Noctule (Nyctalus noctula); and
- Leisler's bat (Nyctalus leisleri).

6.3.22 The majority of records are from survey transects [redacted], with other observations within Misterton and Misson. However, the following species are recorded [redacted] those in bold include maternity or mating roosts, unboldened are small/ individual roosts:

- **Common pipistrelle – including potential mating roost at Misterton;**
- Soprano pipistrelle;
- Noctule;
- **Natterer's bat – including maternity roosts at Mattersey, Wiseton and Gringley on the Hill;**
- Whiskered bat; and
- **Brown long-eared bat – including maternity roosts at Mattersey, Wiseton and Gringley on the Hill.**

6.3.23 A check of MAGIC identifies eight bat licences within [redacted] Two of these licences are likely associated with the brown long-eared maternity roosts at Wiseton and Mattersey, and Natterer's maternity roost at Mattersey.

6.3.24 There are several buildings and structures within the Site Boundary, the majority of which are modern industrial buildings and offer limited roosting potential. There is one building (located at Grid Reference: SK 72059 95648) which will be subject to further assessment of roosting potential as it is potentially located within 200 m of the proposed turbine locations (this being the key distance to refer to, in accordance with NatureScot guidance). There are no other buildings or structures that offer roosting potential for multiple bats (i.e. i.e. scope for maternity / hibernation roosts or swarming) within 200 m of the proposed turbine locations).

6.3.25 Occasional mature trees with potential roosting features are also present. Potential commuting and foraging habitat is limited to hedgerows, tree lines, and the ditch network. However, none of these are anticipated to be affected by the Proposed Development at this stage. Arable habitats are considered of low potential to support commuting or foraging.

6.3.26 Full details in respect of the bat surveys that have been undertaken will be provided as technical appendices to the Ecology ES chapter. This will include use of the online EcoBat tool to compare the bat pass data against a large, regional, and national dataset, providing context on how activity within the Site Boundary compares with others.

Otter

6.3.27 NBRC returned a total of 22 records of otter (*Lutra lutra*) within [redacted]. The closest record was returned [redacted] along the River Idle in September 2012, with a further six sightings also noted along the River Idle. No records originated within the Site Boundary.

6.3.28 Wetland and ditch habitats within the Site Boundary are considered suitable for use by otter. Full details in respect of the otter survey that is ongoing at the time of writing and will be provided as a technical appendix to the Ecology ES chapter.

Water vole

6.3.29 A total of 301 records of water vole (*Arvicola amphibius*) were provided by NBRC, this included three records within the Site boundary, to the east along Taylors Drain, between 2011 and 2013.

6.3.30 Wetland and ditch habitats within the Site Boundary are considered suitable for use by water vole. Full details in respect of the water vole survey that is ongoing at the time of writing will be provided as a technical appendix to the Ecology ES chapter.

Other mammals

6.3.31 Other notable mammal species returned by NBRC include: badger (*Meles meles*), brown hare (*Lepus europaeus*), polecat (*Mustela putorius*) and hedgehog (*Erinaceus europaeus*); none are from within the Site Boundary.

6.3.32 Evidence of badger has been identified within the Site Boundary and full details in respect of the badger survey will be provided as a confidential technical appendix to the Ecology ES chapter.

6.3.33 Cropped fields are considered suitable for use by foraging brown hare, with the margins providing cover. Field boundaries including rough grass and scrub, as well as wooded areas are also suitable for use by hedgehog and polecat.

Faunal INNS

6.3.34 NBRC returned records for the following faunal INNS: American mink (*Neovison vison*), Chinese mitten crab (*Eriocheir sinensis*), Muntjac deer (*Muntiacus reevesii*) and Midwife toad (*Alytes obstetricans*). Therefore, they will not be taken forward for detailed assessment in the Ecology ES chapter.

Summary of Important Ecological Features

6.3.35 **Table 6-2** outlines the Important Ecological Features (IEF) that have been identified within the relevant study areas, or which based upon desk study information, habitat suitability or via more recent survey data are considered likely to be present within the relevant study areas, and which may be affected by the Proposed Development.

6.3.36 All remaining ecological features within the study area that are likely to be affected by the Proposed Development (certain S41 species) are assessed as being common and widespread at the local and national level. Therefore, they will not be taken forward for detailed assessment in the Ecology ES chapter.

Table 6-2: Important Ecological Features

Important Ecological Features	Reason for Importance	Geographical Scale of Importance
Humber Estuary Ramsar site and SAC	Statutory Designated Site	International
Hatfield Moor SAC	Statutory Designated Site	International
Thorne Moor SAC	Statutory Designated Site	International
River Idle Washlands SSSI	Statutory Designated Site	National
Misson Line Bank SSSI	Statutory Designated Site	National
Misson Training Area SSSI	Statutory Designated Site	National
Haxey Grange Fen SSSI	Statutory Designated Site	National
Barrow Hills Sandpit SSSI	Statutory Designated Site	National
LWSs located on-Site: • Delve Drain (and associated channel) • Barrier Bank Misson • Carr Road Drains Complex • Mother Drain, Gringley • Mother Drain, Gringley Carr East • Idle Stop Washland • Portland Drain • Fox Covert Drain, Misterton • Everton Carr Drains	Non-Statutory Designated Site	County
LWSs located off-Site and within 2 km: • North Carr Drain Washland • North Carr Drain, SW of Idle Stop • Slaynes Lane South • Slaynes Lane North • North Carr Drain • Misson Pumphouse Flash • Top Road Sand Pit • Misson Line Bank • Everton Carr Woodland • Slaynes Lane Washland • River Idle – Everton Carr • Misson Carr • Shaw Ponds • Levels Lane Drain • Rugged Butts • Scotts Wood	Non-Statutory Designated Site	County

Important Ecological Features	Reason for Importance	Geographical Scale of Importance
• Snow Sewer (east) • Levels Farm Drain, Misson • Barrow Hills Plantation • Snow Sewer (west) • Chesterfield Canal (Welham to Misterton) • Chapel Baulk		
Habitats of Conservation Importance	Irreplaceable or Priority Habitats. Habitats of principal importance under Section 41 of the NERC Act 2006.	To be confirmed following survey.
Bat Assemblage	European and UK Protected Species. Common pipistrelle, soprano pipistrelle, brown long-eared bat are species of principal importance under Section 41 of the NERC Act 2006.	To be confirmed following survey.
Otter	Protected species under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and Schedule 2 of the Conservation of Habitats and Species Regulations 2017 (as amended). Species of principal importance under Section 41 of the NERC Act 2006. No evidence of otter has been recorded at the Site to date, but potential future presence cannot be ruled out. Therefore, the species is taken forward in the assessment.	To be confirmed following survey.
Water vole	Protected species under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). No evidence of water vole has been recorded at the Site to date, but potential future presence cannot be ruled out. Therefore, the species is taken forward in the assessment.	To be confirmed following surveys.
GCN	GCN is a European and UK Protected Species. Common toad is a S41 species. GCN presence confirmed on-Site at WB6.	Local

Important Ecological Features	Reason for Importance	Geographical Scale of Importance
Other Amphibians and Reptiles	All native reptiles are UK Protected Species (common lizard receives partial protection although the level of protection afforded to adder is currently subject to review and may increase) and recognised as a species of principal importance under Section 41 of the NERC Act 2006. Grass snake has been recorded on-Site and local records exist of common lizard, slow worm and adder. Common toad is a species of principal importance under Section 41 of the NERC Act 2006. Common toad, common frog and smooth newt are also recorded locally.	Local
Invertebrates	Potential for populations of Section 41 species and/ or Red Data Book (RDB) species associated with priority habitats. Limited presence of suitable habitats on-Site.	Local
Badger	Protection of Badgers Act 1992	To be confirmed following survey.

6.4 Proposed Approach to the Environmental Impact Assessment

Relevant Policy, Legislation and Guidance

6.4.1 Scoping has been carried out with reference to the legislation, policy (National and Local) and guidance listed below. The list of guidance is not exhaustive and other relevant guidance documents may be referred as appropriate.

- Environment Act (Environment Act 2021);
- Conservation of Habitats and Species Regulations (Conservation of Habitats and Species Regualtions 2017);
- The Water Environment (Water Framework Directive) (England and Wales) Regulations (The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 2017);
- Natural Environment and Rural Communities Act (Natural Environment and Rural Communities Act 2006 2006),
- Protection of Badgers Act (Protection of Badgers Act 1992);
- Wildlife and Countryside Act (Wildlife and Countryside Act 1981);

- Ministry of Housing, Communities & Local Government (National Planning Policy Framework 2026);
- Bassetlaw District Council Local Plan (Bassetlaw Local Plan 2020-2038 2024); and
- Nottinghamshire and Nottingham Local Nature Recovery Strategy (Local Nature Recovery Strategy for Nottinghamshire and Nottingham 2025).

6.4.2 Further guidance documents are also listed below. The list is not exhaustive and other relevant guidance may be referred to as appropriate.

- Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine (CIEEM 2018)
- BS42020: Biodiversity – Code of Practice for Planning and Development (British Standards Institution 2013)
- Bats and Onshore Wind Turbines: Survey, Assessment and Mitigation (NatureScot, et al. 2021);
- Bat Surveys for Professional Ecologist. Good Practice Guidelines (Collins 2023)
- Monitoring the Otter *Lutra lutra*; (Chanin 2003)
- The Water Vole Mitigation Handbook (Dean, et al. 2016);
- Water Vole Field Signs and Habitat Assessment A Practical Guide to Water Vole Surveys (M. Dean 2021)
- Guidance Licensing – Badgers – badger survey best practice (NatureScot n.d.)
- UK Habitat Classification Version 2.0. (UKHab 2023)

Proposed Assessment Methodology

6.4.3 Whilst **Chapter 3: Approach to EIA** provides an indicative EIA assessment method, it also identifies that assessment methodologies may differ in accordance with the prevailing technical area guidance and specific requirements of receptor groups. As such the following sections provide a description of the assessment criteria and assessment methodologies of relevance to ecology, which are derived from best practice guidance documents applicable to this topic and differ from those presented in the broader methodology chapter.

6.4.4 The ecological evaluation and impact assessment approach used in this report is based on CIEEM Guidelines for Ecological Impact Assessment v1.3 in the United Kingdom and Ireland (“CIEEM guidelines”) (CIEEM, 2018), which are widely regarded as industry best practice.

Determining Importance

6.4.5 In accordance with the CIEEM guidelines, only ecological receptors which are considered to be IEF and potentially affected by the Proposed Development will be subject to detailed assessment. Ecological features can be important for a variety of reasons and the rationale used to identify them is explained here. Importance may relate, for example, to the quality or extent of the habitats within the Site; habitat and/ or species rarity; the extent to which such habitats and/ or species are threatened throughout their range, or to the habitats’ and/ or species’ rate of decline.

6.4.6 Important habitats are considered here to be those which:

- match descriptions of habitats listed on Annex 1 of the Habitats Directive, so far as it applies to the UK and as transposed by The Conservation of Habitats and Species Regulations 2017;
- match descriptions of habitats of principal importance for biodiversity under Section 41 (S41) of the NERC Act 2006;
- comprise irreplaceable habitats; such as (but not limited to) lowland fen, ancient woodland and veteran trees;
- meet the LWS selection criteria for Nottinghamshire; and/ or
- comprise a significant habitat resource for an important species (see below).

6.4.7 Important species are considered here to be those:

- of European conservation importance (as listed on Annexes II, IV and V of the Habitats Directive) so far as it applies to the UK and as transposed by The Conservation of Habitats and Species Regulations 2017;
- specially protected under the terms of the Wildlife and Countryside Act 1981;
- of principal importance for biodiversity under S41 of the NERC Act 2006;
- red listed or listed as near threatened using International Union for the Conservation of Nature (IUCN) criteria ((IUCN 2024)), e.g. in one of the UK Species Status Project reviews, or, where a more recent assessment of the taxonomic group has not yet been undertaken, listed in a Red Data Book);
- which are listed as a Nationally Rare or Nationally Scarce species (e.g., in one of the Species Status Project reviews) or listed as a nationally notable species where a more recent assessment of the taxonomic group has not yet been undertaken;
- endemic to a country or geographic location (it is appropriate to recognise endemic sub-species, phenotypes, or cultural behaviours of a population that are unique to a particular place); and/ or
- Meet the LWS selection criteria for Nottinghamshire.

6.4.8 The CIEEM guidelines state that the importance of an ecological feature should be considered within a defined geographical context. The following frame of reference is used:

- International;
- National (i.e. England);
- Regional (i.e. East Midlands);
- County (i.e. Nottinghamshire)
- Local (i.e. the Site plus circa 2 km); and
- Less than local.

6.4.9 For the purposes of this assessment only ecological features of local importance or greater and/ or subject to legal protection are included (and are referred to as IEFs). Effects on other ecological features of lower importance are considered unlikely to be significant in legal or policy terms so are not subject to detailed assessment.

Identification and Characterisation of Impacts

6.4.10 The identification and characterisation of impacts on IEFs will be undertaken in accordance with the CIEEM guidelines with reference made to magnitude (e.g. area or number of individuals to be impacted), extent, duration and reversibility as appropriate. Impacts will be considered during the construction, operational and decommissioning phases and will be assessed on the basis that a clearly defined range of avoidance and standard good practice measures are implemented.

Significant Effects

6.4.11 CIEEM guidelines define a 'significant effect' as an effect that either supports or undermines conservation objectives for IEFs or for biodiversity in general. Conservation objectives may be specific (e.g. for a designated site) or broad (e.g. national/local nature conservation policy). Potentially significant effects identified will be expressed with reference to an appropriate geographic scale. For example, a significant effect on a nationally designated site is likely to be of national significance. However, the scale of significance does not necessarily always relate to the importance of an ecological feature. For example, an effect on a species which is considered of national importance, may not have a significant effect upon its national population.

6.4.12 Consideration of conservation status is important for evaluating the effects of impacts on habitats and species and assessing their significance. Conservation status is determined by the sum of influences acting on the habitat or species concerned that may affect its abundance and distribution within a given geographical area.

6.4.13 In relation to significance of effects on IEFs, this will be expressed within the Ecology ES chapter with reference to the regional, national or international scale (as relevant). The significance of effects at a local scale may also be assessed where sufficient information allows a meaningful assessment.

Cumulative Assessment

6.4.14 The cumulative assessment will be conducted in accordance with the CIEEM guidelines, with specific reference to the section related to cumulative impacts and effects.

6.4.15 Cumulative effects will be assessed for all ecological receptors for which detailed assessment has been undertaken, based upon residual effects. The cumulative assessment will be based on consideration of residual effects of other schemes also i.e. assuming that consented or proposed schemes will deliver the mitigation and compensation measures described in their application/ consent.

6.4.16 For habitats and species outside of designated sites, the approach will depend on whether the feature is mobile or not. For mobile features (such as bats) the proposed approach is to use the core foraging range/core sustenance zone for each species included in the assessment, taken from most recent relevant guidance for the species in question, to determine the spatial extent of the cumulative assessment. For example, for a bat species with a maximum core foraging range of 4 km, other relevant plans or projects within 8 km will be included in the cumulative assessment. Where impacts on aquatic receptors are possible then other developments within the same sub-catchment will be considered in the cumulative assessment. For other ecological receptors cumulative effects are unlikely beyond 2 km, therefore only development within 2 km will be included.

Further Baseline Data

6.4.17 As set out in **Table 6-1**, further surveys are ongoing/planned in 2026 and 2027 to include:

- UKHab survey of the Site;
- Condition Assessment, using Natural England Metric Criteria and including an RCA, where relevant;
- Bat surveys;
- Otter survey;
- Water vole survey;
- Badger survey.

6.4.18 An update walkover survey to confirm baseline data remains valid for the purpose of informing the Ecology ES chapter will also be undertaken in 2027.

6.4.19 Results from these surveys, plus previously gathered field survey data and any other publicly available ecological data that is available at the time of writing will be used to inform the Ecology ES chapter.

Consultation and Engagement

6.4.20 A consultation request via the Discretionary Advice Service (DAS) for Natural England and Statutory Advice Service for Nationally Significant Infrastructure Projects (NSIPs) was submitted in August 2026. No further consultation has been undertaken to date with respect to Ecology.

6.4.21 Consultation is anticipated with Natural England, Bassetlaw District Council and the Environment Agency to:

- confirm the scope of surveys is adequate to inform the Ecology ES chapter and that all potential impact pathways have been identified;
- confirm agreement with the Important Ecological Features subject to assessment;
- discuss the approach to mitigation and/ or compensation, in particular in relation to loss of irreplaceable and/ or priority habitats, potential downstream impacts to salmonid fish populations and operational impacts to bats; and
- confirm the detail in respect of meeting statutory requirements for BNG.

6.5 Design, Mitigation and Enhancement Measures

6.5.1 As part of the design process for the Proposed Development, several embedded and standard mitigation measures are proposed to reduce the potential for impacts on ecological receptors. These are presented in **Table 6-3**. It is expected that these may evolve throughout the design evolution of the Proposed Development as the EIA progresses and in response to consultation.

6.5.2 The Applicant is committed to implementing these measures, and also various standard sectoral practices and procedures. It is therefore considered that these measures are inherently part of the design and have been considered in the judgements as to which impacts can be scoped in/ out of assessment presented in **Section 6.6** and **6.7**.

Table 6-3: Embedded design and applied mitigation measures

Parameter	Mitigation Measures
General	
Project Design	Careful turbine siting and track alignments to avoid key areas of ecological sensitivity, including wetland habitats (especially those associated with peat), wherever possible. Cabling to be installed within the earthworks extent: • At all watercourse crossings; and • In all areas where important habitat is crossed or occurs immediately adjacent. Cable routing to avoid the root protection zone (RPZs) of all retained trees and woodland. A 50 m bat buffer (distance between turbine blade tip and woodland) has been applied to all woodland and trees in respect of turbine locations, in accordance with NatureScot guidelines.
Construction	
Vegetation Clearance and Other Construction Works	Full details of construction mitigation measures will be provided in a Construction Environmental Management Plan (CEMP); an outline CEMP will form part of the application for development consent. Good practice measures in relation to pollution risk, sediment management and watercourse crossings to be adopted during the construction and operation phases are also set out in **Chapter 15: Hydrology, Hydrogeology, Water Resources and Flood Risk**, and further details on peat management during construction are set out in **Chapter 5: Geology, Soils, Ground Conditions and Peat**. <u>General Measures</u> General good practice measures to protect important ecological features either known to be present or with the potential to be present will be set out in the outline CEMP and will be implemented during the construction phase. These will include: • Micro-siting of project elements will be used to avoid IEF, where possible. • Where appropriate protective fencing will be installed around retained habitats of importance and retained trees located directly adjacent to working areas (in accordance with recommendations in BS 5837:2012). • All temporary construction areas will be reinstated to their original condition in terms of vegetation cover, except where they are to be enhanced. • All disturbed habitats that will not be permanently lost will be reinstated as soon as possible after construction. • As advised by the ECoW (see below) and where practically possible, cutting of vegetation (by strimming or flailing) to a height of 10 cm will be undertaken in all areas of suitable reptile habitat during the reptile active period of March to October, prior to works starting. All places of shelter shall be moved and checked for the presence of reptiles – log piles, rock piles etc. by hand where possible, with use of machinery only where objects are too heavy or unwieldy to move by hand and only under direct supervision of the ECoW. • In exceptional cases, if work must start between November and March in areas that were not cut prior to the end of October, the vegetation should be cut under the supervision of the ECoW, taking care to locate and not to disturb any potential refugia. If refugia are present, they

Parameter	Mitigation Measures
	would be searched by the ECoW prior to their removal. If any reptiles are found, they would only be moved during suitable weather conditions and would not be moved when in a state of torpor. • All potentially dangerous substances or materials within the temporary construction compound would be carefully stored to reduce accidental pollution risk and prevent them causing any harm to otters or other mammal species which may enter the compound at night. • During construction, all excavations greater than 0.5 m depth would either be temporarily covered at night or designed to include a ramp to allow reptiles and other animals a means of escape should they fall in. • A speed limit of no greater than 15 mph would be implemented onsite to reduce the risk of road traffic collisions with wildlife. <u>Ecological Clerk of Works (ECoW)</u> A suitably qualified ECoW team will be employed for the duration of the construction and reinstatement periods, to oversee the safeguarding of important habitats and species and the implementation of ecological mitigation, compensation or enhancement measures, although this may not necessarily be a full-time role throughout. The role of the ECoW team will be defined in the CEMP include the following tasks: • Give toolbox talks to all staff onsite, so staff are aware of the ecological sensitivities on the Site and the legal implications of not complying with agreed working practices; • Agree and monitor measures designed to minimise damage to retained habitats; • Undertake pre-construction surveys and checks and advise on ecological issues where required; • During the construction period and in advance of work, undertake inspections of areas which require protected species mitigation (such as for reptiles or breeding birds) and carry out an appropriate level of supervision during vegetation clearance; and • Oversee vegetation and habitat reinstatement on areas subject to disturbance during construction. The ECoW team will also undertake additional roles, such as advising on drainage and reinstatement and establishing/monitoring appropriate exclusion areas (see **Chapter 15** and **Chapter 7: Ornithology**). <u>Pre-construction Surveys</u> Pre-construction surveys for protected species whose distribution could have changed since the baseline surveys would be undertaken to update the baseline and inform the implementation of any mitigation necessary. Additional checks for the presence of badger, otter and other protected or notable species will also be carried out by the ECoW immediately prior to vegetation clearance. In the unlikely event that protected species not recorded at the Site previously are identified during the pre-construction surveys and/ or ECoW checks, appropriate mitigation measures would be identified, agreed with Natural England (if licences are required) and implemented.
Biosecurity and Invasive Non-Native Species (INNS) Management Plan	All construction work will be undertaken in accordance with a Biosecurity and INNS Management Plan (BIMP), an outline version of which will be included within the outline CEMP, which will form part of the application for development consent, which will set out the principles to be followed when the BIMP is finalised.

Parameter	Mitigation Measures
Pollution Prevention and Emergency Incident Response	Construction practices will incorporate measures to prevent pollution: • All construction work will be undertaken in accordance with the CEMP, which will include a Pollution Prevention and Emergency Incident Response Plan setting out the pollution prevention measures, and emergency incident responses, which will be implemented by the Applicant and its contractors during construction. An outline Pollution Prevention and Emergency Incident Response Plan (PPEIRP) will be provided as part of the outline CEMP, which will form part of the application for development consent, and will set out the principles to be followed when the PPEIRP is finalised.
Best Practice	All construction work will be undertaken in accordance with the outline CEMP, which will form part of the application for development consent, and relevant good practice guidance including, but not limited to: • CIRIA Control of Water Pollution from Construction Sites: Guidance for Consultants and Contractors (C532); • CIRIA SuDS Manual (C753); • No discharge to main river watercourses will occur without permission from the EA (SuDS Manual)), or from the lead local water authority in the case of ordinary watercourses; • Wheel washers, or alternative measures to minimise the transfer of detritus onto the highway, and dust suppression measures (if required), to be used as appropriate to prevent the migration of pollutants (SuDS Manual); • Regular cleaning of roads of any construction waste and dirt to be carried out (SuDS Manual); and • Surface water drainage arrangements to be submitted for approval by the LPA as a requirement of the consent.
Operation and Maintenance	
General	The operational wind farm will include machinery that contains potential pollutants which could include cooling oils, lubricants, fuels, greases, etc. The design, maintenance and operation of the facility will follow good practice in line with the prevailing/future guidance and legislation with regard to measures such as the storage and management of potentially polluting substances, emergency spill response procedures, clean up and control of any potentially contaminated surface water runoff and routine inspection to prevent or contain leaks of any pollutants. In line with current good practice, feathering, i.e. the reduction of rotation speed while the turbine is idling (based on the findings of a report (Arnett et al. 2013), will be considered and implemented, depending upon the findings of detailed assessment, throughout wind farm operation. In respect of feathering the current NatureScot *et al*. guidelines state: *"The reduction in speed resulting from feathering compared with normal idling may reduce fatality rates by up to 50%. As this option does not result in any loss of output, as best practice, it is recommended wherever it is practically possible and there remains uncertainty over the risk posed to bats. It can be applied at any site with a blade pitch control system which can be automated using SCADA data"* (NatureScot, et al. 2021). The relevant measures in both respects would be set out in an Operational Phase Environmental Management Plan (OPEMP), an outline of which will be submitted with the application and the requirement for a final OMP will be secured in the DCO.

Parameter	Mitigation Measures
	An integral part of the Proposed Development will be the production and implementation of a long-term compensation and enhancement measures for biodiversity (including ornithological as well as ecological interests) and agreed with relevant consultees, prior to the construction of the Proposed Development commencing. Outline details of these measures would be included within the outline Landscape and Ecology Management Plan (LEMP), which will form part of the application for development consent. Production of a final version of the LEMP would be secured by a requirement in the DCO, stipulating that the final version must be substantially in accordance with the outline LEMP. A detailed Habitat Management Plan (HMP) may subsequently be prepared and secured as a Requirement linked to the LEMP, or form part of the LEMP, to provide detailed prescriptions for habitat management, monitoring and long-term biodiversity objectives during operation.
Decommissioning	
General	Development of, and adherence to a Decommissioning Plan An outline Decommissioning Plan will be produced, which will detail measures envisaged to be implemented to avoid or reduce impacts during the decommissioning of the Proposed Development. An outline Decommissioning Plan will be submitted with the application for development consent, and the production of a final Decommissioning Plan will be secured via a Requirement in the DCO granted for the Proposed Development, stipulating that the final version of the Decommissioning Plan must be carried out substantially in accordance with the outline Decommissioning Plan.

6.6 Potential Impacts Scoped In

6.6.1 A range of potential impacts on ecological receptors have been identified which may occur during construction, operation and maintenance, and decommissioning phases. The impacts that have been scoped into the EIA are outlined in **Table 6-4**, together with a description of any proposed additional data collection (e.g. site-specific surveys) and/ or supporting analyses (e.g. modelling) to enable an assessment of the impact.

Table 6-4: Impacts proposed to be scoped into the assessment for Ecology

Impact	Description	Proposed Approach to Assessment Including Description of Any New Data Collection Required and Any Analyses (Such as Modelling)
Construction		
Indirect impacts to River Idle Washlands SSSI	Air quality impacts from construction traffic could result in impacts to the SSSI, depending on the routes on-Site and number of vehicle movements. There is hydrological connectivity to this SSSI.	UKHabitat Classification data (survey ongoing at the time of writing) is considered sufficient for the purpose of impact assessment. Design and construction detail, including drainage arrangements will be

Impact	Description	Proposed Approach to Assessment Including Description of Any New Data Collection Required and Any Analyses (Such as Modelling)
		necessary to determine the scheme footprint and potential for downstream impacts. Data in respect of construction traffic and any associated air quality impacts will be used to determine potential for adverse effects at the SSSI.
Direct Impacts to LWSs located on-Site	Habitat loss or damage, depending on working areas and access routes on-Site. Disturbance of species utilising these habitats. Air quality impacts from construction traffic could result in impacts to the LWSs, depending on the routes to the Site and number of vehicle movements. There is potential hydrological connectivity to these LWSs.	UKHabitat Classification data (survey ongoing at the time of writing) is considered sufficient for the purpose of impact assessment. Design and construction detail, including drainage arrangements will be necessary to determine the scheme footprint and potential for downstream impacts. Data in respect of construction traffic and any associated air quality impacts will be used to determine potential for adverse effects at the LWSs.
Indirect impacts to SSSIs and/ or LWS located within 2 km	Habitat loss or damage, depending on working areas and access routes on-Site. Disturbance of mobile species utilising these habitats. Air quality impacts from construction traffic could result in impacts to the SSSIs, depending on the routes to the Site and number of vehicle movements. There is potential hydrological connectivity to these designated sites.	Data in respect of construction traffic and any associated air quality impacts will be used to determine potential for adverse effects at the designated sites. Hydrological data will be used to determine potential impact pathways that could affect the designated sites.
Permanent and temporary loss or degradation of important habitats via vegetation clearance/	At the on-site substation, turbine bases, crane pads and access tracks there will be permanent loss of habitat due to the construction footprint of this element of the Proposed Development.	UKHabitat Classification data (survey ongoing at the time of writing) is considered sufficient for the

Impact	Description	Proposed Approach to Assessment Including Description of Any New Data Collection Required and Any Analyses (Such as Modelling)
excavation or through hydrological changes.	Temporary habitat loss during construction, such as to enable creation of Site compounds or working areas around infrastructure, may also result in temporary (and depending on habitat type perhaps permanent) habitat loss. Degradation could result from altering water tables (hydrological degradation) and edge effects (e.g., drying out or waterlogging, or dust deposition). Key considerations are likely to be loss of areas that may support priority habitats and/ or which support protected and notable species.	purpose of impact assessment. Design and construction detail, including drainage arrangements will be necessary to determine the scheme footprint and potential for downstream impacts. Hydrological data will be used to determine potential impact pathways that could affect important habitats, and the extent over which such impacts may have adverse effects. The assessment of impacts will be undertaken in accordance with CIEEM guidelines.
Impacts upon protected or otherwise notable terrestrial species or upon their resting or breeding sites. Species include: bat assemblage, otter, water vole, GCN, other amphibians and reptiles, invertebrates and badger.	The potential exists for protected species to be impacted by construction activities either physically or from indirect disturbance via changes to hydrology, light, noise and/ or human presence.	Field survey and desk study data outlined in **Table 6-1** is considered sufficient for impact assessment; the IEFs have been identified based on data to date and are included in **Table 6-2**. Design and construction detail, including drainage arrangements will be necessary to determine the scheme footprint and potential for downstream impacts. The assessment of impacts will be undertaken in accordance with CIEEM guidelines.
Habitat fragmentation and species isolation	There is potential for permanent habitat fragmentation and species isolation as a result of turbine and infrastructure construction. Temporary habitat fragmentation and species isolation may also result from construction requirements.	As above.
Spread of invasive non-native species (INNS)	There is potential for the presence of INNS which could be spread by construction activities.	As above.

Impact	Description	Proposed Approach to Assessment Including Description of Any New Data Collection Required and Any Analyses (Such as Modelling)
Accidental Pollution	The impact of pollution including accidental spills and contaminant releases associated with the construction of infrastructure may lead to direct or indirect disturbance or damage to designated sites, species and/ or habitats.	As above.
Operation and Maintenance		
Killing and injury to high collision* risk bat species recorded at the Site (to be confirmed following survey, but likely to include pipistrelle species and noctule based on desk study data to date). * In this context the term “collision” is taken to mean any form of injury or mortality associated with the operation of wind turbines, i.e. it includes mortality due to barotrauma.	Operational turbines represent a potential risk to bats which may fly within the swept rotor area. The frequency and likelihood of a collision occurring depends on a range of factors. These include aspects of the behaviour of the bat species (including their use of a site), the nature of the surrounding environment, and the structure and layout of the wind turbines.	As above.
Disturbance via maintenance.	Maintenance during the operation of the Proposed Development is likely to be highly localised with a minimal likelihood of disturbance expected to the adjacent habitats and species.	As above.
Decommissioning		
Decommissioning impacts: similar in nature to those during construction but would be more limited in geographical extent and timescale.	It is proposed that the onsite substation electrical infrastructure and turbine components would be removed as part of the decommissioning phase. Closer to the time of decommissioning, it may be decided that removal of certain infrastructure would lead to greater environmental impacts than leaving components in situ, in which case certain components may be left buried. The decommissioning methodology cannot be finalised until immediately prior to decommissioning; but would be in line with relevant policy, guidance and best practice at that time.	Update surveys would be required to inform the decommissioning process.
Cumulative		

Impact	Description	Proposed Approach to Assessment Including Description of Any New Data Collection Required and Any Analyses (Such as Modelling)
For ecological features potential cumulative impacts are only likely to be significant for other developments which: • Are directly adjacent or very close to the Site and may affect the same habitats and species; • Are located within the same hydrological catchment(s) so may be affected by water-borne sedimentation or pollution events, e.g. brown trout; or • Are located within the regular range of more mobile species, e.g. bats.	The short list of other developments for the cumulative assessment will therefore be restricted to other development projects within 2 km, or within 5 km and within the same surface water catchment, or within the Core Sustenance Zone distance of the most widely ranging bat species recorded at the Site. The cumulative assessment will be based on consideration of residual effects, assuming that proposed mitigation and compensation measures for other projects are implemented.	The cumulative assessment will be conducted in accordance with the CIEEM guidelines, with specific reference to the section related to cumulative impacts and effects.

6.7 Impacts Proposed to be Scoped Out

6.7.1 Based on the baseline environment information currently available and the description of the Proposed Development (outlined in **Chapter 2**) a number of impacts are proposed to be scoped out of the EIA for ecology. The impacts are outlined in **Table 6-5**, together with a justification for scoping them out.

Table 6-5: Impacts proposed to be scoped out of the assessment for Ecology

Impact	Justification for Scoping Out
Construction	
Indirect impacts on Humber Estuary Ramsar site and SAC	This site is located approximately 18.1 km to the northeast and contains a number of qualifying estuarine habitats. These are unlikely to be impacted due to distance and lack of hydrological connection to the Ramsar site or SAC from the Site. Indirect impacts on aquatic species are also considered unlikely. Air quality impacts at this distance are also unlikely to result from construction traffic.
Hatfield Moor SAC	Both of these SACs are located over 8 km from the Site and hydrological connectivity is considered to be weak. The SACs are located within a different operational catchment (Isle of Axholme) to the Site, which is located within the Idle River operational catchment (Environment Agency 2026). It is unlikely that construction
Thorne Moor SAC	

Impact	Justification for Scoping Out
	activities will result in hydrological impacts on the qualifying bog habitats of these SACs.
Operation and Maintenance	
Killing and injury to low collision risk bat species recorded at the Site (species to be confirmed following survey).	NatureScot et al. (Bats and Onshore Wind Turbines: Survey, Assessment and Mitigation. Version August 2021 2021) guidance identifies some species as being at low risk of collision and their populations as having low vulnerability to collision mortality. On this basis, significant effects on these species as a result of collision are considered unlikely. It is therefore proposed that collision impacts on these species are scoped out of further assessment within the ES.
Decommissioning	
An ecological impact assessment of the decommissioning phase is scoped into the assessment as detailed in **Table 6-4**.	
Cumulative	
A cumulative ecological impact assessment is scoped into the assessment as detailed in **Table 6-4**.	

6.8 Summary of Next Steps

6.8.1 The next steps comprise commencing consultation with key stakeholders and undertaking the additional surveys as previously described.

6.9 Further Consideration for Consultees

6.9.1 The following questions are provided to help frame the consultees comments on the Scoping Report for Ecology:

- **Q6.1:** Are there any additional baseline data sources that should be used to inform the assessment?
- **Q6.2:** Do consultees agree that the scope of the surveys undertaken and proposed will be sufficient to inform the assessment?
- **Q6.3**: Are the consultees in agreement with the identification of Important Ecological Features taken forward for detailed assessment?
- **Q6.4:** Are the consultees content to scope out the effects in **Table 6-5**?
- **Q6.5:** Are there any specific cumulative developments or recent planning decisions that consultees consider should be incorporated within the assessment of cumulative impacts?

7. Ornithology

7.1 Introduction

7.1.1 This chapter of the Scoping Report sets out the baseline, the proposed scope and methodology of the ornithology assessment of the Proposed Development and provides indication of how mitigation and enhancement measures could be identified. It identifies the potential likely significant effects arising from the construction, operation and management, and decommissioning of the Proposed Development, in isolation and cumulatively, on ornithological features. This chapter also explains how likely significant effects would be assessed for the purposes of the Environmental Impact Assessment (EIA).

7.1.2 In accordance with standard Chartered Institute of Ecology and Environmental Management (CIEEM) (2018, updated 2024) guidelines, this ornithology scoping exercise aims to:

- establish an initial understanding of the baseline ornithological conditions and the potentially significant effects that could arise;
- determine the zone of influence of the Proposed Development and which important ornithological features could be significantly affected;
- determine the proposed surveys and methods for survey, evaluation and assessment; and
- determine the content of the Ornithological Impact Assessment (OIA).

7.1.3 There are interrelationships between the potential effects on ornithology and other environmental topics. Therefore, this chapter should be read alongside the following chapters of this Scoping Report:

- **Chapter 6: Ecology**

7.1.4 This chapter is supported by the following figures, **(Volume A)**:

- **Figure 7.1 Avian Study Areas;**
- **Figure 7.2 Viewsheds and Vantage Points;**
- **Figure 7.3 Statutory Designated Sites for Birds within 20 km.**

7.2 Study Area

7.2.1 For the purposes of this chapter, the “Site Boundary” refers to the land within which the Proposed Development would be located. The “Scoping Boundary” refers to the wider area considered at this scoping stage, including land that may be required for associated infrastructure, access, construction activities or mitigation. The “Study Area” refers to the area used for ornithological baseline data collection and assessment. This may extend beyond the Scoping Boundary where required to identify relevant ornithological receptors and assess the potential for likely significant effects.

7.2.2 The land within the Site Boundary is moderately flat and used for arable farming with drainage ditches between fields. The land surrounding the Site is also used for arable farming.

7.2.3 The River Idle runs along the northern boundary of the Site. The village of Misson is located to the north-west and the village of Gringley on the Hill to the south.

7.2.4 The Study Area for ornithology varies by survey type as described in **Table 7-1** but includes the Site and a buffer of up to 2 km. The Study Area for desk study includes a 20 km buffer around the Site Boundary to account for mobile species that may occur and potentially be affected by the Proposed Development. This is considered to sufficiently capture the maximum core dispersal and/or foraging distance of ornithological qualifying features of such sites and establish the potential for functional linkage, defined with reference to relevant guidance (SNH[2], 2016).

7.2.5 The Study Area for ornithology has been defined for the purposes of Scoping using the Scoping Boundary. The Proposed Development will continue to be refined through the EIA process as design, assessment, and consultation are undertaken. As the Scoping Boundary is refined, the Study Area for the EIA will be updated accordingly and defined with reference to the draft Order Limits.

7.3 Baseline Environment

Overview of Available Data Sources

7.3.1 Baseline ornithology studies to inform the design evolution and EIA of the Proposed Development were commenced in April 2025 and are ongoing.

7.3.2 Studies will comprise both a desk study review of existing ornithological information for the Site and surrounding area, together with ornithological field surveys and consultation with stakeholders. This will provide both site-specific ornithological data and wider contextual information for the surrounding Study Areas.

7.3.3 Target species for survey and the associated collation of existing information, have been identified with reference to legislative protection, conservation status and known or likely sensitivity to effects from onshore wind farms, including collision risk and displacement.

7.3.4 Primarily, target species selection has been informed by the following key lists:

- Annex 1 of the European Council (EC) Directive 2009/147/EEC (the 'Birds Directive) (European Commission, 2009).
- Schedule 1 of the Wildlife & Countryside Act 1981 (as amended) (UK Government, 1981).
- Red listed and Amber listed Birds of Conservation Concern (as per Stanbury *et al*., (2021).
- Species considered priorities under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006 (Section 41 Priority Species) (UK Government, 2006).

7.3.5 The list has then been refined to focus on those target species (hereafter referred to as features) which are considered most likely to be sensitive to the effects of onshore wind farm development, particularly those species that utilise open habitats, undertake regular flight activity at turbine rotor heights and/or are associated with nearby statutory designated sites.

7.3.6 Where appropriate, confidential information relating to the breeding and roosting sites of protected (or otherwise sensitive species) will be used to inform the

[2] Scottish Natural Heritage (SNH), the former operating name of NatureScot.

assessment and requirement for mitigation but will be reported separately within a confidential volume of the Environmental Statement (ES).

7.3.7 The presentation of third-party data within the ES will be reviewed and where required, will be restricted in line with the conditions of any data sharing agreements entered into with data providers.

Desk study

7.3.8 A desk study was undertaken to inform the scope of surveys and the ornithology impact assessment. A search was undertaken using the Multi-Agency Geographic Information for the Countryside (MAGIC) website (Defra, 2026) for:

- Special Protection Areas (SPAs), Ramsar sites, Sites of Special Scientific Interest (SSSIs) and National Nature Reserves (NNRs) with cited ornithological features within 20 km of the Site Boundary.
- Local Nature Reserves (LNRs) with ornithological interest features and Royal Society for the Protection of Birds (RSPB) reserves within 5 km of the Site Boundary.
- Non-statutory Local Wildlife Sites (LWSs) within 2 km of the Site Boundary with ornithological interest features.

7.3.9 Searches were undertaken with the following organisations:

- Greater Lincolnshire Nature Partnership (GLNP), including a buffer of up to 10 km around the Site Boundary.
- North and East Yorkshire Environmental Records Centre (NEYEDC), including a buffer of up to 10 km around the Site Boundary.
- The British Trust for Ornithology (BTO), a Site Data Report covering the Site Boundary and surrounding squares (varying resolution up to 10km).

7.3.10 Publicly available information from consented, operational and other proposed wind farm developments will also be reviewed from within adopted cumulative Study Areas. Additionally, data from other local providers and consultees may be acquired and used to inform the assessment.

Ornithology field surveys

7.3.11 The baseline ornithology surveys started in April 2025 and are currently planned to be completed in March 2027. The surveys are being conducted across the Site and associated buffer zones (**Figure 7.1, Volume A**). Survey effort in buffer zones is being undertaken from publicly accessible areas only.

7.3.12 The scope is based on current best practice guidance for birds surveys and onshore wind projects. This includes Natural England (2025) and NatureScot (SNH, 2017, updated 2025) guidance, along with other guidance from the Bird Survey Guidelines (2026) and relevant species-specific guidance. The scope of the completed and planned surveys is summarised in **Table 7-1**.

7.3.13 Full details of all baseline survey methodologies will be presented within the ornithology chapter of the ES, associated Appendices and Figures.

Flight activity surveys

7.3.14 Flight activity surveys (also known as Vantage Point (VP) surveys) to quantify the level and distribution of target species activity within proximity to proposed turbine

locations are being undertaken from four locations, following the standard NatureScot methodology which recommends a minimum survey effort of 36 hours per VP during a single season. This level of effort is being used for the Proposed Development with seasons defined as breeding (late March to August) and non-breeding (September to early March).

7.3.15 The main purpose of VP surveys is to collect data on target species that will enable estimates to be made of:

- the time spent flying over the Site;
- the relative use by birds of different parts of the Site;
- the proportion of flying time spent at Collision Risk Height (CRH); and
- an index of flight activity for secondary species within the Site.

7.3.16 VPs were selected to cover the maximum potential turbine layout plus a 500 m buffer where possible to account for inaccuracies of flight line recording. The viewshed is the area visible from each VP within a 2 km radius and 180°viewing arc. The VPs were initially selected during a reconnaissance visit undertaken in March 2025 to determine optimal positions accounting for hedgerows and patches of woodland in the local landscape. An additional VP was added in spring 2026 to account for a change in the layout of the Proposed Development. The locations and the viewsheds from the VPs are shown in **Figure 7.2 (Volume A)**. As viewsheds overlap, VPs are not undertaken simultaneously as the presence of a surveyor within the viewshed could influence bird behaviour.

7.3.17 The VPs were selected to provide representative coverage of the whole Site. All of the wind turbine locations are covered by the viewsheds from the VPs.

7.3.18 Additionally, primary target species are limited to those that are likely to be affected by wind farms. The following target species are selected:

- raptors and owls;
- wildfowl;
- waders; and
- gulls.

7.3.19 Secondary species are those non-target species which are susceptible to impacts from wind farms and are of regional or local conservation concern. It is generally accepted that passerine species are not significantly impacted by wind farms and are therefore not included as target or secondary species. Recording of secondary species is subsidiary to the recording of target species. The following secondary species are selected:

- widespread raptors (sparrowhawk, buzzard); and
- other waterfowl (Birds of Conservation Concern (BoCC) green listed e.g. cormorant, grey heron).

7.3.20 A summary of observations of secondary species is recorded at the end of each five-minute period during VP watches, in accordance with NatureScot guidance. For each target species observation, the following details are recorded:

- time of observation;
- duration of flight;

- species, age and sex (where determinable); and
- time spent within each Height Band (HB) in 15 second intervals.

7.3.21 The range of specifications of the wind turbines that could be installed at the Site are as follows:

- Hub height: up to 132.5 m.
- Up to 220 m to tip.

7.3.22 Therefore, the following HBs are used, in-line with standard NatureScot guidance (SNH, 2017, updated 2025). Bands two to four are considered potential collision risk height:

- HB1 - <15 m;
- HB2 - 15-30 m;
- HB3 - 30-150 m;
- HB4 - 150-220 m; and
- HB5 - >220 m.

Targeted breeding raptor, wader and wildfowl surveys

7.3.23 Species-specific surveys are being undertaken for raptors (including owls), wildfowl and waders likely to occur within the survey area, following the relevant methods detailed within Hardey et al., (2013) and Gilbert et al. (1998). The survey area covers the Site plus a 2 km buffer for raptors and owls and the Site plus a 500 m buffer for waders and waterfowl. The buffer areas are surveyed via public rights of way and accessible tracks only.

7.3.24 Prior to the surveys, available information was reviewed to identify known and suitable breeding habitat within the survey area. The field method varies between target species and broadly entails a combination of walkovers and observation point watches. Walkovers were used to check for field signs including droppings, pellets, prey remains, moulted feathers and nests. Watches are used to observe target species activity and breeding behaviour, including territorial interactions, display and carrying of prey. Watches are undertaken over potential nesting areas to identify birds changing over at the nest site.

7.3.25 Target species are all Annex I, Schedule 1 and BoCC Red listed raptors, owls, wildfowl and waders, in accordance with NatureScot (2025) guidance, known or likely to occur within the survey area. Secondary species are other raptor, owl, wader and wildfowl species of regional or local conservation concern.

Winter walkover surveys

7.3.26 The method involves walking a transect, with frequent stops to scan for target species. The route enables visual coverage of the survey area, which encompassed the Site plus a 600 m buffer. Target species are all species listed on Annex I, Schedule 1, BoCC Red or Amber. Secondary species were other species of regional or local conservation concern. All target species observations are recorded onto a map of the survey area, using BTO notation to record behaviour. Secondary species are counted in discreet locations, recording the total number from each location, being careful to avoid repeat counting.

7.3.27 The method involves walking a transect, with frequent stops to scan for target species. The route enables visual coverage of the survey area, which

encompassed the Site plus a 600m buffer. Target species are all species listed on Annex I, Schedule 1, BoCC Red or Amber. Secondary species were other species of regional or local conservation concern. All target species observations are recorded onto a map of the survey area, using BTO notation to record behaviour. Secondary species are counted in discreet locations, recording the total number from each location, being careful to avoid repeat counting.

Nocturnal surveys

7.3.28 To establish the species present within the Site after dark in the non-breeding season, nocturnal surveys are being undertaken. These are being undertaken to determine if any wintering species including swans associated with the River Idle Washlands SSSI use the Site at night. These involve surveyors surveying the Site and 500m buffer using a thermal imaging camera, following Bird Survey Guidelines (2026). Visits are timed to make full use of the light provided by a full moon where possible.

7.3.29 Where possible, birds are identified to species, but this is often not possible when birds are in flight across the Site, birds are too distant to confidently identify, or very similar species could be involved. Target species include all waterfowl, waders and owls.

Standard breeding bird surveys

7.3.30 Standard breeding bird surveys are being undertaken in 2026, following the methodology described by the Bird Survey Guidelines, which involves the surveyor walking a transect at a slow, ambling pace, ensuring all accessible land within the Site plus a 100 m buffer are covered.

7.3.31 The route approaches all parts of the survey area to within 50 m where possible, such that the surveyor covers all parts of the survey area (e.g. from the edge of an arable field). All visual and auditory contact with all target species is recorded, mapping the locations on a field map using BTO species codes. Behavioural notation is used to record the bird behaviour for each encounter (e.g., singing, alarm calling and flight paths).

7.3.32 Target species are all species listed on Annex I, Schedule 1, NERC Section 41, BoCC Red or Amber list species. Secondary species are other species of regional or local conservation concern and recording of such species is subsidiary to that of target species.

7.3.33 In accordance with the guidelines, six visits have been completed across the breeding season. The method aims to measure the importance of the survey area for avian diversity, and which species may be breeding on the Site.

Barn owl nest surveys

7.3.34 Dedicated checks of potential barn owl nest and roost sites are being undertaken on the Site and in a 100 m buffer in 2026. Methods used are those prescribed in standard guidance (Shawyer, 2012) and are being undertaken by licenced surveyors.

Survey limitations

7.3.35 The buffer areas beyond the Site that are part of the survey area for non-breeding birds in general are only accessed by public rights of way and public highways.

The coverage is considered sufficient to establish non-breeding habitat use for key target species, given the availability of minor roads and paths in the area.

Table 7-1: Key sources of information for Ornithology

Data Source	Dates Undertaken	Methodology
Vantage Point (VP) surveys	April – August 2025 March – August 2026	Breeding season surveys based on six hours per VP per month (36 hours total in both years).
	September 2025 – March 2026 September 2026 – March 2027	Non-breeding season surveys based on six hours per VP per month (36 hours total in both years).
Breeding raptor, owl, wildfowl and wader surveys	April – August 2025 March – August 2026	Five visits to suitable habitat within 2 km of the Site for raptors and 500 m for wildfowl and waders. Methods following Hardey *et al*. (2013) and Gilbert *et al.* (1998).
Non-breeding bird walkover surveys	October 2025 – March 2026 October 2026 – March 2027	One visit per month using transect approach across the Site and 600 m buffer following methods in Birds Survey Guidelines (2026).
Nocturnal surveys	October 2025 – March 2026 October 2026 – March 2027	One visit per month using transect approach across the Site and 600 m buffer following methods in Birds Survey Guidelines (2026).
Standard breeding bird surveys	March – July 2026	Six visits across the Site following methods in Birds Survey Guidelines (2026).
Barn owl surveys	Summer 2026	One visit by licenced surveyors following Stage 1 method in Shawyer (2012).

Overview of Baseline Environment

General Context

7.3.36 The following section provides a summary of the baseline ornithological conditions compiled to August 2026, including completed desk study and field surveys.

7.3.37 Full details of all baseline study findings, including additional desk study and additional field survey work proposed and ongoing will be presented within the Ornithology chapter of the ES, associated Appendices and Figures.

Designated Sites

7.3.38 Statutory designated sites with ornithological qualifying features identified within 20 km of the Site are illustrated in **Figure 7.3 (Volume A)** and summarised in **Table 7-2**: .

7.3.39 In review of information provided by Nottinghamshire Biological Records Centre (NBRC) some of the non-statutory designated sites located within 2 km of the Site identify ornithological features, such as the Idle Stop Washlands Local Wildlife Site (LWS) that supports a range of wintering and breeding species.

Table 7-2: Statutory designated sites with ornithological qualifying features.

Designation	Distance	Ornithological Qualifying Features
River Idle Washland SSSI	To the north-eastern corner, and immediately north of the Site.	Aggregations of non-breeding birds - Bewick's swan Assemblages of breeding birds - Lowland damp grasslands
Misson Training Area SSSI	0.2 km north	Assemblages of breeding birds - Scrub
Sutton and Lound Gravel Pits SSSI	4.1 km south	Aggregations of non-breeding birds - Gadwall Aggregations of non-breeding birds - variety of passage species Assemblages of breeding birds - Lowland open waters and their margins
Hatfield Moors SSSI	7.6 km north	Aggregations of breeding birds - Nightjar Assemblages of breeding birds - Lowland heath
Thorne and Hatfield Moors SPA	7.7 km north	Breeding nightjar
Potteric Carr SSSI	9.4 km west	Assemblages of breeding birds - variety of species
Sprotbrough Gorge SSSI	16.1 km west	Assemblages of breeding birds - variety of species
Thorne, Crowle and Goole Moors SSSI	16.6 km north	Aggregations of breeding birds - Nightjar Assemblages of breeding birds - Mixed: Lowland damp grassland, Lowland heath, Scrub, Woodland
Humber Estuary Ramsar Site	18.1 km north-east	Wintering • Bar-tailed godwit • Black-tailed godwit • Dunlin • Golden plover • Knot • Redshank • Shelduck Passage • Black-tailed godwit • Dunlin

Designation	Distance	Ornithological Qualifying Features
		• Golden plover • Knot • Redshank
Humber Estuary SSSI	18.1 km north-east	Aggregations of non-breeding birds of the following species: • Avocet • Bar-tailed godwit • Black-tailed godwit • Bittern • Brent goose (dark-bellied) • Curlew • Dunlin • Golden plover • Goldeneye • Greenshank • Grey plover • Knot • Lapwing • Oystercatcher • Pochard • Redshank • Ringed plover • Ruff • Sanderling • Scaup • Shelduck • Teal • Turnstone • Whimbrel • Wigeon Assemblages of breeding birds - Lowland open waters and their margins
Messingham Sand Quarries SSSI	19.3 km east	Assemblages of breeding birds - Lowland open waters and their margins.

NBRC data

7.3.40 The data requested from the NBRC returned several nest records for target species within the requested area of search. Lapwing, little ringed plover, redshank, shoveler and shelduck have been identified as breeding at Newington Quarry and Hagg Lane Flash.

7.3.41 Two pairs of peregrines were identified as breeding within the requested area of search between 2018 and 2021. A pair of marsh harrier successfully fledged two chicks in 2017. Several pairs of barn owl and kestrel also fledged chicks successfully.

7.3.42 NBRC also returned data for general field observations. The most notable counts of target species were made at the Idle Washlands between 2018 and 2022. Notable raptor records included 80 observations of marsh harrier, 45 of peregrine, 12 of osprey and 10 of hen harrier.

7.3.43 The most notable waterfowl counts included 15,000 pink-footed geese, 2,000 lapwing, 660 golden plover, 600 wigeon, 480 gadwall, 450 whooper swan, and 9 Bewick's swans.

BTO data

7.3.44 The BTO data report uses comprehensive atlas distribution data from 2007–11 to give a baseline of high-quality information about species status at and around the Site and in the wider context. Although the Bird Atlas data is now 15 years old, it still provides the most recent and comprehensive assessment of bird distributions available. This is supplemented by the latest records from current schemes, including BirdTrack and Breeding Bird Surveys (BBS). Coverage across the Site is complete at 10 km resolution, although this wider scale encompasses a greater range of habitats than those present within the Site, meaning that some recorded species may not be representative of the predominantly arable Site.

7.3.45 During 2007–2011, 110 species with breeding evidence and 116 species in winter were recorded in the vicinity of the Site at various spatial scales. Breeding season figures include 12 Schedule 1 species, seven Annex 1 species and 28 BoCC Red list species. Bird Atlas 2007–11 indicates 116 species were recorded in the vicinity of the Site in winter at a range of spatial resolutions. At the highest level of spatial resolution achievable with Bird Atlas data, 98 species were recorded in winter in the Site's relevant tetrads.

7.3.46 During the breeding seasons of 2022-2026, 159 species were recorded in the vicinity of the Site at various spatial scales. These included 37 Schedule 1 species, 29 Annex 1 species and 38 BoCC Red list species. At the finest spatial resolution (1 km), no species records were returned. Within 2 km of the Site, only Egyptian goose was identified as confirmed breeding.

7.3.47 During the non-breeding seasons of 2022-2026 152 species were recorded in the vicinity of the Site at a range of spatial resolutions. No relevant species were recorded within 2 km of the Site.

Summary of baseline field survey results to date

7.3.48 The results of the baseline field surveys will be reported within the ES and associated technical appendices. The second-year breeding bird surveys are ongoing and the non-breeding season surveys are planned for autumn 2026 to March 2027. A summary of the key findings so far from the first year of surveys is provided below.

Flight Activity Surveys

7.3.49 During the first year of breeding season surveys, a total of 438 flights were recorded, from 26 primary target species. The most numerous species recorded included black-headed gull (82), mallard (58), lesser black-backed gull (58), mute swan (56) and kestrel (45).

7.3.50 During the non-breeding season, a total of 649 flights were recorded, of 35 primary target species. The most numerous species recorded included whooper

swan (77), kestrel (72), black-headed gull (62), lapwing (52), mallard (51) and pink-footed goose (47).

7.3.51 Flight activity surveys for the 2026 breeding period are ongoing. To date a similar range of species and activity has been recorded as in 2025.

Targeted raptor, owl, wader and wildfowl surveys

7.3.52 The 2025 breeding raptor surveys produced four breeding target raptor species. One pair of kestrels was confirmed breeding in the north of the Site, successfully raising four young. A single hobby was recorded during the July survey over suitable habitat but did not show signs of breeding. A barn owl was recorded in the buffer zone during fieldwork in May at dusk and long-eared owl was confirmed breeding, also in the buffer zone.

7.3.53 The breeding wildfowl surveys produced evidence of five species. Two mallard pairs were recorded in the buffer zone, along with two pairs of mute swan (one on Site, the other in the buffer). A pair of tufted ducks were observed in suitable habitat, but breeding was not confirmed. One pair of gadwall and one pair of moorhen bred within the Site Boundary.

7.3.54 The breeding wildfowl surveys found a minimum of two pairs of lapwing on the Site and further 15 in the 500 m buffer zone, with juvenile birds noted after a successful breeding season. A pair of oystercatcher were observed in suitable habitat, but breeding was not confirmed. A pair of little ringed plover attempted to nest in the buffer zone, but the nest failed due to predation.

Non-breeding walkover surveys

7.3.55 A total of 62 target and other relevant species (including large aggregations of green listed species) were recorded during the winter walkover surveys.

7.3.56 Foraging whooper swans were recorded in all survey months, but most records came from the buffer zone, particularly the washlands north of the River Idle north of the Site. One group of 41 birds was recorded on the Site in January. The only records of Bewick's swans came from the buffer zone in the same area as whooper swans, north of the River Idle.

7.3.57 Pink-footed geese were only recorded on the ground once, in the buffer zone north of the Site in October, with a single bird in flight over the north of Site in January. The only records for European white-fronted geese also came from the feeding area north of the Idle in February and March in the buffer zone and the four unidentified white-fronted geese in January in flight over the north of the Site were presumed also to be European white-fronts.

7.3.58 The great majority of dabbling duck records came from the buffer zone north of the Site, again north of the River Idle. Smaller numbers of waterfowl were recorded on the Site around the small farm reservoir in the centre of the Site, including species such as wigeon, tufted duck, coot and great crested grebe.

7.3.59 Golden plover and lapwing were recorded on the Site foraging as well as in the buffer zone and in flight, in December and January. Other waders included snipe, dunlin, green sandpiper and redshank recorded in various areas of the Site including around the farm reservoir in very small numbers.

7.3.60 Raptors recorded included a single hen harrier in the extreme north of the Site in October, plus regular sighting of marsh harrier across the Site. Kestrel and buzzard were frequently recorded, with sparrowhawk occasionally recorded. A

single merlin was noted on the Site in November, December and January. A single red kite was noted on the northern boundary in February, and a single barn owl was seen hunting along a ditch in the north of the Site in October. Red-listed farmland birds were well represented with grey partridge (maximum count of 30), linnet (190), yellowhammer (16) and corn bunting (192).

Nocturnal surveys

7.3.61 A total of 23 target species were recorded during the nocturnal surveys. The nocturnal surveys recorded lapwing and golden plover on the Site and using fields within the buffer zone for foraging, favouring large arable fields. Other waders included regular use by woodcock, plus snipe in autumn (October and November only).

7.3.62 As recorded during daylight hours, most wildfowl records came from the area of the buffer zone north of the River Idle, where species including whooper swan (only recorded here), wigeon and teal were recorded in good numbers. The farm reservoir supported a similar range of species as the daytime walkovers recorded, with groups of wigeon, coot and tufted duck recorded amongst other species. Gulls were recorded roosting on the small farm reservoir.

7.3.63 Owls included occasional records of barn and tawny owls, with one record of a long-eared owl in October.

7.4 Proposed Approach to the Environmental Impact Assessment

Relevant, Legislation, Policy and Guidance

7.4.1 The potential effects of the Proposed Development on ornithological receptors will be considered in the relevant topic-specific ES chapter, which will cross-reference, as appropriate, key pieces of relevant legislation, policy and guidance including:

Legislation

- Conservation of Habitats and Species Regulations 2017 (as amended) (the ‘Habitats Regulations’) (UK Government, 2017).
- Wildlife and Countryside Act 1981 (as amended) (UK Government, 1981).
- Countryside and Rights of Way (CROW) Act 2000 (Uk Government, 2000).
- Environment Act 2021 (UK Government 2021).
- Natural Environment and Rural Communities (NERC) Act 2006 (UK Government, 2006).

National Policy

- National Policy Statements (NPS):
  - Overarching National Policy Statement for Energy (EN-1) (UK Government 2025a).
  - Renewable Energy Infrastructure (EN-3) (UK Government 2025b).
- National Planning Policy Framework December 2024.

Local Policy

- Bassetlaw Local Plan 2020-2028 (Bassetlaw District Council (2026):

- Policy ST37: Green and Blue Infrastructure
- Policy ST38: Biodiversity and Geodiversity.

Guidance

- National Planning Practice Guidance (NPPG) (UK Government, 2024):
  - 'Natural Environment'.
  - 'Appropriate Assessment'.
  - 'Biodiversity Net Gain'.
  - 'Renewable and Low Carbon Energy'.
- Guidance on the survey and assessment of birds and onshore wind farms:
  - Field survey; Bird Survey & Assessment Steering Group (2026); Natural England (2025), NatureScot (2025), Hardey et al., (2013), Gilbert et al. (1998).
  - Impact assessment; Natural England (2015, 2025), NatureScot (2024, 2025a, 2025b, 2025c, 2025d) and CIEEM (2018).
  - Connectivity with designated sites (SNH, 2016).
  - Collision mortality risk; (SNH, 2000, NatureScot, 2024, 2025d), Band et al. (2000, 2007, 2024).
  - Construction and disturbance: Natural England (2025), Goodship & Furness (2022).
- Bassetlaw Supplementary Planning Documents (SPD) / Guidance
  - Bassetlaw BNG SPD (published November 2025)
  - Bassetlaw Design Code (adopted December 2025)

Proposed Assessment Methodology

7.4.2 Whilst **Chapter 3: Approach to EIA** provides an indicative EIA assessment method, it also identifies that assessment methodologies may differ in accordance with the prevailing technical area guidance and specific requirements of receptor groups. As such the following sections provide a description of the assessment criteria and assessment methodologies of relevance to ornithology, which are derived from best practice guidance documents applicable to this topic and differ from those presented in the broader methodology chapter.

7.4.3 The ecological evaluation and impact assessment approach used in this report is based on CIEEM Guidelines for Ecological Impact Assessment v1.3 in the United Kingdom and Ireland ("CIEEM guidelines") (CIEEM, 2018), which are widely regarded as industry best practice.

Determining importance

7.4.4 In accordance with the CIEEM guidelines, only ornithological receptors which are considered to be Important Ornithological Features (IOF) and potentially affected by the Proposed Development will be subject to detailed assessment. Such features can be important for a variety of reasons and the rationale used to identify them is explained here. Importance may relate, for example, to the species rarity; the extent to which such species are threatened throughout their range, or to the species' rate of decline.

7.4.5 The CIEEM guidelines state that the importance of an ecological feature should be considered within a defined geographical context. The following frame of reference is used:

- International.
- National (i.e. England).
- Regional (i.e. Midlands).
- County (i.e. Nottinghamshire).
- Local (i.e. the Site plus circa 2 km).
- Less than local.

7.4.6 For the purposes of this assessment, only IOFs of local importance or greater, and / or subject to legal protection are included.

Identification and Characterisation of Impacts

7.4.7 The identification and characterisation of impacts on IOFs will be undertaken in accordance with the CIEEM guidelines with reference made to magnitude (e.g. area or number of individuals to be impacted), extent, duration and reversibility as appropriate. Impacts will be considered during the construction, operational (including maintenance) and decommissioning phases and will be assessed on the basis that a clearly defined range of avoidance and standard good practice measures are implemented.

