Mylen Leah Solar Farm

Environmental Impact Assessment Scoping Report

January 2025

Contents

Acronyms	Definition
AC	Alternating current
ALC	Agricultural Land Classification
BMV	Best and Most Versatile
CEMP	Construction Environmental Management Plan
CTMP	Construction Traffic Management Plan
DC	Direct current
DCO	Development Consent Order
DEMP	Decommissioning Environmental Management Plan
EIA	Environmental Impact Assessment
EMF	Electromagnetic field
ES	Environmental Statement
FRA	Flood Risk Assessment
GHG	Greenhouse gases
GW	Gigawatt, a measurement unit for active power
HGV	Heavy goods vehicle
HRA	Habitats Regulations Assessment
HV	High voltage
IAQM	Institute of Air Quality Management
IEMA	Institute of Environmental Management and Assessment
kV	Kilovolt, a measurement unit for electric potential
LEMP	Landscape and Ecological Management Plan
LNR	Local Nature Reserve
LWS	Local Wildlife Site
MMP	Materials Management Plan
MV	Medium voltage
MW	Megawatt, a measurement unit for active power
NCA	National Character Area
NCN	National Cycle Network
NNR	National Nature Reserve
NPPF	National Planning Policy Framework
NPS	National Policy Statement
NSIP	Nationally Significant Infrastructure Project
OEMP	Operational Environmental Management Plan
PEIR	Preliminary Environmental Information Report
PRoW	Public Rights of Way
PV	Photovoltaic
SAC	Special Area of Conservation
SMP	Soil Management Plan
SPA	Special Protection Areas
SSSI	Site of Special Scientific Interest
SWMP	Site Waste Management Plan
tCO2e	tonnes of carbon dioxide equivalent
UK	United Kingdom
WFD	Water Framework Directive
ZoI	Zone of Influence
ZTV	Zone of Theoretical Visibility

1. Introduction

1.1 Background

1.1.1 Mylen Leah Solar Limited (a company wholly owned by Statkraft UK Limited) (hereafter, 'the Applicant') has commissioned RSK Environment Limited (hereafter, 'RSK') to prepare an Environmental Impact Assessment (EIA) Scoping Report to request a Scoping Opinion from the Planning Inspectorate (which is prepared on behalf of the Secretary of State) for the proposed Mylen Leah Solar Farm (hereafter, the 'Proposed Development').

1.1.2 The Proposed Development comprises the installation of solar photovoltaic (PV) modules, associated infrastructure and area of search for an underground grid connection cable. The Proposed Development would allow for an anticipated export capacity exceeding 50 megawatts (MW). The Proposed Development Site (hereafter, 'the Site') is shown in **Appendix A**.

1.1.3 The Proposed Development is classified as a Nationally Significant Infrastructure Project (NSIP) and will require a Development Consent Order (DCO) under the Planning Act 2008[1]. The Proposed Development is also considered to fall within the definition of 'EIA development' as defined within the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017[2] (hereafter, 'EIA Regulations') meaning that before consent is granted for the Proposed Development, an EIA must be undertaken.

1.1.4 This EIA Scoping Report forms a formal request for the Planning Inspectorate to provide a Scoping Opinion under Regulation 8(1)(b) and 10(1) of the EIA Regulations.

1.2 Definition of an Environmental Impact Assessment

1.2.1 The term EIA describes the procedure that must be followed for certain types of projects before 'consent' can be granted. The procedure is a means of drawing together, in a systematic way, an assessment of a project's likely significant environmental effects. This helps to ensure that the importance of the predicted effects and the scope for avoiding, preventing, reducing or, if possible, offsetting them are properly understood by the public and the authority granting consent (the 'determining authority') so that the impacts can be weighed up in the planning balance before it makes its decision.

1.3 Requirement for Environmental Impact Assessment

1.3.1 The EIA Regulations set out the types of development which must be subject to an EIA (referred to as Schedule 1 development) and other developments, which must only be subject to an EIA if the development is considered "likely to have significant effects on the environment by virtue of factors such as its nature, size or location" (referred to as Schedule 2 development).

1.3.2 The Proposed Development does not fall under any of the types of development set out in Schedule 1 of the EIA Regulations. However, the Proposed Development type is based on the description in Schedule 2 paragraph 3(a) of the EIA Regulations as follows:

"Energy industry

Industrial installations for the production of electricity, steam and hot water (projects not included in Schedule 1 to these Regulations)"

1.3.3 Regulation 8(1)(a) of the EIA Regulations requires an applicant to ask the Secretary of State to adopt a screening opinion in respect of the development to which the application relates. Alternatively, Regulation 8(1)(b) of the EIA Regulations provides a mechanism for an applicant to notify the Secretary of State in writing of its intention to provide an Environmental Statement (ES) in respect of that development. The Applicant considers that due to the Proposed Development's nature, size or location, it has the potential to have significant effects on the environment. Therefore, the Applicant has elected to undertake EIA without seeking the adoption of the screening opinion, and in accordance with Regulation 8(1)(b) of the EIA Regulations, this EIA Scoping Report provides written confirmation of the Applicant's intention to submit an ES in support of the DCO application.

1.4 Environmental Impact Assessment Requirements for a Development Consent Order

1.4.1 The Proposed Development, being an onshore generating station in England exceeding 50MW, is classed as an NSIP under sections 14(1)(a) and 15(1) and (2) of the Planning Act 2008.

1.4.2 Following the completion of the surveys, assessments and consultation processes outlined in this EIA Scoping Report, an application for a DCO will be made to the Secretary of State for determination in accordance with the Planning Act 2008. The DCO application will be accompanied by an ES, in accordance with Regulation 5(2)(a) of the Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009 (APFP Regulations)[3]. The ES will set out the methods and findings of a comprehensive EIA undertaken in line with the EIA Regulations.

1.5 Purpose of the Environmental Impact Assessment Scoping Report

1.5.1 Regulation 10(1) of the EIA Regulations sets out that "*A person who proposes to make an application for an order granting development consent may ask the Secretary of State to state in writing their opinion as to the scope, and level of detail, of the information to be provided in the environmental statement*".

1.5.2 In accordance with Regulation 10(1) of the EIA Regulations and the Planning Inspectorate's Advice Note Seven[4], this EIA Scoping Report has been prepared with the purpose of ensuring that the subsequent EIA is focused on the key impacts likely to give rise to significant environmental effects, and to obtain agreement on the EIA approach and scope.

1.5.3 As well as identifying matters to be considered in the EIA, this EIA Scoping Report also identifies those matters that are not considered necessary to assess further and are proposed to be scoped out. This approach is in line with the general aim to undertake proportionate EIA, as advocated by industry best practice.

1.5.4 In September 2024, the Planning Inspectorate published their 'Technical Advice Page for Scoping Solar Development'[5]. This advice uses an evidence based approach and relates to certain aspects and matters that can be scoped out of an EIA. This ensures that the Environmental Statement focusses on 'main' or likely significant effects. It includes a 'Solar Scoping Table' with examples of the environmental aspects that can typically be controlled through standard mitigation such that significant adverse effects resulting from a development are considered to be unlikely. It outlines the type of information that would be required to support the request to scope environmental factors out of an EIA. Where relevant, this technical advice has been used to support the justification for scoping out environmental factors within **Chapter 5** of this EIA Scoping Report.

1.5.5 Whilst this EIA Scoping Report seeks to establish the overall framework for the EIA in relation to the environmental factors and associated effects, the exact scope of the EIA will be influenced by the Scoping Opinion adopted in accordance with Regulation 14(3)(a) of the EIA Regulations. Additionally, it will be based upon the progressive design evolution of the Proposed Development, and through on-going baseline data collection (e.g., field surveys, etc.). In this regard, a list of 'scoping questions' is presented within **Chapter 6** of this EIA Scoping Report, the aim of which is to assist the determining authority and its consultees in forming the Scoping Opinion.

1.5.6 In September 2024 the Planning Inspectorate also published their 'Commitments Register' guidance for applicants to record their commitments to mitigation at the pre-application stage. This guidance encourages applicants to submit a Commitments Register at the Scoping stage to inform where applicants are seeking to use commitments as the basis for scoping matters out or refining the scope of assessment. The supporting Commitments Register can be found at **Appendix Q** of this report.

1.5.7 **Table 1-1** sets out what information the EIA Regulations (Regulation 10(3)) state that a request for a Scoping Opinion must include and where this information can be found in this EIA Scoping Report.

1.5.8 **Table 1-2** sets out what information the Planning Inspectorate's Advice Note Seven recommends that a request for a Scoping Opinion should include and where this information can be found in this EIA Scoping Report.

Table 1-1 Information required by the EIA Regulations to accompany a request for a Scoping Opinion

Information Required	Location within this EIA Scoping Report
A plan sufficient to identify the land	**Appendix A**
A description of the Proposed Development, including its location and technical capacity	**Chapter 2**
An explanation of the likely significant effects of the Proposed Development on the environment	**Chapter 6**
Such other information or representations as the person making the request may wish to provide or make	**Chapters 2 to 7**

Table 1-2: Information required by the Planning Inspectorate's Advice Note Seven to accompany a request for a Scoping Opinion

Information required	Location within this EIA Scoping Report
The Proposed Development	
An explanation of the approach to addressing uncertainty where it remains in relation to elements of the Proposed Development e.g. design parameters	**Chapters 2 and 3**
Referenced plans presented at an appropriate scale to convey clearly the information and all known features associated with the Proposed Development	**Appendices B and C**
EIA Approach and Topic Areas	
An outline of the reasonable alternatives considered and the reasons for selecting the preferred option	**Chapter 3**
A summary table depicting each of the aspects and matters that are requested to be scoped out allowing for quick identification of issues	**Chapters 5 and 6**
A detailed description of the aspects and matters proposed to be scoped out of further assessment with justification provided	**Chapters 5 and 6**
Results of desktop and baseline studies where available and where relevant to the decision to scope in or out aspects or matters	**Chapters 5 and 6**
Aspects and matters to be scoped in, the report should include details of the methods to be used to assess impacts and to determine significance of effect e.g. criteria for determining sensitivity and magnitude	**Chapter 4, Chapter 6 and Appendix D**
Any avoidance or mitigation measures proposed, how they may be secured and the anticipated residual effects	**Chapters 4, 5 and 6**
Information Sources and Guidance	
References to any guidance and best practice to be relied upon	**Chapters 4, 5, 6 and 7**
Evidence of agreements reached with consultation bodies (for example the statutory nature conservation bodies or local authorities)	**Chapter 6**
An outline of the structure of the proposed Environmental Statement	**Appendix E**

1.5.9 Following receipt of the adopted Scoping Opinion from the Planning Inspectorate, the outputs of the EIA will comprise:

- A Preliminary Environmental Information Report (PEIR), produced to inform the statutory consultation process, in accordance with the Planning Act 2008. The PEIR will present the understanding of the potential likely significant environmental effects at the time of the consultation. Its purpose will be to provide information that enables interested parties, including members of the public, local authorities and statutory bodies, to understand those effects so that they can provide meaningful feedback during the consultation process; and,
- The PEIR will be followed by the ES, which will be produced in support of the DCO application. The ES will report on a detailed assessment of the likely significant environmental effects resulting from the Proposed Development, taking account of the proposed mitigation measures.

1.5.10 A Statement of Competence will be prepared as an appendix to the ES, in accordance with Regulation 14(4) of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017. The Statement of Competence will be prepared by RSK as the EIA coordinator for the Proposed Development, and will outline the relevant professional experience, capabilities and competency of the individuals responsible for preparing the ES.

1.5.11 RSK is a registrant to the Institute of Environmental Management and Assessment (IEMA) EIA Quality Mark, a voluntary scheme through which EIA activity is independently reviewed. All registrants to the scheme are required to adhere to the IEMA EIA Quality Mark seven key commitments.

2. Description of the Proposed Development

2.1 Introduction

2.1.1 This chapter draws attention to the need for flexibility in the design process and provides the need for the Proposed Development. In addition, this chapter provides a description of the Site and surrounding area, and of the Proposed Development for the purposes of identifying and reporting the potential environmental impact and likely significant environmental effects in this EIA Scoping Report.

2.1.2 The description of the Proposed Development represents the current understanding of the design parameters. However, as part of an ongoing design process, the detail provided in this chapter will be further refined and included in the PEIR. Following statutory consultation, further alteration to the description of the Proposed Development will be included in the ES which will confirm details for which development consent will be sought.

2.1.3 The EIA will also assess the impacts of construction and decommissioning. It will provide a realistic 'worst case' ensuring a robust assessment of any likely significant environmental effects and ways of mitigating these. Any effects are often managed through a Detailed Construction Environmental Management Plan (CEMP) or a Detailed Decommissioning Environmental Management Plan (DEMP) respectively and their implementation are to be secured by relevant Requirements in the Development Consent Order. These would be prepared prior to the DCO commencing, and would be substantially in accordance with Outline CEMP and Outline DEMP, which will be submitted with the DCO application.

2.2 Approach to assessing uncertainty

2.2.1 At this early stage, before the EIA process and iterative design evolution is complete, it is not possible to specify the exact details of the Proposed Development and therefore parameters have been used in this EIA Scoping Report, which capture the maximum potential scale and impact of the Proposed Development. As the Proposed Development progresses to the application stage the design will be refined but there will still be some details that should be deferred until after consent is granted. As such, the Applicant will identify the level of flexibility used in the ES, e.g. in relation to the design and siting of the solar PV modules and the construction methods.

2.2.2 Many promoters of NSIPs seek flexibility in their consents given the long lead-in times to consent and subsequent engagement of contractors. It is typical for a DCO to contain the ability to finalise the design of a project post-consent within set parameters.

2.2.3 In order to maintain flexibility in the design, it is the Applicant's intention to use the 'Rochdale Envelope' approach within maximum parameters. The Planning Inspectorate's Advice Note Nine 'Rochdale Envelope'[6] provides specific guidance to applicants on the degree of flexibility that could be considered appropriate under the Planning Act 2008 regime. The Planning Inspectorate's Advice Note acknowledges that there may be aspects of the design that are not yet fixed, and therefore, it may be necessary for the EIA

to assess likely worst case scenarios to ensure that all foreseeable significant environmental effects of the Proposed Development will be assessed.

2.2.4 The Rochdale Envelope is an appropriate way of dealing with an application comprising EIA development where details of a project have not been fully resolved by the time the application is submitted. The term is used to describe those elements of a scheme that have not yet been finalised, but can be accommodated within certain limits and parameters, allowing the likely significant environmental effects of a project to be presented in the ES as a realistic 'worst case' scenario for decision makers to consider when determining the acceptability, or otherwise, of resulting potential environmental effects. It also provides the opportunity to assess aspects of a development where the detailed design is to be developed by the Applicant and approved by the relevant planning authority under a DCO Requirement, subsequent to the DCO being made.

2.2.5 Such flexibility may be useful where a slight change in the design or capacity of the Proposed Development is anticipated, but not yet certain. It may be possible that a particular element of the design would be subject to on-going technological advancements. It will be important that a lack of flexibility in the DCO application does not unduly hinder the Applicant's ability to consider and adopt such future technological advancements within the parameters. This is particularly important due to the rapid pace of change in solar PV technologies.

2.2.6 It is therefore necessary for the EIA to assess an 'envelope' within which the works will take place. To remain in accordance with the EIA Regulations and the Planning Inspectorate's Advice Note Nine, it will be essential that the parameters are defined to ensure that 'likely significant environmental effects' are identified, rather than unrealistically amplified effects, which could be deemed unlikely. These parameters will be considered in detail by competent and experienced professional experts in the PEIR and ES to ensure the realistic 'worst case' effects of the Proposed Development are assessed for each potential receptor.

2.2.7 Further detail on the current design parameters for the Proposed Development, which have been used to inform the scope of the EIA, are presented in **Section 2.5**. Design parameters will be further developed for statutory consultation and presented in the PEIR. The design parameters presented in the ES will align with all works proposed by the DCO, as detailed in the draft DCO and shown on the Works Plans that will be included in the DCO application.

2.3 Need for the Proposed Development

2.3.1 Low carbon solar generation is an essential step to meeting the Government's objectives to enable decarbonisation.

2.3.2 The Overarching National Policy Statement (NPS) for Energy (EN-1), published in 2023, designated in January 2024, states that "*a secure, reliable, affordable, net zero consistent system in 2050 is likely to be composed predominantly of wind and solar*".

2.3.3 The Proposed Development would contribute towards the achievement of government net zero targets, for example to achieve 70GW of solar capacity by 2035, and would help to secure a UK energy supply that is low carbon and low cost.

2.4 Proposed Development location

2.4.1 The Site (not including the area of search for underground grid connection cable) consists of approximately 1,200 ha of agricultural and brownfield land to the south of Melbourne village, Yorkshire, within the administrative area of East Riding of Yorkshire Council.

2.4.2 The most northern part of the Site is located southwest of Melbourne, with the remainder of the Proposed Development located on land between the settlements of Laytham, Seaton Ross, Foggathorpe, East Cottingwith and Ellerton.

2.4.3 The Solar PV modules extend across five Land Parcels (A-E), which will be connected by a series of underground cables and access corridors.

2.4.4 The Site boundary and five Land Parcels are presented in **Appendix A**. The Land Parcels are identified as follows:

- **Land Parcel A: Land west of the B1228**
- **Land Parcel B: Land east of Ellerton**
- **Land Parcel C: Land southwest of Melbourne**
- **Land Parcel D: Land west of Seaton Ross**
- **Land Parcel E: Land north of Foggathorpe**

2.4.5 An area of land stretching from the north-east of the Site boundary to the Thornton National Grid substation has been identified for the area of search for underground grid connection and is currently included within the Site (see **Appendix A**). The area of search for underground grid connection totals approximately 660 ha.

Site Context

2.4.6 The land within the Site boundary consists of a disused airfield (presently used for recreational and commercial use (motor racing and commercial motor vehicle use), agricultural fields (mostly arable, some grassland and some grazing) interspersed with hedgerows, ditches, small woodland blocks and farm access tracks. The hedgerows within the Site range from dense tall vegetation (shrub and tree species) to thin lines of vegetation with sporadic shrubs and trees present. The fields are bordered by a mix of hedgerows, wet ditches and some of the many major named drains and dikes in the area.

2.4.7 There is some variation in the features immediately surrounding each of the Land Parcels within the Site, as presented below. **Appendix B** contains an 'Environmental and Planning Features' plan, which displays some of these features.

- **Land Parcel A: Land west of the B1228**. This is the northernmost section of the Site. It is located between East Cottingwith to the west and Melbourne to the east, and is surrounded by agricultural fields and

small areas of surface water, which will be taken into consideration as part of the design.

- **Land Parcel B: Land east of Ellerton**. This area is the westernmost section of the Site, bounded by the B1228 to the north west. Bottoms Drain and Charity Drain run through the central portion of the area, and there are three separate areas of deciduous woodland located within the Land Parcel boundary. Various ponds and ditches are located to the east of the Site. There is a small portion of land located between the B1228 and Bridges Lane that is isolated from the main section.
- **Land Parcel C: Land southwest of Melbourne**. This area lies between areas B and D and is approximately 600m southwest of Melbourne. The area is bounded by agricultural fields, with the Lord's Drain running directly through the central portion of the area. There are three separate areas of ancient woodland located within the Land Parcel boundary. Two smaller sections in the northern extent of the area are located north of Ash Lane.
- **Land Parcel D: Land west of Seaton Ross**. This is the easternmost section of the Site. It is located approximately 450m from Seaton Ross and is bounded by agricultural fields with two areas of surface water to the north. This Land Parcel includes Melbourne Raceway, formerly known as RAF Melbourne.
- **Land Parcel E: Land north of Foggathorpe**. This is the southernmost section of the Site and is located approximately 400m north and east of Foggathorpe at its closest point. The area is bound by agricultural fields and the A163 to the south, as well as Breckstreet Lane to the north. There is a Scheduled Monument located within the Land Parcel as well as four separate areas of ancient woodland.

2.4.8 The area between each of the Land Parcels within the Site is being investigated for the incorporation of underground cabling routes, access routes and temporary construction compounds for the Proposed Development. The locations of these elements will be defined as the Proposed Development design progresses. To connect the Proposed Development to Thornton National Grid substation, underground cable routes running from Land Parcel D are being investigated and a single route will be selected and defined as the Proposed Development design progresses.

2.4.9 The following sections describe the main receptors and features that are present within and surrounding the Site. Further detail on the baseline for each environmental factor is provided in **Chapter 6**.

Air quality

2.4.10 The Proposed Development is located within the administrative area of East Riding of Yorkshire Council. There are currently no Air Quality Management Areas declared within the unitary authority. Overall, air quality is considered to be good in the local area.

Biodiversity

2.4.11 The Site predominantly consists of agricultural fields (mostly arable with some grassland, used for grazing) interspersed with hedgerows, ditches,

small woodland blocks and farm access tracks. The hedgerows within the Site range between dense tall vegetation (shrub and tree species) and thin lines of vegetation with sporadic shrubs and trees present.

2.4.12 The fields are bordered by a mix of hedgerows, wet ditches and some major named drains and dikes in the area.

2.4.13 The River Derwent Site of Special Scientific Interest (SSSI) and Pocklington Canal SSSI lie 1.4km to the west and north of the Site boundary respectively, and Pocklington Canal Local Wildlife Site (LWS) is located 965m north of the Site boundary.

2.4.14 There is one area of ancient semi-natural woodland within 1km of the Site boundary, located approximately 355m north of the Site boundary.

2.4.15 Other priority habitats with records located within or adjacent to the Site boundary include:

- Deciduous woodland is located both within the Site and in the surrounding 1km buffer;
- Coastal and floodplain grazing marsh is located both within the Site boundary and in the surrounding 1km buffer;
- Lowland meadows are located 226m outside the Site boundary;
- Good quality semi-improved grassland is located 421m outside the Site boundary;
- Traditional orchard is located 158m outside the Site boundary;
- Reedbeds are located 878m outside the Site boundary;
- Lowland fens are located 944m outside the Site boundary;
- Lowland meadows are located 968m outside the Site boundary.

2.4.16 There are three international statutory sites within 10km of the Site boundary: Lower Derwent Valley SAC, SPA, Ramsar is located adjacent to the area of search for underground grid connection cable area of the Site. River Derwent SAC is located approximately 1.5km west of the Site boundary. Skipwith Common SAC is located 4.7km west of the Site boundary.

2.4.17 There are seven national statutory sites located within 2km of the Site boundary:

- Pocklington Canal SSSI, located within the area of search for underground grid connection cable. This is designated for birds, wetland invertebrate assemblages and otter.
- Melbourne and Thornton Ings SSSI is located adjacent to the area of search for underground grid connection cable. This is designated for aggregations of breeding and non-breeding birds, wetland habitats, otter, and wetland invertebrates.
- Lower Derwent Valley National Nature Reserve (NNR) is located 155m to the north and west of the Site. This is designated for Biodiversity Action Plan (BAP) species, birds, landscape features such as the pattern and structure of existing fields, habitats and notable plant species, invertebrates and otter.

- White Carr Meadow SSSI is located 315m northeast of the area of search for underground grid connection cable area and is designated for grassland habitats.
- Derwent Ings SSSI is located approximately 1.1km west of the Site boundary and is designated for wetland habitats, plant assemblages, invertebrate assemblages and aggregations of breeding and non-breeding birds.
- The River Derwent SSSI is located approximately 1.5km west of the Site boundary and is designated for river habitats, invertebrate assemblages, aggregations of breeding and non-breeding birds and otter.
- Allerthorpe Common SSSI is located approximately 1.6km north of the area of search for underground grid connection cable area and is designated for lowland dry heath

2.4.18 There is one non-statutory designated site located entirely within the Site boundary, and three located adjacent to the Site boundary. There are an additional six non-statutory designed LWS sites, and one Important Invertebrate Area within 1km of the Site boundary:

- Hedge, Sand Lane, East Moor LWS is located within the area of search for underground grid connection cable area of the Site boundary and contains good quality hedgerows.
- Kidd Lane, Rossmoor LWS is located adjacent to the north of the Site boundary and contains good quality hedgerows.
- Intakes Lane, Rossmoor LWS is located adjacent to the north of the Site boundary and contains good quality hedgerows.
- Breckstreet Farm Disused Airfield LWS is located adjacent to the east of the Site boundary and contains good quality semi-natural neutral grassland.
- White Carr LWS is located 105m northeast of the area of search for underground grid connection cable area of the Site boundary, and contains good quality semi-improved grassland, reedbed and woodland.
- Farm Wood, New Covert and Park Wood LWS is located 60m north of the Site boundary and contains field evidence of features of ancient or long-standing acid woodland.
- Bubwith-Holme-On-Spalding-Moor Disused Railway Line LWS is located 145m south of the Site boundary and contains good quality established semi-natural verges.
- Walloway Fields LWS is located 400m west of the Site boundary and contains a mosaic of semi-natural habitats including grassland and wetland.
- Melbourne Grange is located 430m south of the Site boundary and contains nutrient rich standing water.
- Pocklington Canal LWS is located 965m north of the Site boundary and is a stream that originates from calcareous substrata in the Yorkshire

Wolds Natural Area and evidence of shining pondweed (Potamogeton lucens), a rare aquatic species in the East Riding of Yorkshire.

- Yorkshire Rivers Important Invertebrate Area is located within the Site boundary. Important Invertebrate Areas are a non-statutory designation, where it is reported that the area provides habitat for nationally or internationally significant invertebrate populations.

Cultural heritage

2.4.19 Within the Site boundary there is one designated heritage asset: the scheduled monument 'Moated site at Chapelgarth, 450m north east of Manor Farm'. There are no other designated heritage assets within the Site boundary.

2.4.20 There are eight non-designated heritage assets within the Site boundary. These are:

- boundary ditch;
- the former Airfield, Melbourne;
- the site of Retting Pits, W of Allerthorpe;
- old field systems, Melbourne Airfield; and
- multiple areas of ridge and furrow .

2.4.21 Within 2km from the Site boundary there are 48 listed buildings, four scheduled monuments: two moated sites, a motte and bailey castle and a priory, and there is one Conservation Area (East Cottingwith).

2.4.22 There are no world heritage sites, registered battlefields or registered parks and gardens within 2km of the Site boundary.

2.4.23 There are 173 additional non-designated heritage assets within 2km of the Site boundary.

2.4.24 Within the area of search for underground grid connection cable, there are two listed buildings. These are the grade II Pocklington Canal Walbut Bridge and the grade II listed Pocklington Canal Walbut Lock. There are also 31 non-designated heritage assets within the area of search for underground grid connection cable.

2.4.25 Within 2km of the Site boundary there are two conservation areas: Everingham Conservation Area and Allerthorpe Conservation Area. There are also 27 listed buildings, the majority of which are grade II, with the exception of the grade II* Church of St Giles and Church of St Michael. Within 2km of the Site boundary there are 86 non-designated heritage assets.

Land, soil and groundwater

2.4.26 There are no known recorded geological conservation review sites or regionally important geological and geomorphological site (Regionally Important Geological Sites) within or close to the Site.

2.4.27 There are no operational mineral extraction sites within the Site boundary. There is evidence of historical quarrying or mineral extraction, with five sites

reported within the Site boundary – a marl pit close to the northern Site boundary at Land Parcel D and a further four sites (all relating to the extraction of sand deposits) situated within the area of search for underground grid connection cable, with several others shown within 250m of the Site (all sand or clay extraction sites).

2.4.28 Mineral safeguarding areas are present on the extreme western edge of Land Parcel B and the north eastern part of Land Parcel D. The majority of the area of search for underground grid connection cable is situated within a mineral safeguarding area, which relate to deposits of sand and gravel. The Site is situated approximately 150m to the east of a Mining Remediation Authority coal mining reporting area.

2.4.29 The bedrock geology across the majority of the Site is composed of the Mercia Mudstone Group. The superficial geological units across the majority of the Site comprise the Thorganby Clay Member, which is described as greyish brown soft, locally fissured, laminated silt and clay.

2.4.30 Agricultural Land Classification (ALC) mapping **(Appendix H)** indicates that land parcels A to F comprise a mixture of ALC grades, with soils of Grade 3a (good to moderate) quality or higher being present within land parcels A, B, C and D.

2.4.31 The environmental database search indicates that there is one registered / historical landfill situated within the Site - Scamland Bridge, located within the area of search for underground grid connection cable, to the immediate north of Main Street and to the east of Melbourne.

Landscape and visual

2.4.32 No part of the Proposed Development or its immediately surrounding context falls within a statutory designated landscape. The nearest National Landscape is the Howardian Hills which is over 18km to the north of the Site boundary.

2.4.33 There are no Registered Parks and Gardens within 5km of the Proposed Development; the nearest are located 7.5km (Londesborough Park) north-east of the Site, 9.7km (Houghton Hall) east of the Site and 11.4km (Moreby Hall) west of the Site.

2.4.34 There are also no local landscape designations covering any part of the Proposed Development. However, the locally designated River Derwent Corridor and Lower Derwent Valley Important Landscape Area is located less than 1km from the Site boundary at its closest point, both to the north and west. The area of search for the underground grid connection cable which is located to the north-east of the main part of the Site passes through the Important Landscape Areas.

2.4.35 The Site and proposed study area are located largely within the northern portion of National Character Area (NCA) 39 Humberhead Levels.

Noise and vibration

2.4.36 Review of aerial imagery and the Noise Sensitive Receptors shown in **Appendix M** indicates that the receptors are mostly scattered residential

properties in a rural setting near Melbourne, Yorkshire, within the administrative area of East Riding of Yorkshire Council.

Transport and access

2.4.37 The nearest A class distributor road to the Site is the A19, which provides district distributor road functions and provides access to the wider strategic road network. The road is capable of accommodating heavy good vehicle (HGV) traffic. Other major roads include the A163 between the A19 and Bubwith, provide east to west links in the area. The road is of good standard along the majority of its length. It features traffic signal control at the River Derwent Bridge to the west of Bubwith, however HGV access over the bridge is feasible.

2.4.38 The B1228 provides local distributor connects between Howden and the east of York. The road within the immediate vicinity of the Site is rural in nature and serves rural land uses. The road is of good standard and is currently used by HGV and agricultural traffic.

Water

2.4.39 There are several Internal Drainage Board watercourses and culverts/structures within the Site boundary and the 1 km study area, these are shown on **Appendix N.** The main Internal Drainage Board watercourse tributaries through the Site are Foss Dyke, located in the south/southeastern Site area and draining southwards, and Charity Drain which is located more centrally within the Site and drains southwest/westwards.

2.4.40 The Environment Agency Main River map identifies one Environment Agency designated Main River within the Site and Study Area. This river is identified as the Beck / Bielby Beck.

2.4.41 There are three Water Framework Directive (WFD) waterbodies identified within 1km of the Site. These are:

- Foulness from Black Beck to Market Weighton Canal Water Body
- Pocklington Beck from Bielby Beck to River Derwent Water Body. It is the same main river watercourse identified as The Beck / Bielby Beck
- Pocklington Canal Water Body.

2.4.42 The Environment Agency Flood Map for Planning identifies several fields within the Site which are subject to flooding. The fluvial flood risk categories as classified into either Flood Zone 2 (representing a 1 in 100 to 1 in 1000 annual probability of fluvial flooding or a 1 in 200 to 1 in 1000 annual probability of tidal flooding) or Flood Zone 3 (a greater than 1 in 100 annual probability of fluvial flooding or a greater than 1 in 200 annual probability of tidal flooding). The Flood Map for Planning is provided on **Appendix B**.

Population

2.4.43 There are no properties or houses at risk of demolition in order to construct or operate the Proposed Development.

2.4.44 The land earmarked for the Proposed Development is not allocated for residential development and no new planning applications have been submitted for housing development within 500m of the Site boundary.

2.4.45 There are several businesses located with the Site boundary including Melbourne Raceway (previously RAF Melbourne) and a rally school. Within the study area there are numerous businesses including landscape suppliers, a turf business and leisure pursuits such as camping sites, accommodation, gyroplane school and an equestrian centre.

2.4.46 There are also a number of camping sites and other accommodation located in the local area.

2.4.47 There are 21 Public Rights of Way (PRoWs) that intersect or run along the boundaries of the Site including:

- Melbourne Footpath No.2 (MELBF02);
- Melbourne Footpath No.3 (MELBF03);
- Melbourne Footpath No.4 (MELBF04).
- Melbourne Bridleway No.5 (MELBB05);
- Melbourne Footpath No 6. (MELBF06);
- Melbourne Footpath No. 9 (MELBF09);
- Foggathorpe Footpath No.1 (FOGGF01);
- Foggathorpe Footpath No. 10 (FOGGF10);
- Foggathorpe Footpath No. 11 (FOGGF11);
- Foggathorpe Footpath No. 12 (FOGGF12);
- Foggathorpe Bridleway No.15 (FOGGB15);
- Ellerton & Aughton Footpath No.6 (ELTNB06);
- Ellerton & Aughton Bridleway No.7 (ELTNB07);
- Bielby Footpath No.6 (BIELF06);
- Thornton Footpath No.4 (THORF04);
- Bielby Bridleway No.7 (BIELB07);
- Thornton Footpath No.3 (THORF03);
- Thornton Footpath No.2 (THORF02);
- Seaton Ross Footpath No.3 (SROSF03);
- Seaton Ross Footpath No.4 (SROSF04); and
- Seaton Ross Bridleway No.14 (SROSB14).

2.4.48 There are no designated national trails.

Existing utility infrastructure

2.4.49 A desk-based search of utilities within the Site has identified the presence of several assets in the area, including high pressure gas mains, telecoms cables and electrical cables (overhead and underground), these are displayed in **Appendix P**. In addition, water and sewer utilities are present. The locations of existing utilities will be considered in the ongoing design

development, and a utility survey will be carried out to inform the design, which will be available to be included in the PEIR.

2.5 Proposed Development

2.5.1 The Proposed Development will comprise the construction, operation (including maintenance) (hereinafter 'operation') and decommissioning of a solar photovoltaic (PV) electricity generating facility and an export connection to the National Grid via the Thornton National Grid substation. The Project is expected to have a generating an anticipated export capacity exceeding 50MW.

2.5.2 The expected area of land potentially required for the construction, operation and decommissioning of the Proposed Development, which includes land required for the development and access is shown in **Appendix C**. It is important to note that this will be subject to change as the design and EIA progress; however, **Appendix C** shows the envisaged current maximum extent of temporary and permanent land usage for the Proposed Development. This allows for consideration of the potential environmental effects of the full range of options under consideration, to ensure that the likely significant environmental effects of each of the options has been scoped into further assessment.

Project components

2.5.3 Detailed elements of the Proposed Development are yet to be confirmed, but it is likely that the Proposed Development would include:

- Ground mounted solar photovoltaic generating station, incorporating solar PV modules, mounting structures, inverters, transformers and switchgear and cabling;
- Onsite substation compound(s), including storage room, permanent welfare facilities, site office and control room, monitoring, control, voltage transformation and safety equipment and parking for operation and maintenance team;
- Storage containers positioned around the Site;
- Welfare facilities
- Works to lay electrical cables and associated infrastructure, including cable trenches and protection, jointing pits;
- Temporary construction compounds, with associated parking for construction team, welfare facilities, temporary construction laydown areas and access tracks;
- Works to facilitate access including, where necessary, culverts for any crossings of ditches and streams;
- Areas for habitat management and biodiversity enhancement;
- Ancillary infrastructure works including cables, CCTV and security equipment, fencing, landscaping, tracks, vehicle parking, earthworks, surface water management, temporary footpath diversions and any other works identified as necessary to enable the Proposed Development;

- Inverters connecting to medium voltage (MV) stations ; and
- MV Stations connecting to each other and then to Substation

2.5.4 A Battery Energy Storage System would not be utilised as part of the Proposed Development.

2.5.5 Additional minor highway widening or adjustments in limited parts of the public highway might be necessary to facilitate access during construction. Works to understand the highway effects of the Proposed Development and to inform the site access design during construction are ongoing. These adjustments will be identified, if required, at the statutory consultation stage. A traffic assessment for the development will be carried out and included in the ES. A Detailed Construction Traffic Management Plan (CTMP) will be implemented to manage any traffic impact associated with the Proposed Development. Refer to the 'Construction traffic and Site access' section in **Section 2.6** for further details.

2.5.6 **Table 2-1** below provides the anticipated parameters of the elements identified above.

Table 2-1: Anticipated parameters

Proposed Development Element	**Anticipated Parameters (physical or otherwise)**		
Solar panels	Solar PV modules with maximum dimensions of 3 x 2 x 0.5m		
Solar Module Mounting Structures			
Type of structure:	Fixed Tilt	Fixed Tilt	Sun Tracking
Row alignment:	East-West	North-South	North-South
Solar Module Orientation:	South	East-West	Tracking East-West
Tilt Angle:	10° to 40°	10° to 20°	+/- 60°
Maximum/Minimum Height: (Assuming level ground topology)	4.5m / 0.5m	4.5m / 0.5m	5.5m / 0.5m
Inter row Separation:	2.5-12m	2.5-12m	3-12m
Foundations:	Mounting structures will be fixed via piled metal profiles, driven to a depth of 1-4m (dependent upon ground conditions), except in areas where ground penetration needs to be avoided when a concrete ballast will be used.		
Inverter	String inverters (circa 1.5x1.0x0.5m) would be sited on piled structures and located in the shade of the solar array. Central inverters would be typically containerised solutions typically Height: 3.5m Length: 13.0m, Width: 3m		

Proposed Development Element	Anticipated Parameters (physical or otherwise)
MV Station (transformer and switchgear)	Height: 3.5m Length: 13m Width: 3m
Site fencing (post and wire)	Height: Up to 3m with gap at the base to allow small animals to pass and badger gates/cut out at appropriate locations
CCTV poles	Height: 5m
Access gates	Height: Up to 3m, Width: 4-7m
Internal roads	Width: 3-7m, made of crushed stone and installed on a membrane
Buried cables (PV Site)	Trench Width: 0.5-3m, Depth: 0.5-1.5m
On-Site substations	Height (comms. tower): 15m Height (electrical equipment and buildings): 8m Approx.1.7ha with a typical maximum height of 15m Palisade perimeter fence up to 3m high
Area of search for underground grid connection cable	Average Working Width: 50m total Trench width up to 5m Depth: 1-5m Horizontal directional drilling (HDD) may need to be completed in areas where cable trenching is not suitable (e.g. below watercourses), and in the event of this the depth of the HDD may be greater than 5m. This will be fully assessed in the ES.
Weather Stations	Up to 5m high
Maintenance warehouse	Length 25m, Width 15m, Height 10m
Operation and Maintenance Storage containers	Height: 3.5m Length: 13m, Width: 3m

2.5.7 Each of the elements outlined above and their associated key features are set out in the following sections.

Solar photovoltaic (PV) modules and associated mounting structures

2.5.8 Solar panels convert sun light into direct current (DC) electricity. Individual solar PV modules contain several interconnected PV cells encapsulated behind tempered glass. The encapsulation ensures a weatherproof seal and an aluminium frame enables fixation to the mounting structure.

2.5.9 As solar PV modules are rapidly developing due to innovation in technology and processing techniques for the PV cells, the dimensions of the solar PV modules available at the time of construction may vary. The ES will therefore consider a maximum height parameter which represents the reasonable

worst-case scenario in terms of identifying likely significant environmental effects.

2.5.10 Solar PV modules are fixed to mounting structures and connected together electrically in groups known as 'strings'. The exact number and arrangement of modules depends on a range of factors including the size of the system, its location, and the direction in which the solar panels are installed. As technology and equipment are evolving, some flexibility in design would be required to accommodate technology advances.

2.5.11 The solar PV modules would be installed either as fixed arrays or as tracking arrays (which adjust the orientation of the solar PV modules to track the sun throughout the day).

Associated equipment - inverters, transformers and switchgear and cabling

2.5.12 A range of equipment is required to convert the solar power generated, manage the power and export energy to the National Grid. The DC electrical output generated by the solar PV modules would feed into an inverter and subsequently to a transformer. At this stage it is not known whether central or string inverters will be used. The function of each of these elements are as follows:

- Inverters convert the DC current generated by the solar PV modules into alternating current (AC)
- MV stations use transformers to increase the AC voltage generated by the inverters to a higher voltage to reduce losses of the electricity produced before it reaches the on-site high voltage (HV) substation. The MV stations would be installed across the Site and housed in shipping-style containers together with MV switchgear which control, protect and isolate electrical currents and equipment. These allow parts of the solar PV module system to be de-energised safely, allowing routine maintenance or faults to be identified and work undertaken.

2.5.13 Weather stations, housing sensors to measure irradiance, wind and rain would be located across the Site, which would be up to 5m in height.

On-Site substation(s)

2.5.14 Up to two on-site substations will be required to connect the Proposed Development to the transmission network. The substation(s) will incorporate the transformer(s) as well as other electrical equipment such as switchgear, protection, telecommunication, metering and control equipment.

2.5.15 The on-site substation(s) converts the voltage from the MV stations to 400kV to allow connection to the electricity grid at Thornton National Grid substation.

2.5.16 The on-site substation(s) would cover an area of up to 1.7 hectares.. The equipment within would have a maximum height of 15m (the 15m height would relate to 400kV switchgear supported on tubular steel structures and a lattice steel communications tower.

Underground Cabling

2.5.17 Underground cables would be required to connect the MV stations to the on-site HV substation, and then onwards to the Thornton National Grid substation.

Underground cabling between the land parcels

2.5.18 DC cabling from the solar PV modules to the inverters would typically be installed above ground and fixed to the mounting structure of the modules. Where strings are split between two module rows, DC cabling will pass between rows in buried ducting.

2.5.19 Underground AC cabling would be required to connect the inverters to the MV stations, which are transformer stations that typically include an AC distribution transformer and MV switchgear. Here, the voltage is transformed from a lower voltage to 33kV. Medium voltage cables (33kV) connect the MV stations to the on-site HV substation. The dimensions of the trenches vary depending on the number of cables or ducts they contain, as referred to in **Table 2-1**.

2.5.20 Data cables (typically fibre optic) would be installed, typically alongside electrical cables in order to allow for monitoring of all aspects of the site during operation and maintenance.

2.5.21 At this stage, it is anticipated that underground cables would be installed using open cut trenching.

2.5.22 In instances where open cut trenching cannot be used, for example when crossing a river or public road, alternative methods, such as HDD, will be considered and assessed within the ES.

Underground cabling to Thornton National Grid substation

2.5.23 The Proposed Development will connect by underground cabling via a three-phase 400kV cable to a 400kV busbar at the privately-owned Thornton Greener Grid Park (a standalone Statkraft UK Ltd development with its own planning permission) located adjacent to the existing National Grid 400kV substation at Thornton (hereafter referred to as the 'Thornton National Grid substation'). A new 400kV switchgear bay, protection, metering and control will be installed at Thornton National Grid substation to allow this connection. No additional work is required in the Thornton National Grid substation. The Thornton National Grid substation and Thornton Greener Grid Park are located approximately 3km north-east of the Site.

2.5.24 The underground cabling would comprise a three-phase 400kV cable. The maximum dimension of the cable trench required to install the cabling is referred to in **Table 2-1**. As a worst-case, it is anticipated that open-cut trenching would be used to install the 400kV cable, but it is likely that some HDD would be required in more constrained locations such as under the Pocklington Canal SSSI. The method of cable installation will be fully assessed with regards to their location, context and particular features, i.e. SSSI or water course, as part of the ES.

2.5.25 The area of search for underground grid connection cable, as shown in **Appendix C**, is for scoping purposes and will be refined further prior to statutory consultation based on the findings of detailed engineering works, EIA studies, landowner agreement and other relevant investigations. The internationally designated Lower Derwent Valley SPA, SAC, and Ramsar, which also includes the nationally designated Melbourne and Thornton Ings SSSI (see **Appendix B**), are excluded from the area of search for underground grid connection cable to avoid direct impacts as far as possible. Whilst there are a small number of residential properties and settlements shown within and adjacent to the area of search for underground grid connection cable, no cables would be installed under residential properties or within residential gardens. The public highway within these areas is being considered as part of the ongoing cable route investigations.

2.5.26 A single cable corridor will be required to connect the Solar PV module areas via a 400kV cable to the National Grid Substation and with an average cable corridor width of 50m. The route of this cable corridor will be optimised and fixed as the design progresses.

Modifications/connections to National Grid

2.5.27 As stated above, there would be no further construction works required at Thornton National Grid substation as the Proposed Development's would benefit from the connection to the Thornton Greener Grid Park. The works (which are currently under construction) would have been undertaken by National Grid under the Construction Agreement associated with the Bilateral Connection Agreement that has already been concluded.

Ancillary infrastructure

2.5.28 Additional infrastructure would be required to support the operation of the Proposed Development. The following equipment is expected to be installed across the Site, and will be subject to the DCO:

- Fencing and gates – A perimeter security fence would be installed to enclose the operational areas of the Proposed Development. The fence is likely to be either a wire-mesh or deer fence up to 3m in height. The fence would be designed in such a way as to allow small animals to pass through the operational site and would also be gated to allow access to and from the operational site.
- CCTV – Pole-mounted, security detection cameras would be mounted on poles of up to 5m in height around the perimeter of operational areas,
- Lighting – In general, it is anticipated that the Proposed Development would not be lit; however, manually operated lighting would be required around key electrical infrastructure;
- Internal access tracks – Access to and within the Proposed Development would be required during construction and operation (including maintenance). A series of access tracks are proposed within the Site;
- Drainage – The detailed operational drainage design for the Proposed Development will be undertaken prior to construction. The overarching

principle of the drainage strategy for the Proposed Development is to provide Sustainable Drainage Systems at source, ensuring that surface water run-off mimics existing site conditions as far as is reasonably practicable. The design of new drainage systems would be based on the Flood Risk Assessment (FRA) and hydrological assessment to be undertaken in support of the DCO application. This will be appended to the ES. If feasible or relevant, infiltration drainage design would be in accordance with Building Research Establishment (BRE) Digest 365: Soakaway Design (2016). Otherwise, an attenuation system with restricted discharge to existing watercourses will be proposed. Other than discharge pipes, drainage infrastructure will be placed at least 10m away from watercourses.

- Storage – It is anticipated that storage would be installed on-site to contain extra equipment to support maintenance activities.
- Operation & Maintenance office(s) would be required to house the maintenance staff as well as providing 24-hour monitoring for the Site.

Landscaping and biodiversity mitigation and enhancements

2.5.29 The Proposed Development would incorporate field boundary enhancement, including enhancing existing and planting new hedgerows, enhancing existing woodland, and planting of meadow grass and wildflower seed mixes within the Site. Planting would also be used to soften and screen views of the Proposed Development where necessary and feasible. The enhancements and planting would increase biodiversity within the Site and contribute to the Proposed Development achieving Biodiversity Net Gain (BNG) in accordance with the requirements of the Environment Act 2021, NPS EN-1 (2024) and local planning policy. It is anticipated that BNG could be achieved within the Site boundary, but if not possible, off-site solutions would be considered.

2.5.30 Although the requirement for a minimum 10% gain in biodiversity will not become mandatory for NSIPs until 2025, in line with best practice the Proposed Development design would aim to achieve BNG levels greater than the minimum 10% set out in the Environment Act 2021. It is noted that similar solar schemes developed by the Applicant have typically delivered BNG well in excess of this figure.

2.6 Construction phase

Construction programme

2.6.1 Subject to the DCO being granted, the earliest construction could commence is in 2029, however construction would likely commence within 12-18 months of a positive decision. Construction would require an estimated minimum of 24 months and maximum of 36 months, with peak construction activity anticipated during 2030. It is anticipated that construction would be undertaken in phases. This assumes commencement of construction in 2029, with completion by 2031.

2.6.2 The PEIR and ES will provide further details of the proposed construction activities, including their anticipated duration.

Construction traffic and Site access

2.6.3 Based on the preliminary construction material and equipment requirements, it is anticipated that there could be up to a total of 50 HGV movements per day during the peak construction period. This number is indicative, excludes construction staff transportation and ancillary construction traffic, and is subject to refinement. A reasonable worst case scenario will be presented and assessed in the ES.

2.6.4 Location of construction accesses to the Site is yet to be finalised. It is expected that construction accesses will be taken from existing field accesses where possible, to minimise the amount of potential vegetation removal required. Formation of some new accesses may be required, and the impacts of these will be assessed in the ES.

2.6.5 Final construction accesses will be confirmed as the Proposed Development design progresses and in consultation with the relevant stakeholders and authorities, including landowners and East Riding of Yorkshire Council as the Local Highway Authority.

2.6.6 It is anticipated that the existing local roads would be utilised to access the Site, subject to the suitability of these roads to carry HGVs. Many of the roads around the Site are currently accessible by farm machinery and agriculture-related HGVs. The need for road upgrades, widening and new road construction, for example for abnormal loads or to ensure visibility splays at site access/egress points, will be determined as the Proposed Development design develops, and assessed as appropriate in the ES. It is anticipated that there will be less than 10 deliveries of abnormal loads required for the Proposed Development. The route and timing of these deliveries will be carefully scheduled to minimise disruption to the local community.

2.6.7 An Outline CTMP will be developed and submitted in support of the DCO application. The Detailed CTMP(s) will be secured by Requirement in the DCO.

Construction compounds

2.6.8 Construction compound locations are yet to be identified, though it is anticipated that at least one compound would be located in each of Land Parcels B, C, D & E. The construction compounds would be removed at the end of the construction period.

2.6.9 The temporary construction compounds would typically contain construction worker welfare facilities, site offices, parking, wheel wash area, plant and machinery storage, HGV/delivery turning area, refuelling areas and waste storage.

2.6.10 For security and safety purposes, the construction areas would be closed to the public throughout the construction phase. Site security staff would patrol the Site, in addition to hazard warning signs and CCTV at strategic locations around the Site.

Preparatory works

2.6.11 Preparatory works would be the first phase of construction and include activities to enable and prepare the Site for the construction of the Proposed

Development. At this stage in design, it is anticipated that works undertaken during this phase are likely to include:

- Establishment of, and/or works to site access point(s);
- Installation of any temporary/permanent culverts under watercourses/ditches;
- Site clearance activities such as stripping of topsoil, trenching (if required), storage and capping of soil;
- Erection of security fencing around the Site perimeter, as well as access gates;
- Installation of security measures such as CCTV at strategic locations;
- Delivery of plant and machinery to the Site; and
- Delivery of materials to enable first phases of construction.

2.6.12 There are multiple utilities crossing the Site, including high pressure gas mains, water pipes, telecoms cables, electrical cables and drainage. Prior to construction, the appointed principal designer and principal contractor will review the utility plans and use them to inform the plans for the proposed works to ensure all known utilities are avoided or diverted. Necessary offsets to known assets have been taken into account within the current design.

Construction of the Proposed Development

2.6.13 Following the preparatory works, construction of the Proposed Development would commence.

2.6.14 At this stage in design development, it is anticipated that the following types of construction activities may be required:

- Installation of solar PV module support structures;
- Mounting of solar PV modules;
- Installation of supporting infrastructure, such as inverters, transformers and switchgear;
- Installation of temporary (construction) and permanent drainage scheme;
- Installation of cabling across the solar PV module areas and connection to the inverters;
- Installation of cables between inverter platforms, MV stations and MV switchgear and onto the point of connection and the Thornton National Grid substation;
- Construction of the on-site substation(s);
- Installation of permanent site offices and storage facilities;
- Construction of internal roads for construction and maintenance activities
- Landscaping and biodiversity planting; and
- Installation of storage facilities.

Cable installation

2.6.15 The following activities would be required to install the underground cables:

- Stripping and storing of topsoil in sections;
- Trenching/ducting and installation of electric cabling;
- Cable joint installation (including cable joint pits);
- Implementation of crossing methodologies for watercourses, roads and railway (e.g. HDD, cable bridging, etc.); and
- Reinstatement works, where necessary.

Construction environmental management

2.6.16 An Outline CEMP will be submitted in support of the DCO application to describe the framework of mitigation measures identified in the ES to be followed. This would be carried forward via a detailed CEMP prior to and during the construction of the Proposed Development. The aim of the Detailed CEMP is to reduce construction impacts from:

- Use of land for temporary laydown areas, accommodation etc.;
- Construction traffic (including parking and access requirements) and changes to access and temporary road or footpath closure (if required);
- Noise and vibration;
- Construction lighting;
- Utilities diversion;
- Dust generation;
- Soil management;
- Run off and drainage; and
- Waste generation.

2.6.17 The Detailed CEMP would be secured by a DCO Requirement and should be substantially in accordance with Outline CEMP. It would be produced by the appointed principal contractor and agreed with East Riding of Yorkshire Council following granting of the DCO and prior to the start of construction. This would identify the procedures to be adhered to and managed by the principal contractor throughout construction.

2.6.18 Contracts with companies involved in the construction works would incorporate environmental control, health and safety regulations, and current guidance and ensure that construction activities are appropriately controlled and that all appointed construction contractors involved in the construction of the Proposed Development are committed to agreed best practice and meet all relevant environmental legislation including:

- Control of Pollution Act 1974;
- Environment Act 2021;
- Hazardous Waste Regulations 2005 (as amended); and
- Waste (England and Wales) Regulations 2011.

Commissioning

2.6.19 Following construction, the Proposed Development would go through a stage of testing prior to being commissioned and the first electricity generated and supplied to the National Grid. This is likely to involve mechanical and visual inspection of the Proposed Development, as well as electrical and equipment testing.

Site reinstatement and habitat creation

2.6.20 The management requirements of the landscape and ecological features will be set out an Outline Landscape and Ecological Management Plan (LEMP) that will be submitted in support of the DCO application. The Outline LEMP will also outline mitigation and enhancement that will support Biodiversity Net Gain (BNG).

2.6.21 A Detailed LEMP would be produced following grant of the DCO and prior to the start of construction (secured by a DCO Requirement) and would be substantially in accordance with the Outline LEMP. The landscape and ecological specification and management requirements would then be undertaken in accordance with the Detailed LEMP to ensure the successful establishment of all proposed planting, landscape and ecological features. This would include monitoring, maintenance and remedial requirements.

Soils management

2.6.22 An Outline Soil Management Plan (SMP) will be prepared and submitted in support of the DCO application, and be applicable across all three phases: construction, operation, and decommissioning. The Outline SMP will follow the principles of best practice to maintain the physical properties of the soil, with the aim of restoring the land to its pre-construction condition at the end of the lifetime of the Proposed Development after decommissioning.

2.6.23 The Detailed SMP would be secured by a DCO Requirement and should be prepared substantially in accordance with Outline SMP.

2.7 Operational phase

2.7.1 The operational life of the Proposed Development is expected to be up to 60 years.

2.7.2 During the operational phase of the Proposed Development, on-site activities would be limited to inspections and maintenance activities. Site access arrangements required to carry out operational inspections and maintenance will be determined as the Proposed Development design progresses and in consultation with the relevant authorities. Maintenance activities are likely to include:

- Regular visual inspection of all infrastructure;
- Regular scheduled inspections and testing of equipment;

- Replacement of consumable items (e.g., inverter fans, cable connectors);
- Cleaning of solar PV modules;
- If damaged, repair or replacement of solar modules or other components,
- Delivery of spare parts, replacement equipment items and consumables;
- Water management (e.g., clearing of drainage ditches); and
- Vegetation management (e.g., cut back of grass, hedges, trees, grazing).

2.7.3 Land Parcels A-E would be surrounded by a 3m high security fence (typically wire mesh or deer fencing). In addition, the Proposed Development would be monitored with pole-mounted CCTV cameras along the perimeter fencing.

Operational environmental management

2.7.4 An Outline Operational Environmental Management Plan (OEMP) will be submitted in support of the DCO application, which will set out the principles and key measures that will be employed during the operation of the Proposed Development to control and minimise impacts on the environment. The Detailed OEMP would be secured by a DCO Requirement and should be prepared substantially in accordance with Outline OEMP.

Public rights of way

2.7.5 The following PRoWs are within, intersect or are in the vicinity of the Site:

- Melbourne Footpath No.2 (MELBF02): Commences on Ash Lane and leads southwards around the east side of Park Farm to Throughleys Lane;
- Melbourne Footpath No.3 (MELBF03): Commences in Throughleys Lane and leads southwards west of White Farm to the Foggathorpe parish boundary at Lords Drain;
- Melbourne Footpath No.4 (MELBF04): Commences at the southern end of Melbourne Park between Nos. 6 and 7 and leads south-south-westerly for some 30 metres turns west-north-westerly for some 30 metres then southwards to and along the western edge of Bracepits Wood and The Park to Ash Lane.
- Melbourne Bridleway No.5 (MELBB05): Commences on Ash Lane and leads along the eastern edge of Great West Wood and north-eastwards to join path No 4 north of Bracepits Wood. Known as Intakes Lane;
- Melbourne Footpath No 6. (MELBF06): Commences on Intakes Lane and leads westwards to Kidd Lane south of Melbourne Grange;
- Melbourne Footpath No. 9 (MELBF09): Commences at Scamland Bridge on the road leading from Melbourne to Seaton Ross and leads in a south-easterly direction across East Common and by the west side of East Farm to the Seaton Ross-Cottingwith Road north-west of Melbourne;

- Foggathorpe Footpath No.1 (FOGGF01):Commences on the Market Weighton - Selby Road at a point about 80 yards east of the entrance to Foggathorpe Manor House and leads southwards across the railway to Foggathorpe House;
- Foggathorpe Footpath No. 10 (FOGGF10): Commences at Laytham at a point about 70 yards south of the east end of New Road and leads eastwards to the first bend on the Laytham - Seaton Ross Road;
- Foggathorpe Footpath No. 11 (FOGGF11): Commences on the Laytham – Melbourne Road at a point about 450 yards of the junction of New Road and leads eastwards and northwards to Owlet Hall Land then along Owlet Hall Lane for a distance of about 230 yards;
- Foggathorpe Footpath No. 12 (FOGGF12): Commences at Laytham about 70 yards north of the west end of New Road and leads westwards along Belt Lane to the Ellerton parish boundary;
- Foggathorpe Bridleway No.15 (FOGGB15): Commences on Station Road and leads east-north-easterly for some 1199m then continues east-north-easterly for some 4m to join Seaton Ross Bridleway No. 14;
- Ellerton & Aughton Footpath No.6 (ELTNB06): Commences at the eastern end of Ruddings Lane and leads in a mainly south westerly direction past Aughton Ruddings Farm to Long Lane, opposite the north eastern corner of Common End Plantation;
- Ellerton & Aughton Bridleway No.7 (ELTNB07): Commences at the eastern end of Ruddings Lane and leads in an easterly direction to the Foggathorpe parish boundary to join path No. 12;
- Bielby Footpath No.6 (BIELF06): Commences at Mill Bridge and leads in a northerly direction along the east bank of the Pocklington Canal to Coats Bridge (Broken by Thornton Path No: 4);
- Thornton Footpath No.4 (THORF04): Section of the path scheduled under the Rights of Way Act 1932 on the east side of Pocklington Canal near East Ings. (Breaks into footpath No 6, Bielby);
- Bielby Bridleway No.7 (BIELB07): Commences at Coats Bridge and leads in a north easterly direction along the western bank of the Pocklington Canal to the Allerthorpe parish boundary, to join path No: 5;
- Thornton Footpath No.3 (THORF03): Commences at the Swingbridge on Pocklington Canal and leads in a north-westerly direction along the south-western edge of Thornton Wood passing to the north of Woodhouse Farm and thence to the Melbourne-Pocklington Road;
- Thornton Footpath No.2 (THORF02): Commences south of Byholme Field and leads north-east then north to the west of Hall Flat to the Allerthorpe parish boundary;
- Seaton Ross Footpath No.3 (SROSF03): Commences on Breckstreet Lane and leads north westwards then south west-wards to Breckstreet Farm;
- Seaton Ross Footpath No.4 (SROSF04): Commences on Breckstreet Lane and leads south eastwards to West End then continues

southwards past Ladysmith then eastwards to the south of Manor House Farm to Church Lane; and

- Seaton Ross Bridleway No.14 (SROSB14): Commences at the eastern end of Foggathorpe Bridleway No. 15 and leads east-north-easterly for some 10m then continues east-north-easterly for some 608m to join the A163 at Lincoln Flats.

2.7.6 In accordance with Reg 5(2)(k) of the Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009 (the APFP Regulations), the DCO application will be supported by a plan identifying any proposed new or altered means of access, stopping up of streets or roads or any diversions, extinguishments or creation of rights of way or public rights of navigation. An Outline Public Rights of Way Management Plan will also be submitted in support of the DCO application.

2.7.7 The Outline Public Rights of Way Management Plan will include a schedule of public rights of way within the Site boundary and outline the proposed measures to manage any requirements to temporarily 'stop up' public rights of way within the Site during construction with a suitable diversion in place.

2.8 Decommissioning phase

2.8.1 Following operation, the Proposed Development would require decommissioning. The process of decommissioning would involve the removal of all solar infrastructure, including the solar PV modules and on-site supporting equipment, from the Site to be recycled or disposed of in accordance with industry best practices at that time. Any requirements to leave certain infrastructure, for example access tracks, would be discussed and agreed with landowners as part of the decommissioning process.

2.8.2 The Site would be returned to its original use as far as possible and practical, with areas of established mitigation left in-situ where possible and in agreement with the landowners.

2.8.3 The use of decommissioned materials would follow the waste hierarchy such that they would be reused where possible before recycling and disposal were considered. It is anticipated that the panels would be recyclable.

2.8.4 Decommissioning is expected to take a maximum of 24 months and could be undertaken in phases.

2.8.5 At the time that decommissioning would take place, the regulatory framework, good industry practices and the future baseline could have altered. An Outline Decommissioning Environmental Management Plan (Outline DEMP), which will set out the general principles to be followed in the decommissioning of the Proposed Development, will also be submitted in support of the DCO application. These measures, commitments and actions would be carried forward to a Detailed DEMP, taking account of good industry practice, its obligations to landowners under the relevant agreements and all relevant statutory requirements.

2.8.6 It is expected that the Outline DEMP would likely include details regarding:

- Arboricultural management;

- Traffic management;
- Materials management;
- Waste management.

2.8.7 The Detailed DEMP would be prepared at the time of decommissioning, in advance of the commencement of decommissioning works and would include timescales and methods for transportation of materials. This would be secured through a DCO Requirement and should be prepared substantially in accordance with Outline DEMP.

3. Reasonable alternatives considered

3.1 Introduction

3.1.1 Regulation 14(2)(d) of the EIA Regulations states that an ES should include:

"*a description of the reasonable alternatives studied by the applicant, which are relevant to the Proposed Development and its specific characteristics, and an indication of the main reasons for the option chosen, taking into account the effects of the development on the environment*."

3.1.2 Section 9.3 of the Planning Inspectorate's Advice Note Seven (2020) states that a good ES is one that "*explains the reasonable alternatives considered and the reasons for the chosen option taking into account the effects of the Proposed Development on the environment*". The ES will include a description of the reasonable alternatives that have been considered, including a clear narrative on the main reasons for selecting the chosen option, including an explanation of how environmental effects have been taken into account. The reasonable alternatives assessment will focus on the site selection process, design layouts/opportunities within the Site, the sizing and scale of infrastructure, and alternative technologies.

3.1.3 Alternative technologies will only be considered from the perspective of alternative solar technologies. The ES will not consider alternative forms of renewable energy, such as wind, on the basis that the Applicant is proposing a solar development and therefore did not consider alternative technologies. The recent Sizewell C judgement (2023)[7] reinforced the case that the Applicant does not need to compare different generating technologies such as solar vs. wind vs. nuclear. This is covered in paragraph 131 of the judgement which states the following:

"*The absurdity of the claimant's argument was well-demonstrated by Mr. Strachan KC and by Mr. Phillpot KC for the defendant and SZC respectively. The implication of ground 4 would be that a decision-maker dealing with a proposal for a solar farm or wind turbine array, obliged to comply with reg.64(1), would have to consider as alternative solutions nuclear power and, as the case may be, wind power or solar power options, But in my judgment there is nothing artificial or unlawfully limiting about a Government policy which identifies as core objectives the need to provide a mix of new electricity generation technologies, comprising solar, wind and nuclear power. Indeed, in para. 9.1.1 of the Habitats Regulations Assessment (HRA) the defendant noted a decision of the CJEU that the objective of ensuring security of supply may constitute IROPI.*"

3.1.4 A 'no development' alternative would not deliver the additional electricity generation capacity associated with the Proposed Development and therefore will not be considered further.

3.1.5 The consideration of alternatives and design evolution will be undertaken with the aim of avoiding and/or reducing significant adverse environmental effects, maintaining operational efficiency and cost-effective design solutions, and with consideration of other relevant matters such as available land and

planning policy. This will be aided by the implementation of project design principles which would help guide the design of the Proposed Development.

3.2 Approach to site selection

3.2.1 There is no standard methodology for the site selection of solar farms. The site selection methodology has therefore been informed by relevant planning policy. In particular, the site selection has been informed by following applicable NPS:

- Overarching National Policy Statement for Energy (EN-1)[8] published in November 2023, designated January 2024;
- National Policy Statement for Renewable Energy Infrastructure (EN-3)[9] published in November 2023, designated January 2024;
- National Policy Statement for Electricity Networks Infrastructure (EN-5)[10] published in November 2023, designated January 2024.

3.2.2 In identifying the Site, the Applicant focused on determining opportunities and constraints within an initial search area surrounding the point of grid connection. The following fundamental attributes were applied to this search area to determine the most suitable location for the Proposed Development. These attributes are recognised in NPS EN-3 as important criteria affecting the site selection of large scale solar developments:

- Irradiance and site topography;
- Network connection;
- Proximity of a site to dwellings;
- Agricultural land classification and land type;
- Accessibility;
- Public Rights of Way; and
- Security and lighting.

3.2.3 The environmental and spatial considerations were also part of the site selection process.

Table 3-1: Environmental considerations in site selection

Consideration	Discussion
Agricultural Land Classification and land type	Planning policy seeks to minimise impacts on the best and most versatile (BMV) agricultural land (defined as grades 1, 2 and 3a) but it doesn't preclude its use for solar development and nor should it be a predominating factor in determining its location. Policy simply establishes a preference for development on land graded 3b, 4 or 5 and to utilise previously developed land, brownfield land, contaminated land or industrial land where possible.
Designated international and national ecological sites	The location of ecological sites was mapped as shown in **Appendix B**. Where possible, ecologically sensitive areas have been avoided.

Consideration	Discussion
Nationally designated landscapes	The presence of any National Landscapes (formerly Areas of Outstanding Natural Beauty) or National Parks were considered and excluded from the area of search.
Scheduled monuments	There is a singular Scheduled Monument within the Order Limits, located in Land Parcel E. When considering alternative sites, their proximity to Scheduled Monuments was taken into account, together with the opportunity to mitigate effects.
Proximity to sensitive human receptors	Consideration was given to the proximity of nearby sensitive human receptors which include residential dwellings, populated areas and villages. The Applicant also considered the location of PRoWs in the area and sought to identify a site which would have a limited impact on these routes.
Flooding	Parts of the Site are located within a flood zone, as shown in **Appendix B.** Solar PV modules can continue to operate during flood events. It is therefore considered potential flooding impacts can be appropriately mitigated through detailed design (e.g. by applying a sequential test within the footprint of the Site and locating any sensitive infrastructure away from flood zones 2 and 3).As such, areas affected by flooding were not discounted, although areas of lower flood risk were considered at an early stage, in compliance with the sequential test for flood risk.

3.2.4 The above considerations for large scale solar development, alongside the key operational criteria, including topography and aspect, have all been considered and resulted in the Site being identified.

4. Approach to Environmental Impact Assessment

4.1 Introduction

4.1.1 This section sets out the overall approach that will be taken in the EIA for the Proposed Development. The ES will contain the information specified in Schedule 4 of the EIA Regulations. The approach to the assessment has been informed by current best practice guidance.

4.1.2 An overview of the guidance and methodology adopted for each environmental factor assessment is provided within **Chapter 6**.

4.1.3 Regulation 5(2) of the EIA Regulations states that an EIA must identify, describe and assess, in an appropriate manner, the direct and indirect effects of the proposed development on the following environmental factors:

- Population and human health;
- Biodiversity;
- Land, soil, water, air and climate;
- Material assets, cultural heritage and the landscape; and
- The interaction between these factors.

4.1.4 This EIA Scoping Report has therefore considered the environmental factors presented below:

- Air quality;
- Biodiversity;
- Climate;
- Cultural heritage;
- Human health;
- Land, soils and groundwater (factors combined for the purposes of reporting);
- Landscape and visual;
- Material assets and waste;
- Water; and
- Population.

4.1.5 It should be noted that although not listed as specific environmental factors under Regulation 5(2) of the EIA Regulations, the following are also considered within this EIA Scoping Report:

- Noise and vibration;
- Transport and access;
- Electric, magnetic and electromagnetic fields;
- Glint and glare;
- Heat and radiation;
- Major accidents and disasters; and
- Utilities.

4.1.6 The proposed structure of the ES is set out in **Appendix E**.

4.2 Consultation

4.2.1 Consultation alongside the EIA process is critical to the development of a comprehensive and proportionate ES. The views of statutory and non-statutory consultees are important to ensure that the EIA from the outset focuses on specific issues where significant environmental effects are likely, and where further investigation is required.

4.2.2 Consultation, as an ongoing process, enables embedded and additional mitigation measures to be incorporated into the Proposed Development to limit adverse environmental effects and optimise environmental benefits important to the local area and communities.

4.2.3 Early and ongoing engagement with consultees is important to influence the design process of the Proposed Development. Feedback from consultees will be sought and considered in the evolving design.

4.2.4 As part of the Development Consent Order (DCO) application, several key consultation reports regarding stakeholder engagement will be submitted:

- Statement of Community Consultation (SoCC): Before commencing statutory consultation, the Applicant will develop a Statement of Community Consultation (SoCC), which will outline the planned approach for engaging with the local community. This will be done in collaboration with host authorities as required by Section 47 of the Planning Act; and
- Consultation Report: This comprehensive report documents the entire consultation process, including the methods used, feedback received, and how that feedback has influenced the project design, where possible. It also includes responses to the comments gathered during both statutory and non-statutory consultations. This report is submitted with the DCO application to demonstrate compliance with consultation requirements. All personal details will be redacted.

4.2.5 Non-statutory consultation is ongoing, commencing in September 2024, and comprises of the following:

- The Applicant has informed a range of key stakeholders including the host and surrounding parish councils of Foggathorpe, Ellerton and Aughton, Seaton Ross, East Cottingwith and Storwood, Thornton, Allerthorpe and Melbourne and offered the opportunity to meet and have a briefing on the project;
- The Applicant has written to near neighbours of the Proposed Development (90+ properties) to inform them and provide a direct line of communication; The Applicant has met in-person, with some near neighbours. The Applicant has also written to all known landowners within the area of search for underground grid connection cable.
- The Applicant invited local ward members and ERYC representatives to an online meeting to introduce the Proposed Development, around the time of launch;

- The Applicant has held two in person co-design workshops held in Melbourne and Bubwith on 13 and 14 November 2024 with key stakeholders, introducing the Proposed Development and helping the Applicant understand the key local issues. All Parish Councils listed above were invited to these sessions, plus Bielby, Everingham & Harswell and Holme on Spalding Moor Parish Councils;
- The applicant has also attended local Parish Council meetings, at their request, to introduce the Proposed Development;
- Following the co-design workshops, a 'workshop summary report' will be published to provide a summary of the workshops, including the information presented and discussed. It will also outline the key themes from the comments received and explain how this feedback has been incorporated into the project design process, where possible. The report will be sent to key stakeholders and those invited to the workshops and will also be made publicly available via the project website to demonstrate our ongoing work ahead of the statutory consultation; and
- The Applicant is planning to host webinars at the same time as the 'workshop summary report's' release, early 2025, to present the findings from these workshops and provide an opportunity for additional feedback, particularly for those unable to attend the initial sessions.

4.2.6 The Applicant will continue to engage with the community after the co-design phase and before the statutory consultation, to ensure they remain informed and involved in the project and are updated on any developments. The aims of non-statutory consultation are to:

- Outline the broad parameters of the Proposed Development;
- Engage with key stakeholders, including local community representatives, to collect initial thoughts, concerns, and suggestions before the formal statutory consultation process begins;
- Use the feedback to inform and shape the early stages of the project design, ensuring that local input is considered and incorporated where feasible;
- Establish and strengthen relationships with local authorities, community groups, and other stakeholders to foster collaboration and transparency throughout the development process;
- Trial different methods of engagement to determine the most effective ways to consult with stakeholders and communities ahead of the statutory consultation; and
- Gather feedback on the initial early proposals and concept masterplan.
- Understand key community and stakeholder concerns, insights and proposed design enhancements.