Significant effects

7.4.8 CIEEM guidelines define a ‘significant effect’ as an effect that either supports or undermines conservation objectives for IOFs or for biodiversity in general. Conservation objectives may be specific (e.g. for a designated site) or broad (e.g. national/ local nature conservation policy). Effects with the potential to be significant will be expressed with reference to an appropriate geographic scale. For example, a significant effect on a nationally designated site is likely to be of national significance. However, the scale of significance does not necessarily always relate to the importance of an ecological feature. For example, an effect on a species which is considered of national importance, may not have a significant effect upon its national population.

7.4.9 Consideration of conservation status is important for evaluating the effects of impacts on species and assessing their significance. Conservation status is determined by the sum of influences acting on the habitat or species concerned that may affect its abundance and distribution within a given geographical area.

7.4.10 In relation to significance of effects on IOFs, this will be expressed within the ES chapter with reference to the regional, national or international scale (as relevant). The significance of effects at a local scale may also be assessed where sufficient information allows a meaningful assessment.

Cumulative assessment

7.4.11 The cumulative assessment will be conducted in accordance with the CIEEM Guidelines, with specific reference to the section related to cumulative impacts and effects.

7.4.12 Cumulative assessment will be undertaken for each of the IOFs identified within the EIA to consider applicable population areas for which interaction could give rise to potentially significant effects.

7.4.13 The assessment will include operational projects, projects under construction, consented projects which are not yet under construction and projects for which planning applications have been submitted but have not yet been determined.

7.4.14 Regarding the scale of the cumulative assessment, a maximum distance of 20 km is proposed.

Further Baseline Data

7.4.15 The baseline ornithology surveys started in April 2025 and will be completed in March 2027.

7.4.16 Following the completion of the first study year (April 2025 to March 2026), the second breeding season has been completed (April to July 2026) and the second non-breeding season surveys are underway (August 2026 to March 2027).

7.4.17 At the time of writing, grid connection options have yet to be confirmed see **Chapter 2** for further information. Relevant desk based, work will be undertaken to consider potential impacts on bird species and associated protected sites as a result of the Offsite Grid Connection, subject to the progression of those proposals relative to the DCO application.

Consultation and Engagement

7.4.18 Further consultation will be undertaken with Natural England, Nottinghamshire County Council and Bassetlaw District Council and other relevant organisations as required following receipt of scoping responses.

7.5 Design, Mitigation and Enhancement Measures

7.5.1 The mitigation hierarchy principles will be followed (avoidance, mitigation, compensation, enhancement) incorporating emerging results into the iterative design of the Proposed Development, which will be set out in detail in the ES. Mitigation, compensation and enhancement measures are dependent on the assessment of impacts in the EIA.

7.5.2 As part of the design process for the Proposed Development, several further embedded and standard mitigation measures are proposed to reduce the potential for impacts on ornithological receptors. These are presented below. It is expected that these may evolve throughout the design evolution of the Proposed Development as the EIA progresses and in response to consultation.

7.5.3 The Applicant is committed to implementing these measures, and also various standard sectoral practices and procedures. It is therefore considered that these measures are inherently part of the design and have been considered in the judgements as to which impacts can be scoped in / out of assessment.

7.5.4 Standard embedded measures adopted as part of the Proposed Development and of specific relevance to ornithology will include:

- A Construction Environmental Management Plan (CEMP); an outline CEMP will form part of the application for development consent. This will set out all measures and procedures to be adopted during the construction of the Proposed Development to avoid, minimise, and manage potential environmental impacts. Good practice measures in relation to mitigating

pollution risks are also set out in **Chapter 15: Hydrology, Hydrogeology, Water Resources and Flood Risk**.

- The appointment of an Ecological Clerk of Works (ECoW) for the duration of construction and reinstatement periods, to oversee the safeguarding of important habitats and species, implementation of ecological mitigation and to help make sure that all reasonable precautions are taken to avoid disturbance to birds and comply with environmental legislation. The ECoW will advise on all ornithological (and ecological) matters and where necessary (with the assistance of suitably qualified/licenced ornithologists) will undertake pre-commencement surveys (or appoint such), monitoring and briefing with regards ornithological (and ecological) sensitivities. The role and responsibilities of the ECoW will be defined within the outline CEMP, which will form part of the application for development consent.
- All construction work will be undertaken in accordance with a Bird Disturbance Management Plan (BDMP) secured as part of the CEMP. An outline BDMP will be provided within the outline CEMP, which will form part of the application for development consent, that sets out the principles to be followed when the final BDMP is finalised. This will ensure that precautions are taken in order to comply with legislation in regard to the protection afforded to wild birds and be informed by pre-commencement surveys and/or consultations with relevant recording groups.
- An integral part of the Proposed Development will be the production and implementation of long-term compensation and enhancement measures for biodiversity (including ornithological as well as ecological interests) and these will be agreed with relevant consultees, prior to the construction of the Proposed Development commencing. Outline details of these measures would be included within the outline Landscape and Ecology Management Plan (LEMP), which will form part of the application for development consent. The outline LEMP will identify proposed management prescriptions and monitoring requirements that will demonstrate how any additional mitigation required to address potentially significant effects on ornithological features and provide habitat enhancement for specific bird species will be delivered over the lifetime of the Proposed Development. Production of a final version of the LEMP would be secured by a requirement in the DCO, stipulating that the final version must be substantially in accordance with the outline LEMP. A detailed Habitat Management Plan (HMP) may subsequently be prepared and secured as a Requirement linked to the LEMP, or form part of the LEMP, to provide detailed prescriptions for habitat management, monitoring and long-term biodiversity objectives during operation.
- All connecting cables within the Site are proposed to be laid underground which will minimise potential collision risks (with other infrastructure) for bird species.
- Baseline study findings will be used to identify ornithological constraints and define precautionary disturbance buffers for infrastructure siting, with reference to recognised disturbance guidance (e.g. Goodship and Furness, 2022).

7.5.5 Additional mitigation measures will be considered where significant effects are anticipated to remain after embedded design measures and standard good-practice controls have been applied. If residual impacts persist, proportionate further actions, such as enhancement, remediation or compensation, will be identified to address those remaining effects.

7.5.6 Further detail on the role of mitigation commitments, as part of a proportionate EIA approach, is provided in **Chapter 3: Approach to EIA.**

7.5.7 The requirement for, and feasibility of, any mitigation and enhancement measures will be subject to consultation with consultees throughout the pre-application phase of the Proposed Development. Detailed measures and the areas over which they would be delivered, would be refined following consent, through consultations with relevant stakeholders, land managers and landowners and informed through any necessary further site investigations and/or trials as required.

7.6 Potential Impacts Scoped In

7.6.1 A range of potential impacts on ornithological features have been identified which may occur during construction, operation and maintenance, and decommissioning phases. The impacts that have been scoped into the EIA are outlined in **Table 7-3**, together with a description of any proposed additional data collection (e.g. site-specific surveys) and/or supporting analyses (e.g. modelling) to enable an assessment of the impact.

7.6.2 It is proposed that detailed assessment would be focused on the consideration to IOFs i.e. those considered sensitive to onshore wind farm developments and/or whose conservation importance may increase its susceptibility to development impacts.

7.6.3 The assessment will additionally focus on those IOFs for which baseline studies identify the potential for impact pathways and likely significant effects, to ensure that the EIA remains proportionate.

7.6.4 As set out in **Section 7.5** some mitigation measures will inherently form part of the Proposed Development, including the implementation of a CEMP and BDMP, and appointment of an ECoW, and which have been considered as to which impacts can be scoped in or out of the assessment.

Designated Sites

7.6.5 In relation to the assessment of impacts upon ornithological qualifying features (or otherwise notified interests) of statutory designated sites, these would be scoped into the assessment where a credible pathway for effect is identified, through disturbance, displacement or collision mortality risk.

7.6.6 This would have regard to the potential ranging behaviour of individual qualifying species associated with designated sites, indicating possible use of the Site and therefore potential connectivity.

7.6.7 In review of ornithological designated sites located within 20 km of the Site and the potential for spatial connectivity[3], it is proposed that the assessment would include consideration of likely significant effects on the qualifying ornithological features of the following:

- River Idle Washlands SSSI.
- Misson Training Area SSSI.

[3] Based on a precautionary assumption of core foraging ranges from designated site boundaries being up to 10 km for breeding raptors, waders and components of breeding bird assemblages.

- Sutton and Lound Gravel Pits SSSI.

7.6.8 The ES will provide sufficient information to allow the competent authority to undertake a Habitats Regulations Assessment (HRA) of the Proposed Development in relation to the Thorne and Hatfield Moors SPA and Humber Estuary Ramsar (and underpinning SSSI), with the scope of information agreed in consultation with Natural England, if required prior to submission.

7.6.9 Based on habitats present, separation distance and results to date, it is not anticipated that the Site is functionally linked to the SPA or Ramsar site. Full details will be presented within the ES.

7.6.10 LWSs with bird interest within 2 km will also be scoped into the assessment.

Bird Species

7.6.11 At this stage, detailed assessment of wider countryside bird species is anticipated to include breeding waders, particularly those associated with the River Idle Washlands, together with farmland species such as lapwing. Further assessment of breeding and non-breeding raptors is also anticipated.

7.6.12 Additional species will be taken forward where baseline evidence indicates a credible pathway for potentially significant effects.

7.6.13 In relation to the assessment of impacts upon such features that do not comprise qualifying features (or otherwise notified interests) of a designated site, the geographical scale at which the potential significance of effects will be assessed, will comprise the smallest ecologically meaningful population scale.

7.6.14 Where sufficient information is not readily available (e.g. from county bird atlases), alternative geographical population levels for the purposes of assessment will be agreed in consultation with Natural England, prior to submission.

Table 7-3: Impacts proposed to be scoped into the assessment for Ornithology

Impact	Description	Proposed Approach to Assessment Including Description of Any New Data Collection Required and Any Analyses (Such as Modelling)
Construction		
Direct loss of Habitat	The direct loss of habitat that would occur through the construction of the Proposed Development, including turbine bases, access tracks, Haul Route, substation infrastructure, borrow pit excavation (if required) and other temporary construction working areas	Direct habitat loss impacts will be assessed by quantifying the area and type of habitat affected by the Proposed Development, relative to its availability on the Site and wider geographical scales of assessment. The assessment will consider habitat reinstatement measures in addition to biodiversity enhancement measures to be included as part of the Proposed Development within a LEMP.
Disturbance caused by construction activity	Construction activity could result in direct mortality, destruction of active nests and eggs and/or temporarily disturb nesting, roosting and foraging birds, as a result of	A species-specific assessment of construction disturbance will be undertaken with reference to baseline study findings, timing and duration of works, species sensitivity and habitat use.

Impact	Description	Proposed Approach to Assessment Including Description of Any New Data Collection Required and Any Analyses (Such as Modelling)
	human presence, machinery movements, noise and habitat disturbance, with the potential for effects on breeding success, survival and local distribution. This includes disturbance and displacement effects on wintering species.	The assessment will consider whether disturbance for any notable breeding or regularly occurring species may occur and whether embedded mitigation would sufficiently avoid the potential for significant effects. Reference will be made based on current good-practice and/or species-specific guidance, including Goodship and Furness (2022).
Operation and Maintenance		
Disturbance /Displacement	The operation and maintenance of the Proposed Development may result in the temporary disturbance or longer-term displacement of bird species from habitat areas used for breeding, roosting, foraging and commuting through turbine (or other key infrastructure) presence, blade movement, maintenance access or other associated human activity. This will include for any potential barrier effects i.e. resulting from birds moving around operational turbines between roosting, breeding and/or foraging areas, diverting from baseline patterns.	A species-specific displacement assessment will be undertaken, informed by baseline study findings, considering species sensitivity, habitat use and availability of alternative habitat at a relevant population scale. The assessment will draw upon relevant published guidance and literature, including Goodship and Furness (2022).
Collision Mortality Risk	Operational turbines may present a collision mortality risk to birds, where flight activity occurs within the rotor swept zone of the turbines. Potential effects will depend upon the species present and the nature of flight activity, including flight height, frequency and spatial pattern.	Collision mortality risks will be assessed for species identified as being potentially vulnerable to turbine collision, and for which baseline activity identify the potential for such. The NatureScot collision risk model (Band (2000) and (2024), Band *et al*., (2007) and NatureScot, (2024), adopting current avoidance rates, species-specific and project-specific parameters, will be used to estimate potential collision mortality risks for target species. Assessment would then focus on species of higher conservation importance and for which collision mortality risks could materially affect baseline mortality rates at an applicable population scale.

Impact	Description	Proposed Approach to Assessment Including Description of Any New Data Collection Required and Any Analyses (Such as Modelling)
Decommissioning		
Disturbance	Decommissioning activity may cause temporary disturbance to nesting, foraging and roosting birds, because of human presence, machinery movements, noise and temporary habitat disturbance.	Potential decommissioning effects will be assessed with reference to construction-phase disturbance effects and would similarly recognise that such effects would be temporary and assess whether embedded mitigation would sufficiently avoid the potential for significant effects.
Cumulative		
Collision Mortality Risk	Bird populations may experience cumulative effects where other operational, consented or proposed wind farms (or other major infrastructure developments) contribute to combined collision mortality risk and/or displacement effects.	A cumulative assessment will therefore be undertaken where other relevant developments are identified to overlap with a species applicable population area and for which interaction could give rise to potentially significant effects.
Displacement		

7.7 Impacts Proposed to be Scoped Out

Designated Sites and Species Scoped Out

7.7.1 Based on the baseline environment information currently available and the Project description of the Proposed Development (outlined in **Chapter 2: Proposed Development Description**), the designated sites and species discussed below are proposed to be scoped out of the EIA for ornithology.

Designated Sites

7.7.2 Likely significant effects on the following statutory designated sites located within 20 km of the Site are considered unlikely and proposed to be scoped out of assessment, on the basis of spatial separation and reference to NatureScot guidance; the core foraging range of most ornithological qualifying features, embedded mitigation measures and therefore absence of credible connectivity or a pathway for effect. The separation distance of the Proposed Development from the Humber Estuary (over 18km) also suggests it is outside the maximum foraging distance of all key species.

- Thorne and Hatfield Moors SSSI;
- Thorne and Hatfield Moors Ramsar;
- Potteric Carr SSSI;
- Thorne, Crowle and Goole Moors SSSI;
- Humber Estuary Ramsar Site;
- Humber Estuary SSSI;
- Sprotbrough Gorge SSSI; and

- Messingham Sand Quarries SSSI.

Nightjar

7.7.3 Nightjar is proposed to be scoped out of assessment, reflecting the spatial separation of suitable breeding habitat from the Site and adoption of embedded mitigation measures during construction and decommissioning (including the implementation of a BDMP) and on the basis of current studies and evidence (including from the Clocaenog, Pen Y Cymoedd and Brechfa wind farm assessments[4] (RES, 2020), and as recently reviewed by Nicklin et al., (2025)) indicating that the species is not significantly displaced or likely to experience significant collision mortality risks from onshore wind farm developments.

Passerines

7.7.4 As specified in current NatureScot guidance (SNH 2025), impacts on species groups which are not considered vulnerable to significant effects from collision with wind turbines are proposed to be scoped out. This includes passerines, together with wood pigeon and stock dove.

7.7.5 Other potential impacts such as habitat loss will be scoped into the assessment.

Other Species

7.7.6 Species for which only occasional transient records are identified during baseline studies will also not be subject to detailed assessment, given such activity would suggest a limited functional link.

7.7.7 Various types of embedded mitigation (including the implementation of a BDMP) would be investigated to establish the extent to which they may avoid or reduce potentially significant effects.

Other Impacts Scoped Out

Aviation Lighting

7.7.8 Baseline studies have not identified the Site as being important for species susceptible to elevated risks to collisions with lit turbines (NatureScot, 2020) and, as such, impacts upon ornithological features relating to turbine, or any other infrastructure lighting can be scoped out.

7.8 Summary of Next Steps

7.8.1 Ornithological baseline work will continue through the completion of ongoing surveys and desk study.

7.8.2 Baseline findings will be used to confirm IOFs requiring detailed assessment, refine the approach to impact assessment where necessary, and identify any additional mitigation measures or habitat enhancement opportunities, in consultation with consultees and other stakeholders as required.

[4] Summarised within Chapter 7: ‘Ornithology’ of the Mynydd Maen Wind Farm Environmental Statement (RES, 2020)

7.8.3 Standard inherent mitigation measures, including those secured through a CEMP, appointment of an ECoW and BDMP, will continue to inform the iterative design and assessment process.

7.9 Further Consideration for Consultees

7.9.1 The following questions are provided to help frame the consultees comments on the Scoping Report for ornithology:

- **Q7.1**: Do consultees agree that the desk study extent, survey scope and survey methods are proportionate to the likely ornithological interests relevant to the Proposed Development? If not, please specify any additional survey requirements and provide justification.
- **Q7.2:** Do consultees agree with the ornithological features proposed to be scoped in to detailed assessment at this time? If not, please identify which additional designated sites, species or species-groups and explain the evidence basis for their inclusion.
- **Q7.3:** Do consultees agree with the ornithological features proposed to be scoped out of detailed assessment at this time, including the justification provided for designated site connectivity, and common or otherwise low-sensitivity species? If not, please identify where alternative conclusions are considered necessary and provide justification.
- **Q7.4:** Are consultees aware of any additional data sources, recent records, local evidence, or unpublished information that should be considered in relation to the identification of ornithological features or designated site connectivity?
- **Q7.5**: Do consultees have any specific expectations regarding mitigation, monitoring or habitat enhancement measures that should be considered at this stage of the EIA process for the Proposed Development?
- **Q7.6:** Do consultees consider that any species-specific disturbance buffers or construction controls should be anticipated beyond standard inherent mitigation measures?
- **Q7.7:** Are there any specific cumulative developments or recent planning decisions that consultees consider should be incorporated within the assessment of cumulative impacts?

8. Archaeology and Cultural Heritage

8.1 Introduction

8.1.1 This chapter of the Scoping Report sets out the baseline, the proposed scope and methodological approach for the cultural heritage assessment (including both archaeological remains and built heritage assets) to be presented in the Archaeology and Cultural Heritage Chapter of the Environmental Statement (ES). The chapter will document the assessment of the potential effects resulting from the construction, operation and maintenance and decommissioning of the Proposed Development on archaeology and cultural heritage assets, which include:

- World Heritage Sites;
- Scheduled Monuments;
- Listed Buildings;
- Registered Parks and Gardens;
- Registered Battlefields;
- Conservation Areas; and
- Assets included in the Historic Environment Records (HER), such as locally and regionally important heritage features.

8.1.2 The cultural heritage impact assessment will:

- identify cultural heritage assets that may be subject to likely significant effects, both within the draft Order Limits of the Proposed Development and within defined Study Areas;
- establish the potential for currently unknown archaeological assets to survive as buried remains within the Site;
- assess the predicted effects on these assets; and
- propose a programme of mitigation where required, and opportunities for enhancement where appropriate.

8.1.3 The assessment will consider direct effects (such as physical disturbance), indirect effects (such as changes in water drainage patterns or vibrations which can indirectly affect the preservation of heritage materials), setting impacts (such as changes to the surrounding landscape that may alter the cultural heritage significance of an asset) and cumulative effects (where assets affected by the Proposed Development are also likely to be affected by other unrelated development proposals).

8.1.4 This chapter of the Scoping Report should be read alongside the following chapters of this Scoping Report:

- **Chapter 2: Proposed Development Description**.
- **Chapter 5: Geology, Soils, Ground Conditions and Peat**.

8.1.5 This chapter is supported by the following Figures **(Volume A)** and Technical Appendices **(Volume B)**:

Figures:

- **Figure 8.1.1-8.1.6: Designated Heritage Assets**.
- **Figure 8.2: Historic Environment Records**.

Technical Appendix:

- **Appendix 8A: Designated Heritage Appraisal Table**.

8.2 Study Area

8.2.1 For the purposes of this chapter, the "Site Boundary" refers to the land within which the Proposed Development assessed for the EIA would be located. The "Scoping Boundary" (**Figure 1.2, Volume A**) refers to the area considered at this scoping stage. The "Study Area" refers to the area used for baseline data collection and assessment. This may extend beyond the Scoping Boundary where required to identify relevant receptors and assess the potential for likely significant effects.

8.2.2 To inform the cultural heritage assessment, a Study Area of up to 10 km from the proposed wind turbine locations has been defined for Scheduled Monuments and Grade I and Grade II* listed buildings, and a 5 km Study Area for conservation areas and Grade II listed buildings (**Figure 8.1.1-8.1.6, Volume A**). There is no guidance defining the extent of an appropriate 'study area' for the cultural heritage assessment of wind farms; experience in similar landscapes across the UK indicates that a 10 km Study Area would be appropriate for the Proposed Development.

8.2.3 The proposed Study Area has therefore been defined through the application of professional judgement, taking into account the scale of the Proposed Development, experience from comparable projects, and through the utilisation of a Zone of Theoretical Visibility (ZTV). The extent of the Study Area will be reviewed and refined to a point of agreement between stakeholders during consultation.

8.2.4 With regard to the archaeological potential of the Site, a Study Area of 1km from the Scoping Boundary was selected to inform a model of predictability.

8.2.5 The Proposed Development will continue to evolve through the Development Consent Order (DCO) pre-application process as further design, assessment, and consultations are undertaken. As the Scoping Boundary is refined, the Study Area for the EIA will be updated accordingly and defined with reference to the draft Order Limits.

8.3 Baseline Environment

Overview of Available Data Sources

8.3.1 The sources to be consulted in the production of the Archaeology and Cultural Heritage ES Chapter include, but are not limited to, those outlined in **Table 8-1**.

Table 8-1: Key sources of information for Archaeology and Cultural Heritage

Subject	Summary	Source
Designated cultural heritage assets	Data available from the database of Historic England (HE)	HE digital data download from the National Heritage List for England (NHLE)

Subject	Summary	Source
Non-designated cultural heritage assets (local Historic Environment Record (HER))	Digital data purchased from relevant councils as downloads	HER data held by North Lincolnshire Council and Nottinghamshire County Council
Historic Mapping	Historic Ordnance Survey maps, relevant estate and tithe maps where available.	National Library of Scotland website; local records office
Unpublished reports	Grey literature, academic articles	Online; Archaeology Data Service, information from the Client
Published works of synthesis	Published sources that combine and interpret information from multiple primary or secondary materials to create an integrated overview or broad understanding of a topic	Online; libraries
Aerial Photography	HE	Aerial Photo Explorer (online)
Historic Landscape Characterisation	HE, local councils	HE or local council digital data download
LiDAR	Publicly available LiDAR data obtained from the Environment Agency National LiDAR Programme	Digital data download/Environment Agency website

8.4 Proposed Approach to the Environmental Impact Assessment

8.4.1 The potential effects of the Proposed Development on archaeological and cultural heritage receptors will be considered in the Archaeology and Cultural Heritage ES chapter, which will cross-reference, as appropriate, relevant legislation, policy, and guidance.

Relevant Legislation, Policy and Guidance

8.4.2 The following legislation, policy, and guidance are relevant to the consideration of the potential effects of the Proposed Development on archaeological and cultural heritage and archaeology receptors. This list is not exhaustive, and other documents may be referred to as appropriate:

Legislation

- Planning Act 2008;
- Planning (Listed Buildings and Conservation Areas) Act 1990;
- Ancient Monuments and Archaeological Areas Act 1979; and
- Infrastructure Planning (EIA) Regulations 2017, specifically Schedule 4.

Policy

8.4.3 The UK Government and the relevant local authorities have issued a number of statements of policy with respect to dealing with the historic environment in the planning system:

- National Planning Policy Framework (NPPF) (MHCLG, 2026);
- Planning Practice Guidance (PPG) (MHCLG, 2024);
- National Policy Statements (NPSs) (2025);
- EN-1 (Overarching Energy) (2025);
- EN-3 (Renewable Energy Infrastructure) (2025);
- Local Plan North Lincolnshire (adopted 2018), policy 39;
- Bassetlaw Local Plan 2020-2038 (adapted 2024), policies ST40, 41

Guidance

Historic England Guidance:

- GPA1: Understanding Place – Historic Area Assessments (2017);
- GPA2: Managing Significance in Decision-Taking in the Historic Environment (2015);
- GPA3: The Setting of Heritage Assets (2017);
- Conservation Principles, Policies and Guidance (2010);
- Advice Note 12, Statements of Heritage Significance (2019); and
- Commercial Renewable Energy Development and the Historic Environment (2021).

Chartered Institute for Archaeologists (CIfA):

- Standard and Guidance for Historic Environment Desk-Based Assessment (2020); and
- IEMA, IHBC and CIfA: Principles of Cultural Heritage Impact Assessment in the UK (2021).

Proposed Approach

8.4.4 Whilst **Chapter 3: Approach to EIA** provides an indicative EIA assessment method, it also notes that assessment methodologies may vary in accordance with the prevailing technical area guidance. As such, the following section describes the assessment criteria and methodologies relevant to archaeology and cultural heritage, which are derived from best-practice guidance and methods applicable to this topic, and differ from those presented in the broader methodology chapter.

Scope of the Assessment

8.4.5 Grade I and II* nationally significant designated assets within the 10km Study Area, as well as all Grade II listed designated heritage assets and conservation Areas within a 5 km Study Area, will be subject to an initial setting assessment in order to determine any potential impacts (**Appendix 8A**, **Volume B**). A final scope of assets that have the potential for significant effects as a result of the Proposed Development will be agreed with the relevant consultees and assessed in full within the ES.

8.4.6 In the absence of specific prescribed criteria for the assessment of impacts on built heritage[5], the methodology for establishing the relative value or importance of heritage assets ('heritage significance'), the magnitude of impact, and the level and significance of effect is drawn from the Design Manual for Roads and Bridges (DMRB) (National Highways 2020) and Principles of Cultural Heritage Impact Assessment in the UK (Chartered Institute for Archaeologists (CIfA), Institute of Historic Building Conservation (IHBC) and Institute of Environmental Management and Assessment (IEMA) 2021). The details of the methodology will be agreed with Historic England, the Conservation Officers at North Lincolnshire Council and Nottinghamshire council.

8.4.7 The assessment of likely significant effects to sensitive receptors will consider the sensitivity of the receptor (henceforth referred to as "cultural heritage significance") (on a scale of very high, high, medium, low and negligible), as outlined in **Table 8-2** and the magnitude of change (on a scale of high beneficial, medium beneficial. Very low beneficial, neutral, very low adverse, low adverse, medium adverse, high adverse) as outlined in **Table 8-3** to determine the level of effect on a scale of major, moderate, minor, very minor, neutral/ nil and negligible, as outlined in **Table 8-4**. Significant effects will be determined following this through professional judgment, informed by an understanding of the heritage significance (sensitivity to change) of these assets and having regard to the DMRB (which advises that the effect on the cultural heritage resource is not significant when the impact does not substantially diminish the heritage interest of the cultural heritage resource).

8.4.8 HER records within 1km of the Site will be identified from the HER records of North Lincolnshire Council and Nottinghamshire County Council

8.4.9 A final scope of assets that have the potential for likely significant effects as a result of the Proposed Development will be agreed with the relevant consultees and assessed in full within the Archaeology and Cultural Heritage ES chapter.

Consultation / Engagement

8.4.10 Based on the results of the baseline study, constraint mapping utilising GIS software identifies mapped designated heritage assets in relation to a ZTV. This filters out those assets that do not require further assessment as the Proposed Development progresses, as detailed in **Appendix 8A (Volume B)**. This is because either the asset, its approach or point of appreciation has no intervisibility with the Proposed Development; the setting of the asset does not contribute to its cultural heritage significance; or it is not anticipated that the Proposed Development will change the setting of the asset to such an extent so as to cause harm to the ability to appreciate it. The figures and appraisal are provided to identify and agree on the most potentially sensitive assets, which may then require computer-generated visualisations to be produced as part of their assessment. Consultees are invited to confirm their agreement to the current scope of assets to be assessed in the Archaeology and Cultural Heritage ES chapter.

[5] There is currently no universally agreed methodology for assessing the impact of development on heritage assets within an Environmental Statement. Historic England, for example, has not issued specific guidance for this purpose. The approach adopted here is widely accepted within the sector. While the referenced guidance originates from infrastructure projects such as roads and bridges, the principles it sets out for evaluating impacts on heritage assets are applicable to other forms of development, including wind farms. This includes the *Design Manual for Roads and Bridges (DMRB)* and *Principles of Cultural Heritage Impact Assessment in the UK* (July 2021)

8.4.11 Additional follow-up consultation post-scoping will be undertaken as required with HE and the local authorities to agree on the scope of assessment for the final design layout of the Proposed Development.

Zone of Theoretical Visibility

8.4.12 The setting impact assessment will be assisted by the ZTV. The ZTV is based on the maximum theoretical visibility, i.e., the maximum height of the wind turbine blade tips. Guidance on the use of preliminary ZTV studies, as well as the selection of viewpoints and preparation of visualisations, has been informed by NatureScot's published standards for visualisation good practice (NatureScot 2017) and by the principles set out in Historic England's GPA3: The Setting of Heritage Assets (Historic England 2017), particularly its advice on understanding views and intervisibility within setting assessments

Assessment and Types of Impact

8.4.13 Impacts have the potential to be caused by the Proposed Development where it changes the baseline condition of either the asset itself or its setting; it being noted that change does not necessarily result in a negative impact.

8.4.14 A core area, which includes all land within the Site Boundary, will be subject to assessment for potential direct physical effects. The Site will be subject to a detailed walkover survey, and archaeological remains that may be directly or indirectly impacted by the Proposed Development will be identified. In addition, a 1km Study Area will be used to identify all known heritage assets and previous archaeological interventions, to help inform the likelihood of unknown remains being present within the Site Boundary.

8.4.15 The qualitative assessment will be carried out in accordance with:

- EN 1 Section 5.9: Historic Environment;
- Section 20 of the NPPF;
- Conservation Principles: Policies & Guidance;
- Historic Environment Good Practice Advice in Planning Note 2 - Managing Significance in Decision-Taking in the Historic Environment and
- best practice documents and guidance published by CIfA.

8.4.16 The assessment of likely significant effects to sensitive receptors will consider the sensitivity of the receptor (on a scale of very high, high, medium, low and negligible) and the magnitude of impact (on a scale of large, medium, small and negligible) to determine the level of effect on a scale of high beneficial, medium beneficial. Very low beneficial, neutral, very low adverse, low adverse, medium adverse, high adverse. Significant effects will be determined following this through professional judgment.

8.4.17 The definition of impact is described below:

- Direct impacts (physical) occur where the physical fabric of the asset is removed or damaged, or where it is preserved or conserved, as a direct result of the Proposed Development. Such impacts would most likely occur during the construction phase and would most likely be permanent.
- Indirect (physical) impacts are those which would affect the heritage significance of an asset by causing change to its fabric indirectly, such as

increased changes in water drainage patterns, which could indirectly affect the preservation of heritage materials.

- Setting impacts could result from the Proposed Development causing change within the setting of a heritage asset and subsequently affecting its cultural heritage significance or the way in which it is appreciated. Such impacts are generally, though not exclusively, visual, occurring directly as a result of the Proposed Development 's appearance in the asset's surroundings. Setting impacts may also relate to other senses or factors, such as noise, odour, or emissions, or to historical relationships that are not entirely related to intervisibility, such as historic patterns of land use and related historic features. Such impacts may occur at any stage of a Proposed Development's lifespan and may be permanent, reversible, or temporary. Setting impacts are generally considered as an effect of the operation of the wind farm turbine array.
- Cumulative impacts: can relate to the physical fabric or setting of assets. They may arise from impact interactions, either from different impacts of the Proposed Development itself, or from additional impacts resulting from incremental changes caused by the Proposed Development together with other projects within the scope of the cumulative assessment area.

8.4.18 Assessment will be undertaken separately for direct physical impact, indirect impact and direct setting impacts and will consider the level of their heritage significance (where known) and the magnitude (extent) of the identified impacts.

Cumulative Effects

8.4.19 The approach to the assessment of cumulative effects will be undertaken in accordance with the methodology outlined in **Chapter 3: Approach to EIA**. All developments considered in the cumulative assessment will be listed fully in the Archaeology and Cultural Heritage chapter of the ES.

8.4.20 For the purposes of the assessment of cumulative effects for archaeology and cultural heritage, assets with a moderate or higher sensitivity to effects resulting from the Proposed Development, in isolation, will be considered for cumulative assessment, as these assets are most likely to be susceptible to significant cumulative effects.

Cultural Heritage Significance

8.4.21 The cultural heritage significance of each asset will first be established by reference to the criteria in **Table 8-2**. For the purposes of the EIA, this understanding will then inform the asset's sensitivity to the specific type of change under consideration. Keeping these concepts separate distinguishes the heritage value of the asset, which exists independently of the Proposed Development, from its susceptibility to a particular impact.

8.4.22 The significance categories consider factors such as designation, status and grading. For non-designated assets, consideration will be given to their inherent heritage interests comprising evidential value, historical value (includes associative aspects), aesthetic value, and communal value. In relation to these assets, the assessment will consider their ability to contribute to an understanding of the past; their structural, decorative and field characteristics; their contribution to their monument class; and their associations with people, practices, events or historical and social movements. Assessments of the cultural heritage significance of specific assets, where recorded within the HER, will be considered where appropriate.

Table 8-2: Cultural Heritage Significance

Cultural Heritage Significance	Example
Very High	World Heritage Sites; assets of international importance.
High	Scheduled Monuments; Grade I and II* Listed Buildings; Registered Parks and Gardens (Grade I); Conservation Areas of national importance; non-designated assets of demonstrable national importance.
Medium	Grade II Listed Buildings; Registered Battlefields; Registered Parks and Gardens (Grade II); Conservation Areas of regional/local importance; non-designated assets of regional or local importance.
Low	Assets of limited heritage interest; heavily altered or poorly preserved assets with limited contextual value.
Negligible	Assets with little or no heritage interest; assets whose significance has been lost or severely compromised.
Unknown	Assets where significance cannot be determined without further investigation.

8.4.23 In addition to identifying the cultural heritage significance of a heritage asset, it is essential, where changes to setting are being assessed, to understand the contribution that setting makes towards the cultural heritage significance of an asset. Elements of setting may make a positive, neutral, or negative contribution to the cultural heritage significance of an asset. Therefore, in determining the nature and level of impact upon an asset and its setting by the Proposed Development, the contribution that setting makes to an asset's cultural heritage significance and therefore its sensitivity to changes to its setting need to be considered.

8.4.24 This approach reflects national policy, as outlined in **Section 8.4.3**, which requires that change should avoid or minimise harm to the significance of a heritage asset, including any contribution made by its setting. It recognises that setting contributes to the understanding, appreciation, and ability to experience the significance of an asset, but that the extent and importance of this contribution can vary between assets. While some heritage assets derive a key part of their significance from their setting, others, even those of high or very high significance, may be less sensitive to changes within their wider surroundings.

8.4.25 The determination of an asset's relative sensitivity to changes to its setting is first and foremost reliant upon the determination of its setting and how setting aligns with other key characteristics which contribute to cultural heritage significance. While cultural heritage significance is defined by the criteria set out in **Table 8-2**, the sensitivity of setting criteria for each asset will be defined using professional judgement and, where appropriate, by a Site visit conducted by the assessor. The resulting sensitivity of setting will then be defined and referenced within the assessment to determine whether the resulting effects are in line with policy.

Magnitude of Impact

8.4.26 Determining the magnitude of impact includes consideration of the nature of the activities proposed during the construction, operational and decommissioning phases of the Proposed Development. Activities could potentially include ground disturbance, noise, vibration, smell, dust, traffic movements, etc., which could result in visual change and/ or changes to the setting.

8.4.27 Considering all embedded mitigation measures, which will be developed throughout the design process, the magnitude of impact will be assessed with reference to the criteria set out in **Table 8-3**.

Table 8-3: Magnitude of Impact

Magnitude of Impact	Explanatory Criteria
High Beneficial	The Proposed Development would considerably enhance the cultural heritage significance of the affected asset, or the ability to understand, appreciate and experience the contributing factors to significance in line with GPA3.
Medium Beneficial	The Proposed Development would enhance, to a clearly discernible extent, the cultural heritage significance of the affected asset, or the ability to understand, appreciate and experience it.
Very Low Beneficial	The Proposed Development would enhance, to a very minor extent, the cultural heritage significance of the affected asset, or the ability to understand, appreciate, and experience it.
Neutral/None	The Proposed Development would not affect the cultural heritage significance of the affected asset, or the ability to understand, appreciate and experience it.
Very Low Adverse	The Proposed Development would erode, to a very minor extent, the cultural heritage significance of the affected asset, or the ability to understand, appreciate and experience it. This level of setting impact would not be considered to substantially harm the cultural heritage significance of the asset.
Low Adverse	The Proposed Development would erode, to a minor extent, the cultural heritage significance of the affected asset, or the ability to understand, appreciate and experience it. This level of indirect impact would rarely be considered to substantially harm the cultural heritage significance of the asset.
Medium Adverse	The Proposed Development would erode, to a clearly discernible extent, the cultural heritage significance of the affected asset, or the ability to understand, appreciate and experience it. This level of indirect impact might be considered to substantially harm the cultural heritage significance of the asset.
High Adverse	The Proposed Development would considerably erode the cultural heritage significance of the affected asset, or the ability to understand, appreciate and experience it. This level of indirect impact would probably be considered to substantially harm the cultural heritage significance of the asset.

Significance of Effect

8.4.28 **Table 8-4** provides a matrix that relates the cultural heritage significance of the asset to the magnitude of impact on its cultural heritage significance, to produce an overall anticipated level of effect (significance of effect). Effects may be beneficial or adverse and may be short term or long term and temporary or permanent.

Table 8-4: Significance of Effect

Magnitude of Impact	Cultural heritage Significance (Excluding Unknown)				
	Highest	High	Medium	Low	Negligible
High beneficial	Major	Major	Moderate	Minor	Very Minor
Medium beneficial	Major	Moderate	Minor	Very Minor	Negligible
Low beneficial	Moderate	Minor	Very Minor	Very Minor	Negligible
Very low beneficial	Minor	Very Minor	Negligible	Negligible	Negligible
Neutral / None	Neutral/Nil	Neutral/Nil	Neutral/Nil	Neutral/Nil	Neutral/Nil
Very low adverse	Minor	Very Minor	Negligible	Negligible	Negligible
Low adverse	Moderate	Minor	Very Minor	Very Minor	Negligible
Medium adverse	Major	Moderate	Minor	Very Minor	Negligible
High adverse	Major	Major	Moderate	Minor	Very Minor

8.4.29 Once the anticipated effects of the Proposed Development upon cultural heritage assets are defined, professional judgement will be used to determine whether those effects would be determined to be either 'significant' or 'not significant' for the purposes of the Environmental Impact Assessment (EIA). As part of this determination process, regard will be given to any relevant guidance.

8.4.30 In line with the NPPF, Historic England has emphasised that harm to the significance of a designated heritage asset, and whether the harm is substantial, must be clearly identified and addressed in the planning process, and that even low levels of change to the setting may constitute harm where they affect the ability to understand, appreciate or experience an asset's cultural heritage significance. Accordingly, the assessment will articulate the effects of heritage harm in both EIA terms and, where relevant, NPPF terms of heritage harm.

8.4.31 With reference to the matrix presented in **Table 8-4**:

- any effects identified as 'Substantial Harm', as outlined within the NPPF, would likely be considered 'significant in EIA terms;'
- any effects identified as not substantial harm may be considered 'significant' in EIA terms, recognising that even limited change or a "minor" effect can nevertheless constitute harm requiring consideration and balancing; the determination of EIA significance will therefore be informed by professional judgement, taking into account asset-specific circumstances and the contribution of setting to cultural heritage significance; and
- any effects identified as 'No Harm' as outlined within the NPPF are considered 'not significant,' though again, professional judgement will be exercised.

8.4.32 A clear statement will be made in relation to all affected assets as to whether the identified effects upon them are considered to be 'significant' or 'not significant' for purposes of EIA and 'Substantial Harm' or not substantial harm as per the NPPF.

8.5 Desk-Study

8.5.1 The Archaeology and Cultural Heritage ES chapter will include an historic environment desk-based assessment, based on the sources and methodology outlined above, and complemented by field surveys.

8.5.2 At the time of writing, grid connection options have yet to be confirmed (**Chapter 2: Proposed Development Description**), Relevant desk-based assessment work will be undertaken, to consider potential impacts on Archaeology and Cultural Heritage assets as a result of the Offsite Grid Connection, subject to the progression of those proposals relative to the DCO application.

8.6 Planned Surveys

8.6.1 A desk-based data model will be produced in relation to all recorded assets within the Site; the aim of this would be to establish the condition of any recorded assets and identify the potential for any additional presently unrecorded assets. Areas of identified peat will be incorporated into the deposit model and considered alongside the results of proposed peat investigations. Where peat deposits are present, particular consideration will be given to their potential to contain preserved archaeological remains and palaeoenvironmental archives. The results of peat characterisation surveys will be reviewed to inform archaeological potential and identify any requirement for further geoarchaeological or palaeoenvironmental assessment.

8.6.2 Targeted field inspection of assets scoped in for further assessment due to potential impacts from changes to their setting as a result of the Proposed Development will also be undertaken following a desk-based comparison of asset mapping with ZTV and satellite imagery. This survey will inspect any designated heritage assets through an in-field settings assessment.

8.7 Overview of Baseline Environment

Archaeology within the Site

8.7.1 HER records indicate activity within the search area from the prehistoric period onwards. The earliest HER records within the 1 km Study Area are sporadic find spots from the Mesolithic to the Bronze Age, associated with flint working. Later activity may relate to Iron Age/Romano-British settlement. There is a settlement site and a crop marks complex within the Study Area. The medieval and post-medieval periods are predominantly in the vicinity of Misson, relating to settlement in the area. Agricultural activity is possible from the Iron Age onwards.

8.7.2 Published mapping indicates that the Site is extensively underlain by fen peat deposits, with locally deeper deposits exceeding 1.5 m in thickness. A Phase 1 peat survey has been undertaken which shows that the Site is predominantly comprised of wasted peaty soils of less than 0.3 m depth, with limited and localised areas of relic deeper peat, together with extensive areas of mineral soils (See **Chapter 5: Geology, Soils, Ground Conditions and Peat**). In addition to their environmental importance, peat deposits are recognised as having a high potential for the preservation of archaeological remains and palaeoenvironmental evidence. Waterlogged and anaerobic conditions can preserve organic archaeological material that would not typically survive within mineral soils, including wood and plant remains. Peat sequences may also contain preserved pollen, macrofossils and other environmental remains capable of providing

important evidence for past environments, land use, landscape development and human activity.

8.7.3 Specific sensitive archaeological receptors may comprise the following:

- Prehistoric:
  - Unknown archaeological remains and palaeoenvironmental evidence.
  - Flint working site (15548).
- Roman Settlement:
  - Cropmark Complex at Walkeringham (10167 Roman settlement at Walkeringham) (25830).
- Early medieval:
  - There are no HER records dating to this period within the 1km Study Area.
- Medieval:
  - Medieval elements of St John the Baptist's Church (5028, 9373, 9374).
  - Moated Site and fish ponds at Misson (15533, 25879).
  - Sporadic find spots dating to the period.
- Post Medieval:
  - The majority of the HER records relate to built heritage within Misson, accounted for within designated heritage assets.
  - Land improvement drains (19586, 19591).

Heritage

8.7.4 There are no designated heritage assets within the Site.

8.7.5 Within the 10 km Study Area, there are 15 Scheduled Monuments, 20 Grade I, and 19 Grade II*. Within a 5 km radius, there are 192 Grade II listed buildings and four conservation areas. There are no Registered Parks and Gardens, World Heritage Sites, or Battlefields. A full list of designated heritage assets and initial assessments of them are presented in **Appendix 8B (Volume B).** Assets Scoped In for Further Assessment due to Potential for Setting Impacts are shown in **Table 8-5.**

8.8 Design, Mitigation and Enhancement Measures

8.8.1 As part of the early design process for the Proposed Development, several embedded primary mitigation measures to reduce the potential for impacts on archaeological and cultural heritage receptors are proposed. These are presented below. It is expected that these may evolve throughout the iterative design of the Proposed Development as the EIA progresses and in response to consultation and engagement feedback.

8.8.2 Additional mitigation measures will be considered where significant effects are anticipated to remain after embedded design measures and standard good practice controls have been applied. If residual impacts persist, proportionate further actions, such as enhancement, remediation or compensation, will be identified to address those remaining effects.

8.8.3 As the Proposed Development progresses, opportunities to enhance archaeology and cultural heritage, including through public benefit, will be considered in line with relevant guidance, with any measures identified in the Archaeology and Cultural Heritage ES Chapter.

8.8.4 Suitable measures for minimising impacts through ground disturbance might include:

- the micro-siting of infrastructure, with due consideration for wider site constraints and engineering practicalities, away from sensitive locations;
- the fencing off or marking out of heritage assets or features in proximity to construction activity to avoid disturbance where possible;
- a programme of archaeological work where required, such as an archaeological watching brief during construction activities in or in proximity to areas of archaeological sensitivity, or excavation and recording where impact is unavoidable; and/or
- a working protocol to be implemented should unrecorded archaeological features be discovered.

8.8.5 Suitable measures for mitigating any setting impacts during the iterative design process might include, but is not limited to:

- alteration of the proposed wind turbine layout;
- deletion or removal of wind turbines; and/or
- reduction of proposed wind turbine heights.

8.8.6 Additional mitigation measures will be considered where significant effects are anticipated to remain after embedded design measures and standard good practice controls have been applied. If residual impacts persist, proportionate further actions, such as enhancement, remediation or compensation, will be identified to address those remaining effects

8.8.7 Further detail on the role of mitigation commitments, as part of a proportionate EIA approach, is provided in **Chapter 3: Approach to EIA.** A full description of the mitigation commitments identified so far is provided in **Appendix 3A: Draft Register of Environmental Actions and Commitments (REAC) (Volume B)**.

8.8.8 The requirement for, and feasibility of, any mitigation measures will be subject to consultation with consultees throughout the pre-application phase of the Proposed Development.

8.9 Potential Impacts Scoped In

Construction Impacts

8.9.1 The two HER records identified within the Site are findspots that no longer remain in situ. Consequently, no effects on these heritage assets are predicted.

8.9.2 For elsewhere in the Site, there is a potential for impacts to occur on previously unrecorded buried archaeology remains, including any archaeological deposits and palaeoenvironmental archives preserved within areas of peat. Ground disturbance, dewatering or changes to hydrological conditions may adversely affect both archaeological remains and palaeoenvironmental resources by altering the waterlogged conditions required for their preservation.

8.9.3 There is the potential for direct impact on any unrecorded cultural heritage assets within the Site as a result of the construction process. Desk-based Deposit Modelling will help determine the Site's potential for unrecorded archaeological deposits. The potential impact on unrecorded cultural heritage assets will be assessed more fully in the Archaeology and Cultural Heritage ES chapter.

8.9.4 Relevant mitigation measures will be embedded within the design of the Proposed Development as the design progresses. Potential mitigation is discussed in **Section 8.8** of this Scoping Report chapter.

8.9.5 If there are any further ground-breaking works undertaken during operation, maintenance, or decommissioning of the wind farm (e.g., track widening), then there is the potential for further impact on recorded or unrecorded heritage assets. If this is the case, then further mitigation methods may be required.

Operational Impacts

8.9.6 Direct impacts to an asset's setting are most likely to occur as part of the construction and operational phases of development.

8.9.7 To inform this Scoping Report, the preliminary list of designated assets within the relevant Study Areas was subject to an initial appraisal to determine which assets will be subject to detailed assessment (**Appendix 8A, Volume B**). No designated heritage assets beyond 10 km of the Proposed Development have been identified that have long-distance views which include the Site, form part of their setting, and are considered to contribute to their cultural heritage significance.

8.9.8 The initial appraisals provided in **Appendix 8B (Volume B)** are intended to create a proportionate scope for the assessment, and each asset will be subject to repeated appraisals throughout the EIA process, subject to changes to the proposed wind turbine layout. Assets that have been scoped in may be scoped out and vice versa, dependent on the final layout and as a result of consultee comments.

8.9.9 All designated cultural heritage assets within 10 km of the Scoping Boundary, along with the ZTV indicating their visibility of the proposed wind turbines, are depicted on **Figure 8.1.1 – 8.1.6 (Volume A)**.

8.9.10 Of the assets included within the 10 km Study Area described in **Section 8.2**, the asset types listed below are considered unlikely to experience significant effects as a result of the Proposed Development. This is because their cultural heritage significance is derived wholly or predominantly from their physical fabric and/or because the Proposed Development would not materially alter those elements of their setting that contribute to their significance. Their cultural heritage significance would therefore be maintained. Accordingly, the types of assets listed below are considered scoped out of further assessment:

- assets in built up areas for which for which views to and/or from the asset from beyond its immediate townscape setting, do not contribute to its cultural heritage significance;
- churches / chapels and associated rectories whose significance draws from its architecture and churchyard settings, where there are also limited or distant views which would not affect an appreciation or understanding of the asset;
- industrial assets including former bakeries, public houses, and maltings, located within a built-up village area where understanding of function lies within the village setting;

- former / distant farmsteads, farmhouses, and ancillary farm buildings to which an understanding and appreciation is restricted to the principal farmhouse, farmyard, and / or the immediate rural backdrop which would be unaffected and / or with no historic links to the land within the footprint of the Site;
- distant cottages and houses to which rural setting is restricted with no historic link to the land within the Site; and
- Non-designated heritage assets within the Study Area.

8.9.11 Following the initial appraisal of assets set out in **Appendix 8A (Volume B)**, 35 designated cultural heritage assets have been identified as requiring a detailed settings assessment within the ES, as there is the potential for the Proposed Development to have a significant effect upon them through changes within their setting as listed in **Table 8-5**. These assets will be subject to field observations, where possible, to determine the necessity for assessment of their significance in accordance with Historic England's guidance The Setting of Heritage Assets (Historic England 2017) and Statements of Heritage Significance (Historic England 2019).

8.9.12 Impacts proposed to be scoped into the assessment for Archaeology and Cultural Heritage are listed in **Table 8-6.**

Table 8-5: Assets Scoped In for further assessment due to potential for settings impacts

List Entry No	Name	Grade	NGR
1008629	Moated site and fishpond east of Misson village	SM	SK 69298 94976
1018529	Roman fort and a section of Roman road 350m north-west of Holly House Farm	SM	SK 65937 92765
1003241	Beacon Hill camp	SM	SK 74178 90798
1004823	Rossington Roman Villa	SM	SK 62759 99026
1017556	Kinaird motte and bailey castle	SM	SE 80515 00267
1016970	Castle Hills Wood ringwork and baileys	SM	SK 81827 91518
1008630	Hayton Castle moated site and fishpond	SM	SK 73971 86715
1045108	Church of St John the Baptist and boundary Wall	I	SK69103 94927
1045068	Gibdyke Farmhouse and Boundary Wall	II	SK 69218 95040
1045069	Woodbine Lodge, Railing, and Gatepiers	II	SK 69047 94874
1045070	Willow House	II	SK 69078 94841
1045101	Pusto Hill Farm House Link Wall and Outbuilding	II	SK 69584 90096
1045107	Mill House	II	SK 73003 90634
1045700	Clayworth Hall and Outbuilding	II	SK 72752 88395
1045704	Manor House	II	SK 72449 88656
1067741	Langholme Manor Farmhouse	II	SK 75940 97051
1151553	Wharf Farmhouse	II	SK 65329 93048

List Entry No	Name	Grade	NGR
1151574	The Manor House	II	SK 66174 94974
1156681	Park House Farmhouse	II	SK 72627 90641
1156743	Fountain Hill Farmhouse	II	SK 75585 93782
1156751	Gringley Road Farmhouse	II	SK 75842 93856
1156795	Manor Farmhouse and Outbuildings	II	SK 75004 93229
1156811	Highfield Farmhouse	II	SK 75508 92054
1239430	Scaftworth Hall	II	SK 66645 91633
1273834	Mattersey Grange	II	SK 67145 89695
1302662	The Duck	II	SK 70608 90421
1302724	3 and 3a, Debdhill Road	II	SK 76360 94972
1314823	The Farmhouse	II	SK 66103 94653
1370386	Rose Dene and the Cottage	II	SK 75582 93033
1370418	The Old Vicarage	II	SK 69345 95435
1420445	Bawtry War Memorial	II	SK 65060 92630
1421763	Gringley on the Hill War Memorial	II	SK 73056 90637
N/A	Misson Conservation Area	CA	N/A
219	Everton Conservation Area	CA	N/A
244	Wiseton and Drakeholes	CA	N/A
233	Gringley on the Hill Conservation Area	CA	N/A

Table 8-6: Impacts proposed to be scoped into the assessment for Archaeology and Cultural Heritage

Impact	Description	Proposed Approach to Assessment Including Description of Any New Data Collation Required and Any Analyses (Such as Modelling)
Construction		
Direct physical impacts on non-designated heritage assets within the Site.	This includes previously unrecorded archaeological remains. A range of potential direct impacts on archaeological and cultural heritage receptors may arise during construction. These include ground disturbance from wind turbine foundations, access tracks, crane pads, cabling, substation works, and associated infrastructure.	Potential direct impacts will be assessed through a combination of Data Collation and Desk-Based Work as follows: • A desk-based assessment will be carried out to inform the baseline for the Site. • Historic map regression and documentary review. • Desk-based Deposit Modelling. Consideration of evaluative fieldwork (e.g. geophysical survey,

Impact	Description	Proposed Approach to Assessment Including Description of Any New Data Collation Required and Any Analyses (Such as Modelling)
		trial trenching) if required to clarify archaeological potential. Relevant mitigation measures will be embedded in the Proposed Development 's design as it progresses. Potential mitigation is discussed in **Section 8.8** of this chapter of the Scoping Report.
Indirect effects on heritage assets within the Site	The known heritage assets within the Site may be subject to indirect physical impacts arising from construction-related activities such as vibration, changes to ground hydrology, and temporary or sustained dewatering. These processes have the potential to affect buried archaeological deposits, especially those that rely on stable hydrological or anaerobic conditions for their preservation. Vibration may cause movement, settlement, or micro-fracturing of fragile features, while dewatering may accelerate the deterioration of waterlogged remains or alter the preservation environment. Even where no direct physical disturbance is proposed, these indirect mechanisms can compromise the integrity, stability, or evidential value of archaeological assets.	The assessment of indirect effects will incorporate a review of construction methodologies, vibration-generating activities, and any works likely to alter groundwater levels. This will be supported by hydrogeological appraisal, geotechnical data, and, where appropriate, vibration modelling or zone-of-influence analysis. Assets identified as potentially sensitive to hydrological or vibratory change will be evaluated to determine their susceptibility, with mitigation embedded in the design where necessary, such as adjustments to construction methods, monitoring strategies, or preservation measures. If unavoidable risk remains to any archaeologically important assets, if any present, additional targeted investigations or protective measures may be recommended to ensure that archaeological receptors are safeguarded throughout construction, operation, and decommissioning.
Operation and Maintenance		
Direct physical impacts	Maintenance activities have the potential to result in direct physical impacts on archaeological and cultural heritage assets where additional ground disturbance is required during the operational lifespan of the wind farm. Such impacts may arise from works including track widening, excavation for repairs, ground-breaking required for replacement of buried cables or drainage infrastructure, and the	If maintenance works require additional ground-breaking, the potential for further impact on recorded or unrecorded heritage assets will need to be considered. Where this occurs, further mitigation may be required, in line with the broader approach to embedded mitigation outlined for the Proposed Development. This would ensure that any maintenance-related works are informed by the presence of

Impact	Description	Proposed Approach to Assessment Including Description of Any New Data Collation Required and Any Analyses (Such as Modelling)
	establishment of temporary laydown or crane hardstanding areas.	known assets and by the possibility of unrecorded remains within the Site Boundary, with measures implemented to avoid or reduce direct physical impacts wherever possible.
Settings effects on designated heritage assets	During the operational phase, the presence and movement of wind turbines may give rise to indirect impacts on the settings of heritage assets within the wider landscape. These impacts may occur where the visibility, character, or experience of an asset's surroundings contributes to its cultural heritage significance.	Historic England's guidance on assessing setting impacts has been used to determine which assets are potentially sensitive to change and which assets of this subgroup would experience an effect upon their cultural heritage significance. Assets fitting these criteria have been scoped in for further assessment and are outlined in **Table 8-5.**
Cumulative		
Direct Effects on Heritage Assets within the Site	Ground disturbance affecting archaeological remains would add to the cumulative disturbance of remains in general.	The Archaeology and Cultural Heritage ES chapter will consider the potential cumulative effects in accordance with the methods presented in **Chapter 3: Approach to EIA**. This will include consented (not built out) schemes and pending schemes.
Settings Effects	Cumulative impact through setting change caused by consented (but not built out) schemes and schemes for which an application has been submitted could combine with any effects identified by this Project to cause a greater cumulative effect.	The Archaeology and Cultural Heritage ES chapter will consider the potential cumulative effects in accordance with the methods presented in **Chapter 3: Approach to EIA**. This will include consented (not built out) schemes and schemes for which an application has been submitted. Assets with a minor or higher significance of effect resulting from the Proposed Development in isolation will be considered for cumulative assessment, as these assets are most likely to be susceptible to significant cumulative effects.

8.10 Impacts Proposed to be Scoped Out

8.10.1 Based on the baseline environmental information currently available and the description of the Proposed Development (outlined in **Chapter 2: Proposed**

Development Description) several impacts are proposed to be scoped out of the EIA for archaeology and cultural heritage. The impacts are outlined in **Table 8-7**, together with a justification for scoping them out.

Table 8-7: Impacts proposed to be scoped out of assessment for Archaeology and Cultural Heritage

Impact	Justification for Scoping Out
Construction	
Settings effects on designated heritage assets	Impacts on the setting of designated heritage assets as a result of construction activity are minimal at most and temporary in nature.
Operation and Maintenance	
Settings effects on designated heritage assets of medium Cultural Heritage Significance beyond 5km	As outlined in **Section 8.7**, based on the work undertaken to date, the professional judgement of the cultural heritage team, and experience of other comparable projects it is considered that impacts on setting on Grade II Listed Buildings outside of 5km of the proposed wind turbines can be scoped out of the EIA with the exception of those wherein specific views are considered to contribute to their significance and/or to the ability to appreciate and experience them. Grade II Listed Buildings represent the lowest tier of national designation and are generally of modest national importance. Their cultural heritage significance may, however, be considered higher where consultees or supporting evidence indicate enhanced architectural, historic, or artistic value.
	In most cases, the cultural heritage significance of a Conservation Area derives from its character and the features and buildings that it contains, rather than the contribution of the wider landscape. As such, any Conservation Area beyond 5km of the Site has been scoped out, with the justification that, even if visibility between the Proposed Development and the conservation areas may still occur, the conservation areas' significance would not be diminished.
	It is also considered that any assets that fall outside of the ZTV (and where important views associated those assets' approaches, and third points of appreciation also fall outside of the ZTV) can be scoped out of the EIA in relation to Cultural Heritage.
Decommissioning	
Direct Effects	On the basis that effects are likely to be similar to or less than construction effects, it is unlikely that there will be any direct impacts upon known heritage assets as a result of decommissioning. The effects of decommissioning will therefore not be taken forward for assessment within the Archaeology and Cultural Heritage ES chapter.
Setting Effects	Impacts on the setting of designated heritage assets as a result of decommissioning activity are minimal at most and temporary in nature.
Cumulative	

Impact	Justification for Scoping Out
Settings effects on designated heritage assets with a lower-than-minor significance of effect	Assets with a lower-than-minor significance of effect resulting from the Proposed Development in isolation will not be taken forward for assessment of cumulative impacts within the Archaeology and Cultural Heritage ES chapter, as these assets are unlikely to be susceptible to significant cumulative effects.

8.11 Summary of Next Steps

8.11.1 It is anticipated that the Archaeology and Cultural Heritage ES chapter will reference a baseline in respect to a finalised layout. The baseline will include a full desk-based assessment using updated HER data, historic mapping and documentary sources, alongside data modelling.

8.11.2 The Study Area referenced to assess archaeological potential would be set at 1km from the Site. This search area will be used for consultation with North Lincolnshire Council and Nottinghamshire Council and is expected to represent the archaeological character of the area within the Site.

8.11.3 The scope of assets requiring detailed settings assessment will be confirmed through ongoing consultation with the relevant stakeholders. The heritage team will refine the list of assets requiring detailed settings assessment, incorporating consultee feedback and any design evolution, and will prepare full statements of significance for all scoped-in designated and non-designated assets. ZTV analysis and proposed viewpoint visualisations will be finalised to support settings assessments, including cumulative scenarios. Full statements of significance, detailed assessment of setting impacts, and any required mitigation strategies will then be developed for inclusion in the ES.

8.11.4 Where required, recommendations for archaeological evaluation will be developed in consultation with the relevant local authorities and Historic England. The findings will feed into the ES, which will identify likely significant effects, propose mitigation measures, and confirm any required consent pathways. Engagement with consultees will continue throughout to ensure agreement on methodology, assessment scope, and visualisation locations prior to completion of the ES.

8.12 Further Consideration for Consultees

8.12.1 The following questions are provided to help frame consultee comments on the Scoping Report for Archaeological and Cultural Heritage:

- **Q8.1**: Do consultees agree with the methodology set out?
- **Q8.2**: Do consultees agree with assets and matters scoped out?
- **Q8.3**: Are there any assets, not listed in the appraisal, that should be given key consideration?
- **Q8.4**: Do consultees have any specifications on further visualisations and their locations?
- **Q8.5**: Are there any specific projects currently going through the planning process which consultees feel should be considered as part of the cumulative assessment?

9. Air Quality and Greenhouse Gases

9.1 Introduction

9.1.1 This chapter of the Scoping Report sets out the proposed scope and methodology of the air quality and greenhouse gases assessment of the Proposed Development. It identifies the potential likely significant effects arising from the construction, operation and management, and decommissioning of the Proposed Development, in isolation and cumulatively, on air quality and greenhouse gases. This chapter also explains how likely significant effects would be assessed for the purposes of the Environmental Impact Assessment (EIA).

9.1.2 Details of the construction, operation and maintenance, and decommissioning of the Proposed Development are set out in **Chapter 2: Proposed Development Description**.

9.1.3 There are interrelationships between the potential effects on air quality and greenhouse gases and other environmental topics. Therefore, this chapter should be read alongside the following chapters of the Scoping Report:

- **Chapter 6: Ecology; and**
- **Chapter 14: Access, Traffic and Transport.**

9.1.4 This chapter is supported by the following Figure (provided in **Volume A**):

- **Figure 9.1: Potential Sensitive Receptors.**

9.2 Study Area

9.2.1 The Study Area for air quality encompasses the area over which all desk-based data was gathered to inform the air quality Scoping assessment presented in this chapter. For greenhouse gases, the Study Area is defined by the likely location of emissions sources that contribute to the Proposed Development's lifecycle footprint, including all emissions which occur within the Scoping Boundary.

9.2.2 The Study Area for air quality is shown in **Figure 9.1** (**Volume A**).

9.2.3 The Study Area has been defined for the purposes of Scoping using the current Scoping Boundary and should be regarded as preliminary at this stage. It will be reviewed and amended in response to the refinement of the Proposed Development, the identification of additional impact pathways and, where appropriate, in response to feedback from consultation, to ensure that there is sufficient data on which to conduct the assessment. As the Scoping Boundary is redefined, the Study Area for the EIA will be updated accordingly and defined with reference to the draft Order Limits.

9.2.4 With regards to the construction dust assessment, in line with the screening criteria set out within the Institute of Air Quality Management guidance (IAQM) 2024 (Institute of Air Quality Management 2024), the following sensitive receptors will be considered:

- Human receptors within 250m of the Study Area, and within 50 m of routes used by construction vehicles on the public highway, up to 250 m from the Site entrance; and

- Ecological receptors within 50 m of the Study Area, and within 50 m of routes used by construction vehicles on the public highway, up to 250 m from the Site entrance.

9.2.5 With regards to the assessment of road traffic emissions, sensitive human receptors and sensitive qualifying ecological features within 200 m of construction access roads are expected to experience increases in road traffic volumes generated by construction activities, as such these will be assessed, in accordance with Environmental Policy Implementation Community (EPIC) (formerly Environmental Protection UK(EPUK)) & IAQM guidance 2017 (Institute of Air Quality Management and Environmental Protection UK 2017). Where the screening criteria are exceeded and sensitive human receptors are present, detailed air quality modelling will be carried out. If an ecological and/or a human receptor is located greater than 200 m from the affected road network, further consideration is not required.

9.2.6 Furthermore, with regard to ecological receptors within 200 m of affected roads, traffic data will be reviewed in line with current guidance from Natural England (October 2018) (Natural England 2018) and the Joint Nature Conservation Committee (JNCC) (Joint Nature Conservation Committee (JNCC) 2021) to determine whether detailed assessment of road traffic emission impacts will be required, either in-isolation or in-combination (i.e. cumulative) effects. Traffic data will also be reviewed in line with the traffic screening criteria within the IAQM guidance on air quality assessment (Institute of Air Quality Management and Environmental Protection UK 2017).

9.2.7 Detailed traffic data is not yet available for the Proposed Development, and it is not known whether the criteria for a detailed modelling assessment of traffic emissions will be exceeded. In the absence of detailed data for the Proposed Development, we are unable to scope out a detailed assessment of traffic impacts. As such, a screening assessment, and if necessary, a detailed modelling assessment has been scoped into the assessment.

Sensitive Receptors

9.2.8 Sensitive receptors to air quality include high sensitivity human or ecological habitats that may be impacted by changes in air quality due to emissions from construction or operational activities associated with the Proposed Development. These include locations such as residential dwellings as well as designated Ecological sites, including but not limited to, Sites of Special Scientific Interest (SSSI), Special Areas of Conservation (SAC), Special Protection Areas (SPA) and Ancient Woodland (AW).

9.2.9 During the construction phase, human and ecological receptors may experience increases in particulate matter in connection with construction activities and increases in nitrogen dioxide (NO_2) due to increased traffic movements on the road network and of mobile plant on the Site.

9.2.10 During the operation and maintenance phase, sensitive receptors, both human and ecological, may experience changes in exposure to the concentration of NO_2 and Particulate Matter (PM) emitted from additional traffic movements on the road network associated with the Proposed Development.

Human Receptors

9.2.11 The existing sensitive human receptors identified in the vicinity of the Proposed Development are:

- North Carr Farm off Hundreds Lane;
- Oatlands Farm off Cattle Road;
- Carr Farm Cottage off Carr Road;
- Two individual residential receptors off the High Street in Misson;
- Carr Farm off Cattle Road; and
- Roe Lane Farm off Roe Lane.

9.2.12 There are also numerous residential receptors in Misson which are located within 250 m from the Scoping Boundary

Ecological Receptors

9.2.13 There are existing sensitive ecological receptors identified in the vicinity of the Proposed Development:

- The River Idle Washlands and Misson Line Bank SSSIs are both located within the air quality Scoping Boundary; and
- The Chesterfield Canal SSSI is also located within 20m of the proposed Haul Route Search Area.

9.2.14 The potential human and ecological sensitive receptors located near the Proposed Development are shown in **Figure 9.1** (**Volume A**).

9.3 Baseline Environment

Overview of Available Data Sources

9.3.1 The data sources that have been used to inform this chapter of the Scoping Report are presented within **Table 9-1.**

Table 9-1: Key sources of information for Air Quality and Greenhouse Gases

Source	Summary	Spatial Coverage of Study Area
Air Quality		
Bassetlaw District Council Air Quality Annual Status Report 2024	Monitoring data and supporting information on Air Quality Management Areas (AQMA)	Monitoring sites in Bassetlaw District Council with full coverage of the Study Area
DEFRA Magic Map Application Website	Used to identify designated habitat sites within the Study Area	Full coverage of the Study Area
DEFRA Background Mapping for Local Authorities	Used to provide air pollutant background concentrations where local monitoring data is not available	Full coverage of the Study Area
DEFRA AQMA interactive maps and summary data	Used to identify AQMAs within the Study Area	Full coverage of the Study Area
Air Pollution Information System (APIS), Centre for Ecology and Hydrology (CEH)	Nationwide database of background ammonia concentrations, nitrogen deposition rates, acid	Full coverage of the Study Area

Source	Summary	Spatial Coverage of Study Area
	deposition rates and Critical Loads for ecological habitats that may need to be assessed	
Carbon Impacts (Impacts on Climate Change)		
UK local authority and regional greenhouse gas emissions statistics 2005 to 2023 (Department for Energy Security and Net Zero (DESNZ), 2024. 2024)	UK local authority and regional greenhouse gas emissions statistics 2005 to 2023 (Department for Energy Security and Net Zero (DESNZ), 2024. 2024))	UK local authority and regional greenhouse gas emissions statistics 2005 to 2023 (Department for Energy Security and Net Zero (DESNZ), 2024. 2024))
Impacts from Climate Change		
Met Office location-specific long-term averages climate conditions (Met Office 2026).	Met Office location-specific long-term averages climate conditions (Met Office 2026)	Met Office location-specific long-term averages climate conditions (Met Office 2026)

Overview of Baseline Environment

Air Quality

9.3.2 The Study Area is located within the administrative area of Bassetlaw District Council (BDC).

9.3.3 In fulfilment of statutory requirements, local authorities undergo a process to review and assess air quality within their administrative areas, which is typically informed by local air quality monitoring. An initial review of the latest Annual Status Reports (ASRs) (Bassetlaw District Council 2024) available for the Council has been undertaken.

9.3.4 There are currently no AQMAs declared within BDC. The closest AQMA to the Site is therefore located in the City of Doncaster Council (CDC), approximately 8.5km to the northwest of the Site (City of Doncaster Council 2024). This is known as AQMA No. 4 and was declared in 2003 for the exceedance of the NO2 annual objective of 40µg/m3.

9.3.5 The nearest BDC monitoring location to the Proposed Development is a non-automatic diffusion tube measuring roadside NO_2 adjacent to Gainsborough Road and Mattersey Road in Everton, located approximately 1.76m to the southwest of the Site (ref. 51). This monitor recorded an annual average NO_2 concentration of 15.1µg/m3 in 2024.

9.3.6 Given the distance between the monitoring location and the Site, the monitor is not considered to be relevant to air quality conditions at the Site. The Department for Environment, Food and Rural Affairs (DEFRA) Air Information Resource website (Department for Environment, Food and Rural Affairs (Defra) n.d) provides background pollution concentration estimates for NO_2, PM10 and PM2.5 for each 1km x 1km grid square from 2021 to 2040.

9.3.7 The background annual mean concentrations for the grid square containing the location of the Proposed Development within the current year (2026) are provided in **Table 9-2** below.

Table 9-2: Summary of DEFRA Predicted Background Pollutant Concentrations (2026)

Grid Square Reference (approx. Site centre co-Ordinates)	NO_2 (µg/m^3)	PM_{10} (µg/m^3)	$PM_{2.5}$ (µg/m^3)
E471429, N393604	5.25	13.4	5.82

9.3.8 The background concentrations for the Site are well below the relevant objective/limit values.

Greenhouse Gas (GHG) Assessment

9.3.9 The Site is predominantly comprised of wasted peaty soils of less than 0.3 m depth, with limited and localised areas of relic deeper peat, together with extensive areas of mineral soils. Based on the current land use and soil condition, both peat and mineral soils are considered likely to represent net sources of greenhouse gas emissions at baseline. The peaty soils occur within actively managed arable land and are likely to have been subject to long-term drainage, ploughing and fertiliser application, resulting in oxidation of the organic material and ongoing carbon losses. In line with emission factors used within the UK peatland emissions inventory, drained arable peat soils can emit in the order of approximately 26-37 tCO_2e/ha/yr, depending on peat depth and condition. Given the shallow, degraded and agriculturally modified nature of the peat resource on Site, these areas are therefore considered likely to be net emitters of carbon. Similarly, the mineral soils are also expected to act as a net source of emissions as a result of cultivation, drainage and fertiliser inputs associated with arable management. As the identified peat soils are of limited extent and will be targeted for avoidance wherever practicable during the detailed design process, no material change from the baseline carbon balance of these areas is anticipated

9.3.10 Notwithstanding this, the baseline GHG emissions are likely to be small in the context of the lifecycle emissions for the Proposed Development.

Climate Resilience Assessment

9.3.11 Baseline climatic conditions are assumed to be in line with local/regional averages. Existing baseline conditions for the Climate Resilience Assessment relate to current, and recent historic, climate and meteorological conditions at the Site. The EIA will include data gathered from the Met Office to describe the existing frequency and severity of climate hazards such as flooding, heatwaves, and drought.

9.4 Proposed Approach to the Environmental Impact Assessment

Relevant Legislation, Policy and Guidance

9.4.1 The following legislation, policy and guidance are relevant to the consideration of the potential effects of the Proposed Development on air quality receptors. This list is not exhaustive, and other documents may be referred to as appropriate:

Legislation

- The Air Quality Standards Regulations (2010) (AQSR);
- The Air Quality (England) Regulations (2000); (as amended) (the Regulations)

- The Environment (Miscellaneous Amendments) (EU Exit) Regulations (2020);
- The Environmental Targets (Fine Particulate Matter) (England) Regulations (2023)
- Environment Act (1995) as amended by Environment Act (2021)
- Conservation of Habitats and Species Regulations (2017) (the 'Habitats Regulations') as amended
- The Non-Road Mobile Machinery (Type-Approval and Emission of Gaseous and Particulate Pollutants) Regulations (2018)
- Climate Change Act (2008), and 2050 Target Amendment Order (2019);
- Carbon Budget Order (2021); and
- Energy Act (2023).

National Policy

- National Policy Statements:
  - Overarching National Policy Statement for Energy (EN-1) (UK Government 2025);
  - National Policy Statement for Renewable Energy Infrastructure (EN-3) (UK Government 2025).
- National Planning Policy Framework (NPPF) (UK Government 2026).

Local Policy

- Bassetlaw Local Plan (Adopted 2024) (Bassetlaw District Council 2024). Relevant policies include:
  - Policy ST42 – Promoting Healthy, Active, Lifestyles;
  - Policy ST46 – Protecting Amenity;
  - Policy ST48 – Reducing Carbon Emissions, Climate Change Mitigation and Adaptation;
  - Policy ST49 – Renewable Energy Generation;
  - Policy ST52 – Transport Infrastructure;
  - Policy ST53 – Promoting Sustainable Transport and Active Travel; and
  - Policy ST52 – Transport Infrastructure.
- Bassetlaw Climate Change Strategy (2024) (Bassetlaw District Council 2024).

Guidance

- Department of Environment, Food and Rural Affairs (DEFRA), The Air Quality Strategy Framework for Local Authority Delivery (UK Government 2023);
- Air quality Environment Act target delivery plan (UK Government 2025);
- IAQM Guidance on the Assessment of Dust from Demolition and Construction (Institute of Air Quality Management 2024);
- IAQM Guide to the Assessment of Air Quality Impacts on Designated Nature Conservation Sites (Institute of Air Quality Management 2020);

- Local Air Quality Management (LAQM) Technical Guidance (TG22) (Department for Environment, Food & Rural Affairs 2025);
- Natural England's approach to advising competent authorities on the assessment of road traffic emissions under the Habitats Regulations (Natural England 2018);
- JNCC Report No. 696 Main Report Guidance on Decision-making Thresholds for Air Pollution, (Joint Nature Conservation Committee (JNCC) 2021);
- Land-Use Planning and Development Control: Planning for Air Quality (EPUK & IAQM) (Institute of Air Quality Management 2024);
- Design Manual for Roads and Bridges (DMRB) LA 105 – Air quality (National Highways 2024);
- Institute of Environmental Management and Assessment (IEMA), now rebranded as Institute of Sustainability and Environmental Professionals (ISEP) EIA Guide to Climate Change Resilience and Adaptation (Institute of Environmental Management and Assessment (IEMA) 2020);
- ISEP Guide to Assessing Greenhouse Gas Emissions and Evaluating their Significance (Institute of Sustainability and Environmental Professionals (ISEP) 2026); and
- The Greenhouse Gas Protocol Corporate Accounting and Reporting Standard (GHG Protocol) (World Resources Institute (WRI) and World Business Council for Sustainable Development (WBCSD) 2004).

Proposed Assessment Methodology

9.4.2 The EIA will follow the general overarching methodology outlined in **Chapter 3: Approach to EIA**. Whilst those principles provide the foundation for this assessment, this chapter explains how they will be applied, and where necessary, adapted to address the specific requirements of the air quality assessment in the ES.

9.4.3 It is anticipated that the temporal scope for air quality will only cover the construction phase of the Proposed Development and will be informed by the following studies (relating to the impacts scoped-in):

- Construction phase dust assessment; and
- Construction road traffic assessment on human and ecological receptors.

9.4.4 The Climate Change Impact Assessment will include two sections:

- A GHG Assessment addressing the Proposed Development's impacts on climate change. The section will include an assessment of the GHG emissions resulting from the Proposed Development following the principles set out in Royal Institution of Chartered Surveyors (RICS) Whole Life Carbon Assessment (Royal Institution of Chartered Surveyors (RICS) 2023) for measuring and reporting the total GHG emissions from a development across its entire lifespan including construction, operation and maintenance, and decommissioning phases of the Proposed Development. The GHG assessment will note the position given in the Secretary of State's decision in the Springwell (Department for Energy Security and Net Zero (DESNZ) 2026) and Gate Burton Energy Park (Department for Energy Security and Net Zero (DESNZ) 2024) Development Consent Orders (DCOs) regarding using the UK grid mix as the

"no project" baseline for the assessment. However, there is a particular issue regarding undertaking a comparison against grid electricity generally in that none of the available emissions factors fully account for the whole life emissions of the generating plant supplying the grid. The assessment will therefore consider the Proposed Development's effects on GHG emissions relative to several appropriate technology-specific baselines, rather than only assuming displacement of generic grid electricity generation and will reference the grid mix emissions rather than only focusing on these; and

- A Climate Resilience Assessment addressing the impacts of future climate change on the Project. The section will assess the ability of the Proposed Development to adapt to and be resilient to potential future changes in climate conditions.

9.4.5 Details of the methodology are presented below. No additional supporting studies are presently considered to be required to inform the EIA.

Construction Phase Dust Assessment

9.4.6 In accordance with IAQM Construction Guidance (Institute of Air Quality Management 2024), the following methodology for the assessment of air quality during the construction phase is proposed:

- Identify the potential risk from dust emitted from construction activities and recommend an appropriate level of mitigation for the scale of the Proposed Development to minimise any impacts on local receptors.
- Receptors within the Study Area (250 m for human and 50 m for ecological receptors) will be identified and their risk of impacts from the construction phase considered.
- Mitigation measures will be recommended for the mitigation of effects and for inclusion in an outline Construction Environmental Management Plan (CEMP), taking into account dust risk at each receptor and its level of sensitivity.

Construction Phase Road Traffic Assessment

9.4.7 Construction traffic flows will initially be compared to the traffic scoping criteria, detailed in the EPIC/IAQM Planning Guidance (Institute of Air Quality Management and Environmental Protection UK 2017) and the IAQM guidance for conservation sites (Institute of Air Quality Management 2020). Different screening criteria apply to human and ecological receptors. The outcomes of this assessment will determine whether impacts to human and ecological receptors can be considered insignificant (screen out), or whether further detailed assessment is required. The EPIC/IAQM Guidance (Institute of Air Quality Management and Environmental Protection UK 2017) states that assessment of construction vehicle emissions is required when more than 100 Heavy Goods Vehicle (HGV) movements (AADT) associated with the Proposed Development are introduced on the road network. If this is exceeded and meets the requirement for detailed assessment, the potential impacts on NO_2, PM_{10} and $PM_{2.5}$ concentrations at sensitive human receptors will be subject to detailed modelling assessment using ADMS-Roads software.

9.4.8 With regards to sensitive ecological habitats, affected road links will initially be screened using JNCC guidance (Joint Nature Conservation Committee (JNCC) 2021). Road links associated with strategic 'trunk roads' (i.e. the Strategic Road

Network (SRN)) and road links where construction road traffic does not exceed the Decision-Making Threshold (DMT) (0.15% of existing AADT) will be excluded.

9.4.9 The screening thresholds prescribed within IAQM guidance (2024) relating to development-generated traffic flows will then be used, and are as follows:

- >1,000 Total AADT; and/ or
- >200 HDV AADT.

9.4.10 For the purposes of assessing impacts on sensitive qualifying internationally designated ecological sites (e.g. SAC and SPA), screening will be undertaken in combination with other projects and plans. This follows relevant legislation (e.g. the Habitats Regulations) and takes into account relevant case law. However, when assessing impacts on national and/or local ecological designations, vehicle movements generated by construction activities will be assessed in isolation (i.e. project alone). This is reflective of the level of protection afforded to these sites within legislation.

9.4.11 Traffic data used to inform the assessments will be consistent with the analysis undertaken and presented as part of **Chapter 14: Access, Traffic and Transport**.

Significance Evaluation Methodology

9.4.12 The significance level attributed to each effect will be assessed based on the 'sensitivity' of the affected receptor and the magnitude of change resulting from the development. The level of significance is then determined by the combination of receptor sensitivity and magnitude of change.

Construction Dust

Sensitivity of Receptors - Construction Dust

9.4.13 The criteria for receptor sensitivity are outlined in **Table 9-3**.

9.4.14 The sensitivity of the area to dust impacts, can be defined as low, medium or high sensitivity, in accordance with the IAQM construction dust guidance (Institute of Air Quality Management 2024).

Table 9-3: Definitions of Receptor Sensitivity for Construction Dust

Sensitivity	Description
High	Where human receptors are expected to be present continuously for extended periods of time and where a high level of amenity is expected e.g., residential properties, hospitals, schools and care homes. Internationally or nationally designated ecological sites where the designated features may be affected by dust soiling, or where there is a particular dust sensitive species.
Medium	Where human receptors wouldn't reasonably be expected to be present continuously or regularly for extended periods and where a reasonable level of amenity is expected, which could be diminished by dust soiling e.g., parks and places of work. Nationally designated ecological sites with dust sensitive features.
Low	Where enjoyment of amenity would not reasonably be expected and exposure would be for limited periods e.g., footpaths, shopping streets and car parks. Locally designated ecological sites where the features may be affected by dust.

Magnitude of Change - Dust Assessment

9.4.15 The magnitude of impact upon air quality is determined by defining the predicted pollutant concentration relative to air quality standards and objective or target levels as set out in **Table 9-4**. Magnitude of change may be either beneficial or adverse.

9.4.16 The scale and nature of the works determine the magnitude of dust arising as small, medium or large.

9.4.17 The relevant criteria to define the potential magnitude of dust emissions includes the factors in accordance with the IAQM construction dust guidance (Institute of Air Quality Management 2024) outlined in **Table 9-4.**

Table 9-4: Definitions of Magnitude of Change for Dust Assessment

Magnitude	Description
Small	Demolition volume under 12,000 m^3 less than 6 m above ground level, total site area less than 18,000 m^2, soil type with large grain size, formation of bunds less than 3 m in height, total construction building volume less than 12,000 m^3, construction material with low potential for dust release, less than 20 outward HDV trips per day, unpaved road length less than 50 m.
Medium	Demolition volume between 12,000 m^3 and 75,000 m^3 at 6 m to 12 m above ground level, total site area between 18,000 m^2 and 110,000 m^2, moderately dusty soil type, formation of bunds between 3 m and 6 m, potentially dusty construction material, total building volume between 12,000 m^3 and 75,000 m^3, 20 to 50 outward HDV trips per day, unpaved road length 50 m to 100 m.
Large	On-site crushing and screening demolition, demolition volume greater than 75,000 m^3 at greater than 12 m above ground level, total site area greater than 110,000 m^2, potentially dusty soil type, more than 10 heavy earth moving vehicles active at any one time, formation of bunds greater than 6 m in height, total building volume greater than 75,000 m^2, on site concrete batching, sandblasting, more than 50 outward HDV trips per day, unpaved road length greater than 100 m.

Significance of Effect - Construction Dust

9.4.18 The predicted significance of effect will be determined through a standard method of assessment based on professional judgement, considering both the sensitivity (significance) of a receptor and the magnitude of change.

9.4.19 The IAQM construction dust guidance (Institute of Air Quality Management 2024) categorises the unmitigated risk of dust impacts on human health, amenity and ecological receptors (rather than ascribing a significance of effect), as a means of identifying the level of dust emissions mitigation required to ensure that residual effects are 'not significant' in EIA terms. A higher dust risk rating requires more stringent mitigation measures to limit residual effects.

9.4.20 The risk of dust impacts will be determined without implementation of any mitigation in accordance with the IAQM guidance (Institute of Air Quality Management 2024). Following determination of these risks, proportionate secondary mitigation will be recommended accordingly. These controls will be included within the CEMP, or as a separate dust management plan, to secure their effective implementation. A residual assessment will then be undertaken assuming the implementation of both primary, tertiary and recommended secondary mitigation, in accordance with IAQM guidance (Institute of Air Quality Management

2024). It is at this stage that it is determined as to whether the construction dust effect is significant or not.

Vehicle Emissions

9.4.21 Should screening of the relevant traffic data indicate that any of the EPUK/ IAQM (Institute of Air Quality Management and Environmental Protection UK 2017) and JNCC screening criteria (Joint Nature Conservation Committee (JNCC) 2021) are exceeded, then potential impacts at sensitive receptor locations, within 200 m of the affected road network, would be assessed. This would be done by calculating the change in NO_2, nitrogen oxides (NO_x) and particulate matter concentrations as a result of the Proposed Development, using detailed dispersion modelling.

9.4.22 Such modelling would be undertaken to assess potential changes relative to the appropriate Air Quality Objective. At this stage, a screening only approach is proposed as it is anticipated that construction traffic associated with the Proposed Development will not exceed screening criteria. Therefore, significant effects are not anticipated.

9.4.23 The standards applicable to this assessment are shown in **Table 9-5.**

Table 9-5*:* Air Quality Objectives and Limit Values Relevant to the Assessment

Pollutant	Concentration	Measured as
Human Receptors		
Nitrogen dioxide (NO_2)	200 µg/m^3 not to be exceeded more than 18 times a year	1-hour mean
	40 µg/m^3	Annual mean
Particulate material (PM_{10})	50 µg/m^3, not to be exceeded more than 35 times a year	24-hour mean
	40 µg/m^3	Annual mean
Particulate material ($PM_{2.5}$)	Limit Value of 20 µg/m^3	Annual mean
	Limit Value of 10 µg/m^3, to be met by 2040	Annual mean

Greenhouse Gases

Sensitivity

9.4.24 An evaluation of the sensitivity of the Proposed Development from the effects of climate change, and the sensitivity of the global atmosphere as the receiving body of GHG emissions from the Proposed Development will be undertaken using the following terminology as per the ISEP Guide to Assessing Greenhouse Gas Emissions and Evaluating their Significance (Institute of Sustainability and Environmental Professionals (ISEP) 2026):

- High Sensitivity – Absolutely reliant on specific climate/ atmospheric conditions prevailing;
- Medium Sensitivity – Affected by changes in climate/ atmospheric conditions but not dependent on specific conditions; and
- Low Sensitivity – Hardly influenced by climate/ atmospheric conditions at all.

Magnitude of Impact

9.4.25 The magnitude of the impacts on baseline conditions will be assessed, and the following terminology has been used to define magnitude as per the IEMA Guide to Assessing Greenhouse Gas Emissions and Evaluating their Significance (Institute of Sustainability and Environmental Professionals (ISEP) 2026):

- High – A fundamental change (positive or negative) to the condition of the Proposed Development, leading to total loss or major alteration of character. An impact on regional GHG emissions which causes a large net increase;
- Medium – A material change (positive or negative) leading to partial loss or alteration of character. An impact on regional GHG emissions which causes an appreciable net increase.
- Low – A slight, detectable, alteration of the baseline condition which may be positive or negative. An impact on regional GHG emissions which causes a measurable net increase; and
- Negligible – A barely distinguishable change from baseline conditions. Changes in GHG emissions so low as to not be practically measurable.

Significance of Effect

9.4.26 Based on the sensitivity of receptors and magnitude of impact, the significance of effect will be evaluated. As per the ISEP Guide to Assessing Greenhouse Gas Emissions and Evaluating their Significance (Institute of Sustainability and Environmental Professionals (ISEP) 2026); the following terminology is used to define significance:

- Major – A significant effect that is likely to be of material consideration. GHG emissions which represent a major proportion of regional totals compared with baseline conditions;
- Moderate – A significant effect that may be a material consideration in combination with other significant effects but is unlikely to be material consideration in its own right. GHG emissions which represent a recognisable change in regional totals compared with baseline conditions;
- Minor – An effect that is not significant but may be of local concern. GHG emissions which though measurable do not materially affect regional totals compared with baseline conditions; and
- Negligible – An effect that would result in no change to the existing environment.

Further Baseline Data

Desk Study

9.4.27 The background annual mean concentrations for the grid square containing the location of the Proposed Development for the proposed opening year (2031) are provided in **Table 9-6** below.

Table 9-6 Summary of DEFRA Predicted Background Pollutant Concentrations (2031)

Grid Square Reference (approx. Site centre co-Ordinates)	NO_2 (µg/m^3)	PM_{10} (µg/m^3)	$PM_{2.5}$ (µg/m^3)
E471429, N393604	4.56	13.1	5.53

Planned Surveys

9.4.28 It is expected that no further baseline data needs to be collected to support the assessment. The ES will incorporate the most recent publicly available data.

9.4.29 In the event that the number/routing of construction HGV's exceed the screening criteria, requiring detailed air quality modelling, it might be necessary to obtain representative local pollutant concentrations for model verification in the absence of air quality monitoring carried out by the relevant local authority. If necessary, an appropriate monitoring scheme would be agreed with the relevant local authority.

Consultation and Engagement

9.4.30 Engagement will be undertaken with BDC Environmental Protection teams to agree the air quality assessment methodology outlined in this Scoping Report.

9.5 Design, Mitigation and Enhancement Measures

9.5.1 As part of the early design process of the Proposed Development several embedded and standard mitigation measures are proposed to reduce the potential for impacts on air quality receptors, these are presented below. It is expected that these may evolve throughout the design evolution of the Proposed Development as the EIA progresses and in response to consultation

9.5.2 Measures adopted as part of the Proposed Development will include, but not be limited to, the following:

- An outline Construction Environmental Management Plan (CEMP):
  - The air quality input to the outline CEMP would include an outline Dust Management Plan (DMP) setting out mitigation measures identified during assessment of construction phase impacts and commensurate with the size and scale of the development and risk of air quality impacts to local receptors.
  - An outline Materials Management Plan (MMP) would set out the approach to the handling, storage, movement and reuse of excavated soils and construction materials, so these activities are undertaken in a controlled, efficient and compliant manner throughout the construction phase. Specific measures to manage dust emissions will be incorporated, including the use of damping down, sheeting of stockpiles, limiting stockpile heights, and avoiding material drop from height.
- An outline Site Waste Management Plan (SWMP);
- An outline Construction Traffic Management Plan (CTMP);
- A Stage 1 Peat Management Plan (PMP);
- An outline Operational Management Plan (OMP); and

- An outline Decommissioning Plan would be prepared for the Proposed Development, prior to decommissioning, in accordance with the latest available guidance and legislation. The air quality input to the Decommissioning Plan would include mitigation measures commensurate with the size and scale of the decommissioning activities.

9.5.3 The Applicant is committed to implementing these measures, and various standard sectoral practices and procedures. It is therefore considered that these measures are inherently part of the design and have been considered in the judgements as to which impacts can be scoped in / out of assessment presented in **Section 9.6** and **Section 9.7**.

9.5.4 Additional mitigation measures will be considered through the EIA process as required where significant effects are anticipated to remain after embedded design measures and standard good practice controls have been applied. If residual impacts are predicted to persist, proportionate further actions, such as enhancement, remediation or compensation, will be identified to address those remaining effects.

9.5.5 Further detail on the role of mitigation commitments, as part of a proportionate EIA approach, is provided in **Chapter 3: Approach to EIA.** A full description of the mitigations commitments identified so far is provided in **Appendix 3A: Draft Register of Environmental Actions and Commitments (REAC)**.

9.5.6 The requirement for, and feasibility of, any mitigation measures will be subject to consultation with consultees throughout the pre-application phase of the Proposed Development.

9.6 Potential Impacts Scoped In

Air Quality

9.6.1 A range of potential impacts on air quality receptors have been identified which may occur during construction, operation and maintenance, and decommissioning phases. The impacts that have been scoped into the EIA are outlined in **Table 9-7** together with a description of any proposed additional data collection (e.g. site-specific surveys) and/or supporting analyses (e.g. modelling) to enable an assessment of the impact.

Table 9-7: Impacts proposed to be scoped into the assessment for Air Quality

Impact	Description	Proposed Approach to Assessment Including Description of Any New Data Collection Required and Any Analyses (Such as Modelling)
Construction		
Effects of dust emissions from construction activities on human health and air quality local to the Site.	The IAQM Construction Guidance requires all sensitive human receptors within 250 m of the Scoping Boundary to be included within a construction dust risk assessment due to potential for significant effects on receptors located within this distance.	Qualitative assessment based on professional judgement, considering both the sensitivity of a receptor and the likely magnitude of change in accordance with IAQM Guidance (Institute of Air Quality Management 2024)

Impact	Description	Proposed Approach to Assessment Including Description of Any New Data Collection Required and Any Analyses (Such as Modelling)
Effects of dust emissions from construction activities on designated ecological sites local to the Proposed Development	The IAQM Construction Guidance recommends that designated sites within 50 m of the Proposed Development should be included in the construction dust assessment. As there are Ancient Woodlands close to the Scoping Boundary this has been scoped into the EIA.	Qualitative assessment based on professional judgement, considering both the sensitivity of a receptor and the likely magnitude of change in accordance with IAQM Guidance (Institute of Air Quality Management 2024).
Effects on human health of vehicle trips increasing emissions of nitrogen dioxide (NO_2) and Particulate matter.	In the absence of detailed data for the Proposed Development, we are unable to scope out a detailed assessment of construction traffic impacts. This has been scoped into the EIA.	If the traffic numbers generated by the Proposed Development exceed the screening thresholds detailed in the EPUK/IAQM Planning Guidance (Institute of Air Quality Management and Environmental Protection UK 2017) then a detailed assessment will be required.
Effects on local designated conservation sites due to changes in NO_x, NH_3 and Nitrogen/Acid Deposition due to emissions from construction plant and vehicles and increased road vehicle movements on the local road network.	In the absence of detailed data for the Proposed Development we are unable to scope out a detailed assessment of construction traffic impacts. This has been scoped into the EIA.	The JNCC and IAQM 2020 (Institute of Air Quality Management 2020) guidance criteria will be used to determine if a detailed assessment of ecological receptors is required.
Operation and Maintenance		
No activities during this phase are scoped into the assessment as detailed in **Table 9-10.**		
Decommissioning		
No activities during this phase are scoped into the assessment as detailed in **Table 9-10.**		
Cumulative		
A cumulative effects assessment for air quality is proposed to be scoped out on the basis that no significant cumulative air quality effects are anticipated, as detailed in **Table 9-10.**		

GHG Assessment

9.6.2 A range of potential GHG impacts have been identified which may occur during construction, operation and maintenance, and decommissioning phases. The impacts that have been scoped into the EIA are outlined in **Table 9-8** together with a description of any proposed data collection (e.g. Site-specific surveys) and/or supporting analyses (e.g. modelling) to enable an assessment of the impacts.

Table 9-8: GHG emission sources proposed to be scoped into the GHG assessment

GHG emission sources	Description	Proposed Approach to Assessment Including Description of Any New Data Collation Required and Any Analyses (Such as Modelling)
Construction		
Construction Materials	Materials used in the construction of the Proposed Development.	Quantities and types of construction materials will be obtained from the developing design of the Proposed Development . Embodied GHG emissions will be calculated using appropriate emission factors and, where available, Environmental Product Declaration (EPD) data for relevant wind turbine structures and components, electrical infrastructure and other civils works.
Fuel	Fuel used in the operation of construction plants, vehicles and equipment.	Fuel consumption by construction plant, vehicles and equipment will be estimated from available construction information. GHG emissions will be calculated using appropriate fuel-specific emission factors.
Transport	Transportation of materials and equipment to the Site.	GHG emissions associated with deliveries will be calculated using information on material/equipment quantities, transport mode, distance travelled and, where appropriate, vehicle type and loading assumptions.
Workers	Transportation of construction workers to and from the Site.	Assumptions will be made about the number of construction workers onsite throughout the construction period, the likely mode of transport they will use for commuting, and the distance they are expected to travel to Site. Standard emissions factors will be applied to estimate the associated emissions.
Waste	Waste generated from the construction process.	The weight/volume of waste materials generated from the construction process will be estimated and emissions factors applied to account for treatment/disposal/recycling.
Water	Water supplied to, and water drained from the Site during the construction process.	Estimates of the embodied carbon in any untreated and/or potable water used on site during construction will be made based on the volume of water supplied and standard emission factors. Emissions associated with any active pumping or drainage of water from the Site during construction operations will also be accounted for through its power consumption.
Land Use	Land use change emissions resulting from the Proposed Development and construction processes.	Consideration will be given to any vegetation removal and soil/peat disturbance. The area of land affected will be calculated and emission factors applied to account for any emissions likely to arise as a result. Consideration will also be given to the baseline conditions and any emissions that would otherwise have been present if the land remained in its current use.

GHG emission sources	Description	Proposed Approach to Assessment Including Description of Any New Data Collation Required and Any Analyses (Such as Modelling)
Operation and Maintenance		
Fuel	Fuels used in the operation of Site plants, vehicles and equipment.	The quantity and type of fuels expected to be used in Site plants, vehicles and equipment during the operational process will be determined and emissions associated with these will be calculated using appropriate emission factors. Likely sources include vehicle movements associated with engineers and maintenance teams visiting the site, and any grounds maintenance (e.g. hedge trimming, strimming etc) associated with the upkeep of the Site.
Electricity	Site consumption of electricity.	The quantity of imported electricity consumed by the Proposed Development during its operation will be estimated. Whilst there is likely to be minimal requirement for imported power, the whole life carbon associated with any electricity that is used will be estimated using published grid carbon emission factors, accounting for distribution and transmission losses and well-to-tank carbon for the grid generating stock.
Fugitive Gases	Refrigerant and process gases used in Site equipment released from non-combustion process.	Wind farm development is unlikely to use significant amounts of refrigerant, but should any refrigerant or process gases be used in equipment, the quantities used and the rate of losses will be estimated and emissions factors applied to account for their global warming potential.
Waste	Waste generated from operations.	The weight/volume of waste materials generated from operational activities will be estimated and emissions factors applied to account for treatment/disposal/recycling.
Water	Water supplied to, and water drained from the Site from operational activities.	Estimates of the embodied carbon in any untreated and/or potable water used on site during operation will be made based on the volume of water supplied and standard emission factors. Emissions associated with any active pumping or drainage of water from the Site during operation will also be accounted for through its power consumption.
Materials	Materials used to repair and maintain the Proposed Development.	Estimates of the quantities and types of materials used to maintain and repair the wind farm infrastructure will be obtained from the design team. Embodied GHG emissions will be calculated using appropriate emission factors and, where available, Environmental Product Declaration (EPD) data for relevant wind turbine structures and components, electrical infrastructure and other civils works.
Materials Transport	Transportation of materials and equipment to the Site for maintenance activities.	Movement of inbound deliveries of materials and equipment to the Site, including mode and distance travelled from suppliers and weight of transported goods, will be estimated and appropriate emissions factors applied to account for the transport carbon.

GHG emission sources	Description	Proposed Approach to Assessment Including Description of Any New Data Collation Required and Any Analyses (Such as Modelling)
Land Use	Land use change emissions during operations following the installation of the Proposed Development.	Emissions associated with any land treatment or maintenance will be estimated based on the area of land developed, existing land conditions, and expected land conditions following the construction phase. Sequestration in new vegetation or peat/soil remediation will be estimated.
Decommissioning		
Fuel	Fuel used in the operation of plants, vehicles and equipment for the decommissioning process.	Fuel consumption by decommissioning plant, vehicles and equipment will be estimated from available construction information. GHG emissions will be calculated using appropriate fuel-specific emission factors. Since the decommissioning process will occur at the end of the project lifetime of the Proposed Development , there is potential for the decommissioning techniques to have substantially decarbonised over the lifetime of the Proposed Development. However, it is impossible to predict accurately how progressed decarbonisation will actually be. A worst-case scenario will be assumed where current emissions factors are assumed to still apply.
Transport	Transportation of materials and equipment from the Site.	GHG emissions associated with deliveries will be calculated using information on material/equipment quantities, transport mode, distance travelled and, where appropriate, vehicle type and loading assumptions.
Workers	Transportation of decommissioning workers to and from the Site.	Assumptions will be made about the number of construction workers onsite throughout the decommissioning period, the likely mode of transport they will use for commuting, and the distance they are expected to travel to Site. Standard emissions factors will be applied to estimate the associated emissions.
Waste	Waste generated from the decommissioning process.	The weight/volume of waste materials generated from the decommissioning process will be estimated and emissions factors applied to account for treatment/disposal/recycling. This will include any scrappage or reuse of the turbine components and account for any components such as turbine foundations which may remain in situ below ground level.
Water	Water supplied to, and water drained from the Site during the decommissioning process.	Estimates of the embodied carbon in any untreated and/or potable water used on site during decommissioning will be made based on the volume of water supplied and standard emission factors. Emissions associated with any active pumping or drainage of water from the Site during decommissioning construction operations will also be accounted for through its power consumption.

Climate Resilience Assessment

9.6.3 A range of potential climate resilience impacts which may occur during the lifetime of the Proposed Development that are proposed to be scoped into the EIA are outlined in **Table 9-9**, together with a description of any proposed data collection and/or supporting analyses to enable an assessment of the impacts.

9.6.4 The scoped in impact factors in **Table 9-9** are indicative and are based on our assumptions of climate resilience factors that will be applicable based on the Proposed Development's design and known climate factors at the Site.

Table 9-9 Impacts proposed to be scoped into the Climate Resilience Assessment

Impact	Justification for Scoping Out
Construction	
Construction phase plant and machinery (Non-Road Mobile Machinery (NRMM)) air quality effects	The IAQM guidance (Institute of Air Quality Management 2024) states: *"Experience of assessing the exhaust emissions from on-site plant (also known as non-road mobile machinery or NRMM) and site traffic suggests that they are unlikely to make a significant impact on local air quality, and in the vast majority of cases they will not need to be quantitatively assessed".* The amount of NRMM to be used is relatively small (<10 units at any location at the same time) and the Site is large, with only a small number of sensitive receptors near to the Proposed Development. The site layout will take account of the location of sensitive receptors, and the distance between NRMM and sensitive properties will be maximised, as far as possible. It is judged that there is no risk of significant effects as a result of on-site machinery emissions.
Operation and Maintenance	
Operational phase wind turbine effects.	The wind turbines and associated infrastructure will not cause any emissions to air and thus there will be no likely significant air quality effects.
Effects on human health of vehicle trips increasing emissions of NO_2 and Particulate matter.	As set out in **Chapter 2: Proposed Development Description** and **Chapter 14: Access, Traffic & Transport**, traffic generated during the operational phase will be limited to a small number of maintenance visits, and therefore no likely significant effects are anticipated.
Effects on local designated conservation sites due to changes in nitrogen oxides (NO_x), ammonia (NH_3) and Nitrogen/Acid Deposition due to emissions from road vehicle movements on the local road network.	As set out in **Chapter 2: Proposed Development Description** and in **Chapter 14: Access, Traffic & Transport**, traffic generated during the operational phase will be limited to a small number of maintenance visits, and therefore no likely significant effects are anticipated.
Decommissioning	

Impact	Justification for Scoping Out
Effects of dust emissions from decommissioning activities on human health and on designated ecological sites local to the Site	The scale of work involved in decommissioning will be less than undertaken during construction and will be controlled by mitigation measures as set out in a Decommissioning Plan to prevent any significant adverse effects on air quality.
Decommissioning phase delivery vehicles, plant and machinery (NRMM) air quality effects.	By the time decommissioning is carried out vehicle, plant and machinery emissions are expected to be much lower than at present due to improvements in vehicle technology and progression towards net zero carbon emissions driving an increase in electrically powered plant, in preference to combustion engines. Therefore, no likely significant effects on air quality are anticipated.
Cumulative	
A cumulative effects assessment is currently proposed to be scoped out of the air quality assessment as no other developments, with reference to **Table 3-2** in **Chapter 3: Approach to EIA**, are expected to give rise to significant cumulative effects on air quality with the Proposed Development. Other developments within the wider area are sufficiently distant or already operational, resulting in no meaningful overlap of construction or operation emissions. In addition, existing and foreseeable development will be subject to their own air quality assessments and mitigation measures to control dust and pollutant emissions. On this basis, the potential for significant cumulative effects on air quality is considered unlikely and further assessment is not proposed.	

9.7 Impacts Proposed to be Scoped Out

Air Quality

9.7.1 Based on the baseline environment information currently available and the Proposed Development description (outlined in **Chapter 2: Proposed Development Description**) a number of impacts are proposed to be scoped out of the EIA for air quality. The impacts are outlined in **Table 9-10** together with a justification for scoping them out.

Table 9-10: Impacts proposed to be scoped out of the assessment for Air Quality and Greenhouse Gases

Impact	Justification for Scoping Out
Cloud Cover/ Sunshine Frequency	Cloud cover or sunshine frequency are not significant factors for the operation of a wind farm.
Minimum Air Temperature/ Frost Frequency	Climate change from rising global temperatures will likely lessen the impacts of cold related climate conditions going forward into the future. The Proposed Development will be built with consideration of current cold related climate conditions in mind.
Coastal Flooding and Erosion	The Site is not located near the coast and therefore will not be exposed to coastal related risks.

Impact	Justification for Scoping Out
Flooding (fluvial and pluvial)	See **Chapter 15: Hydrology, Hydrogeology, Water Resources and Flood Risk** for more detailed consideration of flood risk.

Climate Resilience Assessment

9.7.2 Based on the baseline environment information currently available and the Proposed Development description, several impacts are proposed to be scoped out of the climate resilience assessment. The impacts are outlined in **Table 9-11**, together with a justification for scoping them out.

9.7.3 The scoped out impact factors in **Table 9-11** are indicative and are based on our assumptions of climate resilience factors that are likely to be inapplicable based on the Proposed Development's design and known climate factors at the Site.

Table 9-11 Impacts proposed to be scoped out of the Climate Resilience assessment

Impact	Justification for Scoping Out
Cloud Cover/ Sunshine Frequency	Cloud cover or sunshine frequency are not significant factors for the operation of a wind farm.
Minimum Air Temperature/ Frost Frequency	Climate change from rising global temperatures will likely lessen the impacts of cold related climate conditions going forward into the future. The Proposed Development will be built with consideration of current cold related climate conditions in mind.
Coastal Flooding and Erosion	The Site is not located near the coast and therefore will not be exposed to coastal related risks.
Flooding (fluvial and pluvial)	See **Chapter 15: Hydrology, Hydrogeology, Water Resources and Flood Risk** for more detailed consideration of flood risk.

9.8 Summary of Next Steps

9.8.1 The next steps to assess the air quality effects of the Proposed Development include:

- Consultation with the BDC environmental health team as necessary following receipt of scoping opinion;
- Consultation with Transport Assessor to commence vehicle screening assessments;
- A further assessment of applicable GHG impacts will need to be undertaken once the full carbon and climate change Environmental Statement (ES) chapter is being developed. This should include an assessment of available data by the Applicant for the factors and data collation required that will be used to calculate the impacts of the Proposed Development on climate change; and
- A further assessment of applicable climate resilience factors will need to be undertaken once the full carbon and climate change ES chapter is being developed.

9.9 Further Consideration for Consultees

9.9.1 The following questions are provided to help frame consultee comments on the Scoping Report for Air Quality and Greenhouse Gases:

- **Q9.1**: Do you agree that the appropriate guidance and legislation have been identified?
- **Q9.2**: Do you agree that all relevant receptors have been identified?
- **Q9.3**: Do you agree that the methodology is appropriate and proportionate?
- **Q9.4**: Are there any specific projects currently going through the planning process which consultees feel should be considered as part of the cumulative assessment?

10. Human Health

10.1 Introduction

10.1.1 This chapter of the Scoping Report sets out the proposed scope and methodology for the human health assessment of the Proposed Development. It describes the data sources and baseline conditions that will inform the assessment and identifies the potential likely significant effects associated with the construction, operation and management, and decommissioning of the Proposed Development, both in isolation and cumulatively. It also identifies those potential effects proposed to be scoped out of further assessment and explains how the remaining effects will be assessed as part of the EIA.

10.1.2 This chapter of the Scoping Report should be read alongside the following chapters of this Scoping Report:

- **Chapter 9: Air Quality and Greenhouse Gases.**
- **Chapter 12: Noise and vibration.**
- **Chapter 13: Socio–economics, Recreation and Tourism.**
- **Chapter 14: Access, Traffic and Transport.**

10.1.3 This chapter is supported by the following Figures in **Volume A**:

- **Figure 10.1: Zone of Influence.**
- **Figure 10.2: Local Study Area.**

10.2 Study Area

10.2.1 Health effects can occur and be experienced in different ways at different spatial levels, and the significance can vary between areas. The assessment of health effects should therefore consider Study Areas at multiple spatial scales, ranging from the regional level through to local authority and down to the community level, and those populations who are most likely to be affected.

10.2.2 A Zone of Influence (ZoI) for a type of effect generated from the Proposed Development, includes the geographic area where likely significant effects (LSEs) of bio–physical or social changes (such as air quality, or distances to accessible labour markets) may occur.

10.2.3 The ZoI has been determined by the extent and characteristics of the Proposed Development, and the communities directly and indirectly affected by the Proposed Development. The smallest jurisdiction boundaries for the Proposed Development are Lower Layer Super Output Areas (LSOA)[6] which lie within or adjacent to the Scoping Boundary.

10.2.4 Where possible, the LSOAs within or adjacent to the draft Order Limits will form the basis of the ZoI for health because they are the communities that are most likely to experience direct and/ or greater impacts.

10.2.5 The three LSOAs used for the purpose of the assessment are:

[6] Lower Layer Super Output Areas (LSOAs) are small, consistent geographic units used for collecting and publishing statistics in England and Wales, designed by the Office for National Statistics (ONS) to improve the reporting of small area data. They typically contain 400–1,200 households and 1,000–3,000 residents.

- Bassetlaw 003A;
- Bassetlaw 002D; and
- North Lincolnshire 023B.

10.2.6 For wider localised effects the ward of Everton, and the local authorities of Bassetlaw and North Lincolnshire will be considered as the 'local study area'.

10.2.7 For regional effects, Nottinghamshire and the East Midlands will be considered as the 'regional study area'.

10.3 Baseline Environment

Overview of Available Data Sources

10.3.1 An overview of the key data sources has been provided in **Table 10-1** below. This also sets out the spatial coverage of these data sets across the Study Area defined above. Baseline information has been collected at the lowest level available.

Table 10-1: Key sources of information for Human Health

Source	Summary	Spatial Coverage of Study Area
Office for National Statistics (ONS) Census Data, 2021	Census data provides a detailed snapshot of the population and its characteristics within the Study Areas.	Local Study Area and ZoI
Fingertips Public Health Profile (Department of Health and Social Care 2025)	Provides public health data and health trends at the local, regional and national levels.	Regional and Local Study Areas
English Indices of Deprivation (Ministry of Housing, Communities and Local Government 2025)	Provides details on areas of deprivation across the Study Area.	Local Study Area and ZoI
Nottingham and Nottinghamshire Joint Strategic Needs Assessment (NHS Nottingham and Nottinghamshire Integrated Care Board)	Provides public health data and health trends at the local level.	Local Study Area and ZoI

Overview of the Baseline Environment

Population

Overall Population

10.3.2 In 2025, the total population of Bassetlaw was 126,454 (Nomis (Official Census and Labour Market Statistics) 2025) and the total population of North Lincolnshire (Nomis (Official Census and Labour Market Statistics) 2025) was 171,421, giving a total population across the Local Study Area of 297,875.

10.3.3 In 2021, the total population of the ward of Everton was 2,514 (Local Government Association 2025).

10.3.4 **Table 10-2** outlines the estimated total population in 2024 for each LSOA that make up the Local Study Area.

Table 10-2: ZoI Total Population (Office for National Statistics 2025)

LSOA	Total Population
Bassetlaw 003A	2,469
Bassetlaw 002D	1,335
North Lincolnshire 023B	1,820
Total	**5,624**

10.3.5 In terms of population density, **Table 10-3** outlines that both North Lincolnshire and Bassetlaw are less densely populated than the regional average (East Midlands), as well as the national average. Bassetlaw is less densely populated than North Lincolnshire.

10.3.6 Similarly, Everton is one of the least densely populated wards in Bassetlaw, with 0.03 persons per km^2 (Local Government Association 2025).

Table 10-3: Population Density

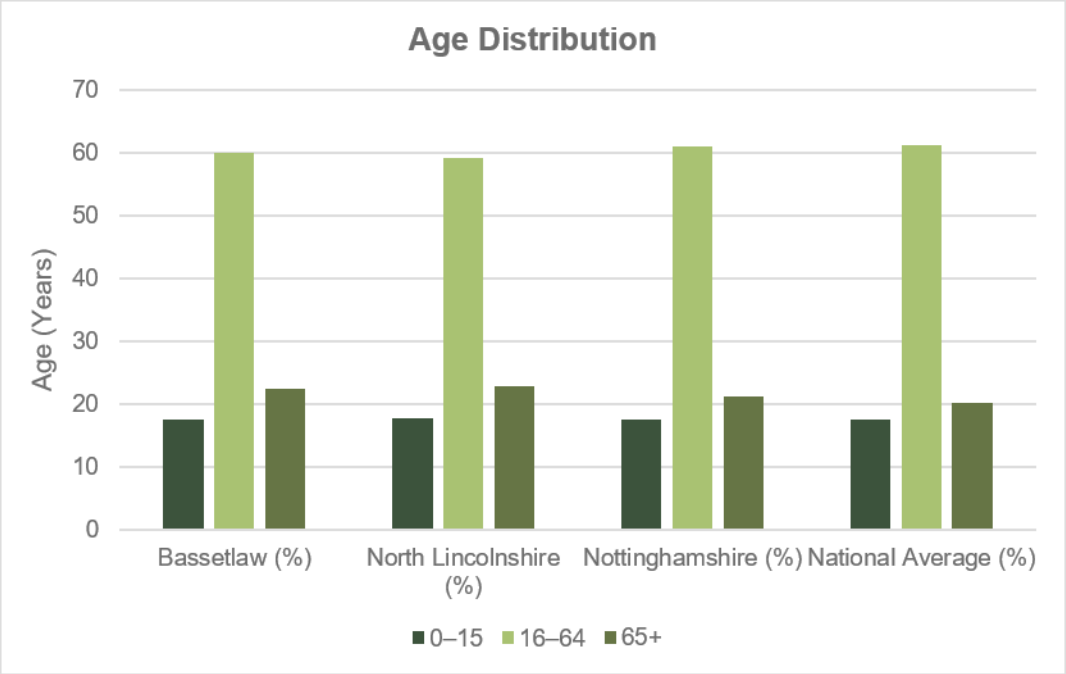
Council	Number of usual residents per km2	Regional average	National average
North Lincolnshire (Office for National Statistics 2024)	202	324	580
Bassetlaw (Office for National Statistics 2024)	196	324	580

Age

10.3.7 In both Bassetlaw and North Lincolnshire, the median age is 44. Both of these figures are higher than the Nottinghamshire average of 43 years as well as the national and regional averages (42 years and 41 years respectively) (Office for National Statistics 2025).

10.3.8 The age distribution of the population of the Local Study Area, outlined in **Plate 10-1**, shows that Bassetlaw and North Lincolnshire have a slightly older population on average than the rest of England. In Bassetlaw, 22.4% of the population are over the age of 65 (Office for National Statistics 2024), and in North Lincolnshire 22.9% of the population are over the age of 65 (Office for National Statistics 2024), compared to the national average of 20.2%.

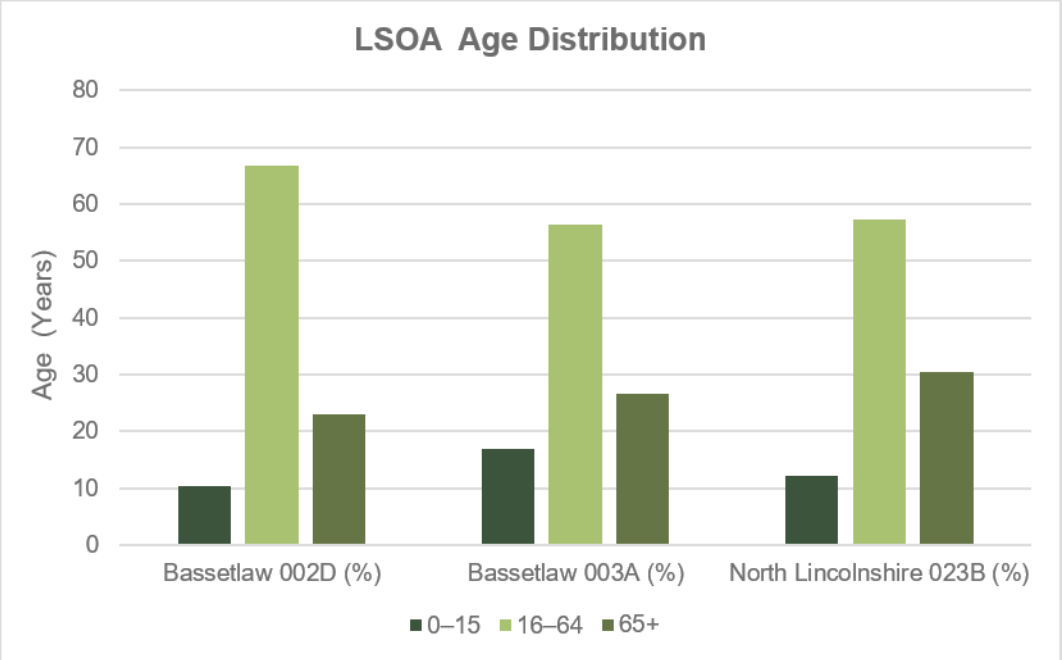
Plate 10-1: Age Distribution (Office for National Statistics 2024)



10.3.9 The majority of residents (58%) living in Everton are aged between 16–64, whilst 16% of residents are aged between 0–15 (Local Government Association 2025). These figures are in line with the Bassetlaw averages. However, 26% of residents are aged 65 and over; this is significantly higher than the Bassetlaw average of 22.4%.

10.3.10 The age distribution of the population in the LSOAs within the Local Study Area are outlined in **Plate 10-2**.

Plate 10-2: LSOA Age Distribution (Office for National Statistics 2025)



10.3.11 By 2034 it is expected that the number of residents in Bassetlaw aged 65+ will have increased by 18.7% on 2024 figures, whereas the number of residents aged 0-15 will have decreased by 4.8% (Nottinghamshire Insight 2024).

Ethnicity

10.3.12 As highlighted in **Table 10-4**, both Bassetlaw and North Lincolnshire have lower ethnic diversity when compared with the regional, and national averages. The largest ethnic group within both Bassetlaw (Office for National Statistics 2021) and North Lincolnshire (Office for National Statistics 2021) is White (96.4% and 94.3% respectively). North Lincolnshire has a much higher population of Asian residents (3.3%), in comparison to Bassetlaw (1.2%).

Table 10-4: Ethnic Groups in Bassetlaw (Office for National Statistics 2021)

Ethnicity	Everton (%)	Bassetlaw (%)	North Lincolnshire (%)	East Midlands (%)	England (%)
Asian, Asian British or Asian Welsh	0.3	1.2	3.3	8.0	9.6
Black, Black British, Black Welsh, Caribbean or African	0.5	0.6	0.5	2.7	4.2
Mixed or Multiple ethnic groups	1.5	1.2	1.1	2.4	3.0
White	97.6	96.4	94.3	85.7	81.0
Other	0.07	0.5	0.8	1.3	2.2

10.3.13 Everton has even lower ethnic diversity than the Bassetlaw or North Lincolnshire average, with 97.6% of the ward population being classed as white (Local Government Association 2025).

General Health

Life Expectancy

10.3.14 The average life expectancy at birth in Bassetlaw is 79.0 years for males and 82.8 years for females, lower than both the regional (79.7 years for males and 83.2 years for females) and national (80.0 years for males and 83.8 years for females) averages (Department of Health and Social Care 2025).

10.3.15 The average life expectancy at birth in North Lincolnshire is 79.3 years for males and 82.2 years for females, lower than both the regional (79.7 years for males and 83.2 years for females) and national (80.0 years for males and 83.8 years for females) averages (Department of Health and Social Care 2025).

10.3.16 Lower levels of life expectancy in both Bassetlaw and North Lincolnshire, suggests that residents within the Study Area experience comparatively poorer health outcomes and may be more susceptible to existing health inequalities. Lower life expectancy can be indicative of wider socio-economic and environmental factors

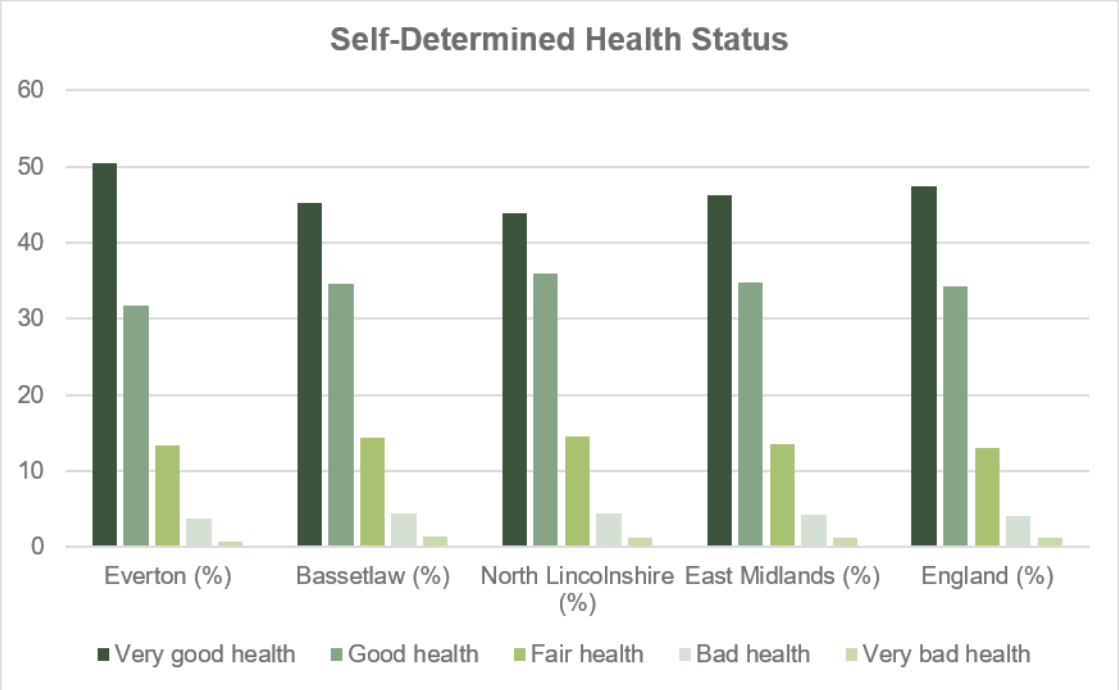
influencing health, including deprivation, employment, education, housing and access to services.

Self–determined Health

10.3.17 As shown in **Plate 10-3** the majority of residents in Everton (82.2%) define their health as either 'very good' or 'good' according to the 2021 census (Local Government Association 2025). This is higher than the Bassetlaw, North Lincolnshire, regional and national averages (79.8%, 79.8%, 81.0% and 81.7% respectively).

10.3.18 Whilst Everton appears to experience relatively favourable health outcomes, the broader study area contains communities that may experience poorer health outcomes and greater vulnerability to health inequalities.

Plate 10-3: Self-Determined Health Status (Office for National Statistics 2021)

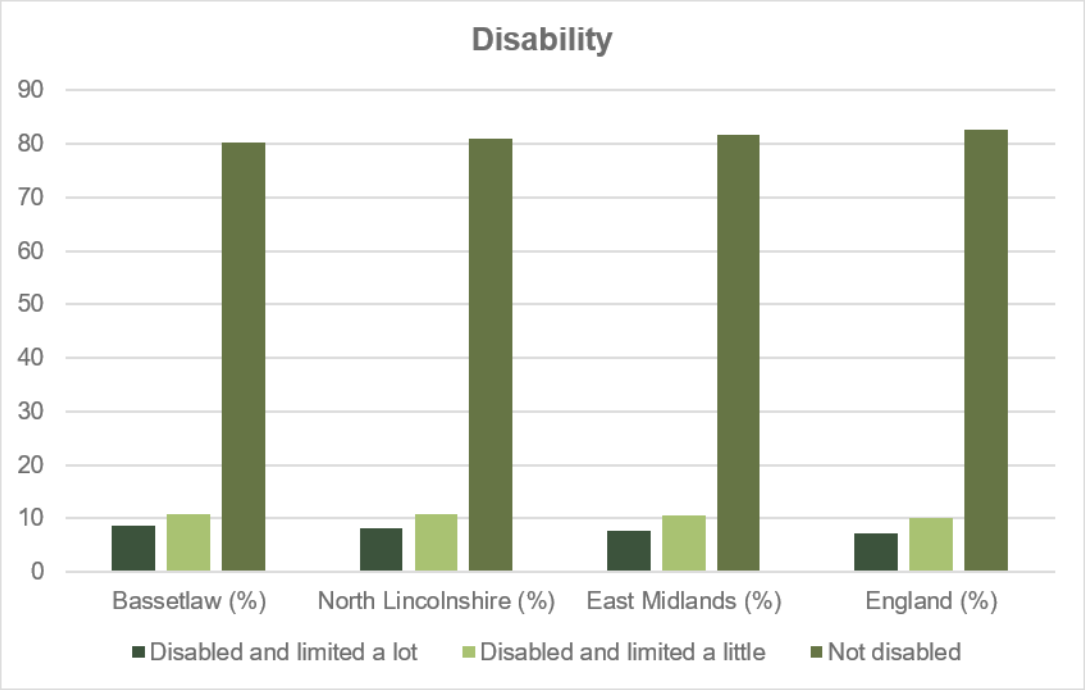


Disability

10.3.19 As outlined in **Plate 10-4**, 19.6% of Bassetlaw residents (Office for National Statistics 2021) and 19.0% of North Lincolnshire residents (Office for National Statistics 2021) identified themselves as disabled under the equality act in 2021, with 8.7% and 8.2% of respective residents limited a lot in day–to–day activities. The number of people considered disabled under the Equality Act is higher than the regional figure of 18.4% and the national figure of 17.7%.