4.2.7 Statutory consultation is expected to be held in Summer 2025. A more refined draft masterplan for Mylen Leah will be published then for the public to feedback on as part of this consultation. This is when the wider local community will be invited to participate in events, meet the project team, and share their views.

4.2.8 The aims of statutory consultation are to:

- Set out current proposals, demonstrating how the early consultation feedback has been accounted for and considered where feasible within the Proposed Development design;
- Take formal feedback to demonstrate how regard has been had to initial feedback and the design developed as a result, and identify opportunities for further design enhancements; and
- Identify opportunities for further design refinements prior to submission of the DCO application.

4.2.9 As part of the EIA process, consultation will be undertaken with a range of statutory and non-statutory consultees. It is anticipated at this stage that statutory consultees will include (but are not limited to):

- Canal and Rivers Trust (Yorkshire and North East);
- East Riding of Yorkshire Council;
- Environment Agency;
- Foss Internal Drainage Board;
- Historic England;
- National Highways;
- Natural England;
- Ouse and Humber Internal Drainage Board; and
- Parish Councils.

4.2.10 The Applicant will continue ongoing consultation with the host authorities, stakeholders listed above, and other relevant consultees throughout the development of the Scheme and preparation of the Environmental Statement (ES). This will include adherence to consultation requirements outlined in the Planning Act 2008, as well as related regulations and guidance.

4.2.11 A Programme Document, once agreed with the Planning Inspectorate, will be available on the Scheme's website, detailing the development timetable, including key milestones and dates for planned formal consultations. An indicative timeline of key project dates has been provided in **Figure 4-1** below.

Table 4-1: Indicative project timeline

4.3 General difficulties and uncertainties

4.3.1 Factor-specific difficulties and uncertainties are set out in **Chapter 6**. The following key general difficulties and uncertainties apply to a number of environmental factor assessments:

- The design of the Proposed Development is still emerging, as are the environmental surveys and assessments required to support the planning and EIA process. This EIA Scoping Report is provided based on the information available at the time of writing. Where relevant, the proposed scope will be reviewed and updated to reflect developments in the Proposed Development design that may occur post-scoping and agreed with relevant statutory consultees. Any changes to the scope of the EIA would be reported as necessary in the PEIR and/or the ES.
- As the location and area of the components that the Proposed Development comprises are not yet defined or fixed, there is potential for uncertainty regarding the scope of assessment for each factor. However, the description of the Proposed Development presented in **Chapter 2** details the anticipated parameters of the Proposed Development components as they are currently known. Whatever location or footprint is decided and applied, the PEIR and ES would assess the realistic 'worst case scenario' to ensure that the maximum level of significant environmental effects is considered.
- Data from third parties relied upon for the baseline against which any effects would be assessed could potentially be out of date or inaccurate. However, any such data will be procured from reputational and industry standard sources and will be reviewed and used by competent and experienced professional experts. This should ensure that the data is suitable for its purpose and would therefore provide an appropriate evidence base on which the existing environmental baseline would be informed.

4.4 Defining the study area

4.4.1 Study areas have been defined individually for each environmental factor, taking into account the geographic scope of the potential impacts relevant to that factor and the information required to assess those impacts. The

proposed study areas for each environmental factor assessment are described within **Chapter 6**.

4.5 Establishing baseline conditions

4.5.1 Environmental effects of the Proposed Development will be described in the PEIR and ES in relation to the extent of changes to the existing baseline environment as a result of the construction, operation and decommissioning of the Proposed Development.

4.5.2 The baseline environment will comprise the existing environmental characteristics and conditions, based upon information available at the time of the assessment.

4.5.3 Baseline conditions will be established by:

- Site visits and field surveys;
- Desk based studies; and
- Modelling (if required).

4.5.4 The baseline conditions for each environmental factor assessment will be set out within the respective assessment sections. Currently known baseline conditions relevant to the individual factor assessments are presented in **Chapter 6**.

4.5.5 The origin of all third-party data used would be clearly identified, alongside any difficulties, uncertainties and assumptions.

4.6 Establishing future baseline conditions

4.6.1 Schedule 4(3) of the EIA Regulations requires consideration of the likely evolution of the current state of the environment (baseline scenario) in the absence of the Proposed Development, as far as natural changes from the baseline scenario can be assessed with reasonable effort on the basis of the availability of environmental information and scientific knowledge (the 'future baseline'). Whilst there are considerable limitations to the predictions that can be made about natural baseline conditions at a future point in time, reasonable effort would be made to characterise the future baseline in the absence of the Proposed Development in each environmental factor assessment. In addition, some assessments require projections to account for future change, such as traffic growth within the assessment of likely significant environmental effects associated with the Proposed Development, and such projections will be detailed in the ES.

4.7 Assessment scenarios

4.7.1 The assessment scenarios that are being considered for the purposes of the EIA are as follows:

- Existing baseline (without the Proposed Development) – Reported at the time that the baseline data has been collected.
- Future baseline (without the Proposed Development) – For comparison with the construction phase, operational phase and decommissioning phase.

- Construction of the Proposed Development– As presented in **Chapter 2**, construction is scheduled to commence in 2029 and last for a maximum of 36 months. The environmental factor assessment sections will assess the relevant 'worst case' construction scenario and where necessary, the relevant period or 'peak' of activity within the construction programme.
- Operation of the Proposed Development– The environmental factor assessment chapters will assess the relevant 'worst case' scenario where necessary. Consideration would need to be given to the phased approach to construction of the Proposed Development.
- Decommissioning of the Proposed Development.

4.8 Approach to mitigation

4.8.1 Mitigation can be relied on to reduce any potential significant environmental effects from the Proposed Development. The sequential steps of the mitigation hierarchy are as follows, and have been discussed further in respect of each discipline in **Chapter 6**:

- **Avoidance** – take measures to avoid creating impacts from the outset;
- **Minimisation** – measures taken to reduce the duration, intensity and extent of the impact if they cannot be avoided;
- **Restoration** – measures taken to improve ecosystems following exposure to unavoidable impacts; and
- **Offset** – measures taken to compensate for any residual impacts.

4.8.2 The Institute of Environmental Management and Assessment's (IEMA) 'Environmental Impact Assessment Guide to Shaping Quality Development' (2015)[11] refers to three distinct forms of mitigation:

- **Primary** – an intrinsic part of the project design
- **Secondary** – typically described within the environmental factor assessment chapters of the Environmental Statement, but often are secured through planning conditions and/or management plans.
- **Tertiary** – required regardless of any EIA, as it is imposed, for example, as a result of legislative requirements and/or standard sectoral practices.

4.8.3 For the purposes of this EIA Scoping Report, the PEIR and the ES, embedded 'primary' mitigation measures will form part of the Proposed Development for which consent is sought. **Table 4-1** describes the currently known embedded (primary) environmental mitigation measures that are considered to be an inherent part of the Proposed Development, i.e. the project design principles adopted to avoid or prevent adverse environmental effects, based on the design of the Proposed Development to date. It should be noted that these would likely evolve over the course of the design evolution, up to submission of the DCO application.

4.8.4 These embedded (primary) environmental mitigation measures should not be confused with additional (secondary and tertiary) mitigation measures proposed in order to avoid, prevent or reduce and, if possible, offset likely

significant adverse effects on the environment. These are described under the 'Additional (Secondary and Tertiary) Mitigation Measures' section within each environmental factor assessment section (**Chapter 6**).

Table 4-1: Embedded (primary) environmental mitigation measures

Environmental Factor to which the Embedded (Primary) Environmental Mitigation Measure Relates	Embedded (Primary) Environmental Mitigation Measure
Biodiversity	The Proposed Development design would incorporate a minimum offset distance of 10m from any trees and 5m from any hedgerows for solar PV module area and substations.
Biodiversity	The Proposed Development would aim to avoid any development on areas of important or priority habitat.
Biodiversity Water	The Proposed Development design (excluding required crossings) would incorporate a minimum offset distance of 10m from all Internal Drainage Board watercourses and ditches. A 5m buffer will be put in place for all other watercourses and ditches.
Biodiversity Water	Watercourse crossings would be required for access during construction and operation. To ensure the crossings would not affect flow rates, water quality or biodiversity, any proposed bridges or culverts to facilitate these crossings would include appropriate mitigation measures. For example, span bridges would have deck levels being at or above the bankfull level, and culverts would be fitted with mammal shelves and suitable bed substrate to match that of the watercourse within the vicinity of the crossing.
Biodiversity Landscape	The Proposed Development design would incorporate a minimum offset distance of 10m from all PRoW.
Biodiversity Landscape	Where possible, existing hedgerows, woodland, ditches and field margins would be retained. Any breaks or crossings (associated new tracks, security fencing and/or cable routes) would be designed to use existing agricultural tracks between fields and the width of any crossings would be kept to a minimum.

Environmental Factor to which the Embedded (Primary) Environmental Mitigation Measure Relates	Embedded (Primary) Environmental Mitigation Measure
Biodiversity Air quality	A minimum 20m offset distance from solar PV modules within Land Parcels A to E, to locally designated wildlife sites.
Biodiversity Air quality	A minimum 15m offset from solar PV module development to existing woodlands.
Cultural heritage	To decrease the likelihood and severity of physical and setting impacts on the scheduled monument 'moated site at Chapelgarth, 450m north east of Manor Farm', located in Land Parcel E, no solar PV modules or infrastructure would be erected within the field that the asset is located to avoid harm during the construction and operational phases.
Cultural heritage	To decrease the likelihood and severity of physical and setting impacts on the non-designated heritage asset 'Manor farm moated site' within Land Parcel E of the Site, no solar PV modules or infrastructure would be erected within the field that the asset is located during the construction and operational phases.
Noise and vibration Air quality Landscape and visual	An appropriate buffer distance between sensitive receptors such as residential properties and environmental designations will be included. This will be informed by environmental surveys and assessments, and determined as the design progresses.
Water (flood risk)	Electrical infrastructure (substations, inverters and switchgear) to be sited in locations at low risk of flooding and/or set at the necessary minimum ground levels determined by the FRA and in agreement with the relevant prescribed consultees.
Water	For dispersed hardstanding such as containerised infrastructure, runoff is to be directed to ground locally via gravel beds.
Water	Where hardstanding is concentrated, e.g., substation concrete bases, larger buildings or concentration of containers, a formal drainage strategy would be included, most likely discharging at greenfield rates to the nearby watercourse network.

Environmental Factor to which the Embedded (Primary) Environmental Mitigation Measure Relates	Embedded (Primary) Environmental Mitigation Measure
Utilities	Offsets would be implemented as required by the relevant statutory undertaker.
Land, soil and groundwater	The design and layout of the Proposed Development will minimise where possible the use of BMV agricultural land. Where possible, existing access tracks will be used, and new access tracks will avoid BMV land as far as is practical. Construction storage areas and machinery will be designed and appropriately managed to prevent spillages or waste products coming into contact with soils and groundwater, in accordance with statutory environmental protection requirements.
Land, soil and groundwater	The Solar PV module frame legs for the Solar PV modules will be designed and installed to avoid corrosion to increase the design life of the Solar PV modules, to minimise impacts on the groundwater regime.
Land, soil and groundwater	Areas of impermeable surfaces will be assessed in the FRA and designed to ensure adequate groundwater infiltration is maintained during works. This will ensure that no significant changes occur to the existing groundwater regime.
Land, soil and groundwater	The Outline Drainage Strategy will ensure that the surface water regime during construction will continue to mirror the existing surface water regime and will ensure that there is minimal effect on the existing groundwater conditions.

4.9 Assessment of likely significant environmental effects

4.9.1 The PEIR and ES will report on the likely significant environmental effects for the construction, operational (i.e., once completed and open to use, and including maintenance) and decommissioning phases of the Proposed Development.

4.9.2 The following criteria would be taken into account when determining significance:

- The receptors/resources (natural and human) which would be affected and the pathways for such effects;
- The geographic importance, sensitivity or value of receptors/resources;

- The duration (short-term, medium-term or long-term); permanence (permanent or temporary) and changes in significance (increase or decrease);
- Reversibility - whether the change is reversible or irreversible, permanent or temporary;
- Environmental and health standards (such as local air quality standards) being threatened; and
- Feasibility and mechanisms for delivering mitigating measures - Is there evidence of the ability to legally deliver the environmental assumptions which are the basis for the assessment?

4.9.3 The method for assessing significance of effects varies between environmental factors but in principle will be based on the environmental sensitivity (or value/importance) of a receptor/resource and the magnitude of change from the baseline conditions. The approach to assessing the significance of effects for each individual environmental factor assessment is outlined within **Chapter 6** and **Appendix D**.

4.9.4 Summary of effect tables that summarise the likely significant environmental effects associated with each of the environmental factors will be provided in the ES at the end of each environmental factor assessment chapter. These tables will outline sensitive receptors, additional mitigation measures and residual effects. A distinction will be made between direct, indirect, secondary, short-term, medium-term and long-term, permanent and temporary, positive and negative effects. Cumulative effects will be considered as a single coordinated assessment in the ES and delivered as a standalone ES chapter. **Chapter 7** describes the proposed assessment methodology for cumulative effects.

4.10 Opportunities for enhancing the environment

4.10.1 Where possible, the Applicant will seek to identify opportunities for enhancement within the relevant environmental factor assessments, as set out by the National Planning Policy Framework, 2024[12]. Therefore, in accordance with IEMA guidance on mitigation[13] only enhancement measures that are integral to the Proposed Development and written into the project description will be taken into account when determining the significance of effects. Other enhancement opportunities that are identified as the design or environmental assessments evolves will be reported in the PIER and ES, but they will not be taken into account when determining the significance of effects.

4.10.2 Enhancement measures will be assessed in accordance with steps set out in the NPS EN-1[8].

5. Environmental Factors Proposed to be Scoped Out of further assessment

5.1 Background

5.1.1 As part of the EIA process and based on the information available to date, there are a number of environmental factors listed within **Section 4.1**, for which likely significant environmental effects are not anticipated. This is largely due to the particular environmental aspect or matter not being relevant to the Proposed Development, or it is considered that any potential effects can be effectively controlled through the implementation of standard mitigation measures.

5.1.2 Where relevant, the proposed scoping out of an environmental factor has been undertaken in accordance with the Planning Inspectorate's Technical Advice Page for Scoping Solar Development and its 'Solar Scoping Table' (September 2024). The environmental factors proposed to be scoped out of further assessment, together with justification for that approach, are presented below.

5.2 Electric, magnetic and electromagnetic fields

5.2.1 Electric fields are produced by voltage, which is a measure of the electrical potential difference between two points. Magnetic fields are produced by current, which is a measure of the flow of electricity.

5.2.2 Electrical fields can be blocked by fences, shrubs and buildings and the intensity of the electric and magnetic fields decreases with distance from the source.

5.2.3 As referenced in NPS EN-5[10], the 1998 guidelines published by International Commission on Non-Ionizing Radiation Protection (1998)[14], state that underground cables and overhead power lines at voltages up to and including 132 kV are not capable of exceeding the International Commission on Non-Ionizing Radiation Protection exposure guidelines. The operation of the Proposed Development will use up to 400 kV underground cables.

5.2.4 The Planning Inspectorate's Technical Advice Page for Scoping Solar Development (September 2024) states that a separate chapter for Electro-Magnetic Fields (EMF) is not required. However, it does state: '*Where proposed cables are over 132kV, an EMF assessment should be provided in an appendix to the Environmental Statement. This should include the location, routing and voltages of any cables over 132kV and a risk assessment to any human and ecological sensitive receptors within the ZoI*'. It is therefore proposed to exclude electric, magnetic and electromagnetic fields as a stand-alone chapter within the ES and instead produce a stand-alone EMF assessment report, which will be appended to the ES submitted in support of the DCO application. Where relevant, this will be cross referred to within the relevant individual environmental factor assessment chapters, for example Population for human sensitive receptors, or Biodiversity for ecological receptors.

5.3 Glint and glare

5.3.1 Solar PV modules are specifically designed to absorb light rather than reflect it. Light reflecting from solar PV modules results in the loss of energy output. Solar PV modules are dark in colour due to their anti-reflective coatings and are manufactured with low-iron, ultra-clear glass with specialised coatings and textures to enable maximum absorption. The combination of these factors significantly increases electrical energy production of the panels and significantly reduces reflected rays at the same time.

5.3.2 Available studies indicate that reflections produced from solar panels are of intensity similar to or less than those produced from still water and significantly less than reflections from glass and steel.

5.3.3 There are no guidelines setting out a particular methodological approach to delivering a glint and glare assessment. NPS EN-3[9] states in Sections 2.10.102 - 2.10.106:

"*Solar panels are specifically designed to absorb, not reflect, irradiation. However, solar panels may reflect the sun's rays at certain angles, causing glint and glare. Glint is defined as a momentary flash of light that may be produced as a direct reflection of the sun in the solar panel. Glare is a continuous source of excessive brightness experienced by a stationary observer located in the path of reflected sunlight from the face of the panel. The effect occurs when the solar panel is stationed between or at an angle of the sun and the receptor.*

Applicants should map receptors qualitatively to identify potential glint and glare issues and determine if a glint and glare assessment is necessary as part of the application

When a quantitative glint and glare assessment is necessary, applicants are expected to consider the geometric possibility of glint and glare affecting nearby receptors, and provide an assessment of potential impact and impairment based on the angle and duration of incidence and the intensity of the reflection.

The extent of reflectivity analysis required to assess potential impacts will depend on the specific project site and design. This may need to account for 'tracking' panels if they are proposed as these may cause differential diurnal and/or seasonal impacts.

When a glint and glare assessment is undertaken, the potential for solar PV panels, frames and supports to have a combined reflective quality may need to be assessed, although the glint and glare of the frames and supports is likely to be significantly less than the panels."

5.3.4 In accordance with the Planning Inspectorate's Technical Advice Page for Scoping Solar Development (September 2024), it is proposed to exclude glint and glare as a stand-alone chapter within the ES and instead produce a stand-alone glint and glare assessment report, which will be appended to the ES submitted in support of the DCO application. However, a description of any relevant proposed mitigation measures and safety considerations of the Proposed Development will be included within the Proposed Development description chapter of the ES. Furthermore, if any potential likely significant

glint and glare effects are identified (for example, on PRoW or roads), these will be considered within the relevant individual environmental factor assessment chapter(s), such as Landscape and Visual or Transport and Access.

5.3.5 The detailed stand-alone glint and glare assessment will consider ground-based (roads, residential dwellings, and PRoW) and aviation (Air Traffic Control Towers, aircraft approach paths, and final sections of visual circuits) receptors. Detailed geometric analysis would be undertaken using a bespoke glint and glare model for all receptors potentially affected by the Proposed Development. The outputs of the assessment would inform the design development and landscape mitigation strategy.

5.3.6 There is no formal guidance with regard to the maximum distance at which glint and glare should be assessed. From a technical perspective, there is no maximum distance for potential reflections. The significance of a reflection, however, decreases with distance because the proportion of an observer's field of vision that is taken up by the reflecting area diminishes as the separation distance increases. Terrain and shielding by vegetation are also more likely to obstruct an observer's view at longer distances. The above parameters and extensive experience over a significant number of glint and glare assessments undertaken show that consideration of receptors within 1 km of panel areas is appropriate for glint and glare effects on roads and dwellings.

5.3.7 Therefore a sample of residential receptors and key sections of major national/regional roads identified within 1 km of the Site boundary will be considered as sensitive receptors.

5.3.8 PRoWs would be considered at a high-level without technical modelling, due to the sensitivity of the receptors (in terms of amenity and safety) being concluded to be of low significance.

5.3.9 There is no formal distance within which aviation effects must be modelled. However, in practice, concerns are most often raised for developments within 10 km of a licensed airport. Requests for modelling at ranges of 10-20 km are far less common. Assessment of aviation effects for developments over 20 km away is a very unusual requirement. Therefore, any airfields or airports within 10 km of the solar panel boundary would be considered.

5.3.10 Aviation receptors at Elvington and Breighton Airfields, Birchwood Lodge Airstrip and Wolds Gliding Club will be taken forward for technical modelling. The assessment will consider any Air Traffic Control Towers (if identified), the path of approach for landing, as well as final sections of visual circuits. The approach phase (arrival flight paths) will be considered in the estimation of impact as this is deemed to be the most sensitive phase of a flight. Departing aircraft will have the nose pointing upwards and the visibility of objects (reflective panels) located on the ground will be significantly reduced due to vertical field of view restrictions and cockpit obstruction. Therefore, departure paths will not be modelled.

5.3.11 Any predicted impacts towards the ground-based infrastructure (roads and dwellings) can likely be solved with relatively simple mitigation strategies –

the most common being the provision of screening (e.g. hedgerow planting) at the Site boundary perimeter to obstruct views of potentially reflecting panels. Where views of reflecting panels are obstructed, no effects can be experienced. Other solutions such as layout modification can be considered, but are rarely required in practice.

5.3.12 Whilst formal guidance within the UK for quantifying impacts is sparse, the industry standard is to evaluate effects on aviation receptors based on their intensity (specifically the potential for a temporary after-image) as well as their duration and operational sensitivity. Any “significant” impacts identified through the process of modelling within the impact assessment will be adequately mitigated such that any impacts cannot be considered “significant”. In practice, this means quantifying whether potential effects are possible for approaching pilots and/or air traffic controllers and, if so, demonstrating that any effects are of acceptably low intensity. Where appropriate, evaluation of effects, duration, and the origin of the glare is considered. Technical mitigation options for aviation receptors can involve modifications to the panel configuration including varying the vertical tilt, azimuth angle and panel footprint.

5.4 Heat and radiation

5.4.1 Due to the scale and nature of the Proposed Development, it is not anticipated that there would be any significant sources of heat or radiation during construction, operation or decommissioning. As there are no significant sources of heat or radiation during either construction, operation or decommissioning, there are no predicted significant effects. No mitigation is proposed given that no significant sources of heat or radiation will be present during any phase of the Proposed Development. It is therefore proposed to exclude heat and radiation from the scope of the EIA.

5.5 Human health

5.5.1 In accordance with the Planning Inspectorate’s Technical Advice Page for Scoping Solar Development (September 2024) and IEMA’s Guide to Effective Scoping of Human Health in Environmental Impact Assessment[15], it is proposed that consideration of the potential effects to human health as a result of the Proposed Development will be covered through the findings of other assessments undertaken as part of the EIA process, as follows:

- Air quality (in accordance with the Planning Inspectorate’s Technical Advice Page for Scoping Solar Development (September 2024), the human health effects from vehicle emissions and dust are considered in **Section 6.1**);
- Landscape and visual;
- Noise and vibration (in accordance with the Planning Inspectorate’s Technical Advice Page for Scoping Solar Development (September 2024), the human health effects from vehicle emissions and dust are considered in **Section 6.7**);
- Transport and access; and
- Population.

5.5.2 Each of these chapters within the EIA Scoping Report and subsequent PEIR and ES will consider the potential effects to human health within their own assessments. As described in **Section 5.3**, a detailed stand-alone glint and glare assessment will be undertaken and appended to the ES. This will consider the potential human health effects from glint and glare, and where necessary these will also be considered within the relevant environmental factor assessment chapters.

5.5.3 There is potential for the additional construction/operational workers to impact healthcare facilities in the vicinity of the Proposed Development. Although the number of construction staff is to be determined, it is estimated that 95%[16] will travel to the Site from their homes, where their own healthcare providers are based. The number of operational staff is also yet to be determined however it is anticipated that the roles will be filled by staff living within a commutable distance of the Proposed Development and therefore already registered to a healthcare provider. It is therefore anticipated that the impacts on health providers during construction and operation of the Proposed Development will not be significant.

5.5.4 As any potential human health impacts would be captured by the aforementioned assessments and there are not expected to be any significant human health impacts outside of these assessments, it is proposed that human health is not subject to stand-alone assessment and therefore a separate ES chapter is excluded from the scope of the EIA.

5.6 Major accidents and disasters

5.6.1 Guidance on the consideration of major accidents and disasters is provided by 'Major Accidents and Disasters in EIA: An IEMA Primer' (IEMA, 2020a)[17]. This focuses on the consideration of low likelihood/high consequence events which would result in serious harm or damage to environmental receptors, and which could encompass risks exacerbated by climate change. This includes accidents or disasters originating from a Proposed Development as well as external events (man-made or natural).

5.6.2 In considering the potential for significant effects from the vulnerability of the Proposed Development to risks of accidents and disasters, it is important to note that the UK already has a structured framework of risk management legislation in place. Vulnerability to major accidents and/or disasters for infrastructure and other built environment developments is covered by a wide range of other safety and non-safety-related legislation, as detailed below:

- Health and Safety at Work Act 1974[18];
- Construction (Design and Management) Regulations 2015[19];
- The Construction (Health, Safety and Welfare) Regulations 1996[20]; and
- Electricity Safety, Quality and Continuity Regulations 2002[21].

5.6.3 The risk of major accidents and disasters will be considered throughout the design process of the Proposed Development. This would include identifying any potential sensitive receptors and siting the potentially hazardous equipment, such as the grid infrastructure, at a suitable distance from them.

5.6.4 The construction, operation and decommissioning phases of the Proposed Development have the potential for limited interactions which may give rise to major accidents and/or disaster. Error! Reference source not found. presents a risk identification screening exercise of potential major accidents and disasters that would require consideration.

Table 5-1: Potential major accidents and disasters

Major accident and/or disaster	Potential receptor	Comments
Flooding	Properties Local residents	There are a small number of l land parcels within the Site which have been identified as susceptible to flooding. The Site is located within Flood Zone 2 (representing a 1 in 100 to 1 in 1000 annual probability of fluvial flooding or a 1 in 200 to 1 in 1000 annual probability of tidal flooding) and Flood Zone 3 (a greater than 1 in 100 annual probability of fluvial flooding or a greater than 1 in 200 annual probability of tidal flooding). The vulnerability of the Proposed Development to flooding and its potential to exacerbate flooding, would be covered in the FRA to be submitted in support of the DCO application as an appendix to the ES.
Aircraft disasters	Pilots	The potential for glint and glare to affect aircraft would be considered within the glint and glare assessment, which would form a technical appendix to the ES (refer to **Section 5.3** above).
Plant disease	Habitats and species	New planting may be susceptible to biosecurity issues, such as increased prevalence of pests and disease, due to source of provenance and climate change, and can potentially be spread through transport and deliveries to and from the Site. The planting design and Outline LEMP would take account of and manage biosecurity risks.

5.6.5 It should be noted that, as Battery Energy Storage Systems would not be utilised as part of the Proposed Development, battery fire is not considered to be a risk for the Proposed Development.

5.6.6 Those major accidents and disasters that are not considered within the scope of the existing technical assessment would continue to be reviewed and addressed as part of the design process. As existing regulatory regimes, design and construction techniques are well established, construction, operation and decommissioning of the Proposed Development are not

considered to add any additional risk of major accidents or disasters that could affect existing or future receptors.

5.6.7 For the selected site location and the Proposed Development, the industry standard mitigation that is typically adopted is considered to be sufficient to manage vulnerabilities to major accidents and/or disasters without the need for additional mitigation in most circumstances. It is not expected that inclusion of major accidents and disasters in the EIA scope would add any greater level of safety performance to that already established through the implementation of recognised and approved safety legislation and regulation processes. Therefore, no significant effects in relation to major accidents and disasters are anticipated during the construction, operation and decommissioning phases.

5.6.8 Furthermore, mitigation measures required to manage risks any risks that are identified as the project progresses will be included in the appropriate plans, for example the drainage strategy, Emergency Response Plan, or the Outline CEMP.

5.6.9 It is therefore proposed to exclude major accidents and disasters from the scope of the EIA. This approach is in accordance with the Planning Inspectorate's Technical Advice Page for Scoping Solar Development (September 2024).

5.7 Material assets (and waste)

5.7.1 Material assets can be defined as "substances used in each lifecycle stage of a development, with particular focus on the construction, operation and decommissioning or 'end of first life' (deconstruction, demounting, demolition and disposal) phases" (IEMA, 2020b). Material assets can include 'material' (i.e. physical resources that are used across the lifecycle of a development) and 'excavated arisings' (i.e. soil, rock, or similar resource generated by excavations).

5.7.2 Waste is defined as "any substance or object which the holder discards or intends or is required to discard" (IEMA, 2020b). The Waste Framework Directive (European Parliament and the Council, 2008[22]) definition includes any substance or object that is discarded for disposal or that has not been subject to acceptable recovery (including reuse and recycling).

5.7.3 The main impacts (changes) and effects (consequences) of materials consumption and waste disposal are presented in **Table 5-2**.

Table 5-2: Material assets (from IEMA guide to Materials and Waste in Environmental Impact Assessment)[23]

Matter	Direct impacts	Adverse effect	Applicable development phase
Materials	Consumption of resources	Depletion of resources, resulting in the temporary or permanent degradation of the natural environment.	Construction, decommissioning

Matter	Direct impacts	Adverse effect	Applicable development phase
Waste	Generation and disposal of waste (including soil/topsoil)	Reduction in landfill capacity. Unsustainable use or loss of resources to landfill resulting in the temporary or permanent degradation of the natural environment.	Construction, decommissioning

5.7.4 The indirect impacts associated with anticipated materials consumption and waste disposal (e.g. release of greenhouse gas emissions, water consumption, amenity impacts, ecological impacts, etc.) would be assessed elsewhere within the EIA. Similarly, the indirect impacts of any off-site waste management facilities and material production facilities are expected to be assessed (and where necessary, mitigated) under the planning and permitting regime for those sites and thus do not form part of an EIA for a development that uses such facilities for material supply or waste management.

5.7.5 A description of the potential streams and volumes of construction materials and waste disposal would be described within **Chapter 3** of the ES. **Section 2.6** of this EIA Scoping Report provides an initial overview of how waste would be considered in the ES. The use of materials and waste management processes would follow the waste hierarchy such that they would be reused where possible before recycling and disposal were considered. In addition to this, the Outline CEMP would set out best practice recommendations for how construction materials and waste would be managed on-site, and opportunities to recycle waste would be explored, in line with statutory requirements (such as the Environment Act 2021) to minimise waste to landfill. Where possible, development-specific commitments for sustainable resource management would be presented within the ES. As part of the Detailed CEMP, prepared by the Contractor following the making of the DCO, there would be a requirement to develop and implement a Site Waste Management Plan (SWMP) and Materials Management Plan (MMP) in advance of the construction works. An Outline DEMP would be submitted in support of the DCO application, which would set out how the waste would be managed and detail opportunities for re-use and recycling at the decommissioning stage. These plans will include commitments to relevant and appropriate measures for monitoring to ensure compliance with waste management regimes at all stages of the Proposed Development.

5.7.6 The anticipated quantities of waste are currently unknown, however the Applicant does not intend to remove significant quantities of excavated arisings from the Site during construction. There may however be a need to remove some soils from the Site for treatment or disposal, if found to be contaminated, and onsite treatment is not practicable. Where possible, soil

arisings would be balanced through a cut and fill exercise, or provision of bunds, to retain volumes on-site.

5.7.7 For the operational phase, the potential streams and volumes of materials and waste disposal would be described within the 'Description of the Proposed Development' chapter of the ES, and any waste would be managed through the Outline OEMP. This would require a SWMP to be developed as a component of the Detailed OEMP.

5.7.8 During decommissioning, the removal of any material assets and waste would be recycled or disposed of in accordance with good practice and market conditions at that time. If items can be reused or recycled, this would be the first-choice option. Details of recycling are to be included in a Detailed DEMP.

5.7.9 Taking the above into account, it is not proposed to prepare a separate material assets and waste chapter as part of either the PEIR or ES. This approach is in accordance with the Planning inspectorate's Technical Advice Page for Scoping Solar Development (September 2024).

5.8 Utilities

5.8.1 The Proposed Development has the potential to affect existing utilities infrastructure located at the Site. Given the nature of the Proposed Development, potential impacts on existing utilities assets would be limited to the construction phase. To identify any existing infrastructure constraints, a utility search covering the Site has been undertaken.

5.8.2 This utility search identified several assets within the Site boundary that would require careful consideration as the design of the Proposed Development evolves, including:

- Water pipes (clean water and wastewater);
- Telecoms cables (overhead and buried duct);
- Electrical cables (overhead and duct); and
- Drainage.

5.8.3 Further consultation will be carried out with the relevant utility companies (including Yorkshire Water, Northern Powergrid, Northern Gas Networks, BT Openreach and KCOM) to confirm the information drawn from the utility search is accurate and up to date. In addition, consideration and advice would be sought regarding separation distances and methods of construction in close proximity to each utility to avoid any risk of impact during construction of the Proposed Development. This information would be used to inform the layout of the Proposed Development and reported within the ES as embedded (primary) mitigation.

5.8.4 The Outline CEMP would include any additional mitigation measures to protect against interference with below ground utilities during construction. The Applicant would also expect to agree protective provisions with relevant statutory undertakers in order to ensure the DCO includes appropriate protections and restrictions on the Applicant's exercise of its powers for the protection of utilities.

5.8.5 Taking the above into account, it is not proposed to prepare a separate utilities chapter as part of either the PEIR or ES.

5.9 Transboundary effects

5.9.1 Regulation 32 of the EIA Regulations requires the consideration of any likely significant effects on the environment of another European Economic Association State. The consideration of transboundary effects is also detailed within the Planning Inspectorate's Advice Note Seven (2020)[24].

5.9.2 Due to the nature and location of Proposed Development, it is not anticipated that the Proposed Development would lead to potential for any likely significant effects on the environment of another European Economic Association State. Therefore, a transboundary screening matrix has not been included within this EIA Scoping Report.

6. Environmental Factors Proposed to be Scoped into Further Assessment

6.1 Air quality

6.1.1 Consultation

No consultation to inform the air quality assessment has been undertaken to date. Consultation with East Riding of Yorkshire Council Environmental Control Officer will be carried out to agree:

- The appropriate data for baseline characterisation;
- Receptor locations to be assessed in the study (such as human receptors and ecologically sensitives sites); and
- The assessment methodology.

6.1.2 Study area

Construction and decommissioning
Based on the Institute of Air Quality Management (IAQM) 'Guidance on the assessment of dust from demolition and construction v2.2' (2024), the study area for sensitive human receptors for demolition, earthworks and general construction activities will be up to 250m from the Site boundary and the study area for sensitive ecological receptors for demolition, earthworks and general construction activities will be up to 50m from the Site boundary. For trackout activities, the study area for both sensitive human and ecological receptors will be up to 50m from the edge of the roads likely to be affected by trackout[1] as per IAQM 'Guidance on the assessment of dust from demolition and construction v2.2' (2024).

Operation
There is no proposed study area for air quality. Operational phase will be scoped out from the assessment as there will be no site activities resulting in significant dust and particulate matter emissions to air and only limited vehicle movements to the Site for operation and maintenance.

6.1.3 Data sources to inform the EIA baseline characterisation

A desk-based baseline air quality review will be carried out to establish existing air quality conditions within the study area. Information on air quality will be gathered from the monitoring stations that form a part of the national and/or local networks and from the estimated background air quality maps published by the Department for Environment, Food and Rural Affairs (Defra).

[1] Trackout is defined as the transport of dust and dirt from the construction/demolition sites onto public road network, where it may be deposited and then re-suspended by vehicles using the network.

6.1.4 Surveys to inform the EIA baseline characterisation

Air quality is considered to be good in the local area (see **Section 6.1.5**) and therefore it is anticipated that on-site air quality monitoring will not be required to provide baseline data to inform the assessment.

6.1.5 Baseline conditions

The Proposed Development is located within the administrative area of East Riding of Yorkshire Council. There are currently no Air Quality Management Areas declared within East Riding of Yorkshire. Overall, air quality is considered to be good in the local area.

According to the East Riding of Yorkshire Council 2023 Air Quality Annual Status Report, East Riding of Yorkshire Council undertook automatic monitoring at seven sites and non-automatic nitrogen dioxide (NO_2) diffusion tube monitoring at 92 locations during 2022.

The nearest monitoring location is a roadside NO_2 diffusion tube location (East Riding of Yorkshire Council reference: S4) on Main Street in Sutton Upon Derwent, situated approximately 5.6km north-west from the Proposed Development. S4 NO_2 diffusion tube location was new for 2022. The measured annual average NO_2 concentration at this diffusion tube site was 11.0µg/m^3 in 2022, which was well below the annual mean NO_2 air quality objective of 40µg/m^3.