10.3.20 This indicates that there may be a greater prevalence of vulnerable groups residing within thin Study Area. This indicates that the Study Area contains a comparatively high proportion of residents who may be more vulnerable to change. People with disabilities or long-term limiting conditions may experience greater barriers to accessing employment, services, community facilities and recreational opportunities and may therefore be more sensitive to both beneficial and adverse effects arising from the Proposed Development.

Plate 10-4: Disability (Office for National Statistics 2021)



Mortality

10.3.21 **Table 10-5** below highlights the under 75 mortality rate (per 100,000 persons) for a range of health issues in Bassetlaw and North Lincolnshire in 2025. As showcased in the table, both Bassetlaw and North Lincolnshire have higher mortality rates for cardiovascular disease, cancer, suicide and all causes of death, compared to regional and national averages.

10.3.22 Higher mortality rates may be indicative of existing health inequalities and the influence of wider determinants of health, including deprivation, employment, lifestyle factors and access to services.

Table 10-5: Under 75 Mortality Rates (per 100,000 persons) in 2025 (Department of Health and Social Care 2025)

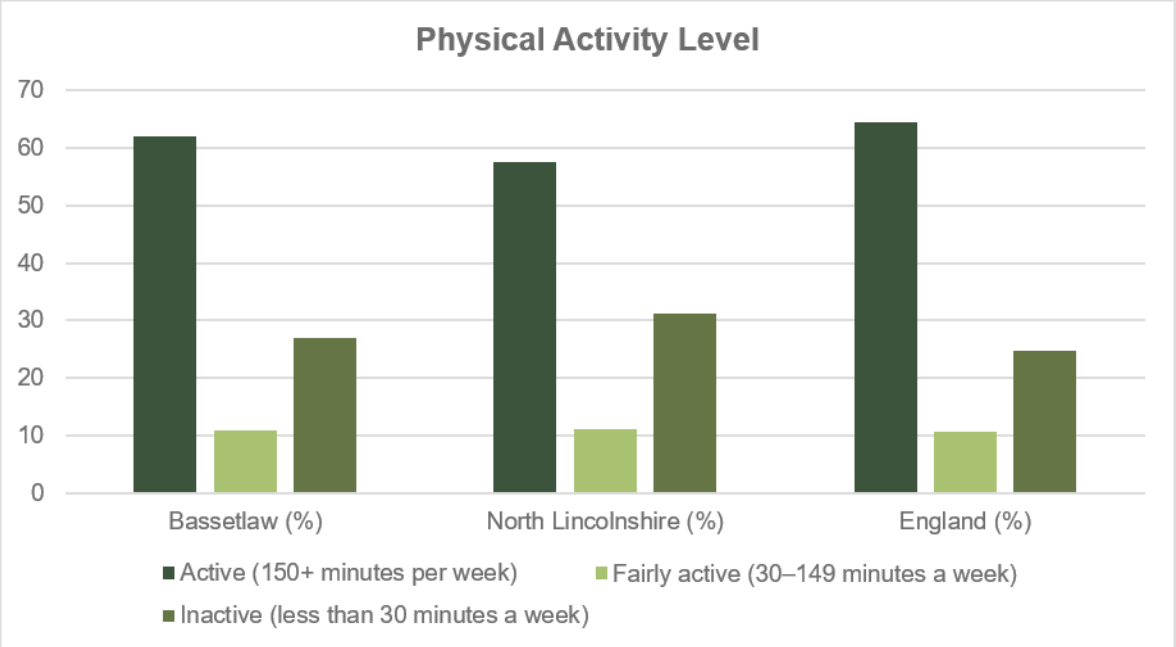
Cause of Death	Bassetlaw	North Lincolnshire	East Midlands	England
Cardiovascular disease	80.8	80.1	75.3	71.5
Cancer	121.1	139.2	117.4	114.6
Suicide (all ages)	13.0	13.1	11.8	10.9
All causes	354.3	411.9	333.5	321.0

Physical Activity and Obesity

10.3.23 Physical activity is vital to health as it helps to protect against multiple physical and mental illnesses, including Type 2 diabetes, depression and stroke. In Bassetlaw, 63.3% of adults (aged 19 years+) are physically active, which is lower than both the East Midlands and England average (67.2% and 68.0% respectively) (Department of Health and Social Care 2025).

10.3.24 As shown in **Plate 10-5** below, between November 2024–2025, 62.0% of adults in Bassetlaw, and 57.5% of adults in North Lincolnshire, considered themselves to be active. This is below the national average (64.6%). In the same period, 27.0% of adults in Bassetlaw, and 31.3% of adults in North Lincolnshire, considered themselves to be inactive. This figure is higher than the national average (24.7%).

Plate 10-5: Physical Activity Level for Adults (Sport England 2025)



10.3.25 Lower levels of physical activity are a primary contributor to higher levels of obesity and increased body mass index. As outlined in **Table 10-6**, Obesity is prevalent in both Bassetlaw and North Lincolnshire, with 71.8% and 74.2% of respective residents being classed as overweight. This is significantly higher than the national average (64.6%). In total, 32.2% of Bassetlaw residents and 34.4% of North Lincolnshire residents are classed as obese. This is significantly higher than the national average (26.6%).

Table 10-6: Overweight and Obesity Levels for Adults (Department of Health and Social Care 2025)

Activity Level	Bassetlaw (%)	North Lincolnshire (%)	England (%)
Overweight prevalence in adults	71.8	74.2	64.6
Obesity prevalence in adults	32.2	34.4	26.6

10.3.26 As outlined in **Table 10-7**, childhood obesity levels (measured in children aged 10 and 11 years) are significantly higher in both Bassetlaw and North Lincolnshire, compared to regional and national levels.

10.3.27 At the ward level, 14.3% of children were classed as obese in Everton. This is the lowest value for wards nationally between 2022/23–2024/25 (Ministry of Housing, Communities and Local Government 2019).

Table 10-7: Childhood Obesity Rates (Department of Health and Social Care 2025)

Activity Level	Bassetlaw (%)	North Lincolnshire (%)	England (%)
Overweight prevalence in adults	71.8	74.2	64.6
Obesity prevalence in adults	32.2	34.4	26.6

Deprivation

10.3.28 The English Indices of Multiple Deprivation (IMD) 2025 measures the relative level of multiple deprivation across England. The indices rank LSOAs and local authorities according to seven domains of deprivation, including income, employment, education, health, crime, barriers to housing and services, and living environment deprivation.

10.3.29 According to the 2025 IMD, Bassetlaw is ranked 111th most deprived local authority in England, out of 296 lower–tier local authorities nationally (where 1 is the most deprived and 296 is the least deprived). This has improved slightly from the previous ranking of 108th out of 317 English local authorities in 2019 (Ministry of Housing, Communities and Local Government 2019).

10.3.30 In comparison, North Lincolnshire is ranked 104th most deprived local authority in England. This has worsened from the previous ranking of 120th out of 317 English local authorities in 2019 (Ministry of Housing, Communities and Local Government 2019).

10.3.31 **Table 10-8** provides an overview of the 2025 rankings for the seven domains of deprivation for both Bassetlaw and North Lincolnshire.

Table 10-8: Indices of Deprivation (Ministry of Housing, Communities and Local Government 2025)

Indices of Deprivation	Bassetlaw	North Lincolnshire
Income Deprivation	121	112
Employment Deprivation	94	81
Education, Skills, and Training Deprivation	60	87
Health Deprivation and Disability	102	95
Crime	124	110
Barriers to Housing and Services	158	140
Living Environment Deprivation	178	210

10.3.32 The sub-domain of education, skills, and training has the highest level of deprivation in Bassetlaw. This suggests that residents in the District experience poorer educational outcomes, lower skills levels, and reduced access to learning and training opportunities, compared to the national average.

10.3.33 The sub-domain of employment has the highest level of deprivation in North Lincolnshire. This suggests that a large proportion of residents in the Borough are excluded from the labour market through unemployment, long-term sickness, disability, or other barriers to work.

10.3.34 Overall, both Bassetlaw and North Lincolnshire experience relatively high levels of deprivation compared to many local authorities in England, with particular challenges associated with education, skills and training in Bassetlaw and employment in North Lincolnshire.

10.3.35 Levels of health deprivation and disability are also comparatively high in both authorities, indicating that some communities may already experience poorer health outcomes and greater health inequalities. This baseline suggests the presence of potentially vulnerable populations within the Study Area who may be more sensitive to changes in the wider determinants of health, including access to employment, services, infrastructure and environmental conditions.

Noise

10.3.36 Noise pollution can significantly impact human health, extending beyond mere annoyance to affect physical and mental well–being. Exposure to excessive noise can lead to sleep disturbance, stress, cardiovascular problems, cognitive impairment, and even contribute to premature death. The WHO guidelines for community noise recommend less than 30 A–weighted decibels (dB(A)) in bedrooms during the night for a sleep of good quality and less than 35 dB(A) in classrooms to allow good teaching and learning conditions (World Health Organisation 2011).

10.3.37 Environmental noise, and in particular road traffic noise, remains a major environmental problem affecting the health and well–being of millions of people in Europe (European Environmental Agency 2020).

10.3.38 Wind turbines generate sound across a range of frequencies, including low-frequency sound and infrasound. Concerns have been raised regarding the potential for wind turbine-generated infrasound to adversely affect human health; however, the current scientific evidence does not establish a causal association between exposure to infrasound at levels typically associated with wind turbine operation at residential receptors and adverse health outcomes (Berg 2021).

Air Quality

10.3.39 The association between exposure to air pollution and adverse health effects is well established. Long-term exposure can increase the risk of cardiovascular and respiratory disease, lung cancer and other chronic conditions, and may also affect the reproductive and central nervous systems. Exposure during childhood may have lifelong consequences, including effects on cognitive development and an increased risk of chronic disease (Public Health England 2018) (The Health Foundation, 2024).

10.3.40 The effects of poor air quality can be more pronounced among susceptible population groups, including children and people with pre-existing respiratory conditions such as chronic obstructive pulmonary disease (COPD) or asthma.

10.3.41 The Health Foundation research has found that people living in more deprived areas, minority ethnic groups and younger people are more likely to live in polluted neighbourhoods (The Health Foundation 2024).

10.3.42 As outlined in **Chapter 9: Air Quality and Greenhouse Gases**, there are currently no Air Quality Management Area (AQMAs) declared within Bassetlaw. The closest AQMA to the Site is therefore located in the City of Doncaster Council (CDC), approximately 8.5 km to the north-west of the Site. This is known as

AQMA No. 4 and was declared in 2003 for the exceedance of the NO_2 annual objective of 40µg/m^3 (City of Doncaster Council 2024)

10.3.43 The nearest monitoring location to the Site is a non-automatic diffusion tube measuring roadside NO_2 adjacent to Gainsborough Road and Mattersey Road in Everton, located approximately 1.76m to the southwest of the Site. This monitor recorded an annual average NO_2 concentration of 15.1µg/m^3 in 2024, well below the annual objective.

Crime

10.3.44 Crime rates in both Bassetlaw and North Lincolnshire are slightly higher than the East Midlands average. In 2025, the overall crime rate in Bassetlaw was recorded at 79.0 crimes per 1,000 people (LG Inform 2026), whereas the overall crime rate in North Lincolnshire was recorded at 77.7 crimes per 1,000 people (LG Inform 2026). In comparison, 76.3 crimes per 1,000 people was recorded across the East Midlands (LG Inform 2026).

10.3.45 In 2025, the most dominant crime in Bassetlaw was shoplifting offences, followed by violence against the person–with injury offences, and violence against the person without injury offences (LG Inform 2026). In the same year the most dominant crime in North Lincolnshire was stalking and harassment offences, followed by violence against the person–without injury offences, and violence against the person–with injury offences (LG Inform 2026).

10.3.46 Hospital admissions for violence (including sexual violence) in both Bassetlaw and North Lincolnshire are higher than the regional (26.7 per 100,000) and national averages (31.9 per 100,000 people) at 32.4 admissions per 100,000 and 42.4 admissions per 100,000 respectively (Department of Health and Social Care 2025).

Local Community Facilities

10.3.47 Within the ZoI the key settlements in close proximity to the Site are the villages of Misson, Everton, Gringley on the Hill, Misterton, and Westwoodside, with the southern part of Misson falling within 500m of the Scoping Boundary. These villages are primarily residential, but they do provide the following community facilities:

- Everton Primary School (Everton; 1.8 km from the Scoping Boundary);
- Misterton Primary School (Misterton; 3.2km from the Scoping Boundary);
- St Peter's CofE Primary and Nursery School (Gringley on the Hill; 2.5 km from the Scoping Boundary);
- Westwoodside CofE Primary School (Westwoodside; 4.0 km from the Scoping Boundary);
- Misson Community Association (Misson; 320 m from the Scoping Boundary);
- Gringley on the Hill Community Centre (Gringley on the Hill; 2.4 km from the Scoping Boundary);
- Everton Village Hall (Everton; 1.6 km from the Scoping Boundary);
- Misson Methodist Church (Misson; 260 m from the Scoping Boundary);
- St Peter and St Paul's Church (Gringley on the Hill; 2.5 km from the Scoping Boundary);

- Misterton Methodist Church (Misterton; 3.2 km from the Site Boundary);
- Holy Trinity Church (Everton; 1.6 km from the Scoping Boundary);
- The White Horse Inn (Misson; 300 m from the Scoping Boundary);
- The Angel Inn (Misson; 320 m from the Scoping Boundary);
- The Blue Bell Inn (Gringley on the Hill; 2.5 km from the Scoping Boundary);
- The Red Hart (Misterton; 3.0 km from the Scoping Boundary);
- The Blacksmith Arms (Everton; 1.7 km from the Scoping Boundary); and
- Carpenter's Arms (Westwoodside; 4.1 km from the Scoping Boundary).

10.3.48 The nearest primary school is in Misson (located less than 500m north–west of the Scoping Boundary), whilst the nearest secondary school is Hayfield School (located approximately 7.1 km north–west of the Scoping Boundary). The closest public medical centre is in Riverside Gringley (located approximately 2.5 km south–east of the Scoping Boundary). The closest major hospitals are in Doncaster; both the Doncaster and Bassetlaw Hospitals NHS Trust and Rotherham Doncaster and South Humber NHS Foundation Trust are located within 13.8 km of the Scoping Boundary.

10.4 Proposed Approach to the Environmental Impact Assessment

Relevant Legislation, Policy and Guidance

10.4.1 The following legislation, policy and guidance will be considered as part of the assessment on human health:

Legislation

- Equality Act (UK Government 2010)
- Localism Act (UK Government 2011)
- Countryside and Rights of Way Act (UK Government 2000)

Policy

- Overarching National Policy Statement for Energy (EN–1) 2025 (Department for Energy Security and Net Zero 2025)
- National Policy Statement for Renewable Energy Infrastructure (EN–3) (Department for Energy Security and Net Zero 2025)
- National Planning Policy Framework, (Ministry of Housing Communities & Local Government 2026)
- Bassetlaw Local Plan 2020–2038 (Basstlaw District Council 2024)
- North Lincolnshire Core Strategy 2011 (North Lincolnshire Council n.d.)

Guidance

- Effective Scoping of Human Health in Environmental Impact Assessment Institute of Sustainability and Environmental Professionals (ISEP) (ISEP 2022)

- Determining Significance for Human Health in Environmental Impact Assessment (ISEP 2022)
- Social Impact Assessment in Environmental Impact Assessment in the UK (ISEP 2025)
- Human Health: Ensuring a high level of protection (European Public Health Association 2020)
- Planning Practice Guidance – Healthy and Safe Communities (Ministry of Housing, Communities and Local Government and Department for Levelling Up, Housing and Communities 2014)
- Rapid Health Impact Assessment Supplementary Planning Document (Bassetlaw District Council 2025)

Proposed Assessment Methodology

10.4.2 The human health assessment will align with ISEP guidance on Effective Scoping of Human Health in Environmental Impact Assessment (ISEP 2022). This guidance outlines the need to undertake a wider determinant of health approach.

10.4.3 Health is influenced by a range of factors, termed the 'wider determinants of health'. Wider determinants of health span the bio–physical, social, behavioural, economic and institutional factors. It is these determinants that form the basis of the health assessment.

10.4.4 There is potential for the Proposed Development to affect human health, with those health determinants likely to be affected by the Proposed Development including: air quality; noise; loss of visual amenity; opportunities for physical activity and recreation; transport modes, access and connections and employment opportunities.

10.4.5 Elements that can impact on human health will be considered within other Chapters such as **Chapter 9: Air Quality and Greenhouse Gases, Chapter 11: Landscape and Visual, Chapter 12: Noise and Vibration and Chapter 13: Socio–economics, Recreation and Tourism and Chapter 14: Access, Traffic and Transport**. The outcomes of these individual assessments will be considered to determine the overall impact on human health during construction, operation and maintenance.

10.4.6 For each determinant of health, the health assessment will identify relevant inequalities through consideration of the differential effect to the general population as well as vulnerable groups. Those groups considered to be vulnerable include:

- children and young people;
- older people (in particular the frail and elderly);
- people with existing health conditions or disabilities that substantially affect their day to day lives;
- low income groups;
- socially disadvantaged groups; and
- people who may be socially isolated.

Sensitivity

10.4.7 The degree of sensitivity of health receptors is based on an individual or group's abilities and capacity to adapt to changes and maintain their quality of life, livelihood and health conditions. Sensitivity can be understood in terms of resilience to change and the individual's access to resources to adapt to them.

10.4.8 Sensitivity can be further determined by several factors, such as a receptor's age, gender, ethnicity, access to employment opportunities, livelihood, education, health, level of marginalisation or deprivation and dependence on natural or common resources. A qualitative definition of these is presented in **Table 10-9**.

Table 10-9: Sensitivity for Human Health

Sensitivity	Description
High	High levels of deprivation (including pockets of deprivation); reliance on resources shared (between the population and the Proposed Development); existing wide inequalities between the most and least healthy; a community whose outlook is predominantly anxiety or concern; people who are prevented from undertaking daily activities; dependants; people with very poor health status; and/or people with a very low capacity to adapt.
Medium	Medium levels of deprivation; few alternatives to shared resources; existing widening inequalities between the most and least healthy; a community whose outlook is predominantly uncertainty with some concern; people who are highly limited from undertaking daily activities; people providing or requiring a lot of care; people with poor health status; and/or people with a limited capacity to adapt.
Low	Low levels of deprivation; many alternatives to shared resources; existing narrowing inequalities between the most and least healthy; a community whose outlook is predominantly ambivalence with some concern; people who are slightly limited from undertaking daily activities; people providing or requiring some care; people with fair health status; and/or people with a high capacity to adapt.
Negligible	Very low levels of deprivation; no shared resources; existing narrow inequalities between the most and least healthy; a community whose outlook is predominantly support with some concern; people who are not limited from undertaking daily activities; people who are independent (not a carer or dependant); people with good health status; and/or people with a very high capacity to adapt.

Magnitude of Change

10.4.9 The magnitude of impact upon Population and Communities is determined by defining the degree of change in the health baseline conditions caused or contributed by the Proposed Development as set out in **Table 10-10** below. Magnitude will be determined using professional judgement, taking account of the degree of change from baseline conditions, the proportion of the relevant population affected, the geographical extent of the effect, and its duration, frequency and reversibility.

Table 10-10: Definitions of Magnitude of Change

Magnitude	Description
High	A substantial change to health and wellbeing, affecting a large proportion of the relevant population and/or extending across a wide geographical area. The change is likely to be long-term or permanent and may be difficult to reverse.
Medium	A noticeable change to health and wellbeing, affecting part of the relevant population and/or occurring across a defined geographical area. The change may occur over the medium to long term but is generally capable of being reduced or reversed.
Low	A small or localised change to health and wellbeing conditions, affecting a limited proportion of the relevant population. Effects are likely to be short-term and/or readily reversible, with baseline health conditions remaining broadly unchanged.
Negligible	Potential impact will not result in any measurable or perceivable changes to baseline conditions.

Significance of Effect

10.4.10 For each identified social receptor, the assessment will combine the sensitivity of the receptor (as defined in **Table 10-9**) with the magnitude of change (as defined in **Table 10-10**) to determine an overall significance rating using the evaluation matrix in **Table 10-11**. This approach applies to both to social and health impacts, in alignment with ISEP guidance which states *"for health this identifies if there is a relevant population (the sensitive receptor) and if there is a relevant project change to a health determinant (magnitude of impact)".* (ISEP 2022).

10.4.11 Effects assessed as significant will be reported as such in the Environmental Statement (ES). In line with ISEP guidance (ISEP 2022) effects assessed as moderate will be considered potentially significant, whilst effects assessed as Minor or Negligible will be deemed to be not significant in EIA terms.

10.4.12 This evaluation will be based on professional judgement and undertaken on a precautionary basis, ensuring that uncertainty is addressed conservatively. The likelihood of an effect occurring also needs to be considered in any assessment, and this is evaluated on professional judgement and past experience of similar developments.

Table 10-11: Definitions of Significance

Magnitude	Description
High	A substantial change to health and wellbeing, affecting a large proportion of the relevant population and/or extending across a wide geographical area. The change is likely to be long-term or permanent and may be difficult to reverse.
Medium	A noticeable change to health and wellbeing, affecting part of the relevant population and/or occurring across a defined geographical area. The change may occur over the medium to long term but is generally capable of being reduced or reversed.
Low	A small or localised change to health and wellbeing conditions, affecting a limited proportion of the relevant population. Effects are likely to be short-term and/or readily reversible, with baseline health conditions remaining broadly unchanged.

Magnitude	Description
Negligible	Potential impact will not result in any measurable or perceivable changes to baseline conditions.

10.4.13 It should be noted that if significant effects have been identified within the assessment, secondary mitigation measures will be considered. A residual effects assessment will be undertaken to identify the efficacy of these measures in reducing significant effects.

10.5 Design, Mitigation and Enhancement Measures

10.5.1 As part of the design process for the Proposed Development, several embedded and standard mitigation measures are proposed to reduce the potential for impacts on human health. These are presented below. It is expected that these may evolve throughout the design evolution of the Proposed Development as the EIA progresses and in response to consultation. The Applicant is committed to implementing these measures, and also various standard sectoral practices and procedures. It is therefore considered that these measures are inherently part of the design of the Proposed Development.

10.5.2 Measures adopted as part of the Proposed Development to mitigate potential adverse impacts on human health will include:

- All development would be subject to standard good practice mitigation measures employed to avoid and minimise potential effects on community and recreational facilities.
- All construction work would be undertaken in accordance with a Public Access Management Plan (PAMP). The DCO application will include an outline PAMP, that will outline the measures to be applied would seek to promote public safety, maintain appropriate access where reasonably practicable, and minimise disruption to existing public access routes (during all phases of the Proposed Development).
- Continued community engagement and sharing of information relating to the Proposed Development, throughout all phases of the Proposed Development, would be undertaken to reduce the impacts on human health by enabling people to raise concerns and improve understanding of potential health effects.
- To reduce exposure to electromagnetic fields (EMF), the Proposed Development would be designed and operated so that EMF exposure remains within the applicable exposure limits set out in the Department for Energy and Climate Change (DECC) Voluntary Code of Practice (DECC 2012) and the International Commission on Non–Ionizing Radiation Protection (ICNIRP) EMF guidelines (ICNIRP 2020). Operational activities would also comply with the Control of Electromagnetic Fields at Work Regulations 2016 to protect workers from exposure to EMF. Demonstrating that the relevant exposure limits are met, and communicating this clearly to the public, would also help to address public concern regarding potential health effects. (UK Government 2016).
- All construction work would be undertaken in accordance with the Secured by Design Construction Site Security Guide (Secured by Design 2021).
- Both a Construction Environment Management Plan (CEMP) and a Decommissioning Plan will be developed and outline versions will be provided in the DCO application. These will include mitigation measures to reduce effects of air and noise pollution on health receptors.

10.5.3 Further detail on the role of mitigation commitments, as part of a proportionate EIA approach, is provided in **Chapter 3: Approach to EIA**. A full description of the mitigation commitments identified so far is provided in **Appendix 3A: Draft Register of Environmental Actions and Commitments (REAC)** in **Volume B**.

10.6 Potential Impacts Scoped In

10.6.1 **Table 10-12** has been set out in line with ISEP guidance and identifies those wider determinants of health (as set out in Table 5.1 of the guidance) likely to be affected by the Proposed Development and the justification for scoping in. This splits out health determinants into five categories; health related behaviours, social environment, economic environment, bio–physical environment and institutional and built environment.

Table 10-12: Impacts proposed to be scoped into the assessment for Human Health

Impact	Description	Proposed Approach to Assessment Including Description of Any New Data Collection Required and Any Analyses (Such as Modelling)
Construction		
Increased exposure to noise, dust or other environmental effects *(bio–physical environment)*	Disturbances from noise, air pollution and other environmental impacts could have effects on community health, especially for vulnerable groups.	Assessment will be informed by the findings of the Noise and Vibration, Air Quality and Traffic and Transport assessments. Potential health and wellbeing effects associated with construction activities will be assessed with reference to identified sensitive receptors and vulnerable groups. No additional health-specific data collection or modelling is proposed.
Limited or reduced access to services and amenities such as, public services, recreational and health facilities. Reduced mobility options and disruption to travel times. *(Institutional and built environment)*	Construction activities could reduce access to recreational and health facilities and could impact the day–to–day activities and both physical and mental health and wellbeing of some residents. Construction activities and associated construction traffic could result in diversions, delays and possibly severance of local facilities and services, which may make it more challenging for all groups to carry out day to day activities.	Assessment will be informed by the findings of the Traffic and Transport and socio–economics, tourism and recreation assessments. Consideration will be given to temporary disruption to movement, accessibility and access to community facilities, services and recreational resources. No additional health–specific data collection is proposed.
Increased employment and training opportunities *(Economic environment)*	Construction activities will generate employment and training opportunities, which will support local employment, skills development and economic growth. Improved employment and income levels may positively	Assessment will be informed by the findings of the Socio–economics assessment. Consideration will be given to the relationship between employment, income and health outcomes, including potential benefits arising from local employment, skills development and training

Impact	Description	Proposed Approach to Assessment Including Description of Any New Data Collection Required and Any Analyses (Such as Modelling)
	influence health and wellbeing through increased economic security and reduced risk of socio-economic deprivation.	opportunities. No additional health–specific data collection is proposed.
Decommissioning		
Increased exposure to noise, dust or other environmental effects *(Bio–physical environment)*	Disturbances from noise, air pollution and other environmental impacts could have effects on community health, especially for vulnerable groups.	Assessment will be informed by the findings of the Noise and Vibration, Air Quality and Traffic and Transport assessments. Potential health and wellbeing effects associated with temporary decommissioning activities will be assessed with reference to identified sensitive receptors and vulnerable groups. No additional health–specific data collection or modelling is proposed.
Limited or reduced access to services and amenities such as agricultural land, public services, recreational and health facilities. Reduced mobility options and disruption to travel times. *(Institutional and built environment)*	Decommissioning activities could reduce access to recreational and health facilities could impact the day–to–day activities and both physical and mental health and wellbeing of some residents. Similarly, decommissioning activities and associated decommissioning traffic could result in diversions, delays and possibly severance of local facilities and services, which may make it more challenging for all groups to carry out day to day activities.	Assessment will be informed by the findings of the Traffic and Transport and socio–economics, tourism and recreation assessments. Consideration will be given to temporary disruption to movement, accessibility and access to community facilities, services and recreational resources. No additional health–specific data collection is proposed.
Cumulative		
Reduced access to community services and facilities and increased demand on local services *(institutional and built environment/ social environment)*	The Proposed Development in combination with other committed developments may increase demand for community services, facilities and local infrastructure during construction. This could have disproportionate effects on community health, especially for vulnerable groups.	Assessment will be informed by the findings of the Traffic and Transport and socio–economics, tourism and recreation cumulative assessments. No additional health–specific data collection is proposed.
Cumulative increase in employment opportunities *(economic environment)*	The Proposed Development may generate cumulative employment, expenditure and supply chain opportunities when considered alongside other committed developments within the area,	Assessment will be informed by cumulative socio–economic assessment findings. Consideration will be given to the potential for cumulative beneficial effects associated with increased employment, income and economic

Impact	Description	Proposed Approach to Assessment Including Description of Any New Data Collection Required and Any Analyses (Such as Modelling)
	potentially contributing to wider health and wellbeing benefits.	activity. No additional health–specific data collection is proposed.
Contribution to energy security and resilient infrastructure *(Institutional and built environment)*	The Proposed Development would contribute to national renewable energy generation capacity and energy resilience. In combination with other committed renewable energy developments, this could contribute to wider societal benefits associated with a secure, reliable and lower–carbon energy system.	The assessment will consider the extent to which the Proposed Development contributes to wider energy resilience and the determinants of health associated with secure and reliable infrastructure. No additional data collection is proposed.

10.7 Impacts Proposed to be Scoped Out

10.7.1 **Table 10-13** below, sets out those topics proposed to be scoped out of the human health assessment. Impacts have been scoped out where there is no plausible pathway to significant health effects, where effects are expected to be negligible, or where the potential health effects are considered to be adequately assessed within another technical chapter of the ES such that further assessment within the Human Health chapter would duplicate assessment findings.

Table 10-13: Impacts proposed to be scoped out of the assessment for Human Health

Impact	Justification for Scoping Out
Construction	
Physical activity *(health–related behaviours)*	The Proposed Development does not involve the permanent loss of recreational facilities or strategic active travel infrastructure. Whilst temporary diversions or restrictions to public rights of way may occur during construction, effects on recreational use and accessibility will be assessed within the Socio–economics, Tourism and Recreation assessment. Given the limited extent of the affected routes and the temporary nature of any restrictions, significant health effects arising from changes in physical activity levels are not anticipated.
Operation and Maintenance	
Perceived fear and anxiety of EMFs and increased mental health burden *(bio–physical environment/ social environment)*	Whilst EMFs from wind farms are strictly regulated to remain below international safety guidelines and pose no known risk to human health, public perceptions and understanding of EMFs can lead to anxiety affecting both mental health and wellbeing. Where reasonably practicable, adhering to DECC's Voluntary Code of Practice and ICNIRP EMF guidelines as well as sharing non–technical information as part of community engagement would help to reduce levels of fear and anxiety. Effects on health are not considered likely to be significant.
Increased exposure to noise, dust or other environmental effects	Operational air quality effects are not anticipated as the Proposed Development would not generate significant emissions during operation. Potential effects associated with

Impact	Justification for Scoping Out
(Bio–physical environment	operational noise will be assessed within the Noise and Vibration chapter of the ES, including identification of sensitive receptors and any required mitigation measures. The Human Health Assessment will not duplicate this assessment and significant additional health effects are not anticipated.
Major accidents, Crime and community safety *(social environment)*	The Site would be managed and operated in accordance with the Health and Safety at Work Act 1974 and comply with relevant Health and Safety Regulations. All construction work should also be undertaken in accordance with the Secured by Design Construction Site Security Guide. This will help to maintain safety and reduce crime on Site. Additionally the Major Accidents and Disasters section in **Chapter 16: Other Environmental Topics** concludes that public access across the Site would be managed for health and safety purposes to facilitate the delivery of wind turbine components and construction materials, as well as construction activities with the preparation of a Public Access Management Plan (PAMP). This will also help to maintain safety and reduce crime on Site Effects on health are therefore not considered to be significant.
Annoyance and perceived fear from operational noise and shadow flicker *(bio–physical environment)*	Potential effects associated with operational turbine noise and shadow flicker will be assessed within the dedicated Noise and Vibration and Shadow Flicker chapters of the ES. These assessments will identify affected receptors, quantify effects and identify mitigation where necessary. The Human Health Assessment will have regard to the conclusions of these technical assessments but will not duplicate them. Significant additional health effects beyond those assessed within the specialist chapters are not anticipated.
Decreased social cohesion *(social environment)*	The Proposed Development would not directly affect land used for community interaction (e.g., meeting places, village greens, community centres) that promote community voluntary, social, cultural or spiritual participation. Temporary effects, including noise, lighting and temporary changes in views, are not expected to influence community identity or disrupt community gatherings to an extent that could affect population health. Effects on human health are therefore not considered to be significant.
Decommissioning	
Physical activity *(health–related behaviours)*	The Proposed Development does not involve the permanent loss of recreational facilities or strategic active travel infrastructure. Whilst temporary diversions or restrictions to public rights of way may occur during decommissioning, effects on recreational use and accessibility will be assessed within the Socio–economics, Tourism and Recreation assessment. Given the limited extent of the affected routes and the temporary nature of any restrictions, significant health effects arising from changes in physical activity levels are not anticipated.

10.8 Summary of Next Steps

10.8.1 We will engage with Nottinghamshire County Council Public Health, Bassetlaw District Council and the UK Health Security Agency (UKHSA) during scoping consultation to seek agreement on the proposed scope and methodology for the Human Health Assessment. Engagement will also be used to confirm the relevant health issues, sensitive populations and baseline health indicators to be considered within the assessment.

10.9 Further Consideration for Consultees

10.9.1 The following questions are provided to help frame consultee comments on the Scoping Report for Human Health:

- **Q10.1**: Is there any additional baseline information that should be considered at the next stage?
- **Q10.2**: Do you agree with the proposed vulnerable groups?
- **Q10.3**: Do you agree with the topics scoped into/out of the assessment?
- **Q10.4**: Are there any specific projects currently going through the planning process which consultees feel should be considered as part of the cumulative assessment?

11. Landscape and Visual

11.1 Introduction

11.1.1 This chapter sets out the proposed methodology and approach of the Landscape and Visual Impact Assessment (LVIA) of the Proposed Development. It presents the suggested scope of the LVIA in terms of those landscape and visual receptors to be scoped in and scoped out of the assessment process based on a preliminary assessment of relevant receptors to the Proposed Development. The LVIA will consider the potential likely significant effects of the Proposed Development during the construction, operation and maintenance and decommissioning phases, details of which are set out in **Chapter 2: Proposed Development Description**.

11.1.2 The purpose of the LVIA is to identify and record the potential likely significant effects that the Proposed Development may have on physical elements of the landscape; landscape character; areas that have been designated for their scenic or landscape-related qualities; and views from various locations such as settlements and dispersed residential properties, routes, hilltops, and other sensitive locations. The potential cumulative effects that may arise from the addition of the Proposed Development to other developments will also be considered.

11.1.3 There are interrelationships between the potential effects on landscape and visual receptors and other environmental topics. Therefore, this chapter should be read alongside the following chapters of the Scoping Report:

- **Chapter 5: Archaeology and Cultural Heritage; and**
- **Chapter 6: Ecology.**

11.1.4 This chapter is supported by the following figures in **Volume A**:

- **Figure 11.1: LVIA Study Area**
- **Figure 11.2: Blade Tip ZTV**
- **Figure 11.3: Hub Height ZTV**
- **Figure 11.4: Screened Blade Tip ZTV**
- **Figure 11.5: Screened Blade Tip ZTV (20 km)**
- **Figure 11.6: National Landscape Character with Blade Tip ZTV**
- **Figure 11.7: Landscape Designations with Blade Tip ZTV**
- **Figure 11.8: Principal Visual Receptors (Transportation) with Blade Tip ZTV**
- **Figure 11.9: Principal Visual Receptors (Recreational) with Blade Tip ZTV**
- **Figure 11.10: Cumulative Windfarms**
- **Figure 11.11: PRoW within 5 km with Blade Tip ZTV**
- **Figure 11.12: Residential Visual Amenity Context with Blade Tip ZTV**

11.2 Study Area

11.2.1 NatureScot guidance provides the clearest advice in relation to LVIA study areas for wind farm developments. Whilst some of these guidance documents have

been prepared by NatureScot for projects in Scotland, in the absence of alternative guidelines these guidance documents have become best practice across the UK. In accordance with NatureScot guidance (Visual Representation of Wind Farms, Version 2.2, NatureScot 2017) and with a proposed wind turbine height of up to 220 m, the proposed Study Area for the LVIA of the Proposed Development will cover a radius of 45 km from the nearest proposed wind turbine, as shown in **Figure 11.1 (Volume A)**. At distances beyond 45 km, the lateral (or horizontal) spread of the Proposed Development would occupy a small portion of available views and the apparent height (or 'vertical angle') of the wind turbines would also appear very small, therefore significant visual effects are unlikely to arise at greater than this distance, even if the wind turbines are visible. This is therefore considered to be the maximum radius within which a potential likely significant effect could occur given the height of the wind turbines that are being considered.

11.2.2 Following a review of the Blade Tip Zone of Theoretical Visibility (ZTV) diagrams (**Figures 11.2 and 11.3, Volume A**) alongside the Screened Blade Tip ZTV (**Figures 11.4 and 11.5, Volume A**) for the Proposed Development, it is proposed that the assessment of landscape character effects focusses within 20 km. As described in **Section 11.4**, the 20 km Study Area, reflects the reduced extent of theoretical visibility found beyond 20 km taking into account the conservative estimate of vegetation and built screening. 20 km is therefore considered a more appropriate area in which to focus the identification of potentially likely significant landscape character effects.

11.2.3 Residential Visual Amenity Assessment (RVAA) will be carried out for properties within 2 km, in line with Landscape Institute technical guidance (Technical Guidance Note 2/19 'Residential Visual Amenity Assessment, Landscape Institute, 2019) (see **Figure 11.12, Volume A**) and the results of this will be appended to the LVIA Environmental Statement (ES) chapter.

11.3 Baseline Environment

Overview of Available Data Sources

11.3.1 The sources used to inform the description of the baseline environment for this chapter of the Scoping Report include, but are not limited to, those outlined in **Table 11-1**.

Table 11-1: Key sources of information for Landscape and Visual

Source	Summary	Spatial Coverage of Study Area
Digital mapping.	Ordnance Survey (OS) 1: 50,000 scale raster mapping - OS 2026	45 km
Digital terrain model (DTM).	Ordnance Survey Terrain 50 Metre Digital Terrain Model– OS 2026	45 km
Long Distance Walking Association	Details of long-distance recreational routes. https://ldwa.org.uk/index.php	45 km
National Cycle Network	Mapping of National Cycle Network – Sustrans 2026. https://www.walkwheelcycletrust.org.uk/national-cycle-network/	45 km

Source	Summary	Spatial Coverage of Study Area
National Landscape Character	Natural England – National Character Area Profiles. https://nationalcharacterareas.co.uk/	45 km

Overview of Baseline Environment

Baseline Context

11.3.2 The proposed location of the Proposed Development, based on the Scoping Boundary, is approximately 200 m south-east of Misson, and 1.7 km north of Gringley on the Hill. The Site is located within Bassetlaw District, within Nottinghamshire.

11.3.3 There is no discernible landform undulation on the Site and elevation ranges between 2 m and 6 m above ordnance datum (AOD). This is typical of this area of the Humberhead Levels which is maintained by ditches and contained by drains or dykes. The landscape is low lying, large in scale and has an extensive pattern of geometric fields. Whilst there are some hedgerows, the fields are often divided by drains/dykes creating a feeling of a vast uninterrupted flat arable landscape. The network of ditches and drains combine with the infrequent hedgerows, emphasising the strong geometric pattern of this landscape. Embankments are found along the surrounding larger drains, including North Carr Drain and the River Trent which are more sinuous in shape and appearance.

11.3.4 The landscape has a strong rural character. This contrasts with the landscape to the west, which is influenced by cities and larger towns in South Yorkshire. To the north, toward the River Humber is an increasing baseline of industrial infrastructure and activity, including operational wind farms; shipping along the Humber Estuary and Blacktoft Channel connecting to the terminal at Goole; the large industrial estates and docklands at Goole and the gas fired power station at Keadby.

11.3.5 The immediately surrounding landscape context and wider Study Area is settled. In the immediate context of the Site, the settlement pattern comprises villages and dispersed residential properties and farms. Larger settlements within approximately 20 km include Doncaster, Worksop, Retford, Gainsborough and the south-western edges of Scunthorpe. Key settlements within approximately 10 km of the Site include Misson and Finningley to the north-west, Westwoodside and Haxey to the north-east, Walkeringham and Misterton to the east, Gringley on the Hill to the south, Everton to the south-west, and Bawtry to the west.

11.3.6 The settled landscape is connected by a road network (see **Figure 11.8, Volume A**), with the scale of the road infrastructure increasing to the west and north. In the local context of the Site are the A631, A614 and A161, with the A631 routed approximately 1.3 km to the south. Further to the west is the A1/A1(M), forming a distinct north south route. The M18 lies to the north-west, forming a connection between the A1(M) and the M180 and M62.

11.3.7 There are several Public Rights of Way (PRoW) within the Site and immediate area, shown on **Figure 11.11 (Volume A)**. Long distance routes include the Cuckoo Way (south and east), the Trent Valley Way (east), the Peatlands Way (north) and Trans Pennine Trail (north). The Chesterfield Canal (see **Figure 11.8, Volume A**) lies to the south of the Site, with the closest section being approximately 1 km from the Scoping Boundary. There are no National Cycle

Network (NCN) routes within 10 km of the Site, the closest being NCN 6, NCN 62 and NCN 674 beyond 15 km to the north-west and south-west.

11.3.8 Baseline information is further described in relation to potential landscape and visual effects in **Section 11.4** of this chapter.

11.4 Proposed Approach to the Environmental Impact Assessment

Relevant Legislation, Policy and Guidance

11.4.1 The following legislation, policy and guidance are relevant to the consideration of the potential effects of the Proposed Development on the Landscape and Visual resource of the Study Area. This list is not exhaustive, and other documents may be referred to as appropriate:

- Legislation:
  - Countryside and Rights of Way Act (CROW Act), 2000.
  - Environment Act, 1995.
  - European Landscape Convention (ELC).
  - Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (Infrastructure Planning EIA Regulations 2017).
- National Policy:
  - National Policy Statements (NPS):
    - ~ Overarching National Policy Statement for Energy (EN-1).
    - ~ National Policy Statement for Renewable Energy Infrastructure (EN-3)
  - National Planning Policy Framework (NPPF).
- Local Policy:
  - Bassetlaw Local Plan 2020-2038 (Adopted 29 May 2024), with relevant policies including:
    - ~ Policy ST35: Landscape Character.
    - ~ Policy ST49: Renewable Energy Generation.

Guidance

11.4.2 Key guidance for the LVIA is proposed in the following documents. As noted earlier, some of these guidance documents have been prepared by NatureScot for projects in Scotland, in the absence of alternative guidelines these guidance documents have become best practice across the UK.

- Landscape Institute and Institute for Environmental Management and Assessment (2013) 'Guidelines for Landscape and Visual Impact Assessment: Third Edition' ('GLVIA3').
- Landscape Institute, Technical Guidance Note LITGN – 2024-01. ‘GLVIA3 Clarifications’.
- Landscape Institute (2019). Technical Guidance Note 2/19 ‘Residential Visual Amenity Assessment’.

- Landscape Institute (2021). Technical Guidance Note 2/21 'Assessing Landscape Value Outside of National Designations'.
- Landscape Institute (2019). 'Visual Representation of Development Proposals: Landscape Institute Technical Guidance Note 06/19'.
- Christine Tudor, Natural England (2nd version March 2018). 'An Approach to Landscape Character Assessment'.
- Civil Aviation Authority (2016) CAP 764: 'Policy and Guidelines on Wind Turbines'.
- NatureScot (2024). 'Guidance on Aviation Lighting Impact Assessment'.
- NatureScot (2025). 'Guidance for Assessing the Effects on Special Landscape Qualities'.
- NatureScot (2021). 'Assessing the Cumulative Impact of Onshore Wind Energy Developments'.
- NatureScot (2017). 'Siting and Designing Wind Farms in the Landscape Version 3a'.
- NatureScot (2017). 'Visual Representation of Wind Farms, Version 2.2'.
- Nationally Significant Infrastructure Projects: 'Advice on Cumulative Effects Assessment, (2024)'.

Desk Study

11.4.3 The analysis of key receptors (landscape character areas, landscape designations and visual receptors such as residents, road users, recreational routes and visitors) within this Scoping Report has been carried out based on an initial field survey, a good professional working knowledge of the LVIA Study Area and detailed desk study and Geographic Information Systems (GIS) analysis.

11.4.4 Desk based analysis of the Proposed Development is carried out for the LVIA Study Area along with mapping of landscape character, landscape related designations and principal visual receptors. The desk study also utilises GIS software to explore the potential visibility of the Proposed Development. The resultant ZTVs (**Figures 11.2 to 11.9 (Volume A)**, including bare earth and screened ZTVs) provide an indication of which landscape and visual receptors are likely to be key in the assessment.

Field Surveys

11.4.5 Initial field survey was undertaken to understand the potential relationship between the Proposed Development and the local context. This comprised visiting the site and the immediate surroundings, as well as reviewing potential viewpoint locations in the Study Area. Further field survey work will be undertaken as part of the LVIA.

Proposed Assessment Methodology

11.4.6 Whilst **Chapter 3: Approach to EIA** provides an indicative EIA assessment method, it also identifies that assessment methodologies may differ in accordance with the prevailing technical area guidance. As such the following sections provide a description of the assessment criteria and assessment methodologies of relevance to the LVIA for the Proposed Development, which are derived from best

practice guidance documents applicable to this topic and differ from those presented in the broader methodology chapter. The LVIA methodology will accord with 'Guidelines for Landscape and Visual Impact Assessment: Third Edition' ('GLVIA3'), the key source of guidance for LVIA. Other sources of guidance that will be used and referenced in the LVIA are as listed in an earlier part of this section titled 'Guidance'.

11.4.7 This Scoping Report has included a desk study of the Site and 45 km LVIA Study Area, combined with a site visit and a good professional working knowledge of the LVIA Study Area. Aspects of the landscape and visual resource that will need to be considered in the LVIA, are identified as follows:

- Landscape and character typology.
- Landscape related planning designations.
- Residential properties and settlements.
- Travel routes (including roads, canals, National Cycle Networks (NCN) and long-distance walking routes).
- Potential cumulative developments

11.4.8 The LVIA is intended to determine the potential likely significant effects that the Proposed Development would have on the landscape and visual resource. For the purpose of assessment, the potential effects on the landscape and visual resource are grouped into the following categories:

- **Physical effects:** physical effects are restricted to the area within the Site and are the direct effects on the existing fabric of the Site. This category of effects is made up of landscape elements, which are the components of the landscape such as arable fields, hedgerows and drains that may be directly and physically affected by the Proposed Development.
- **Effects on landscape character:** landscape character is the distinct and recognisable pattern of elements that occurs consistently in a particular type of landscape and the way that this pattern is perceived. Effects on landscape character arise either through the introduction of new elements that physically alter this pattern of elements or through visibility of the Proposed Development that may alter the way in which the pattern of elements is perceived. This category of effects is made up of landscape character receptors, which fall into two groups: (i) landscape character types; and (ii) landscape related designated areas.
- **Effects on views**: the assessment of the effects on views is an assessment of how the introduction of the Proposed Development would affect views throughout the LVIA Study Area. The assessment of effects on views is carried out in relation to representative viewpoints and principal visual receptors. The visual impact of visible aviation warning lights will be assessed (see paragraph **11.6.23**) and a RVAA will be carried out in line with current guidance.
- **Cumulative effects:** cumulative effects arise where the study areas for two or more developments (in the case of the Proposed Development, principally other wind farms, together with other developments considered relevant) overlap so that both developments are experienced at a proximity where they may have a greater incremental effect, or where they may combine to have a sequential effect. The LVIA assesses the effect arising from the addition of the Proposed Development to the cumulative situation. This approach is in line with

NatureScot cumulative assessment guidance (2021), GLVIA3 and Landscape Institute Technical Guidance Note LITGN – 2024-01, which provides GLVIA3 clarifications.

11.4.9 The objective of the assessment of the Proposed Development is to predict the potential likely significant effects on the landscape and visual resource. In line with the EIA Regulations, the LVIA effects are assessed to be either “significant” or “not significant”. The significance of effects is assessed through a combination of two considerations:

1) the sensitivity of the landscape/visual receptor or view: and
2) the magnitude of change that would result from the addition of the Proposed Development.

11.4.10 The sensitivity of receptors is determined by a combination of their value and susceptibility which will be considered as part of the overall sensitivity applied to each receptor. The degree of effects in the LVIA will be assessed as negligible, minor, moderate-minor, moderate, moderate-major or major. In those instances where the magnitude is assessed as 'no change', the level of effect will be recorded as 'no effect'. An assessment is also made of the geographical extent of the area over which assessed change would occur and the duration and reversibility of such changes. The basis for this assessment is made clear using evidence and professional judgement.

11.4.11 Any effects with a significance level of ‘major’ and ‘moderate-major’ will be deemed significant. Moderate levels of effect have the potential, subject to the assessor's professional judgement and any relevant guidance, to be considered as significant or not significant, depending on the sensitivity and magnitude of change factors evaluated. GLVIA3 clarification note3(5) supports this approach and states that *“moderate effects may or may not be significant and justification would be needed in the methodology or receptor assessment as to whether a moderate effect is significant or not”*. The assessments of significance for moderate levels of effect will therefore be explained as part of the assessment, where they occur. Effects assessed as being either ‘moderate-minor’, ‘minor’ or ‘negligible’ level are deemed as not significant.

11.4.12 Significance thresholds can therefore vary depending on the sensitivity and magnitude, however, in all cases, a significant effect is considered more likely to occur where a combination of the variables results in the Proposed Development having a defining effect on the landscape character or view.

11.4.13 The nature of effect relates to whether the effects of the Proposed Development are adverse, neutral, or beneficial. A precautionary approach will generally be adopted which assumes that significant landscape and visual effects will be weighed on the negative side of the planning balance, although positive or neutral effects may arise in certain situations.

Further Baseline Data

Desk Study

11.4.14 Additional analysis of key receptors (landscape character areas, landscape designations and visual receptors such as residents, road users, recreational routes and visitors) within this Scoping Report will be carried out as part of the LVIA. This analysis will be more comprehensive than the study undertaken as part

of the preparation of the Scoping Report and will also take account of the design evolution of the Proposed Development.

11.4.15 Detailed analysis of landscape character, landscape related designations and principal visual receptors will be undertaken as part of the desk study. As with the work completed for the Scoping Report, the desk study will utilise GIS software to explore the potential visibility of the Proposed Development, with the ZTV diagrams prepared to reflect how the design of the Proposed Development evolves as part of the EIA process.

Planned Surveys

11.4.16 To inform the LVIA and layout design, detailed field surveys will be undertaken throughout the LVIA process within the Study Area which will be reported in the LVIA chapter of the ES. Field surveys will be concentrated within the areas shown on the ZTV to gain theoretical visibility of the Proposed Development. The field survey work will include visits to viewpoints as well as extensive travel around the LVIA Study Area to consider potential effects (including cumulative) on landscape character and on the experience of views seen from travel routes through the landscape. These visits will allow the landscape character and the visual amenity of the Study Area to be experienced in a range of different conditions and seasonal variation. The field survey will also allow the assessors to judge the likely scale, distance, extent, and prominence of the Proposed Development directly. Viewpoint photography will be captured during field survey visits in periods of good visibility.

Consultation and engagement

11.4.17 Consultation regarding the scope and approach of the LVIA (including via this scoping process), will be undertaken with key consultees including Natural England, Bassetlaw District Council, Nottinghamshire County Council, City of Doncaster Council, North Lincolnshire Council, Lincolnshire County Council and West Lindsey District Council. The focus of the LVIA consultation is to seek feedback on:

- The locations and number of viewpoints for inclusion in the LVIA (see **Table 11-3**).
- The approach to the assessment of Special Qualities within the Lincolnshire Wolds National Landscape.
- Developments to be included in the cumulative assessment.

11.4.18 A summary of the consultation undertaken will be included within the LVIA chapter of the ES.

11.5 Design, Mitigation and Enhancement Measures

11.5.1 The design and layout of the proposed wind turbines and associated infrastructure is a vital part of the EIA process and is the stage where the biggest contribution can be made to mitigate potential landscape and visual effects. A key design objective will be to create a design which is appropriate for the existing landscape character and visual features of the area. The design of the Proposed Development will evolve as part of an iterative process which aims to provide an optimal design in environmental, as well as technical and economic terms, and the mitigation of landscape and visual effects will be a central consideration in this process.

11.6 Potential Effects

Zone of Theoretical Visibility (ZTV) Overview

11.6.1 The blade tip ZTV is based on the 220 m Proposed Development tip height of the wind turbines and represents the worst-case theoretical visibility considered in the scoping assessment. The blade tip ZTV also illustrates where there would be no visibility, as well as areas where there will be lower or higher numbers of blade tips theoretically visible. The ZTV shows the areas in which the Proposed Development would be theoretically visible, assisting in the identification of viewpoints and providing an understanding of the potential extent of landscape and visual effect within the Study Area. The majority of ZTVs produced for scoping illustrate the 'bare ground' situation based on an OS terrain model and do not take account of the screening effects of vegetation, buildings, or other local features that may prevent or reduce visibility. By using a bare ground elevation model, the results will be an over-representation of maximum visibility, as from many areas views may, in reality, be blocked by surface features not included in the model. The ZTVs (bare earth and screened) are shown with proposed viewpoints on **Figures 11.2 – 11.5** (**Volume A**)and is also shown alongside landscape character, landscape designations and visual receptors on **Figures 11.6 – 11.9 (Volume A)**.

11.6.2 The landform of the Site and surrounding area is relatively low lying and has limited topographical undulation or elevation, particularly to the north. The landform is more variable to the south but remains relatively low lying. In the immediate context of the site there are notable landforms that provide a degree of contrast, such as at Gringley on the Hill and Westwoodside/Haxey. The pattern of bare ground theoretical visibility shown on the blade tip ZTVs is therefore relatively extensive across this landscape, particularly within a broad north to south corridor, approximately 40 km wide through the centre of the Study Area. To the east and west the pattern of theoretical visibility is more fragmented. To the east there is theoretical visibility shown in the west facing slopes of in the vicinity of Caistor and Market Rasen (beyond 20 km), including parts of the Lincolnshire Wolds. To the west there are fragmented areas of theoretical visibility in the vicinity of and west of Sheffield and Rotherham, including the fringes of the Pennines.

11.6.3 The bare ground hub height ZTV (as shown on **Figure 11.3, Volume A**) shares a similar overall pattern of theoretical visibility to the bare ground blade tip ZTV in terms of the affected areas. However, there are some reductions of theoretical visibility extents in the vicinity of larger areas of woodland.

11.6.4 A screened blade tip ZTV has been produced for scoping on **Figure 11.4** (**Volume A**) and on more detailed 1:50,000 OS mapping on **Figure 11.5 (Volume A)** which for greater legibility of the immediate context has been produced for an approximate 20 km area. This is calculated using conservative estimates for buildings (8 m) and woodland (10 m) heights and whilst presenting a more accurate depiction of the Proposed Development visibility, the screened ZTV is limited by the averaged heights applied to it and does not allow for other landscape elements (e.g. individual trees and hedgerows) that may have a screening effect through successive layering. The screened ZTV is therefore still theoretical and is not a substitute for the fieldwork carried out during the course of the LVIA. Whilst only a conservative estimate of tree and building height has been applied to the screened ZTV, the reduction in theoretical visibility extent is evident, although the broad pattern of theoretical visibility is consistent with the bare earth ZTVs.

11.6.5 All of the ZTVs indicate a 'higher' or 'lower' theoretical visibility based on the number of turbines visible (either the hub height or blade tip height), not on the amount of each turbine visible. Therefore, areas indicated with higher visibility (in terms of the number of visible turbines) may have views of very small amounts of these turbines visible.

Landscape Character

11.6.6 England's landscape is classified at the national level by National Character Areas (NCAs). The descriptive profiles for the 159 individual NCAs are identified and described by Natural England. They highlight what distinguishes one landscape from another, with reference to their regionally distinct characteristics. The Site sits within NCA 39 Humberhead Levels, see **Figure 11.6 (Volume A)**. The key characteristics of this NCA are as follows:

- *"A low-lying, predominantly flat landscape, with large, regular and geometric arable fields without hedges but divided by ditches and dykes, many of which form important habitats and key corridors for species movement.*
- *Much of the land is at or below mean high-water mark and maintained by drainage, with fertile soils giving rise to one of the most productive areas for root crops and cereals.*
- *Variations in underlying deposits create differences within the overall flat farmed landscape, including lowland raised mires and lowland heathland, many of which are of international ecological and historical importance.*
- *Sandy deposits give rise to lowland heath, which in places supports remnant birch and oak woodlands, with some conifer plantations.*
- *Heavier soils around Fishlake and Sykehouse result in a smaller scale pastoral landscape, with small, thickly hedged fields, ditches and ponds, and a network of small lanes.*
- *Important historic landscapes include the Isle of Axholme, with evidence of mediaeval open fields, the warps (land enriched by regular silting) near Goole and cables (long thin strip fields) around Thorne.*
- *Widespread evidence of drainage history, in particular the extensive drainage from the 17th century, revealed through canalised rivers, dykes, old river courses, canals, bridges and pumping stations.*
- *Views to distant horizons are often long and unbroken, with big expansive skies, and vertical elements like water towers, power stations and wind turbines are very prominent.*
- *Floodplains, washlands and traditionally grazed alluvial flood meadows (or ings) associated with the major rivers and canals that cross the Levels give rise to important wetland habitats, supporting large numbers of wetland birds and wildfowl, especially over winter.*
- *The waterlogged soils hold internationally important archaeological and paleo-archaeological deposits.*
- *Despite settlements, motorways and main roads, there is still a sense of remoteness to be experienced on the Levels, in particular on Thorne and Hatfield Moors and along the Lower Derwent Valley".*

11.6.7 The section titled 'Zone of Theoretical Visibility (ZTV) Overview', at the beginning of **Section 11.6** (Potential Effects) highlights that the pattern of theoretical visibility is reduced by surface features, such as buildings and vegetation, as shown on the screened ZTV on **Figure 11.4 (Volume A**) and **Figure 11.5 (Volume A)**. Given that the screened ZTV is based on conservative woodland and building heights, it is considered that the reduction in actual visibility is likely to be greater, particularly within more distant parts of the Study Area, beyond 20 km. It is also considered that beyond 20 km, the visibility reduces as the apparent height of the turbines will form a smaller feature on distant horizons and will only be viewed in very good to excellent visibility conditions. The Proposed Development also comprises a relatively compact group of turbines, limiting the horizonal extent of the wind farm, especially in more distant views. Taking all of this into account, it is considered that the potential for significant landscape character effects may only arise within an area of approximately 20 km radius from the proposed wind turbines. As such it is proposed that the landscape character assessment will focus on this 20 km area.

11.6.8 Local Landscape Character Areas (LCAs) have been identified by the various district councils within the Study Area. It is considered that these local level LCAs represent the most appropriate scale 'reporting units' for the Proposed Development and will therefore be used as the basis for Landscape Character Assessment in the LVIA. The landscape character assessment will focus on assessing the potential likely significant effects on the LCAs in which the Proposed Development is located. This is where the Proposed Development may result in direct effects on the pattern of elements that comprise the landscape character. The LCAs in the immediately adjacent area, where the Proposed Development may result in indirect effects on the perception of the landscape character, will also be a particular focus.

11.6.9 For scoping, the NCAs are shown on **Figure 11.6** (**Volume A**) alongside the blade tip ZTV. The boundaries of the various local landscape character assessments will be obtained through consultation with the Local Planning Authorities (LPAs) in order that a comprehensive map of landscape character areas can be produced for use in the LVIA. The following local landscape character assessments have been identified within 20 km:

- Bassetlaw District Council - Landscape Character Assessment – Bassetlaw, Nottinghamshire, 2009.
- North Lincolnshire Council - North Lincolnshire Landscape Character Assessment, 2017 (JBA Consulting).
- West Lindsey District Council - West Lindsey Landscape Character Assessment, 1999 (ERM).
- Doncaster District Council - Landscape Character & Capacity Assessment of Doncaster Borough, 2017 (ECUS).
- Newark and Sherwood District Council - Landscape Character Assessment Supplementary Planning Document, 2013.

11.6.10 Of particular relevance to the Proposed Development are the character assessments and associated LCAs within Bassetlaw District, where the Proposed Development will be located. Review of the landscape character assessment for Bassetlaw identifies the Site lies with the Idle Lowlands. This comprises a low lying landscape that forms part of the Humberhead Levels NCA, which extend to the north to the Humber Estuary. The Humberhead Levels are sparsely inhabited,

with settlements located on areas of locally higher ground. The landscape is now intensively cultivated for arable production. The Idle Lowlands is subdivided into Landscape Character Parcels, Landscape Description Units and 12 Policy Zones. The local landscape character assessment provides a fine grain level of detail, and it will be necessary to agree with Bassetlaw District Council how this would be applied in the LVIA. It is challenging to read the detail of the mapping within the published character assessment. However, initial review suggests the Site lies mainly within Policy Zone 03: Misterton. This highlights characteristic features as comprising:

- The River Idle and Washlands, and Chesterfield Canal.
- Numerous drains.
- Flat valley floor.
- Intensive open arable farmland, divided by intact hedgerows and ditches.
- Isolated farmsteads of red brick construction.
- Shaw Ponds, a former extraction pit with associated woodland.

11.6.11 The published character assessment identifies that the landscape condition is very good, and the area is visually unified. Overall, it identifies an objective to conserve the landscape character.

Landscape Designations

11.6.12 The Site does not lie within any national landscape planning designations as shown on **Figure 11.7 (Volume A)**. Within the LVIA Study Area, national landscape planning designations include the Lincolnshire Wolds National Landscape (legally designated an Area of Outstanding Natural Beauty (AONB)) and Registered Parks and Gardens (RPG). There are no local landscape designations within the Bassetlaw Local Plan. Other locally designated landscapes, in other local authority areas, will be considered as part of landscape value judgements in the LVIA.

11.6.13 **Table 11-2** below lists the designated areas and provides information about their distance to the Proposed Development and relationship to the ZTV, as shown in **Figure 11.7 (Volume A)**. Thereafter, it is assessed in the far righthand column whether or not these designated areas can be scoped out of the assessment, unless changes to the layout during the detailed design process materially alter the potential for significant effects.

Table 11-2: Preliminary Assessment of Landscape Designations

Landscape Designation	Approx. distance to nearest turbine (km)	Bare ground theoretical visibility? Yes / No	Include in detailed assessment within the LVIA?
Lincolnshire Wolds National Landscape	33.3	Yes	To be discussed with consultees in relation to potential for significant effects.
Annesley Hall RPG	45	No	No. No theoretical visibility.
Babworth Hall RPG	12.2	Yes	Yes. Theoretical visibility at approximately 12 km.

Landscape Designation	Approx. distance to nearest turbine (km)	Bare ground theoretical visibility? Yes / No	Include in detailed assessment within the LVIA?
Barlborough Hall RPG	26.2	Yes	No. Distant with limited theoretical visibility extent. No potential for significant effects.
Beauchief Hall RPG	38.9	No	No. No theoretical visibility.
Bolsover Castle RPG	32.5	To be confirmed	No. Whilst limited theoretical visibility may be possible, the RPG is over 30 km from the Site and located within Bolsover.
Boston Park, Rotherham RPG	27	No	No. No theoretical visibility.
Boultham Park RPG	33	Yes	No. Whilst theoretical visibility may be possible, the RPG is over 30 km from the Site and located within Boultham.
Bretton Hall RPG	44.2	Yes	No. Distant with limited theoretical visibility. No potential for significant effects.
Brocklesby Park RPG	38.4	Yes	No. Distant with limited theoretical visibility shown on ZTV. No potential for significant effects.
Brodsworth Hall RPG	22	Yes	Yes. Theoretical visibility at approximately 22 km.
Burngreave Cemetery RPG	33.8	To be confirmed	No. Whilst limited theoretical visibility may be possible, the RPG is over 30 km from the Site and located within an urban area.
Clifton Park, Rotherham RPG	26	No	No. No theoretical visibility.
Coleby Hall RPG	40.4	Yes	No. Whilst limited theoretical visibility may be possible, the RPG is approximately 40 km from the Site. Significant effects unlikely.
Clumber Park RPG	16.3	Yes	Yes. Theoretical visibility at approximately 16 km. However woodland cover within the RPG is likely to have a notable influence over actual visibility.
Cusworth Hall RPG	17	Yes	Yes. Theoretical visibility at approximately 17 km.
Doddington Hall RPG	28	Yes	No. Whilst theoretical visibility may be possible, the RPG is approximately 28 km from the Site. Significant effects unlikely.