Estimated background air quality data are available from the UK-AIR website operated by Defra. The website provides estimated annual average background concentrations of NO_2, PM_{10} and $PM_{2.5}$ on a 1km^2 grid basis from Local Air Quality Management background maps. It is noted that estimated 2024 annual average background NO_2, PM_{10} and $PM_{2.5}$ concentrations at the Site were 5.3µg/m^3, 12.8µg/m^3 and 7.0µg/m^3 respectively, which were below the relevant air quality objectives (NO_2 air quality objective: 40µg/m^3; PM_{10} air quality objective: 40µg/m^3; $PM_{2.5}$ air quality objective: 20µg/m^3).

Human receptors have been identified within 250m of the Site. Six non-statutory designated sites, being LWSs have been identified within 50m of the Site, comprising:

- Kidd Lane, Rossmoor Designated and Candidate LWS;
- Intakes Lane, Rossmoor Designated and Candidate LWS;
- Breckstreet Farm Disused Airfield Designated and Candidate LWS;
- Ruddings Wood Historic LWS;
- Bracepits Wood, Melbourne Historic LWS; and
- Brickyard Farm Wood & Ponds Historic LWS.

6.1.6 Additional (secondary and tertiary) mitigation

Construction and decommissioning

Construction phase site-specific dust mitigation measures, in addition to the embedded measures, will be proposed based on the results of the pre-mitigation dust impacts assessment, which will also be applied to the decommissioning phase, where relevant. Construction and decommissioning phases mitigation measures will be outlined within

the Outline CEMP and the Outline DEMP and secured through a DCO Requirement by Detailed CEMP and DEMP.

6.1.7 Description of likely significant effects

Construction and decommissioning
Construction and decommissioning works have the potential to release dust, including fine particulate matter, which can impact nearby sensitive human and ecological receptors. Appropriate dust control measures can be highly effective for controlling emissions from potentially dust generating activities, and adverse effects can be greatly reduced or eliminated. With suitable dust mitigation measures in place, the effect of dust and particulate matter emissions during construction is likely to be 'not significant'. Construction and decommissioning traffic will comprise haulage/construction vehicles and vehicles used for workers' trips to and from the Site. The greatest potential impact on air quality due to emissions from construction phase vehicles will be in areas adjacent to the Site access and nearby road network. Based on the temporary nature of the construction and decommissioning activities, it is considered unlikely that significant numbers of vehicle movements associated with staff commuting to and from the Site will be generated to result in a significant effect on local air quality.

6.1.8 Receptors/matters to be scoped into further assessment

Receptor/Matter	Phase	Justification
Dust and particulate matter emissions resulting from Site activities (demolition, earthworks, construction and trackout), including the operation of the plant and equipment	Construction and decommissioning	Sensitive receptors are located within 250m of the Site. A qualitative, desk-based assessment of site activities is proposed to identify the type of mitigation required. The operation of site equipment and machinery during construction and decommissioning will also result in emissions to the atmosphere of exhaust gases. A qualitative, desk-based assessment is proposed to identify the type of mitigation required.
Road traffic exhaust emission (including emissions from haulage/construction vehicles	Construction and decommissioning	A screening level qualitative assessment is proposed.

and vehicles used for workers' trips to and from the Site)		Road traffic data is required to undertake the qualitative assessment, which is not yet available. However, based on the temporary nature of the construction and decommissioning activities, it is anticipated that vehicle movements associated with staff commuting to and from the Site during the construction and decommissioning phases will not have a significant effect on local air quality. This will be confirmed by the qualitative assessment.

6.1.9 Receptors/matters to be scoped out of further assessment

Receptor/Matter	Phase	Justification
Dust and particulate matter emissions resulting from the Site activities (operation of the Proposed Development, maintenance activities and any replacement of panels (if required)) and road traffic exhaust emissions during operation	Operation	Given the nature of the Proposed Development, no site activities resulting in significant emissions to air are anticipated during operation and there will only be limited movement of vehicles to the Site for maintenance and any replacement of panels (if required). The potential impacts of dust and particulate matter emissions and traffic exhaust emissions are unlikely to be significant. It is not anticipated that dust and particulate matter emissions and road

		traffic exhaust emissions during operational phase will present a significant risk to human health within the context of the Proposed Development.

6.1.10 Opportunities for enhancing the environment

The Proposed Development will produce energy from the sun, which is a clean, sustainable source of energy. It will help to reduce the energy requirements from fossil fuels, which will emit harmful air emissions, such as carbon dioxide, nitrogen dioxide, sulphur dioxide, and particulate matters. The Proposed Development contributes towards the transition to clean energy on a national scale and the reduction in harmful air emissions would be possible through phasing out fossil fuel uses.

6.1.11 Proposed assessment methodology

Construction and decommissioning

The potential construction and decommissioning activities will be assessed and reported within the PEIR and ES.

Dust and particulate matter emissions

An assessment of the likely significant effects of construction phase dust and particulate matter at sensitive receptors will be undertaken following the IAQM 'Guidance on the assessment of dust from demolition and construction v2.2' (2024), using the available information from the project team and professional judgement. The assessment will consider the risk of potential dust and particulate matter effects from the following four sources: demolition, earthworks, construction and trackout. It will take into account the nature and scale of the activities undertaken for each source and the sensitivity of the area to increases in dust and particulate matter levels to assign a level of risk. Dust risks will be described in terms of negligible, low, medium or high. Once the level of risk has been ascertained, the site-specific mitigation proportionate to the level of risk will be identified, and the significance of residual effects will be determined.

Road traffic exhaust emissions

A screening level qualitative assessment will be undertaken with reference to the Environmental Protection UK and Institute of Air Quality Management guidance (IAQM) entitled 'Land-Use Planning & Development Control: Planning for Air Quality' (2017), using professional judgement, and by considering the following information, where available:

- The number and type of road traffic and site equipment likely to be generated;
- The number and proximity of sensitive receptors to the Site and along the likely routes to be used by construction vehicles; and
- The likely duration and the nature of the construction/decommissioning activities undertaken.

6.1.12 Difficulties and uncertainties

No difficulties or uncertainties with regards the air quality assessment have been identified at this stage. It is assumed that development traffic flows during construction and decommissioning phases will be below the Environmental Protection UK and IAQM Land-Use Planning & Development Control: Planning for Air Quality screening criteria at this stage and therefore no detailed traffic emissions modelling assessment is considered to be required. The Applicant will be able to confirm whether a detailed construction/decommissioning phase traffic emissions modelling assessment is required following a review of the relevant traffic data at a later stage of the EIA process.

6.1.13 References

- Institute of Air Quality Management (IAQM) Guidance of the Assessment of Dust from Demolition and Construction (Version 2.2). [Online]. Available at: https://iaqm.co.uk/wp-content/uploads/2013/02/Construction-Dust-Guidance-Jan-2024.pdf
- East Riding of Yorkshire Council 2023 Air Quality Annual Status Report (ASR). [Online]. Available at: https://downloads.eastriding.org.uk/corporate/pages/air-quality-monitoring/pdfs/Air%20Quality%20Annual%20Status%20Report%20(ASR)%202023.pdf
- Department for Environment, Food and Rural Affair (Defra) Background Mapping Data for Local Authorities-2018. [Online]. Available at: https://uk-air.defra.gov.uk/data/laqm-background-maps?year=2018
- Environmental Protection United Kingdom and Institute of Air Quality Management Land-Use Planning and Development Control: Planning for Air Quality. [Online]. Available at: https://www.iaqm.co.uk/text/guidance/air-quality-planning-guidance.pdf

6.1.14 Scoping questions

- Do you agree with the proposed study areas for the air quality assessment?
- Do you agree that the data sources listed to inform the air quality baseline characterisation are appropriate and no on-site air quality monitoring is required to provide baseline data to inform the assessment?
- Are any receptors not identified that you would like to see included in the air quality assessment?
- Do you agree with the proposed additional (secondary and tertiary) mitigation measures and is this mitigation appropriate?
- Do you agree with the receptors/matters that are proposed to be scoped in and out of further assessment?
- Do you agree with the proposed air quality assessment approach?

6.2 Biodiversity

6.2.1 Consultation

A robust consultation process will be undertaken, and to date the following bodies have been approached for their comments and feedback:

- Natural England
- East Riding Yorkshire Council
- Royal Society for the Protection of Birds (RSPB)
- Yorkshire Wildlife Trust

Natural England have been contacted through their Discretionary Advice Service (DAS) for comments on an early draft version of the non-breeding bird surveys (included in **Appendix K**), principally with regards to survey scope and methods. Comments provided by Natural England have not been fully addressed in this document, due to these comments being received in November 2024. Consideration will be given to all comments provided by Natural England in the PEIR.

6.2.2 Study area

The survey and assessment study area includes the Site boundary plus appropriate buffer zones, which vary per receptor. Buffers have been decided per ecological feature, in accordance to best practice (CIEEM, 2018), as described below:

Designated sites

- Baseline data searches for non-statutory designated sites within 1km of the Site boundary, extended to 2km for statutory designations (SSSI, LNR etc.) and 10km for internationally important sites (SPAs, SACs and Ramsar sites). The study area will include assessment of any designated features of the protected sites, and functionally linked land where appropriate.

Habitats

- The survey study area for the Habitat Survey, is the entire Site and includes the Site boundary and any habitats adjacent (up to 30m from the Site boundary).

Species

- Baseline data searches for all species will include the Site and a minimum of a 1km buffer.
- **Plants**: Where further surveys are required for rare or notable plants, hedgerows or invasive species, this will include the Site boundary, considering any habitats adjacent (up to 30m from the Site boundary).
- **Invertebrates**: A desk study extending up to a 2km buffer to determine the species and habitats likely to be considered important for invertebrates. followed by an assessment if these habitats are present on Site. Targeted invertebrate surveys may be required if a significant impact to those important habitats is considered likely.
- **Fish**: an initial desk study focusing on the river basin areas. Targeted surveys may be required on Site if a significant impact to those important habitats is considered likely.
- **Amphibians**: Assessment of ponds for Great Crested Newts (GCN), including desk study will include the entire Site and a 500m buffer. Surveys of ponds will be undertaken within 250m of the Site boundary.

- **Reptiles**: Presence/absence surveys will include the entire Site, including the Site boundary, considering suitability of habitats in the wider area (up to 500m from the Site boundary).
- **Birds**: The survey area for breeding birds will be the entire Site and a 100m buffer. The survey area for wintering birds is the entire Site and a 600m buffer.
- **Bats**: the study area for bats will include an assessment of core sustenance zones, up to 6km from the Site boundary. Suitability of habitats in the wider landscape will be considered in line with the core sustenance zones.
  The survey area for bat activity (foraging/ commuting) is the entire Site, including the Site boundary and adjacent habitats (up to 20m from the Site boundary).
  The survey area for preliminary bat roost assessments is all trees and structures within the entire Site, the Site boundary, and adjacent habitats (up to 20m from the Site boundary).
- **Badger**: The study area will consider the impacts to badger and badger territories, up to 2km from the Site boundary. Badger survey will comprise the entire Site, the Site boundary and up to a 30m buffer.
- **Water vole**: The study area will consider the status of water voles in the local area and up to 200m from the Site boundary.
- **Otter**: The study area will consider potential habitat for otter within the entire Site and adjacent habitats and the local area up to a 1km buffer. The survey area for otter will comprise the Site boundary and up to a 200m buffer.

6.2.3 Data sources to inform the EIA baseline characterisation

In accordance with best practice (CIEEM, 2018), the proposed assessment scope has been based on:

- A baseline data search from North and East Yorkshire Ecological Data Centre, which included a search for non-statutory designated sites and protected species records within 1km of the Site boundary, extended to 2km for statutory designations (SSSI, LNR etc.) and 10km for internationally important sites (SPAs, SACs and Ramsar sites).
- Ecology surveys undertaken in 2023-2024 (see **Section 6.2.4** below for more details). Please note that the area of search for underground grid connection cable has not been surveyed to date and is excluded from all current survey information.

6.2.4 Surveys to inform the EIA baseline characterisation

The following surveys of the Site have been undertaken between 2023 and 2024, noting that access to the area of search for underground grid connection cable has not yet been finalised and therefore has not been surveyed to date but will be considered in additional surveys (see below).

- **Habitats**: A survey of plant communities and habitats on the Site (excluding the area of search for underground grid connection cable) has been undertaken by Avian Ecology Ltd. between August 2023 and June 2024. The survey report is included in **Appendix F**.
- **Protected Species**: Surveys to identify habitats for protected species within the Site boundary (excluding the area of search for underground grid connection cable) were

undertaken by RSK Biocensus in May and June 2024. This included an assessment of ecological constraints, such as habitat for protected species including Great crested newts, reptiles, birds, bats, badgers, water vole and otter.

- **Amphibians**: Habitat Suitability Index (HSI) and GCN eDNA surveys of ponds within the Site boundary (excluding the area of search for underground grid connection cable) were undertaken in May 2023 and June 2024. The results of these surveys are shown in **Appendix I** and **Appendix L, Figure 2**.
- **Birds**: Ornithology surveys of the Site (excluding the area of search for underground grid connection cable) were undertaken in 2023 and 2024. Breeding bird surveys were undertaken between April and June 2023 and May to July 2024; results of these surveys can be found in **Appendix J**. Non-breeding bird surveys were undertaken between October 2023 and April 2024; results of these surveys can be found in **Appendix K**. A second year of non-breeding bird surveys are planned to be undertaken between August 2024 and May 2025.
- **Bats**: Bat activity surveys (static monitoring) and nighttime bat walkovers were undertaken in Spring (May 2024), Summer (July 2024) and Autumn (September 2024). This involved deployment of static bat detectors in various habitats across the Site (excluding the area of search for underground grid connection cable).

The additional surveys are anticipated to be undertaken in 2024/2025. These surveys will be undertaken in areas outlined in the study area section above (**Section 6.2.2**). The following surveys are currently anticipated to be required:

- **Habitats**: a habitat survey will be undertaken to determine the habitats present on site, including an assessment of habitat suitability for protected and notable species. Further habitat surveys such as a National Vegetation Classification survey may be targeted to important habitats, if required.
- **Hedgerows** (if required): a survey of any species-rich hedgerow that is due to have sections removed (whether permanently or temporarily) would be subject to further hedgerow survey to assess its ecological importance under the Hedgerows Regulations 1997, as well as to help inform mitigation and enhancement;
- **Biodiversity Net Gain**: a Biodiversity Net Gain assessment will be undertaken for the Site, to ensure the Proposed Development achieves a minimum of 10% net gain.
- **Plants**: Further botanical assessment of the Site to identify potential notable species and habitats of principal importance, based on the potential for biodiversity importance and level of impact, potentially including surveys for notable aquatic plants, notable arable plants and NVC plant community surveys;
- **Invertebrates**: Initial assessment to include a desk-based assessment of designated sites, biological records and any important invertebrate area designations, to determine which invertebrate assemblages are considered to be important, the habitat requirements of these important assemblages and the scale of the impact to these ecological features. This will allow an appropriate survey method to be devised, to provide an appropriate baseline condition, to assess the potential impacts to invertebrates in the ES chapter.
- **Fish**: Further fish surveys dependent on the extent of water crossing points once confirmed;

- **Amphibians**: Habitat suitability assessment and eDNA assessment of all ponds within 250m of the area of search for underground grid connection cable;
- **Reptiles**: Presence/absence surveys in areas of suitable habitat are proposed.
- **Birds**: Further targeted non-breeding bird surveys including nocturnal surveys of the Site boundary;
- **Bats**: preliminary bat roost assessment of trees/structures along the area of search for underground grid connection cable.

  Bat roost surveys (if required) including hibernation surveys, internal building/structure inspections (if access facilitated), aerial tree climbing and emergence surveys. These will only occur if any trees and/or structures could potentially be directly or indirectly impacted by the construction of the Proposed Development and/or area of search for underground grid connection cable, although it is currently envisaged this will not occur.
- **Badger**: Badger survey within the entire Site and Site boundary, including the area of search for underground grid connection cable);
- **Water Vole and Otter**: Water vole and otter surveys, once the extent of watercourse crossing points are confirmed;

6.2.5 Baseline conditions

The existing ecological baseline is based on both desk and field-based studies undertaken to date (see **Sections 6.2.3** and **6.2.4** above). This section is ordered with the following headings:

- Designated sites (statutory and non-statutory)
- Habitats
- Species (Plants, Invertebrates, Fish, Amphibians, Reptiles, Birds, Bats, Badgers, Water vole, Otter, other species.

Statutory designated sites

<u>International statutory sites</u>

There are three international statutory sites within 10km of the Site boundary:

- Lower Derwent Valley SAC, SPA, Ramsar is located adjacent to the area of search for underground grid connection cable area of the Site. The area of search for underground grid connection cable is visible on **Appendix A**.
- River Derwent SAC is located approximately 1.5km west of the Site boundary
- Skipwith Common SAC is located 4.7km west of the Site boundary

The Lower Derwent Valley SAC SPA and Ramsar is designated for its lowland meadows, wet woodlands and otter, breeding and non-breeding birds and invertebrate assemblage.

The River Derwent SAC is designated for river habitats with River Water-crowfoot *(Ranunculus fluitans),* Sea lamprey (*Petromyzon marinus),* River lamprey (*Lampetra fluviatilis),* Bullhead (*Cottus gobio) and* Otter.

Skipwith Common SAC is designated for its heath habitats.

The protected sites are also designated as SSSI, with additional designated features which will be considered as part of any future assessment.

National statutory sites

There are seven national statutory sites located within 2km of the Site boundary. These are shown in **Appendix L, Figure 1A**:

- Pocklington Canal SSSI, located within the area of search for underground grid connection cable. Designated for birds, wetland invertebrate assemblages and otter.
- Melbourne and Thornton Ings SSSI is located adjacent to the area of search for underground grid connection cable . Designated for aggregations of breeding and non-breeding birds, wetland habitats, otter, and wetland invertebrates.
- Lower Derwent Valley National Nature Reserve (NNR) is located approximately 155m to the north and west of the Site. This is designated for, Biodiversity Action Plan (BAP) species, birds, landscape features such as the pattern and structure of existing fields, habitats and notable plant species, invertebrates and otter.
- White Carr Meadow SSSI is located approximately 315m northeast of the area of search for underground grid connection cable area and is designated for grassland habitats.
- Derwent Ings SSSI is located approximately 1.1km west of the Site boundary and is designated for wetland habitats, plant assemblages, invertebrate assemblages and aggregations of breeding and non-breeding birds.
- The River Derwent SSSI is located approximately 1.5km west of the Site boundary and is designated for river habitats, invertebrate assemblages, aggregations of breeding and non-breeding birds and otter.
- Allerthorpe Common SSSI is located approximately 1.6km north of the area of search for underground grid connection cable area and is designated for lowland dry heath.

Non-statutory designated sites

There is one non-statutory designated site located entirely within the Site boundary, and three located adjacent to the Site boundary. There are an additional six non-statutory designed LWS sites, and one Important Invertebrate Area within 1km of the Site boundary: This is shown in **Appendix L, Figure 1B**.

East Yorkshire LWS - Designated and Historic LWS

- Hedge, Sand Lane, East Moor LWS is located within the area of search for underground grid connection cable area of the Site boundary and contains good quality hedgerows.
- Ruddings Wood is a Historic LWS within the Site boundary, and Thornton's Wood is an Historic LWS, located within the area of search for underground grid connection cable area of the Site boundary assumed to be a woodland, however, insufficient information is available to designate the sites as LWS.
- Kidd Lane, Rossmoor LWS is located adjacent to the north of the Site boundary and contains good quality hedgerows.
- Intakes Lane, Rossmoor LWS is located adjacent to the north of the Site boundary and contains good quality hedgerows.

- Breckstreet Farm Disused Airfield LWS is located adjacent to the east of the Site boundary and contains good quality semi-natural neutral grassland.
- White Carr LWS is located 105m northeast of the area of search for underground grid connection cable area of the Site boundary, and contains good quality semi-improved grassland, reedbed and woodland.
- Farm Wood, New Covert and Park Wood LWS is located approximately 75m north of the Site boundary and contains field evidence of features of ancient or long-standing acid woodland.
- Bubwith-Holme-On-Spalding-Moor Disused Railway Line LWS is located approximately 175m south of the Site boundary and contains good quality established semi-natural verges.
- Melbourne Grange LWS is located 430m north of the Site boundary and contains nutrient rich standing water.
- Walloway Fields LWS is located 500m north of the Site boundary and contains a mosaic of semi-natural habitats including grassland and wetland.
- Pocklington Canal LWS is located 965m north of the Site boundary and is a stream that originates from calcareous substrata in the Yorkshire Wolds Natural Area and evidence of shining pondweed (*Potamogeton lucens*), a rare aquatic species in the East Riding of Yorkshire.

Important Invertebrate Areas

- Yorkshire Rivers Important Invertebrate Area is located within the Site boundary. Important Invertebrate Areas are a non-statutory designation, where it is reported that the area provides habitat for nationally or internationally significant invertebrate populations.

Habitats

Biological Records

The baseline data search has listed one area of ancient semi-natural woodland within 1km of the Site boundary, located approximately c. 355m north of the Site boundary.

Other priority habitats with records located within or adjacent to the Site boundary include:

- Deciduous woodland located both within the Site boundary and in the surrounding approximately 1km buffer
- Coastal and floodplain grazing marsh is located both within the Site boundary and in the surrounding approximately 1km buffer
- Lowland meadows are located approximately 226m outside the Site boundary
- Good quality semi-improved grassland is located approximately 421m outside the Site boundary
- Traditional orchard is located approximately 158m outside the Site boundary
- Reedbeds are located approximately 878m outside the Site boundary
- Lowland fens are located approximately 944m outside the Site boundary
- Lowland meadows are located approximately 968m outside the Site boundary

The Site predominantly consists of agricultural fields (mostly arable with some grassland) interspersed with hedgerows, ditches, small woodland blocks and farm access tracks. The

hedgerows within the Site boundary range between dense tall vegetation (shrub and tree species) and thin lines of vegetation with sporadic shrubs and trees present. The fields are bordered by a mix of hedgerows, wet ditches and some major, named drains and dikes.
Habitats of Principal Importance potentially present on site include hedgerows, ponds, arable field margins, lowland mixed deciduous woodland and rivers.
The loss of non-priority habitats will be considered as part of the Biodiversity Net Gain assessment based on the commitments to achieving at least 10% biodiversity net gain.

Protected and notable species

Invertebrates

The baseline data search returned records of ten notable invertebrate species within 1km of the Site. Additionally, the baseline data search for the area of search for underground grid connection cable returned records of twenty notable invertebrate species within 1km of the area of search for underground grid connection cable, including white-clawed crayfish (*Austropotamobius pallipes*). The Yorkshire Rivers Important Invertebrate Area is located within the Site boundary. Designated sites in the study area include important invertebrate assemblages within the designated features. Watercourses and ditches potentially provide habitat for these invertebrate assemblages.

Fish

The baseline data search returned two known records of fish species within 1km of the Site, namely European eel (*Anguilla anguilla).* Additionally, brown/sea trout (*Salmo trutta*) was recorded within 1km of the area of search for underground grid connection cable area of the Site boundary only. However, sea lamprey (*Petromyzon marinus)* and river lamprey (*Lampetra fluviatilis)* appear as a designated feature on one of the international designated sites, namely the River Derwent SAC.

To date, no fish surveys have been completed. However, there are several named watercourses which run through the central portion of the area, which may support populations of fish.

Amphibians

The Great Crested Newt Presence or Absence (eDNA) Survey Report is included in **Appendix I**. The baseline data search returned records of GCN within 1km of the Site.
A total of 89 ponds were identified within 250m of the Site boundary, based on OS maps and aerial imagery. Access was not granted to 56 of these ponds. Three were found to not be present during the site visit. 30 ponds were accessed for survey, 14 of these were dry at the time of the survey. The remaining 16 ponds were subject to GCN eDNA survey and HSI assessment. Of the 16 ponds surveyed, 3 provided a positive eDNA result, indicating that GCN are present in the local area, and potentially on site. (Avian Ecology 2024b)
The baseline data search returned records of two common amphibian species within 1km of the Site boundary: common toad (*Bufo bufo*) and smooth newt (*Lissotriton vulgaris*).

Reptiles

The baseline data search returned no known records of reptile species within 1km of the Site boundary. Most of the habitat within the Site boundary (excluding the area of search for underground grid connection cable, as this has not yet been surveyed), is unsuitable for reptiles, comprising large areas of monoculture arable land. However, connecting areas of

woodland, scrub, hedgerow bases, rough grassland and spoil heaps/log piles could support common reptiles.
Presence/absence surveys are recommended in areas of suitable habitats (such as field margins, woodland, scrub, etc.) that would be impacted.

Birds

The baseline data search returned records of 39 bird species within 1km of the Site boundary. Four of which were recorded within 1km of the area of search for underground grid connection cable area of Site boundary only, namely; Curlew (*Numenius arquata*), Marsh tit (*Poecile palustris*), Sedge warbler (*Acrocephalus schoenobaenus*) and Stock dove (*Columba oenas*).

Schedule 1 of the Wildlife and Countryside Act 1981
Nine are listed in Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) (some species are on more than one list), these include;

- Barn owl (*Tyto alba*)
- Cetti's warbler (*Cettia cetti*)
- Hen harrier (*Circus cyaneus*)
- Kingfisher (*Alcedo atthis*)
- Merlin (*Falco columbarius*)
- Quail (*Coturnix coturnix*)
- Red kite (*Milvus milvus*)
- Whimbrel (*Numenius phaeopus*)
- Whooper swan (*Cygnus cygnus*)

Section 41 of the NERC Act 2006
Fourteen are listed in Section 41 of the NERC Act 2006 (some species are on more than one list), these include;

- Bullfinch (*Pyrrhula pyrrhula*)
- Corn bunting (*Emberiza calandra*)
- Cuckoo (*Cuculus canorus*)
- Curlew
- Grey partridge (*Perdix perdix*)
- Hen harrier
- Lapwing (*Vanellus vanellus*)
- Linnet (*Linaria cannabina*)
- Marsh tit
- Reed bunting (*Emberiza schoeniclus)*
- Skylark (*Alauda arvensis*)
- Song thrush (*Turdus philomelos*)
- Tree sparrow (*Passer montanus*)
- Willow tit (*Poecile montanus*)

- Yellow wagtail (*Motacilla flava*)
- Yellowhammer (*Emberiza citronella*)

Red list of Birds of Conservation Concern
Fifteen species are included on the red list of Birds of Conservation Concern (species listed below are on more than one list), these include;

- Corn bunting
- Cuckoo
- Curlew
- Greenfinch (*Chloris chloris*)
- Grey partridge
- Hen harrier
- Lapwing
- Linnet Marsh tit
- Merlin
- Skylark
- Swift (*Apus apus*)
- Tree sparrow
- Whimbrel
- Willow tit
- Yellow wagtail
- Yellowhammer

Amber list of Birds of Conservation Concern
Sixteen species are included on the amber list of Birds of Conservation Concern, these include;

- Bullfinch
- Common tern (*Sterna hirundo*)
- Kestrel (*Falco tinnunculus*)
- Mallard
- Moorhen (*Gallinula chloropus*)
- Oystercatcher (*Haematopus ostralegus*)
- Quail
- Reed bunting
- Rook (*Corvus frugilegus*)
- Sedge warbler (*Acrocephalus schoenobaenus*)
- Song thrush
- Stock dove (*Columba oenas*)
- Tawny owl (*Strix aluco*)
- Wheatear (*Oenanthe oenanthe*)

- Whitethroat (*Curruca communis*)
- Whooper swan
- Willow warbler (*Phylloscopus trochilus*)
- Woodpigeon (*Columba palumbus*)

EC Birds Directive Annex 1
Three species are included on the EC Birds Directive Annex 1, these include;

- Kingfisher
- Red kite
- Common tern

The Site contains suitable habitat for breeding birds, particularly ground-nesting birds. The breeding bird survey report has been included in **Appendix J.** Breeding evidence for twenty-two Notable Species was recorded within the Site, which included:

- Eleven Red List species (grey partridge, lapwing, curlew, skylark, mistle thrush (*Turdus viscivorus*), tree sparrow, house sparrow (*Passer domesticus*), yellow wagtail, linnet, corn bunting and yellowhammer);
- Eleven Amber List species (curlew, tawny owl, rook, willow warbler, whitethroat, wren (*Troglodytes troglodytes*), song thrush, dunnock (*Prunella modularis*), pied wagtail (*Motacilla alba yarellii*), meadow pipit (*Anthus pratensis*) and reed bunting);
- Fourteen are listed as rare and most threatened species under Section 41 (S41) of the Natural Environment and Rural Communities (NERC) Act (2006) (grey partridge, lapwing, curlew, skylark, song thrush, mistle thrush, tree sparrow, house sparrow, dunnock, yellow wagtail, linnet, corn bunting, yellowhammer and reed bunting).
- Eight species recorded listed under the East Riding of Yorkshire LBAP (curlew, grey partridge, skylark, tree sparrow, yellow wagtail, linnet, yellowhammer and corn bunting).

Non-breeding bird surveys were undertaken in winter 2023-2024, the survey report is included as **Appendix K**. The appendix should be referred to, for a full list of species recorded. The following species associated with the nearby statutory designated sites were recorded:

- Black-headed Gull (*Chroicocephalus ridibundus*)
- Barn owl
- Common gull (*Larus canus*)
- Curlew
- Little egret (*Egretta garzetta*)
- Goosander (*Mergus merganser*)
- Greylag goose (*Anser anser*)
- Golden plover (*Pluvialis apricaria*)
- Grey Heron (*Ardea cinerea*)
- Herring Gull (*Larus argentatus*)
- Red kite

- Lapwing
- Lesser black-backed gull (*Larus fuscus*)
- Mallard (*Anas platyrhynchos*)
- Marsh harrier (*Circus aeruginosus*)
- Oyster catcher
- Pink-footed goose (*Anser brachyrhynchus*)
- Short-eared owl (*Asio flammeus*)
- Snipe (*Gallinago gallinago*)
- Shelduck (*Tadorna tadorna*)
- Whimbrel

Plants

The baseline data search returned eleven known records of rare plants species within 1km of the area of search for underground grid connection cable area of Site boundary, these include:

- Lesser water-plantain (*Baldellia ranunculoides*)
- Rye brome (*Bromus secalinus*)
- Bladder-sedge (*Carex vesicaria*)
- Corn marigold (*Glebionis segetum*)
- Opposite-leaved pondweed (*Groenlandia densa*)
- Bluebell (*Hyacinthoides non-scripta*)
- Field gromwell (*Lithospermum arvense*)
- Pale forget-me-not (*Myosotis stolonifera)*
- Flat-stalked pondweed (*Potamogeton friesii*)
- Lesser spearwort (*Ranunculus flammula*)
- Corn spurrey (*Spergula arvensis*)

Bats

The baseline data search returned three species of bats within 1km of the Site boundary, namely whiskered bat (*Myotis mystacinus*), common pipistrelle (*Pipistrellus pipistrellus*) and brown long-eared bat (*Plecotus auritus*) within 1km of the Site boundary.

The baseline data search returned six species of bats within 1km of the area of search for underground grid connection cable area of the Site boundary. This includes those listed above as well as daubenton's bat (*Myotis daubentonii*), noctule (*Nyctalus noctula*), and soprano pipistrelle (*Pipistrellus pygmaeus*).

A scoping ground level tree roost assessment has been completed within the Site boundary and the results are currently being compiled. The static monitoring within the Site boundary completed to date is in the process of being analysed. The site provides habitat for foraging and commuting bats, and roost potential within the trees.

Hazel dormice

There are no known records of hazel dormice within 1km of the Site boundary.

Hedgerows within the Site were considered to provide some suitability for hazel dormice, although many were species-poor, and woodland was generally sparse and fragmented, so

foraging opportunities were limited. Therefore, based on the habitat present and the Site being outside the recorded natural range for hazel dormice, they are considered to be absent from the Site.

Water voles and otters

The baseline data search returned records of water vole and otter within 1km of the Site boundary.
Several of the streams and ditches within the Site boundary provide suitable habitat for water voles and otter. Many of the watercourses are small and isolated and therefore are only likely to be used by otter for foraging and commuting as part of a much larger territory or home range.
However, otter appears as a designated feature across several of the international statutory sites, namely, Lower Derwent Valley SAC, River Derwent SAC and national statutory sites such as; Melbourne and Thornton Ings SSSI, Lower Derwent Valley National Nature Reserve, Pocklington Canal SSSI, River Derwent SSSI.

Badgers

The baseline data search returned records of badger within 1km of the Site boundary. Badger setts were identified within the Site boundary during the constraint's walkover survey.

Other species

The baseline data search returned records of brown hare (*Lepus europaeus*) and western European hedgehog (*Erinaceus europaeus*) within 1km of the Site boundary.

The surveys to date have not recorded these species within the Site boundary; however, habitats within the Site boundary, including log piles, scrub, woodland, grassland, and arable, were considered suitable to support them.

6.2.6 Additional (secondary and tertiary) mitigation

Construction

- Production and implementation of the Outline LEMP will include measures that will offset significant effects on legally protected species whilst also delivering a significant gain in biodiversity. The Outline LEMP will consider and incorporate where required, the recommendations arising from the results of ongoing surveys.
- Production and implementation of an Outline CEMP will include measures to safeguard ecological receptors during construction, following the results of ongoing surveys.
- Pre-construction surveys for any mobile species on site, such as badger, bats and water vole will be undertaken as part of any precautionary working methods implemented on site.
- Natural England Licence(s) will be sought for any impacts to protected species as required. The licencing process requires mitigation measures and specific methods

to be provided during the application process and provides a legal framework to ensure implementation on site.

Operation

- Continued adherence to and implementation of the Detailed LEMP and Detailed OEMP (which would be prepared substantially in accordance with the Outline LEMP and Outline OEMP) shall be followed including implementing measures as necessary from the results of ongoing surveys. These documents will provide detail of any long-term management and monitoring of ecological features that will be required.

Decommissioning

- The potential impacts from decommissioning (removal of solar modules) will be similar to the potential impacts during construction. An Outline DEMP will include measures to safeguard ecological receptors during decommissioning following the results of ongoing surveys; and
- Pre-works surveys for any mobile species on site, such as badger, bats and water vole will be undertaken as part of any precautionary working methods implemented on site.

6.2.7 Description of likely significant effects

Habitat loss for important ecological features

Habitat loss describes the destruction or removal of habitat, such as removal of trees, or grassland. It is a direct impact on habitats, that are located within Site boundary.

Habitat loss may have wider implications on species populations, than the specific area of habitat impacted, e.g. the loss of foraging habitats for bats may affect the population of bats in the local area, that rely on the foraging habitat. The zone of influence would therefore be dependent on the species or populations impacted.

Potential effects of the habitat loss will be considered in the assessment.

Habitat degradation for important ecological features

Habitat degradation is the degradation of habitat condition, reducing the quality of habitat, making it less suitable to support species, or supporting fewer species. This may occur on- or off-site, if the effects extend outside the Site boundary (e.g. lighting overspill, noise, vibration, pollution, dust, silt etc.).

Potential effects of habitat degradation will be considered in the assessment.

Habitat Fragmentation of important ecological features

The fragmentation of habitat occurs where a body of continuous habitat is split into smaller pieces, reducing the ability of the species present from utilising the entire habitat, either by installing barriers to movement, or habitat degradation. For example, installing lighting on a section of hedgerow may cause a barrier to foraging bats from crossing the lighted area, potentially separating the bats from the remaining habitat on the other side of the lit area.

Potential effects of habitat fragmentation will be considered in the assessment.

Ecosystem Impacts to important ecological features
A combination of the impacts identified above, habitat loss, degradation and fragmentation, may have wider implications to ecosystems. This is particularly considered in association with designated sites, and features associated with the sites.
The ecosystems of designated sites that are located off site, are potentially impacted by a combination of habitat loss, degradation and fragmentation caused by development of the Site, and cumulative impacts of development in the wider area.
Potential effects to ecosystems, particularly in relation to designated sites will be considered in the assessment.

6.2.8 Receptors/matters to be scoped into further assessment

Receptor/Matter	Phase	Justification
Habitats Sites – Lower Derwent Valley SAC/SPA/Ramsar	Construction, operation and decommissioning	Part of the Lower Derwent Valley is located adjacent to the area of search for underground grid connection cable area, designated for breeding and non-breeding birds, lowland hay meadows, alluvial flood meadow, alluvial woods, otter and wetland invertebrate assemblages. This site is avoided by the current Proposed Development design and will be subject to a Habitats Regulations Assessment (HRA).
Habitats Sites – River Derwent SAC	Construction, operation and decommissioning	River Derwent SAC is located approximately 1.5km west of the Site boundary and is designated for fish specifically sea lamprey, river lamprey and bullhead, otter and watercourses with *Ranunculus fluitantis*. This site will be considered further and included in a HRA if required.
Statutory Designated Sites – Pocklington Canal SSSI	Construction, operation and decommissioning	Pocklington Canal SSSI is located within the area of search for underground grid connection cable within the Site boundary and is designated for breeding birds, invertebrate

		assemblages and otter. This site is potentially situated within the catchment of the Proposed Development and therefore will be considered further.
Statutory Designated Sites – Melbourne and Thornton Ings SSSI	Construction, operation and decommissioning	Melbourne and Thornton Ings SSSI is located adjacent to the area of search for underground grid connection cable within the Site boundary and is designated for breeding birds, non-breeding birds, otter, several lowland habitats, wet woodland and dragonfly assemblages. Further investigation is required to determine whether the Proposed Development would impact the species associated with this SSSI.
Statutory Designated Sites – Lower Derwent Valley NNR	Construction, operation and decommissioning	Lower Derwent Valley NNR is located approximately 155m to the north and west of the area of search for underground grid connection cable area within the Site boundary and is designated for breeding, non-breeding and migrating birds, archaeological and historical features among others (see details in **Section 6.2.5**). The farmland within the Site may provide suitable habitat for bird species associated with the NNR and the Site may be hydrologically linked to the NNR. Further investigation is required to determine whether the Proposed Development would impact the species associated with this NNR.

Statutory Designated Sites – White Carr Meadow SSSI	Construction, operation and decommissioning	White Carr Meadow SSSI is located approximately 315m northwest of the area of search for underground grid connection cable area within the Site boundary and has been appointed a SSSI due to lowland neutral grassland (MG4). Further investigation is required to determine whether the Proposed Development could impact this SSSI.
Statutory Designated Sites – Derwent Ings SSSI	Construction, operation and decommissioning	Derwent Ings SSSI is located approximately 1.1km west of the Site boundary and is designated for breeding and non-breeding birds, invertebrate assemblages, vascular plant assemblages and various habitat types. The farmland within the Site may provide suitable habitat for bird species associated with the SSSI. Further investigation is required to determine whether the Proposed Development would impact the species associated with this SSSI.
Statutory Designated Sites – River Derwent SSSI	Construction, operation and decommissioning	River Derwent SSSI is located approximately 1.5km west of the Site boundary and is designated for breeding and non-breeding birds, otter, dragonfly assemblages, river supporting habitat and rivers and streams. The farmland within the Site may provide suitable habitat for bird species associated with the SSSI. The site is likely within the catchment of the River Derwent, so is hydrologically linked. Further investigation is required to

		determine whether the Proposed Development would impact the species associated with this SSSI.
Non-Statutory Designations – Yorkshire Rivers Important Invertebrate Area	Construction, operation and decommissioning	The Yorkshire Rivers Important Invertebrate Area covers much of Yorkshire and is partially present on site. Impacts to the Important Invertebrate Area will need to be considered further.
Non-Statutory Designations – Hedge, Sand Lane, East Moor LWS	Construction, operation and decommissioning	Hedge, Sand Lane, East Moor LWS is located entirely within the area of search for underground grid connection cable area within the Site boundary and contains good quality hedgerows. This site will require further consideration during the design phase to fully determine the level of impact to the LWS.
Non-Statutory Designations – Kidd Lane, Rossmoor LWS	Construction, operation and decommissioning	Kidd Lane Rossmoor LWS is located adjacent to the Site boundary and contains good quality hedgerows along Kidd Lane. This site will require further consideration during the design phase, to fully determine the level of impact to the site.
Non-Statutory Designations – Breckstreet Farm Disused Airfield LWS	Construction, operation and decommissioning	Breckstreet Farm Disused Airfield LWS is located adjacent to the Site boundary and contains good quality semi-natural neutral grassland. This site will require further consideration during the design phase, to fully determine the level of impact to the site.
Non-Statutory Designations – Farm	Construction, operation and decommissioning	This LWS is located 75m from the nearest parcel of land within the Site. the LWS

Wood, New Covert and Park Wood LWS		contains features of ancient or long-standing acid woodland. This site will require further consideration during the design phase, to fully determine the level of impact to the site.
Non-Statutory Designations – Bubwith - Holme-On-Spalding-Moor Disused Railway Line LWS	Construction, operation and decommissioning	This site is located within approximately 175m to the south of the site. This site contains good quality established semi-natural verges. This site will require further consideration during the design phase, to fully ensure appropriate mitigation is implemented to avoid impacts as required.
White Carr LWS	Construction, operation and decommissioning	This LWS is located approximately 105m north of the area of search for underground grid connection cable. The LWS includes good quality semi-improved grassland, reedbed and woodland. This site will require further consideration during the design phase, to fully ensure appropriate mitigation is implemented to avoid impacts as required.
Non-Statutory Designations – Intakes Lane, Rossmoor LWS	Construction, operation and decommissioning	Intakes Lane, Rossmoor LWS is located adjacent to the site, along 320m of the Site boundary and contains good quality hedgerows. This LWS will require further consideration during the design phase, to fully determine the level of impact to the site.
Non-Statutory Designations – Melbourne Grange LWS	Construction, operation and decommissioning	This LWS is located 430m north, comprising of nutrient rich standing water. This LWS will require further consideration during the design phase, to fully

		determine the level of impact to the site.
Non-Statutory Designations – Walloway Fields LWS	Construction, operation and decommissioning	The site is located approximately 500m to the north of the Site and contains mosaic of semi-natural habitats including grassland and wetland. This site will require further consideration during the design phase, to fully determine the level of impact to the site.
Non-Statutory Designations – Pocklington Canal LWS	Construction, operation and decommissioning	This site is located 965m north west of the Site, and there is a stream that originates from calcareous substrata in the Yorkshire Wolds Natural Area. There is evidence of shining pondweed (*Potamogeton lucens*), a rare aquatic species in the East Riding of Yorkshire. This site is potentially situated within the catchment of the Proposed Development and therefore should be considered further.
Habitats of Principle Importance	Construction, operation and decommissioning	Further assessment will be required to determine if priority habitats are present on site, and if these habitats will be impacted by the works. It is assumed that priority habitats will be retained and protected during construction, however, these habitats need to be identified and avoided in any design where possible. It is considered likely that small areas of priority habitat (e.g. hedgerows, arable field margins) may be impacted and appropriate mitigation undertaken.

Habitats of Principle Importance – Hedgerows	Construction, operation and decommissioning	Further assessment will be required to determine if the Proposed Development will have impact on hedgerows, particularly pre-construction works. It is assumed that hedgerows will be retained on site and protected during construction with an appropriate buffer as per BS5837:2012. However, it is assumed that potentially some hedgerows may need to be impacted, so further assessment will be required.
Species and species Groups – Plants and plant communities	Construction, operation and decommissioning	Further surveys will determine if plants are considered important ecological features. Since this is not yet known, impacts cannot be scoped out at this stage.
Species and species Groups – Invertebrates (Including white-clawed crayfish)	Construction, operation and decommissioning	The majority of the habitat present within the Site boundary (excluding the area of search for underground grid connection cable) was considered likely to support only a common assemblage of invertebrate species, typical of hedgerows, scrub, plantation woodlands, and species-poor grasslands. Yorkshire Rivers Important Invertebrate Area is located within the Site boundary. The network of ditches may support notable aquatic invertebrate associated with the Important Invertebrate Area and further assessment should be undertaken to determine the level of impact to invertebrates.
Species and species Groups – Fish	Construction, operation and decommissioning	It is assumed that small sections of watercourses will

		be impacted (e.g. culverted to allow for installation of cables and road crossings). The level of impact will be further assessed, particularly towards Annex II species such as river lamprey (*Lampetra fluviatilis) and* bullhead (*Cottus gobio),* associated with the nearby River Derwent SAC.
Species and species Groups – Amphibians	Construction and decommissioning	Desk study and survey data indicated the Site supports amphibians, including GCN. Further assessment will be required to determine the level of impact to GCN and determine appropriate levels of mitigation.
Species and species Groups – Reptiles	Construction, operation and decommissioning	As the Site includes areas that are potentially suitable for reptiles, further assessment will be required to ensure that appropriate and targeted measures are put in place during the construction works.
Species and species Groups – Birds: Ground nesting birds	Construction operation and decommissioning	The Site is considered suitable to support ground nesting birds. Construction and decommissioning may cause loss of breeding habitat which may not be replaced during operation. The assessment will consider potential effects on ground nesting birds and propose mitigation as necessary.
Species and species Groups – Birds: Wintering birds	Construction operation and decommissioning	The site is considered suitable for wintering birds, as such surveys are ongoing to determine the importance of the habitats. Further assessment will be required to determine which features are important and if there

		are any likely significant effects.
Species and species Groups – Birds: Schedule 1 Birds	Construction, operation and decommissioning	If any Schedule 1 Birds recorded during the breeding and wintering bird surveys are found nesting within the Site boundary they may be disturbed by construction and decommissioning activities. This would be mitigated by buffer zones between the infrastructure and boundary features. There is not expected to be loss of foraging habitat as boundary features would be enhanced and other habitat creation and enhancement works secured through the Outline LEMP will likely benefit foraging for Schedule 1 Birds.
Species and species Groups – Bats: foraging/commuting	Construction, operation and decommissioning	Much of the Site being large open fields with hedgerows and ditches, is suitable for foraging/commuting bats. Construction and decommissioning would modify habitat and during the operation phase the presence of solar modules may displace some foraging bat species. The assessment will consider potential effects on bats and propose mitigation as necessary.
Species and species Groups – Bats: roosting	Construction, operation and decommissioning	Further surveys will be required to determine the importance of the Site for roosting bats.
Species and species Groups – Otter	Construction, operation and decommissioning	Suitable habitat for otter is potentially present on the site, and it is assumed that small sections of watercourses are affected

		(e.g. culverted to allow for installation of cables). Further input into the design and assessment of the scheme will be required to ensure that impacts to otters can be avoided or mitigated.
Species and species Groups – Water vole	Construction, operation and decommissioning	Suitable habitat for water vole is potentialy present on the site, and it is assumed that small sections of watercourses are affected (e.g. culverted to allow for installation of cables). Further input into the design and assessment of the scheme will be required to ensure that impacts to water voles can be avoided or mitigated.
Species and species Groups – Badgers	Construction, operation and decommissioning	Further survey will be undertaken to determine the status of badgers on the Site, and further assessment will be required to determine appropriate mitigation.
Species and species Groups – Species of Principle Importance	Construction, operation and decommissioning	Further surveys are ongoing and may highlight additional species of principle importance using the site: such as Brown Hare, which will be considered further to determine any likely significant effects.

6.2.9 Receptors/matters to be scoped out of further assessment

Receptor/Matter	Phase	Justification
Habitats Sites – Skipwith Common SAC	Construction, operation and decommissioning	Skipwith Common SAC is located approximately 4.7km west of the Site boundary and is designated for northern Atlantic wet heaths and European dry heaths. This site does not lie within the Site boundary and is a sufficient distance from the

		Site that no significant effects are considered likely.
Statutory Designated Sites – Allerthorpe Common SSSI	Construction, operation and decommissioning	Allerthorpe Common SSSI is located approximately 1.6km north of the area of search for underground grid connection cable area within Site boundary and has been designated a SSSI due to lowland dry heath. The Proposed Development is unlikely to be able to significantly impact the species and habitats associated with this SSSI.
Non-Statutory designations – Ruddings Wood, an Historic LWS	Construction, operation and decommissioning	This historic LWS is located on site. This designation requires further consideration, however, the design of the Proposed Development would retain all woodland areas, therefore this Historic LWS will not be impacted, therefore Invasive species are unlikely to provide a significant effect.
Non-Statutory designations – Thornton's Wood, an Historic LWS	Construction, operation and decommissioning	This historic LWS is located on site. This designation requires further consideration, however, the design of the Proposed Development would retain all woodland areas, therefore this Historic LWS will not be impacted, therefore Invasive species are unlikely to provide a significant effect.
Habitats of Principle Importance – Woodland	Construction, operation and decommissioning	The design of the Proposed Development would retain all woodland areas. therefore there is unlikely to be a significant effect.
Habitats not of Principal Importance	Construction, operation and decommissioning	Habitats will be assessed to inform the ES chapter. Any habitats that are not

		considered important (e.g. non-priority habitats) will be mitigated for using the methodology of the Statutory Biodiversity Metric, which will result in no significant effects.
Species and species Groups – Invasive species	Construction, operation and decommissioning	No invasive species were identified during the ongoing surveys. Statutory obligations with regards to any invasive species encountered will be observed by the client, therefore Invasive species are unlikely to provide a significant effect.
Species and species Groups – Amphibians	Operational	Desk study and survey data indicated the Site is likely to support amphibians (including GCN) however effects to GCN during the Operational phase are considered unlikely due to minimal impacts on site.
Species and species Groups – Birds: Non-ground nesting birds	Construction, operation and decommissioning	Retention of boundary hedgerows and trees will minimise the loss in nesting habitat for non-ground nesting birds. It is assumed that small areas of habitat will be lost, as such, statutory obligations regarding protecting birds when nesting will be observed by the client, therefore there is unlikely to be a significant effect.
Species and species Groups – Hazel dormice	Construction, operation and decommissioning	There are no known records of hazel dormice within 1km of the Site boundary and the site is outside the known range of hazel dormice. Hedgerows within the Site boundary are considered to provide some suitability for hazel dormice, although

		many were species-poor, and woodland was generally sparse, so foraging opportunities were limited. It is also outside of the natural range for this species. Therefore, hazel dormice are considered to be absent.

6.2.10 Opportunities for enhancing the environment

Opportunities for ecological enhancement within the Site boundary are diverse due to the number of different habitats present and their generally low biodiversity value through intensive farming operations. No specific enhancement measures have yet been agreed. However, a detailed biodiversity design will be produced and implemented outlining how a biodiversity enhancement will be achieved. The biodiversity design will be cognisant of local biodiversity priorities identified in the East Riding of Yorkshire Council Biodiversity Action Plan and priorities emerging from The Hull and East Yorkshire Local Nature Recovery Strategy.

These measures will focus on compensating for potential adverse effects on habitats and species already known to be on the Site, and to improve the Site for species that could feasibly colonise in the future given the surrounding landscape. Therefore, enhancement measures could include some of the following:

- Creation of flower-rich grassland habitat or similar underneath and between solar modules to restore soil health and create a nectar source for invertebrates - in particular pollinators and provide foraging for bat and bird species.
- New hedgerow planting (primarily for screening) and reinforcing existing hedgerow network where appropriate.
- Enhancement of field boundaries and greenspace within other infrastructure, such as footpaths to provide greater habitat connectivity and increased habitat for invertebrates, and other animals.
- Winter food for farmland birds – leaving over winter stubbles and/or provision of specific seed source within buffer strip margins between solar modules and boundary features.
- Ensuring any fencing is permeable to mammal species such as badger, brown hare and hedgehog. Allowing the movement of deer across the wider landscape via field margins, river corridors etc. will also be considered.
- Habitat creation and enhancement will aim to include any habitats listed as habitats of principal importance or locally important within the local government policy.
- Creation of habitat suitable for wintering birds associated with the Lower Derwent SAC/SPA/Ramsar site, should review of bird data indicate presence of functionally linked land.
- Creation of wetland areas in low lying areas of the Site boundary, providing increased habitat for biodiversity, run-off capture and improved water quality, flood alleviation in the wider catchment and which will provide additional foraging and nesting habitat for bird species.

6.2.11 Proposed assessment methodology

The Ecological Impact Assessment (EcIA) will follow the Chartered Institute of Ecology and Environmental Management's (CIEEM) Guidelines for Ecological Impact Assessment in the UK and Ireland (CIEEM, 2018) (Version 1.2 - Updated April 2022).
The significance criteria proposed for the biodiversity assessment is presented in **Appendix D**.

6.2.12 Difficulties and uncertainties

Further surveys to inform the EIA process have not been completed at this stage of assessment. This scoping document has been written using professional judgement of the likely habitats, and their condition and suitability for protected species. Where there is uncertainty, ecological features have been scoped in for further assessment. If additional ecological features are noted on site during the further surveys, they will be scoped into later assessments.

6.2.13 References

- Avian Ecology (2024a), Breeding Bird Survey Report
- Avian Ecology (2024b), Great Crested Newt Presence or Absence (eDNA) Survey Report
- Avian Ecology (2024c) Non-Breeding Bird Survey Report
- CIEEM (2018), *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine* (Winchester: CIEEM). Version 1.2 - Updated April 2022.
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- Defra Sites of Special Scientific Interest map. Available online: https://naturalengland-defra.opendata.arcgis.com/datasets/Defra::sites-of-special-scientific-interest-england/about
- English Nature (2001), *Great Crested Newt Mitigation Guidelines* (Peterborough: English Nature).
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- European Council (2009), 'Directive 2009/147/EC on the conservation of wild birds (Bird Directive)'. Official Journal of the European Union.
- HMSO (1981 et seq.), 'Wildlife and Countryside Act, as amended'. 1981. Online: available from: http://www.legislation.gov.uk/ukpga/1981/69/
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- HMSO (2000), 'Countryside and Rights of Way Act'. 2000. Online: available from http://www.legislation.gov.uk/ukpga/2000/37/contents
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- Natural England Designated Sites View. Available online: https://designatedsites.naturalengland.org.uk/SiteSearch.aspx (Accessed date: 21/08/2024)
- Shawyer, C.R. (2011), *Barn Owl Tyto alba Survey Methodology and Techniques for use in Ecological Assessment: Developing Best Practices in Survey and Reporting* (Winchester: IEEM).
- The British Standards Institution (2013), 'BS 42020:2013 Biodiversity – Code of practice for planning and development', BSI Standards Limited

6.2.14 Scoping questions

- Do you agree with the proposed list of consultees?
- Do you agree with the proposed study areas?
- Do you agree that the data sources listed to inform the EIA baseline characterisation are appropriate?
- Do you agree that the surveys proposed to inform the EIA baseline characterisation are appropriate?
- Are any receptors/assets/resources not identified that you would like to see included in the EIA?
- Do you agree with the proposed additional (secondary and tertiary) mitigation measures and is this mitigation appropriate?
- Do you agree with the receptors/matters that are proposed to be scoped in and out of further assessment?
- Do you agree with the proposed factor-specific assessment approach?

6.3 Climate

6.3.1 Consultation

No consultation to inform the climate assessment has been undertaken to date and no specific consultation in relation to climate change is envisaged, over and above the consideration of comments received to this EIA Scoping Report. General consultation will take place in the form of non-statutory consultation, statutory consultation, and feedback in response to the PEIR. The current list of consultees can be found in **Section 4.2** Consultation. Consultation with regards to elements of climate vulnerability relating to flood risk will be covered further in the FRA.

6.3.2 Study area

Greenhouse gas (GHG) emissions

- The GHG assessment will consider GHG emissions from within the Site and those indirect emissions from activities outside the Site. Scope 1 emissions will include those emitted directly from all facilities and infrastructure under the operational control of the Proposed Development, and likely within the Site boundary. However, scope 2 and any relevant scope 3 emissions will occur outside the proposed Site. These emissions will be estimated based upon project-specific data that may relate to activities outside the Site boundary (e.g., water provision and wastewater treatment outside of the Site boundary, transport of materials to the Proposed Development or the embodied carbon within construction materials and equipment as a result of the energy used for production).
- The receptor to GHG emissions is the global climate, and so when assessing the impact and significance of GHG emissions, the national (Climate Change Act 2008 and associated Carbon Budgets) and global context (Paris Agreement) is considered.

Climate Change Risk

As the climate change risk assessment is an assessment of the impact of the effects of climate change on the Proposed Development, the study area is considered to be the area defined by the Site boundary.

6.3.3 Data sources to inform the EIA baseline characterisation

The GHG baseline characterisation will be conducted in accordance with the IEMA Guide to Assessing Greenhouse Gas Emissions and Evaluating their Significance (2022), having consideration also for Royal Institution of Chartered Surveyors (RICS) Whole life carbon assessment for the built environment (2023).
Standard emission factors will be applied, sourced from reputable agencies, such as Defra UK Government GHG Conversion Factors for Company Reporting (2022).
This assessment will consider the East Riding of Yorkshire Council's target of achieving net zero by 2050 for their own operations and services as well as the development of a shared area-wide net zero target, as set out within their Climate Change Strategy for 2022 – 2030.

With regards to the national baseline, the UK Government set out a legally binding framework to cut GHG emissions by at least 80% by 2050 in the Climate Change Act (2008); this was amended by the Climate Change Act 2008 (2050 Target Amendment) Order 2019, changing the 80% reduction to a 100% reduction, or net zero, by 2050.
Flood risk within the Site was assessed using the UK Government's flood map for planning tool (2024), which ranks an areas flood risk probability from different sources as either flood zone 1 (less than 0.1% chance of flooding annually), flood zone 2 (between 0.1% and 1% chance of river flooding annually, or between 0.5% and 1% chance of sea flooding annually), or flood zone 3 (greater than 1% chance of river flooding annually, or greater than 0.5% chance of sea flooding annually).
Data pertaining to the expected construction and operational activities will be sourced from the Applicant to estimate applicable scope 1, 2 and 3 emissions. This includes construction energy consumption, expected maintenance requirements, product specification (e.g., solar PV modules), total materials needed for construction and details on construction workforce.
Potential GHG savings as a result of the operation of the Proposed Development will be calculated through a comparison against a baseline of the operational emissions of the most carbon-efficient fossil fuelled technology currently available.

6.3.4 Surveys to inform the EIA baseline characterisation

No surveys have been undertaken to date, and none are expected or planned to take place for this assessment.

6.3.5 Baseline conditions

The baseline conditions describe the conditions of a business-as-usual scenario whereby the Proposed Development is not undertaken. The baseline comprises existing carbon stock and sources of GHG emissions within the Site boundary of the existing activities on-site. In the case of GHG emissions, the sensitive receptor is the stability of the global climate.
The land within the Site boundary predominantly consists of agricultural fields (mostly arable with some grassland) interspersed with hedgerows, ditches, small woodland blocks and farm access tracks. The hedgerows within the Site range from dense tall vegetation (shrub and tree species) to thin lines of vegetation with sporadic shrubs and trees present. The fields are bordered by a mix of hedgerows.
According to the UK Government's flood map for planning tool (2024) the Proposed Development is mainly located within Flood Zone 1, showing either no flood risk or very low flood risk (less than a 0.1% chance) of surface water flooding, river flooding and coastal flooding. A small section of the Site to the south falls within flood zone 3, showing a great than 1% chance of flooding annually.
The total UK net GHG emissions for 2023 was 384 million tCO2e, a decrease of 5.4% from the year before (DESNZ, 2024). Overall, the trend of total UK GHG emissions shows a decreasing trajectory from 1990 to 2023. GHG emissions relating to 'Electricity, gas, steam and air conditioning supply' specifically show a significant reduction trend over the past decade, halving from 176 million tCO2e in 2010 to 81 million tCO2e in 2020 (BEIS, 2022).

6.3.6 Additional (secondary and tertiary) mitigation

GHG Emissions

Construction

The Detailed CEMP (prepared substantially in accordance with the Outline CEMP) would be implemented to identify good working practices in line with appropriate standards, including low carbon practices. Some mitigation measures that are anticipated to be taken into account are:

- Embed carbon reduction practices as a core principle for the design team. Where reduction ideas are suggested, they should be recorded and the potential impact quantified. Earlier engagement with carbon reduction allows for the greatest returns.
- Where technical specifications allow, maximise the recycled content of construction materials such as concrete and steel.
- Maximise the specification of materials with an environmental product declaration with the aim of reducing embodied carbon emissions.
- Incentivise use of local suppliers with a view to shorten project supply chains and environmental footprint.
- On-site mobile and non-mobile plant should conform to the latest emissions standards, with mobile vehicles conforming to EURO 6 standards as a minimum. All plant should investigate the option of using Hydrotreated Vegetable Oil fuels or electric versions where possible.
- Require main contractors to report on energy data, water usage and waste disposal and their GHG emissions as part of the Outline CEMP.

Operation

Given the nature of the Proposed Development as a renewable energy project it is anticipated to have an overall positive effect on the climate. Despite this, adherence to best practice relating to the maintenance and replacement of components of the Proposed Development should be followed at all times. Any replacement and maintenance which takes place should also follow the mitigation measures proposed within the construction phase where applicable. Additional mitigation measures for the operational phase would be specified in the Outline OEMP and secured by the Detailed OEMP through a DCO Requirement.

Decommissioning

The decommissioning process is likely to result in GHG emissions, particularly from waste disposal of solar PV modules. Additional mitigation would be employed that aligns with the hierarchy for managing project-related emissions (avoid, reduce, substitute and compensate). Additional mitigation measures for the decommissioning phase would be specified in the Outline DEMP and secured by the Detailed DEMP through a DCO Requirement.

Climate Change Risk

Construction

UK Climate Projections (2018) (UKCP18) projections suggest that climate change will lead to hotter drier summers, warmer wetter winters, increased likelihood of extreme weather events (e.g., heat waves, high rainfall events) and sea-level rise.

Electrical infrastructure is anticipated to be sited in locations at low risk of flooding and/or set at the necessary minimum ground levels.

The Outline CEMP will include measures to decrease the risk of climate hazards on the construction process phase. These are anticipated to include:

- Weather forecasts to be monitored on a daily basis. Forecasts would be used to inform the sequencing of activities and the use of appropriate personal protective equipment;
- Provision of welfare facilities including breaks, shade, and hydration facilities, as well as first aid amenities;
- Provision of an Emergency Response Plan, to include on-site fire prevention, suppression, and evacuation procedures;
- Provision of an Incident Response Plan that identifies flooding as a key site risk and identifies the correct policies and procedures to follow in the event of such;
- Monitoring and maintenance of plant and equipment to ensure compliance of machinery with design specifications and flexibility in the construction activities programme to account for climatic variation;
- Appropriate on-site storage of plant and equipment; and
- Hazardous materials would be maintained in a safe storage area when not in use. This would be away from site access and egress points. Disposal of hazardous waste would be undertaken appropriately, taking into account the risks associated with high temperatures and increased rainfall, as outlined in the SWMP.

Operation

The condition and integrity of assets would be regularly assessed, and maintenance undertaken as early as required, giving consideration to materials with enhanced tolerance to fluctuating temperatures and exposure to rainfall. These measures would be specified in the Outline OEMP and secured by the DCO through the Detailed OEMP.

Decommissioning

Anticipating the most appropriate additional mitigation measures to be implemented during the decommissioning stage is difficult due to the potential advancements in technology and best practice between the present and the time in which decommissioning will take place. Despite this, general adherence to the additional mitigation measures proposed during the construction phase is advised. These measures would be specified in the Outline DEMP and secured by the DCO through the Detailed DEMP.

6.3.7 Description of likely significant effects

GHG - Construction
GHG emissions will be inevitable during the construction phase. Main GHG emissions sources are likely to be through fuel consumption and the embodied GHG emissions of materials.
It is not expected that the GHG emissions from construction will compromise the ability of either the UK or East Riding of Yorkshire Council to meet its carbon reduction targets. However, in view of the cumulative contribution of all emissions towards climate change, and the fact that the global climate is highly sensitive to fluctuations in GHG emissions, the GHG emissions associated with the construction of the Proposed Development will have a negative effect upon the climate.

GHG - Operation
The operation of the Proposed Development will result in GHG emissions, primarily from the repair, replacement and maintenance of assets on the Site. It should be noted that the assessment will consider all applicable and material sources of emissions, where data is available. However, the operation phase can be viewed as achieving net GHG emissions savings by offering additional renewable electricity generation in place of fossil fuel electricity generation. Given that this is a renewable energy development, downstream impacts from end users is not an applicable emission source. Emissions from electricity arise from generation rather than direct use, and these emissions will be included within the scope of this assessment. Whilst not directly comparable to this development, this should align with the precedent set in the Finch case. GHG emissions savings will persist for the entirety of the Proposed Development's lifespan, and will contribute cumulatively towards GHG reduction targets set both locally and nationally. The GHG savings from the operational phase are anticipated to be greater than the GHG emissions associated with the construction and decommissioning phases, and will contribute to the decarbonisation of the National Grid.

GHG - Decommissioning
GHG emissions will be inevitable during the decommissioning phase, again due to the necessary use of heavy machinery. As is the case with construction, the receptor is not confined to the immediate vicinity of the Site; instead, it is the global atmosphere. As such, the receptor is highly sensitive, in view of the cumulative contribution of all emissions towards climate change. With this in mind, the GHG emissions associated with the decommissioning of the Proposed Development will have a negative effect upon the climate.

Climate change risk – Construction, Operation, and Decommissioning
No significant effects are anticipated concerning climate change risk. See **Section 6.3.9** for more detail.

6.3.8 Receptors/matters to be scoped into further assessment		
Receptor/Matter	**Phase**	**Justification**
GHG emissions	Construction, operation & decommissioning	Aligned with IEMA guidance, a project that causes GHG emissions to be avoided has a beneficial effect that is significant. It is important to include all GHG emissions when considering the overall lifecycle GHG emissions of the Proposed Scheme, to determine an accurate assessment of net climate impact.
6.3.9 Receptors/matters to be scoped out of further assessment		
Receptor/Matter	**Phase**	**Justification**
Climate Change Risk	Construction, operation & decommissioning	UK Climate Projections (2018) (UKCP18) projections suggest that climate change will lead to hotter drier summers, warmer wetter winters, increased likelihood of extreme weather events (e.g., heat waves, high rainfall events) and sea-level rise. Due to the embedded resilience of solar PV modules to high heat and wind speeds, these factors are not expected to significantly impact on the construction, operation or decommissioning of the Proposed Development. Electrical infrastructure (substations, inverters, transformers, and switchgear) is anticipated to be sited in locations at low risk of flooding and/or set at the necessary minimum ground levels determined by the FRA and in agreement with the relevant prescribed consultees. **Section 6.9.6** presents the additional mitigation proposed concerning water and flooding. The vulnerability of the Proposed Development to flooding and its potential to exacerbate flooding will be covered in more technical detail in the FRA to be submitted in support of the DCO application. See **Section 6.9** Water, for more detail. It is not anticipated that climate change will present a significant risk to human health, within the context of the Proposed Development. Therefore climate change risk has been scoped out of the climate deliverables.

In-combination impact assessment	Construction, operation and decommissioning	The resilience of all receptors identified in other chapters are unlikely to be significantly affected by a combination of future climate change (e.g. temperature change, sea level rise, or wind), and the impacts of the Proposed Development. Given some sections of the Site are located within Flood Zone 3, the potential in-combination impacts of heavy precipitation and the Proposed Development will be assessed in more technical detail within the FRA to be submitted in support of the DCO application as an appendix to the ES. See **Section 6.9** Water, for more detail. Therefore, the in-combination impact assessment has been scoped out of the climate deliverables.

6.3.10 Opportunities for enhancing the environment

The Proposed Development is expected to have a net beneficial impact on the climate, in that it will reduce GHG emissions associated with electricity consumption on a national scale. Opportunities exist to further increase the environmental benefit of the Proposed Development by ensuring that GHG emissions associated with the construction and decommissioning process are minimised. This can be ensured by the adoption of various additional mitigation measures as detailed above, which will be specified in the Outline CEMP, OEMP and DEMP, and secured within the Detailed CEMP, OEMP, and DEMP.

There is scope to further improve the Site in terms of ecological enhancements and habitat creation, which can have a positive effect in terms of carbon sequestration. These will be documented in the Habitat Management Plan, which will be submitted in support of the DCO application as part of the Outline LEMP.

6.3.11 Proposed assessment methodology

The assessment of the effects of GHG emissions arising from the Proposed Development will be carried out in accordance with:

- The Institute of Environmental Management and Assessment 'Environmental Impact Assessment Guide to Assessing Greenhouse Gas Emissions and Evaluating their Significance' (2022 edition); and
- Royal Institute of Chartered Surveys (RICS) Whole life carbon assessment for the built environment (2023)

The assessment will quantify applicable Kyoto Protocol GHGs as measured in tonnes of carbon dioxide equivalence (tCO_2e), where equivalence means having the same warming effect as CO_2 over 100 years.

The GHG baseline characterisation will be conducted using a desk-based assessment of current land use, existing carbon stock and any activities that could cause GHG emissions. However, in line with the IEMA guide, any agricultural land

can generally be considered to have zero baseline emissions to ensure reasonable worst-case approach to establishing net GHG effect.
Data associated with the activities contributing to the construction, operation and decommissioning of the Proposed Development will be provided by the Applicant. Where it is not possible to collect this data, as this assessment represents a forecast of emissions and some information may not yet be known, secondary data (such as estimates, extrapolations, benchmarks and proxy data such as distance travelled) will be used. Emissions will then be quantified by applying the most relevant and up-to date emission factors.
Given the international urgency of climate change, the sensitivity of the receptor (i.e. global climate) to fluctuations in greenhouse gas emissions is considered 'Very High'. Thus, the level of the significance of effects is determined by the magnitude, and timing, of greenhouse gas emissions and the likelihood of avoiding severe climate change.
Aligned with IEMA's Guide 'Assessing Greenhouse Gas Emissions and Evaluating their Significance 2nd Edition' (February 2022), any project that causes greenhouse gases to be avoided, or removed from the atmosphere, has a beneficial effect that is always significant. In such a scenario, the Proposed Development substantially exceeds the national net zero requirements and is thus aligned with the goal of the Paris Agreement to limit temperature rise to well below 2°C, aiming for 1.5°C.

6.3.12 Difficulties and uncertainties

To ensure transparency within the EIA process, the following difficulties and uncertainties have been identified:

- The accuracy of a GHG assessment depends on the quality of the data provided. Primary data should always be used where available. Where it is not possible to collect these data, as this assessment represents a forecast of emissions and some information may not yet be known, secondary data (such as estimates, extrapolations, benchmarks and proxy data such as distance travelled) will be used, based upon industry approximations and professional best practice. Assessments such as this, based largely on secondary data, should only be viewed as an estimate of GHG emissions impact and actual emissions may vary significantly. Thus, when necessary, a conservative approach will be undertaken to ensure a robust assessment of possible emissions sources. All assumptions and limitations, including exclusions, will be documented as part of the assessment.
- An emission factor is a representative value that relates the quantity of a pollutant released into the atmosphere with an activity associated with the release of that pollutant. Emission factors are typically available from government publications, independent agencies, and scientific research journals; however, the quality and accuracy of such factors can vary significantly. Factors can differ depending on the research body and/or underlying methodologies applied. Emission factors will therefore only be sourced from reputable sources, such as the Department for Energy Security and Net Zero (2024).

6.3.13 Cumulative Impacts

GHG emissions are inherently cumulative, as all emissions have the same per-unit impact on the same ultimate receptor. The impact is climate change, or global warming, caused by the radiative forcing effects of GHGs in the atmosphere, and the affected receptor is the global climate and all the ecosystems and biomes that depend on it.

The Proposed Development will achieve emissions savings by reducing the consumption of fossil fuel generated mains electricity. These savings will outweigh the necessary GHG emissions resulting from manufacturing, constructing, and decommissioning of the Development. Once emissions from these sources are offset by the Development, then each subsequent unit of solar generated electricity would displace a unit of conventionally generated electricity, thereby contributing to the overall reduction in emissions into the atmosphere.

- The cumulative effect of multiple solar farms and renewable energy developments in the nearby area, and in UK as a whole, will have an overall cumulative positive effect on the climate and the UK's ability to reach its Net Zero targets.

6.3.14 References

Carbon Management in Infrastructure: PAS 2080:2023

Corporate Accounting and Reporting Standard: The Greenhouse Gas Protocol: 2004.