Landscape Designation	Approx. distance to nearest turbine (km)	Bare ground theoretical visibility? Yes / No	Include in detailed assessment within the LVIA?
Fillingham Castle RPG	23	Yes	No. Whilst limited theoretical visibility may be possible, the RPG is over 20 km from the Site.
Friarwood Valley Gardens RPG	36.6	Yes	No. Due to distance from the Site and location within an urban area.
Hackthorn Hall RPG	27	No	No. No theoretical visibility.
Hainton Hall	40	Yes	No. Whilst limited theoretical visibility may be possible, the RPG is approximately 40 km from the Site.
Hardwick Hall RPG	36.7	No	No. No theoretical visibility.
Hartsholme Park RPG	31	Yes	No. Whilst limited theoretical visibility may be possible, the RPG is over 30 km from the Site and located within an urban area.
Hickleton Hall RPG	31.4	Yes	No. Distant with very limited theoretical visibility extent. No potential for significant effects.
Ledston Hall and Park RPG	43	Yes	No. Very distant, on edge of LVIA Study Area. Significant effects unlikely.
Locke Park RPG	37.3	No	No. No theoretical visibility.
Mansfield Cemetery RPG	38	Yes	No. Whilst limited theoretical visibility may be possible, the RPG is approximately 38 km from the Site and located within an urban area.
Moorgate Cemetery RPG	27	No	No. No theoretical visibility.
Monument Grounds, Sheffield RPG	34.4	No	No. No theoretical visibility.
Newark Castle Gardens RPG	40	Yes	No. Whilst limited theoretical visibility may be possible, the RPG is approximately 40 km from the Site and located within an urban area.
Newstead Abbey RPG	42	No	No. No theoretical visibility.
Norfolk Heritage Park RPG	34.3	No	No. No theoretical visibility.
Norton Place RPG	23.2	Yes	No. No theoretical visibility.
Nostell Priory RPG	36.2	No	No. No theoretical visibility.
Oakes Park RPG	35	Yes	No. Whilst limited theoretical visibility may be possible, the RPG

Landscape Designation	Approx. distance to nearest turbine (km)	Bare ground theoretical visibility? Yes / No	Include in detailed assessment within the LVIA?
			is over 30 km from the Site and located within an urban area.
Papplewick Hall RPG	45	No	No. No theoretical visibility.
Papplewick Pumping Station RPG	43.8	No	No. No theoretical visibility.
Porter Valley Parks RPG	37.7	Yes	No. Whilst limited theoretical visibility may be possible, the RPG is over 30 km from the Site and located within an urban area.
Renishaw Hall RPG	30	No	No. No theoretical visibility.
Riseholme Hall RPG	30	No	No. No theoretical visibility.
Rufford Abbey RPG	28.2	Yes	No. Distant with limited theoretical visibility extent. Significant effects unlikely.
Sandbeck Park and Roche Abbey RPG	12.4	Yes	Yes. Theoretical visibility at approximately 12 km.
Sheffield Botanical Gardens RPG	37.2	No	No. No theoretical visibility.
Sheffield General Cemetery RPG	36.5	No	No. No theoretical visibility.
Shireoaks Hall RPG	19.4	Yes	Yes. Theoretical visibility at approximately 20 km.
Thornes Park RPG	45	No	No. No theoretical visibility.
The Dell, Doncaster RPG	16	Yes	No. Visibility would need to be confirmed with more detailed ZTV. Significant effect unlikely due to urban context.
Thoresby Park RPG	20	Yes	Yes. Theoretical visibility at approximately 20 km. However woodland cover within the RPG is likely to have a notable influence over actual visibility.
Thurgarten Hundred Workhouse RPG	37	No	No. No theoretical visibility.
Waterton Park, Walton, Wakefield RPG	37.4	No	No. No theoretical visibility.
Welbeck Abbey RPG	21.1	Yes	No. Limited, fragmented theoretical visibility shown on ZTV, at over 20 km. No potential for significant effects.
Wentworth Castle Gardens RPG	37.6	Yes	No. Distant with limited theoretical visibility shown on screened ZTV. No potential for significant effects.

Landscape Designation	Approx. distance to nearest turbine (km)	Bare ground theoretical visibility? Yes / No	Include in detailed assessment within the LVIA?
Weston Park RPG	36.4	Possibly	No. Whilst limited theoretical visibility may be possible, the RPG is over 30 km from the Site and located within an urban area.
Wentworth Woodhouse RPG	27.8	Yes	No. Distant with limited theoretical visibility shown on screened ZTV. No potential for significant effects.
Whinfell Quarry Garden RPG	40.5	Possibly	No. Whilst limited theoretical visibility may be possible, the RPG is over 40 km from the Site and located within an urban area.

National Landscape Designations – Special Qualities (SQ)

11.6.14 A key step in SQ assessment is identifying which of the SQ may be affected by a proposed development. Expanding on the preliminary assessment in **Table 11-2** above, this section outlines the SQ for the Lincolnshire Wolds National Landscape it may be appropriate to assess in the LVIA. As identified in **Table 11-2**, the Proposed Development is theoretically visible from the National Landscape. However, the intervening distance of approximately 33 km and context in which the wind farm would be visible is likely to limit the potential for significant effects to occur. It is proposed to discuss this with key stakeholders during consultation.

11.6.15 The SQ are set out in the Lincolnshire Wolds Area of Outstanding Natural Beauty Management Plan 2018 – 2023. The key SQ that are considered to be relevant to the LVIA are *"scenic beauty and rural charm"* and *"expansive sweeping views"*. As the Proposed Development is located in a landscape outside the Lincolnshire Wolds National Landscape, any effects upon these designated areas would be indirect, therefore potential physical effects on the landscape components of the Lincolnshire Wolds, which are recognised in the SQ have not been considered to be relevant.

11.6.16 The assessment of effects on SQ will be based on guidance set out by NatureScot, in the absence of comparable guidance from Natural England. This guidance is aimed specifically at landscape professionals undertaking LVIA for developments with potential to impact on the SQs of national landscape designations, such as National Parks and National Landscapes.

Visual Receptors and Visual Amenity

11.6.17 The LVIA will undertake an assessment of the likely visual effects of the Proposed Development through consideration of the specific visual effects at a selection of representative viewpoints and by considering the wider effects on visual amenity with reference to the representative viewpoints and principal visual receptors. Given the nature of the study area and the number of visual receptors, it is proposed to discuss and agree how a pragmatic/proportionate approach can be applied within the LVIA, focussing on the likely significant effects.

11.6.18 The surrounding landscape context, and particularly beyond 10 km, is well settled and includes the larger settlements of Doncaster, Rotherham, Sheffield,

Scunthorpe, Chesterfield and Lincoln. These settlements are connected by a busy road network that provides key routes, as well as connecting the many smaller towns and villages. Key settlements in the immediate context of the Site include a number of towns and villages such as Misson and Finningley to the north-west, Westwoodside and Haxey to the north-east, Walkeringham and Misterton to the east, Gringley on the Hill, to the south, Everton to the south-west, and Bawtry to the west.

11.6.19 In relation to residential properties, a RVAA will be carried out for properties within 2 km, in line with Landscape Institute technical guidance. Properties within 2 km are mapped on **Figure 11.12 (Volume A)**, which also shows the blade tip ZTV and buffers from the proposed turbine locations.

11.6.20 Principal visual receptors are shown with the blade tip ZTV on **Figure 11.8** (**Volume A)** (transportation) and on **Figure 11.9** (**Volume A**) (recreational). The A1, A1(M), M18, M180 and M62 are all found within the Study Area. In a more local context is a network of primary roads, including the A156, A159, A161, A614, A634. The closest of these is the A631, approximately 1.3 km to the south

11.6.21 Key recreational routes include the Cuckoo Way (south and east), the Trent Valley Way (east), the Peatlands Way (north) and Trans Pennine Trail (north). The Chesterfield Canal lies to the south of the Site, with the closest section being approximately 1 km from the Scoping Boundary. There are no National Cycle Network (NCN) routes within 10 km of the Site, the closest being NCN 6, NCN 62 and NCN 674 beyond 15 km to the north-west and south-west. There are also a number of PRoW intersecting and crossing the Site. These PRoW provide access to the surrounding landscape and connections between communities. PRoWs within 5 km are mapped, in combination with the blade tip ZTV on **Figure 11.11 (Volume A)**.

Viewpoint Selection

11.6.22 A preliminary viewpoint list is shown in **Table 11-3**. The proposed representative viewpoint locations are shown on **Figures 11.2 to 11.5 (Volume A)**. The preliminary viewpoints were selected to represent a range of visual receptors within the LVIA Study Area based on an initial review of the Site and surrounding landscape and visual resource. They were selected to represent landscape receptors and in consideration of the potential for cumulative effects to arise. Visualisations and figures will be produced to NatureScot standards, as set out in 'Visual Representation of Windfarms: Version 2.2'. NatureScot guidance advises that photomontages should be prepared for viewpoints within a 20 km radius of the proposed wind turbines. The majority of the proposed viewpoints in **Table 11-3** are within this distance and so will have photomontages produced. The final viewpoint list will be established in agreement with key consultees listed in **Section 11.7**, through further surveys and having regard to the scoping responses. The number of viewpoints and their distribution will be agreed with key stakeholders, with consideration of applying a proportionate approach based on the likely significant effects.

Table 11-3: Preliminary Representative Viewpoint Locations

No.	Viewpoint Name	Easting	Northing	Approx. Distance to nearest turbine (km)	Receptors represented / Landscape Designation
1	Misson	469214	394803	0.8	Settlement, recreational
2	Bawtry	465370	393117	4.8	Settlement, public open space
3	Everton	469178	391687	2	Settlement
4	Gringley on the Hill	473374	390958	2.3	Settlement, recreational
5	Misterton	476112	394344	2.7	Settlement, recreational, road users
6	Gainsborough	480649	391638	7.4	Settlement, recreational
7	Westwoodside	476117	399633	5.2	Settlement, recreational
8	Finningley	467895	399430	5.5	Settlement, road users
9	Peatlands Way, near Epworth	474429	403875	6.3	Recreational, road users
10	Wadworth	457275	396643	13	Settlement, road users
11	Carlton in Lindrick	459488	384963	14	Settlement, recreational
12	Welhan Whinleys, near Retford	474556	381950	11.7	Recreational
13	Peatlands Way, near Crowle	476244	413885	18.7	Recreational, road users
14	Manor Park, Scunthorpe	488046	408735	20.5	Settlement, public open space
15	Viking Way/Normanby Road, near Normanby le Wold	511692	396096	38.8	Lincolnshire Wolds National Landscape, recreational, road users

Potential Effects of Visible Aviation Lighting

11.6.23 A key factor in the development of wind turbines greater than 150 m in height is the requirement for them to have visible red, medium intensity (2,000 candela) lights fitted to the hubs, with low intensity lights on the towers, in accordance with Civil Aviation Authority (CAA) guidance. The details of the lighting requirements for the Proposed Development are currently being defined along with potential mitigation measures. A night-time visual impact assessment and visualisations

illustrating wind turbine lighting at night will be prepared for inclusion in the LVIA. A hub height ZTV will be used to identify where there would be direct line of sight of the lights from the surrounding area (an initial hub height ZTV has been prepared for the scoping layout, see **Figure 11.3, Volume A**). An aviation lighting intensity ZTV will also be prepared as part of the LVIA to inform the judgements that are made.

11.6.24 In order to inform this assessment, photographs will be captured from four of the readily accessible viewpoints at dusk (photographs to be taken after the period of civil twilight) and visualisations will be prepared to represent the effects of lighting on these views. The assessment approach and night-time visualisations will be in accordance with NatureScot guidance, which recommends a study area of 20 km for the assessment of visible aviation lighting. It is proposed that of the initially proposed viewpoints listed in **Table 11-3** that the following four locations be used for night-time visualisations:

- Viewpoint 1 – Misson.
- Viewpoint 3 – Everton.
- Viewpoint 4 – Gringley on the Hill.
- Viewpoint 7 – Westwoodside.

Potential Cumulative Effects

11.6.25 NatureScot's guidance highlights that "The purpose of a Cumulative Landscape and Visual Impact Assessment (CLVIA) is to describe, visually represent and assess the ways in which a proposed wind farm would have additional impacts when considered with other consented or proposed wind farms. It should identify the significant cumulative impacts arising from the proposed wind farm.' GLVIA3, p120 also highlights that 'the focus of the cumulative assessment will be on the additional effect of the project in conjunction with other developments of the same type (as for example, in the case of wind farms)".

11.6.26 The cumulative assessment will be carried out in accordance with NatureScot and GLVIA3 guidance. In line with this guidance, it will focus on the addition of the Proposed Development to other wind farm development scenarios. In addition, (and with reference to the NSIP guidance 'Advice on Cumulative Effects Assessment') other forms of major development will also be considered to determine whether or not they could potentially lead to a significant cumulative effect when considering landscape or visual interaction with the Proposed Development.

11.6.27 Given the relevance of the immediate context of wind farm development in the landscape surrounding the Proposed Development, an indicative plan showing the location of cumulative wind farm development within the study area has been included to illustrate this context (see **Figure 11.10, Volume A**). This figure is based on the publicly available dataset 'Renewable Energy Planning Database' which is produced by the Department of Energy and Net Zero. It illustrates cumulative wind farm development found within the Study Area (as updated April 2026).

11.6.28 For the CLVIA, more detailed cumulative plans will be produced showing the locations of cumulative development. The proposed scope of the cumulative search for the CLVIA will include the following search criteria:

- Wind turbine development above 50 m in height to a distance of 45 km from the Proposed Development.
- Non-wind national infrastructure developments (NSIP) to a distance of 45 km from the Proposed Development.
- Non wind local developments (Major Applications) to a distance of 10 km from the Proposed Development.

11.6.29 This cumulative scope and range of extents represent a precautionary search within which potential significant effects could occur when considering the Proposed Development alongside cumulative developments. This will include developments that are operational (which will be considered as part of the baseline assessment), under construction, consented, or which are at application stage. GLVIA3 advocates that scoping stage sites are only considered where a scoping proposal is particularly relevant due to its close proximity. There are currently no such scoping proposals adjacent to the Proposed Development and as such, developments that are at the pre-planning or scoping stage will not be considered in the assessment of cumulative effects.

11.6.30 The cumulative situation changes frequently as applications are made, withdrawn and refused (and not appealed), or application details are changed. In order that the most up to date cumulative situation is reflected in the CLVIA, it is proposed that the detailed cumulative development search, based on the above criteria, will be carried out during the later stages of the EIA, closer to the application submission date and will take account of consultation feedback from key consultees. It is anticipated this search and selection will be concluded approximately five months prior to submission to enable the assessment to be carried out.

Potential Effect Summary

11.6.31 Based on the initial assessment above, the key sensitivities and potential effects can be summarised as follows:

- potential effects on landscape character, particularly on the host landscape character area the Idle Lowlands within the Humberhead Levels;
- potential effects on the Special Qualities of the Lincolnshire Wolds National Landscape, subject to discussion with key stakeholders in relation to the likelihood of significant effects;
- potential visual effects from principal visual receptors particularly including from closely surrounding settlements, such as Misson, Everton, and Gringley on the Hill, and from key routes, Chesterfield Canal, Cuckoo Way and the Peatlands Way, with a pragmatic approach to be applied focussing on the likely significant effects;
- potential cumulative effects of the Proposed Development when seen in combination with the existing wind energy developments, and other proposed cumulative development found in the immediate context of the Site;
- potential effects on residential visual amenity from properties within 2 km which includes isolated properties, clusters of rural properties and nearby villages; and
- visibility of the Proposed Development at night due to visible aviation lighting.

11.7 Potential Impacts Scoped In

11.7.1 A range of potential impacts on landscape and visual receptors have been identified which may occur during construction, operation and maintenance, and decommissioning phases. The impacts that have been scoped into the LVIA chapter of the ES are outlined in **Table 11-4**.

Table 11-4: Impacts proposed to be scoped into the assessment for Landscape and Visual

Impact	Description	Proposed Approach to Assessment Including Description of Any New Data Collection Required and Any Analyses (Such as Modelling)
Construction (and decommissioning)		
Impact of the construction / decommissioning of the Proposed Development on landscape features.	Potential for short-term, temporary physical impacts on landscape features. Arising as a result of the temporary construction activities and temporary structures that comprise the Proposed Development.	Physical landscape features within the Site area, included in the landscape impact assessment.
Impact of the construction / decommissioning of the Proposed Development on landscape features.	Potential for short-term, temporary impacts on perceived landscape character. Arising as a result of the temporary construction activities and temporary structures that comprise the Proposed Development.	LCAs within 20 km of the Proposed Development, included in the landscape impact assessment.
Impact of the construction / decommissioning of the Proposed Development on designated landscapes.	Potential for short-term, temporary impacts on landscape designations. Arising as a result of the temporary construction activities and temporary structures that comprise the Proposed Development.	Landscape Designations with potential for significant effects, as described in the preliminary assessment in **Table 11-2,** included in the landscape impact assessment.
Impact of the construction / decommissioning of the Proposed Development on visual receptors / views.	Potential for short-term, temporary impacts on visual receptors. Arising as a result of the temporary construction activities and temporary structures that comprise the Proposed Development.	Receptors within the LVIA Study Area included in the visual impact assessment. As represented by the identified viewpoints in **Table 11-3** or assessed as principal visual receptors.
Operation and Maintenance		
Impact of the operation and maintenance of the Proposed Development on landscape fabric.	Potential for long-term, permanent physical impacts as a result of the Proposed Development on the landscape fabric of the Site area.	Physical landscape features within the Site area, included in the landscape impact assessment.

Impact	Description	Proposed Approach to Assessment Including Description of Any New Data Collection Required and Any Analyses (Such as Modelling)
Impact of the operation and maintenance of the Proposed Development on landscape character.	Potential for long-term, reversible impacts as a result of the Proposed Development on perceived landscape character of LCAs.	LCAs within 20 km of the Proposed Development, included in the landscape impact assessment.
Impact of the operation and maintenance of the Proposed Development on designated landscapes.	Potential for long-term, reversible impacts as a result of the Proposed Development on landscape designations.	Landscape designations with potential for significant effects, as described in the preliminary assessment in **Table 11-2** included in the landscape impact assessment.
Impact (daytime) of the operation and maintenance of the Proposed Development on visual receptors / views.	Potential for long-term, reversible impacts as a result of the Proposed Development on visual receptors during daylight hours.	Receptors within the LVIA Study Area included in the visual impact assessment. As represented by the identified viewpoints in **Table 11-3**, assessed as principal visual receptors or residential properties assessed within the 2 km RVAA study area.
Impact (night-time) of the operation and maintenance of the Proposed Development on visual receptors / views.	Potential for long term, reversible effects on views and visual amenity experienced by people from principal visual receptors and representative viewpoints arising because of visible aviation lights.	Receptors within 20 km included in the assessment of visible aviation lighting. Including the four night-time visualisation locations identified in **Section 11.6**.
Cumulative		
Cumulative effect of the operation and maintenance of the Proposed Development on landscape character, landscape designations and views / visual receptors.	Potential for long term, reversible cumulative effects on perceived landscape character of LCAs, designated landscapes, and views/visual amenity experienced by people. As a result of cumulative effects with other developments as outlined in **Section 11.6.**	Included in cumulative landscape and visual impact assessment in line with the scope outlined in **Section 11.6**.

11.8 Impacts Proposed to be Scoped Out

11.8.1 Based on the baseline environment information currently available and the Proposed Development description (outlined in **Chapter 2: Proposed Development Description**) a number of impacts are proposed to be scoped out of the LVIA chapter of the EIA. The impacts are outlined in **Table 11-5**, together with a justification for scoping them out.

Table 11-5: Impacts proposed to be scoped out of the assessment for Landscape and Visual

Impact	Justification for Scoping Out
Construction (and decommissioning)	
Short term, temporary impact of the construction / decommissioning of the Proposed Development on landscape features outside of the Site area.	Landscape outside the Site area not physically affected by the Proposed Development.
Short term, temporary impact of the construction / decommissioning of the Proposed Development on landscape character LCAs beyond 20 km.	LCAs beyond 20 km are shown on the scoping ZTVs to have distant, limited or no visibility and therefore do not have the potential for likely significant visual effects.
Short term, temporary impact of the construction / decommissioning of the Proposed Development on designated landscapes described in **Table 11-2** as having no potential for significant effects.	Justification for each designated landscape is provided in **Table 11-2**.
Short term, temporary impact of the construction / decommissioning of the Proposed Development on visual receptors / views with limited or no visibility.	Visual receptors / views with limited or no visibility do not have the potential for significant visual effects.
Operation and Maintenance	
Potential for long-term, reversible impacts of the operation and maintenance of the Proposed Development on landscape fabric outside of the Site area.	Landscape outside the Site area not physically affected by the Proposed Development.
Potential for long-term, reversible impacts of the operation and maintenance of the Proposed Development on landscape character LCAs beyond 20 km.	LCAs beyond 20 km are shown on the scoping ZTVs to have distant, limited or no visibility and therefore do not have the potential for significant visual effects.
Potential for long-term, reversible impacts of the operation and maintenance of the Proposed Development on designated landscapes described in **Table 11-2** as having no potential for significant effects.	Justification for each designated landscape is provided in **Table 11-2**.
Potential for long-term, reversible impacts (daytime) of the operation and maintenance of the Proposed Development on visual receptors / views with limited or no visibility.	Visual receptors / views with limited or no visibility do not have the potential for significant visual effects.
Potential for long-term, reversible impacts (night-time) of the operation and maintenance of the Proposed Development on visual receptors / views beyond 20 km.	Potential significant effects of visible aviation lighting are considered unlikely beyond 20 km, in line with NatureScot guidance.
Cumulative	
Cumulative effects that may arise as a result of cumulative wind farm development below 50 m tip height. Non wind local developments (Major Applications) beyond 10 km from the Proposed Development.	No potential for significant cumulative effects due to a predicted lack of cumulative interaction and/ or influence.

11.9 Summary of Next Steps

11.9.1 The next steps comprise commencing consultation with key stakeholders and undertaking the LVIA related fieldwork, including viewpoint photography.

11.10 Further Consideration for Consultees

11.10.1 The following questions are provided to help frame consultee comments on the Scoping Report for Landscape and Visual:

- **Q11.1:** Do consultees have any comments on the proposed approach and methodology?
- **Q11.2:** Do consultees agree with the proposed 45 km LVIA Study Area?
- **Q11.3:** Do consultees agree that the assessment of the effects on landscape character areas should focus on the area within a 20 km radius of the proposed wind turbines?
- **Q11.4:** Do consultees agree with the proposal to scope out the Landscape Planning Designations where no further assessment is proposed for the LVIA, as set out in **Table 11-2**?
- **Q11.5:** Do consultees have any comments or suggestions in relation to the Preliminary Representative Viewpoint Locations shown in **Table 11-3** as illustrated on **Figures 11.2 - 11.5 (Volume A)** including the four night-time visualisation locations listed in **Section 11.6**?
- **Q11.6:** Do consultees agree with the approach to cumulative assessment or have any further comments or suggestions relating to the cumulative assessment or the preliminary cumulative sites shown on **Figure 11.10 (Volume A)**?

12. Noise and Vibration

12.1 Introduction

12.1.1 This chapter of the Scoping Report sets out the proposed scope and methodology of the noise and vibration assessment of the Proposed Development. The assessment will consider the potential for likely significant adverse noise effects at the nearest Noise Sensitive Receptors (NSRs) arising from the construction, operation and management and decommissioning of the Proposed Development. The assessment will focus on:

- Construction noise associated with the Proposed Development;
- operational noise from the wind turbines; and
- cumulative operational noise arising from the Proposed Development in combination with other relevant wind farm developments.

12.1.2 This chapter is supported by the following Figures in **Volume A**:

Figures

- **Figure 12.1** Study Area; and
- **Figure 12.2** Potential Noise Sensitive Receptors.

12.1.3 For the purposes of this assessment, NSRs comprise residential properties and other sensitive receptors that may be affected by noise generated by the Proposed Development.

12.1.4 Representative receptors have been identified through review of the surrounding area, consideration of receptor proximity and exposure to the Proposed Development, professional judgement, and any relevant stakeholder engagement.

12.1.5 The selection of NSRs has been undertaken in accordance with the principles of ARWTN and the IOA Good Practice Guide to ensure that the nearest and potentially most affected receptors are appropriately represented within the assessment.

12.1.6 This section outlines the anticipated noise effects associated with each phase of the Proposed Development and sets out the proposed assessment methodologies to be adopted within the Environmental Impact Assessment (EIA).

12.2 Study Area

12.2.1 The Site comprises predominantly flat, low-lying agricultural land characteristic of the Humberhead Levels landscape near Misson, Nottinghamshire.

12.2.2 The surrounding area consists primarily of arable farmland, drainage channels and isolated rural properties, together with the settlements of Misson, Gringley on the Hill and other dispersed NSRs within the wider study area.

12.2.3 The baseline acoustic environment is expected to be influenced by a range of sources including:

- road traffic on the local road network;
- agricultural activities;
- industrial and commercial activities within the wider area;
- aircraft movements where relevant;

- wind-induced sound associated with vegetation and built structures; and
- natural sound sources such as birdsong and watercourses.

12.2.4 The representative NSRs included within the assessment will be identified in accordance with the principles set out within the Assessment and Rating of Wind Turbine Noise (ARWTN) guidance and the IOA Good Practice Guide and will be agreed, where appropriate, through consultation with the Environmental Health Officers (EHOs) at Bassetlaw District Council (BDC) and other relevant planning authorities and consultees.

12.2.5 Relevant operational, consented and proposed wind farm developments within the cumulative study area will also be identified and considered as part of the cumulative assessment.

12.3 Baseline Environment

Overview of Available Data Sources

12.3.1 The baseline assessment will draw upon published information, consultation responses, site observations and baseline noise measurements undertaken specifically for the Proposed Development. Key sources are listed in **Table 12-1**.

Table 12-1: Key sources of information for Noise and Vibration

Source	Summary	Spatial Coverage of Study Area
Ordnance Survey mapping	Identification of NSRs and local land uses	Study area surrounding the Site
Local authority planning records	Identification of existing, consented and proposed developments	Bassetlaw District and surrounding authorities
Environmental Health consultation	Agreement of methodology and receptor locations	Relevant local authority areas
Site visits	Verification of receptor locations and acoustic environment	Site and surrounding receptors
Baseline noise survey	Measurement of existing background noise levels	Representative NSRs
Wind farm planning applications	Identification of cumulative developments	Appropriate cumulative study area

12.3.2 A baseline noise survey would be undertaken at representative NSRs to establish prevailing background noise levels for the purposes of deriving operational noise limits in accordance with ARWTN.

Overview of Baseline Environment

12.3.3 The baseline acoustic environment is anticipated to be typical of a rural agricultural landscape, with noise levels influenced by weather conditions, agricultural operations, road traffic movements, industrial activities and natural sound sources. Noise levels are expected to vary with wind speed and direction, particularly at more exposed receptors.

12.4 Proposed Approach to the Environmental Impact Assessment

Relevant Policy and Guidance

12.4.1 For a development of this nature, there is no specific all-encompassing legislation relating to the standard associated with noise and vibration impacts. In lieu of any specific legislation, assessing the effect of such a development during the construction, operational and decommissioning phases must draw on information from a variety of sources. This assessment, therefore, makes reference to a number of British Standards, official planning guidance notes and national guidelines, which are detailed below. This list is not exhaustive, and other documents may be referred to as appropriate:

- Department for Energy Security and Net Zero (DESNZ) (2026), Assessment and Rating of Wind Turbine Noise (ARWTN);
- Institute of Acoustics (IOA) Good Practice Guide to the Application of ETSU-R-97 for the Assessment and Rating of Wind Turbine Noise and associated Supplementary Guidance Notes, as endorsed within the 2026 ARWTN guidance;
- BS 5228-1:2009+A1:2014 Code of Practice for Noise and Vibration Control on Construction and Open Sites – Part 1: Noise;
- BS 5228-2:2009+A1:2014 Code of Practice for Noise and Vibration Control on Construction and Open Sites – Part 2: Vibration;
- BS 4142:2014+A1:2019 Methods for Rating and Assessing Industrial and Commercial Sound;
- National Planning Policy Framework (NPPF); and
- Planning Practice Guidance (PPG).

Proposed Assessment Methodology

12.4.2 The EIA would assess the potential effects associated with noise arising during the construction and operation of the Proposed Development and, where relevant, would also consider cumulative effects arising from other existing, consented or proposed developments.

12.4.3 The assessment would be undertaken with reference to applicable legislation, planning policy, recognised technical guidance and established professional practice.

12.4.4 The significance of effects would be determined through consideration of the sensitivity of receptors, the magnitude of the predicted impacts and the duration and nature of the resulting effects. It is proposed that a detailed assessment of noise effects associated with the decommissioning phase is scoped out of the EIA.

12.4.5 The justification for this approach is provided in **Sections 12.7.18 to 12.7.21** and reflects the temporary nature of decommissioning activities, their similarity to construction-phase works, and the ability to control potential effects through the implementation of good practice mitigation measures.

Construction

12.4.6 Construction noise would be assessed in accordance with BS 5228-1. The assessment would identify potentially significant effects at nearby NSRs arising from key construction activities and plant items.

Operation

12.4.7 Operational wind turbine noise would be assessed in accordance with the UK Government's Assessment and Rating of Wind Turbine Noise (ARWTN, 2026) guidance, which replaced ETSU-R-97 in June 2026. The assessment would also have regard to relevant Institute of Acoustics Good Practice Guidance and Supplementary Guidance Notes where applicable.

12.4.8 ARWTN provides a framework for the assessment and control of operational wind turbine noise based upon:

- background sound level measurements undertaken at representative NSRs;
- assessment criteria derived from a combination of fixed noise limits and limits related to existing background sound levels;
- consideration of cumulative noise from operational, consented and proposed wind farm developments;
- derivation of site-specific operational noise limits; and
- assessment of specific acoustic characteristics where relevant.

12.4.9 Operational noise modelling would be undertaken using turbine manufacturer sound power level data and recognised acoustic propagation methodologies consistent with ARWTN. Predicted noise levels would be compared against the applicable assessment criteria at representative NSRs.

12.4.10 Where relevant, a cumulative operational noise assessment would be undertaken to demonstrate compliance with the Total Noise Assessment Criteria and any derived Site-Specific Noise Limits.

12.4.11 Operational noise arising from non-wind turbine infrastructure associated with the Proposed Development, including transformers, inverters, substations, and associated ancillary plant, would be assessed in accordance with BS 4142:2014+A1:2019.

12.4.12 The assessment would determine the significance of impacts from industrial and commercial sound by comparing the specific and rating sound levels from operational plant with the prevailing background sound environment at nearby noise-sensitive receptors. Appropriate consideration would also be given to the character of the sound and any relevant good practice guidance.

Further Baseline Data

12.4.13 A baseline noise survey would be undertaken to establish existing background sound levels at representative noise-sensitive receptors (NSRs) surrounding the Proposed Development. The survey would be designed and undertaken in accordance with the Assessment and Rating of Wind Turbine Noise (ARWTN, 2026)[7] guidance, which has superseded ETSU-R-97, together with the Institute of

[7] Assessment and Rating of Wind Turbine Noise. Department for Energy Security and Net Zero (DESNZ), 2026. Technical guidance for assessing and controlling operational noise from onshore wind turbines in the planning context, replacing ETSU-R-97.

Acoustics (IOA) Good Practice Guide[8] and associated Supplementary Guidance Notes[9] where applicable.

12.4.14 Monitoring locations would be selected to provide a representative sample of the acoustic environments experienced at nearby residential receptors, taking account of receptor distribution, topography, prevailing wind conditions, proximity to the Proposed Development and land access constraints.

12.4.15 The proposed monitoring strategy, survey methodology and data processing procedures would be agreed with the relevant EHO, where appropriate, to ensure the resulting dataset is suitable for deriving site-specific background noise curves and establishing operational noise limits in accordance with ARWTN.

Consultation and Engagement

12.4.16 Consultation would be undertaken with BDC EHOs regarding:

- baseline monitoring locations;
- survey methodology;
- assessment criteria;
- cumulative developments; and
- proposed reporting approach.

12.5 Design, Mitigation and Enhancement Measures

12.5.1 Noise mitigation would be incorporated into the design of the Proposed Development through an iterative design process. Measures may include:

- optimisation of wind turbine locations relative to NSRs;
- specification of wind turbine operational modes where necessary to achieve compliance with ARWTN assessment criteria;
- implementation of best practicable means during construction;
- adoption of a Construction Environmental Management Plan (CEMP); and
- operational noise management measures where required through planning condition.

12.6 Potential Impacts Scoped In

12.6.1 The impacts in **Table 12-2** are proposed to be scoped into the assessment for Noise and Vibration.

[8] Institute of Acoustics (IOA), *A Good Practice Guide to the Application of ETSU-R-97 for the Assessment and Rating of Wind Turbine Noise* (2013). Endorsed by the ARWTN guidance pending publication of updated guidance.

[9] Institute of Acoustics (IOA), *Supplementary Guidance Notes 1-6* (2014), covering data collection, data processing, sound power level data, wind shear, post-completion measurements and noise propagation over water. Continued use is recommended alongside ARWTN until updated guidance is published

Table 12-2: Impacts proposed to be scoped into the assessment for Noise and Vibration

Impact	Description	Proposed Approach to Assessment Including Description of Any New Data Collection Required and Any Analyses (Such as Modelling)
Construction		
Construction	Construction noise at nearby NSRs.	Assessment in accordance with BS 5228-1 using indicative construction plant, activities and key haul routes.
Operation and Maintenance		
Operation and Maintenance	Operational wind turbine noise affecting NSRs.	Baseline noise monitoring at representative receptors. Operational noise assessment undertaken in accordance with DESNZ Assessment and Rating of Wind Turbine Noise (ARWTN, 2026), supported by IOA Good Practice Guidance. Compliance with derived operational noise limits would be demonstrated through noise modelling and cumulative assessment where required.
	Operational noise arising from non-wind turbine infrastructure.	Operational noise arising from non-wind turbine infrastructure associated with the Proposed Development, including transformers, inverters, substations, and associated ancillary plant, would be assessed in accordance with BS 4142:2014+A1:2019.
Decommissioning		
Decommissioning	Potential decommissioning noise effects.	Qualitative consideration based upon expected activities and duration.
Cumulative		
Cumulative	Combined operational noise from the Proposed Development and other wind farm developments.	Cumulative assessment in accordance with DESNZ Assessment and Rating of Wind Turbine Noise (ARWTN, 2026), supported by IOA Good Practice Guidance for wind turbine noise from existing, consented, or other proposed developments where appropriate as set out in the Inspectorate's Advice on Cumulative Effects Assessment (**See Chapter 3: Approach to EIA**, **Section 3.11**).

12.6.2 The assessment would focus on receptors with the greatest potential to experience noise effects and would identify any mitigation measures required to avoid significant adverse effects.

12.7 Impacts Proposed to be Scoped Out

12.7.1 Impacts proposed to be Scoped Out of the Assessment for Noise and Vibration are outlined below textually and summarised in **Table 12-3**.

Vibration

12.7.2 Given the nature of the construction activities proposed and the separation distances between the principal construction areas and nearby NSRs, the potential for significant ground-borne vibration impacts is considered to be low.

12.7.3 Ground-borne vibration associated with operational wind turbines is not anticipated to be perceptible at NSRs, given the distances involved and the nature of modern wind turbine technology. Operational vibration effects are therefore proposed to be scoped out of the assessment.

12.7.4 Construction and decommissioning activities have the potential to generate vibration. However, vibration effects would be temporary, localised and managed through established construction practices.

12.7.5 Significant vibration effects are not anticipated and would remain well below the criteria typically applied within BS 5228-2 *Code of Practice for Noise and Vibration Control on Construction and Open Sites*. Accordingly, vibration is proposed to be scoped out of detailed assessment.

Infrasound and Low-Frequency Noise

12.7.6 Low-frequency noise and infrasound generated by wind turbines have been the subject of extensive national and international research over the past two decades.

12.7.7 Studies undertaken by Hayes McKenzie Partnership (2006), the Environmental Protection Authority of South Australia (2013), Bowdler et al. (2009) and subsequent research reviewed by the UK Government have consistently concluded that there is no robust evidence demonstrating a causal relationship between infrasound from operational wind turbines and adverse health effects.

12.7.8 The UK Government's *Assessment and Rating of Wind Turbine Noise (ARWTN, 2026)* reviewed the available evidence and concluded that there is no requirement for separate assessment criteria relating specifically to low-frequency noise or infrasound, beyond the established assessment of operational wind turbine noise. ARWTN notes that compliance with the operational wind turbine noise assessment methodology is considered sufficient to address potential effects associated with low-frequency noise and infrasound.

12.7.9 On this basis, separate assessment of low-frequency noise and infrasound is proposed to be scoped out of the EIA.

Amplitude Modulation

12.7.10 Amplitude Modulation (AM) is a characteristic of some wind turbine noise whereby the sound level varies periodically as the blades rotate.

12.7.11 Historically, research has demonstrated that the occurrence of enhanced or excess AM is relatively uncommon and dependent on a range of site-specific meteorological and operational factors. Studies undertaken by the University of Salford (2007), RenewableUK and subsequent industry research concluded that it is not currently possible to predict reliably the occurrence, frequency or magnitude of AM for a proposed wind farm development at the planning stage.

12.7.12 The UK Government's Assessment and Rating of Wind Turbine Noise (ARWTN, 2026) includes an AM assessment metric and correction methodology. However, this methodology is intended for the assessment of measured operational wind turbine noise and application through planning conditions and compliance monitoring following construction and commissioning of a wind farm. The occurrence of AM cannot currently be predicted with sufficient certainty during the EIA process and therefore cannot be robustly quantified within a pre-construction assessment.

12.7.13 Operational wind turbine noise from the Proposed Development would be assessed in accordance with ARWTN (2026), which has been developed to provide appropriate protection from operational wind turbine noise effects. Any planning condition relating to AM would be considered by the decision-maker having regard to relevant national guidance and policy.

12.7.14 On this basis, a separate assessment of amplitude modulation is proposed to be scoped out of the EIA. This approach reflects the current limitations associated with predicting AM at the planning stage and recognises that, where necessary, AM can be addressed through operational monitoring and compliance procedures following consent controlled via conditioning if necessary.

Screening Out Where Operational Noise Levels are Very Low

12.7.15 Operational noise effects may be screened out at individual receptors where preliminary predictions demonstrate that operational wind turbine noise levels from the Proposed Development are substantially below the applicable assessment criteria.

12.7.16 Where predicted operational noise levels are at least 10 dB below the relevant limiting value as derived via the appropriate method, the contribution of the Proposed Development would be considered negligible, and no significant effect would be anticipated in any cumulative assessment of Wind Turbine Generator (WTG) noise.

12.7.17 Any screening exercise would be undertaken in accordance with the principles of ARWTN (2026) and agreed with the relevant EHO at BDC where appropriate.

Decommissioning

12.7.18 Detailed assessment of decommissioning noise effects is proposed to be scoped out.

12.7.19 The operational life of the Proposed Development is anticipated to be approximately 35 years. The precise methods, technology and regulatory requirements applicable to decommissioning will not be known until that time.

12.7.20 Furthermore, decommissioning activities are expected to be broadly similar to, or less intensive than, construction activities.

12.7.21 Any noise effects associated with decommissioning would be assessed and managed in accordance prevailing environmental controls in place at the time decommissioning occurs.

Uncorrelated Noise Sources

12.7.22 Operational wind turbine noise would be assessed in accordance with ARWTN (2026), which provides assessment criteria specifically developed for wind turbine noise.

12.7.23 There is currently no recognised UK assessment methodology for combining ARWTN wind turbine noise criteria with unrelated environmental noise sources operating under different assessment standards such as BESS or Solar installations, substations or other noise generating plant or equipment associated with development.

12.7.24 Accordingly, cumulative assessment of wind turbine noise with unrelated and uncorrelated noise sources is proposed to be scoped out of the EIA.

Table 12-3: Impact proposed to be scoped out of assessment for Noise and Vibration

Impact	Justification for Scoping Out
Construction	
Construction	Construction vibration is proposed to be scoped out of further assessment due to the substantial separation distances between the anticipated construction working areas and the nearest noise-sensitive receptors (NSRs). Given these stand-off distances, ground-borne vibration generated by typical construction plant is expected to attenuate rapidly with distance, such that perceptible vibration effects at NSRs are unlikely. BS 5228-2[10] notes that vibration levels reduce significantly with increasing distance from the source and provides prediction methodologies based on this principle. Furthermore, BS 7385-2[11] identifies that building damage from construction-related vibration is uncommon and generally associated with vibration levels substantially higher than those at which vibration first becomes perceptible to occupants. Any vibration-generating activities would also be temporary, localised and limited to discrete phases of the construction programme. On this basis, significant adverse effects associated with construction vibration are not considered likely and construction vibration has therefore been scoped out of the assessment
Operation and Maintenance	
Operation and Maintenance	Operational vibration, low-frequency noise, infrasound and amplitude modulation are proposed to be scoped out in line with current guidance and evidence base.
Decommissioning	
Decommissioning	Detailed decommissioning noise and vibration assessment is proposed to be scoped out as effects are anticipated to be comparable to or less than construction activities, would be of temporary duration and would be managed through future environmental controls.
Cumulative	
Cumulative	Cumulative assessment of uncorrelated non-wind turbine noise sources is proposed to be scoped out as there is no recognised methodology for combining DESNZ ARWTN wind turbine noise limits with other unrelated noise sources associated with development.

12.7.25 The proposed scope assumes that no unusual construction techniques or plant requiring significant vibration-generating activities would be employed.

[10] **BSI (2014)** *BS 5228-2:2009+A1:2014, Code of Practice for Noise and Vibration Control on Construction and Open Sites – Part 2: Vibration*. British Standards Institution.

[11] **BSI (1993)** *BS 7385-2:1993, Evaluation and Measurement for Vibration in Buildings. Part 2: Guide to Damage Levels from Groundborne Vibration*. British Standards Institution.

12.8 Summary of Next Steps

12.8.1 The next steps in the assessment process would include:

- agreement of representative NSRs with consultees;
- completion of baseline noise monitoring;
- identification of cumulative wind farm developments;
- derivation of DESNZ Assessment and Rating of Wind Turbine Noise (ARWTN, 2026) WTG noise limits;
- operational noise modelling; and
- preparation of the Environmental Statement chapter and supporting technical appendices.

12.9 Further Consideration for Consultees

12.9.1 The Applicant welcomes comments from consultees on the following matters:

- agreement with the proposed use of the UK Government's Assessment and Rating of Wind Turbine Noise (ARWTN, 2026) guidance as the principal methodology for operational wind turbine noise assessment;
- agreement with the proposed use of the IOA Good Practice Guide and associated Supplementary Guidance Notes;
- agreement with the proposed use of BS 5228 for construction noise assessment;
- confirmation of suitable baseline monitoring locations;
- identification of any additional NSRs requiring consideration; and
- identification of operational, consented or proposed wind farm developments that should be included within the cumulative assessment.

13. Socio-economics, Tourism, and Recreation

13.1 Introduction

13.1.1 This chapter outlines the proposed approach for the consideration of socio-economic, tourism and recreation effects arising from the construction, operation, decommissioning and management of the Proposed Development, including cumulative effects. It sets out the proposed methodology, data sources, and baseline conditions that will inform the assessment. It also identifies how the potential likely significant effects will be considered, how these will be evaluated, and the environmental measures and commitments influencing the scope of the assessment.

13.1.2 This chapter is supported by the following figures in **Volume A**:

- **Figure 13.1 Study Area.**

13.2 Study Area

13.2.1 The Proposed Development is within the administrative area of Bassetlaw District Council (BDC) and within the administrative county of Nottinghamshire. For the purposes of the baseline description, a tiered study area has been defined to reflect the geographical scales at which socio-economic efforts may occur, namely, a Direct and an Indirect Area of Influence (AoI).

13.2.2 At the local level, the baseline will cover and compare the study areas of:

- Bassetlaw; and
- North Lincolnshire.

13.2.3 This area represents the Local Area, or the Direct AoI, and the communities most likely to experience direct interactions with the Proposed Development. For many direct effects, this includes social receptors located within 500m of the Proposed Development, as shown in **Figure 13.1** (**Volume A**). This is called the Community Impacts Zone of Influence (ZoI). For wider tourism and accommodation impacts, a wider ZoI of 5km has been set.

13.2.4 At a broader scale, the Regional Area, or the Indirect AoI, is defined as Nottinghamshire and the East Midlands. This regional context provides an appropriate basis for understanding labour market dynamics, supply-chain capacity, and wider socio-economic conditions relevant to the Proposed Development. For effects that extend beyond the regional economy, particularly those associated with national industry, policy, and employment, the assessment will also consider the UK as a whole.

13.3 Baseline Environment

Overview of Available Data Sources

13.3.1 An overview of the key data sources has been provided in **Table 13-1** below. This also sets out the spatial coverage of these data sets across the study area defined above. Baseline information has been collected at the lowest level available.

Table 13-1: Key sources of information for Socio-economics, Recreation and Tourism

Source	Summary	Spatial Coverage of Study Area
Nomis, 2026	Census and Labour Market Statistics for the population.	Direct and Indirect AoI and community and tourism and accommodation ZoIs
Office for National Statistics (ONS) Census Data, 2021	Census data provides a detailed snapshot of the population and its characteristics within the study areas.	Direct and Indirect AoI and community ZoIs
Nottinghamshire Growth Plan	Provides a plan for growth and investment across Nottinghamshire.	Direct and Indirect AoI and tourism and accommodation ZoIs
Nottinghamshire Walking, Cycling and Rights of Way	Details the rights of way within Nottinghamshire.	Direct and Indirect AoI and tourism and accommodation ZoIs
Nottinghamshire County Council, Draft Visitor Economy Strategy	Provides data on tourism within Nottinghamshire and the value of the visitor economy.	Indirect AoI and tourism and accommodation ZoIs
The East Midlands Growth Plan	Provides a plan for growth and investment across the East Midlands.	Indirect AoI
East Midlands Combined County Authority, Vision for Growth	Outlines the growth plan, including where and what growth is achieved in the East Midlands.	Indirect AoI

Overview of Baseline Environment

Population

13.3.2 In 2021, the population of Bassetlaw was 117,804, while the population of North Lincolnshire was 171,421 (Nomis 2026). Between 2011 and 2021, the population of Bassetlaw increased by 4.4%, from 112,900 in 2011 to 117,800 in 2021 (Office for National Statistics 2023). Comparatively, the population of North Lincolnshire has increased by 1.3%, from 167,400 in 2011 to 169,700 in 2021. (Office for National Statistics 2023).

13.3.3 By 2031, the population of Bassetlaw is anticipated to increase to 128,546 people, an increase of 9.1% from 2021 (Office for National Statistics 2025). The population of North Lincolnshire is anticipated to decrease slightly, to 170,667, a decrease of 0.4% (Office for National Statistics 2025).

13.3.4 The proportion of the population of Bassetlaw of working age (16-64 years) was 60.0% (Nomis 2026), which is lower than the proportion of the population who are of working age in the East Midlands and Great Britain (62.2% and 62.9% respectively). In North Lincolnshire, the proportion of the population of working age in 2025, was 59.2%, lower than the regional and national figures (Nomis 2026).

13.3.5 Looking at Nottinghamshire as a whole, the population in 2021 was 824,800, which was an increase of 39,000 (5%) since the 2011 Census (Nottinghamshire Insight 2025). By age, the biggest increases between the 2011 Census and the

2021 Census are seen in those aged over 70 with a 23.4% increase (Nottinghamshire Insight 2025). The working age population in Nottinghamshire is similar to Bassetlaw and North Lincolnshire at 59%, which is lower than the regional and national figures. (Nottinghamshire Insight 2025).

13.3.6 The comparatively lower proportion of working age residents in Nottinghamshire, Bassetlaw and North Lincolnshire indicates that both areas have a less economically active age structure than the regional and national averages. This demographic profile has implications for future workforce availability and may influence the nature and level of demand for local services and infrastructure, particularly those associated with older age groups.

Economic Activity

13.3.7 Economic activity rate can be a useful measure of the labour market opportunities available in the area, as it measures the percentage population, both in employment and unemployed, that represent the labour supply, regardless of their employment status.

13.3.8 **Table 13-2** shows that economic activity in Bassetlaw is higher than both the regional (78.9%) and national figures (79.1%) at 79.9% (Nomis 2026). In line with this, Bassetlaw has a lower proportion of the population who are considered economically inactive (20.1%), compared to the regional (22.8%) and national figures (20.9%).

13.3.9 However, in North Lincolnshire and Nottinghamshire, economic activity is lower than the regional and national figures, at 77.2% and 78.2% (respectively), with 22.8% and 21.8% (respectively) of the population considered economically inactive (Nomis 2026). Despite this, unemployment in North Lincolnshire and Nottinghamshire is lower than the regional and national figures, at 3.8% (for both local authorities) compared with 4.4% and 4.5% respectively (Nomis 2026).

Table 13-2: Economic Activity Rates for Residents Aged 16+ (2025-2026)

Economic Activity	Bassetlaw	North Lincolnshire	Nottinghamshire	East Midlands	Great Britain
Economically Active	79.9%	77.2%	78.2%	78.9%	79.1%
Unemployed	#	3.8%	3.8%	4.4%	4.5%
Economically Inactive	20.1%	22.8%	21.8%	21.1%	20.9%

#: Estimate is not available since sample size is disclosive.

Industrial Structure

13.3.10 **Table 13-3** presents the occupational structure of the employed population within Bassetlaw, North Lincolnshire and Nottinghamshire. Within Bassetlaw, associate professional occupations accounts for the largest proportion of employment, at 17.4%. This is higher than the average for the East Midlands (13.7%) and Great Britain (14.9%). Professional occupations form the second largest group within

Bassetlaw at 16.3%, which is lower than the regional (25.2%) and national averages (27.4%).

13.3.11 In North Lincolnshire, professional occupations accounts for largest proportion of employment at 18.8%. This is lower than the regional (25.2%) and national (27.4%) averages for this sector. Elementary occupations form the second largest group within North Lincolnshire at 13.8%, which is higher than the average for the East Midlands (11.3%) and Great Britain (9.1%). Conversely, sales and customer service occupations represent the smallest occupational group in North Lincolnshire, accounting for 6.5% of employment. This is higher than the proportion for the East Midlands (6.1%) and Great Britain (5.6%).

13.3.12 In Nottinghamshire, the highest percentage of workers are employed in professional occupations (22.5%). Whilst this matches the regional and national trend, employment in these occupations is lower than the regional and national averages. Employment in managerial, director or senior official roles is higher than the regional (9.5%) and national averages (11.4%) at 11.7%.

Table 13-3: Occupational Structure (2025-2026)

Occupation	Bassetlaw	North Lincolnshire	Nottinghamshire	East Midlands	Great Britain
1. Managers, directors and senior officials	12.2%	8.2%	11.7%	9.5%	11.4%
2. Professional occupations	16.3%	18.8%	22.5%	25.2%	27.4%
3. Associate professional occupations	17.4%	10.9%	16.4%	13.7%	14.9%
4. Administrative and secretarial occupations	11.4%	10.7%	9.5%	9.2%	9.0%
5. Skilled trades occupations	#	11.6%	7.1%	8.8%	8.1%
6. Caring, leisure and other service occupations	#	7.9%	8.9%	9.0%	8.7%
7. Sales and customer service occupations	10.2%	6.5%	6.5%	6.1%	5.6%
8. Process, plant and machine operatives	#	11.1%	7.1%	7.0%	5.5%
9. Elementary occupations	#	13.8%	10.2%	11.3%	9.1%

#: Sample size too small for reliable estimate

13.3.13 The occupational profile of Bassetlaw and North Lincolnshire differs from that of Nottinghamshire, the East Midlands and Great Britain. Both authorities have a lower proportion of residents employed in professional occupations than regional and national averages, while a number of relatively lower and middle-skilled occupations are more strongly represented. In North Lincolnshire, there are notably higher proportions of residents employed in skilled trades, process, plant and machine operative, and elementary occupations. This occupational structure

is indicative of an economy with a stronger presence of manufacturing, industrial, logistics and other operational sectors. Conversely, the lower proportion of professional occupations may suggest comparatively fewer residents employed in higher-skilled knowledge-based industries.

13.3.14 **Table 13-4** details the employee jobs per industry sector. The highest proportion of employee jobs within Bassetlaw are manufacturing and administrative and support service activities both at 16.4% (Nomis 2026). This varies when compared to the regional picture where wholesale and retail trade; repair of motor vehicles and motorcycles represent the largest employment sector. Within North Lincolnshire, the largest sector is manufacturing at 24.7% (Nomis 2026).

13.3.15 Comparatively, in Nottinghamshire, the highest proportion of employee jobs are associated with human health and social work activities, making up 15.2% of the workforce (Nomis 2026). This figure is higher than the regional and national averages of 14.1% and 14.2% respectively. The second and third highest employers are wholesale and retail trade; repair of motor vehicles and motorcycles at 13.7% and manufacturing at 12.4% (Nomis 2026). Whilst manufacturing is lower than in Bassetlaw and North Lincolnshire, this figure is still higher than the regional average and significantly higher than the national average.

13.3.16 Both areas have lower concentrations of employment in professional, scientific and technical activities, information and communication, and financial and insurance activities than the regional and national averages. This suggests a comparatively lower presence of knowledge-intensive and professional service sectors within the local economy.

13.3.17 Overall, the employment profile is indicative of economies with strong industrial, manufacturing and logistics bases, supported by operational and technical occupations. Manufacturing accounts for a comparatively high proportion of employment, particularly in Bassetlaw and North Lincolnshire, while construction employment in Nottinghamshire is above both the regional and national averages. This economic structure suggests that employment opportunities associated with major infrastructure, construction, industrial and engineering projects are likely to align well with the skills and experience present within the local labour market, increasing the potential for local residents and businesses to benefit from employment and supply chain opportunities associated with the Proposed Development.

Table 13-4: Employee jobs by industry sector (2024)

Industry	Bassetlaw (%)	North Lincolnshire (%)	Nottinghamshire (%)	East Midlands (%)	Great Britain (%)
B: Mining and quarrying	0.1	0.3	0.1	0.2	0.2
C: Manufacturing	16.4	24.7	12.4	11.6	7.3
D: Electricity, gas, steam and air conditioning supply	0.2	0.5	0.2	0.5	0.4
E: Water supply; Sewerage, Waste management and Remediation activities	0.3	0.6	0.6	0.7	0.7

Industry	Bassetlaw (%)	North Lincolnshire (%)	Nottinghamshire (%)	East Midlands (%)	Great Britain (%)
F: Construction	5.5	6.8	7.5	5.6	5.0
G: Wholesale and retail trade; repair of motor vehicles and motorcycles	12.7	13.7	13.7	14.5	13.7
H: Transport and storage	7.3	8.2	6.5	6.6	5.0
I: Accommodation and food service activities	6.4	5.5	7.8	7.1	7.8
J: Information and communication	1.3	0.6	3.1	2.8	4.5
K: Financial and insurance activities	1.3	0.5	1.2	1.6	3.4
L: Real estate activities	0.9	1.4	1.6	1.6	1.9
M: Professional, scientific and technical activities	4.5	4.1	6.5	8.1	9.3
N: Administrative and support service activities	16.4	4.8	7.5	7.9	8.6
O: Public administration and defence; compulsory social security	3.2	4.1	4.3	4.3	4.9
P: Education	6.4	6.8	8.1	8.5	8.6
Q: Human health and social work activities	12.7	12.3	15.2	14.1	14.2
R: Arts, Entertainment and Recreation	1.3	2.1	2.5	2.2	2.5
S: Other Service Activities	1.3	2.1	1.6	1.8	1.9

Qualifications

13.3.18 **Table 13-5** shows the qualifications (regulation framework qualification (RFQ) levels) of the resident population aged 16-64 in Bassetlaw and North Lincolnshire, compared to the regional and national figure. This shows that those with RFQ4 and above (higher national certificate and above) is lower in both Bassetlaw and North Lincolnshire compared to the regional (41.1%) and national averages (48.6%) at 34.7% and 33.7% respectively. Comparatively, in Nottinghamshire, the prevalence of those with RFQ4 and above is slightly above the regional average but lower than the national average at 41.6%.

13.3.19 In Bassetlaw, those with RQF1 (GCSE grades 3-1 or D-G) and RQF2 (GCSE grades A*-C) and above is above the regional and national averages at 90.2% and 88.0% respectively. In North Lincolnshire and Nottinghamshire, those with RQF1 (GCSE grades 3-1 or D-G) and RFQ 2 (GCSE grades A*-C) is higher than the regional average, however, both figures are lower than the national averages. Overall, this suggests that while the workforce is generally well represented at lower and intermediate qualification levels, there is a comparatively smaller pool of highly qualified residents within the local labour market.

Table 13-5: Qualifications (2025)

Qualifications	Bassetlaw	North Lincolnshire	Nottinghamshire	East Midlands	Great Britain
RQF4 and above	34.7%	33.7%	41.6%	41.1%	48.6%
RQF3 and above	68.5%	59.8%	63.3%	63.7%	69.0%
RQF2 and above	88.0%	84.8%	85.6%	84.5%	87.0%
RQF1 and above	90.2%	88.2%	88.6%	87.7%	89.3%
Other qualifications	#	4.6%	4.1%	5.5%	4.4%
No qualifications	#	7.2%	7.2%	6.9%	6.3%

#: Sample size too small for reliable estimate.

Fuel Poverty

13.3.20 Fuel poverty in England is measured using the Low Income Low Energy Efficiency (LILEE) fuel poverty metric. The LILEE indicator considers a household to be fuel poor if occupants are living in a property with an energy efficiency rating of band D-G, and its disposable income (income after housing costs and energy needs) would be below the poverty line (Department for Energy, Security and Net Zero 2026). Fuel poverty is measured based on required energy bills rather than actual spending. This ensures that those households who have low energy bills simply because they actively limit their use of energy at home (for example by not heating their home) are not overlooked (Department for Energy, Security and Net Zero 2026).

13.3.21 The East Midlands has the third highest prevalence of fuel poverty amongst the UK regions, at 10.6%, below the West Midlands and Yorkshire and the Humber (Department for Energy, Security and Net Zero 2026). In both Bassetlaw and North Lincolnshire, fuel poverty is higher than the regional figure at 11.4% and 11.2% respectively (Department for Energy, Security and Net Zero 2026).

Tourism

13.3.22 The tourism sector represents an important component of the local economy in both study areas, contributing substantially to economic output and employment. Bassetlaw is located within the county of Nottinghamshire, where tourism is valued at £1.3bn, which supports 15,438 jobs within the county (Nottinghamshire County Council n.d.).

13.3.23 North Lincolnshire's visitor economy is considered within the Greater Lincolnshire statistics. In 2021, Greater Lincolnshire's visitor economy contributed £3.02bn to the local economy, accounting for 28,700 jobs within the area (Lincolnshire County Council 2025).

13.3.24 These figures demonstrate that tourism and visitor-related activity make a notable contribution to the economies of the wider study area. The sector supports a range of businesses and employment opportunities across the accommodation, food and

drink, retail, recreation, transport and cultural sectors, indicating that tourism represents an important economic receptor within the socio-economic baseline.

13.3.25 In Nottinghamshire there are a number of attractions, including Sherwood Forest and Robin Hood attractions, caves, arts, crafts and galleries, cathedrals and churches, country parks and gardens, historic homes and castles (Visit Nottinghamshire n.d.). In Bassetlaw specifically, there are a number of attractions including National Trust properties, country parks and nature reserves.

Recreation

13.3.26 The Site is located predominantly on agricultural land. The nearest formal recreational facility is Metcalfe Recreation Ground, located approximately 1.5 km south of the Site. The Site and surrounding area also contain a network of public rights of way (PRoW), rural lanes and countryside routes used for walking, cycling and other recreational activities. Fountain Hill Equestrian Centre is also located to the east of the Site, so the local PRoW network will be used by horse riders as well as walkers.

13.3.27 In addition, Misson Carr Nature Reserve, which adjoins parts of the Site, provides opportunities for nature-based recreation and birdwatching. Recreational opportunities within the wider area are therefore principally associated with access to the countryside, the local rights of way network and nature conservation resources.

13.4 Proposed Approach to the consideration of Socio-economic Effects

Relevant, Legislation, Policy and Relevant Guidance

13.4.1 The following policy and guidance will be considered as part of the assessment of socio-economics, tourism and recreation:

Legislation

- Equality Act 2010 (UK Government 2010).
- Localism Act 2011 (UK Government 2011).
- Countryside and Rights of Way Act 2000 (UK Government 2000).

Policy

- Overarching National Policy Statement for Energy (EN–1) 2025 (UK Government 2025).
- National Policy Statement for Renewable Energy Infrastructure (EN–3) (UK Government 2025).
- National Planning Policy Framework (Ministry of Housing, Communities and Local Government 2026).
- Bassetlaw Local Plan 2020–2038 (Bassetlaw District Council 2024).
- North Lincolnshire Local Plan (North Lincolnshire Council 2004).
- Nottinghamshire County Council, Our Council Plan, 2025-2029 (Nottinghamshire County Council 2025)

Guidance

- Office for National Statistics, Measuring the Economic Impact of an Intervention or Investment (Office for National Statistics 2026).
- Homes and Communities Agency's Additionality Guide (Fourth Edition) (Homes and Communities Agency 2014).
- HM's Treasury Green Book (HM Treasury and Government Finance 2026).
- Institute of Sustainability and Environmental Professionals (ISEP) Social Impact Assessment in Environmental Impact Assessment in the UK guidance (ISEP 2025).
- BiGGAR Economics, Onshore Wind Direct and Wider Economic Impacts (BiGGAR Economics on behalf of the Department of Energy and Climate Change and Renewables UK 2012).

Proposed Assessment Methodology

13.4.2 The assessment will follow the general overarching methodology outlined in **Chapter 3: Approach to EIA**. Whist those principles provide the foundations for the assessment this chapter outlines how they will be applied specifically to the socio-economic, tourism and recreation assessment.

13.4.3 The assessment will align with the ISEP Social Impact Assessment in Environmental Impact Assessment in the UK guidance. Each of the proposed elements of the assessment have been described below.

Generation of Direct, Indirection and Induced Construction Employment

13.4.4 The gross temporary employment generated by the construction phase will be estimated by applying an average gross output per construction industry employee (from the latest ONS output per Job, UK statistics (ONS 2026) to the estimated total construction cost. Leakage, displacement, and multiplier effects are then taken into account to determine the total net temporary employment during construction.

Leakage

13.4.5 Leakage is defined as the proportion of outputs that benefit those outside of a proposed development's target area – in this instance outside of the East Midlands Region. For a large-scale onshore wind farm development, leakage may occur where specialist contractors, turbine manufacturers, equipment suppliers or maintenance providers are sourced from outside the region. In such circumstances, a proportion of employment, expenditure and supply chain benefits associated with the Proposed Development would accrue outside the regional economy rather than being retained within the East Midlands.

13.4.6 Due to the specialist nature of wind farm construction, including turbine manufacture, electrical infrastructure and specialist installation activities, a medium level of leakage (25%) has been deemed appropriate for the assessment. This implies a proportion of temporary employment opportunities during construction would go to people living within the study area.

Displacement

13.4.7 Displacement arises where a proposed development takes the market share, of labour, land or capital from other existing local firms or organisations.