Department of Energy, Security, and Net Zero (DESNZ) (2024) 2023 UK greenhouse gas emissions, provisional figures. Available at: 2023 UK greenhouse gas emissions, provisional figures (publishing.service.gov.uk) [Accessed August 2024]

East Riding of Yorkshire Council (2022) Climate Change Strategy. Available at: Climate Change Strategy 2022-2030.pdf (eastriding.org.uk) [Accessed August 2024]

Environmental Impact Assessment Guide to Assessing Greenhouse Gas Emissions and Evaluating their Significance: IEMA: 2022.

The Greenhouse Gas (GHG) Protocol, A Corporate Accounting and Reporting Standard (Revised Edition). Available at: https://ghgprotocol.org/sites/default/files/standards/ghg-protocol-revised.pdf [Accessed June 2024].

UK Climate Projections (2018). Available at: https://ukclimateprojections-ui.metoffice.gov.uk/ui/home [Accessed September 2024].

UK Government GHG Conversion Factors for Company Reporting: Defra and BEIS: 2024.

UK Government (2022) Net Zero Strategy: Build Back Greener Net Zero Strategy: Build Back Greener - GOV.UK (www.gov.uk)

UK Government (2023) Flood map for Planning https://flood-map-for-planning.service.gov.uk/

Whole life carbon assessment for the built environment: Royal Institute of Chartered Surveys (RICS): 2023.

Scoping Questions

Do you agree that the data sources listed to inform the EIA baseline characterisation are appropriate?

Are any receptors/assets/resources not identified that you would like to see included in the EIA? Do you agree with the proposed additional (secondary and tertiary) mitigation measures and is this mitigation appropriate? Do you agree with GHG emissions being scoped into further assessment? Do you agree with climate change risk being scoped out of further assessment? Do you agree with in-combination impacts being scoped out of further assessment?

6.4 Cultural heritage

6.4.1 Consultation

The Humber Historic Environment Record (HER) has been consulted in the preparation of this EIA Scoping Report chapter for data on known heritage assets. East Riding of Yorkshire Council & Hull City Council has also approved a Written Scheme of Investigation for the geophysical survey of the Site, which was carried out in September 2024.
Historic England has been contacted regarding potential impacts on designated heritage assets as a result of changes in their setting; this consultation will be continued throughout the EIA process.
Further consultation with the archaeological advisor for East Riding of Yorkshire will be carried out to confirm the scope of and timing of any intrusive evaluation following completion of the geophysical survey, and the Conservation Officer will be consulted regarding potential impacts on Conservation Areas and Grade II Listed Buildings as these lie outside of the remit of Historic England.

6.4.2 Study area

Following the guidance from Humber Historic Environment Record, a 2km study area from the Site boundary will be used for designated and non-designated heritage assets.

6.4.3 Data sources to inform the EIA baseline characterisation

The following sources of information have been used to inform this EIA Scoping Report chapter:

- East Riding Local Plan (adopted April 2016), Policy ENV3: Valuing Our Heritage;
- Information on designated heritage assets from the National Heritage List for England, downloaded on 01 June 2024;
- Data on heritage assets and previous archaeological investigations from the Humber HER, obtained as a digital data extract on 28th February 2024;
- Historical Ordnance Survey and Tithe mapping; and
- Environment Agency LiDAR data.

6.4.4 Surveys to inform the EIA baseline characterisation

The following surveys are proposed to inform the cultural heritage assessment:

- Desk-based assessment including field visit. This will include an assessment of potential impacts on the setting of heritage assets in the Site and surrounding area, following the methodology in Historic England Good Practice Note 3.
- Geophysical survey of the whole site.

The need for, scope, and timing of any intrusive evaluation will be discussed and agreed with the statutory consultees following completion of the desk-based assessments and geophysical survey.

6.4.5 Baseline conditions

Within the main Site there is one designated heritage asset: Scheduled Monument 'Moated site at Chapelgarth, 450m north east of Manor Farm' (list entry no. 1015303).
There are no other designated heritage assets within the Site boundary.
There are eight non-designated heritage assets within the Site. These are:

- boundary ditch (MHU22524)
- the former Airfield, Melbourne (MHU11148),
- the site of Retting Pits, W of Allerthorpe (MHU15468),
- old field systems,
- Melbourne Airfield (MHU10377)
- multiple areas of ridge and furrow (MHU22523) (MHU22525) (MHU22511) (MHU22522).

Within the study area there are 48 Listed Buildings, four Scheduled Monuments: two moated sites, a motte and bailey castle and a priory, and there is one Conservation Area (East Cottingwith). There are no UNESCO World Heritage Sites, registered battlefields or Registered Parks and Gardens within the study area. There are 173 additional non-designated heritage assets within the study area.
Within the Site boundary for the area of search for underground grid connection cable there are two Listed Buildings. These are the Grade II Pocklington Canal Walbut Bridge (List entry 1309793) and the Grade II listed Pocklington Canal Walbut Lock (List entry 1083859). There are no other designated heritage assets within the Site boundary. There are 31 non-designated heritage assets within the area of search for underground grid connection cable. Within the 2km study area there are two conservation areas: Everingham Conservation Area and Allerthorpe Conservation Area. There are also 27 Listed Buildings, the majority of which are Grade II, with the exception of the Grade II* Church of St Giles and Church of St Michael. Within the study area there are 86 non-designated heritage assets.
Constraints maps showing the location of the heritage assets are provided in **Appendix B.**

6.4.6 Additional (secondary and tertiary) mitigation

Where archaeological remains within the Site boundary do not require preservation in situ and cannot be avoided through primary mitigation (i.e. through changes to the Proposed Development layout and/or construction methods), it is anticipated that additional mitigation to off-set potential adverse physical impacts will take the form of a programme of archaeological investigation and recording secured by a DCO Requirement. Such a programme may include pre-commencement phases of archaeological excavation and/or archaeological 'watching brief' during construction. The need for and scope of such mitigation will be agreed with the archaeological advisor and Historic England where necessary. The scope and methodology of the mitigation will be set out in a Written Scheme of Investigation.
No additional mitigation during the operational and decommissioning phase is currently proposed, as it is anticipated that any potential impacts would have been mitigated prior to or during the construction phase.
Where impact on the setting of heritage assets within the study area cannot be avoided through primary mitigation (i.e. through changes to the Proposed Development layout), it is

anticipated that additional mitigation to offset any potential operational phase adverse impacts will be required. This would most likely involve planting and landscaping.

6.4.7 Description of likely significant effects

The results of the geophysical surveys are not yet available and as such there remains some uncertainty regarding both the direct physical impacts on heritage assets within the Site as a result of construction activities.
The list of receptors outlined in **Section 6.4.8** below is therefore a "long list" of the heritage assets which will be considered in the assessment; however, not all are likely to experience impacts.
Assets that have been scoped out of further assessment at this stage (see **Section 6.4.9** below) are those where their particular characteristics and the contribution made by their setting to their significance are anticipated to be unaffected by the Proposed Development regardless of its final layout.

6.4.8 Receptors/matters to be scoped into further assessment

Receptor/Matter	Phase	Justification
Scheduled monument within the Site. Moated site at Chapelgarth, 450m north east of Manor Farm (List entry no. 1015303)	Construction and operation	Construction activity has the potential to directly impact on these assets and the operation of the Proposed Development may impact on the contribution that setting makes to their significance, with potential for significant effects to occur.
Second World War Melbourne Airfield, including surviving buildings (ID MHU11148).	Construction and operation	Construction activity has the potential to directly impact on these assets and the operation of the Proposed Development may impact on the contribution that setting makes to their significance, with potential for significant effects to occur.
All other non-designated heritage assets within the Site, , linear double ditch (ID MHU246), boundary ditch (ID MHU22524), old field system (ID MHU10377) and site of retting pits (ID MHU15468), ridge and furrow, (MHU22523) (MHU22525) (MHU22511) (MHU22522	Construction and Operation	Construction activity has the potential to directly impact on these assets and the operation of the Proposed Development may impact on the contribution that setting makes to their significance, with potential for significant effects to occur.
Four Scheduled Monuments within the study area; the site of	Construction and Operation	The setting of these heritage assets will require assessment. Their significance is derived from the archaeological

Ellerton priory (list entry no. 10052250), Motte and bailey castle, fishpond and moated site north and east of Aughton church (list entry no. 1007973), moated site and water-management features south of White House (list entry no. 1007974), moated grange at Monk Farm (list entry no. 1008675).		evidence they could provide us with regarding life in the Medieval era for aristocrats. They are associated with some known Medieval families.
Collection of non-designated Medieval heritage assets within the study area. Including ridge and furrow, eight Medieval settlement sites (Harlthorpe, Laytham, Storwood, Ellerton, Aughton, Foggathorpe, Melbounre, Seaton Ross), moated sites, open fields, grange sites, manor house sites, fishponds, Medieval hall, Storwood deer park, roads, trackways, priories, churches and chapels, Manor Farm moated site (ID MHU3208)	Construction, operation and decommissioning	No direct impact is anticipated, but these assets collectively may experience visual change in their setting during operation, construction and decommissioning which could results in adverse impacts.
Currently unknown heritage assets within the Site boundary	Construction and operation	There remains uncertainty about the extent and significance of heritage assets within the Site boundary and therefore the potential for significant effects will be based on the results of the geophysical survey.
Listed Buildings within the area of search for underground grid connection cable: Pocklington Canal Walbut Lock (list entry no 1083859), Pocklington Canal Walbut Bridge (list entry no. 1309793) and	Construction and operation	These Grade II Listed Buildings are within, or on the edge of, the area of search for underground grid connection cable. Depending on the final design in this area, these assets may be temporarily impacted by the design.

on the edge of the Site Pocklington Canal Thornton Lock (list entry no. 1162050)		
Listed Buildings immediately adjacent to the area of search for underground grid connection cable- Grade II listed Pocklington Canal Coat's Bridge (list entry no. 1303980) and Pocklington Canal Coat's Lock (list entry no. 1084126)	Construction	These Grade II Listed Buildings are adjacent to the Site. Depending on the layout in this area, these assets may experience visual change in their setting during construction which could results in adverse effects.
31 non-designated heritage assets within the area of search for underground grid connection cable.	Construction	These heritage assets are located within the area of search for underground grid connection cable. Depending on the final design in this area, they may be impacted by the proposed cable installation.

6.4.9 Receptors/matters to be scoped out of further assessment

Receptor/Matter	Phase	Justification
Findspots recorded by Humber Historic Environmental Record within the study area	Construction and operation	Findspots represent the location where archaeological artefacts have been recovered. They have been removed from the location and are no longer present, therefore they do not represent a constraint. The location remains noteworthy, as they can indicate archaeological activity in the area and provide information about the archaeological potential. The heritage significance of their former locations will not be impacted by the Proposed Development.
Setting effects on Listed Buildings within the settlement of Seaton Ross	Operation, construction and decommissioning	The closest listed building is the Grade II listed 'Old Mill', located 94m from the Site boundary. This is an c18th/19th century windmill. The significance of this building lies in its architectural interest and former purpose. It is located in an agricultural setting, behind farmyard buildings. The farmyard setting would not be altered by the Proposed

		Development, particularly given the proposal is not high-rise and the surrounding buildings would not be removed. The significance of the building would not be impacted by the Proposed Development. The setting of the remaining Listed Buildings in Seaton Ross would remain unchanged. The positive contribution made by setting to the significance of residential Listed Buildings within settlements is confined to their immediate street scene and does not draw on views of the wider surroundings. The Proposed Development is not high-rise and the setting impact on Seaton Ross village as a whole is not considered to be substantial.
Setting effects on Rossmoor Lodge (list entry no. 1083854)	Operation, Construction, Decommissioning	Rossmoor Lodge is a Grade II Listed Building located 172m to the east of the Site boundary. It is separated from the Site by the B1228. Its significance is in its architectural value and association with local figure General James Wharton. Its immediate setting would remain unchanged by the Proposed Development.
Setting effects on Storwood Grange (list entry no. 1161962)	Operation, construction, decommissioning	Storwood Grange is a Grade II Listed Building 523m to the north of the Site boundary. Its significance is based on its historical and architectural value. Its significance would not be altered by the Proposed Development.
Setting effects on Listed Buildings around Ellerton and Aughton villages	Operation, construction, decommissioning	The closest listed building in these villages is the Grade II listed Ellerton Methodist Chapel, located 790m to the south east. Its significance is in its architectural and communal value and it is a good example of a non-conformist chapel. The Proposed Development would not alter its significance. The positive contribution made by setting to the significance of residential Listed Buildings within settlements is typically confined to their immediate street scene and does not draw on views of the wider surroundings.

Setting effects on Listed Buildings within the settlement and vicinity of Melbourne	Operation, construction, decommissioning	The Grade II listed Melbourne Hall and Stable block at Melbourne hall are the closest Listed Buildings to the northern part of the study area (380m to the east). The hall's significance is its historical value, as the building dates to c.1780-90. Both buildings are located in private woodland and parkland, which would remain unchanged by the Proposed Development and would screen the Listed Buildings from the Site boundary. The Listed Buildings in Melbourne village would remain in a village setting and their significance would be unaffected. The positive contribution made by setting to the significance of residential Listed Buildings within settlements is typically confined to their immediate street scene and does not draw on views of the wider surroundings.
Setting effects on listed buildings in the villages of Bielby and Thornton, Pocklington Canal Coat's Bridge (List entry 1393980) and Pocklington Canal Coat's Lock (List entry 1084126)	Operation, construction, decommissioning	The exact location of the proposed Cable Route has not yet been fixed, but the Listed Buildings in these villages and surrounding area are unlikely to be affected. The Listed Buildings associated with Pocklington canal are the closest to the Proposed Development (16m to the east). Their significance is in their association with the canal and their history. This would not be altered by the Proposed Development.
Conservation Areas over 1 km from the Proposed Development	Operation, construction, decommissioning	The positive contribution made by setting to the character of Conservation Areas is typically confined to their immediate street scene and does not draw on views of the wider surroundings. No significant effects are therefore predicted. The special interest of the East Cottingwith Conservation Area is its setting adjacent to Pocklington Canal and surrounding land, its traditional and unassuming buildings of similar scale and materials and the location of properties set off the footpaths behind

		traditional front gardens. The special interests would not be changed by the proposal. The special interest of Everingham Conservation Area is its 19th century rural properties set back from the road, sense of openness, rural architecture and Everingham Hall estate, the boundaries of which dominate the roadside. The special interests would not be changed by the Proposed Development.
All heritage assets within the study area	Decommissioning	Decommissioning will not result in impacts to heritage assets not affected during construction and operation. Decommissioning phase effects resulting from changes in the setting of heritage assets in the surrounding area will be no worse than the construction or operational phase effects. Decommissioning will reverse any adverse effects resulting from changes to the setting of heritage assets during operation.

6.4.10 Opportunities for enhancing the environment

Potential enhancement opportunities include the erection of information boards close to the scheduled monuments of Moated site at Chapelgarth, 450m north east of Manor Farm and the non-designated 'Manor Farm Moated Site'.
Where residual effects remain during operation, measures to enhance the significance of heritage assets not affected by the Proposed Development would provide additional beneficial effects to be counted in the planning balance.

6.4.11 Proposed assessment methodology

A desk-based assessment will be prepared in support of the DCO application and included with the cultural heritage chapters of PIER and ES. This will assess the known and potential heritage assets within the Site and Study Area. The desk-based will be prepared in accordance with the Chartered Institute for Archaeologists (CIfA)'s guidance 'Standard and Guidance for Historic Environment Desk-Based Assessment'. The results of the geophysics survey will feed into this assessment.
The effects of the Proposed Development on the setting of heritage assets will be assessed following Historic England's four-stage process set out in Historic England's Good Practice Advice Note 3: The Setting of Heritage Assets. Impacts upon setting are those which affect the heritage significance of an asset by causing visual or other sensory change within its setting.
The significance of the heritage assets and the effects of the proposal will be reported in the PEIR and ES, following the significance criteria in **Appendix D**.

6.4.12 Difficulties and uncertainties

To ensure transparency within the EIA process, the following difficulties and uncertainties have been identified:

- Existing records for the historic environment do not record all heritage assets. This will be addressed through the desk-based assessment and field survey to identify previously unrecorded assets and assess the potential for below ground archaeological remains. The geophysical survey will also further investigate the potential for below ground archaeological remains.

6.4.13 References

- East Riding Local Plan (adopted April 2016), Policy ENV3: Valuing Our Heritage.
- National Policy Statement (EN-1) (2024)
- Historic England (2017) Good Practice Advice in Planning Note 3: The Setting of Heritage Assets (Second Edition) Historic England: Swindon. Available online: https://historicengland.org.uk/images-books/publications/gpa3-setting-of-heritage-assets/heag180-gpa3-setting-heritage-assets/
- Chartered Institute for Archaeologists (2020) Standard and Guidance for Historic Environment Desk-Based Assessment

6.4.14 Scoping questions

- Do you agree with the proposed consultees in 6.4.1?
- Do you agree with the proposed 2 km study areas?
- Do you agree that the majority of the listed buildings can be scoped out of the assessment, with the exception of those listed within or adjacent to the area of search for underground grid connection cable Site boundary?
- Do you agree that the listed buildings within the Cable Corridor Site boundary should be scoped into the assessment?
- Do you agree that there are opportunities for enhancing the public's understanding of the historic environment by introducing information boards about the Medieval heritage assets?
- Do you agree that the data sources listed to inform the EIA baseline characterisation are appropriate?
- Do you agree that the surveys proposed to inform the EIA baseline characterisation are appropriate?
- Are any receptors/assets/resources not identified that you would like to see included in the EIA?
- Do you agree with the proposed additional (secondary and tertiary) mitigation measures and is this mitigation appropriate?
- Do you agree with the receptors/matters that are proposed to be scoped in and out of further assessment?

6.5 Land, soils and groundwater

6.5.1 Consultation

No formal consultation regarding land, soils and groundwater has been undertaken to date. The Environment Agency, the British Geological Survey and East Riding of Yorkshire Council will be consulted as part of the assessment. The Hull Geological Society and the East Yorkshire Regionally Important Geological Sites Group has been contacted to provide confirmation on the presence of Regionally Important Geological Sites , which has confirmed that there are no Regionally Important Geological Sites within the Site boundary.

6.5.2 Study area

The Site plus a 250m buffer has been considered with regard to identifying land and soil related receptors and 500m for groundwater receptors that could be impacted by the construction, operation, and decommissioning of the Proposed Development. Issues that could affect sensitive receptors assessed in this section occur by direct contact (for example contamination such as a fuel spillage coming into direct contact with soil, or physical contact from construction plant affecting soil quality) or by movement of contamination through soil, subsoil or groundwater. These types of pathways or contacts are physically restricted by factors such as the geology, topography, groundwater regime, and presence of surface water features. Professional judgement is used when considering whether sensitive receptors could be affected by different features or issues, and the buffer is considered sufficiently conservative to identify all relevant issues.

6.5.3 Data sources to inform the EIA baseline characterisation

The baseline conditions of the study area have been determined using a number of different sources, including:

- Geological maps (bedrock and superficial geology);
- Hydrogeological and groundwater vulnerability maps;
- Soil survey maps;
- Site-specific data from Envirocheck, including abstraction and discharge records relating to groundwater, aquifer designations, source protection zones; and Environment Agency, local authority and British Geological Survey data on the location of waste sites, pollution incidents and potentially contaminated sites;
- Mineral sterilisation and geological conservation review sites; and
- Publicly available historical mapping for the Site.

Other information has been obtained from the British Geological Survey Onshore GeoIndex, SoilScapes mapping, Defra's MAGIC maps and publicly available local authority information. A Preliminary Risk Assessment report will be prepared in support of the DCO application to provide a desk-based analysis of the Site. This will be submitted alongside the ES. The Preliminary Risk Assessment will provide a more detailed summary of the information sources listed above, present site walkover information and photographs and include the Envirocheck environmental database report information.

6.5.4 Surveys to inform the EIA baseline characterisation

A walkover survey of accessible Land Parcels was conducted in April 2024 in order to confirm current land uses and to identify potential areas of contamination, if present. The walkover survey of remaining areas of the Site and the surrounding areas will be undertaken as part of the baseline assessment relating to land and soils.
ALC surveys were completed during 2024. These surveys included the entire PV land parcel areas with the exception of the north-eastern and extreme south-eastern corners of Land Parcel C. An ALC survey has not yet been completed for the for the area of search for underground grid connection cable area and this, along with the remaining parts of Land Parcel C, will be completed once the area of search for underground grid connection has been refined. A plan showing the indicative results of the ALC surveys is shown in **Appendix H.**

6.5.5 Baseline conditions

Designated geological sites
There are no known recorded geological conservation review sites or regionally important geological and geomorphological site (Regionally Important Geological Sites) within or close to the Site.

Mineral extraction sites and mineral safeguarding areas
There are no operational mineral extraction sites within the Site boundary. There is evidence of historical quarrying or mineral extraction, with five sites reported within the Site boundary – a marl pit close to the northern Site boundary at Land Parcel D and a further four sites (all relating to the extraction of sand deposits) situated within the area of search for underground grid connection cable, with several others shown within 250m of the Site (all sand or clay extraction sites).
Mineral safeguarding areas are present on the extreme western edge of Land Parcel B and the north eastern part of Land Parcel D. The majority of the area of search for underground grid connection cable is situated within a mineral safeguarding area, which relate to deposits of sand and gravel. The Site is situated approximately 150m to the east of a Mining Remediation Authority coal mining reporting area.

Geology
The bedrock geology across the majority of the Site is composed of the Mercia Mudstone Group. The western portions of Land Parcels A and B are underlain by bedrock of the Sherwood Sandstone Group which consists of fine to coarse grained sandstone.
The superficial geological units across the majority of the Site comprise the Thorganby Clay Member, which is described as greyish brown soft, locally fissured, laminated silt and clay. The north eastern portion of Land Parcel D and the majority of the area of search for underground grid connection cable are underlain by the Bielby Sand Member, described as yellow to pale brown slightly clayey to slightly silty sand. A small area of Peat deposits is shown on British Geological Survey mapping in the central-western part of the area of search for underground grid connection cable and small areas of Alluvium are shown beneath Land Parcel B and the area of search for underground grid connection cable.

Made ground is potentially present in localised areas associated with mineral extraction sites, farm buildings or tracks, and in areas associated with Melbourne Raceway (including the runway), situated in the northern part of Land Parcel D, but there is no indication that extensive areas of artificial ground would be present. There is only one area of mapped artificial ground shown on the British Geological Survey map database, which is situated in the central-south western part of the area of search for underground grid connection cable.
An initial review of British Geological Survey borehole records was undertaken, and these were in agreement with the recorded geological succession. Depths to the Mercia Mudstone bedrock were reported as 11.20m to 12.90m below ground level (bgl), where present, and a depth of 17.40m bgl was reported to the Sherwood Sandstone. Records for a number of Environment Agency boreholes are available, and those that have been viewed indicate groundwater strikes at depths of between 19.5m and 65m bgl, with resting groundwater at shallower depths, indicating possible sub-artesian groundwater conditions.

Soil
A combined indicative ALC plan showing the results of the ALC surveys is presented at **Appendix H.**

The indicative ALC plan confirms that the solar PV land parcels are underlain by agricultural soils of varying quality, as follows:

- Land Parcel A: Is underlain by soils that are classified as Grade 3a (good to moderate) and Grade 3b (moderate) quality agricultural land.
- Land Parcel B: Approximately 50% of this land parcel is underlain by soils that are classified as Grade 3b (moderate) quality agricultural land, with the majority of the remaining areas underlain by soils of Grade 4 (poor) and Grade 5 (very poor) quality. A small portion of Grade 3a (good to moderate) quality agricultural land is present in the south western corner of this land parcel.
- Land Parcel C: The ALC surveys did not fully assess Land Parcel C, hence no data are available for limited areas in the north-eastern and south-eastern extent of this land parcel. Where surveys were completed, the assessment indicated that Land Parcel C is mostly underlain by a combination of Grade 3a (good to moderate) and Grade 3b (moderate) quality soils. Grade 4 (poor) quality soils are present in areas and Grade 2 (very good) quality soils are present in the northern part of the land parcel within an area known as ‘The Intakes’, which is situated immediately north of Ash Lane.
- Land Parcel D: Much of Land Parcel D is underlain by soils that are classified as Grade 3b (moderate) quality. Soils of Grade 3a (good to moderate) quality are present within a small area in the south and across parts of the north/north-east of the land parcel. Soils of Grade1 (excellent) quality are present in the northern part of the land parcel, to the east of Brickyard Farm.
- Land Parcel E: This land parcel is underlain by soils of Grade 3b (moderate), Grade 4 (poor) and Grade 5 (very poor) quality.

Hydrogeology
The Mercia Mudstone bedrock deposits underlying the majority of the Site form a Secondary A Aquifer, with the western tip of Land Parcel B being underlain by Sherwood

Sandstone bedrock that is classified as a Principal Aquifer. The majority of the Site is underlain by Superficial Deposits that are classified as Unproductive strata, with the north eastern areas being underlain by superficial geology defined as a Secondary aquifer (undifferentiated).
Principal aquifers are defined as strategically important rock units that have high permeability and water storage capacity. A Secondary A aquifer is defined as permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. Secondary (undifferentiated) aquifers are so classified as it is not possible to further define the classification because of the variable characteristics of the geological unit.
Depth to groundwater is unconfirmed beyond what is reported in available British Geological Survey borehole records. It is anticipated that the regional direction of groundwater flow is in line with local topography and towards surface watercourses and may be locally or regionally influenced by groundwater abstraction/s in the area.
A small zone I Source Protection Zone with respect to a groundwater abstraction source is present within the Site boundary at Land Parcel D and a second is situated within the area of search for underground grid connection cable. Small zone 1 Source Protection Zones are present within approximately 50m of the Site boundaries next to Land Parcels B and D. There are no zone II (outer protection zone) or zone III (total catchment) Source Protection Zone associated with the above zone 1 Source Protection Zones.
The environmental database search indicates 35 water abstractions to be present within the Site and that a further 22 situated within 500m of the Site. The majority of these are from groundwater and for general agriculture use, although there are multiple entries indicating that groundwater is abstracted for domestic use – it is likely that these correspond with the zone 1 Source Protection Zones mentioned above.

Discharge consents
There are 21 discharge consents within the Site boundary and 3 off-site within 250m of the Site boundary. All relate to the discharge of sewage – final/treated effluent. The majority of these relate to multiple entries for a Yorkshire Water sewage treatment works discharge situated within the area of search for underground grid connection cable.

Historical site usage
Since earliest publicly available historical mapping (1850s), the Site has undergone little significant change. The watercourses and main drains were all already present at that time, with numerous field boundaries and plantations that remain on-site. The area is predominantly agricultural in nature from those map editions, with many of the farms and villages also shown. The main exception to this is the development of former RAF Melbourne from circa 1940, which partially occupies the north-eastern part of Land Parcel D. In addition, multiple sand, clay and marl pits are shown on historical mapping in the area, although those noted within the Site are restricted to the area of search for underground grid connection cable only.

Unexploded Ordnance (UXO)
It should be noted that the Site boundary has been amended following the completion of the UXO report **(Appendix O)**, however the area used for these reports was larger than the current Site boundary. These reports still refer to the original area used when they were prepared, however they are considered to be representative of the current Site boundary.

A detailed UXO risk assessment has been procured for the majority of the site, covering all of the PV Areas and providing partial coverage of the area of search for underground grid connection cable. This assessment concluded that there is an overall medium-high risk associated with Allied Forces UXO in areas of former RAF Melbourne that were used for bomb storage and the whole of the former RAF site is deemed as having a medium risk from Allied Forces UXO. The remainder of the Site (i.e. excluding former RAF Melbourne) has been assessed as having a low risk from both Allied Forces and German UXO.
Construction activity involving ground excavation in areas of medium and medium-high risk from UXO will require specialist on-site support and work in all areas of the Site will require a dedicated UXO risk management plan.

Landfill sites and waste transfer sites
The environmental database search indicates that there is one registered / historical landfill situated within the Site - Scamland Bridge, located within the area of search for underground grid connection cable, to the immediate north of Main Street and to the east of Melbourne. This site is reported to have received inert and industrial waste between 1948 and 1979.
An historical landfill site and a registered landfill site are situated immediately adjacent to Fog Lane, which forms the western boundary of Land Parcel B. The historical landfill, 'Ellerton Site A and B', received inert, industrial, commercial and household wastes between 1975 and 1976. No information is available for the registered landfill site, 'Ellerton Sands Pit' other than that the input was less than 10,000 tonnes per annum and the license commenced in 1980 and has since lapsed (date unknown). These sites correspond with former sand pits identified on historical maps (see the land contamination section, below).
Off-site within 250m there are four licensed waste management facilities. One is situated within 100m of the southern boundary of Land Parcel E (categorised as a household, commercial and industrial transfer station and treatment site), and the second relates to on-farm anaerobic digestion at Melrose Farm, situated approximately 50m away from the Site at Land Parcel D. Two facilities relate to Ryedale organics Ltd and Ryedale Farm for composting and mobile plant for spreading activity respectively.

Land contamination
The Site history indicates that land use has principally been agricultural, and some limited areas of contamination may be present associated with this land use. Made ground may be present in limited locations along tracks and close to farm buildings located within or close to the Site and the use of agri-chemicals and fuels may have resulted in localised releases to ground. There is the potential for asbestos-containing materials to be present if made ground deposits are identified.
Made ground may be present in limited locations within mineral extraction sites. A review of historical maps and British Geological Survey data indicate former mineral extraction within the Site boundary is limited to the area of search for underground grid connection cable. British Geological Survey data indicates a total of seven 'ceased' quarries are present (one of which is located on the boundary between Land Parcel D and the area of search for underground grid connection cable). Sand pits are shown on the 1892 map in the central, south western and south eastern parts of the area of search

for underground grid connection cable, as well as a marl pit in the south western corner of this part of the Site.
Several old sand, clay and marl pits are noted within 250m of the Site, including sand pits south of Ash Lane on the western side of the area of search for underground grid connection cable, clay pits to the north of the area of search for underground grid connection cable and to the immediate north of Land Parcel D, and a sand pit within approximately 40m to the south of Land Parcel B (north of Latham). Sand pits are shown on 1854 – 1978 maps immediately adjacent to Fog Lane, along the western boundary of Land Parcel B, which correspond to the landfills noted above.
Breckstreet Airfield (Melbourne Raceway) is shown on historical maps from 1952 onwards and is partially situated within Area D. It is understood that the airfield was used for aviation between 1940 and 1946. Contamination may be present associated with historic aviation activity, including fuel storage and aircraft maintenance, and more recently associated with the use of the airstrip as a motorsport raceway.
Based on publicly available historical mapping, there is no information suggesting other potential contaminative site uses have occurred.
According to the environmental database, there are no contaminated land register entries and notices on or within 250m of the Site. There have been eight pollution incidents to controlled waters recorded within the Site boundary; six Category 2 significant incidents and two category 3 minor incidents. Where stated, the substances involved are listed as oils, sewage and agricultural slurry. Two substantiated pollution incidents are reported within the Site boundary, one involving biodegradable (blood and offal) and the other involving sewage sludge.

Natural geological hazards
According to the environmental database information, there is the potential for zero to high risks from geological hazards within some sections of the Site, as follows:

- Collapsible ground hazards: no hazard to very low hazard;
- Compressible ground hazards: no hazard to high risk from hazard;
- Dissolution hazards: no hazard
- Landslide hazards: very low hazard
- Running sand hazards: very low hazard;
- Shrink/swell hazards: no hazard to low hazard;

The highly compressible ground hazard risk areas are present across much of the Land Parcels and area of search for underground grid connection cable.

6.5.6 Additional (secondary and tertiary) mitigation

Construction
The following measures will be incorporated into the Outline CEMP and Outline Soil Resource Management Plan, to ensure that damage to land, soils, and groundwater can be minimised during the construction phase (note that these are examples, and not a full list of measures):

- Soil management during works will incorporate guidelines for soil handling, to include replacement of soil in temporary laydown areas;

- During construction works, surface water drains should be designed to carry only uncontaminated water. Silt traps will be implemented to prevent silt entering existing watercourses; and
- Concrete mixing would occur off-site as far as possible. If on-site mixing is required, it would be undertaken in designated areas to minimise the potential for impact on watercourses.

Standard mitigation to be applied will be protective of all groundwater resources so that there are no negative effects on the groundwater. The Outline CEMP will include methods for ensuring the safe storage and use of fuels or chemicals (which could be damaging to the groundwater environment if released), and will detail response plans for addressing leaks and spills to localise any impacts and limit their duration. If piled foundations are adopted, a piling risk assessment will be produced to assess potential risks to groundwater associated with this aspect of construction, with pertinent information included within the Outline CEMP.

Operation and decommissioning

No additional mitigation measures would be expected to be required during operational or decommissioning phases beyond the embedded mitigation incorporated into the design of the Proposed Development and the measures detailed in the Outline OEMP and Outline DEMP. The Outline Soil Resource Management Plan would also apply to these phases.

6.5.7 Description of likely significant effects

There may be contamination issues, due to the recorded presence of a registered/historical landfill within the Site boundary and on land immediately adjacent to the Site. Additionally, Melbourne Raceway is situated within the area of search for underground grid connection cable and localised low-level contamination may be present associated with agricultural activity.

With respect to likely effects on land contamination, construction activities could lead to localised contamination of soils from potential spills from construction plant during operation or refuelling activities if not managed correctly. If contaminated soils associated with past developments are identified, these could form a minor localised source of contamination if they are not managed correctly. The significance of any effects would be expected to be very low or low.

In terms of likely effects on groundwater, construction activities (including piling activities, earthworks, access tracks and excavation) could lead to minor damage to field drains, which may affect the localised drainage of the agricultural land and the groundwater quality of the underlying aquifer and SPZ, where present. Spillages or leaks of fuels, oils and chemicals during construction works may lead to effects on groundwater, which could result in potential pollution to any underlying aquifers. This may also arise from runoff associated with construction activities (e.g., silt run-off during earthworks and accidental spills and leaks from construction plant). The significance of any effects would be expected to be slight to moderate, depending on the location of incidents and the sensitivity of the receptors affected.

Likely effects on soil and agricultural land during the construction phase of the Proposed Development could include compaction and deterioration of soils and agricultural land. Access tracks and slopes within the Site are likely to be most susceptible to deterioration through erosion. There would be limited handling and moving of soils during the

construction of the Proposed Development and handling is expected to be avoided, where reasonably practicable. The significance of effects relating to soil and agricultural land during the construction phase of the Proposed Development are expected to be slight to moderate, depending on the sensitivity of soil resources within different parts of the site.
Effects caused during the operational and decommissioning phases are likely to be less significant in comparison with those outlined above for the construction phase

6.5.8 Receptors/matters to be scoped into further assessment

Receptor/Matter	Phase	Justification
Land (potential contamination)	Construction	Potential sources of contamination are likely to be limited to localised areas of made ground associated with mineral extraction, farm buildings or tracks, uncontrolled burial of materials, fuel, oil or agrichemical spills or animal burial sites may be present within agricultural land, although this is unlikely to be widespread, if present. A former airfield is present with associated potential risks of hydrocarbon related contamination. Mineral extraction sites have been identified on-site (within the area of search for underground grid connection cable only) and these represent a potential source of contamination if uncontrolled infilling has occurred. A registered / historical landfill has been identified within the Site boundary, situated within the area of search for underground grid connection cable. A historical landfill site and a registered landfill site are situated immediately adjacent to the western boundary of Land Parcel B. The historical landfill received inert, industrial, commercial and household wastes between 1975 and 1976. Further assessment of these features will be completed as part of the Preliminary Risk Assessment report.
Groundwater	Construction, operation and decommissioning	The majority of the Site is underlain by a Secondary A Aquifer (Mercia Mudstone bedrock unit), with the western tip of Land Parcel B being underlain by a Principal Aquifer (Sherwood Sandstone bedrock unit). The majority of the superficial deposits beneath the Site are classified as Unproductive strata, with the north eastern areas being underlain by superficial geology defined as a Secondary aquifer (undifferentiated).

		A small zone 1 Source Protection Zone with respect to a groundwater abstraction source is present within the Site boundary at Land Parcel D and a second is situated within the area of search for underground grid connection cable. Small zone 1 Source Protection Zones are present within approximately 50m of the Site boundaries next to Land Parcels B and D. These are thought to be related to groundwater abstractions for domestic use. The quality of groundwater will be appropriately protected by mitigation measures implemented via the Outline CEMP, Outline OEMP and Outline DEMP, to be submitted in support of, and secured by, the DCO application. They will be developed into detailed documents by the principal contractor undertaking the works prior to the construction phase commencing. The purpose of the Outline CEMP, Outline OEMP and Outline DEMP is to provide guidelines to avoid, minimise or mitigate effects on the environment (including issues relating to groundwater) during construction, operation and decommissioning. This would include emergency procedures to manage accidental spillages and leaks and include procedures to mitigate against contaminated land and erosion. Due to the connection between quality of surface water and quality of groundwater, the Surface Water Management Plan (included as part of the Outline CEMP) would also be important in avoiding, minimising and mitigating effects on groundwater. The Detailed Surface Water Management Plan will be a commitment to be included in the Outline CEMP, and would be necessary at a later stage in the project (i.e. during the detailed design stage and prior to construction commencing). It would include best practice working methods for the protection of surface water from pollution and other adverse impacts, which could have subsequent effects on groundwater. The Detailed Surface Water Management Plan will include mitigation measures such as: • Pollution incident control; • Emergency preparedness;

		• Extreme weather events; • Construction site security; and • Site materials and waste management. It is possible that changes to the surface water regime could have a negative impact on the Site groundwater. However, adhering to industry best practice with respect to protection of surface water would ensure that any adverse effects to surface water are minimised, reducing the potential for corresponding changes within the groundwater. As piled foundations would be included within the Proposed Development, the completion of a Piling Risk Assessment would be necessary at a later stage in the project (i.e. during the detailed design stage and prior to construction commencing). This would be a commitment to be included in the Outline CEMP. As well as ensuring that potential risks to groundwater from piling operations are managed appropriately, the piling risk assessment would also inform detailed piling design. Information to be collected during the site investigation would be required to feed into this risk assessment. Despite the measures outlined above, at this stage it is considered appropriate for groundwater to be scoped in to the ES until sufficient information about all phases is available and detailed mitigation measures are available.
Soils (Agricultural Land Classification)	Construction, operation and decommissioning	Land categorised as having soils of Grade 1, Grade 2 or Grade 3a quality is classified as best and most versatile (BMV) agricultural land. The ALC surveys have identified the presence of BMV agricultural land to be present within Land Parcels A, B, C and D, with soils in Land Parcel E being classified as ALC Grades 3b or worse. Due to the presence of BMV land, soil and agricultural land is proposed to be scoped into the EIA for all phases of the development, with additional surveys to be completed to further inform this assessment. ALC surveys are to be completed for limited parts of Land Parcel C that were not initially surveyed and for the area of search for

		underground grid connection cable once the preferred cable route(s) have been selected. These will be reported in the PEIR and/or ES.

6.5.9 Receptors/matters to be scoped out of further assessment

Receptor/Matter	Phase	Justification
Groundwater	Operation	Considering the characteristics of the operational phase of the Proposed Development there are not likely to be significant effects to groundwater. The quality of groundwater will be appropriately protected by mitigation measures implemented via the Outline OEMP to be submitted in support of, and secured by, the DCO application.
Land (geological units)	Construction, operation and decommissioning	The bedrock geology across the majority of the Site is composed of the Mercia Mudstone Group, with Sherwood Sandstone Group present beneath western portions of Land Parcels A and B. The superficial geological units across the majority of the Site comprise the Thorganby Clay Member, with the north eastern portion of Land Parcel D and the majority of the area of search for underground grid connection cable underlain by the Bielby Sand Member. Small areas of alluvium deposits are present beneath the area of search for underground grid connection cable and Land Parcel B, and a small area of peat is present within the area of search for underground grid connection cable. There are no known Regionally Important Geological Sites or SSSI associated with the underlying geology. Its value and sensitivity in terms of groundwater resource are considered elsewhere.
Land (geological conservation review sites)	Construction, operation and decommissioning	There are no geological sites of scientific interest within the Site or Geological Review Sites known to be present within 250m of the Site.
Land (mineral safeguarding)	Construction, operation and decommissioning	Mineral safeguarding areas are present on the extreme western edge of Land Parcel B and the north eastern part of Land Parcel D. The majority of the area of search for underground grid connection cable is situated within a mineral

		safeguarding area, which relates to deposits of sand and gravel. As a result, it is proposed that an assessment of mineral safeguarding issues will be undertaken in support of the DCO application and presented in the Planning Statement, outwith the EIA. This will include consultation with the Mineral Planning Authority (East Riding of Yorkshire and Hull City Councils).
Land (geological hazards)	Construction, operation and decommissioning	The baseline review has identified possible compressible ground geological hazards, likely associated with areas of alluvium and peat identified within the Land parcels and area of search for underground grid connection cable that will require specific consideration during construction activity. An appropriate ground investigation programme will be planned to be undertaken to inform the detailed design. This is likely to be secured by an appropriate DCO Requirement, which would ensure all reporting is completed and any resulting adverse effects are designed out in agreement with the relevant authorities. Further detail on this matter will be included in the ES.
Land (potential contamination)	Operation and decommissioning	Potential contamination associated with the historical activity at the Site will be addressed initially by the Preliminary Risk Assessment and then during the construction phase as part of intrusive site investigation work. There would not be anticipated to be any further impacts on the Proposed Development during operation or decommissioning as a result of existing contamination. Any issues relating to contamination resulting from project activities would be controlled by the requirements of the Outline OEMP and the Outline DEMP (e.g., issues relating to storage and use of fuels, firefighting waters/foam and cleaning agents). These documents would also address the potential for the Proposed Development to affect any existing contamination.
6.5.10 Opportunities for enhancing the environment		
No opportunities for environmental enhancement have been identified in respect of land, soils and groundwater at this stage.		

6.5.11 Proposed assessment methodology

The following documents are relevant to the preparation of the land, soils and groundwater assessment:

- Part IIA, Environmental Protection Act 1990 (relevant in terms of assessment of contaminated land)
- The Environmental Permitting Regulations (England & Wales) 2016 (last revised March 2020) (relevant with respect to environmental permits)
- Overarching National Policy Statement for Energy (NPS EN-1) (January 2024) incorporates principles relating to geological conservation, land use and resource and waste management
- Land Contamination Risk Management, July 2023
- A new perspective on Land and Soil in Environmental Impact Assessment, IEMA, February 2022
- Construction Industry Research and Information Association (CIRIA) report Contaminated Land Risk Assessment (A guide to good practice) C552, 2001
- Natural England Technical Information Note TIN049: Agricultural Land Classification: protecting the best and most versatile land, 2nd edition (2012)
- East Riding of Yorkshire and Kingston upon Hull Joint Minerals Local Plan, 2016 to 2033, adopted November 2019.

A desk-based Preliminary Risk Assessment report will be prepared in support of the DCO application, which assesses the potential risks on the existing land, soil and groundwater baseline, including contamination issues. The Preliminary Risk Assessment report conclusions and results of ground investigations will determine necessary mitigation measures to ensure that the construction, operation and decommissioning of the Proposed Development do not result in significant effects on the receiving land, soil and groundwater environment.

The assessment of baseline data will include a review of the information obtained for the Site for the matters that are to be scoped in, and each will be considered using professional judgement to determine whether the level of available information is acceptable.

The significance of potential effects is assigned based on a set of definitions, as provided in **Appendix D**, and professional judgement will be used as appropriate to assess potential risks.

6.5.12 Difficulties and uncertainties

To ensure transparency within the EIA process, the following difficulties and uncertainties have been identified:

- Data and on-site history have been obtained from publicly available historical maps, and there may be developments that occurred between map editions that are not evident.

6.5.13 References

- A new perspective on Land and Soil in Environmental Impact Assessment, IEMA, February 2022. Available online: https://www.iema.net/resources/blog/2022/02/17/launch-of-new-eia-guidance-on-land-and-soils
- Defra mapping https://magic.defra.gov.uk/MagicMap.aspx
- Detailed Unexploded Ordnance (UXO) Risk Assessment, DA20029-00, 1st Line Defence, 5 August 2024.
- East Riding of Yorkshire and Kingston upon Hull Joint Minerals Local Plan, 2016 to 2033, adopted November 2019. Available online: https://www.eastriding.gov.uk/planning-permission-and-building-control/planning-policy-and-the-local-plan/joint-minerals-plan/
- Environmental Protection Act 1990, Part IIA. Available online: https://www.legislation.gov.uk/ukpga/1990/43/part/IIA.
- Land Contamination Risk Management 2023. Available online: https://www.gov.uk/government/publications/land-contamination-risk-management-lcrm
- National Planning Policy Framework (2024). Available online: National Planning Policy Framework - GOV.UK
- Overarching National Policy Statement for Energy (EN-1) January 2024. Available online: https://assets.publishing.service.gov.uk/media/65bbfbdc709fe1000f637052/overarching-nps-for-energy-en1.pdf
- Site-specific environmental database information (6 October 2023, reference SR00275328_318257239), reviewed in geographical information systems (GIS) format
- SoilScapes (2023) https://www.landis.org.uk/soilscapes/.
- The Environmental Permitting (England and Wales) Regulations 2016 (last revised March 2020). Available online: https://www.legislation.gov.uk/uksi/2016/1154/made

6.5.14 Scoping questions

- Do you agree with the proposed list of consultees?
- Do you agree with the proposed study areas?
- Do you agree that the data sources listed to inform the EIA baseline characterisation are appropriate?
- Are any receptors or resources not identified that you would like to see included in the EIA?
- Do you agree with the proposed additional (secondary and tertiary) mitigation measures and is this mitigation appropriate?
- Do you agree with the receptors/matters that are proposed to be scoped in and out of further assessment?

6.6 Landscape and visual

6.6.1 Consultation

Consultation in relation to landscape and visual impacts commences with submission of this EIA Scoping Report. No prior consultation to inform the Landscape and Visual Impact Assessment has been undertaken to date.

Following submission of the EIA Scoping Report, discussions will be held with Natural England and East Riding of Yorkshire Council to agree the finer detail of the Landscape and Visual Impact Assessment. Agreement will be sought on a selection of assessment viewpoints to be used in the Landscape and Visual Impact Assessment, including the illustrative techniques to be used for any visualisations of the Proposed Development.

6.6.2 Study area

Best practice guidance for the assessment of landscape and visual effects (Guidelines for Landscape and Visual Impact Assessment – Landscape and Visual Impact Assessment 3) states:

"Scoping should … identify the area of landscape that needs to be covered in assessing landscape effects. This should be agreed with the competent authority, but it should also be recognised that it may change as the work progresses, for example as a result of fieldwork, or changes to the proposal. The study area should include the site itself and the full extent of the wider landscape around it which the Proposed Development may influence in a significant manner."

And:

"Scoping should identify the area that needs to be covered in assessing visual effect, the range of people who may be affected by these effects and the related viewpoints in the study area that will need to be examined. The study area should be agreed with the competent authority at the outset and should consider the area from which the Proposed Development will potentially be visible. The emphasis must be on a reasonable approach which is proportional to the scale and nature of the Proposed Development."

An area of land running between Melbourne and Seaton Ross and stretching north east up to the Thornton National Grid substation is also included within the Site boundary forming the area of search for underground grid connection cable. For Land Parcel A, no ZTV will be undertaken as the land is set aside for ecological mitigation only with no development proposed. In addition, the area of search for underground grid connection cable will not be considered in the ZTV as any laying of underground cabling will only result in temporary localised landscape and visual effects.

To assist in determining an appropriate and proportionate study area for the Landscape and Visual Impact Assessment, a series of preliminary ZTV plans have been prepared which are presented in **Appendix C (Concept Masterplan) and Appendix G.** The ZTVs illustrate the 'maximum effect scenario' of visibility for the various elements of the Proposed Development based on the anticipated parameters as set out on the Concept Masterplan **(Appendix C).** The purpose of the ZTVs at this stage is to identify the maximum possible extents of visibility and to help identify potential visual receptors.

It should be noted that the ZTVs included within this EIA Scoping Report have been derived from LiDAR 2022 height data. Locations of buildings are taken from the OS Open Map Local dataset, and location of woodland and vegetation higher than 2.5m are taken

from the Environment Agency's Vegetation Object Model dataset. This allows a reasonably accurate representation of likely visibility of the scheme with site investigation during the assessment allowing for greater consideration as to the extent of visibility and any seasonal variation.

The following ZTVs have been produced (**Appendix G**):

- **Figure G.3** ZTV of the maximum extents of the solar PV modules at 4m (fixed) and 5m (tracker) in Land Parcel B
- **Figure G.4** ZTV of the maximum extents of the solar PV modules at 4m (fixed) and 5m (tracker) in Land Parcel C
- **Figure G.5** ZTV of the maximum extents of the solar PV modules at 4m (fixed) and 5m (tracker) in Land Parcel D
- **Figure G.6** ZTV of the maximum extents of the solar PV modules at 4m (fixed) and 5m (tracker) in Land Parcel E
- **Figure G.7** ZTV of potential substation locations at 8m (electrical equipment) and 15m (comms. tower) in Land Parcels B, C and D.

The ZTVs presented in **Appendix G** treat the five separate visibility target areas as standalone developments but should be read together to understand the full extent of visibility. In each case, the ZTVs for the 4 and 5m solar PV modules (**Appendix G Figures G.3 to G.6**) assume that the entire extent of the potential area for solar development as defined in the Proposed Concept Masterplan **(Appendix C)** is filled with solar PV modules.

Figure G.7 in **Appendix G** shows the ZTV for the fields identified as having potential to accommodate a substation as defined on the Proposed Concept Masterplan **(Appendix C).** The ZTV models visibility based on the full extent of these areas having the 8m and 15m height parameters identified above. In reality the on-site substations would occupy a fraction of the land area modelled with visibility considerably less than implied by these ZTVs.

Based on analysis of the ZTVs (**Appendix G, Figures G.3 to G.7**), field work undertaken to date and past experience of similar projects, it is considered unlikely that there would be anything other than negligible, distant and filtered glimpses of the solar PV modules or two on-site substations beyond 3km of the fields in which they are located and at such distances, the effects would in no circumstances be significant. In most directions, visibility would in reality be restricted to much closer than this. It is therefore proposed that a 3km study area offset from the boundaries of the fields in which solar PV modules and the on-site substations may be located is more than adequate and proportionate for the consideration of landscape and visual effects arising as a result of the operation of the Proposed Development.

With respect to the area of search for underground grid connection cable to the Thornton National Grid substation, it is unlikely that this would give rise to any operational phase landscape and visual effects as it would not be visible, but it is recognised that there could in theory be construction/decommissioning effects associated with laying the cable.

It is therefore proposed that the detailed study area and the main focus of the Landscape and Visual Impact Assessment will be within 3km of the fields where solar PV modules and the on-site substations may be located; but that it will also include land up to 100m either side of the area of search for underground grid connection cable

where it extends to the north east of the Land Parcels. As the exact cable route is still to be determined, the area of search for underground grid connection cable study area is likely to reduce further as the design for the Proposed Development progresses. The study area is considered adequate to identify all non-negligible effects on landscape and visual receptors. The proposed study area is presented on **Appendix G, Figure G.1**.

In terms of Human Health, landscape and visual effects have the potential to influence someone's perception of the natural environment and the quality of the environment in which they live. The Proposed Development is not anticipated to result in any landscape or visual effects that would be considered unacceptable in terms of Human Health and as such it will not be considered within the Landscape and Visual Impact Assessment.

6.6.3 Data sources to inform the EIA baseline characterisation

The Landscape and Visual Impact Assessment will draw upon information in the following published landscape character assessments:

- National Character Area (NCA) Profile 39 – Humberhead Levels (Natural England)
- National Character Area (NCA) Profile 28 – Vale of York (Natural England); and
- East Riding of Yorkshire Landscape Character Assessment (AECOM, 2018).
- North Yorkshire and York Landscape Characterisation Project (CBA, 2011)

The Landscape and Visual Impact Assessment will consider relevant policy and guidance contained within:

- Overarching National Policy for Energy (NPS EN-1)
- National Policy Statement for Renewable Energy Infrastructure (NPS EN-3)
- National Policy Statement for Electricity Networks (NPS EN-5)
- National Planning Policy Framework (NPPF)
- East Riding Local Plan (adopted, April 2016); and
- Draft East Riding Design Code (September 2023) and any subsequently adopted documents.
- East Riding of Yorkshire Definitive Map of Public Rights of Way.

6.6.4 Surveys to inform the EIA baseline characterisation

Visits to the Site and the surrounding landscape have already been undertaken, including walking PRoW and establishing the closest residential receptors and potential views into the Site.

Further site visits will be undertaken in winter 2024/2025 and again in summer 2025 to photograph the baseline views from a range of locations (viewpoints) within and surrounding the Site to represent a range of views and visual receptors of the Proposed Development. The location of the viewpoints will be agreed through further consultation with statutory consultees (East Riding of Yorkshire Council and Natural England).

Where access to private property can be arranged, visits will also be made to selected residential properties, based on the initial study area surveys and appraisals and in consultation with East Riding of Yorkshire Council, to assess the potential for visual

effects on residential amenity. This will be supplemented where needed using the data collected from the drone survey currently being undertaken on Site

6.6.5 Baseline conditions

Landscape designations

No part of the Proposed Development or its immediately surrounding context falls within a statutory designated landscape. The nearest National Landscape is the Howardian Hills which is over 18km to the north of the Site boundary and would not be affected by any development within the Site. Natural England is currently undertaking a study known as the Yorkshire Wolds Designation Project within which a provisional candidate area to be designated as a National Landscape is being considered. At the time of writing there is not a set boundary for this project; the eastern extents of the area under consideration lie just to the east of the A1079 which is approximately 6km east of the Site boundary. At this distance the candidate area would not be affected by any development within the Site.

There are no Registered Parks and Gardens within 5km of the Proposed Development; the nearest are located 7.5km (Londesborough Park) north-east of the Site, 9.7km (Houghton Hall) east of the Site and 11.4km (Moreby Hall) west of the Site. There would be no visibility of the Proposed Development at these distances.

With the exception of the area of search for underground grid connection cable, there are no local landscape designations covering any part of the Proposed Development. The locally designated River Derwent Corridor and Lower Derwent Valley Important Landscape Area is located less than 1km from the main part of the Site at its closest point, both to the north and west. The area of search for underground grid connection cable passes through this Important Landscape Area.

Landscape character

The Site and proposed study area are located largely within the northern portion of NCA 39 Humberhead Levels. The exception to this is the northern section of the area of search for underground grid connection cable which is located at the southern edge of NCA 28 Vale of York. The Natural England profile describes NCA 39 Humberhead Levels as:

"…*A low-lying, predominantly flat landscape, with large regular and geometric arable fields within hedges but dived by ditches and dykes".*
"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"
"Views to distant horizons are often long and unbroken, with big expansive skies, and vertical elements like water towers, power station and wind turbines are very prominent".
"Despite settlements, motorways and main roads, there is a still a sense of remoteness to be experienced on the Levels, in particular on Thorne and Hatfield Moors and along the Lower Derwent Valley.

While the NCAs will be considered within the Landscape and Visual Impact Assessment, the effects on landscape character will be reported with reference to the district LCAs. At a district level, the East Riding of Yorkshire Landscape Character Assessment (East Riding of Yorkshire LCA) identifies Landscape Character Types and LCAs. These are illustrated in **Appendix G Figure G.2**. In total, 23 Landscape Character Types have been identified, which were further subdivided into 82 LCAs. The majority of the Site, excluding the southern edge of Land Parcel B and the southern section of Land Parcel E; and parts of the area of search for underground grid connection cable, is located within Landscape Character Type 6: Wooded Open Farmland and in LCA6A: South of Pocklington Canal Wooded Farmland. The LCAs described in the East Riding of Yorkshire LCAs a *"Medium to large scale landscape with a good mix of grassland and arable land use. Hedgerows are generally in good condition with few gaps".* Its key characteristics considered relevant are listed as:

- *"Low lying flat arable farmland in good condition with occasional grass fields and small woodland blocks*
- *The land rises gradually west*
- *Church Hill at Holme on Spalding Moor is a prominent landmark*
- *Random irregular field size and pattern*
- *Hedgerow field boundaries in varying condition many with hedgerow trees*
- *Scattered villages and farmsteads*
- *Relatively remote and tranquil place away from villages*
- *Agricultural development is a common feature across the landscape*
- *Single development turbines and pylons are a visual detractor within the flat landscape.*

The southern edge of Land Parcel B and the southern section of Land Parcel E sit within Landscape Character Type 5: Open Farmland and in LCA 5B: West of Holme on Spalding Moor Farmland. The LCA *"encompasses semi-structured open farmland north of the River Ouse corridor and south of the village of Bubwith. The area is characterised by large scale open fields that are intensively farmed for arable crop production, with occasional examples of equestrian land use. Field boundaries are traditional hedgerows. However, many of these have been lost and this contributes to the open character of the landscape."*

In addition to these two LCAs the area of search for underground grid connection cable runs through Landscape Character Type 3: River/Canal Corridors and in LCA 3C: Pocklington Canal and Beck Corridor, and also through Landscape Character Type1: Flat Open Farmland and in LCA1C: Newton Upon Derwent, Wilberfloss, Allerthorpe and Hayton Farmland.

The other LCAs within the proposed study area are:

- 1A: Shiptonthorpe and Market Weighton Farmland
- 1B: Everingham Estate Farmland and Parkland
- 3B: River Derwent Corridor, Stamford Bridge to Pocklington Canal reach
- 4A: Derwent Valley, Barnby to Pocklington Canal reach
- 5A: Howden to Bubwith Farmland
- 6B: South Cliffe and Hotham Common
- 7A: South Holme on Spalding Moor Farmland

- 7B: Eastrington Farmland

The boundary of North Yorkshire Council runs approximately 2km to the west of the Site and as such lies partially within the study area. The North Yorkshire and York Landscape Characterisation Project defines the character types within the district. Both Landscape Character Type 28: Vale Farmland with Plantation Woodland and Heathland and Landscape Character Type 23: Levels Farmland fall within the proposed 3km study area.

Visual receptors

Visual receptors are *"the different groups of people who may experience views of the development"* (Landscape and Visual Impact Assessment, 3rd edition, para 6.3). In order to identify those groups who may be significantly affected by the Proposed Development, an initial review of the ZTVs, baseline studies and preliminary site visits have been undertaken. When preparing the Landscape and Visual Impact Assessment, this work will be expanded on and considered in greater detail.

The different types of groups assessed will encompass local residents; people using key routes such as roads; cycle ways, people within accessible or recreational landscapes; people using PRoW; or people visiting key viewpoints. The key visual receptors are shown on **Figure G.8** in **Appendix G.**

The relatively flat landscape means that there can often be long-distance views around the study area; but also, that fairly low-level planting, such as hedgerows, can provide significant screening for low-level developments.

Settlements

There are a number of small settlements within the 3km detailed study area, all distances given are at the closest point to the potential areas for solar development.

- The village of Melbourne located within the northern part of the study area (1.2km north of main portion of the Site and to the immediate west of the area of search for underground grid connection cable). The ZTV suggests limited potential for views from properties along the southern edge of the village.
- The village of Seaton Ross located to the north-east of the Site. The ZTV suggests possible views towards the Site from properties with an outlook towards the airfield.
- The village of Laytham located to the south of the main portion of the Site (330m south and 450m south-west. The ZTV suggests the potential for views towards the Site from properties with an outward view from the edge of the village.
- The village of Ellerton in the western part of the study area. The ZTV suggests the potential for views back towards the western part of the Site (Parcel B).
- The village of Foggathorpe in the southern part of the study area, 875m south-west of main portion of the Site and south of the A163. The ZTV suggests the potential for views towards the Site to the north of the village.
- The village of Aughton in the south-western part of the study area, 1.4km south-west of main portion of the Site). The ZTV suggests the potential for views northwards from the village towards the Site.
- The village of Harlthorpe in the southern part of the study area ,2km south-west of main portion of the Site. The ZTV suggests visibility of the Site to the north.
- The village of Water End in the south-eastern part of the study area, 2.2km east of main portion of the Site. The ZTV suggests that the Site will be screened from here.

- The village of Bielby in the north-eastern part of the study area (2.1km east of main portion of the Site and and 500m east of the area of search for underground grid connection cable). The ZTV suggests visibility towards the Site from the western edge of the village
- The village of Thornton in the northern part of the study area (2.5km north of main portion of the Site and 250m west of the area of search for underground grid connection cable). The ZTV suggests that the Site is screened from here.
- The village of Storwood in the north-western part of the study area 2.2km north-west of main portion of the Site. The ZTV suggests some visibility of the Site along the eastern edge of the village.
- The village of East Cottingwith in the north-western part of the study area 1.4km north-west of main portion of the Site. The ZTV suggests some visibility of the Site along the eastern edge of the village.

For all the above settlements, the visibility of the Site on the surrounding area is likely to be less than suggested by the preliminary ZTV work. However, depending on the final design and layout of the Site, there is the theoretical potential for there to be views of the Site from the fringes of these settlements, but there is also potential through design and mitigation to minimise the view of new infrastructure.
In addition to the settlements above, there are scattered properties throughout the 3km study area, including some in relatively close proximity to the proposed area for solar PV modules, including:

- Ruddings Wood Farm.
- Acorn Cottage, Ellerton.
- Boland House, Ellerton.
- Bibbill Farm, Melbourne.
- The Old Mill, Seaton Ross.
- Blackberry Farm, Ellerton.
- Harthill Farm, Laytham.
- Laytham Park, Laytham.
- Melrose Farm, Melbourne.
- Blue Slates Farm, Ellerton.
- Laytham Park and Caravan Site, Laytham Park.
- Owlet Farm, Laytham.
- White Farm, Melbourne.
- Oak Tree Cottage, Laytham.
- Grange Garth, Seaton Ross.
- Acre Farm, Melbourne.
- Breckstreet Court, Breckstreet Lane, Seaton Ross.
- Holly Cottage, Breckstreet Lane, Seaton Ross.
- South Acre Farm, Main Road, Melbourne.
- South Ross Farm, Bridges Lane, Ellerton.
- Bethell House, Bridges Lane, Ellerton.

- Spring House Farm, Bridges Lane, Ellerton.
- Springfield Farm, Bridges Lane, Ellerton.
- Laytham Grange, Breckstreet Lane, Laytham.
- Grange Farm, Southfield Lane, Seaton Ross.
- Fox Covert Farm, Bridges Lane, Ellerton.
- Dovecote, Main Road, Laytham.
- Laytham Green Farm, Main Road, Laytham.
- Coach House, Breckstreet Farm, Seaton Ross; and
- Oakfield Farm, Main Road, Laytham.

It should be noted that this list is not exhaustive and has been complied by desk based search. Further surveys will be undertaken as the project progresses to ensure that properties that fit the above criteria are identified.

Key routes

The key routes within the 3km study area are the:

- A163, running broadly east to west through the southern part of the study area from Holme-on-Spalding-Moor to Barlby;
- B1228, running broadly north to south through the western part of the study area from Elvington down to Howden.

Recreational routes

Recreational users of PRoW would likely be the most sensitive visual receptors of any change in the landscape. The relevant PRoWs within the study area are shown on **Figure G.8 in Appendix G** and will be considered within the landscape and visual chapter of the PEIR and ES in terms of views and amenity.

The Wilberforce Way passes through the study area in an east west direction following the Pocklington Canal to the north of Melbourne. At its closest point the Site boundary is 1.5km to the south with the ZTV suggesting that views towards the Proposed Development would be unlikely along most of the route. The route also runs through for the area of search for underground grid connection cable with the grid connection having to cross the route at some point leading to the potential for limited views towards installation works during the construction and decommissioning stages.

- At a regional level the Bubwith Rail Trail runs to the south of the Site running eastward from Bubwith, following the old Market Weighton to Selby line through Foggathorpe and to the north of Holme upon Spalding Moor. Of the route the sections that form Seaton Ross Bridleway no.14 (SRB14) & Foggathorpe Bridleway no.15 (FB15) have the potential for views towards the Proposed Development.

There are no National Cycle Network Routes within the 3km study area.

A review of the East Riding of Yorkshire Council Definitive Map shows that there is numerous PRoW within the 3km study area, including within the Site boundary. Those within the Site boundary, and therefore most likely to be impacted, are:

- Melbourne Bridleway no.5 (MB5) (Commences on Ash Lane and leads along the eastern edge of Great West Wood and north-eastwards to join path No 4 north of Bracepits Wood. Known as Intakes Lane).
- Melbourne Footpath no.4 (MB4) (Commences at the southern end of Melbourne Park between Nos. 6 and 7 and leads south-south-westerly for some 30 metres turns west-north-westerly for some 30 metres then southwards to and along the western edge of Bracepits Wood and The Park to Ash Lane).
- Melbourne Footpath no.2 (MF2) (Commences on Ash Lane and leads southwards around the east side of Park Farm to Throughleys Lane).
- Melbourne Footpath no.3 (MF3) (Commences in Throughleys Lane and leads southwards west of White Farm to the Foggathorpe parish boundary at Lords Drain).
- Foggathorpe Footpath no.11 (MF11) (Commences on the Laytham - Melbourne Road at a point about 400m north of the junction of New Road and leads eastwards and northwards to Owlet Hall Lane then along Owlet Hall Lane for a distance of about 210m and then up the eastern edge of Fox Covert for about 270m.
- Foggathorpe Bridleway no.12 (FB12) (Commences at Laytham about 65m north of the west end of New Road and leads westwards along Belt Lane to the Ellerton parish boundary).
- Ellerton & Aughton Bridleway no.7 (Environment AgencyB7) (Commences at the eastern end of Ruddings Lane and leads in an easterly direction to the Foggathorpe parish boundary to join path No. 12).
- Seaton Ross Footpath no.3 (SRF3) (Commences on Breckstreet Lane and leads north westwards then south west-wards to Breckstreet Farm).

In addition there are several recreational routes that run within the area of search for underground grid connection cable, these are:

- Melbourne Footpath no.9 (MF9) (Commences at Scamland Bridge on the road leading from Melbourne to Seaton Ross and leads in a south-easterly direction across East Common and by the west side of East Farm to the Seaton Ross-Cottingwith Road north-west of Melbourne). Runs through the south-western portion of the area of search for underground grid connection cable.
- Thornton Footpath no.3 (TF3) (Commences at the Swingbridge on Pocklington Canal and leads in a north-westerly direction along the south-western edge of Thornton Wood passing to the north of Woodhouse Farm and thence to the Melbourne-Pocklington Road). Runs through north-eastern portion of the area of search for underground grid connection cable.
- Thornton Footpath no.2 (TF2) (Commences south of Byholme Field and leads north-east then north to the west of Hall Flat to the Allerthorpe parish boundary). Runs through north-western corner of the area of search for underground grid connection cable.
- Bielby Footpath no.6 (BF6) (Commences at Mill Bridge and leads in a northerly direction along the east bank of the Pocklington Canal to Coats Bridge (Broken by Thornton Path No: 4). Runs along eastern boundary of the area of search for underground grid connection cable.

Other recreational routes within the 3km study area where the initial ZTV suggests the potential of visibility of the Proposed Development include:

- Foggathorpe Footpath No.10 (FF10) (Commences at Laytham at a point about 70 yards south of the east end of New Road and leads eastwards to the first bend on the Laytham - Seaton Ross Road). (closest field).
- Ellerton & Aughton Footpath no.6 (Environment AgencyF6) (Commences at the eastern end of Ruddings Lane and leads in a mainly south westerly direction past Aughton Ruddings Farm to Long Lane, opposite the north eastern corner of Common End Plantation).
- Melbourne Footpath no.1 (MF1) (Commences in Melbourne Village in St Monica's Close and leads east for some 42 metres then southwards through the Park to Ash Lane at a point opposite Park Farm. Known as Parkfield Path). Melbourne Bridleway no.6 (MB6) (Commences on Intakes Lane and leads westwards to Kidd Lane south of Melbourne Grange).
- Melbourne Footpath no.7 (MF7) (Commences on Kidd Lane 130 metres south of Melbourne Grange and leads westwards through Clays Plantation to the south-west corner of Eastroad Plantation and continuing along the south side of a hedge and ditch for approximately 246 metres to cross a footbridge then southwards along the west bank of the drain for approximately 84 metres to join a driveway then in a generally south-westerly direction to the Cottingwith parish boundary at General Lane. Known as Blanchard's Wood Path).
- Melbourne Footpath no.9 (MF9) (Commences at Scamland Bridge on the road leading from Melbourne to Seaton Ross and leads in a south-easterly direction across East Common and by the west side of East Farm to the Seaton Ross-Cottingwith Road north-west of Melbourne).
- Seaton Ross Footpath no.4 (SRF4) (Commences on Breckstreet Lane and leads south eastwards to West End then continues southwards past Ladysmith then eastwards to the south of Manor House Farm to Church Lane).
- Seaton Ross Footpath no.5 (SRF5) (Commences on West End to the west of West House Farm and leads south-wards to footpath 7 and then southwards again past the greenhouses to South End).
- Seaton Ross Footpath no. 7 (SRF7) (Commences on footpath 4 south west of Manor House Farm and leads south then southwest across West Field to Fosses Farm).

Other recreational and/or tourist receptors

Other receptors to be considered within the Landscape and Visual Impact Assessment include receptors at:

- The Oaks Lake Golf Club.
- Yellowtop Country Park.
- Hainsworth Park Golf Club.
- Melbourne Raceway and;
- York Model Boat Club.

6.6.6 Mitigation (embedded secondary and tertiary)

Construction

Consideration will be given to the Site selection for compounds and equipment laydown areas along with site access to minimise landscape and visual effects as far as practicable. There is, however, limited potential for additional mitigation of short-term landscape and visual construction effects of the Proposed Development.
Lighting of any construction compounds will be designed to minimise visual intrusion and will only be used where necessary. Existing trees, woodlands and hedgerows would be protected in accordance with best practice for construction in proximity to trees and in accordance with relevant British Standards and secured through the implementation of the Outline CEMP.

Operation

A high-quality design will be secured, firstly through careful site selection for the various components of the Proposed Development, taking account of the potential landscape and visual effects. Removal or disruption to any existing landscape fabric (e.g. trees, hedgerows) will be minimised to that which is absolutely necessary for the implementation of the Proposed Development.
The landscape proposals will be embedded into the scheme as primary mitigation where necessary to mitigate adverse landscape and visual effects. An Outline LEMP will be produced and will form secondary mitigation.

Decommissioning

This stage of the Proposed Development will be similar to the construction stage, albeit in reverse whereby the dismantled equipment will need storing within the Site boundary prior to removal. Given the anticipated operational duration (60 years), mitigation landscaping will have reached maturity and short-term landscape and visual effects during decommissioning will be more filtered and/or screened than at the construction stage. No additional mitigation is envisaged during this phase.

6.6.7 Description of likely significant effects

At this stage, prior to any formal assessment and in the absence of fixed development proposals, it is acknowledged that there is the potential for significant landscape and visual effects to arise during construction, operation and decommissioning of the Proposed Development.
The Landscape and Visual Impact Assessment will therefore consider the potential effects upon:

- Landscape fabric;
- Landscape character; and
- Visual receptors including residential, transport and recreational receptors.

Whilst the ZTVs presented in **Appendix G Figures G.3 to G.7** illustrate theoretical visibility out to 3km (for the solar arrays), it is likely that any significant effects would only extend across a much narrower radius from the Site boundary than this.

Based on site analysis to date and previous experience of assessing the significance of landscape and visual effects for solar farms in similar landscapes, it is considered likely that any significant landscape and visual effects arising from the Proposed Development would be limited to within a distance of approximately 3km.