13.4.8 Construction workers will typically move between construction projects across the East Midlands when delays occur or to help the workforce meet particular construction deadlines. Overall, it is assumed that due to the flexibility of the labour market and the fact that construction workers at the Proposed Development will likely represent a small proportion of the overall reginal construction labour force, displacement of the direct construction employment would be low.

13.4.9 Therefore, displacement is assumed to be 25% which is defined by English Partnerships Additionality Guide 4th Edition (Homes and Communities Agency 2014) as 'Low - There are expected to be some displacement effects, although only to a limited extent'.

Multiplier Effects

13.4.10 Multiplier effects are defined as further economic activity (jobs, expenditure or income) associated with additional local income and local supplier purchases. The economic impact (jobs, expenditure or income) of an intervention is multiplied because of knock-on effects within the local economy. There are two types of multiplier effects:

- **Indirect** multiplier due to purchases made as a result of the intervention and further purchases associated with linked firms along the supply chain; and
- **Induced** multiplier associated with local expenditure as a result of those who derive incomes from the direct and supply linkage impacts of the intervention.

Gross Value Added (GVA)

13.4.11 GVA is the measure of the value of goods and services produced in a given area or sector of the economy. GVA is the difference between the value of output and the cost of the goods and services used to produce that output. The assessment will use the ONS output per job statistics for construction employees (ONS 2026). GVA will be estimated using accepted guidance from the ONS.

Changes in Local Service Demand

13.4.12 It is assumed that the majority of operatives during the construction phase will be drawn from across the UK due to the specialised nature of the works. Whilst a proportion of the construction workforce is expected to be sourced from outside the local area, some temporary demand for accommodation, local services and community facilities may arise. A qualitative assessment will therefore be undertaken to consider potential effects on local services, accommodation provision and community infrastructure.

Disruption and Changes in Amenity for users of Recreational / Open Spaces and PRoWs

13.4.13 The assessment of disruption and changes in amenity value will be informed by desk-based studies as well as PRoW usage surveys (see **Chapter 14: Access, Traffic and Transport**) and a site walkover. This will consider the current condition and usage of recreational / open spaces and PRoWs and potential changes to these – both temporary and long term.

Further Baseline Data

13.4.14 Additional baseline information will be collected through a combination of desk-based review, GIS analysis and site visits. This will be used to identify community receptors, tourism assets, recreational resources, public rights of way and other facilities within the study area, and to verify baseline conditions for the socio-economics, tourism and recreation assessment.

Consultation and Engagement

13.4.15 Engagement will be undertaken with Nottinghamshire County Council, North Lincolnshire District Council and Bassetlaw District Council as part of scoping consultation to seek agreement on the proposed scope and methodology for the socio-economics, tourism and recreation Assessment.

13.5 Potential Impacts Scoped In

13.5.1 **Table 13-6** identifies the potential impacts of the Proposed Development on socio-economics, tourism and recreation to be scoped into the assessment.

Table 13-6: Impacts proposed to be scoped into the assessment for Socio-Economics, Tourism and Recreation

Impact	Description	Proposed Approach to Assessment Including Description of Any New Data Collection Required and Any Analyses (Such as Modelling)
Construction		
Generation of construction employment	The generation of additional construction employment opportunities could have effects on the local and regional workforce.	Socio-economic modelling will be undertaken to establish the quantity of additional construction employment opportunities.
Supply chain expenditure and indirect economic effects	Additional development may have effects upon the local economy through additional spend.	Socio-economic modelling will be undertaken to establish local GVA to the local economy.
Disruption and Changes in Amenity for users of Recreational / Open Spaces and PRoWs	Construction activities may result in temporary disruption to public rights of way, recreational routes and open spaces through diversions, restricted access, construction traffic, noise and visual disturbance. This could affect the experience of recreational users and the attractiveness of recreational resources.	Assessment will be informed by the findings of the Traffic and Transport, Noise and Vibration and Landscape and Visual Impact assessments. Baseline data on recreational resources and PRoWs will be obtained through desk-based review and site walkover. No bespoke modelling is proposed.
Changes in Local Service Demand	Construction workers associated with the Proposed Development may generate additional demand for local accommodation, retail, food and beverage services and other community facilities.	Assessment will be informed by workforce estimates developed for the construction phase and relevant baseline information on local services and facilities. The need for additional analysis will be determined following review of the anticipated workforce

Impact	Description	Proposed Approach to Assessment Including Description of Any New Data Collection Required and Any Analyses (Such as Modelling)
	This may result in both beneficial economic effects and, where capacity is constrained, additional pressure on local services.	profile and accommodation requirements.
Decommissioning		
Disruption and Changes in Amenity for users of Recreational / Open Spaces and PRoWs	Decommissioning activities may result in temporary disruption to public rights of way, recreational routes and open spaces through diversions, restricted access, construction traffic, noise and visual disturbance. This could affect the experience of recreational users and the attractiveness of recreational resources.	Assessment will be informed by the findings of the Traffic and Transport, Noise and Vibration and Landscape and Visual Impact assessments. Baseline data on recreational resources and PRoWs will be obtained through desk-based review and site walkover. No bespoke modelling is proposed.
Cumulative		
Cumulative increase in employment opportunities	The Proposed Development may generate cumulative employment, expenditure and supply chain opportunities when considered alongside other committed developments within the area.	Assessment will be informed by cumulative socio–economic assessment findings. Consideration will be given to the potential for cumulative beneficial effects associated with increased employment, income and economic activity.
Contribution to energy security and resilient infrastructure	The Proposed Development would contribute to national renewable energy generation capacity and energy resilience. In combination with other committed renewable energy developments, this could contribute to wider economic benefits associated with a secure, reliable and lower-carbon energy system.	The assessment will consider the extent to which the Proposed Development contributes to energy security, resilience of energy infrastructure and decarbonisation objectives. Consideration will be given to the potential economic benefits associated with a more secure and resilient energy system, including support for economic productivity, business confidence and investment. No additional data collection is proposed.
Cumulative changes in Local Service Demand	Construction workers associated with the Proposed Development and in combination with other developments may generate additional demand for local accommodation, retail, food and beverage services and other community facilities. This may result in both beneficial economic effects	Assessment will be informed by workforce estimates developed for the construction phase and relevant baseline information on local services and facilities. The need for additional analysis will be determined following review of the anticipated workforce profile and accommodation requirements.

Impact	Description	Proposed Approach to Assessment Including Description of Any New Data Collection Required and Any Analyses (Such as Modelling)
	and, where capacity is constrained, additional pressure on local services.	

13.6 Impacts Proposed to be Scoped Out

13.6.1 **Table 13-7** identifies the potential impacts of the Proposed Development on socio-economics to be scoped into the assessment.

Table 13-7: Impacts proposed to be scoped out of the assessment for Socio-Economics, Tourism and Recreation

Impact	Justification for Scoping Out
Construction	
Effects on Tourism	The Proposed Development is located within a predominantly rural agricultural landscape and is not expected to result in the loss of tourism attractions, visitor accommodation or key tourism infrastructure, nor result in the loss of tourism related income. Whilst recreational resources, including public rights of way and recreational users, will be considered within the assessment, significant effects on visitor numbers, tourism expenditure or the wider tourism economy are not anticipated. Tourism effects are therefore proposed to be scoped out of detailed assessment.
Operation and Maintenance	
Operational employment	Once operational, the Proposed Development will require a relatively small workforce associated with operation, maintenance and asset management activities. Given the scale of employment anticipated relative to the size of the local and regional labour market, significant socio-economic effects are not anticipated. Operational employment is therefore proposed to be scoped out of detailed assessment.
Decommissioning	
Decommissioning employment	Decommissioning activities may generate temporary employment opportunities associated with the removal of infrastructure and site restoration. However, these activities would be temporary, limited in duration and are expected to be substantially smaller in scale than the construction phase. Significant socio-economic effects are therefore not anticipated and decommissioning employment is proposed to be scoped out of detailed assessment.
Cumulative	
Cumulative tourism effects	Given that significant tourism effects are not anticipated for the Proposed Development in isolation, and in the absence of major tourism assets or destinations likely to be affected, significant cumulative effects on the tourism economy are not anticipated. Cumulative tourism effects are therefore scoped out.
Cumulative operational employment effects	The operational phase would support only a small number of permanent jobs and, when considered alongside other

Impact	Justification for Scoping Out
	committed developments, is not anticipated to result in significant cumulative labour market effects. Cumulative operational employment effects are therefore scoped out.

13.7 Summary of Next Steps

Design, Mitigation and Enhancement Measures

13.7.1 As part of the design process for the Proposed Development, several embedded and standard mitigation measures are proposed to reduce the potential for impacts on socio-economics, and recreation. These are presented below. It is expected that these may evolve throughout the design evolution of the Proposed Development as the EIA progresses and in response to consultation. The Applicant is committed to implementing these measures, and also various standard sectoral practices and procedures.

13.7.2 Measures adopted as part of the Proposed Development to mitigate potential adverse impacts on socio-economics, and recreation will include:

- All development would be subject to standard good practice mitigation measures employed to avoid and minimise potential effects on community and recreational facilities.
- All construction work would be undertaken in accordance with a Public Access Management Plan (PAMP). The DCO application will include an outline PAMP, that will outline the measures to be applied, and which would seek to promote public safety, maintain appropriate access where reasonably practicable, and minimise disruption to existing public access routes (during all phases of the Proposed Development).
- Continued community engagement and sharing of information relating to the Proposed Development, throughout all phases of the Proposed Development, would be undertaken to reduce the impacts on socio-economics and recreation by enabling people to raise concerns and improve understanding of potential health effects.

13.7.3 Further detail on the role of mitigation commitments, as part of a proportionate EIA approach, is provided in **Chapter 3: Approach to EIA**. A full description of the mitigations commitments identified so far is provided in **Appendix 3A: Draft Register of Environmental Actions and Commitments (REAC)** in **Volume B**.

13.8 Further Consideration for Consultees

13.8.1 Consultees are asked to consider the following:

- **Q13.1**: Is there any additional baseline information that should be considered at the next stage?
- **Q13.2**: Do you agree with the topics scoped into/out of the assessment?
- **Q13.3**: Are there any particular committed developments that consultees would wish to see included in the cumulative assessment?

14. Access, Traffic and Transport

14.1 Introduction

14.1.1 This chapter of the Scoping Report sets out the proposed scope and method to assess the potential effects of the Proposed Development on access, traffic and transport. It identifies the potential significant effects arising from the construction, operation and management, and decommissioning of the Proposed Development, in isolation and cumulatively, on access, traffic and transport. This chapter also explains how likely significant effects would be assessed for the purposes of the Environmental Impact Assessment (EIA).

14.1.2 The assessment of the effects will follow the guidance in the Institute of Environmental Management and Assessment (IEMA) Guidelines: Environmental Assessment of Traffic and Movement, July 2023 (Institute of Environmental Management and Assessment (IEMA) 2023). (The IEMA was renamed as The Institute of Sustainability and Environmental Professionals (ISEP) in July 2025).

14.1.3 Details of the construction, operation and maintenance, and decommissioning of the Proposed Development are set out in **Chapter 2: Proposed Development Description**.

14.1.4 This chapter is supported by the following Figures (provided in **Volume A**):

- **Figure 14.1:** Transport Study Area and Public Right of Ways; and
- **Figure 14.2:** Abnormal Indivisible Load Vehicle Route.

14.2 Study Area

14.2.1 The Study Area for the assessment of potential effects on access, traffic and transport will comprise the public highway network likely to be used by vehicles travelling to and from the Site. As explained in **Chapter 2: Proposed Development Description**, it is currently anticipated that vehicle access could be from three potential points of access:

- A631 to the west of Gringley on the Hill and before Everton Village;
- Everton Sluice Lane (off A631 in the village of Everton); and
- Idle Bank (via Westgate to the north of the Site).

14.2.2 The exact extent of the Study Area will be determined through the assessment, based, in part, on an initial estimate of the likely sources of construction material supplies. However, it is likely to comprise the following sections of highway which link the Proposed Development with the strategic road network (shown in **Figure 14.1, Volume A**):

- West:
  - A631 between Everton and Bawtry; and
  - A614 between Bawtry and A1(M) Junction 34;
- East:
  - A631 between Everton and Gainsborough;
  - A631 between Gainsborough and A15 (Caenby Corner);
  - A15 between Caenby Corner and M180 at Junction 4; and

- A15 between Caenby Corner and Lincoln;

- North (subject to acceptability of an access served off Idle Bank):
  - Idle Bank;
  - Belton Road / Sandtoft Road / Westgate Road; and
  - A161 between Westgate and M180 Junction 2.

14.2.3 The Environmental Statement (ES) will be accompanied by a report considering the feasibility of delivering the turbine components and other oversized loads to the Site. That report will consider a wider area than described above as it will cover the route from the nearest suitable port to the Site. Initial feasibility work already undertaken in relation to this issue has identified potential feasible routes from Immingham Docks to the Site, and these are shown in **Figure 14.2 (Volume A)**.

14.3 Baseline Environment

Overview of Available Data Sources

14.3.1 The data sources that have been used to inform the baseline information presented in this chapter are summarised in **Table 14-1**.

Table 14-1 Key sources of information for Access, Traffic and Transport

Source	Description	Spatial Coverage of Study Area
Google Maps www.google.com	Imagery of transport network in Study Area and bus service details.	Entire study area.
Department for Transport (DfT) Website Count points - Road traffic statistics	Existing Traffic Survey Data.	Anticipated construction traffic routes, where data is available.
Crashmap www.crashmap.co.uk	Personal Injury Accident Data.	Key study areas.
Nottinghamshire County Council (NCC) website	Public Rights of Way map.	Areas affected by the Site itself.

Overview of Baseline Environment

Highway Network

14.3.2 Vehicles travelling to and from the Proposed Development would use the sections of highway within the Study Area. These vehicles would have the potential to affect other highway users, such as vehicle drivers and non-motorised users travelling along, crossing or otherwise interacting with these sections. The highways within the Study Area will be visited by members of the Project team during the EIA process to collect information on their configuration and to consider the extent to which the users of them could be sensitive to changes in vehicle movements caused by the Proposed Development.

14.3.3 The characteristics of the sections of highway in the Study Area are described below, centred on the village of Everton considering the highway to the west and then to the east.

14.3.4 To the south of the Site running east to west is the A631 which routes east to west between Bawtry and the A46 near Grimsby, a distance of approximately 30 miles.

A631 in the Village of Everton

14.3.5 Locally the A631 forms the main route through of the village of Everton, a small settlement with a population of approximately 900. The A631 through Everton is a street-lit single carriageway road which is subject to a 30mph speed restriction. There are footways and properties which take direct access from the A631.

A631 Bawtry Road (west of Everton)

14.3.6 To the west of Everton the A631 links with Bawtry. This section of the A631 is a single carriageway rural road which is subject to a 50mph speed restriction. This direction would be the most direct route between the Site to the strategic road network at the A1(M), routing via the A614 south at Bawtry.

A638

14.3.7 The A631 junctions with the A638 at a signalised T-junction. The A638 is the main route through Bawtry routing north-south linking with Doncaster. Bawtry is a market town with a population of approximately 4,000. To the north of the signal junction the A638 forms the High Street, a busy commercial street with retail frontage and on-street parking. To the south it links with the A614 and provides onward access to Scrooby, Ranskill, Toworth, Barnby Moor and Retford.

A614

14.3.8 The A614 is a single carriageway rural road which provides a link between Bawtry and the A1(M) at Junction 34, a grade separated interchange.

A1 (M)

14.3.9 At Junction 34 the A1 gains motorway status to the north. To the north and south of Junction 34 the A1 is a dualled trunk road with two-lanes in both directions. This is the nearest trunk road to the southern boundary of the Site.

A631 Gainsborough Road (East of Everton)

14.3.10 To the east of Everton the A631 extends some 26 miles towards the A46 near Grimsby. It routes via Gringley on the Hill (3 miles), Gainsborough (8 miles) and links with the A15 at Caenby Corner.

14.3.11 The A631 in this direction is generally a single carriageway rural road which is subject to national speed restrictions, stepping down within and passing settlements, with some dualled sections of carriageway.

A15

14.3.12 The A15 is aligned in a true north-south direction between the M180 to the north and Lincoln to the south, then routeing around the east of Lincoln eventually to Peterborough. To the north of the M180, from Barnetby Interchange (Junction 5) the A15 continues northbound to Hull via the Humber Bridge.

14.3.13 The A15 is a single carriageway rural road subject to a 50mph speed restriction. The A631 junction with the A15 at Caenby Corner, a four-armed roundabout junction.

M180

14.3.14 The A15 link with the M180 at Junction 4, a grade separated junction. The M180 is a motorway which runs east to west between the M18 and the A180 near Immingham and Grimsby, a distance of approximately 25 miles.

14.3.15 Immingham Docks, which would be accessed via the M180 is the anticipated route for much of the turbine equipment.

Idle Bank

14.3.16 Access to the Site from the north is also being considered. This route would utilise Idle Bank, a single carriageway road which routes north-south from Sandtoft toward the northern boundary of the Site, a distance of approximately 7 miles.

14.3.17 Idle Bank is a narrow undulating lightly trafficked route which crosses a rail line (level crossing). The carriageway to the south of the B1396, where it forms a crossroads, is narrow and is currently unsuitable for Heavy Goods Vehicle (HGV) traffic. However, it does provide a direct route to the Site avoiding sensitive communities.

Sandtoft Road / Belton Road, Westgate Road

14.3.18 Linking Idle Bank to the A161 is Sandtoft Road / Belton Road, Westgate Road. This rural road routes via the settlement of Westgate to the A161 forming a roundabout junction. The road through Westgate is subject to a 30mph speed restriction and has street-lit footways. It is narrow at sections and there is some on-street car parking that occurs. Its suitability for construction traffic needs further consideration.

A161

14.3.19 The A161 in this area provides a link between Westgate Road and the M180 at Junction 2. This section is approximately 1 mile.

Public Transport Services

14.3.20 As a rural area the level of public transport service is light. The village of Everton is served by buses with a frequency of approximately one bus per hour in each direction, linking with Doncaster, Bawtry and Gainsborough.

14.3.21 The nearest railway stations to the Proposed Development are Doncaster to the north-west and Retford to the south, at a distance of approximately 12 miles and 8 miles respectively.

Non-Motorised Users

14.3.22 Several Public Rights of Way (PRoW), namely footpaths or bridleways, meet or cross the Site and the highways in the Study Area and these are shown in **Figure 14.1 (Volume A)**.

14.3.23 Within the Site Boundary are:

- Gringley on the Hill FP17 - Code 100/17/3
- Gringley on the Hill FP18 - Code 100/18/1

- Gringley on the Hill FP1 - Code 100/1/1
- Gringley on the Hill BW25 - Code 100/25/1
- EvertonBW24 – Code 96/24/1
- EvertonBW4 – Code 96/4/2

14.3.24 Outside of the Site Boundary but likely to be impacted by access arrangements from the south are:

- EvertonBW3 – Code 96/3/1 (Tethering Lane)
- EvertonBW3 – Code 96/3/2 (Tethering Lane)
- EvertonBW4 – Code 96/4/3
- EvertonBW6 – Code 96/6/1
- Everton FP1 – Code 96/1/1
- Everton RB11 – Code 96/11/2
- Everton FP10 – Code 96/10/1
- Everton FP5 – Code 96/5/2
- Gringley on the Hill BW2 - Code 100/2/1

14.3.25 In terms of highway provision in the proximity of the Site, the A631 through the village of Everton is street-lit and has footways which extend to the east as far as Tethering Lane. There is an uncontrolled crossing with dropped kerbs and tactile paving near to the High Street junction. The High Street has street-lit footway extending some 600m to the north before the road becomes a rural lane with no footway provision.

14.3.26 There are no local or national cycle routes within the Study Area.

Baseline Data

PIA Data

14.3.27 An initial review of Personal Injury Accident (PIA) Data in areas local to anticipated access locations has been undertaken using the Crashmap.co.uk website. The review indicates that there is no notable accident history in Everton, in particular the section of the A631 between High Street, Tethering Lane and the approach to Everton from the east.

14.3.28 Access options from the north may need to consider the Idle Bank junction with the B1396 which forms a cross-roads, where a number of incidents have been recorded.

14.3.29 Detailed accident data will be obtained from the local authorities for key study areas and sensitive receptors, where a significant temporary traffic increase is expected. These will be reported in the Access, Traffic and Transport chapter of the ES.

Traffic Survey Data

14.3.30 The Department for Transport (DfT) Website has been interrogated to understand what existing traffic survey data is available. The data provides classified Annual Average Daily Flows (AADF). Relevant DfT Count points within the Study Area

along potential access routes are summarised in **Table 14-2** and illustrated within **Figure 14.1 (Volume A)**, which provide total and HGV two-way flows.

Table 14-2 Summary of Existing Traffic Data from DfT Website

Number	Link	Description	Countpoint ID	AADT (Vehicles)	
				Total	HGV
1	A631	West of Everton, near to Bawtry	28837	11,114	655
2	A638	Bawtry, south of signal junction	73404	13,014	711
3	A638	Bawtry, north of signal junction	38239	17,492	761
4	A614	Bawtry Road, close to A1(M)	27367	7670	771
5	A631	East of Everton	58396	7,713	507
6	A631	Gringley on the Hill	18690	9,870	602
7	A631	Beckingham	7383	12,405	656
8	A631	Gainsborough (single carriageway)	38703	12,203	525
9	A631	Hamswell Cliff	47411	5,947	622
10	A15	North of Caenby Corner	56190	10,914	2,339
11	A15	South of Caenby Corner	16209	16,525	2,432

14.3.31 The baseline may change between the time the EIA is undertaken and the start of construction of the Proposed Development. Changes may arise from, for example, alterations to the configuration of the transport network or developments nearby which generate additional vehicle movements. The potential for such changes would be identified during the EIA process and included in the future baseline as appropriate.

Planned Surveys

14.3.32 The DfT Data provides excellent coverage within the study area. To supplement this data new traffic survey data will be collected by undertaking week-long Automatic Traffic Counts (ATCs). The locations of these would be determined through the assessment but would likely be on the following sections of highway:

- A631, to the east of Everton near to Tethering Lane;
- A161, to the north of Bracon/Belton;
- Westgate Road; and
- Idle Bank.

14.3.33 These ATCs would give data on vehicle volumes, types and speeds disaggregated by direction, day and time. Data will be extracted from these ATCs to provide baseline data covering the time periods during which there are likely to be vehicle movements to and from the Proposed Development.

14.3.34 It would be reasonable to expect there to be some growth in vehicle movements on highways within the Study Area in the absence of the Proposed Development. An appropriate growth factor from the Trip End Model Presentation Program (TEMPro) would be applied to observed traffic flows to make them representative of those in the year in which construction of the Proposed Development is expected to start.

14.4 Proposed Approach to the Environmental Impact Assessment

Relevant Legislation, Policy, and Guidance

14.4.1 The following legislation, policy and guidance are relevant to the consideration of the potential effects of the Proposed Development on access, traffic and transport. This list is not exhaustive, and other documents may be referred to as appropriate:

- **Legislation:**
  - The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (Infrastructure Planning EIA Regulations 2017 2017);
  - Planning Act 2008 (Planning Act 2008 2008);
  - The Road Vehicles (Construction and Use) Regulations (1986) (The Road Vehicles (Construction and Use) Regulations 1986 1986); and
  - The Road Vehicles (Authorisation of Special Types) (General) Order 2003 (The Road Vehicles (Authorisation of Special Types) (General) Order 2003 2003).
- **National Policy:**
  - National Planning Policy Framework (NPPF) (UK Government 2024); and
  - National Policy Statements (NPS):
  - Overarching National Policy Statement for Energy (EN-1) (UK Government 2025); and
  - National Policy Statement for Renewable Energy Infrastructure (EN-3) (UK Government 2025).
- **Local Policy:**
  - Nottinghamshire Local Transport Plan 3 (2011-2026) (Nottinghamshire County Council 2011);
  - Emerging East Midlands Local Transport Plan (East Midlands Combined County Authority n.d.); and
  - Bassetlaw Local Plan (2024) (Bassetlaw District Council 2024).
- **Guidance:**
  - IEMA Guidelines: Environmental Assessment of Traffic and Movement, July 2023 (Institute of Environmental Management and Assessment (IEMA) 2023);
  - Department for Transport (DfT) Circular 01/22: Strategic Road Network (SRN) and the Delivery of Sustainable Development, 2022 (East Midlands Combined County Authority n.d.);

- Planning practice guidance: Travel Plans, Transport Assessments and Statements, 2014 (Bassetlaw District Council 2024); and
- Design Manual for Roads and Bridges (DMRB), LA 112: Population and Human Health (National Highways 2024).

Proposed Approach

14.4.2 Whilst **Chapter 3: Approach to EIA** provides an indicative EIA assessment method, it also identifies that assessment methodologies may differ in accordance with the prevailing technical area guidance. As such the following sections provide a description of the assessment criteria and assessment methodologies of relevance to access, traffic and transport, which are derived from best practice guidance documents applicable to this topic and differ from those presented in the broader methodology chapter.

Sources of Impact

Construction

14.4.3 The Proposed Development would generate vehicle movements during construction by staff travelling to and from it and plant, components, materials and supplies being delivered to or removed from it. This would lead to additional cars, vans, Light Goods Vehicles (LGVs) and HGVs on the highway network.

14.4.4 The number of typical daily construction-related vehicles that will be generated during each month of the construction phase will be estimated, based on the amount of material (and number of items such as plant) required to be delivered to the Proposed Development, which will be informed by the design of the Proposed Development. The number of staff likely to be present during each month of the construction phase will be estimated based on experience of other similar developments and the phasing plan for the Proposed Development, and the resulting number of car and van movements calculated.

14.4.5 Professional judgement will be applied to estimate the routes taken by vehicles travelling to and from the Proposed Development. This judgment will be informed by a review of where potential suppliers (such as those of aggregate, concrete and waste management) are located locally and where there are large centres of population from where other supplies and staff may originate.

14.4.6 The estimates of vehicle movements will allow the month (or months) during the construction phase with the highest number of vehicle movements to be identified. The increase in vehicle movements during that month (or months) on each section of highway in the Study Area will be calculated based on the above estimates.

14.4.7 The delivery of the turbine components and other large loads during construction would require Abnormal Indivisible Load Vehicle (AILV) movements as some of the vehicles carrying the components would have at least one dimension that does not comply with the maxima in The Road Vehicles (Construction and Use) Regulations 1986 (The Road Vehicles (Construction and Use) Regulations 1986 1986). The effects of the passage of these AILVs will be considered in the assessment based on the information provided in the feasibility report mentioned in **Section 14.2** above.

Operation

14.4.8 The assessment will consider any effects on PRoW users resulting from any changes to PRoWs arising from the Proposed Development. This assessment will be informed by the guidance in DMRB LA 112: Population and Human Health (National Highways 2020).

14.4.9 Vehicle demand during operation would likely be much lower than during construction, since during operation there would be only occasional visits by maintenance or inspection staff. These would be unlikely to amount to more than one or two vehicles per day and so would be within day-to-day variation in vehicle movements on the sections of highways in the Study Area. It is proposed, therefore, that the potential effects of the vehicle movements generated by the Proposed Development once it is operational are scoped out of the assessment.

Decommissioning

14.4.10 Activities during decommissioning would likely be similar to those during construction, except that they would occur in reverse. However, access roads will be in place from the start, and some elements of the Proposed Development (such as below ground infrastructure) may remain. Hence decommissioning of the Proposed Development is likely to generate fewer vehicle movements than construction.

14.4.11 Since consent is being sought for 35 years, the decommissioning of the Proposed Development would occur so far into the future that the information collected on the existing baseline would be of limited relevance. Furthermore, any projections of the future baseline would likely be too uncertain to be useful.

14.4.12 The details of good practice guidance in place at the end of the operational life are currently unknown for assessing the decommissioning phase. It is anticipated that an appropriate decommissioning plan will be prepared for review with the local authority at the time. The decommissioning phase has therefore been scoped out of this assessment.

Assessment Screening

14.4.13 The additional vehicle movements expected to be generated by the Proposed Development will be compared to the estimated future baseline vehicle movements for the year in which construction would commence and the percentage increase in all vehicles and in HGVs only will be calculated. These increases will then be reviewed against the IEMA Guidelines (Institute of Environmental Management and Assessment (IEMA) 2023), which state:

“Following the determination of a study area, it is recommended the competent traffic and movement expert applies two broad rules of thumb as criteria to assist in delimiting the scale and extent of the environmental assessment:

Rule 1 Include highway links where traffic flows will increase by more than 30% (or the number of heavy goods vehicles will increase by more than 30%)

Rule 2 Include highway links of high sensitivity where traffic flows have increased by 10% or more.”

14.4.14 The IEMA Guidelines (Institute of Environmental Management and Assessment (IEMA) 2023) also state:

“It should also be noted that the day-to-day variation of traffic on a road is frequently at least + or - 10%. At a basic level, it should therefore be assumed

that projected changes in traffic of less than 10% create no discernible environmental impact.'"

14.4.15 All sections of highway in the Study Area would be subject to the threshold in Rule 1. The Study Area will be reviewed to identify any sections of highway that would have receptors that could be considered as being of 'high sensitivity', informed by the following advice from the IEMA Guidelines (Institute of Environmental Management and Assessment (IEMA) 2023):

"The following list identifies special interests that should be considered when defining sensitive receptor geographic locations (others can be added if the relevant authorities considered it appropriate). The sensitive locations will inform the assessment of effect significance when the development traffic is assigned to the network.

- *People at home*
- *People at work*
- *Sensitive and/or vulnerable groups (including young age; older age; oncome; health status; social disadvantage; and access and geographic factors)*
- *Locations with concentrations of vulnerable users (e.g. hospitals, places of worship, schools)*
- *Retail areas*
- *Recreational areas*
- *Tourist attractions*
- *Collision clusters and routes with road safety concerns*
- *Junctions and highway links at (or over) capacity"*

14.4.16 Where the estimated increase in traffic arising from the Proposed Development does not breach the relevant threshold for any section of highway, the significance of any effects would be considered to be not significant in EIA terms. No further assessment work would be undertaken on such sections.

Potential Topics to be Assessed

14.4.17 Where the estimated increase in traffic arising from the Proposed Development breaches the relevant 'Rule 1' or 'Rule 2' threshold for any section of highway then potential effects on the topics described in this section would be assessed.

Severance

14.4.18 Severance is the perceived division that can occur within a community when it becomes separated by major transport infrastructure and the separation of people from places and other people. The IEMA Guidelines (Institute of Environmental Management and Assessment (IEMA) 2023) state that "*Changes in traffic flow of 30%, 60% and 90% are regarded as producing 'slight', 'moderate' and 'substantial' changes in severance respectively*" and "*caution needs to be observed when applying these thresholds as very low baseline flows are unlikely to experience severance impacts even with high percentage changes in traffic*."

Road Vehicle Driver and Passenger Delay

14.4.19 The IEMA Guidelines (Institute of Environmental Management and Assessment (IEMA) 2023) state that "*Traffic delays to non-development traffic can occur at*

several points on the network surrounding a development site." Regarding the significance of effects, the Guidelines state that "*These delays are only likely to be significant when the traffic on the network surrounding the development is already at, or close to, the capacity of the system*."

14.4.20 No detailed traffic modelling (which would quantify delays to drivers) is proposed given the predominately rural nature of the highway network around the Proposed Development. Traffic resulting from the Proposed Development would not be intense during network peak periods and the likelihood, based on professional judgment, is that there is substantial spare capacity on that network.

Non-Motorised User Delay

14.4.21 The IEMA Guidelines (Institute of Environmental Management and Assessment (IEMA) 2023) state that "*Pedestrian delay and severance are closely related effects and can be grouped together. Changes in the volume, composition or speed of traffic may affect the ability of people to cross roads. In general, increases in traffic levels are likely to lead to greater increases in delay. Delays will also depend on the general level of pedestrian activity, visibility and general physical conditions of the development site*."

14.4.22 Regarding the significance of effects, the IEMA Guidelines (Institute of Environmental Management and Assessment (IEMA) 2023) state that "*Given the range of local factors and conditions that can influence pedestrian delay (e.g. a discrete delay may have a lesser impact in an urban environment than a rural setting), it is not considered wise to set down definitive thresholds. Instead it is recommended that the competent traffic and movement expert use their judgement to determine whether pedestrian delay constitutes a significant effect*."

Non-motorised User Amenity

14.4.23 The IEMA Guidelines (Institute of Environmental Management and Assessment (IEMA) 2023) define this as "*the relative pleasantness of a journey, and is considered to be affected by traffic flow, traffic composition and pavement width/separation from traffic*." The IEMA Guidelines (Institute of Environmental Management and Assessment (IEMA) 2023) also suggest that "*A tentative threshold for judging the significance of changes in pedestrian amenity would be where the traffic flow (or HGV component) is halved or doubled*" and that "*Thresholds are expressed as a starting point for any assessment and typically have been derived from studies of major changes in traffic flow and therefore should be used cautiously in any assessment. The assessment of amenity should pay full regard to specific local conditions*."

Fear and Intimidation of and by Road Users

14.4.24 This considers the effects that moving vehicles have on people. It considers matters such as the volume of traffic, the proportion of Heavy Vehicles (HV), the speed of vehicles and the proximity of traffic to people. The IEMA Guidelines (Institute of Environmental Management and Assessment (IEMA) 2023) describe a means to calculate a 'Degree of hazard score' based on the amount, composition and speed of traffic. This score is then used to identify a 'Level of fear and intimidation'; the degree of change in that level compared to the baseline is then used to categorise the magnitude of change.

Road User and Pedestrian Safety

14.4.25 The assessment of accidents relates to the potential for the traffic generated by a development to change accident rates on the road network. The IEMA Guidelines (Institute of Environmental Management and Assessment (IEMA) 2023) discuss a 'Safe System' approach but also state *"It is recommended that the traffic and movement expert engages with the relevant authorities to determine the best approach for determining the significance of road safety effects*."

14.4.26 The highway authorities will be consulted to determine if there are any locations on any of the roads within the Study Area which have atypically high accident rates and, if so, what plans the authorities have to address those rates.

Hazardous / Large Loads

14.4.27 As mentioned above, the Proposed Development would require some AILV movements to deliver some turbine components / other large loads and a report on the feasibility of delivering those components will be included as an appendix to the ES.

14.4.28 The number of AILV movements will be determined, and their potential significance will be considered based on the extent of works, if any, required to accommodate the vehicles, their number and the sections of road that they would use. There are, however, established procedures in place to manage such movements and it is considered that a risk or catastrophe analysis as described in paragraph 3.50 of the IEMA Guidelines (Institute of Environmental Management and Assessment (IEMA) 2023) is not required.

Magnitude of Impact

14.4.29 The magnitude of impact on each of the above topics would be determined based on the criteria in **Table 14-3**.

Table 14-3 Categorisation of Impact Magnitude by Topic

Topic	Impact Magnitude			
	Large	Medium	Small	Negligible
Severance	Change in road link traffic flow of 90% or over.	Change in road link traffic flow of 60% to less than 90%.	Change in road link traffic flow of 30% to less than 60%.	Change in road link traffic flow of less than 30%.
Road Vehicle Driver and Passenger Delay	Judgement based on the individual characteristics of sections of road.			Change in road link traffic flow of less than 10%.
Non-Motorised User Delay	Judgement based on the individual characteristics of sections of road.			Change in road link traffic flow of less than 10%.
Non-Motorised User Amenity	Judgement based on the individual characteristics of sections of road. Medium or Large likely if change in total traffic flows or HGV flows of more than 100%.			Change in total traffic flows or HGV flows of less than 10%.

Topic	Impact Magnitude			
	Large	Medium	Small	Negligible
Fear and Intimidation of and by Road Users	Two changes in 'Level of fear and intimidation'.	One change in level of fear and intimidation with >400 vehicle increase in average 18 hour (hr) vehicle flow or >500 Heavy Vehicle (HV) increase in total 18hr HV flows.	One change in level of fear and intimidation with <400 vehicle increase in average 18hr vehicle flow or <500 HV increase in total 18hr HV flows.	No change in Level of fear and intimidation.
Road User and Pedestrian Safety	Judgement based on accident data and individual characteristics of sections of road.			Change in road link traffic flow of less than 10%.
Hazardous / Large Loads	Judgement based on number of such movements and nature of affected road network.			

14.4.30 However, there may be instances where, for example, a relatively low increase in vehicle movements results in a relatively large percentage increase simply because the baseline vehicle movements are low. Such an increase may breach one of the thresholds in **Table 14-3**, but, in absolute terms, may be considered to have a lesser impact magnitude. Professional judgement will be used in the application of the thresholds in **Table 14-3**.

Receptor Sensitivity

14.4.31 Receptor sensitivity would be defined as shown in **Table 14-4**.

Table 14-4 Receptor Sensitivity Definitions

Sensitivity	Description
Very high	Receptor with no capacity to accommodate a particular effect and no ability to recover or adapt.
High	Receptor with very low capacity to accommodate a particular effect with low ability to recover or adapt.
Moderate	Receptor with low capacity to accommodate a particular effect with low ability to recover or adapt.
Low	Receptor has some tolerance to accommodate a particular effect or will be able to recover or adapt.
Negligible	Receptor is generally tolerant and can accommodate a particular effect without the need to recover or adapt.

14.4.32 Professional judgement will be used in the application of the definitions shown in **Table 14-4**. For example, pedestrians may be less sensitive to severance effects if there are measures in place to aid them crossing the road. This is acknowledged

in paragraph 1.31 of the IEMA Guidelines (Institute of Environmental Management and Assessment (IEMA) 2023) which states "*For example, pedestrians are less sensitive to changes in traffic if there are adequate footways and crossing facilities".*

Significance Criteria

14.4.33 An effect significance matrix based on the impact magnitude and receptor sensitivity is set out in **Table 14-5**.

Table 14-5 Effect Significance

Impact Magnitude	Sensitivity of Receptor				
	Very High	High	Moderate	Low	Negligible
Large	Major	Major	Major	Moderate	Negligible
Medium	Major	Major	Moderate	Minor	Negligible
Small	Moderate	Moderate	Minor	Minor	Negligible
Negligible	Negligible	Negligible	Negligible	Negligible	Negligible

14.4.34 Effects of 'Major' significance will be considered to be 'significant' in terms of the EIA Regulations (Infrastructure Planning EIA Regulations 2017 2017). Effects of 'Moderate' significance will be considered to be either 'significant' or 'not significant` in terms of the EIA Regulations (Infrastructure Planning EIA Regulations 2017 2017) and professional judgement used to determine the level of significance. Effects of 'Minor' or 'Negligible' significance will be considered to be 'not significant' in terms of the EIA Regulations (Infrastructure Planning EIA Regulations 2017 2017).

Mitigation

14.4.35 The assessment will identify if any mitigation measures are required to reduce the significance of any effects arising from the vehicle movements generated by the Proposed Development.

Cumulative Effects

14.4.36 A cumulative assessment will be undertaken to determine the increase in vehicle movements arising from the Proposed Development and any other relevant developments that would affect the same sections of the highway network at around the same time as the Proposed Development would be constructed. The significance of cumulative effects will be assessed using the same process as described above.

14.4.37 The baseline traffic surveys will record vehicle movements generated by potential cumulative developments that are operational or under-construction at the time of the surveys. No specific allowance need therefore be made for potential cumulative developments of these types. Insufficient information is likely to be available for potential cumulative developments that are at the scoping stage, and these are proposed to be excluded from the cumulative assessment.

14.4.38 For the purposes of this assessment, therefore, potential cumulative developments will be considered relevant if they would affect the same sections of

the highway network at around the same time as the Proposed Development would be constructed and either:

- have consent and are unbuilt; or
- are the subject of a valid (but undetermined) consent application.

Consultation and Engagement

14.4.39 Nottinghamshire County Council (NCC), Lincolnshire County Council (LCC), South Yorkshire Council (SYC) and National Highways (NH) (as highway authorities for the highways within the Study Area) will be consulted to clarify any matters arising from their responses to this Scoping Report. Matters that may need to be clarified include:

- baseline data to be used in the assessment;
- committed highway schemes that may affect the future baseline;
- PRoW locations usage and management, including the requirements for an outline Public Access Management Plan (PAMP) detailed in **Section 14.5**;
- traffic generation and distribution assumptions;
- HGV / Operational Vehicle management; and
- matters to be covered in an outline Construction Traffic Management Plan (CTMP) detailed in **Section 14.5**.

14.5 Design, Mitigation and Enhancement Measures

14.5.1 As part of the early design process for the Proposed Development, several embedded and standard mitigation measures are proposed to reduce the potential for impacts on access, traffic and transport. These are presented below. It is expected that these may evolve throughout the design of the Proposed Development as the EIA progresses and in response to consultation.

14.5.2 Measures adopted as part of the Proposed Development will include, but not be limited to, the following:

- The feasibility of using on-site borrow pits to provide aggregate for use in the construction of the Proposed Development will be considered. Any aggregate that could be won on-site would reduce the amount of aggregate that would need to be imported from off-site quarries over the public highway network.
- All phases of the Proposed Development would be undertaken in accordance with the outline PAMP, which will form part of the application for development consent, setting out the principles that would be followed when the final PAMP is finalised. The outline PAMP would seek to promote public safety, maintain appropriate access where reasonably practicable, and minimise disruption to existing public access routes (during all phases of the Proposed Development).
- All construction work would be undertaken in accordance with the outline CTMP which will form part of the application for development consent, setting out the principles that would be followed when the final CTMP is finalised. The outline CTMP would be expected to include the following topics:
    - Proposed Development information:
        - ~ details of type and number of vehicle movements expected;

- ~ details of the routes expected to be taken by HGVs and other operational vehicles; and
- ~ details of AILV movements (including likely timing, routes, escorts, notification proposals and extent of any accommodation works).

- Physical measures:
  - ~ arrangements for on-site temporary parking areas;
  - ~ arrangements for preventing deposition of debris on the Highway, such as wheel cleaning prior to vehicles entering the public highway;
  - ~ a requirement for HGVs to be sheeted to prevent dust; and
  - ~ temporary traffic management, such as speed reductions or temporary traffic signals at any sensitive locations.
- Communication measures:
  - ~ arrangements for communicating with interested parties, including elected representatives and parish councils;
  - ~ arrangements to agree protocol with emergency services; and
  - ~ arrangements for disseminating project information, including weekly updates of expected vehicle movements and work locations.
- Enforcement measures:
  - ~ measures to encourage compliance with identified vehicle routes;
  - ~ timing of deliveries to consider any sensitive times (e.g. school start and finish times);
  - ~ code of conduct for HGV drivers;
  - ~ ‘Tool box talks’ on relevant subjects;
  - ~ a requirement, where practicable and agreeable, that HGVs operated by the Principal Contractor (PC) use Global Positioning System (GPS) trackers, allowing their speed and routeing to be recorded;
  - ~ contingencies for access for emergency services during construction; and
  - ~ procedures for dealing with non-compliance with the CTMP.
- Maintenance measures:
  - ~ arrangements for cleaning any sections of public highway affected by material deposited from vehicles related to the construction of the Proposed Development;
  - ~ arrangements for before-construction and after-construction highway condition surveys; and
  - ~ arrangements for remediation measures.
- Management of CTMP:
  - ~ arrangements for monitoring and updating the CTMP;
  - ~ confirmation of a named person with responsibility for implementation of the CTMP (including contact details); and

~ development of a Travel Plan, to be included within the CTMP, for staff, aimed at reducing the number of single-occupant car movements to and from the Proposed Development.

14.5.3 The Applicant is committed to implementing these measures, and also various standard sectoral practices and procedures (Schemes such as CLOCS (Construction Logistics and Community Safety) and adherence to all necessary highway licensing & permits).

14.5.4 It is therefore considered that these measures are inherently part of the design and have been considered in the judgements as to which impacts can be scoped in / out of the assessment presented in **Section 14.6** and **Section 14.7**. The assessment of the effects of the Proposed Development will be undertaken based on these measures being implemented.

14.5.5 Additional mitigation measures will be considered where significant effects are anticipated to remain after embedded design measures and standard good practice controls have been applied. If residual impacts persist, proportionate further actions, such as enhancement, remediation or compensation, will be identified to address those remaining effects.

14.5.6 Further detail on the role of mitigation commitments, as part of a proportionate EIA approach, is provided in **Chapter 3: Approach to EIA.** A full description of the mitigation commitments identified so far is provided in **Appendix 3A:** Draft Register of Environmental Actions and Commitments (REAC) in **Volume B**.

14.5.7 The requirement for feasibility and reasonableness of, any mitigation measures will be subject to consultation with consultees throughout the pre-application phase of the Proposed Development.

14.6 Potential Impacts Scoped In

14.6.1 A range of potential impacts on access, traffic and transport have been identified which may occur during the construction, operation and maintenance, and decommissioning phases. The impacts that have been scoped into the EIA are outlined in **Table 14-6** together with a description of any proposed additional data collection (e.g. site-specific surveys) and/ or supporting analyses (e.g. modelling) to enable an assessment of the impact.

Table 14-6 Impacts proposed to be scoped into the assessment for Access, Traffic and Transport

Impact	Description	Proposed Approach to Assessment Including Description of Any New Data Collection Required and Any Analyses (Such as Modelling)
Construction		
Additional vehicle movements.	Potential effects on the following topics: • Severance • Road Vehicle Driver and Passenger Delay • Non-Motorised User Delay	Collection of baseline vehicle movement data (from traffic surveys where required) and projection of future baseline vehicle movement data. Initial screening to determine extent of impact of additional vehicle movements during peak of construction (based on ‘Rule 1’ and ‘Rule 2’ thresholds in IEMA Guidelines

Impact	Description	Proposed Approach to Assessment Including Description of Any New Data Collection Required and Any Analyses (Such as Modelling)
	• Non-Motorised User Amenity • Fear And Intimidation of and by Road Users • Road User and Pedestrian Safety • Hazardous / Large Loads.	(Institute of Environmental Management and Assessment (IEMA) 2023) Assessment of effects in line with IEMA Guidelines where relevant 'Rule 1' or 'Rule 2' threshold is exceeded.
Temporary delay to users of PRoW where crossed by construction traffic or where a PRoW diversion is required.	PRoW users may be affected by diversions or crossings required to facilitate construction, reducing accessibility and convenience.	Production of PAMP including consideration of safe crossing points and clear signage.
Connection route to National Electricity Transmission System (NETS)	Potential effects of likely construction works required to install connection to the grid.	High level desk based appraisal of impacts to inform cumulative assessment with the Proposed Development will be undertaken. It is not expected at this stage that site survey work would be required, but this will be kept under review as the EIA progresses
Cumulative	Potential cumulative developments would be identified as described in **Section 14.4**.	The cumulative impacts would be assessed as described in **Section 14.4**.
Operation and Maintenance		
Changes in journey length of PRoW users.	Changes to PRoWs arising from the Proposed Development may alter the journey length of PRoW users	Assessment of changes would be informed by the guidance in DMRB LA 112: Population and Human Health (National Highways 2020), which may include surveys of PRoW usage.
Decommissioning		
Decommissioning phase impacts are scoped out as detailed in **Table 14-7**.		

14.7 Impacts Proposed to be Scoped Out

14.7.1 Based on the baseline environment information currently available and the Proposed Development description (outlined in **Chapter 2**) the impact of the vehicle movements generated by the Proposed Development during its operation and maintenance is proposed to be scoped out of the EIA for access, traffic and transport. The justification for this is described in **Table 14-7**.

Table 14-7 Impacts proposed to be scoped out of the assessment for Access, Traffic and Transport

Impact	Justification for Scoping Out
Construction	
Construction phase impacts are scoped in as detailed in **Table 14-6**.	
Operation and Maintenance	
Additional vehicle movements.	There would be only the occasional maintenance and inspection vehicle movements generated by the Proposed Development once operational. In the scenario where a major maintenance event is required, such as a blade change, an AILV movement may be required. Feasibility of such AILV movements is being assessed as part of the construction phase assessment. Such AIL movements would be undertaken using the necessary protocols for Special Types General Order (STGO) / Special Movements Order (SMO).
Decommissioning	
Additional vehicle movements.	1. This phase will share similar characteristics with the construction phase but benefit from infrastructure already being in place, such as the internal access roads. The effects associated with the construction phase can be considered to be representative of reasonable worst-case decommissioning effects and therefore applied as a proxy. Impacts from the decommissioning phase would be less than for construction phase as infrastructure would be in place and the process is less onerous in terms of haulage and labour requirements. Furthermore, the decommissioning of the Proposed Onshore Development would occur so far into the future that the information collected on the existing baseline would be of limited relevance. The details of good practice guidance in place at the end of the operational life are currently unknown for assessing the decommissioning phase. It is anticipated that an appropriate decommissioning plan will be prepared for review with the local authority at the time. The decommissioning phase has therefore been scoped out of this assessment.

14.8 Summary of Next Steps

14.8.1 The next steps to assess the effects of the Proposed Development on access, traffic and transport include:

- consultation with highway authorities as necessary following receipt of the Scoping Opinion;
- collection of baseline data, such as accident and vehicle movement data;

- preparation of vehicle movement estimates based on design of the Proposed Development;
- assessment of the effects of the vehicle movements on access, traffic and transport; and
- identification of any mitigation measures required beyond those listed in **Section 14.5**.

14.9 Further Consideration for Consultees

14.9.1 The following questions are provided to help frame the consultees comments on the Scoping Report for access, traffic and transport:

- **Q14.1**: Is the proposed methodology acceptable?
- **Q14.2**: Are there any key locations on the road network within the Study Area that consultees would wish to see considered as sensitive receptors?
- **Q14.3**: Are there any locations on the road network within the Study Area with atypically-high accident rates?
- **Q14.4**: Do you have any specific HGV / operational vehicle routing suggestions?
- **Q14.5**: Are there any particular committed developments that consultees would wish to see included in the cumulative assessment?

15. Hydrology, Hydrogeology, Water Resources and Flood Risk

15.1 Introduction

15.1.1 This chapter of the Scoping Report sets out the proposed scope and methodology of the hydrology, hydrogeology, water resources, and flood risk assessment for the Proposed Development. It identifies the potential likely significant effects arising from the construction, operation and maintenance, and decommissioning of the Proposed Development, in isolation and cumulatively, on hydrology, hydrogeology, water resources, and flood risk. This chapter also explains how likely significant effects would be assessed for the purposes of the EIA.

15.1.2 Details of the construction, operation and maintenance, and decommissioning of the Proposed Development are set out in **Chapter 2: Proposed Development Description.**

15.1.3 There are interrelationships between the potential effects on hydrology, hydrogeology, water resources, flood risk and other environmental topics. Therefore, this chapter should be read alongside the following chapters of the Scoping Report:

- **Chapter 5: Geology, Soils, Ground Conditions and Peat; and**
- **Chapter 6: Ecology.**

15.1.4 This chapter is supported by the following Figures in **Volume A**.:

- **Figure 15.1: Hydrological Features;**
- **Figure 15.2a-e: Watercourses and Flooding; and**
- **Figure 15.3: Hydrogeological Setting.**

15.2 Study Area

15.2.1 The hydrology, hydrogeology, water resources, and flood risk assessment presented in this chapter has been undertaken within the study area presented within this section. The study area for hydrology, hydrogeology, water resources, and flood risk is shown in **Figure 15.1 (Volume A).**

15.2.2 The study area has been defined for the purposes of Scoping as including the Site and a 500 m buffer around the Site boundary, and encompasses the areas over which all desk based, and field data will be gathered to inform assessment. This buffer reflects professional judgement and industry best practice based on the likely Zone of Influence (ZoI) on the water environment for onshore wind projects.

15.2.3 However, it is also possible, without suitable mitigation, for impacts on the water environment to extend further downstream. The distance in which impacts may occur is influenced by various factors i.e. watercourse characteristics, channel flow, pollutant type, etc. The water environment baseline will be further developed at later stages of the assessment, and consideration of any other downstream surface water receptors will be identified at this stage. A precautionary distance of 2 km downstream from the Proposed Development will be considered, however this will be kept under review as further information around the baseline and Proposed Development is obtained.

15.2.4 The study area for hydrology, hydrogeology, water resources, and flood risk has been defined for the purposes of Scoping using the Site boundary.

15.2.5 The Proposed Development will continue to evolve through the EIA process as design, assessment and consultation are undertaken. As the Scoping boundary is refined, the study area for the hydrology, hydrogeology, water resources, and flood risk assessment will be updated accordingly and defined.

15.2.6 At the time of writing, grid connection options have yet to be confirmed. It is anticipated that the Environmental Statement will identify an appropriate grid connection corridor, where sufficient information is available, and will include a robust assessment of any cumulative environmental effects associated with the proposed grid connection infrastructure.

15.3 Baseline Environment

Overview of Available Data Sources

15.3.1 The data sources that have been used to inform this chapter of the Scoping Report are presented within **Table 15-1**, and were accessed in August 2026. These data sources will be taken forward and used to inform the EIA, alongside any additional data sources or site-specific data that will be collected for the Proposed Development.

Table 15-1: Key sources of information for Hydrology, Hydrogeology, Water Resources and Flood Risk

Source	Summary	Spatial Coverage of Study Area
Google Earth aerial imagery (Google 2026)	Used to identify existing land uses and sensitive receptors within the study area.	Full coverage of the study area.
Ordnance Survey (Ordnance Survey 2026)	Ordnance Survey mapping for identification of topography, watercourses, springs, lakes and other water features.	Full coverage of the study area.
Environment Agency and data.gov.uk website (Environment Agency 2026)	Flood zone mapping; spatial flood defence data and mapping; flood warning and flood alert areas; main rivers; ordinary watercourses; groundwater Source Protection Zones (SPZ); Water Framework Directive (WFD) surface water and groundwater classification data; and National LiDAR data.	Full coverage of the study area.
British Geological Survey (BGS) Mapping (British Geological Survey (BGS) 2026)	Geology (artificial ground, superficial deposits, bedrock); borehole/ well data; aquifer designation and groundwater vulnerability.	These are national datasets providing full coverage of the study area.
Department for Environment Food and Rural Affairs (Defra) magic website/ Natural England	Statutory and non-statutory environmental designations.	These are national datasets providing full coverage of the study area.

Source	Summary	Spatial Coverage of Study Area
(Department for Environment, Food and Rural Affairs (Defra) 2026)		
Isle of Axholme and North Nottinghamshire Water Level Management Board	Area map used to identify board-maintained watercourses and pumping stations.	Full coverage of the Site.

Overview of Baseline Environment – Current Baseline

15.3.2 The following section provides a summary of the current baseline for the study area.

Geology and Soils

15.3.3 Information on the geology and soils beneath the study area has been presented below in order to provide context with regard to hydrogeology and flood risk. The geology is also described in detail in **Chapter 5: Geology, Soils, Ground Conditions and Peat.**

15.3.4 The Site is shown to be underlain by pebbly (gravelly) sandstone bedrock of the Chester Formation. Across the eastern, central, and south-western areas of the Site, the sandstone is shown to be overlain by mudstone of the Mercia Mudstone Group.

15.3.5 The bedrock beneath the Site is recorded to be primarily overlain by superficial deposits comprising of peat. There are also isolated areas of alluvial deposits consisting of silt, sand, and gravel within the south-eastern and south-western areas of the Site. Isolated areas of sand of the Sutton Sand Formation are present within the south-eastern area of the Site and along the northern Site boundary. There is also an isolated area of river terrace deposits comprising of sand and gravel within the north-western extent of the Site.

15.3.6 The soils beneath most of the Site are indicated to comprise loamy and sandy soils with naturally high groundwater and a peaty surface. The central and north-western areas of the Site are shown to comprise fen peat soils.

Hydrogeology

15.3.7 The local hydrogeology is shown in **Figure 15.3 (Volume A)**.

15.3.8 The sandstone bedrock is designated as a Principal Aquifer, whilst the mudstone bedrock is designated as a Secondary B Aquifer. Principal Aquifers are defined as *"layers of rock that have high intergranular flow and/or fracture permeability – meaning they usually provide a high level of water storage. They may support water supply and/or river base flow on a strategic scale"*. Secondary B Aquifers are defined as *"predominantly lower permeability layers which may store and yield limited amounts of groundwater due to localised fissured, thin permeable horizons and weathering"*.

15.3.9 The peat superficial deposits are designated as unproductive aquifers; whereby they have *"negligible significance for water supply or river base flow"*. In contrast, the alluvial deposits (silt, sand, and gravel), river terrace deposits (sand and gravel), and sand deposits are designated as Secondary A Aquifers.

15.3.10 Based on the preliminary conceptual hydrogeological understanding, there is potential for significant volumes of groundwater to be present beneath the Site, with potential for groundwater levels to be close to the surface. The lower permeability mudstone bedrock will provide some protection to the underlying aquifer from pollutants but may also cause a perched water table. Where shallow groundwater is present, this is likely to be in hydraulic continuity with local field ditches, the River Idle and the River Trent.

15.3.11 Groundwater within the sandstone bedrock forms part of the regional Idle Torne – PT Sandstone Nottinghamshire & Doncaster Water Body, whilst groundwater within the mudstone bedrock forms part of the regional Idle Torne – Secondary Mudrocks Water Body. Both groundwater bodies are monitored under Cycle 3 of the WFD, with a current (2019) overall status of poor and good, respectively.

15.3.12 The reasons the Idle Torne – PT Sandstone Nottinghamshire & Doncaster Water Body did not achieve good status are attributed to diffuse source pollution from poor nutrient and livestock management, and groundwater abstractions.

15.3.13 The western extent of the study area falls within Source Protection Zone 3 (SPZ3), associated with abstractions to the north-west and south-west of the Site. SPZ3 represents the total catchment from which water may eventually reach the abstraction point, considering factors such as geology, soil permeability, and groundwater flow.

Local Hydrology

15.3.14 The local hydrology is shown on **Figure 15.1 (Volume A)**.

15.3.15 The study area is predominantly located within the Idle River Operational Catchment. The northern extent of the study area is located within the Isle of Axholme Operational Catchment, whilst the very north-eastern extent of the study area is located within the Trent and Tributaries Operational Catchment. All of these operational catchments form part of the wider Humber River Basin District.

15.3.16 The Site itself is wholly located within the surface water catchment of the River Idle, which is designated as a Main River by the Environment Agency (EA) at this location. The River Idle drains from west to east adjacent to the northern boundary of the Site, discharging to the River Trent approximately 7 km downstream of the Site via an EA control gate. Whilst the River Trent is a tidally influenced watercourse at this location, the control gate means that the River Idle is only fluvial in nature.

15.3.17 The River Idle is monitored under Cycle 3 of the WFD as part of the Idle from Ryton to Trent river water body; an artificial waterbody with a current (2022) overall classification of *"moderate ecological status"*. Reasons for not achieving good status are attributed to physical modification for land drainage, diffuse and point source pollution from transport drainage, poor soil management and sewage discharge, and flow alterations due to groundwater and surface water abstractions.

15.3.18 Numerous field drains are present across the Site, ultimately draining to the River Idle. The main spine drains across the Site and study area are managed by the Isle of Axholme and North Nottinghamshire Water Level Management Board / Internal Drainage Board (IDB), with an IDB managed pumping station present within the northern extent of the Site. The field drains across the study area are relatively flat, collecting surface water runoff from adjacent fields. Active management of water levels by the IDB draws water from the surrounding network

of drains towards the pumping station at the northern end of Carr Road West Drain; from here water is pumped into the River Idle.

15.3.19 In the south of the Site a reservoir is noted to be present. This reservoir is associated with Pollybell Farm and is used for irrigation and features a floating solar farm for electricity production.

15.3.20 Whilst the Site is not located in a surface water Drinking Water Protected Area (DWPA), the River Trent downstream of the Site is designated as a surface water DWPA.

Flood Risk

15.3.21 Flood risk mapping for the study area is shown in **Figure 15.2a-e (Volume A)**.

15.3.22 The study area is remote from the coast and the River Idle is not tidally influenced. Therefore, the Site is not considered to be at risk of flooding from tidal sources or the Sea.

15.3.23 The EA Flood Map for Planning indicates that the Site is located within Flood Zone 3, associated with the natural floodplain of the River Idle. Flood embankments are present along both banks of the River Idle at this location, with land to the north of the River Idle designated as a water storage area. These defences will afford some protection to the Site.

15.3.24 Surface water (pluvial) flood mapping indicates large areas of the Site are at increased risk of surface water flooding. However, water levels across the IDB district are actively managed which is not reflected in the national surface water flood risk datasets.

15.3.25 A Flood Risk Assessment (FRA) will be submitted with the application for development consent which will assess the risk of flooding to the Site from all sources.

Water Abstractions

15.3.26 SPZ mapping indicates that there are public groundwater water abstractions located approximately 3.4 km and 2.3 km north-west and south-west of the Site, respectively.

15.3.27 Based on the anecdotal evidence, it is also understood that Little Carr Farm is served by a private borehole abstraction located within the Site boundary.

15.3.28 Details of public and private water abstractions will be obtained as part of the EIA process, and a Private Water Supply (PWS) survey will be undertaken as part of the fieldwork associated with the EIA process; this will confirm the location of the potential abstraction associated with Little Carr Farm.

Designated Sites

15.3.29 The statutory designated sites located within the study area are shown on **Figure 7.3 (Volume A)**. There are no Special Protection Areas, Special Areas of Conservation, Ramsar sites, National Nature Reserves (NNR) or Local Nature Reserves (LNR) within the Study Area for the hydrology, hydrogeology, water resources, and flood risk assessment.

15.3.30 The River Idle Washlands Site of Special Scientific Interest (SSSI) lies within the northern and north-eastern areas of the study area, adjacent to the River Idle. The washlands are designated for their washland grassland and are important feeding

and roosting sites for wintering and breeding birds. The site is under pressure from scrub encroachment, under-grazing, and water level changes. This habitat is considered to be water dependent, sensitive to changes in water levels, and is hydrologically connected to the Site.

15.3.31 The Misson Line Bank SSSI lies within the north-eastern area of the study area, immediately north of the flood embankment along the left bank of the River Idle and is designated for its wetland plant communities. The site is under pressure from scrub encroachment, woodland management, and water level changes. This habitat is considered to be water dependent, sensitive to changes in water levels, and is likely to be hydrologically connected to the Site.

15.3.32 The Misson Training Area SSSI lies 500 m north of the Site. It is designated for its semi-natural habitats, including standing open water, tall-herb fen, unimproved neutral and acidic grassland, dry oak woodland, and regionally restricted wet woodland types. The site is under pressure from under grazing and drainage. Whilst this habitat is considered to be water dependent, and sensitive to drainage, it is hydrologically disconnected from the Site by the River Idle.

15.3.33 There are no other designated sites within 2 km of the Site which are hydrologically connected to the Proposed Development.

15.3.34 The presence of any Groundwater Dependent Terrestrial Ecosystems (GWDTEs) will be identified through review of results of ecological surveys conducted post-scoping and will be assessed as part of the Environmental Statement (ES).

Summary of Sensitive Receptors

15.3.35 Based on the desk study undertaken above, they key receptors within the hydrology, hydrogeology, water resources and flood risk study area have been identified as follows.

Hydrology

15.3.36 The key surface water receptors within the study area are the hydraulically connected IDB managed drains, on-site field drains, the River Idle, and Pollybell Farm reservoir.

15.3.37 These receptors have several attributes that could be affected by the Proposed Development, including water quality, water levels, flow conveyance, and hydromorphology.

15.3.38 On-site and downstream field drains and watercourses may also support existing water interests such as abstractions providing water supplies, water dependent habitats, receiving discharges, and transporting / diluting waste waters. This will be confirmed through further assessment work post-scoping.

15.3.39 Other key water environment receptors include the River Idle Washlands SSSI and the Misson Line Bank SSSI. The ecological and hydrological function of these designated sites are under pressure from water level changes and drainage.

Hydrogeology

15.3.40 The key groundwater receptors within the study area have been identified to be groundwater within the sandstone bedrock, the limited groundwater within the mudstone bedrock, and the perched water table within the superficial deposits upon the mudstone. Groundwater can form a key linkage into baseflow for rivers, provide a water supply resource, and support ecological habitat.

15.3.41 The presence of any GWDTEs will be identified through review of results of ecological surveys conducted post-scoping and will be assessed as part of the ES.

Water Resources

15.3.42 Details of public and private water supplies will be confirmed post-scoping. However, preliminary evidence suggests that the key water resource receptors will be potable groundwater abstractions to the north-west and south-west of the Site and the private borehole abstraction at Little Carr Farm. There is the potential for additional water abstractions to be identified post-scoping; these will be included and assessed in the ES where necessary.

Flood Risk

15.3.43 The Site is shown to be at high risk of flooding from the River Idle and surface water. Whilst the affected land is largely agricultural, the mapped floodplains are extensive and do impact residential properties on-site and downstream. All on-site and downstream flood risk receptors will be assessed in the FRA.

15.4 Proposed Approach to the Environmental Impact Assessment

Proposed Assessment Methodology

15.4.1 The EIA will follow the overarching methodology outlined in Chapter 3**:** Approach to EIA. While those principles provide the foundation for this assessment, this chapter explains how they will be applied and, where necessary, adapted to address the specific requirements of the hydrology, hydrogeology, water resource and flood risk assessment in the ES.

15.4.2 A FRA will be prepared as a technical appendix to the ES and will inform the assessment of impacts in the hydrology, hydrogeology, water resource and flood risk chapter.

15.4.3 A WFD screening assessment will also be undertaken for the River Idle. The assessment will be presented as a technical appendix to the ES and will inform the requirements for any further WFD assessment, where required.

Relevant Legislation, Policy and Guidance

15.4.4 This section describes the legislation, key national policy (as set out in National Policy Statements), local policy and guidance that is specific to hydrology and hydrogeology. The ES chapter will demonstrate compliance with the relevant legislation, policy and guidance.

Legislation

- The Water Framework Directive (2000/60/EC) (the WFD), which is transposed and implemented within England through the Water Environment (WFD) (England and Wales) Regulations 2017.
- The Groundwater Directive (2006/118/EC, including amendments to Annex II detailed under Directive 2014/80/EU) (the GWD). Aspects of the GWD are transposed and implemented through the Water Environment (WFD (England and Wales) Regulations 2017, the Environmental Permitting (England and Wales) Regulations 2016 and the Groundwater (England and Wales) Regulations 2009.

- The Floods Directive (2007/60/EC), which is transposed and implemented within England through the Flood Risk Regulations 2009.
- The Town and Country Planning (Environmental Impact Assessment) Regulations 2017.

15.4.5 The objectives of the above directives that are relevant to the hydrology, hydrogeology, water resource and flood risk are met through the following UK legislation, relevant to the protection of the hydrology, hydrogeology, water resources and flood risk:

- Environmental Permitting (England and Wales) Regulations 2016;
- Flood and Water Management Act 2010;
- Water Resources Act 1991 (Amendment) (England and Wales) Regulations 2009;
- Land Drainage Act 1991;
- Land Drainage Act 1994;
- Environment Act 1995 and Environment Act 2021;
- Private Water Supplies (England) Regulations 2016;
- Environmental Protection Act 1990; and
- Water Act 2014.

National Policy

15.4.6 The National Planning Policy Framework (NPPF) sets out the national planning policies within England and is supported by the Planning Practice Guidance (PPG) which sets out how these policies should be applied. See **Chapter 4: Legislation and Policy Context** for further information,

15.4.7 The PPG provides a web-based resource which supplements the NPPF and provides further guidance on flood risk within its ‘Flood Risk and Coastal Change’ section, as well as explanatory advice on water quality within its ‘Water supply, wastewater and water quality’ section. The PPG also provides a ‘Climate Change’ chapter, which identifies the requirement for all developments to mitigate against the impact of climate change by incorporating climate change factors into the design.

Local Policy

- Bassetlaw Local Plan 2020-2038 (Bassetlaw District Council 2024):
  - Policy ST33: Design Quality;
  - Policy ST36: Green Gaps;
  - Policy ST37: Green and Blue Infrastructure;
  - Policy ST38: Biodiversity and Geodiversity;
  - Policy ST48: Reducing Carbon Emissions, Climate Change Mitigation and Adaption;
  - Policy ST49: Renewable Energy Generation;
  - Policy ST50: Flood Risk and Drainage; and

- Policy ST51: Protecting Water Quality and Management.

15.4.8 Further local documents, of relevance to hydrology, hydrogeology, water resource and flood risk, which feed into and set out the delivery aspects of local policy are listed below:

- Strategic Flood Risk Assessment for Bassetlaw District Council – 2019 (Bassetlaw District Council 2020);
- Nottinghamshire Preliminary Flood Risk Assessment 2023 – 2029 (Nottinghamshire County Council 2023); and
- Nottinghamshire Flood Risk Management Strategy 2021 – 2027 (Nottinghamshire County Council 2021).

Guidance

15.4.9 Other guidance on good practice that is of relevance to hydrology, hydrogeology, water resources and flood risk includes:

- Control of Water Pollution from Construction Sites (C532), (Construction Industry Research and Information Association (CIRIA) 2001);
- Environmental Good Practice on Site (C811), (CIRIA 2023);
- The Environment Agency's approach to groundwater protection, version 1.2, February 2018 (Environment Agency 2018);
- The SuDS Manual (C753), (CIRIA 2015);
- National Standards for Sustainable Drainage Systems (SuDS) 2025; and
- Design Manual for Roads and Bridges (DMRB).

15.4.10 In the absence of relevant English guidance in relation to wind farm developments; the following guidelines will also be adopted:

- Guidance on Assessing the Impact of Development on Groundwater Dependent Terrestrial Ecosystems (Scottish Environment Protection Agency (SEPA) 2024); and
- Guidance on Assessing the Impacts of Development on Groundwater Abstractions (SEPA 2024).

Significance Evaluation Methodology

15.4.11 The significance level attributed to each effect will be assessed based on the 'sensitivity' of the affected receptor and the magnitude of change resulting from the Proposed Development. The level of significance is then determined by the combination of receptor sensitivity and magnitude of change.

15.4.12 Receptor sensitivity is assessed on a scale of High, Medium, Low and Very Low, whilst magnitude of change is assessed on a scale of High, Medium, Low and Negligible. These criteria are defined and applied based on professional judgement, using recognised approaches to classification relevant to the receptor types, including WFD, the NPPF and DMRB, all of which represent good practice for hydrology, hydrogeology and flood risk assessments within EIAs.

Sensitivity of Receptor

15.4.13 The sensitivity of the receiving environment (i.e. the baseline quality of the receiving environment as well as its ability to absorb the effect without perceptible change) will be considered through a set of pre-defined criteria outlined in **Table 15-2**.

Table 15-2: Definitions of Receptor Sensitivity

Sensitivity	Criteria	Description
High	Aquatic environment feature with a high quality and rarity at an international scale, with little potential for substitution. Water resources supporting human health and economic activity at a regional scale. Property and infrastructure with a very high vulnerability to flooding.	Watercourses, waterbodies and tributaries of national importance. Watercourses or waterbodies supporting highly sensitive large-scale abstractions. Watercourses or waterbodies of good chemical status/ high ecological status and/ or high-quality targets under the WFD. Watercourses or waterbodies protected under international legislation, with an environmental designation for ecological/ conservation value, for example Special Area of Conservation (SAC), Special Protection Area (SPA), Ramsar. Aspects of the Proposed Development are classified as highly vulnerable to flood risk. Flood Zone 3 floodplains within the Flood Map for Planning, which are narrow and floodplains where a small increase in volume results in a relatively large increase in flood levels. Public potable water supply from either surface or groundwater source. Aquifer is a Principal Aquifer providing regionally important potable water supply and classified as a groundwater SPZ.
Medium	Aquatic environment feature with a high yield and/ or quality and rarity at a national scale, with a limited potential for substitution. Water resources supporting human health and economic activity at a local scale. Property and infrastructure with a high vulnerability to flooding.	Watercourses, waterbodies and tributaries of district or regional importance. Watercourses or waterbodies supporting moderately sensitive abstractions. Watercourses or waterbodies of good chemical status/ moderate to good ecological status and/ or moderate to high-quality targets under the WFD. Watercourses or waterbodies protected under national conservation designations, for example SSSI, NNR, where the designation is based specifically on aquatic features. Flood Zone 2 floodplains within the Flood Map for Planning with limited constraints to the watercourse. PWS from a watercourse or waterbody for potable use or non-drinking water abstraction for agricultural use from either surface or groundwater source. Aquifer is a Principal Aquifer not designated as SPZ.
Low	Aquatic environment feature with a medium yield and/ or quality at a regional scale, or	Watercourses, waterbodies and tributaries of local importance.

Sensitivity	Criteria	Description
	good quality at a local scale, with some potential for substitution. Water resources supporting human health and economic activity at household or individual business scale. Property and infrastructures with a moderate to low vulnerability to flooding.	Watercourses or waterbodies supporting abstractions of limited sensitivity. Watercourses or waterbodies with a chemical water quality status classed as 'fail' or an ecological water quality status classed as 'poor' and/ or moderate quality targets under the WFD. Watercourses or waterbodies protected under local conservation designations, for example LNR, County Wildlife site, where the designation is based specifically on aquatic features. Receptors classified as 'less vulnerable' to flood risk. Flood Zone 1 or 2 floodplains within the Flood Map for Planning, where any floodplain is wide and a large increase in volume results in a small increase in flood levels. Aquifer is a Secondary A or Secondary B Aquifer.
Very Low	Aquatic environment feature with a low yield and/or quality at a local scale, with good potential for substitution. Water resources that do not support human health, and of only limited economic benefit. Property and infrastructure that are resilient to flooding.	Small artificial, or heavily modified watercourses or waterbodies of limited local importance, with low habitat potential. Watercourses or waterbodies supporting no recorded abstractions. Watercourses or waterbodies with a chemical water quality status classed as 'fail' and an ecological water quality status classed as 'poor', and/ or low-quality targets under the WFD. Unlicensed non-potable surface water abstractions.

Magnitude of Change

15.4.14 The magnitude of impact upon hydrology, hydrogeology, water resources and flood risk receptors is determined by defining the duration and reversibility of the impact. The potential magnitude of impact would depend upon whether the potential impact would cause a fundamental, material or detectable change. In addition, the timing, scale, size and duration of the potential change resulting from the Proposed Development are also determining factors.

Significance of Effect

15.4.15 The likelihood of an effect occurring needs to be considered in any assessment and is evaluated using professional judgement and past experience of similar developments.

15.4.16 The effect's significance is determined by correlating the potential magnitude of the impact and sensitivity of the receptor, as defined in the matrix presented in **Table 15-3**. The nature of effect would be defined as either Adverse, Beneficial or Neutral.

Table 15-3: Significance of Effect Matrix

		Magnitude			
		High	**Medium**	**Low**	**Negligible**
Significance	**High**	Major	Major	Moderate	Minor
	Medium	Major	Moderate	Minor	Negligible
	Low	Moderate	Minor	Minor	Negligible
	Very Low	Minor	Negligible	Negligible	Negligible

15.4.17 The final assessment for each effect is based upon professional judgement, after taking likelihood into consideration. Effects assessed as Major will be considered significant and reported as such in the ES. Effects assessed as Moderate will be considered potentially significant and will be subject to further investigation during the assessment process, following refinement of design information. Effects assessed as Minor or Negligible are deemed to be not significant in EIA terms.

Cumulative Effects

15.4.18 The assessment will also consider potential cumulative effects associated with other relevant developments in the cumulative development list (see **Chapter 3: Approach to EIA** for how this list will be compiled) within 2 km of the Site and in the same surface water or groundwater catchment as the Proposed Development. A cumulative effect is considered to be the effect on a hydrological and hydrogeological receptor arising from the Site in combination with other developments within the cumulative study area which are likely to affect surface water or groundwater environments.

Further Baseline Data

15.4.19 A number of site walkovers have been undertaken to date and further walkovers will be undertaken to inform the EIA. This will enable a visual survey of the Site to verify existing features but to also identify any outstanding hydrological, hydrogeological, water resource and flood risk related issues or features, particularly those not readily apparent from desk-based assessments or existing mapping.

15.4.20 In addition to the walkover survey, further data collection will be undertaken to fully assess the potential impacts of the Proposed Development on the hydrology, hydrogeology, water resource and flood risk within the study area. This will include targeted data requests to the EA, Lead Local Flood Authority (LLFA), Local Planning Authorities, and IDB to gather essential information, such as flood risk, maps, data relating to water users (licenced abstractions or registered PWS), groundwater data and hydrological studies.

15.4.21 It is also anticipated that fieldwork relating to PWSs will be undertaken to gain a comprehensive understanding of water abstractions and water resource vulnerability within the Site and study area.

15.4.22 Properties within the study area that are not registered PWS users and are not within an area currently supplied by mains water will be identified via a programme of site-specific field investigation. This will involve contacting and visiting (should

permission be granted) the properties within the study area, enquiring about their water use and source, and mapping any water abstraction locations.

Consultation and Engagement

15.4.23 Consultation will be undertaken and recorded throughout the pre-application stages of the Proposed Development, with the following key consultees:

- Environment Agency;
- Natural England;
- Bassetlaw District Council and Nottinghamshire County Council inclusive of their LLFA.

15.4.24 The aim of this consultation will be to discuss findings with a view to reaching agreement on issues prior to submission of the application. Where required, this will also include discussion on details of assessment methods.

15.4.25 Consultation will be reviewed throughout the assessment process. Additional consultees such as local or specialist groups will be contacted should a requirement to consult with other bodies arise. Engagement with the key consultees will continue post submission.

15.5 Design, Mitigation and Enhancement Measures

15.5.1 As part of the early design process for the Proposed Development, several embedded and standard mitigation measures are proposed to reduce the potential for impacts on hydrology, hydrogeology, water resource and flood risk. These are presented below. It is expected that these may evolve throughout the design evolution of the Proposed Development as the EIA progresses and in response to consultation.

15.5.2 Measures adopted as part of the Proposed Development will include, but not be limited to, the following:

- embedded design measures including, but not limited to:
  - existing access tracks and watercourse crossings will be utilised as part of the Proposed Development where technically possible, and any new tracks will be designed to limit the amount of watercourse crossings required;
  - a buffer of 50 m will be applied to watercourses shown on 1:10,000 scale mapping and where practicable, development will be avoided within these buffers; and
  - design to avoid impacts on PWS sources and areas of GWDTEs where possible;
- development of, and adherence to, an outline Construction Environmental Management Plan (CEMP), which will form part of the application for development consent, which would include, but not be limited to the following:
  - outline Pollution Prevention and Emergency Incident Response Plan, which would set out the pollution prevention measures, and emergency incident responses, which would be implemented during the construction phase of the Proposed Development;
  - setting out principles for storage and handling of oils, fuels or other potentially polluting substances;

  - good practice measures for the management of erosion and sedimentation;
  - water quality monitoring requirements before, during and immediately post-construction; and
  - drainage principles, including the incorporation of SuDS and good practice in relation to the management of surface water runoff rates and volumes.
- during operation, an Operational Phase Environmental Management Plan (OPEMP) will be developed to describe the overarching principles and measures through which environmental impacts associated with the operational and maintenance phase, as identified in the EIA, would be appropriately managed. An outline OPEMP will form part of the application for development consent and will set out the principles to be followed when the final OPEMP is finalised; and
- development of, and adherence to, a Decommissioning Plan, which would be prepared for the Proposed Development prior to decommissioning in accordance with the latest available guidance and legislation. An outline Decommissioning Plan will form part of the application for development consent and will set out the principles to be followed when the final Decommissioning Plan is finalised. The measures would be consistent with those applied during construction but would be proportionate to the nature of the decommissioning activities.

15.5.3 The Applicant is committed to implementing these measures, and also various standard sectoral practices and procedures (such as adherence to industry best practice construction methodology and all necessary licensing and/or permits).

15.5.4 It is therefore considered that these measures are inherently part of the design and have been considered in the judgements as to which impacts can be scoped in/ out of assessment presented in **Sections 15.6** and **15.7.**

15.5.5 Additional mitigation measures will be considered where significant effects are anticipated to remain after embedded design measures and standard good practice controls have been applied. If residual impacts persist, proportionate further actions, such as enhancement, remediation or compensation, will be identified to address those remaining effects.

15.5.6 Further detail on the role of mitigation commitments, as part of a proportionate EIA approach, is provided in **Chapter 3:** Approach to EIA. A full description of the mitigation commitments identified so far is provided in **Appendix 3A**: Draft Register of Environmental Actions and Commitments (REAC) in **Volume B**.

15.5.7 The requirement for, and feasibility of, any mitigation measures will be subject to consultation with consultees throughout the pre-application phase of the Proposed Development.

15.6 Potential Impacts Scoped In

15.6.1 A range of potential impacts on hydrology, hydrogeology, water resource and flood risk have been identified which may occur during construction, operation and maintenance, and decommissioning phases. The impacts that have been scoped into the EIA are outlined in **Table 15-4** together with a description of any proposed additional data collection (e.g. site-specific surveys) and/ or supporting analyses (e.g. modelling) to enable an assessment of the impact.

Table 15-4: Impacts proposed to be scoped into the assessment for Hydrology, Hydrogeology, Water Resources and Flood Risk

Impact	Description	Proposed Approach to Assessment Including Description of Any New Data Collection Required and Any Analyses (Such as Modelling)
Construction		
Impacts on surface water and groundwater quality from pollution from fuel, oil, concrete or other hazardous substances.	Construction activities involving fuel storage, refuelling, concrete pouring, and other hazardous substances carry a risk of accidental spills. These incidents could result in the contamination of surface water or groundwater, potentially affecting downstream water quality.	A review of proposed construction activity will be used to inform input into an outline CEMP with regard to control of fuel, oil, concrete or other hazardous substances.
Discharge of sediment laden runoff to on-site ditches, IDB drains and watercourses.	Ground excavation and the creation of exposed surfaces during construction can increase suspended sediment concentrations in surface runoff. This sediment laden runoff may pass into on-site ditches, IDB drains or nearby watercourses, resulting in degraded water quality and potential impacts on downstream receptors.	A review of proposed construction activity will be used to inform input into an outline CEMP with regard to control of surface water runoff and entrainment of sediments.
Increased flood risk to areas downstream of the Site, during construction, through increased surface runoff.	Construction activities such as vegetation removal, soil compaction, and the creation of temporary impermeable surfaces can increase the rate of surface runoff. These changes reduce natural infiltration and floodplain storage, thereby elevating flood risk to downstream areas.	A separate FRA and a schedule of watercourse crossings will be prepared as technical appendices to the ES.
Changes in groundwater levels or groundwater flow paths in areas of GWDTEs.	Localised construction activities may temporarily alter groundwater levels or flow paths, which can potentially affect GWDTEs.	Site-specific surveys will be carried out to confirm the presence and assess potential impacts on GWDTEs.
Potential adverse impacts to licenced abstractions and PWS sources (where identified).	Ground disturbances and alterations to groundwater flow pathways during construction may affect both the quantity and quality of water feeding potential licensed abstractions and PWS sources.	Site-specific surveys will be carried out to assess impact on licensed abstractions and PWS.

Impact	Description	Proposed Approach to Assessment Including Description of Any New Data Collection Required and Any Analyses (Such as Modelling)
Disturbance and / or pollution resulting from borrow pit formation and use.	Excavation of any borrow pits can alter local drainage patterns, create large areas of exposed material, and generate significant sources of sediment-laden runoff. The use of heavy machinery and fuels within the pit also increases the risk of pollution from hazardous substances, which may lead to deterioration of water quality in nearby surface water and groundwater receptors.	Borrow pit feasibility reporting will be undertaken, as part of the Proposed Development design process. If borrow pits are to be included, assessment on potential risks from development of these features on hydrological and hydrogeological receptors will be undertaken.
Impacts of flooding from pluvial and fluvial sources to construction areas	The Site is known to feature large areas of pluvial flood risk and is located wholly within Flood Zone 3. Flooding occurring on-site during the construction phase could impact on environmental receptors and construction workers.	An outline CEMP will be prepared and submitted with the Development Consent Order (DCO) application which will include measures relating to emergency flood response.
Operation and Maintenance		
Increased runoff rates and flood risk, resulting from increases in areas of impermeable hardstanding areas.	Changes to fluvial or surface water flood risk associated with a loss of floodplain storage and/or change in floodplain flow conveyance.	A separate FRA and schedule of watercourse crossings will be prepared as technical appendices to the ES.
Increased flood risk elsewhere through development within Flood Zone 3 which could displace flood waters.	Development in areas of Flood Zone 3 could increase the quantity of displaced flood water which in turn could increase flood risk downstream of the Site.	A separate FRA and Surface Water Drainage Strategy (SWDS) will be prepared as technical appendices to the ES.
Increased flood risk from restriction of flow at permanent watercourse crossings.	Permanent watercourse crossings may introduce localised constrictions to channel flow. This can reduce conveyance capacity, increasing upstream water levels and contributing to elevated flood risk during high-flow conditions.	A separate FRA and schedule of watercourse crossings will be prepared as technical appendices to the ES.
Changes in natural surface water and groundwater drainage patterns.	Vegetation removal, soil compaction, and the creation of impermeable surfaces can alter surface water and groundwater drainage patterns. These changes can	The ES will include a commitment to development of a surface water drainage strategy to manage runoff during the operation and maintenance phase of the development.

Impact	Description	Proposed Approach to Assessment Including Description of Any New Data Collection Required and Any Analyses (Such as Modelling)
	impede natural drainage pathways and reduce quantities of groundwater reaching the aquifer.	
Changes to the quality of surface water runoff associated with the altered land use and maintenance activities.	Harmful materials may be introduced to surface water through the change in land use and maintenance activities which could adversely affect downstream water dependent habitats or water dependent designated sites.	The ES will include a commitment to development of a surface water drainage strategy to sustain surface water runoff quality during the operation and maintenance phase of the development.
Changes to groundwater levels and groundwater movement.	Operational infrastructure may alter groundwater recharge patterns or impede subsurface flow pathways. These changes can lead to localised variations in groundwater levels or flow direction.	Potential impact on groundwater will be assessed within the ES.
Longer term impacts on abstractions for water supplies, particularly any supplies dependent on groundwater.	Long term operation may alter groundwater recharge and subsurface flow pathways and may also influence groundwater quality. These changes can affect the long term yield and water quality of licensed abstractions or private water supplies that depend on groundwater (should any be identified).	Site-specific surveys will be carried out to assess impact on PWS.
Cumulative		
Cumulative effects on hydrological, hydrogeological, water resource and flood risk receptors.	A review of other existing and proposed developments near the Proposed Development will be undertaken and potential impacts on hydrology, hydrogeology, water resources and flood risk will be assessed to identify cumulative impacts.	The cumulative effects on hydrological, hydrogeological, water resources and flood risk receptors will be assessed using the surface water catchments within the study area, with a maximum downstream distance of 2 km from the Site boundary.

15.7 Potential Impacts Scoped out

15.7.1 Potential impacts arising during decommissioning of the Proposed Development would likely be similar to those during the construction phase, however, this would depend on the exact nature of the decommissioning activities that take place. Mitigation similar to that implemented during the construction and operational

phases, although updated to reflect changes in legislation / guidance, would be implemented to ensure the significance of impacts arising is minimised.

15.7.2 An outline Decommissioning Plan would be prepared as part of the DCO application and would establish the principles to be followed when the final Decommissioning Plan is developed. Production of a final version of the Decommissioning Plan would be secured through a Requirement in the DCO. On this basis it is therefore not proposed to undertake a separate assessment of the decommissioning phase.

15.8 Summary of Next Steps

15.8.1 This scoping assessment has been undertaken based on desk-based information. Further information and data will be required to identify the potential impacts upon hydrology and hydrogeology in relation to the study area. This will include a detailed review and assessment of the Site.

15.8.2 A full walkover survey of the Site, including all watercourses will be carried out to support this assessment. Findings of the assessment will be set out in the hydrology, hydrogeology, water resource and flood risk ES chapter. The assessment will highlight any areas that would warrant further, more detailed assessment. Where potential adverse effects are identified, either during the construction phase or the operation of the scheme, the proposed measures for controlling these will be discussed. The assessment will then set out the level of residual risk posed to local hydrological, hydrogeological, water resource and flood risk receptors.

15.8.3 A FRA and SWDS will also be undertaken as part of the Proposed Development. This will assess the risk of flooding posed to the development and detail principles of how storm water runoff from the Site will be managed providing technical details of the key mitigation proposed to protect both the Proposed Development and the water environment.

15.9 Further Consideration for Consultees

15.9.1 The following questions are provided to help frame the consultees comments on the Scoping Report for hydrology, hydrogeology, water resource and flood risk:

- **Q15.1:** Do the consultees agree with the receptors and impacts described in **Section 15.6**?
- **Q15.2:** It is not proposed to undertake any water quality sampling, establish groundwater monitoring points, surface water monitoring points or undertake any leachability trials of any rock as there is published data that can be used to characterise baseline conditions and complete the impacts assessment. Is this acceptable?
- **Q15.3:** Please advise if there is any specific information or methodology that should be used/ followed as part of the PWS risk assessment?
- **Q15.4:** Do you agree that the scope of the proposed assessment is appropriate?
- **Q15.5:** Are there any specific projects currently going through the planning process which consultees feel should be considered as part of the cumulative assessment?

16. Other Environmental Topics (includes Telecommunications, Utilities, Shadow Flicker, Major Accidents & Disasters, Material Assets and Waste)

16.1 Introduction

16.1.1 This chapter of the Scoping Report sets out the proposed scope and methodology for assessing the Proposed Development against other environmental topics, including Telecommunications, Utilities, Shadow Flicker, Major Accidents & Disasters, Material Assets and Waste.

16.1.2 This chapter is supported by the following Figures in **Volume A**:

- **Figure 16.1: Material Assets and Waste Study Area.**
- **Figure 16.2: Inert Landfill Site Locations.**
- **Figure 16.3: Non-inert Landfill Site Locations.**
- **Figure 16.4: Material Recycling Facility Infrastructure.**
- **Figure 16.5: Energy from Waste Facility Infrastructure.**
- **Figure 16.6: Anaerobic Digestion Facility Infrastructure.**

16.2 Telecommunications

16.2.1 This section of the chapter sets out the proposed scope and methodology of the telecommunications assessment of the Proposed Development. It identifies the potential likely significant effects arising from the construction, operation and management, and decommissioning of the Proposed Development on telecommunications. This chapter also explains how likely significant effects would be assessed for the purposes of the EIA.

16.2.2 Details of the construction, operation and maintenance, and decommissioning of the Proposed Development are set out in **Chapter 2: Proposed Development Description**.

Baseline Environment

Study Area

16.2.3 The Study Area for fixed telecommunications links has been defined as the area within a 1 km radius of the Site Boundary (shown on **Figure 2.1, Volume A**). This ensures that all links with the potential to be affected by the Proposed Development are included. If the Site Boundary is refined through the EIA process, the Study Area will be updated accordingly.

Overview of Data Sources

16.2.4 The data sources used to determine the Telecommunications baseline are set out in **Table 16-1.**

Table 16-1: Key Sources of Information for Telecommunications

Source	Summary	Spatial Coverage of Study Area
Ofcom Spectrum Information Portal	The Ofcom Spectrum Information Portal is Ofcom's online tool for looking up how radio spectrum is used and licensed in the UK. It sits within Ofcom's Spectrum Information System (SIS), which Ofcom describes as providing information on how spectrum is issued in the UK, the types of Wireless Telegraphy Act licences available, and details of tradable licences.	Site Boundary plus 1 km buffer.

Overview of Baseline Environment

16.2.5 The Ofcom Spectrum Information Portal shows three fixed telecommunications links passing over or within 1 km of the Site Boundary. Two further fixed links pass within close proximity to, but outwith, the 1 km Study Area. Details of these links can be found in **Table 16-2**.

Table 16-2: Fixed Telecommunication Links within and in Vicinity of the Site

Fixed Link Operator	License Number	Approximate Distance from Site Boundary at closest point
Telefonica	1258181/2	4 m within Site Boundary
Joint Radio Company (JRC)	1066700/3	859 m
JRC	1238683/1	935 m
Airwave Solutions	1277947/1	1,260 m*
Mobile Broadband Network Limited	1072743/3	1,356 m*
*Not within Study Area but included for information		

Proposed Approach to the Environmental Impact Assessment

Proposed Assessment Methodology

16.2.6 Whilst **Chapter 3: Approach to EIA** provides an indicative EIA assessment method, it also identifies that assessment methodologies may differ in accordance with the prevailing technical area guidance. As such the following the sections provide a description of the assessment methodology of relevance to telecommunications, which is derived from best practice methods applicable to this topic, and differs from those presented in the broader methodology chapter.

16.2.7 The assessment will be undertaken through a desk-based review and consultation with relevant telecommunications stakeholders. Consultees will be identified with reference to relevant guidance, local telecommunications operators and parties identified through Ofcom spectrum information portal. The assessment will consider whether the Proposed Development has the potential to affect microwave links or other telecommunications infrastructure, considering the proposed turbine dimensions and layout. The need for any mitigation will be identified through consultation.

Relevant Policy

16.2.8 The following policy documents are relevant to the consideration of the potential effects of the Proposed Development on telecommunications. This list is not exhaustive, and other documents may be referred to as appropriate:

National Policy

- National Policy Statement (NPS)
  - Overarching National Policy Statement for Energy (EN-1) (UK Government 2025); and
  - National Policy Statement for Renewable Energy Infrastructure (EN-3) (UK Government 2025).

Local Policy

- Bassetlaw District Council (BDC) Local Plan (Adopted 2024). Relevant Policies may include:
  - Policy ST48: Reducing Carbon Emissions, Climate Change Mitigation and Adaption; and
  - Policy ST49: Renewable Energy Generation.

Consultation and Engagement

16.2.9 Telecommunications consultations will be carried out with Telefonica, the Joint Radio Company (JRC), Airwave Solutions and Mobile Broadband Network Limited.

Design, Mitigation and Enhancement Measures

16.2.10 Embedded mitigation measures are proposed to reduce the potential for impacts on telecommunications. The design of the turbine layout will apply an agreed buffer of 187.5 m[12] to any fixed links passing through the Site to ensure that turbine blade tips are no closer than 100 m from the centreline of any fixed telecommunications links.

16.2.11 The Applicant is committed to implementing this measure which is therefore considered inherently part of the design and has been considered in the judgements as to which impacts can be scoped in/ out of assessment presented below.

16.2.12 Additional mitigation measures will be considered where significant effects are anticipated to remain following the implementation of embedded design measures and standard good practice controls. If residual impacts persist, proportionate further measures will be identified to address those remaining effects.

16.2.13 Further detail on the role of mitigation commitments, as part of a proportionate EIA approach, is provided **in Chapter 3: Approach to EIA.** A full description of the mitigations commitments identified so far is provided in **Appendix 3A**: Draft Register of Environmental Actions and Commitments (REAC) in **Volume B**.

[12] based upon a candidate turbine with a rotor diameter of 175 m

16.2.14 The requirement for, and feasibility of, any mitigation measures will be subject to consultation with consultees throughout the pre-application phase of the Proposed Development.

Potential Impacts Scoped In

16.2.15 Potential impacts of the Proposed Development on telecommunications fixed links within the Telecommunications Study Area are scoped into further assessment within the EIA. Consultation will be undertaken with the operators of any such links and, if required, an agreed buffer will be applied to each link to ensure that the Proposed Development infrastructure would not interfere with its operation.

Impacts Proposed to be Scoped Out

16.2.16 Potential impacts of the Proposed Development on Telecommunication Fixed Links outwith the Telecommunications Study Area are scoped out of further assessment within the EIA.

16.3 Utilities

16.3.1 As part of the assessment of major accidents and disasters, a range of investigations will be undertaken to establish the presence of existing infrastructure associated with utilities such as water, gas and electricity, to establish either the absence of effects, or to identify appropriate mitigation to overcome any effects. These matters would be addressed through consultation with the relevant system operators. See **Table 16-6** for more information.

16.4 Shadow Flicker

Introduction

16.4.1 This section of the chapter sets out the proposed scope and methodology that will be followed in undertaking the shadow flicker assessment for the Proposed Development. It outlines how shadow flicker effects could arise due to the operation of the Proposed Development, and how potentially significant effects would be assessed for the purposes of the EIA. A full shadow flicker assessment will be undertaken on the design freeze layout, with the findings reported in the Environmental Statement (ES).

16.4.2 Shadow flicker occurs when a certain combination of conditions prevail at a certain location, time of day and year. It firstly requires the sun to be at a certain level in the sky. The sun then shines onto a window of a residential dwelling from behind the wind turbine rotor. As the wind turbine blades rotate it causes the shadow of the turbine to flick on and off. This may have a negative effect on residents in affected properties. If shadow flicker cannot be avoided through design, technical mitigation solutions are available, such as shutting down turbines when certain conditions prevail.

16.4.3 Shadow flicker effects only occur when the turbine is in operation (i.e. sufficient wind speed is present), there is limited cloud cover, and the turbine lies between the direction of the sun and the building in question. Shadow flicker effects are only considered during the operational phase of a wind farm development. With the exception of limited testing periods once the wind turbines are fully assembled, shadow flicker effects would not occur during the construction phase. Similarly, during decommissioning, when the wind turbines are not operating or are being dismantled, shadow flicker could not occur.

Baseline Environment

Study Area

16.4.4 It is widely agreed that shadow flicker effects at distances beyond ten times the rotor diameter of a wind turbine will not be significant. This is reflected in the National Policy Statement for Renewable Energy Infrastructure (EN-3), which states:

"As a general rule, there is unlikely to be a significant impact at distances greater than ten rotor diameters from a turbine. Where wind turbines are proposed within ten rotor diameters of an existing occupied building, a shadow flicker assessment should be carried out."

16.4.5 Local planning policy set out in Bassetlaw District Council (BDC) Local Plan (Adopted 2024) (Bassetlaw District Council 2024) states at Policy ST49: Renewable Energy Generation that:

"Development that generates, shares, transmits and/or stores zero carbon and/or low carbon renewable energy including community energy schemes will be supported subject to the satisfactory resolution of all relevant site specific and cumulative impacts upon:

g) noise, light, glare, smell, dust, emissions or flicker"

16.4.6 Based on the indicative site layout shown in **Figure 2.1 (Volume A)**, and a candidate wind turbine for scoping purposes with a rotor diameter of up to 175 m, the potential area in which shadow flicker could occur (the Study Area) would be up to 1,750 m from the proposed wind turbine locations, rather than the whole Site Boundary (plus any additional micro-siting allowance which would be accommodated within the draft Order Limits). The number and location of the turbines will be subject to change as the design of the Proposed Development progresses. The final shadow flicker Study Area will be based on the Design Freeze layout and will be presented in the ES.

Overview of Data Sources

16.4.7 A range of publicly available mapping sources has been reviewed to identify potential shadow flicker receptors within the Study Area. **Table 16-3** summarises the key sources consulted and their spatial coverage.

Table 16-3: Key Sources of Information for Shadow Flicker

Source	Summary	Spatial Coverage of Study Area
Google Earth Satellite Imagery	Used to identify buildings and property locations.	Covers the Site and the 10 rotor diameter Study Area.
OpenStreetMap	Used to confirm buildings and property locations.	Covers the Site and 10 rotor diameter Study Area.

Overview of Baseline Environment

16.4.8 From an initial desktop review, based on the current proposed turbine locations and turbine parameters, there are numerous residential properties that fall within the proposed 1,750 m shadow flicker Study Area. Residential properties within the Study Area will be checked and reviewed following Design Freeze. Details on the

properties located in the Study Area, and those which will be considered in the shadow flicker assessment, will be provided in the ES.

Proposed Approach to the Environmental Impact Assessment

16.4.9 Whilst **Chapter 3: Approach to EIA** provides an indicative EIA assessment method, it also recognises that assessment methods may vary in accordance with the relevant technical guidance. Accordingly, the following sections describe the assessment criteria and methodologies relevant to shadow flicker. These are derived from best practice guidance and methods applicable to this topic and differ from those presented in the broader EIA methodology chapter.

Relevant Legislation, Policy and Guidance

16.4.10 Legislation, policy and guidance relevant to the consideration of the potential shadow flicker effects arising as a result of the Proposed Development includes, but is not limited to, the following:

- **Legislation**
  - There is no applicable legislation setting out any relevant rules or requirements for the assessment or control of shadow flicker.
- **National Policy**
  - National Planning Policy Framework (NPPF) (UK Government 2026).
  - National Policy Statements (NPS):
    - ~ Overarching National Policy Statement for Energy (EN-1) (UK Government 2025).
    - ~ National Policy Statement for Renewable Energy Infrastructure (EN-3) (UK Government 2025).
- **Local Policy**
  - Bassetlaw District Council (BDC) Local Plan (Adopted 2024). Relevant Policies include:
    - ~ Policy ST49: Renewable Energy Generation.
- **Guidance**
  - The Update of UK Shadow Flicker Evidence Base (DECC, 2011) published by the Department for Energy and Climate Change (DECC)13 in 2011 reviews the approach to assessing shadow flicker effects across different European countries. It concludes that the area within 130 degrees either side of north from the wind turbine, and within 10 times the rotor diameter of a wind turbine, is widely considered acceptable for shadow flicker assessments. The DECC study also concludes that there have not been extensive issues with shadow flicker in the UK and in circumstances where the potential for significant shadow flicker effects has been identified, these have been resolved using standard mitigation.

[13] Now (DESNEZ) the Department for Energy Security and Net Zero.

Proposed Assessment Methodology

16.4.11 The shadow flicker assessment would comprise numerical modelling of the proposed turbines and receptors within the defined Study Area. It is noted that whilst there are a number of computer models available, the DECC study (2011) confirms that there are limited differences between outputs of the various packages. For shadow flicker assessments, SLR Consulting uses one of the industry standard software packages WindPRO. The model accounts for turbine locations and dimensions, receptor locations, and window orientation and size. The levels of shadow flicker at each receptor will be calculated based on a 'greenhouse' modelling approach, where the full length of each façade of a building is modelled as a window (and is therefore sensitive to shadow flicker).

16.4.12 Data collection for input into the modelling will include:

- the identification of the locations of properties within ten rotor diameters of each proposed wind turbine, plus any additional micrositing allowance;
- the locations and dimensions of the proposed wind turbines; and
- the local topography (Ordnance Survey Digital Terrain Model).

16.4.13 Once the final turbine layout and wind turbine parameters have been confirmed, the location of residential properties in proximity to the Site and within the Shadow Flicker Study Area will be verified. Any properties located within ten rotor diameters (plus any additional micrositing allowance) of the proposed wind turbine locations will be assessed to determine the potential for shadow flicker effects to arise.

16.4.14 Two scenarios will be considered in the assessment: undertaken for the EIA and reported in the ES.

- **Theoretical worst-case scenario.** The calculations from the theoretical worst-case scenario are based on the sun shining during all daylight hours over the course of a year, no obscuring features (such as trees, hedges, other buildings) being present, the face of the rotor always being aligned towards the dwelling, and that the rotor is always turning (i.e. the wind is always blowing between 4m/s and 25m/s, and no account is taken of shut down periods for maintenance). This methodology yields a theoretical maximum indication of potential shadow flicker incidence, together with the times of day, and dates during the year when potential incidence may occur.
- **Realistic scenario.** This scenario will incorporate historical meteorological data (sunshine probability and wind conditions) from the nearest climatic station to the Site. This scenario remains conservative, as it still assumes receptors are always occupied, windows face the turbines and that no obscuring features are present.

16.4.15 In practice, it is likely that shadow flicker effects would occur for considerably less time than both scenario predictions, for the following reasons:

- In the UK, sunshine typically occurs for approximately 30% of daylight hours. At other times, the wind turbines are unlikely to cast shadow sufficiently pronounced to cause shadow flicker effects to occur.
- At times when the wind turbine rotor is not oriented directly towards the property, the duration of shadow flicker would be reduced due to the elliptical shape of the shadow cast.

- Both assessment scenarios would not take into consideration the screening effect of any obscuring features, such as intervening structures or vegetation, between the wind turbines and the property

Significance Evaluation Methodology

16.4.16 Whilst the time and duration of shadow flicker events can be predicted accurately, the level of the effect is difficult to quantify as this would depend on the location of windows within a property, the use of the rooms affected, the level of shading surrounding the property and how susceptible the receptor is to light flicker.

16.4.17 As confirmed by the DECC study (Parsons Brinckerhoff, 2011), there is no standard UK guidance (at the time of writing) regarding the limit on the amount of shadow flicker that is considered acceptable or not within the UK. The only guidance providing additional recommendations is the Northern Irish PPS 18 (DoENI, 2009) guidance which recommends that for properties within 500 m of the turbines, shadow flicker should not exceed 30 hours per year or 30 minutes per day.

16.4.18 This limit is generally used across Scotland and has also been applied in the Republic of Ireland, Germany and Belgium for shadow flicker assessments. Given that this threshold is widely recognised as an appropriate benchmark for assessing shadow flicker effects from wind farms, it provides a reasonable basis for exercising professional judgement on the significance of the predicted shadow flicker effects from the Proposed Development. Under this approach, predicted effects that exceed the 30 hours per year thresholds would be regarded as significant and therefore require mitigation, whereas effects falling below these levels would be considered not significant. Consideration would also be given to the 30 minutes per day scenario; however, this is harder to accurately predict on a daily basis and hence is not a key consideration in assessing the significance of effect. All receptors which are confirmed to be residential dwellings and likely to be inhabited, will be considered to have high sensitivity. Effects would be classified as either significant or not significant by comparing predicted shadow flicker durations against established guidance limits.

16.4.19 Any effect deemed significant is treated as such in the context of the EIA Regulations. However, as no formal UK guidance exists specifically on shadow flicker, the assessment outcomes would be based on professional judgement and established industry practice relative to these commonly applied thresholds.

Design, Mitigation and Enhancement Measures

16.4.20 Embedded and standard mitigation measures are proposed to reduce the potential for shadow flicker effects from the Proposed Development. These are presented below; however, it is expected that these may evolve as the design progresses.

16.4.21 Measures adopted will include:

- The adoption of a design-led approach to ensure mitigation for shadow flicker is embedded throughout the design process, to ensure potential effects on nearby receptors are minimised. Where practicable, wind turbines will be positioned to maximise separation distances from residential properties and to avoid locations where the geometry of turbine blades and sunrise or sunset angles could result in prolonged periods of shadow flicker.
- The Applicant is committed to promptly investigating any complaints of shadow flicker and taking appropriate action as required. A Shadow Flicker Protocol

would be prepared to set out the procedures to be followed during the operational phase of the Proposed Development should a substantiated shadow flicker complaint be received from a receptor within the Study Area. This would outline the potential mitigation measures that may be employed. Outline details of the measures to be included within the Shadow Flicker Protocol would be provided in the ES.

16.4.22 The Applicant is committed to implementing these measures. It is therefore considered that these measures are inherently part of the design and have been considered in the judgements as to which impacts can be scoped in / out of assessment**.**

16.4.23 Additional mitigation measures will be considered where residual significant effects are predicted to occur, following the implementation of embedded design measures and standard good practice controls. Should residual impacts persist, proportionate further actions will be identified and agreed with relevant authorities in the finalised Shadow Flicker Protocol to address those remaining effects.

16.4.24 Further detail on the role of mitigation commitments, as part of a proportionate EIA approach, is provided in **Chapter 3: Approach to EIA.** A full description of the mitigations commitments identified so far is provided in **Appendix 3A:** Draft Register of Environmental Actions and Commitments (REAC) in **Volume B**.

Potential Impacts Scoped In

16.4.25 Potential impacts on receptors due to shadow flicker from the Proposed Development have been identified that could occur during the operational phase of the Proposed Development. Impacts that have been scoped into the EIA are outlined in **Table 16-4**, together with a description of any proposed additional data collection (e.g. site-specific surveys) and/or supporting analyses (e.g. modelling) to enable an assessment of the impact.

16.4.26 A visual inspection of aerial imagery identified a number of dwellings within ten rotor diameters of the Proposed Development. On this basis, shadow flicker has been scoped into the EIA for the operational phase.

Table 16-4: Impacts Proposed to be Scoped into the Assessment for Shadow Flicker

Impact	Description	Proposed Approach to Assessment
Construction		
No activities during this phase are scoped into the assessment as detailed in **Table 16-5.**		
Operation		
Shadow flicker at nearby receptors.	Intermittent shadow flicker may occur at residential properties within 10 rotor diameters when turbines rotate in specific sun and weather conditions.	• Identify receptors within the shadow flicker Study Area. • Undertake shadow flicker modelling using turbine parameters and receptor locations. • Assess magnitude and duration of potential effects. • Consider mitigation (e.g. turbine shut-down protocol).

Impact	Description	Proposed Approach to Assessment
Decommissioning		
No activities during this phase are scoped into the assessment as detailed in **Table 16-5.**		
Cumulative		
A cumulative effects assessment relating to shadow flicker is proposed to be scoped out of the assessment as detailed in **Table 16-5.**		

Impacts Proposed to be Scoped Out

16.4.27 Based on the baseline environment information currently available and the Proposed Development description (outlined in **Chapter 2: Proposed Development Description**) a number of impacts are proposed to be scoped out the EIA for shadow flicker as presented in **Table 16-5**.

Table 16-5: Impacts proposed to be scoped out of assessment for Shadow Flicker

Impact	Justification for Scoping Out
Construction	
A shadow flicker assessment is not proposed for the construction phases of the Proposed Development because the effect can only occur when the wind turbine blades are rotating and casting moving shadows. Wind turbines are not operational during construction or decommissioning, meaning no shadow flicker can be generated.	
Operation	
Receptors beyond 10 times the rotor diameter (plus micrositing)	Shadow flicker effects beyond ten times the rotor diameter are widely accepted to be negligible. Properties beyond this distance will not be considered in the shadow flicker assessment.
Non-residential receptors	Shadow flicker is only considered significant where it affects sensitive receptors such as residential properties.
Shadow flicker effects on people with epilepsy	Research has been carried out by the Epilepsy Society to determine whether shadow flicker from wind turbines can pose a risk of triggering seizures in people with photosensitive epilepsy (Epilepsy Society 2019). This reports that seizures are generally triggered by flashing light between 3 – 30 hertz (Hz) (flashes per second) and that sensitivity under 3 Hz is not common. Modern three-bladed wind turbines, with a rotor diameter comparable to the model being considered for this Proposed Development, typically operate at low rotational speeds, with corresponding blade passing frequencies up to 0.2 Hz depending on wind conditions, which is well below the recognised threshold for inducing seizures. It is also noted in the DECC Report (Department of Energy and Climate Change (DECC) 2011) that *"on health effects and nuisance of the shadow flicker effect, it is considered that the frequency of the flickering caused by the wind*

Impact	Justification for Scoping Out
	turbine rotation is such that it should not cause a significant risk to health".
Decommissioning	
A shadow flicker assessment is not proposed for the decommissioning phase of the Proposed Development because the effect can only occur when the wind turbine blades are rotating and casting moving shadows. Wind turbines are not operational during decommissioning, meaning no shadow flicker can be generated.	
Cumulative	
With reference to **Table 3-2** within **Chapter 3: Approach to EIA**, there are no existing, consented or in planning wind farm developments located in the local area such that potential cumulative shadow flicker effects would be experienced. Therefore, an assessment of cumulative effects relating to shadow flicker is scoped out of the assessment.	

16.5 Major Accidents and Disasters

Baseline Environment

16.5.1 Regulation 18(3)(b) and Schedule 4, paragraph 8 of the EIA Regulations (TCP EIA Regulations 2017 2017) requires EIA to consider *"the expected effects arising from the vulnerability of the project to risks of major accidents and/or disasters relevant to the project concerned."*

16.5.2 This includes giving due consideration to whether a project could be vulnerable to, or could increase the likelihood or consequences of, major accidents or disasters.

16.5.3 A review of baseline information confirms there are no Control of Major Accident Hazards (COMAH) sites or other major accident hazard facilities located within or in close proximity to the Proposed Development.

16.5.4 The Zetica website was reviewed for potential Unexploded Ordnance (UXO) and indicated that the Site is at a low risk of UXO being present. However, a Detailed UXO Risk Assessment (DRA) was commissioned due to potential sources of UXO contamination within proximity of the Study Area, see **Table 16-6** for more information.

Rationale for Scoping-Out Major Accidents and Disasters from the EIA

16.5.5 **Table 16-6** identifies the potential hazards to which the Proposed Development may be vulnerable and those that may arise as a result of the Proposed Development and provides a rationale for whether each potential hazard has been scoped into or out of the EIA.

16.5.6 Major accidents or disasters that represent a realistic risk to the Proposed Development would be scoped into the EIA. This could be due to a reasonable likelihood of occurring, or because the consequences of the accident or disaster would be of such a nature that mitigation measures would extend beyond standard construction or operational controls. In this context, risk is assessed taking account of mitigation measures and standard industry controls. Where risks can be adequately managed through such measures, they are not anticipated to result in likely significant effects and are therefore scoped out of further assessment

Table 16-6: Likelihood of Major Accidents and Disasters Arising and Rationale for Scoping Out

Major Accident or Disaster	Risk due to location	Risk due to Proposed Development	Justification for Scoping Out	Scoped in / out due to Risk
Extreme weather (strong winds, lightning, extreme temperatures, and storms)	Yes	No	Wind turbines are designed to withstand extreme weather conditions over their operational lifetime and incorporate a range of safety measures including: • continuous monitoring of wind speed, vibration and temperature; • automatic shutdown in high winds and icing conditions; • blade feathering and braking systems to prevent overspeed during storms; and • integrated lightning protection and grounded electrical systems. Considering the robust design measures and standards, and automated control systems incorporated into wind turbine design, it is considered that significant effects are not anticipated as a result of extreme weather.	Out
Collision risk with existing road users on the public road network	Yes	Yes	The potential risk of major transport accidents during the construction phase of the Proposed Development would be managed through the implementation of a Construction Traffic Management Plan (CTMP). An outline CTMP, setting out the key principles for the final CTMP, will be provided with the application for development consent. Mitigation measures included within the CTMP to minimise risk to other road users would include, but not be limited to, the following: • the identification of prescribed vehicle routes for construction traffic; • scheduling of deliveries to avoid sensitive periods (e.g. school start / finish times); • Global Positioning System (GPS) tracking of all HGVs to enable monitoring of vehicle speeds and routing; • a code of conduct for HGV drivers; • physical speed control measures at sensitive locations • wheel cleaning facilities and dust suppression measures; and	Out

Major Accident or Disaster	Risk due to location	Risk due to Proposed Development	Justification for Scoping Out	Scoped in / out due to Risk
			• communication measures to disseminate project information, including expected vehicle movements and work locations, to interested parties. The production of the final CTMP would be secured through a DCO requirement and would be required to be substantially in accordance with the Outline CTMP. During operation, the Proposed Development would result in a limited number of vehicle trips, associated with occasional maintenance and inspection activities. During decommissioning, vehicle movements are anticipated to be fewer than during construction. However, it is expected that mitigation measures similar to those identified for the construction phase would be employed to minimise risk to other road users. These measures would be detailed within, and implemented through, the Decommissioning Plan. With these preventative measures in place, significant environmental effects associated with collision risk involving existing road users on the public road network are not anticipated.	
Utility strikes	No	No	Utility strike risk will be addressed through a design-led approach, whereby available statutory undertaker records and baseline information will be reviewed to identify known underground and overhead services within and adjacent to the Site Boundary. This information will inform the siting and alignment of infrastructure, including access tracks, turbine foundations, cable routes and temporary works areas. Interactions with existing utilities will be avoided where practicable, through micro-siting and iterative design refinement. Where potential interaction cannot be avoided through design, further measures will be implemented, including, but not limited to, targeted underground utility detection surveys, agreed crossing or protection measures where required, and construction controls such as permit-to-dig procedures and task-specific risk assessments and method statements. These measures would be implemented through the Construction and Environmental Management Plan (CEMP). An Outline	Out

Major Accident or Disaster	Risk due to location	Risk due to Proposed Development	Justification for Scoping Out	Scoped in / out due to Risk
			CEMP would be submitted with the application for development consent and would set out the principles to be followed in the preparation of the final CEMP. In accordance with the Construction (Design and Management) Regulations 2015 (UK Government 2015), information relating to known hazards, including utilities, contamination, ground conditions and UXO, must be provided to designers and contractors by the Client[14] prior to the commencement of construction through the Pre-Construction Information (PCI). This information assists in the planning, management and monitoring of health and safety risks prior to construction. This information would be included within the Construction Phase Plan (CPP), also required under the CDM Regulations, which must be prepared before construction begins and included within the Health and Safety File for the Proposed Development at the end of the construction phase. With these measures in place, significant environmental effects associated with utility strike risk are not anticipated.	
UXO	No	No	The online Zetica UXO database considered the risk from unexploded ordnance (UXO) within the Study Area to be low. However, a Detailed UXO Risk Assessment (DRA) was commissioned due to potential sources of UXO contamination within proximity of the Study Area. The DRA concluded that the Study Area lies within a low-risk zone, for which the following standard mitigation measures shall be implemented: • safety awareness briefing; • site-specific emergency response plan; and • on-call Explosive Ordnance Disposal (EOD) engineer.	Out

[14] The 'Client' is a defined term under the CDM Regulations and refers to the organisation or individual for whom a construction project is carried out, including anyone who commissions, manages or finances the project.

Major Accident or Disaster	Risk due to location	Risk due to Proposed Development	Justification for Scoping Out	Scoped in / out due to Risk
			A small portion of the north-eastern corner has been classified as a medium-risk area, where the following standard mitigation measures shall be applied: • project-specific risk mitigation strategy; • safety awareness briefings for all site personnel; • site-specific emergency response plan; • on-call EOD engineer (off-site responder); • on-site EOD engineer support for site investigation works; • non-intrusive UXO survey; and • intrusive UXO survey (where non-intrusive methods cannot achieve required depths).	
Mining	Yes	No	The Mining Remediation Authority (MRA) interactive map identifies the Site as being located within a Coal Mining Reporting Area but outwith a Development High Risk Area. No mines or quarries are indicated to be present across the Study Area. There are three active sand and gravel quarries in close proximity to the Site.	Out
Subsidence / unstable ground	No	No	Although located within a Coal Mining Reporting Area, there are no recorded mines or quarries within the Study Area, and the site is not located within a Mining Remediation Authority “Development High Risk” location. The underlying geology at the site comprises Triassic age sedimentary rocks, which are not coal-bearing. Coupled with this, there are no areas identified on LiDAR indicating potential subsistence or ground instability.	Out
Peat landslide	No	No	The survey findings indicate that although peat soils are likely to have been more widespread historically, agricultural improvement and land drainage have resulted in substantial degradation and loss of peat across the Site. As a result, peat deposits are now limited to isolated and shallow remnants with no evidence of extensive peat soils at surface. The discontinuous nature, limited thickness and highly	Out

Major Accident or Disaster	Risk due to location	Risk due to Proposed Development	Justification for Scoping Out	Scoped in / out due to Risk
			degraded condition of the remaining peat, alongside the absence of gradients conducive to peat movement mean that there is negligible likelihood of a peat landslide.	
Flooding	Yes	Yes	Construction activities such as vegetation removal, soil compaction, and the creation of temporary impermeable surfaces can increase the rate of surface runoff. These changes reduce natural infiltration and floodplain storage, thereby elevating flood risk to downstream areas. A Flood Risk Assessment (FRA) will be undertaken to assess the flood risk both to and from the Proposed Development and demonstrate how flood risk would be managed over the lifetime of the Proposed Development. The FRA will give due regard to climate change. The FRA would be presented in the ES as a technical appendix to **Chapter 15: Hydrology, Hydrogeology, Water Resources and Flood Risk**. With this preventative measure in place, it is therefore considered that significant environmental effects associated with flood risk are not anticipated.	In
Release of chemicals	No	Yes	Only small quantities of chemicals (e.g. fuels, lubricants and transformer oils) will be used or stored on-site and will be stored within sealed containment or suitably bunded and controlled areas. The CEMP and Decommissioning Plan will set out standard pollution prevention and spill response measures. These will include environmental incident response procedures detailing how environmental emergencies and unexpected events will be prevented, identified, managed and reported during the construction and decommissioning phases. With these preventative measures in place, it is considered that significant environmental effects associated with the release of chemicals are not anticipated.	Out
Fire	No	Yes	During the construction and decommissioning phases, potential ignition sources, such as fuels and plant, would be managed through measures set out within the CEMP, including bunded storage, plant maintenance, and the provision of firefighting equipment.	Out

Major Accident or Disaster	Risk due to location	Risk due to Proposed Development	Justification for Scoping Out	Scoped in / out due to Risk
			During operation, fire risk would be minimised through the design of the wind turbines and associated electrical infrastructure. Wind turbines and associated electrical equipment are designed and certified to recognised international standards and are equipped with internal fire suppression systems and monitoring systems to prevent fires. A fire risk assessment would be undertaken as part of the detailed design and construction planning process in accordance with UK health and safety legislation and industry good practice. Any on-site buildings would comply with the relevant requirements of the Building Regulations (UK Government 2010). The wind turbines would also incorporate lightning protection and grounded electrical systems as part of standard design practice. With these preventative measures in place, it is considered that significant environmental effects associated with fire risk are not anticipated.	
Construction / decommissioning activities	No	Yes	Construction and decommissioning activities at the Site would be managed and operated in accordance with the Health and Safety at Work etc. Act 1974 (UK Parliament 1974), and would comply with relevant Health and Safety Regulations, including: • The Management of Health and Safety at Work Regulations 1999 (UK Government 1999); • Electricity Safety, Quality and Continuity Regulations 2002 (UK Government 2002); and • CDM Regulations (UK Government 2015). Construction activities would be undertaken in accordance with relevant guidance, including Health and Safety Executive (HSE) guidance relating to health and safety in construction. Task-specific method statements and risk assessments would be prepared prior to the commencement of works. All plant and equipment, including cranes and lifting equipment, would be operated by suitably qualified personnel and maintained in accordance with manufacturers' recommendations.	Out

Major Accident or Disaster	Risk due to location	Risk due to Proposed Development	Justification for Scoping Out	Scoped in / out due to Risk
			All potentially hazardous areas would be fenced off, and all unattended machinery would be stored in the temporary construction compound(s) or immobilised to prevent unauthorised use. Additionally, signage would be erected at the Site entrance(s), and in areas where additional hazards may be present, such as around open borrow pits. Public access across the Site would be managed for health and safety purposes to facilitate the delivery of wind turbine components and construction materials, as well as construction activities. Measures to manage public access would include, but not be limited to: • preparation of a Public Access Management Plan (PAMP) detailing temporary diversions, signage and safety protocols; • implementation of the CTMP, which would set out measures to manage interactions between the public and construction traffic; and • seeking permission for temporary or permanent diversions of Public Rights of Way (PRoW) where these would intersect with proposed infrastructure. Similar measures would be implemented during decommissioning, where relevant, and would be detailed within, and implemented as part of, the Decommissioning Plan. With these preventative measures in place, it is considered that significant environmental effects associated with construction and decommissioning activities are not anticipated.	
Operational activities, including wind turbine collapse	No	Yes	The wind farm operator would have a duty to manage and control risks to employees in accordance with the Health and Safety at Work etc. Act 1974 (UK Parliament 1974). All operational activities would be carried out in compliance with relevant health and safety legislation, including the Work at Height Regulations 2005 (UK Government 2005) and the Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 2013 (UK Government 2013). Wind turbines and associated components would be designed, manufactured and installed in accordance with recognised international	Out

Major Accident or Disaster	Risk due to location	Risk due to Proposed Development	Justification for Scoping Out	Scoped in / out due to Risk
			and British standards, including the International Electrotechnical Commission (IEC) 61400 series (International Electrotechnical Commission n.d.) and British Standards Institute (BSI) EN 61400-1 (Wind turbines – Design requirements) (British Standards Institution 2019). Compliance with these standards would significantly reduce the likelihood of structural failure or abnormal events occurring during the operation of the Proposed Development. The Applicant's experience of operational wind farms has shown that allowing public access to an operational wind farm does not compromise safety. During operation, a comprehensive access control and signage strategy will be implemented, with details set out in the PAMP. The PAMP will include improved access opportunities, where appropriate, enhanced route connectivity, and clear signposting and information to support safe movement across the Site. With these preventative measures in place, it is considered that significant environmental effects associated with operational activities are not anticipated.	

Summary

16.5.7 It is considered appropriate to scope out major accidents and disasters from detailed assessment in the EIA for the Proposed Development because there are no COMAH sites or other significant hazard sources within, or located near to, the Site. All risks identified in **Table 16-6** will be managed through established design standards, risk assessments and control measures, including measures to be set out in the CEMP, CTMP and Decommissioning Plan. With these measures in place, significant effects are not anticipated and no further assessment within the EIA is considered necessary.

16.6 Material Assets and Waste

Baseline Environment

Study Area

16.6.1 The material assets and waste scoping assessment presented in this section has been undertaken with consideration of the Study Area described below.

16.6.2 The Study Area is defined as encompassing the English Government regions of Yorkshire and the Humber and the East Midlands. This has been defined based on the assumption that any waste requiring off-site management would predominantly be managed within such a catchment area.

16.6.3 The Study Area for material assets and waste is visually shown in **Figure 16.1 (Volume A)**.

16.6.4 With regards to the production of waste from the Proposed Development, the Study Area includes the appropriately licensed waste management infrastructure within the Yorkshire and the Humber and the East Midlands regions. Such infrastructure could accept waste generated from the construction, operation and maintenance, and decommissioning of the Proposed Development.

16.6.5 This section of the Scoping Report should be read alongside **Chapter 9: Air Quality and Greenhouse Gases,** which, in addition to an assessment on effects from greenhouse gases and climate reliance, also includes consideration of the likely significant effects of the Proposed Development on material use, particularly in the construction phase of the Proposed Development. Therefore, to avoid duplication, material use is not considered further in this section of the Scoping Report.

Overview of Data Sources

16.6.6 Key sources of information for material assets and waste are presented in **Table 16-7.**

Table 16-7: Key sources of information for Material Assets and Waste

Source	Summary	Spatial Coverage of Study Area
Environment Agency and data.gov.uk website (Environment Agency, 2025)	Waste Data Interrogator for permitted waste management sites in England and Waste	These are national datasets providing full coverage of the Study Area.

Source	Summary	Spatial Coverage of Study Area
	Summary Tables for England (calendar year 2024[15]).	

16.6.7 For the purpose of this Scoping Report, waste is defined in Article 3(1) of the European Waste Framework Directive (European Parliament and Council of the European Union 2008) as *"any substance or object which the holder discards or intends to discard or is required to discard"*.

16.6.8 The Scoping Boundary of the Proposed Development, which encompasses a large, flat, low-lying agricultural landscape dominated by arable farmland, is not believed to contain any significant waste-generating activities at present. It is understood that current farming activities will continue alongside the wind farm (with only a minor loss of arable land due to the turbine bases and associated infrastructure), and therefore no material change to farm-related waste generation is expected. As a result, there would be no net difference between the baseline and the scenario in which the Proposed Development is realised; consequently, farm-related wastes are not considered further. Accordingly, this section of the report provides a summary of the current baseline regional waste management infrastructure within the Study Area.

16.6.9 The waste streams which are relevant to the Proposed Development are as follows:

- Construction, Demolition and Excavation (CD&E) waste;
- Industrial and Commercial (I&C) wastes; and
- Hazardous waste.

16.6.10 CD&E wastes will be generated during construction and decommissioning stages of the Proposed Development life cycle. Limited I&C wastes will be generated during the operational life of the Proposed Development (associated with maintenance and repair activities). Hazardous wastes (although likely to be generated in small quantities) could be generated from all stages of the Proposed Development life cycle.

16.6.11 The sensitive receptor for waste is landfill capacity. Baseline waste levels in the Study Area for this receptor are set out in the Waste Summary Tables published by the Environment Agency (EA) for England (Environment Agency 2024) and summarised in **Table 16-8** and **Table 16-9.**

Table 16-8: Landfill Inputs 2024, Tonnage deposited in kt (Environment Agency 2024)

Landfill Type	Region	
	Yorkshire and Humber	East Midlands
Hazardous Merchant	123	220
Hazardous restricted	-	-
Non-hazardous with Stable Non-Reactive Hazardous Waste cell	156	801

[15] Latest available published dataset.

Landfill Type	Region	
	Yorkshire and Humber	East Midlands
Non-hazardous	1,618	940
Non-hazardous restricted[16]	252	0
Inert	740	1,416
Total	**2,889**	**3,377**

Table 16-9: Landfill Capacity 2024, Void remaining in k×m^3 (Environment Agency 2024)

Landfill Type	Region	
	Yorkshire and Humber	East Midlands
Hazardous Merchant	450	1,783
Hazardous restricted	-	-
Non-hazardous with Stable Non-Reactive Hazardous Waste cell	1,243	15,104
Non-hazardous	37,631	15,518
Non-hazardous restricted	-	-
Inert	14,387	19,228
Total	**53,712**	**51,634**

16.6.12 The EA Waste Data Interrogator dataset (Environment Agency 2024) is used to summarise the current management of waste within the Study Area for this environmental topic.

16.6.13 It is assumed that the waste generated by the different phases of the Proposed Development will follow the waste hierarchy (European Parliament and Council of the European Union 2008), which ranks waste management options according to what is best for the environment, which is recreated in **Table 16-10.**

[16] Restricted landfills are available only to certain users / inputs and therefore would not be a viable outlet for wastes from the Proposed Development but are included in these tables for completeness.

Table 16-10: The Waste Hierarchy

Stage	Definition
Prevention	Using less material in design and manufacture. Keeping products for longer; re use. Using less hazardous materials.
Preparing for re-use	Checking, cleaning, repairing, refurbishing, whole items or spare parts.
Recycling	Turning waste into a new substance or product. Includes composting if it meets quality protocols.
Other Recovery	Includes anaerobic digestion (AD), incineration with energy recovery, gasification and pyrolysis which produce energy (fuels, heat and power) and materials from waste; some backfilling.
Disposal	Landfill and incineration without energy recovery.

16.6.14 It is also assumed that if waste generated by the Proposed Development is recycled, recovered through other means or disposed of, it will be done so within existing licenced waste management infrastructure within the Study Area. The Proposed Development is not anticipated to require a standalone project-specific waste management facility (or facilities) to be constructed.

16.6.15 The sensitive receptor for waste will focus on landfill capacity, which is in accordance with the Institute for Environmental Management and Assessment (IEMA) guidance (Institute of Environmental Management and Assessment (IEMA) 2020).

16.6.16 There are 67 No. landfill sites in the Study Area, split as follows by material accepted:

- 30 No. inert landfills (see **Figure 16.2, Volume A**); and
- 37 No. non-inert landfills (34 non-hazardous sites and three hazardous sites, see **Figure 16.3, Volume A**).

16.6.17 In 2024, the most recent year for which published data is available, circa 105 million cubic metres (Mm^3) of landfill void was remaining in the Study Area. This was comprised of 69.5 Mm^3 void in non-hazardous sites, 33.6 Mm^3 void in inert sites, and 2.2 Mm^3 void in hazardous sites.

16.6.18 Although the IEMA guidance states that landfill infrastructure is the sensitive receptor, in reality, and in compliance with the waste hierarchy and circular economy principles, it will be necessary (and is the Proposed Development aspiration in accordance with Vattenfall's own 'no-landfill' policy) to divert waste arising from the Proposed Development to other (non-landfill) facility types. In 2021, Vattenfall committed to an immediate landfill ban and set a goal to recycle 50 per cent of all wind turbine blades from its owned wind farms by 2025, with a target of 100 per cent by 2030. Building on this commitment, the company is now incorporating nacelle canopies and nose cones into its strategy, enforcing an immediate ban on landfilling these materials. The expanded target is already being integrated into existing wind farm decommissioning contracts. This therefore shows the commitment of Vattenfall to the diversion of decommissioning waste from landfill.

16.6.19 Alternative (non-landfill based) waste management options in the Study Area include:

- 363 No. materials recycling facilities (**Figure 16.4 (Volume A)** shows the 125 No. material recycling facilities receiving over 10kt of Construction and Demolition Wastes[17] in the calendar year 2024)[18];
- 12 No. energy from waste facilities (**Figure 16.5, Volume A**). This facility type is considered in this section to take account of the waste management needs of the construction workforce, welfare facility waste generation and the management of equipment supply packaging that cannot be readily recycled; and
- 14 No. anaerobic digestion facilities (AD) (see **Figure 16.6, Volume A**). This facility type is considered in this section to take account of management of food wastes (for example food residues, tea bags) arising from construction workforce welfare facilities. Note that the map only shows those AD sites which received food wastes[19] in 2024. There are other AD sites located in the Study Area, but those sites process different feedstocks such as energy crops and agricultural wastes and have thus been excluded.
- In addition to the above, waste can often be routed through a waste transfer station, prior to reaching the final point of processing. The waste transfer station infrastructure in the Study Area has not been shown, instead the focus has been on those facilities that will process the waste (i.e. the potential end destinations).

16.6.20 As mentioned previously, material use is not considered in this section of the report as it is covered in **Chapter 9: Air Quality and Greenhouse Gases.** The Proposed Development is at the early stages of design, and as such, quantities of construction materials required for the construction works are not yet known. It is however anticipated that turbine components will be sourced from outside the Study Area. Any suitable material for track construction located within the Scoping Boundary, (for example from borrow pits) would be prioritised to reduce material use and import, so demand for material from local markets within the Study Area is currently expected to be limited. The requirement for borrow pits and a temporary concrete batching plant will be confirmed as the design develops.

16.6.21 There are waste management facilities available / with sufficient capacity in the study area to accept any type of waste that the Proposed Development might generate during its construction and operation. Decommissioning wastes would be similar in nature to those produced during construction and operation, but cannot be accurately predicted due to the timescales involved. It assumed that sufficient suitably licenced facilities will be available at this point in the future to meet the waste management needs of the region and Proposed Development with an outline Decommissioning Waste Plan (DWP) to be prepared and reviewed at agreed intervals, with the final document to be agreed prior to the commencement of any decommissioning or repowering activities on-site.

[17] Determined through the receipt of European Waste Catalogue Chapter 17 wastes.

[18] The 125 facilities shown on the map in **Figure 16.4 (Volume A)** received 92% of the total C&D waste received across all 363 materials recycling facilities in the Study Area in 2024.

[19] Determined through the receipt of European Waste Catalogue Chapter 19 and 20 wastes.

Design, Mitigation and Enhancement Measures

16.6.22 As part of the design process for the Proposed Development, several embedded and standard mitigation measures are proposed to reduce the potential for impacts on material assets and waste. These are presented below. It is expected that these may evolve throughout the design evolution of the Proposed Development as the EIA progresses and in response to consultation. The Applicant is committed to implementing these measures, and also various standard sectoral practices and procedures. It is therefore considered that these measures are inherently part of the design of the Proposed Development.

16.6.23 Further detail on the role of mitigation commitments, as part of a proportionate EIA approach, is provided in **Chapter 3: Approach to EIA**. A full description of the mitigation commitments identified so far is provided in **Appendix 3A: Draft Register of Environmental Actions and Commitments (REAC) in Volume B**.

16.6.24 Mitigation measures related to waste to be adopted as part of the Proposed Development will include:

- An outline CEMP, which will form part of the application for development consent and will include:
- An outline Materials Management Plan (MMP) setting out the approach to the handling, storage, movement and reuse of excavated soils and construction materials, so these activities are undertaken in a controlled, efficient and compliant manner throughout the construction phase. The MMP will set out procedures for the segregation of materials to maximise reuse potential, minimise contamination, and avoid generating unnecessary waste. It will also include measures to reduce double-handling and optimise material movements to limit waste arisings and preserve material quality. The outline MMP will set out the principles to be followed when the MMP is finalised.
- An outline Soil Management Plan (SMP) which will set out how soils will be protected, handled, stored and reinstated during the construction phase of the Proposed Development. The outline SMP will set out the principles to be followed when the SMP is finalised.
- An outline Site Waste Management Plan (SWMP) outlining arrangements for the management of waste arising during construction in accordance with relevant legal and good practice requirements. The outline SWMP will set out measures for segregating waste at source, maximising reuse and recycling, and minimising material sent to disposal. It will establish appropriate storage, handling and monitoring procedures to prevent pollution and track waste movements. The outline SWMP will set out the principles to be followed when the outline SWMP is finalised. At present, demolition activities are not anticipated, however if the Proposed Development design requires any structure infrastructure demolition, then the outline SWMP will include a demolition chapter.
- Subject to further ground investigations confirming the presence of peat, an outline Peat Management Plan (PMP) will be prepared to set out the overall approach to minimising disturbance to peatland present on the Site. The PMP will seek to identify and implement all practicable opportunities to minimise peat disturbance and excavation during the detailed design and construction of the Proposed Development. An outline PMP (Stage 1 PMP) will be prepared as part of the application for development consent to establish the peat management strategy for the Proposed Development and inform the EIA

through the identification of peat-related risks, sensitivities and likely effects. A Stage 2 PMP would be prepared prior to the commencement of construction. Should ground investigations confirm that peat is not present in the areas affected by construction, preparation of a PMP would not be required.

- An outline Operational Waste Management Plan (OWMP) will be prepared to outline how waste generated during operation will be managed efficiently and in compliance with relevant legislation. The outline OWMP will set out procedures for segregating waste, maximising reuse and recycling and ensuring sustainable storage and collection arrangements. This will support sustainable waste practices and minimise the environmental impact of the operational phase. At this stage, it is anticipated that the OWMP will form part on an Operational Phase Environmental Management Plan OPEMP). An outline OPEMP will be provided with the application for development consent, which will set out the principles to be followed when the final OPEMP is finalised.
- An outline DWP would be prepared and reviewed at agreed intervals, with the final document to be agreed prior to the commencement of any decommissioning or repowering activities on-site. The outline DWP will set out the principles to be followed in the preparation and implementation of the final DWP. The material asset and waste management input would describe how the dismantling of infrastructure, and restoration of the Site would be undertaken in a safe, efficient, and environmentally responsible manner. It would identify the waste materials likely to arise, prioritise opportunities for reuse and recycling, and set out procedures for the segregation, storage and responsible removal of waste.

16.6.25 The requirement for, and feasibility of, any mitigation measures will be informed by ongoing consultation with relevant consultees throughout the pre-application phase of the Proposed Development.

Rational for Scoping Out Material Assets and Waste from the EIA

16.6.26 The intention is that the majority of excavation waste arising from the Proposed Development would be managed on-site. Where off-site management is required, recycling and recovery routes would be prioritised, with landfill disposal used only as a last resort, in accordance with the waste hierarchy and circular economy principles. All other wastes generated throughout the lifecycle of the Proposed Development would be managed in accordance with the waste hierarchy and circular economy principles.

16.6.27 At the time of writing, the quantities of materials required for the construction and operation of the Proposed Development (e.g. steel and concrete) have not been quantified. At this stage of the EIA process, it is assumed that materials required for the proposed infrastructure are likely to be sourced from global markets, where demand associated with the Proposed Development would represent a negligible proportion of annual production rates. As the design and technical elements of the proposed infrastructure evolve, material requirements would be refined, and the quantities and types of materials generated from excavation works would be detailed within the MMP.

16.6.28 With regard to materials required in the greatest quantities, or those associated with high embodied carbon, this aspect of the assessment will be addressed within **Chapter 9: Air Quality and Greenhouse Gases** and is therefore excluded from the scope of the Material Assets and Waste assessment to avoid duplication.

16.6.29 Regarding materials required for infrastructure works, such as aggregates, the quantities required have not yet been fully defined. However, local markets and sources within the Site Boundary of the Proposed Development are expected to be prioritised to reduce material imports and overall material use. Depending on the quantities required, there is potential for demand to place pressure on existing local supply chains. To manage materials during the construction phase, a detailed MMP and SWMP will be prepared as part of the CEMP, substantially in accordance with the outline MMP and outline SWMP. These plans will optimise material use and minimise impacts associated with material consumption and demand on waste management infrastructure. The outline MMP will focus on the efficient management of on-site won materials, reducing waste generation as far as practicable.

16.6.30 Prior to the commencement of on-site works, and subject to further ground investigations confirming the presence of peat, a Stage 2 PMP will be prepared to minimise environmental impacts through limiting peat excavation, reducing carbon losses and promoting the safe reuse of peat. An outline SMP will also be prepared as part of the outline CEMP to support the monitoring, protection and enhancement of soil resources, while reducing the risks of erosion, surface runoff, compaction and pollution.

16.6.31 Waste will be generated during the construction, operation and decommissioning phases of the Proposed Development. Through the implementation of good site management practices, including the MMP and SWMP during construction, waste generation would be minimised as far as practicable. Adherence to the SWMP during construction will facilitate the effective management, monitoring and reporting of waste generated on-site.

16.6.32 Limited operational waste will arise from routine maintenance activities throughout the operational lifetime of the Proposed Development. The Proposed Development will not be actively staffed and, therefore, no on-site staff compound or welfare facilities will be present during operation. Any waste generated through maintenance activities will be removed from Site by maintenance operatives for onward treatment or disposal in accordance with Standard Operating Procedures (SOPs) developed and implemented for the Proposed Development, which would address the requirements of the outline OWMP. Where waste management requirements are not addressed through the SOPs, an OWMP will be prepared. The OWMP would identify the operational wastes likely to be generated over the operational life of the Proposed Development and set out the procedures for their management.

16.6.33 The detailed types and quantities of waste that will be generated during decommissioning are not yet fully understood. There is also uncertainty regarding the recycling and recovery technologies that may be available at the end of the Proposed Development's anticipated 35-year operational life. Therefore, at this stage of the process, there remains potential for waste-related impacts during the decommissioning phase. These impacts can, however, be mitigated through the preparation of an Outline DWP, which would be reviewed at agreed intervals and finalised prior to the commencement of decommissioning activities on-site. The Outline DWP would establish the requirements and methods for decommissioning and provide an initial description of the infrastructure components to be removed, the anticipated decommissioning measures, and the expected recycling and recovery targets applicable at the time of its preparation.

Impacts Proposed to be Scoped Out

Table 16-11: Potential Impacts on Material Assets and Waste and Rationale for Scoping Out

Impact	Justification for Scoping Out
Construction	
Construction waste (including demolition and excavation wastes)	Wastes generated on-site during the construction phase of the Proposed Development are anticipated to be largely excavation wastes, although other general construction wastes would also be generated. There is not anticipated to be any demolition waste production from the Proposed Development; it is understood that there are no structures on-site requiring removal. Initial calculations (based on typical onshore wind farm designs) estimate construction waste generation (including excavation wastes) could be in the order of 214,400 m^3. Due to limited design details being available at the Scoping Report stage, the calculation is subject to a number of caveats[20] and is based on the higher value of ranges from publicly available information; this is therefore a conservative (worst-case) calculation. The initial construction waste estimate is compared against landfill capacity in the Study Area of 105 million cubic metres (of which 33.6 million cubic metres is capacity in inert landfills). Although the IEMA guide requires that waste is assessed against landfill void as the sensitive receptor, in reality, recycling and recovery would be the preferred approach over landfill disposal; this approach accords with the principles of the waste hierarchy and circular economy principles. However, in the unlikely situation that all construction waste is disposed of to landfill (as opposed to the Proposed Development intention of reuse on-site, reuse off-site, recycling and recovery with landfill disposal as the last resort), this equates to a requirement of 0.6% of the currently reported available inert landfill void. There is a commitment to develop the following outline documents to support the application: an MMP, Stage 2 PMP (if the presence of peat is confirmed), SMP and SWMP as part of the CEMP for the Proposed Development, with documentation finalised prior to the commencement of construction works, which would support the management of construction waste. Furthermore, where waste is managed off-site, it would be managed at a licensed waste management facility which has itself received / maintained the appropriate environmental and planning consents through which the environmental impact of processing wastes has been assessed.

[20] (1) All numbers are based on high level cut only. No topographical data has been included. (2) No modelling had been completed or included here. (3) Cut based on ground level to formation only. (4) This is scoping design, not freeze, so will change. (5) Tracks to 0.5m depth, weight bearing hardstands to 1m depth (turbine hardstand and compounds). (6) Turbine founds to 4m max. (7) No number reduction for cut fill balance. Only 100% import and export of cut material. (8) Potential infilling / depositing or reuse of aggregates on-site not included.

Impact	Justification for Scoping Out
Operation and Maintenance	
Operational wastes (including those generated during routine maintenance)	Waste quantities produced during routine maintenance activities are anticipated to be low. Waste materials from maintenance could include items such as used personal protective equipment, packaging materials, replaced sensors and electrical components, cleaning materials, paints and oils. The maintenance team would have a base off-site, and it is anticipated that any operational wastes generated within the Site Boundary would be returned to the base and managed from there using licensed waste management contractors and facilities. There is a commitment to prepare an outline OWMP to support the application. Finalised information will be provided in the SOPs. If waste management is not accounted for in the SOPs, a finalised OWMP for the Proposed Development would be prepared prior to the commencement of commercial operations.
Decommissioning	
Wastes generated when the Proposed Development is decommissioned	There is a commitment to prepare an outline DWP setting out the requirements and methods for decommissioning, with the DWP to be finalised prior to decommissioning activities taking place at the end of the operational life of the Proposed Development. The outline DWP will be prepared to support the application and reviewed at appropriate intervals as decommissioning would take place beyond 2050, by which time technological advancements are anticipated to support increased recycling and recovery of turbines and their constituent materials. Reuse and recycling rates for waste arising from the decommissioning of wind farms continue to improve. One recent case study reported that up to 99.9% of materials from 26 decommissioned wind turbines and their associated components at a wind farm in South Lanarkshire were either recycled or reused. Therefore, the demand for landfill capacity resulting from decommissioning activities is expected to be low. The finalised DWP will be submitted for approval prior to the commencement of any decommissioning or repowering activities.
Cumulative	
Cumulative generation of waste volumes or material demand	Even under conservative assumptions, the Proposed Development would not generate waste volumes or material demands at a scale that could meaningfully interact with other developments to create a significant cumulative effect. Construction waste estimates represent a very small proportion of regional landfill capacity, and the Proposed Development would prioritise on-site reuse, recycling and recovery in accordance with the waste hierarchy. As a result, the amount of waste requiring treatment at off-site facilities would be low. With the embedded commitments to prepare an MMP, PMP (if required), SMP and SWMP to minimise waste generation and maximise beneficial reuse, there is no realistic pathway by which the Proposed Development could combine with other developments to give rise to significant

Impact	Justification for Scoping Out
	cumulative effects. Therefore, cumulative effects relating to material assets and waste are proposed to be scoped out of the EIA.

16.6.34 Based on the indicative construction waste volumes, the substantial capacity of existing regional waste infrastructure as set out in **Table 16-11** and the embedded commitments described above, no likely significant effects on material assets and waste are anticipated during the construction, operation and maintenance, or decommissioning of the Proposed Development. Waste would be managed in accordance with the waste hierarchy, with disposal to landfill minimised. On this basis, and subject to the commitment to prepare the outline management plans identified above and any additional documentation identified through the consultation process, it is proposed that material assets and waste are scoped out of the EIA and that no further assessment is undertaken.

16.7 Further Consideration for Consultees

16.7.1 The following questions are provided to help frame consultee comments on the Scoping Report for the other environmental topics addressed in this chapter:

- **Q16.1**: Do consultees have any comments on the proposed approach and methodology for Telecommunications and Utilities?
- **Q16.2**: Do consultees agree with the proposed Study Areas for the identification and assessment for Telecommunications receptors?
- **Q16.3**: Do consultees have any comments on the proposed approach and methodology for Shadow Flicker?
- **Q16.4**: Do consultees agree with the proposed Study Area for the assessment of Shadow Flicker effects?
- **Q16.5**: Do consultees agree that Major Accidents and Disasters (with the exception of Flood Risk) can be scoped out of the EIA?
- **Q 16.6**: Do consultees agree that Material Assets and Waste can be scoped out of the EIA?
- **Q16.7**: Are there any specific projects currently going through the planning process which consultees feel should be considered as part of the cumulative assessment?

17. Aviation and Radar

17.1 Introduction

17.1.1 This chapter has been prepared by Straten Consulting and sets out the proposed scope and method for assessing the potential effects of Everton Carr Wind Farm (the Proposed Development) on civil and military aviation. It has been prepared using the project information available at the scoping stage, the supplied aviation and Instrument Flight Procedures (IFP) feasibility studies, publicly available aviation information and current CAA policy and guidance.

17.1.2 The Proposed Development would comprise of up to 16 three-bladed horizontal-axis wind turbines with a maximum blade tip height of 220 m AGL, together with associated permanent and temporary infrastructure. The Site is centred approximately at Ordnance Survey grid reference SK 71327 93614, near Misson. Final turbine coordinates, ground elevations and crane dimensions are not yet fixed. The assessment would therefore use a realistic 'worst-case' design envelope and would be updated as the layout develops.

17.1.3 Wind turbines can affect aviation through their physical presence, potential infringement of safeguarded surfaces or IFP obstacle protection areas, interference with Communication, Navigation and Surveillance (CNS) systems, generation of radar returns, effects on aviation operations and the requirement for obstacle lighting and notification. The purpose of the EIA is to establish whether those technical effects could lead to a material operational effect and, where required, identify suitable mitigation.

17.2 Legislation, Policy and Guidance

17.2.1 The following aviation regulations, policy and guidance are relevant to the consideration of the potential effects of the Proposed Development on aviation. This list is not exhaustive, and other documents may be referred to as appropriate:

- Infrastructure Planning (Environmental Impact Assessment) Regulations 2017;
- Air Navigation Order 2016, as amended, including obstacle notification and lighting requirements;
- UK Regulation (EU) No 139/2014 and associated aerodrome requirements, where applicable;
- Overarching National Policy Statement for Energy (EN-1) and National Policy Statement for Renewable Energy Infrastructure (EN-3), including aviation, defence and radar considerations;
- CAA CAP 764, Policy and Guidelines on Wind Turbines, Edition 7, December 2025;
- CAA CAP 738, Safeguarding of Aerodromes, together with current Combined Aerodrome Safeguarding Team advice;
- CAA CAP 785B, Implementation and Safeguarding of Instrument Flight Procedures in the UK;
- CAA CAP 670, Air Traffic Services Safety Requirements, and relevant equipment-specific safeguarding guidance;
- CAA CAP 168, Licensing of Aerodromes, where applicable;

- ICAO Annex 14, Aerodromes, and Doc 8168, Procedures for Air Navigation Services - Aircraft Operations, Volume II; and
- MOD, NATS, Met Office and aerodrome-specific wind energy and safeguarding requirements.

17.2.2 The CAA has advised that a revised ICAO Obstacle Limitation Surfaces (OLS) framework becomes applicable from 21 November 2030. Because construction is currently anticipated to start in 2034, the assessment would consider the transitional and future OLS framework in consultation with Doncaster Sheffield Airport (DSA) and the CAA, as well as the framework applicable when the application is examined.

17.3 Study Area

17.3.1 The Study Areas for aviation and radar have been defined using established aviation safeguarding principles drawn from CAP738 as shown in **Table 17-1**. The distances are screening limits; receptors outside them would also be considered where published safeguarding information, consultation or an operational dependency indicates a potential likely significant effect.

Table 17-1: List of Receptors and Study Area

Receptor or topic	Study area	Reason for criterion
Surveillance radar, including civil, military and meteorological radar	All relevant radar installations within 100 Nautical Miles (NM) (185.2 km) of the Site. Radar line-of-sight and operational use would then be used to refine the receptor list.	Provides a conservative regional screen consistent with the range at which long-range surveillance systems may detect tall wind turbines.
Aerodrome OLS and physical safeguarding	Between 5 km and 15 km, selected according to aerodrome classification, runway characteristics and published safeguarding arrangements.	Reflects the different extent of obstacle safeguarding surfaces and consultation needs for large licensed/certified aerodromes, smaller aerodromes and unlicensed sites.
Instrument Flight Procedures	Published or proposed IFPs associated with aerodromes within 30 NM (56 km), together with any procedure whose protected area extends over the Site.	Allows screening of procedure segments, holding areas, minimum sector altitudes and visual manoeuvring areas in accordance with CAP 785B and PANS-OPS criteria.
Aviation communication systems	10 km from each turbine and any larger published or operator-defined safeguarding area.	Screens for physical obstruction, reflection, diffraction, re-radiation and electromagnetic effects on relevant VHF/UHF and data communication facilities.
Ground-based navigation systems	10 km from each turbine and any larger published or operator-defined safeguarding area.	Screens navigation aids before applying the relevant Building Restricted Area or equipment-specific criteria.
Airspace, aviation activity and obstacle lighting	The Site and airspace within 30 NM (56 km), extended where operational routes or consultation identify a wider pathway.	Captures DSA operations, local aerodromes, military activity, general aviation, emergency services and en-route obstacle requirements.

Receptor or topic	Study area	Reason for criterion
Cumulative development	Other existing, consented and reasonably foreseeable wind farms within the radar and operational study areas.	Identifies combined radar clutter, airspace or mitigation effects that may not arise from the Proposed Development alone.

17.3.2 The study areas would be measured from the final turbine coordinates. Distances stated at scoping stage are approximate and would be verified and presented in the Aviation and Radar chapter of the Environmental Statement (ES) using geographic information system data and authoritative aeronautical sources.

17.4 Baseline Environment

Overview of Available Data Sources

17.4.1 The data sources used to determine the Aviation and Radar baseline are set out in **Table 17-2.**

Table 17-2: Overview of Available Data Sources

Source	Information used	Coverage
UK Aeronautical Information Publication and aeronautical charts	Current airspace, aerodromes, IFPs, navigation aids, Air Traffic Service (ATS) routes and notified obstacles.	United Kingdom and relevant regional airspace.
CAA CAP 764 Edition 7 (December 2025)	Current policy and guidance for wind turbine effects, consultation, evidence, safeguarding and mitigation.	Civil and military aviation interests affected by wind energy.
CAA CAP 738 and CAST safeguarding advice	Aerodrome safeguarding principles and Obstacle Limitation Surfaces (OLS) assessment.	Licensed/certified and other relevant aerodromes.
CAA CAP 785B and ICAO Doc 8168, Volume II	Implementation and safeguarding of IFPs and obstacle assessment criteria.	Published and proposed procedures relevant to the Site.
CAA CAP 670 and equipment-specific safeguarding criteria	Technical safeguarding of ATS communication, navigation and surveillance systems.	Relevant CNS facilities.
MOD and NATS wind energy consultation services	Defence and en-route technical and operational screening, including formal pre-application responses.	All relevant MOD and NATS assets.
Met Office consultation and radar information	Weather radar screening and operational requirements.	Meteorological radar within the radar study area.
Previous Everton Carr aviation feasibility study, July 2025	Initial airspace, OLS, CNS and radar review.	Site and regional aviation interests.
Previous DSA IFP feasibility study, April 2026	PANS-OPS assessment of the 220 m turbine envelope against the former/potential DSA procedure set.	DSA IFP protection areas and visual manoeuvring.

Source	Information used	Coverage
Current DSA Airspace Change Proposal material	Proposed reinstatement of controlled airspace and IFPs associated with airport reopening.	DSA and surrounding airspace.
Terrain, surface and turbine design data	Ground elevation, radar line of sight, obstacle elevation and worst-case turbine/crane envelope.	Site and relevant receptor-to-turbine paths.

17.5 Overview of Baseline Environment

Doncaster Sheffield Airport and Airspace

17.5.1 DSA is approximately 2.5 NM (4.6 km) north-west of the Site. Commercial operations ceased in 2022 and the former controlled airspace and Aeronautical Information Publication (AIP) entries were subsequently withdrawn. FlyDoncaster Ltd is progressing an Airspace Change Proposal to reinstate controlled airspace and IFPs in support of phased reopening. The current baseline therefore reflects the airport's present status, while the former safeguarding arrangements provide an important reference for the reasonably foreseeable future baseline. The assessment will explicitly address this uncertainty by considering the latest approved or consultation-stage airspace, IFP and safeguarding arrangements available at each assessment stage.

17.5.2 The former DSA Control Zone was Class D controlled airspace from the surface. The Site lies wholly within that airspace. Reinstated controlled airspace and future IFPs may differ from the former arrangements; the latest approved or consultation design would therefore be used at each assessment stage.

Obstacle Limitation Surfaces

17.5.3 Previous feasibility work identified penetration of the DSA Inner Horizontal Surface (IHS). The current maximum tip height of 220 m AGL does not change the nature of that safeguarding issue, but increases the obstacle elevation relative to the earlier design envelope. The final layout will therefore be assessed against the applicable current and future Obstacle Limitation Surfaces (OLS). An OLS penetration does not, by itself, determine planning acceptability, but it requires detailed assessment by the aerodrome operator of the obstacle environment and relevant operations.

Instrument Flight Procedures

17.5.4 The April 2026 IFP feasibility study assessed the former DSA procedure set and identified no penetration of the assessed departure, approach, holding, minimum sector altitude or missed approach protection criteria, other than visual manoeuvring (circling). The identified effect was a penetration of the visual manoeuvring Obstacle Clearance Altitude (OCA) for Category B, C and D aircraft. Increasing the turbine envelope to 220 m AGL does not change the nature of that effect, although the associated obstacle elevation increases by approximately 20 m. Potential mitigation includes increasing the published circling OCA, restricting circling to the west of Runway 02/20, or reducing turbine height. A formal safeguarding assessment will be undertaken using final turbine elevations and the IFPs proposed or approved through the DSA reopening programme.

Communication, Navigation and Surveillance Systems

17.5.5 The Site lies within 10 km of DSA and therefore within the proposed screening study area for airport communication and navigation facilities. The former DSA facilities, replacement systems and any systems required for reopening would be confirmed with FlyDoncaster Ltd. Building Restricted Area and equipment-specific assessments would be completed where required.

17.5.6 Initial modelling of the current 220 m turbine envelope indicates radar line of sight (RLoS) to the DSA Primary Surveillance Radar (PSR) and NATS Claxby PSR, with the change from the earlier 200 m envelope being marginal. Visibility is also indicated to the Royal Air Force (RAF) Waddington radar. Hibaldstow was not predicted to have coverage of a 220 m turbine envelope and was identified only as a possible source of alternative surveillance; this does not establish that mitigation is technically or operationally available.

17.5.7 The 100 NM radar search would be refreshed for the EIA. Candidate facilities to be verified include DSA, NATS Claxby and other NATS en-route systems with operational coverage of the area; MOD systems at RAF Waddington and other relevant defence sites; radar serving East Midlands, Humberside, Leeds Bradford, Manchester and Birmingham airports where within range; and Met Office weather radar, including the Lincolnshire regional installation. Facilities would only remain assessment receptors where detection, safeguarding responsibility and operational use creates a potential likely significant effect.

Other Aviation Activity and Obstacle Lighting

17.5.8 The Site is close to DSA and may also be used by general aviation, military, police, air ambulance and search and rescue aircraft. The baseline would identify nearby licensed and unlicensed aerodromes and known flying sites within the classification-based OLS screening areas. The effect of the turbines on low-flying routes, emergency operations and visual navigation would be considered through consultation and airspace review.

17.5.9 At up to 220 m AGL the turbines would exceed 150 m and would require aviation warning lighting in accordance with the Air Navigation Order 2016, relevant CAA policy and any MOD requirements. Lighting specifications would be agreed with the CAA and relevant aviation stakeholders. Landscape and visual effects of that lighting would be assessed in the Landscape and Visual ES chapter, with the aviation requirement defined in the Aviation ES chapter.

17.6 Consultation and Engagement

17.6.1 The Environmental Statement (ES) will be informed by the proposed aviation consultees in **Table 17-3** below:

Table 17-3: Proposed Consultees

Consultee	Purpose
FlyDoncaster Ltd / DSA safeguarding and ATS representatives	Confirm reopening baseline, proposed airspace and IFPs, OLS, CNS assets, aviation operations, evidence requirements and acceptable mitigation.
NATS (En Route) plc	Obtain formal technical and operational assessment of relevant NATS radar and navigation infrastructure and discuss mitigation if required.

Consultee	Purpose
Ministry of Defence	Assess air defence and air traffic radar, military low flying, aviation lighting and other defence safeguarding interests.
Civil Aviation Authority	Confirm policy interpretation, obstacle notification/lighting, airspace change interfaces and any matters requiring regulatory input.
Met Office	Confirm whether weather radar is a relevant receptor and determine the need for further technical assessment.
Relevant nearby aerodrome and CNS operators	Confirm safeguarding status, operational use and whether the Proposed Development creates a potential likely significant effect.
Planning Inspectorate and host authority	Agree the scope, evidence base and treatment of any unresolved aviation matter in the DCO application.

17.7 Assessment Methodology

Proposed Assessment Methodology

17.7.1 The assessment would follow a staged, evidence-led process as follows:

- confirm the final design envelope, turbine coordinates, maximum blade tip elevations, hub heights, rotor diameters, construction crane envelope and programme;
- identify relevant aviation receptors using the study areas, current aeronautical data, published safeguarding information and stakeholder consultation;
- screen OLS, IFPs, airspace, physical safeguarding, CNS systems, aviation activity, obstacle notification and lighting requirements;
- undertake detailed OLS and IFP safeguarding assessments using the applicable CAA and ICAO criteria;
- model radar line of sight using appropriate terrain and surface data, followed where necessary by equipment-specific technical analysis;
- obtain the relevant ANSP, aerodrome, MOD or equipment operator assessment of any predicted technical effect and its operational consequence;
- assess cumulative effects with other wind farms where radar coverage, airspace use or mitigation arrangements overlap;
- identify embedded design measures and, where a material operational effect is demonstrated, develop proportionate technical, operational or procedural mitigation; and
- report residual effects, consultation outcomes, commitments and any matters that remain to be resolved through a Statement of Common Ground or DCO requirement.

17.7.2 The aviation assessment would not rely solely on a generic EIA sensitivity-magnitude matrix. Aviation receptors are regulated systems with receptor-specific tolerances. The key test would be whether the Proposed Development would cause an unacceptable effect on aviation safety or on the safe and efficient provision of an ATS, having regard to the view and supporting evidence of the responsible aviation stakeholder. Effects would be described as acceptable,

acceptable subject to mitigation, or unacceptable. The wider EIA significance terminology would then be applied consistently with the project-wide methodology.

17.7.3 Radar line of sight establishes the potential for a turbine to be detected. It does not establish that returns would be displayed to a controller, that they would affect surveillance performance, or that an operational effect would occur. In accordance with CAP 764, the assessment would distinguish technical effect from operational consequence and would require a proportionate, evidence-based assessment of the local operating environment.

17.7.4 The CAA has advised that a revised ICAO OLS framework becomes applicable from 21 November 2030. Because construction is currently anticipated to start in 2034, the assessment would consider the transitional and future OLS framework in consultation with DSA and the CAA, as well as the framework applicable when the application is examined.

17.8 Mitigation

17.8.1 At the scoping stage, no requirement for specific aviation mitigation has been confirmed. The need for mitigation will depend on the outcome of consultation and the detailed technical assessments undertaken for the final turbine layout and maximum tip height of 220 m.

17.8.2 The design process will seek to avoid or reduce potential effects through embedded mitigation. This will include:

- consultation with Doncaster Sheffield Airport, NATS, the Ministry of Defence and other relevant aviation stakeholders;
- assessment of the final turbine layout against the applicable Obstacle Limitation Surfaces and Instrument Flight Procedures;
- detailed radar line-of-sight and operational impact assessment, where required;
- consideration of stakeholder responses during the evolution of the turbine layout;
- submission of final turbine coordinates, ground elevations and tip heights to relevant aviation stakeholders;
- charting and notification of the turbines as aviation obstacles; and
- appropriate aviation lighting, subject to the requirements of the Air Navigation Order 2016, the CAA and the Ministry of Defence.

17.8.3 Where a material effect is identified, further mitigation will be developed in consultation with the affected stakeholder. Depending on the nature of the effect, this could include micrositing or removal of individual turbines, reduced turbine heights, operational procedures, changes to aviation infrastructure or technical mitigation. Any mitigation relied upon will be clearly defined and secured through an appropriate planning condition or legal agreement.

17.8.4 The assessment will not assume that a predicted technical effect automatically represents an unacceptable operational effect. In accordance with CAP 764, the significance of any effect will be determined by considering whether it would result in a demonstrable consequence for the safe or efficient provision of an Air Traffic Service.

17.9 Assessment of Potential Likely Significant Effects

17.9.1 Impacts proposed to be scoped into the Aviation Assessment are listed in **Table 17-4** below.

Table 17-4: Effects Scoped into Assessment

Phase / impact	Reason for scoping in	Proposed assessment
Construction and decommissioning - cranes and temporary obstacles	Cranes may exceed turbine hub height and affect OLS, IFPs, radar and local operations.	Worst-case crane envelope review; OLS and IFP screening; radar/CNS screening; notification, lighting and operational controls agreed with relevant stakeholders.
Operation - DSA OLS and physical safeguarding	The Site is approximately 4.6 km from DSA and previous work predicts substantial IHS penetration.	Detailed safeguarding assessment using final maximum elevations, current/future OLS and DSA operational requirements.
Operation - DSA IFPs and visual manoeuvring	Previous assessment identified penetration of circling OCA; the current 220 m envelope is higher and DSA procedures are being redeveloped.	Formal APDO-led IFP safeguarding assessment against the procedure set proposed or approved for reopening, including mitigation options.
Operation - civil and military PSR	The Site is predicted to be in RLoS of DSA, NATS Claxby and RAF Waddington radar, with further systems screened within 100 NM.	Updated RLoS and technical assessment, followed by stakeholder operational impact assessment and mitigation where justified.
Operation – Secondary Surveillance Radar (SSR) and other surveillance sensors	Tall turbines can cause masking, multipath or infrastructure effects even where rotating-blade clutter is primarily a PSR issue.	Facility-specific screening within 100 NM; detailed assessment only where a credible pathway is identified.
Operation - aviation communications	DSA is within 10 km and future communication infrastructure may be installed for reopening.	10 km screen, Building Restricted Area/equipment-specific assessment and operator consultation.
Operation - ground-based navigation aids	DSA is within 10 km and the status/design of future navigation facilities must be confirmed.	10 km screen, equipment-specific assessment and APDO/airport consultation.
Operation - airspace and aviation activity	The Site is close to DSA and the future controlled-airspace design remains under development.	Review current and future airspace, airport operations, local flying activity, emergency services and military low flying.
Operation - aviation lighting, marking and obstacle notification	Turbines above 150 m require obstacle lighting and notification.	Define compliant lighting/marking and notification in consultation with the CAA and MOD; pass visual characteristics to the LVIA.
Cumulative - radar, IFP, airspace and mitigation interactions	Other wind farms may add radar returns, affect shared procedures or use finite mitigation capacity.	Screen built, consented and reasonably foreseeable projects within overlapping radar/operational study areas and consult affected stakeholders.

17.9.2 Subject to confirmation through consultation and final layout screening, the matters proposed to be scoped out of further detailed assessment are summarised in **Table 17-5** below.

Table 17-5: Effects Scoped out of Assessment

Topic	Reason for scoping out	Basis for confirmation
Navigation aids outside applicable safeguarding criteria	No credible technical pathway is identified where the development lies outside the relevant equipment-specific safeguarding criteria.	Confirm facility status and safeguarding criteria with the relevant operator.
Aerodromes with no safeguarding overlap	No OLS, IFP or operational safeguarding pathway is identified.	Confirm against final turbine coordinates and current aeronautical data.
Surveillance systems screened out through RLoS and operational review	No credible detection or operational pathway is identified.	Confirm through final RLoS screening and, where necessary, operator consultation.
Communication systems outside applicable safeguarding criteria	No credible physical or electromagnetic pathway is identified.	Confirm against final layout and equipment-specific criteria.

17.10 Summary and Conclusions

17.10.1 The initial feasibility studies and scoping review have identified Doncaster Sheffield Airport, NATS and the Ministry of Defence as the principal aviation interests requiring further consideration. This reflects the proximity of the Proposed Development to Doncaster Sheffield Airport, the proposed reopening of the airport and associated airspace-change activity, and the potential visibility of the turbines to civil and military surveillance systems.

17.10.2 The previous feasibility studies provide useful baseline information and indicate that the principal safeguarding issues remain the DSA OLS, visual manoeuvring criteria and potential surveillance radar effects. The current 220 m design envelope will nevertheless be reassessed against the applicable OLS and existing or proposed IFPs for DSA. Consultation will also establish the safeguarding basis to be applied while the airport reopening and airspace-change processes remain ongoing.

17.10.3 Potential effects on civil and military radar are scoped into the Environmental Impact Assessment. The assessment will consider both the potential technical effect and whether this could lead to a material operational consequence. The presence of turbines within radar line of sight will not, by itself, be treated as evidence of a significant effect.

17.10.4 No aviation communication or navigation facilities have been identified within 10 km that are expected to be materially affected. Subject to confirmation through consultation and final layout screening, effects on these systems can be scoped out of further detailed assessment.

17.10.5 The following matters as listed in **Table 17-4** should therefore be scoped into the aviation assessment:

- Doncaster Sheffield Airport safeguarding, including Obstacle Limitation Surfaces;
- existing and reasonably foreseeable Instrument Flight Procedures;
- civil and military surveillance radar;
- aviation lighting, charting and obstacle notification; and
- cumulative effects with other relevant developments.

17.10.6 Provided that the identified assessments and consultation are completed, there is no evidence at this stage that aviation effects would prevent the Proposed Development from proceeding. Any significant or otherwise unacceptable aviation effects identified through the detailed assessment will be addressed through design development and, where necessary, stakeholder-agreed mitigation.

18. Summary

18.1 Introduction

18.1.1 This chapter of the Scoping Report summarises the impacts that are proposed to be scoped in and out of the Environmental Impact Assessment (EIA) for the Proposed Development. A detailed description of the assessment scope is provided in **Chapters 5** to **17** of this **Scoping Report**.

18.1.2 The scoped-in impacts for each environmental topic chapter (**Chapters 5** to **17**) are summarised in **Table 18-1** and the scoped-out aspects are summarised in **Table 18-2**

Table 18-1: Summary of Scoped-In Impacts of the Assessment

Potential Impacts Scoped into the EIA for the Proposed Development	
Chapter 5: Geology, Soils, Ground Conditions and Peat	
Construction	Disturbance and loss of carbon rich soils and peat deposits.
	Disturbance and loss of Agricultural Land.
	Structural damage to soil resource.
	Loss of soil resource from erosion.
	Loss of soil organic carbon.
	Sterilisation of potential resources within the Mineral Safeguarding Area.
Decommissioning	Structural damage to soil resources.
	Loss of soil resource through erosion.
	Loss of soil organic carbon.
	Loss of Agricultural Land.
Cumulative	Disturbance and loss of Agricultural Land.
	Sterilisation of Mineral Safeguarding Area.
Chapter 6: Ecology	
Construction	Indirect impacts to River Idle Washlands Site of Special Scientific Interest (SSSI).
	Direct impacts to on-site Local Wildlife Sites (LWS).
	Indirect impacts to SSSIs and/or LWSs within 2 km.
	Permanent and temporary loss or degradation of important habitats.
	Impacts on protected and notable terrestrial species (or upon their resting or breeding sites) including bats, otter, water vole, GCN, reptiles, amphibians, invertebrates and badger.
	Habitat fragmentation and species isolation.
	Spread of invasive non-native species (INNS).

Potential Impacts Scoped into the EIA for the Proposed Development	
	Accidental pollution.
Operation and Maintenance	Killing and injury of high collision-risk bat species.
	Disturbance arising from maintenance activities.
Decommissioning	Similar impacts to construction but on a reduced scale and duration.
Cumulative	Effects on habitats and species that share the same ecological, hydrological or bat foraging ranges.
Chapter 7: Ornithology	
Construction	Direct loss of Habitat.
	Disturbance caused by construction activity.
All Phases	River Idle Washlands SSSI.
	Misson Training Area SSSI.
	Sutton and Lound Gravel Pits SSSI.
	Habitats Regulations Assessment (HRA) of Thorne and Hatfield Moors SPA and Humber Estuary Ramsar (and underpinning SSSI.
	LWSs with bird interest within 2 km.
Species	Habitat loss for Passerines.
Operation and Maintenance	Disturbance / Displacement to nesting, foraging and roosting birds.
	Collision Mortality Risk of bird populations.
Decommissioning	Disturbance to nesting, foraging and roosting birds.
Cumulative	Collision Mortality Risk of bird populations.
	Displacement of bird populations.
Chapter 8: Archaeology and Cultural Heritage	
Construction	Direct physical impacts on non-designated heritage assets within the Site.
	Indirect effects on heritage assets within the Site.

Potential Impacts Scoped into the EIA for the Proposed Development	
Operation and Maintenance	Direct physical impacts.
	Settings effects on designated heritage assets.
Cumulative	Direct Effects on Heritage Assets within the Site.
	Settings Effects
Chapter 9: Air Quality and Greenhouse Gases	
Air Quality	
Construction	Effects of dust emissions from construction activities on human health and local air quality.
	Effects of dust emissions from construction activities on designated ecological sites local to the Proposed Development.
	Effects on human health of vehicle trips increasing emissions of NO_2 and particulate matter.
	Effects on local designated conservation sites due to changes in NOx, NH_3 and nitrogen/acid deposition arising from construction plant, vehicles and road traffic.
Greenhouse Gas Assessment	
Construction	Materials used in construction.
	Fuel used by construction plant, vehicles and equipment.
	Transport of materials and equipment.
	Worker travel.
	Construction waste.
	Water consumption and wastewater.
	Land use change emissions.
Operation and Maintenance	Fuel consumption.
	Electricity use.
	Fugitive gases.
	Operational waste.

Potential Impacts Scoped into the EIA for the Proposed Development	
	Water use.
	Maintenance activities.
	Maintenance materials.
	Transport of maintenance materials and equipment.
	Operational land use change emissions.
Decommissioning	Fuel use.
	Transport of materials and equipment.
	Worker travel.
	Waste generation.
	Water consumption and wastewater.
Climate Resilience Assessment	
Proposed Development Lifetime	Future air temperature conditions.
	Future wind speed conditions.
	Future precipitation conditions.
Chapter 10: Human Health	
Construction	Increased exposure to noise, dust and other environmental effects.
	Reduced access to services, amenities, recreational facilities and healthcare facilities.
	Reduced mobility options and disruption to travel times.
	Increased employment and training opportunities.
Decommissioning	Increased exposure to noise, dust and other environmental effects.
	Reduced access to services, amenities and facilities.
	Reduced mobility options and disruption to travel times.
Cumulative	Reduced access to community services and facilities and increased pressure on services.

Potential Impacts Scoped into the EIA for the Proposed Development	
	Cumulative increase in employment opportunities.
	Contribution to energy security and resilient infrastructure.
Chapter 11: Landscape and Visual	
Construction (and decommissioning)	Physical landscape features within the Site area, included in the landscape impact assessment.
	Landscape Character Areas (LCAs) within 20 km of the Proposed Development, included in the landscape impact assessment.
	Landscape Designations with potential for significant effects as described in the preliminary assessment.
	Receptors within the LVIA Study Area included in the visual impact assessment.
Operation and Maintenance	Physical landscape features within the Site area, included in the landscape impact assessment.
	LCAs within 20 km of the Proposed Development, included in the landscape impact assessment.
	Landscape designations with potential for significant effects as described in the preliminary assessment.
	Receptors within the LVIA Study Area included in the visual impact assessment.
	Receptors within 20 km included in the assessment of visible aviation lighting. Including the four night-time visualisation locations.
Cumulative	Included in cumulative landscape and visual impact assessment in line with the scope outlined in **Section 11.6**.
Chapter 12: Noise and Vibration	
Construction	Noise from construction activities affecting nearby noise sensitive receptors (NSR).
Operation and Maintenance	Operational wind turbine noise affecting NSRs.
	Operational non-wind turbine noise from ancillary infrastructure.
Decommissioning	Potential decommissioning noise effects.
Cumulative	Combined operational noise from the Proposed Development and other wind farm developments.
Chapter 13: Socio-economics, Recreation and Tourism	
Construction	Generation of construction employment opportunities.
	Supply chain expenditure and indirect economic effects.

Potential Impacts Scoped into the EIA for the Proposed Development	
	Disruption and changes in amenity for users of recreational resources, open spaces and Public Right(s) of Way (PRoWs).
	Changes in local service demand arising from the construction workforce.
Decommissioning	Disruption and changes in amenity for users of recreational resources, open spaces and PRoWs.
Cumulative	Cumulative increase in employment opportunities.
	Contribution to energy security and resilient infrastructure.
	Cumulative changes in local service demand.
Chapter 14: Access, Traffic and Transport	
Construction	Potential effects of additional vehicle movements on: 1. Severance; 2. Road vehicle driver and passenger delay; 3. Non-motorised user delay; 4. Non-motorised user amenity; 5. Fear and intimidation of and by road users; 6. Road user and pedestrian safety; and 7. Hazardous / large loads.
	Temporary delay to users of PRoWs where crossed by construction traffic or where diversions are required.
	Traffic and access effects associated with the required to install connection to the grid.
Operation and Maintenance	Changes in journey length of PRoW users arising from changes to access arrangements.
Cumulative	Cumulative traffic and transport effects associated with other relevant developments.
Chapter 15: Hydrology, Hydrogeology, Water Resources and Flood Risk	
Construction	Impacts on surface water and groundwater quality from pollution from fuel, oil, concrete or other hazardous substances.
	Discharge of sediment-laden runoff to on-site ditches, Internal Drainage Board (IDB) drains and watercourses.
	Increased downstream flood risk through increased surface runoff during construction.

Potential Impacts Scoped into the EIA for the Proposed Development	
	Changes in groundwater levels or groundwater flow paths affecting Groundwater Dependent Terrestrial Ecosystems (GWDTEs).
	Potential adverse impacts on licensed abstractions and private water supplies.
	Disturbance and/or pollution resulting from borrow pit formation and use.
	Impacts from pluvial and fluvial flooding on construction areas.
Operation and Maintenance	Increased runoff rates and flood risk from new impermeable surfaces.
	Increased flood risk arising from development within Flood Zone 3 and flood water displacement.
	Increased flood risk from restrictions to flow at permanent watercourse crossings.
	Changes in natural surface water and groundwater drainage patterns.
	Changes to the quality of surface water runoff associated with altered land use and maintenance.
	Changes to groundwater levels and groundwater movement.
	Longer-term impacts on water abstractions and water supplies, particularly any supplies dependent on groundwater.
Cumulative	Cumulative effects on hydrology, hydrogeology, water resources and flood risk receptors.
Chapter 16: Other Environmental Topics	
Shadow Flicker	
Operation and Maintenance	Shadow flicker at residential receptors located within ten rotor diameters of a proposed wind turbine.
Major Accidents and Disasters	
All Phases	A Flood Risk Assessment (FRA) will be undertaken to assess the flood risk both to and from the Proposed Development and demonstrate how flood risk would be managed over the lifetime of the Proposed Development.
Telecommunications	
Operation and Maintenance	Potential effects on fixed telecommunications links, subject to implementation of agreed telecommunications stand-off distances and design mitigation within the Telecommunications Study Area are scoped into further assessment within the EIA. Impacts on existing utility infrastructure to be addressed through utility investigations, consultation with statutory undertakers, design development and standard construction controls.

Potential Impacts Scoped into the EIA for the Proposed Development	
Chapter 17: Aviation and Radar	
Construction and Decommissioning	Effects associated with construction and decommissioning cranes and temporary obstacles on aviation interests.
Operation and Maintenance	Doncaster Sheffield Airport obstacle limitation surfaces and physical safeguarding.
	Instrument Flight Procedures (IFPs) and visual manoeuvring procedures.
	Civil and military primary surveillance radar effects.
	Secondary surveillance radar and other surveillance sensor effects.
	Aviation communications systems.
	Ground-based navigation aids.
	Airspace and aviation activity.
	Aviation lighting, obstacle marking and notification requirements.
Cumulative	Cumulative radar effects.
	Cumulative Instrument Flight Procedure effects.
	Cumulative airspace effects.
	Cumulative aviation mitigation interactions with other developments.

Table 18-2 Summary of Scoped-Out Impacts of the Assessment

Potential Impacts Scoped Out of the EIA for the Proposed Development	
Chapter 5: Geology, Soils, Ground Conditions and Peat	
Construction	Impacts to Contaminated Land
	Damage to land drainage systems
	Impacts on farm businesses.
	Loss of soil resource through off-site export.
Operation and Maintenance	Activities associated with the operational and maintenance phase of the Proposed Development are not anticipated to give rise to significant effects on Geology, Soils, Ground Conditions and Peat and are proposed to be scoped out of further assessment.
Decommissioning	Potential decommissioning effects. Decommissioning the Proposed Development will be carried out in accordance with an approved Decommissioning, Restoration and Aftercare Plan
Cumulative	Except for consideration of disturbance and loss of agricultural land on a regional basis and mineral safeguarding, a cumulative effects assessment relating to all other aspects of geology, soils, ground conditions and peat is proposed to be scoped out of assessment.
Chapter 6: Ecology	
Construction	Indirect impacts on Humber Estuary Ramsar and Special Area of Conservation (SAC).
	Hatfield Moor SAC.
	Thorne Moor SAC.
Operation	Low collision-risk bat species.
Chapter 7: Ornithology	
All Phases	Thorne and Hatfield Moors SSSI.
	Thorne and Hatfield Moors Ramsar.
	Potteric Carr SSSI.
	Thorne, Crowle and Goole Moors SSSI.
	Humber Estuary Ramsar Site.

Potential Impacts Scoped Out of the EIA for the Proposed Development	
	Humber Estuary SSSI.
	Sprotbrough Gorge SSSI.
	Messingham Sand Quarries SSSI.
Species	Nightjar.
	Passerines (including wood pigeon and stock dove for collision risk) except for habitat loss which is scoped in.
	Occasional transient species.
Operation	Aviation lighting effects.
Chapter 8: Archaeology and Cultural Heritage	
Construction	Setting effects on designated heritage assets.
Operation and Maintenance	Setting effects on designated heritage assets of medium Cultural Heritage Significance (e.g. Grade II listed buildings and Conservation Areas) beyond 5 km.
	Assets outside the ZTV and associated key views.
Decommissioning	Direct effects on known heritage assets. Setting Effects on known heritage assets.
Cumulative	Settings effects on designated heritage assets with a lower-than-minor significance of effect.
Chapter 9: Air Quality and Greenhouse Gases	
Construction	Construction phase plant and machinery.
Operation and Maintenance	Operational phase wind turbine effects.
	Effects on human health of vehicle trips increasing emissions of NO_2 and Particulate matter.
	Effects on local designated conservation sites due to changes in nitrogen oxides (NO_x), ammonia (NH_3) and Nitrogen/Acid Deposition due to emissions from road vehicle movements on the local road network.
Decommissioning	Effects of dust emissions from decommissioning activities on human health and on designated ecological sites local to the Site.
	Decommissioning phase delivery vehicles, plant and machinery (NRMM) air quality effects.

Potential Impacts Scoped Out of the EIA for the Proposed Development	
Cumulative	A cumulative effects assessment is currently proposed to be scoped out of the air quality assessment.
Climate Resilience assessment	
All Phases	Cloud Cover/ Sunshine Frequency.
	Minimum Air Temperature/ Frost Frequency.
	Coastal Flooding and Erosion.
	Flooding (fluvial and pluvial).
Chapter 10: Human Health	
Construction	Physical activity effects.
Operation and Maintenance	Perceived fear and anxiety associated with Electromagnetic fields (EMFs).
	Increased exposure to noise, dust and other environmental effects.
	Major accidents, crime and community safety.
	Annoyance and perceived fear from operational noise and shadow flicker.
	Decreased social cohesion.
Decommissioning	Physical activity effects.
Chapter 11: Landscape and Visual	
Construction (and decommissioning)	Landscape outside the Site area not physically affected by the Proposed Development.
	LCAs beyond 20 km are shown on the scoping ZTVs to have distant, limited or no visibility and therefore do not have the potential for likely significant visual effects.
	Visual receptors / views with limited or no visibility and which do not have the potential for significant visual effects.
Operation and Maintenance	Landscape outside the Site area not physically affected by the Proposed Development.
	LCAs beyond 20 km are shown on the scoping ZTVs to have distant, limited or no visibility and therefore do not have the potential for significant visual effects.
	Visual receptors / views with limited or no visibility do not have the potential for significant visual effects.

Potential Impacts Scoped Out of the EIA for the Proposed Development	
	Potential significant effects of visible aviation lighting are considered unlikely beyond 20 km, in line with NatureScot guidance.
Cumulative	Cumulative effects that may arise as a result of cumulative wind farm development below 50 m tip height. Non wind local developments (Major Applications) beyond 10 km from the Proposed Development.
Chapter 12: Noise and Vibration	
Construction	Construction vibration.
Operation and Maintenance	Operational vibration.
	Low-frequency noise.
	Infrasound.
	Amplitude modulation.
Decommissioning	Detailed decommissioning noise assessment.
Cumulative	Cumulative effects associated with unrelated non-wind turbine noise sources.
Chapter 13: Socio-economics, Recreation and Tourism	
Construction	Effects on tourism.
Operation and Maintenance	Operational employment.
Decommissioning	Decommissioning employment.
Cumulative	Cumulative tourism effects.
	Cumulative operational employment effects.
Chapter 14: Access, Traffic and Transport	
Operation and Maintenance	Additional vehicle movements generated by operation and maintenance activities.
Decommissioning	Additional vehicle movements associated with decommissioning.
Chapter 15: Hydrology, Hydrogeology, Water Resources and Flood Risk	

Potential Impacts Scoped Out of the EIA for the Proposed Development	
Decommissioning	Potential impacts arising during decommissioning of the Proposed Development would likely be similar to those during the construction phase. An outline Decommissioning Plan would be prepared as part of the DCO application.
Chapter 16: Other Environmental Topics	
Shadow Flicker	
Construction and Decommissioning	Shadow flicker effects during construction and decommissioning because turbines are not operational.
Operation and Maintenance	Receptors beyond 10 rotor diameters (plus micrositing allowance).
	Non-residential receptors.
	Shadow flicker effects on people with epilepsy.
Decommissioning	Shadow flicker effects during decommissioning because turbines are not operational.
Cumulative	Cumulative shadow flicker effects.
Major Accidents and Disasters	
All Phases	It is considered feasible to scope out Major Accidents and Disasters (except for flooding) from the EIA because there are no nearby COMAH sites or other significant hazard sources within or close to the Site. Identified risks would be managed through established design standards, risk assessments and control measures secured through the CEMP, CTMP and Decommissioning Plan. Significant effects are therefore not anticipated.
Material Assets and Waste	
Construction	Construction waste (including demolition and excavation wastes).
Operation and Maintenance	Operational wastes (including those generated during routine maintenance).
Decommissioning	Wastes generated when the Proposed Development is decommissioned.
Cumulative	Cumulative generation of waste volumes or material demand.
Chapter 17: Aviation and Radar	
Operation and Maintenance	Navigation aids outside applicable safeguarding criteria.
	Aerodromes with no safeguarding overlap.

Potential Impacts Scoped Out of the EIA for the Proposed Development	
	Surveillance systems screened out through Radar Line of Sight (RLoS) and operational review.
	Communication systems outside applicable safeguarding criteria

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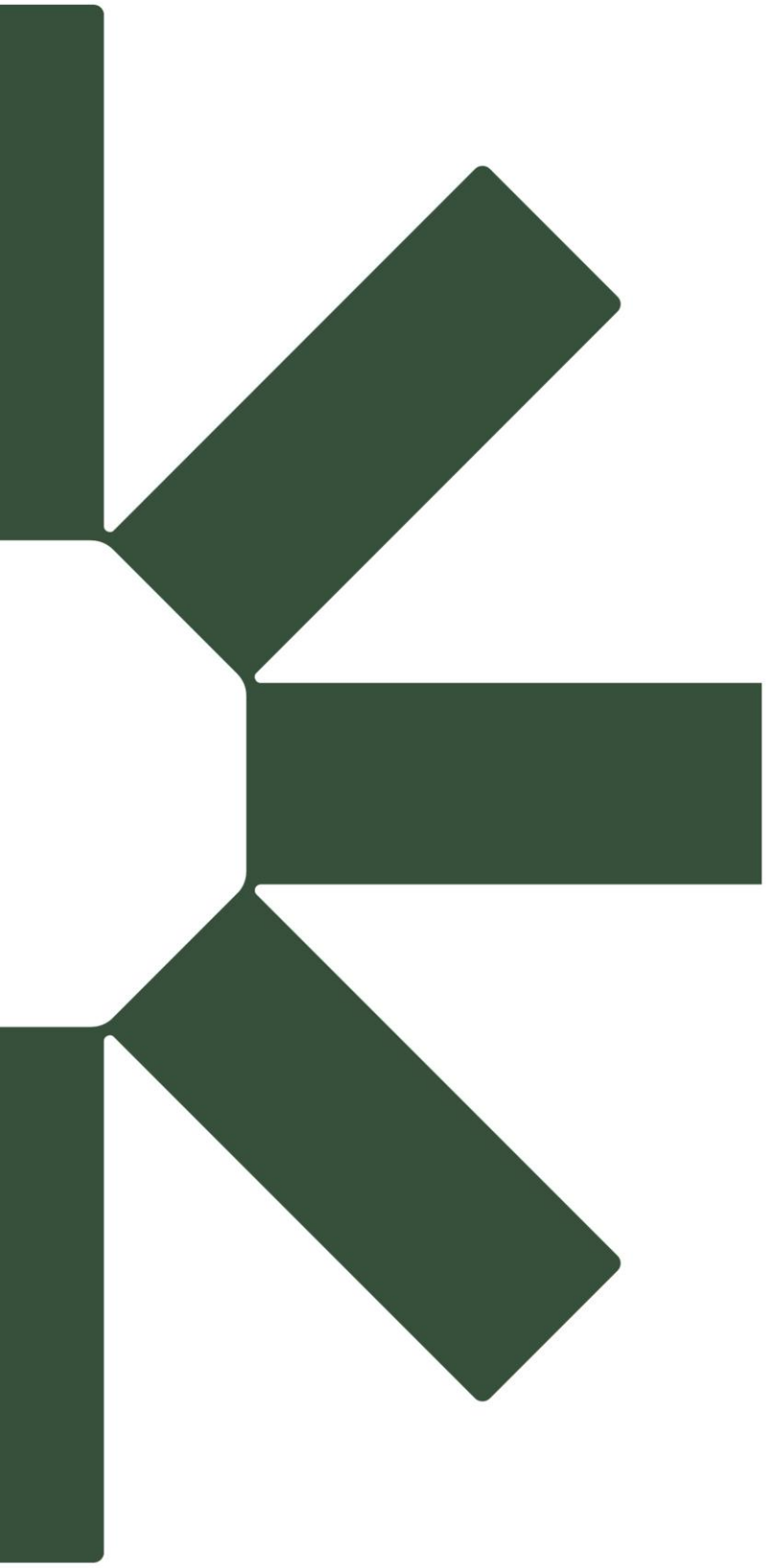
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