6.6.8 Receptors/matters to be scoped into further assessment

Receptor/Matter	Phase	Justification
River Derwent Corridor and Lower Derwent Valley Important Landscape Area	Construction, operation and decommissioning	At its closest point it is less than 1km from the Site boundary and also passes through the area of search for underground grid connection cable.
East Riding LCA 6A: South of Pocklington Canal Wooded Farmland	Construction, operation and decommissioning	The bulk of the Site and study area falls within this LCA and there would potentially be a large scale of change in landscape character across parts of this LCA.
East Riding LCA 5B: West of Holme on Spalding Moor Farmland	Construction, operation and decommissioning	The southern parts of Land Parcels B and E fall within this LCA and as such there would potentially be a large scale of change in a localised part of this LCA.
East Riding LCA 3C: Pocklington Canal and Beck Corridor	Construction, operation and decommissioning	The area of search for underground grid connection cable connecting the Proposed Development to the Thornton National Grid substation will pass through this LCA. There is potential for localised effects arising from the loss of landscape elements.
East Riding LCA 1C: Newton Upon Derwent Wilberfloss, Allerthorpe and Hayton Farmland	Construction, operation and decommissioning	The area of search for underground grid connection cable connecting the Proposed Development to the Thornton National Grid substation will pass through this LCA. There is potential for localised effects arising from the loss of landscape elements.
East Riding LCA4A: Derwent Valley, Barnby to Pocklington Canal Reach	Construction, operation and decommissioning	Within the study area, with the ZTV suggesting the limited visibility resulting in the potential for indirect impacts on the LCA. Any potential indirect impacts would be localised and would not impact key characteristics as identified in the East Riding of Yorkshire LCA.
Residents and visitors to the villages of	Construction, operation and decommissioning	Depending on the final layout and design of the Proposed Development, there may be views of the development from parts of these villages.

Melbourne, Seaton Ross, Laytham, Ellerton, Foggathorpe,		It is intended to seek to minimise views of this receptor group as far as feasible.
Residents and visitors to the villages of Bielby and Thornton	Construction, operation and decommissioning	Both villages sit close to the boundary of the grid connection routing zone and would therefore potentially have views towards the route of the cable when finalised. Minimising the potential visibility of the route from these receptors will be a key consideration when finalising the proposed route.
Scattered residential properties and farmsteads	Construction, operation and decommissioning	Higher sensitivity receptors – consideration will be required of residential visual amenity
Users of the A163 and B1228	Construction, operation and decommissioning	These are the two key routes that run through the study area with both having the potential for views towards the Proposed Development. While generally not high sensitivity the views are likely to be experienced by a larger number of people with consideration of the potential for sequential views with other potential developments in the area also needing to be considered.
Users of the Wilberforce Way	Construction, operation and decommissioning	The route offers limited potential for views towards any solar development but passes across the area of search for underground grid connection cable so will experience temporary visual effects over a limited extent.
Users of PRoWs within or abutting the Proposed Development	Construction, operation and decommissioning	Melbourne footpaths 2,3,4 and bridleway 5; Foggathorpe footpath no. 11 & 12; Ellerton & Aughton bridleway 7; and Seaton Ross footpath 3. These footpaths will experience direct views of the development over varying extents as they pass through or abut the Proposed Development.
Users of PROWs within cable routing zone	Construction operation and decommissioning	Melbourne footpath 9, Thornton footpath 2 & 3, and Bielby footpath 6. These footpaths run through or abut the cable routing zone. Once the final route of the cable has been determined some or all of these routes may be able to be scoped out.
Users of the local road network	Construction operation and decommissioning	While generally not high sensitivity there is potential for both direct and indirect views

		towards the Proposed Development from parts of the local road network.
Users of PROWs within the 3km study area with the potential for views towards the Proposed Development	Construction operation and decommissioning	Melbourne footpaths 1, 7, 9 and bridleway 6; Seaton Ross footpaths 4, 5, 7 and bridleway 14; Foggathorpe footpath 10 & bridleway 15; and Ellerton & Aughton footpath. These footpaths sit outside of the Site boundary but within the 3km study area with the ZTV suggesting potential visibility of the Proposed Development.
Users of other recreational / tourist receptors within 3km of the Site	Construction, operation and decommissioning	Depending on the final layout of the Proposed Development there is the potential for indirect views from these receptors which include the Melbourne Raceway, Yellowtop Country Park, Hainsworth Park Golf Club, The Oaks Lake Golf Club and the York Model Boat Club.

6.6.9 Receptors/matters to be scoped out of further assessment

Receptor/Matter	Phase	Justification
Howardian Hills National Landscape	Construction, operation and decommissioning	This nationally important designation is over 18km to the north of the Site and therefore would not be impacted by the Proposed Development.
Londesborough Park, Houghton Hall and Moreby Hall Registered Parks and Gardens	Construction, operation and decommissioning	All over 7.5km from the Site and any potential impacts would not be greater than negligible.
East Riding LCA 1B: Everington Estate Farmland and Parkland	Construction, operation and decommissioning	Within the study area, but based on the extent of visibility of the Proposed Development within the ZTV study, all potential impacts on the LCA would be indirect and landscape elements and pattern of the LCA would not be impacted by the Proposed Development. Any potential indirect impacts would be localised, would not impact key characteristics as identified in the East Riding of Yorkshire LCA, and are unlikely to be greater than negligible.
East Riding LCA 3B: River Derwent Corridor, Stamford Bridge	Construction, operation and decommissioning	Within the study area, but based on the extent of visibility of the Proposed Development within the ZTV study, all potential impacts on the LCA would be indirect and landscape elements and pattern of the LCA would not be impacted by the Proposed Development. Any potential

to Pocklington Canal Reach		indirect impacts would be localised, would not impact key characteristics as identified in the East Riding of Yorkshire LCA, and are unlikely to be greater than negligible.
East Riding LCA 5A: Howden to Bubwith Farmland	Construction, operation and decommissioning	Within the study area, but based on the extent of visibility of the Proposed Development within the ZTV study, all potential impacts on the LCA would be indirect and landscape elements and pattern of the LCA would not be impacted by the Proposed Development. Any potential indirect impacts would be localised, would not impact key characteristics as identified in the East Riding of Yorkshire LCA, and are unlikely to be greater than negligible.
East Riding LCA 6B: South Cliffe and Hotham Common	Construction, operation and decommissioning	Within the study area, but based on the extent of visibility of the Proposed Development within the ZTV study, all potential impacts on the LCA would be indirect and landscape elements and pattern of the LCA would not be impacted by the Proposed Development. Any potential indirect impacts would be localised, would not impact key characteristics as identified in the East Riding of Yorkshire LCA, and are unlikely to be greater than negligible.
East Riding LCA 7A: South Holme on Spalding Moor Farmland	Construction, operation and decommissioning	Within the study area, but based on the extent of visibility of the Proposed Development within the ZTV study, all potential impacts on the LCA would be indirect and landscape elements and pattern of the LCA would not be impacted by the Proposed Development. Any potential indirect impacts would be localised, would not impact key characteristics as identified in the East Riding of Yorkshire LCA, and are unlikely to be greater than negligible.
East Riding LCA 7B: Eastringham Farmland	Construction, operation and decommissioning	Within the study area, but based on the extent of visibility of the Proposed Development within the ZTV study, all potential impacts on the LCA would be indirect and landscape elements and pattern of the LCA would not be impacted by the Proposed Development. Any potential indirect impacts would be localised, would not impact key characteristics as identified in the East Riding of Yorkshire LCA, and are unlikely to be greater than negligible.
The North Yorkshire Landscape	Construction, operation and decommissioning	Within the study area, but based on the extent of visibility of the Proposed Development within the ZTV study, all potential impacts on the

Characterisation Project (Landscape Character Type 28: Vale Farmland and Landscape Character Type 23: Levels Farmland		Landscape Character Type would be indirect and landscape elements and pattern of the Landscape Character Type would not be impacted by the Proposed Development. Any potential indirect impacts would be localised, would not impact key characteristics as identified in the Yorkshire Landscape Characterisation Project, and are unlikely to be greater than negligible.
Aughton	Construction, operation and decommissioning	The distance from solar array fields and intervening vegetation and built form of Ellerton mean that whilst there may be occasional glimpsed views of the Proposed Development, the potential impact on visual amenity would not be greater than negligible adverse.
Harlthorpe	Construction, operation and decommissioning	The distance from solar array fields and intervening vegetation means that whilst there may be occasional glimpsed views of the Proposed Development, the potential impact on visual amenity would not be greater than negligible adverse.
Water End	Construction, operation and decommissioning	The distance from the Site and intervening built form and vegetation mean that whilst there may be occasional glimpsed views of the Proposed Development, the potential impact on visual amenity would not be greater than negligible adverse.
Storwood	Construction, operation and decommissioning	The distance from the Site and intervening built form and vegetation mean that whilst there may be occasional glimpsed views of the Proposed Development, the potential impact on visual amenity would not be greater than negligible adverse.
East Cottingwith	Construction, operation and decommissioning	The distance from the Site and intervening built form and vegetation mean that whilst there may be occasional glimpsed views of the Proposed Development, the potential impact on visual amenity would not be greater than negligible adverse.
Lighting impacts on landscape character and visual amenity	Construction, operation and decommissioning	In general, it is anticipated that the Proposed Development would not be lit; however, infrared security lighting would be required around key electrical infrastructure. This lighting would be sensor triggered and therefore not continuous. Potential lighting

		impacts on landscape character and visual amenity would not be greater than negligible adverse.
Church of All Saints, Holme-on-Spalding-Moor	Construction, operation and decommissioning	While located outside of the 3km study area the church sits on a hillside with extensive views back in the direction of the Proposed Development. The angle of view along with vegetation and built form will mean that whilst there may be occasional glimpsed views of the Proposed Development, the potential impact on visual amenity would not be greater than negligible adverse.

6.6.10 Opportunities for enhancing the environment

A comprehensive landscape mitigation strategy for the Proposed Development will be developed and this will seek to deliver significant landscape, as well as biodiversity, enhancement.

6.6.11 Proposed assessment methodology

The Landscape and Visual Impact Assessment will be undertaken in accordance with published best practice namely the 'Guidelines for Landscape and Visual Impact Assessment (Third Edition)', Landscape Institute and IEMA 2013 (Landscape and Visual Impact Assessment G3) and associated technical guidance notes published by the Landscape Institute, as detailed below.

"Landscape and Visual Impact Assessment is a tool used to identify and assess the significance of and the effects of change resulting from development on both the landscape as an environmental resource in its own right and people's views and visual amenity." (Landscape and Visual Impact Assessment, paragraph 1.1).

In addition to Landscape and Visual Impact Assessment, other associated technical guidance notes of relevance to the assessment published by the Landscape Institute include:

- Technical Guidance Note 06/19: Visual Representation of Development Proposals, published by the Landscape Institute (2019).
- Technical Guidance Note 02/21: Assessing landscape value outside national designations.
- Technical Guidance Note 02/19: Residential Visual Amenity Assessment.
- Technical Guidance Note 04/20: Infrastructure.
- Technical Guidance Note LITGN-2024-01: Notes and Clarifications on Aspects of Guidelines for Landscape and Visual Impact Assessment Third Edition (Landscape and Visual Impact Assessment3)

Wherever possible, identified effects are quantified, but the nature of landscape and visual assessment requires interpretation using professional judgement. In order to provide a level of consistency to the assessment, the prediction of magnitude and

assessment of significance of the residual landscape and visual effects will be based on pre-defined criteria.

Landscape and Visual Impact Assessment G3 states that *"professional judgement is a very important part of the Landscape and Visual Impact Assessment'* (paragraph 2.23) and that *'in all cases there is a need for the judgements that are made to be reasonable and based on clear and transparent methods so that the reasoning applied at different stages can be traced and examined by others."* (paragraph 2.24). It goes on at paragraph 3.32 to state that *"there are no hard and fast rules about what effects should be deemed 'significant' but Landscape and Visual Impact Assessments should always distinguish clearly between what are considered to be the significant and non-significant effects."*

The Landscape and Visual Impact Assessment will define the existing landscape and visual baseline environment; assess its sensitivity to change; describe the key landscape and visual related aspects of the Proposed Development; describe the nature of the anticipated changes and assess the effects arising during construction, operation and decommissioning.

Although linked, landscape and visual effects are considered separately. Landscape effects derive from changes in the landscape fabric, which may result in changes to the character, whereas visual effects are the effect of these changes as experienced by people (visual receptors).

The specific significance criteria to be used in the Landscape and Visual Impact Assessment are set out in **Appendix G**.

All above ground primary and secondary elements of the Proposed Development will be considered in the Landscape and Visual Impact Assessment as visible features which either individually or collectively have the potential to give rise to significant landscape and visual effects.

A selection of viewpoints, agreed with East Riding of Yorkshire Council, will be used in the Landscape and Visual Impact Assessment to consider effects on different receptor groups, at various distances from the Site and to illustrate any particularly sensitive views identified through scoping.

Annotated photographs will be provided for each of the assessment viewpoints used in the Landscape and Visual Impact Assessment. The annotated photographs will accord with guidance for 'Type 1' visualisations as defined in Landscape Institute Technical Guidance Note 06/19 (TGN 06/19).

A series of photomontages will be presented for key viewpoints (locations to be determined through further consultation). The photomontages will be produced using the same base photographs as the annotated photographs and accord with guidance for 'Type 3' or 'Type 4' visualisations as defined in TGN 06/19.

Mitigation measures will be developed as appropriate and taken into consideration in the assessment of effects. Operational phase effects will be assessed in Year 1 and Year 10.

The Landscape and Visual Impact Assessment will conclude by summarising which if any effects are considered to be 'significant'.

As set out within LI Technical Guidance Note 02//19 'Residential Visual Amenity Assessment':

"Changes in views and visual amenity are considered in the planning process. In respect of private views and visual amenity, it is widely known that no one has 'a right to a view."

And:

"It is not uncommon for significant adverse effects on views and visual amenity to be experienced by people at their place of residence as a result of introducing a new development into the landscape. In itself this does not necessarily cause particular planning concern. However, there are situations where the effect on the outlook/visual amenity of a residential property is so great that it is not generally considered to be in the public interest to permit such conditions to occur where they did not exist before."
The Landscape and Visual Impact Assessment will present, as an appendix to the main assessment, a residential amenity assessment of visual effects on residential properties for any property where these is a possibility that the visual effects may approach the threshold described above.
Cumulative landscape and visual effects will be assessed as appropriate and following the methodology set out in **Chapter 7**. Other projects to be considered in the cumulative Landscape and Visual Impact Assessment will be identified through stakeholder consultation.

6.6.12 Difficulties and uncertainties

No difficulties or uncertainties with regards the Landscape and Visual Impact Assessment have been identified at this stage.

6.6.13 References

- Guidelines for Landscape and Visual Impact Assessment, Third Edition, Landscape Institute and IEMA (2013).
- Landscape Institute Technical Guidance Note 06/19: Visual Representation of Development Proposals, published by the Landscape Institute (2019)
- Landscape Institute Technical Guidance Note 02/21: Assessing landscape value outside national designations
- Landscape Institute Technical Guidance Note 02/19: Residential Visual Amenity Assessment
- Landscape Institute Technical Guidance Note 04/20: Infrastructure
- Landscape Institute Technical Guidance Note 01/24: Notes and Clarifications on Aspects of Guidelines for Landscape and Visual Impact Assessment Third Edition (Landscape and Visual Impact Assessment G3)
- National Character Area Profile (NCA) 39 Humberhead Levels, Natural England, 2013. Available online: NCA Profile: 39 Humberhead Levels - NE339
- National Character Area Profile (NCA) 28 Vale of York, Natural England, 2012. Available online: NCA Profile: 28 Vale of York - NE367
- East Riding of Yorkshire Landscape Character Assessment, AECOM, 2018. Available online: Landscape character assessment
- North Yorkshire and York Landscape Characterisation Project, CBA, 2011. Available online: Describing and understanding our landscape | North Yorkshire Council
- East Riding of Yorkshire Local Plan (adopted April 2016). Available online: East Riding Local Plan (adopted April 2016)

6.6.14 Scoping questions

- Do you agree with the proposed list of consultees?
- Do you agree with the proposed Landscape and Visual Impact Assessment study areas?
- Do you agree that the data sources listed to inform the Landscape and Visual Impact Assessment are appropriate?
- Do you agree that the surveys proposed to inform the Landscape and Visual Impact Assessment are appropriate?
- Are any receptors/assets/resources not identified that you would like to see included in the Landscape and Visual Impact Assessment?
- Do you agree with the proposed additional (secondary and tertiary) mitigation measures and is this mitigation appropriate?
- Do you agree with the landscape and visual receptors that are proposed to be scoped in and out of further assessment?
- Do you agree with the proposed factor-specific assessment approach?
- Are there any specific viewpoints that you would like us to consider and/or illustrate as a photomontage?
- Are there any other developments which you consider it will be necessary for us to address in a cumulative landscape and visual impact assessment?

6.7 Noise and vibration

6.7.1 Consultation

No consultation regarding the noise and vibration assessment has been undertaken to date.
The local Environmental Health department at East Riding of Yorkshire Council will be consulted, and agreement sought where possible on the following:

- Baseline noise survey locations and programme of monitoring;
- Guidance and standards pertinent to the assessment(s);
- Receptors for inclusion in the assessment(s) where necessary; and
- Relevant assessment criteria.

6.7.2 Study area

For the assessment of noise and vibration during construction and decommissioning, the study area is proposed to be focused on Noise Sensitive Receptors which are most likely to be residential properties or caravan and wedding venues (hotel facilities) in close proximity outside the Site boundary or within the Site boundary. The **Appendix M** figure shows the list of all the Noise Sensitive Receptors (NSRs) identified at this early stage in context of the Site boundary and the figure also shows blue house symbols representing a selection of the Noise Sensitive Receptors that may be assessed in detail due to being the closest to the Site boundary in any direction. The selected ones for assessment are labelled as Noise Assessment Locations (NALs) . The full list of NSRs and NALs will be reviewed and refined during the course of the EIA process.

6.7.3 Data sources to inform the EIA baseline characterisation

The following sources of information have informed the current proposed scope for noise :

- Site boundary – detailing extents of the Proposed Development location and proximity to nearby receptors;
- Online aerial imagery – determine locations of nearest receptors;
- Ordinance Survey mapping; and
- Address data points.

6.7.4 Surveys to inform the EIA baseline characterisation

A comprehensive baseline noise survey is proposed to quantify and characterise the existing noise environment across the study area and at nearest sensitive receptors. It is proposed to undertake a baseline noise monitoring exercise in accordance with BS 7445-1:2003 *'Description of environmental noise – Guide to quantities and procedures'*, and the equipment used will conform to the requirements of BS EN 61672-1:2013 *'Electroacoustics. Sound level meters. Specifications'*.

Monitoring will be undertaken in the form of long-term noise measurements, typically of 1-week duration, in order to quantify the existing noise levels and sources of noise impacting the receptors throughout daytime and night.
Baseline monitoring will be used to inform the appropriate guideline levels for both the construction and operational phases.
Noise monitoring will likely occur at a maximum of 10-15 Noise Monitoring Locations in total around or within the Site boundary. The Noise Monitoring Locations will be selected to be a sample where existing noise levels would likely be representative for the identified Noise Assessment Locations in **Appendix M**. Precise locations of the Noise Monitoring Locations will discussed in direct consultation with the Environmental Health department at East Riding of Yorkshire Council and would also be subject to access agreement with residents or land owners.

6.7.5 Baseline conditions

Review of aerial imagery and the Noise Sensitive Receptors shown in **Appendix M** indicates that the receptors are mostly scattered residential properties in a rural setting near Melbourne, Yorkshire, within the administrative area of East Riding of Yorkshire Council.
The baseline environment would likely be mostly influenced by intermittent vehicle movements along the local road network on small lanes and with the A163 found to the south and B1228 to the west. There may be intermittent noise as well from industrial units located in the former RAF Melbourne site and noise from car races at the Melbourne Raceway (also located at former RAF Melbourne site).
Farming/agricultural activity is also expected.
The receptors will be residential in nature and therefore have the highest level of sensitivity.

6.7.6 Additional (secondary and tertiary) mitigation

Construction

In developing the control measures during the construction phase of the Proposed Development, best practicable means (BPM), as defined in Section 72 of the Control of Pollution Act 1974 and Section 79 of the Environmental Protection Act 1990, would be applied during all construction works to minimise noise and vibration at the receptors. In doing so, due consideration would be given to the recommendations contained within BS5228:2009+A1:2014 *Code of Practice for Noise and Vibration Control on Construction and Open Sites (BS 5228)*, and for off-site construction traffic, if required recommendations from Design Manual for Roads and Bridges (DMRB) LA 111 – Noise and Vibration' would be considered.
Measures to minimise levels of noise and vibration during the construction phase may include:

- Agreeing core construction hours;
- The use of lower emitting noise level plant items;
- Management of some key noisy operations to specific time periods;
- Use of noise barriers/temporary enclosures if required; and

- Sensitive routing of construction traffic, both within the Site and on the public highway.

These measures will recommended in the noise and vibration chapters of the PEIR and ES, and would be secured through an Outline CEMP submitted with the DCO Application.

Operation

When choosing attenuation measures or implementing an effective noise reduction program for the Proposed Development, there are two possible approaches that will be considered:

- Mitigation at source – modify the source location (layout design) and noise levels (selection of plant) to radiate at a lower noise level; and
- Mitigation through transmission – deflect or block the acoustic path of noise with obstacles placed on land between the source and most sensitive receptors.

It should be noted that this list of additional mitigation is not exhaustive, the specifics of which (and the extent) would be determined as part of the assessment. These measures will be recommended in the noise and vibration chapters of the PEIR and ES, and would be secured through an Outline OEMP submitted with the DCO Application.

Decommissioning

It is assumed that measures outlined as part of the construction phase would also be applicable during the decommissioning phase of the Proposed Development. These measures will be recommended in the noise and vibration chapters of the PEIR and ES, and would be secured through an Outline DEMP.

6.7.7 Description of likely significant effects

Construction

The construction phase of the Proposed Development would likely lead to a temporary increase in existing noise and vibration levels at some receptors due to on-site construction activities such as piling, earthmoving or lifting equipment. However, these activities would be temporary near each receptor and would be mostly mitigated by using core working hours and good practice which would be outlined in the Outline CEMP (see additional mitigation section above). As such, a temporary non-significant effect is anticipated and a qualitative construction and vibration assessment of on-site construction activities is proposed to be included in the PEIR and ES, to identify receptors most likely to be impacted and appraise distances and durations of construction work in close proximity.

When considering off-site construction noise, there may be an increase in vehicle/HGV numbers on the road network hence a possible increase in noise at receptors along the local roads. Temporary not significant effects are anticipated for off-site construction noise and a qualitative based assessment is also proposed which would include commentary on the increase in traffic flows over a typical construction day on some local roads reported in the Transport Assessment.

Operation
The operational phase of the Proposed Development will introduce new noise sources such as inverters and transformers into the locality.
Given the likely low background noise levels and depending on proximity to proposed sources, the potential impact of the Proposed Development has the potential to be significant and permanent at a number of existing receptors therefore a detailed noise assessment of the operational phase will be undertaken.

Decommissioning
This phase would involve similar activities to the construction phase so the impacts are considered to be identical in nature to the construction phase. Temporary not significant effects are anticipated.

6.7.8 Receptors/matters to be scoped into further assessment

Receptor/Matter	Phase	Justification
Residential: Noise and Vibration from on-site construction activities and plant movement	Construction and decommissioning	Activities likely to involve piling, large earthmoving/lifting plant items may have temporary not significant effects but a qualitative assessment is suggested. Decommission impact and mitigation will be assumed identical as that of construction.
Residential: Noise from off-site construction traffic	Construction and decommissioning	Potential increase in HGV/vehicle movements along the road network will be discussed in a qualitative assessment included in the noise and vibration chapter of the PEIR and ES.
Residential: Noise from proposed fixed plant	Operation	Operational plant items are likely to have a permanent impact on the existing noise environment and affect local amenity.

6.7.9 Receptors/matters to be scoped out of further assessment

Receptor/Matter	Phase	Justification
Residential: Vibration	Operation	Operational elements including fixed plant items/structures typically do not emit discernible levels of vibration at receptor locations.
Residential: Noise from off-site operational traffic	Operation	The increase in road traffic during operation will be negligible, with vehicles only likely to be required for routine maintenance or on rare occasions to replace faulty solar PV modules.

6.7.10 Opportunities for enhancing the environment

No opportunities for enhancement in relation to noise and vibration have been identified at this stage.

6.7.11 Proposed assessment methodology

The relevant national planning policies considered will be the National Policy Statement for Energy (NPS EN-1) and the National Policy Statement for Renewable Energy Infrastructure (NPS EN-3). Other local policies may be considered if required.

Construction assessment

The qualitative construction noise and vibration assessment would seek to identify nearest receptors to on-site construction activities and on-site plant movements. Focus would be mostly on receptors in very close proximity of activities potentially significantly noisy and constant in duration. The most likely activities to be considered will be :

- Piling - for the frames/structure supporting solar panel arrays;
- Groundworks – cut and fill activities, access tracks building by mobile plant, site establishment;
- Installation/modification of infrastructure – to include photovoltaic system and on-site substations.

Depending on the findings from the qualitative assessment, it may be that some specific activities and receptors require a more detailed assessment inclusive of numerical noise predictions. If that was to be the case, guidance in BS 5228 would be followed to set a target guideline level for temporary construction noise and this could be compared to noise predictions.

Off-site construction traffic on the existing road network would be assessed qualitatively initially to identify roads with increase in traffic during construction (based on the Transport assessment findings) and to identify any receptors near roads with significant increase in traffic. As required, the guidance from DMRB ‘LA 111 Noise and Vibration, 2020’ will be used.

Operational assessment

A detailed operational noise assessment is proposed in accordance with the full assessment process of BS 4142:2014+A1: 2019 ‘Methods for rating and assessing industrial and commercial sound’. This includes establishing representative background noise levels for day and night (based on the baseline noise survey) and also undertaking noise predictions for the proposed layouts and some candidate plant. Various layout iterations will be considered throughout the EIA process and potentially various candidate plant as well, as required.

The main noise sources anticipated are fixed plant, especially :

- Inverter/transformer units for solar PV modules; and
- Substations and associated High Voltage transformers;

Noise predictions of the Proposed Development, derived from the computer noise modelling, will be compared with the existing background noise level ($L_{A90, T}$) at the nearest receptors and reviewed in context to determine a potential level of impact and mitigation measures. Potential noise mitigation measures would typically include layout re-design to relocate plant or include fences / bunds or selection of appropriate plant.

Decommissioning assessment
Decommission impact and mitigation will be assumed identical as that of construction.

6.7.12 Difficulties and uncertainties

To ensure transparency within the EIA process, the following difficulties and uncertainties have been identified:

- The overview of baseline acoustic conditions and identification of receptors is based on desk-based studies only at present.
- Only a Site boundary is available at the time of writing so details of noise emitting plant/equipment associated with the Proposed Development have not been defined at this stage.

6.7.13 References

- British Standards Institution (2019), 'British Standard 4142: 2014+A1: 2019, Methods for rating and assessing industrial and commercial sound'.
- British Standards Institution (2014), 'British Standard 5228-1: 2009+A1: 2014, Code of practice for noise and vibration control on construction and open sites.
- British Standards Institution (2003), British Standard 7445-1:2003, Description and measurement of environmental noise – Part 1: Guide to quantities and procedures.
- Design Manual for Roads and Bridges (2020), LA 111 Noise and Vibration
- International Standards Organization (1996), ISO 9613-2:1996, Acoustics. Attenuation of Sound During Propagation Outdoors. Part 2: General Method of Calculation.
- The National Policy Statement for Energy (NPS EN-1) : https://www.gov.uk/government/publications/overarching-national-policy-statement-for-energy-en-1
- The National Policy Statement for Renewable Energy Infrastructure (NPS EN-3) : https://www.gov.uk/government/publications/national-policy-statement-for-renewable-energy-infrastructure-en-3

6.7.14 Scoping questions

- Do you agree with the proposed study area, in particular are there any receptors that would in your view should be considered beyond the ones identified in **Appendix M**?

- Do you agree that the outline noise survey parameters proposed to inform the EIA baseline characterisation is appropriate?
- Do you agree with the proposed additional (secondary and tertiary) mitigation measures and is this mitigation appropriate?
- Do you agree with the receptors/matters that are proposed to be scoped in and out of further assessment?

6.8 Transport and access

6.8.1 Consultation

Discussion with both East Riding of Yorkshire Council and National Highways will be undertaken to confirm the study area extents, data requirements and traffic growth assumptions to be used in the assessment.

As detailed the 'Construction traffic and Site access' section in **Section 2.6**, it is anticipated that the existing local roads would be utilised to access the Site, subject to the suitability of these roads to carry HGVs. The need for road upgrades, widening and new road construction, for example for abnormal loads or to ensure visibility splays at site access/egress points, will be determined as the Proposed Development design develops. As the Proposed Development will feature Abnormal Indivisible Loads associated with the grid connection transformers, consultation with the road authorities (North Yorkshire County Council, East Riding of Yorkshire Council and National Highways) and structure owners (including, but not limited to North Yorkshire County Council, East Riding of Yorkshire Council, National Highways and Network Rail) along the potential Abnormal Indivisible Loads access routes will be undertaken to confirm the load bearing capacities of these roads and associated bridges.

Discussions with landowners (over whose land access is required for construction traffic) have been ongoing and options for rights of access over third-party land have been agreed, where required.

6.8.2 Study area

The extent of the study area will be developed from the likely origin and destination points for construction staff and materials. This is the standard approach, as per the IEMA (2023) Guidelines. The exact Site access junction details have yet to be confirmed, however the access strategy is based upon the need to avoid traffic causing unnecessary disruption and distress to sensitive receptors and communities such as Melbourne and Foggathorpe.

The proposed access route for all non- Abnormal Indivisible Loads traffic would approach the Site from the west. The Abnormal Indivisible Loads traffic route has yet to be finalised, however as only a small number of vehicles will use this route (less than 10 movements), it is not expected that this will lead to significant effects.

Private roads will not be assessed as they fall outside of the highway network as defined by the IEMA (2023) Guidelines. The public road network used by all construction traffic and that will form the study area is as follows:

- A19 between Barlby and Escrick;
- A163 between the A19 and Bubwith;
- B1228 between its junction with the A163 at Bubwith and its junction with Ash Lane;
- Ash Lane between its junction with the B1228 and Seaton Common Lane;
- Seaton Common Lane between Ash Lane and Everingham Road;
- Main Road, Laythan from its junction with the B1228 to its junction with the A163; and
- Breckstreet Lane.

This study area has been identified assuming that the majority of the total construction traffic would travel to the Site along the above links to access the Site.

The extent of the study area is to be discussed and agreed with East Riding of Yorkshire Council prior to assessment following agreement of the access locations and construction traffic routing.
It should be noted that the phasing of construction (the order in which the land parcels are constructed/assembled) and location of site compound(s) are currently unknown, but once confirmed, will determine for how long each route experiences construction traffic.

6.8.3 Data sources to inform the EIA baseline characterisation

Data for use in the assessment will include the following desk top sources:

- Active travel data from OS mapping, East Riding of Yorkshire Council public right of way (PRoW) Interactive map and the Sustrans National Cycle Route map;
- Traffic data from nearby planning applications that have used routes in the study area, where the data is less than three years old;
- The online accident statistics database Crashmap.co.uk to obtain up to five years' worth of data on the network to the east of the A19;
- Online public transport timetables for services operating on the study area roads;
- DfT traffic count data for the A19; and
- Aerial photography, OS mapping and other map data sources.

Information on the adopted highway boundary is required and will be requested from East Riding of Yorkshire Council upon agreement of the proposed access routes and points.

6.8.4 Surveys to inform the EIA baseline characterisation

New Automatic Traffic Count traffic surveys will be undertaken on all of the study area road links to capture traffic flow, vehicle composition and speed for a neutral period over one full week.
The locations of new Automatic Traffic Count surveys, along with the time periods, will be agreed with East Riding of Yorkshire Council.
Topographical surveys will be undertaken at particular constraint points, to inform the Abnormal Indivisible Loads access review, where required.

6.8.5 Baseline conditions

A full description of the baseline traffic conditions and network condition will be detailed in the ES and supporting Transport Assessment at both the PEIR and final submission stages. This will review all of the necessary links noted in the study area to ensure that proposed access route is reviewed in detail from the nearest A class distributor road (A19) through to the proposed site access junction locations.
To create a future year baseline, National Road Traffic Forecasts Low Growth estimates will be used.

The A19, maintained by NYC, provides district distributor road functions and provides access to the wider strategic road network. The road is a good standard single carriageway link, connecting Cramlington to Doncaster, with the northern section in Teeside being trunk road. The road is capable of accommodating significant HGV traffic.
The A163 is maintained by NYC between the A19 and Bubwith. To the east of Bubwith, the road is maintained by East Riding of Yorkshire Council. The road functions as a local distributor, providing east – west links in the area and serves several villages and small towns along its length. The road is of good standard along the majority of its length. It however features traffic signal control at the River Derwent Bridge to the west of Bubwith. HGV access over the bridge is feasible.
The B1228 provides local distributor connects between Howden and the east of York. The road within the immediate vicinity of the site is rural in nature and serves rural land uses. The road is of good standard and is currently used by HGV and agricultural traffic.
Ash Lane, Seaton Common Lane, Main Road and Breckstreet Lane are all rural road links, providing connections between the rural communities located to the east of the B1228. These roads are typically narrower than the other roads in the study area and feature passing places at various locations.

6.8.6 Additional (secondary and tertiary) mitigation

Construction Phase
The design of suitable access arrangements with full consideration given to the road safety of all road users. Standard additional mitigation measures would include:

- Production of an Outline Construction Traffic Management Plan;
- A Staff Sustainable Access Plan; and
- A Framework Abnormal Load Transport Management Plan.

All mitigation measures would only be relevant to the construction phase of the Proposed Development and would be secured via the DCO.

Operation Phase
It is assumed that whatever mitigation is required for the construction phase of the Proposed Development (such as potential passing places) may be retained in the operational phase of the Proposed Development (subject to the requisite agreements with East Riding of Yorkshire Council).

Decommissioning Phase
Mitigation required for this stage would be the subject of a Decommissioning Traffic Management plan, secured via the DCO and prepared in advance of the start of that phase.

6.8.7 Description of likely significant effects

The assessment will consider the effects on transport link users and residents within the study area.
Construction traffic would include staff and material deliveries to and from the Site. The greatest concentration will occur at the Site access junctions.
During the construction phase, a peak of construction traffic would be generated. The operation and decommissioning phases have been scoped out of this assessment.
The assessment will quantify the level of construction traffic and the potential impact with regard to the effects noted below:

- Severance;
- Driver delay;
- Pedestrian delay:
- Non-motorised user amenity;
- Fear & intimidation;
- Road safety;
- Road Safety Audits; and
- Large loads.

It is proposed that Road Safety Audits are scoped out of the EIA and secured via the technical approval process required under the DCO.

6.8.8 Receptors/matters to be scoped into further assessment

The locations identified in the table below have been scoped into the assessment for consideration to assess potential impacts during the construction phase:

Receptor	Justification
A19 Users	Potential for a temporary increase in traffic volumes on the A19 as a result of construction activities.
A163 Users	Potential for a temporary increase in traffic volumes on the A163 as a result of construction activities.
B1228 Users	Potential for a temporary, but significant increase in traffic volumes on the local road network as a result of construction activities.
Ash Lane Users	Potential for a temporary, but significant increase in traffic volumes on the local road network as a result of construction activities.
Seaton Common Lane Users	Potential for a temporary, but significant increase in traffic volumes on the local road network as a result of construction activities.
Main Road Users	Potential for a temporary, but significant increase in traffic volumes on the local road network as a result of construction activities.
Breckstreet Lane Users	Potential for a temporary, but significant increase in traffic volumes on the local road network as a result of construction activities.
Residents living alongside roads used for construction access	Potential for a temporary, but significant increase in traffic volumes on the local road network as a result of construction activities.

Residents of North Duffield	Potential for a temporary, but significant increase in traffic volumes on the local road network as a result of construction activities.
Residents of Bubwith	Potential for a temporary, but significant increase in traffic volumes on the local road network as a result of construction activities.
Residents of Laytham	Potential for a temporary, but significant increase in traffic volumes on the local road network as a result of construction activities.
Public Rights of Way (PRoW) Users	Potential for disruption (severance) where PRoW cross public roads being used for construction traffic resulting in potentially significant effects.

6.8.9 Receptors/matters to be scoped out of further assessment

Receptor/Matter	Phase	Justification
All	Operation	The operational phase would result in occasional traffic for maintenance of the solar farm. The traffic associated with this phase would be insufficient to trigger the 30% threshold for assessment (taken from the Environmental Assessment of Traffic and Movement Guidelines) and as such, it is proposed that this phase can be scoped out of further assessment. This remains the case if the repair or replacement of panels is required.
All	Decommissioning	The decommissioning phase is unlikely to result in any more traffic movements than the construction phase, and construction vehicle access would have benefited from elements such as the improved junction and access tracks. These may be retained for future agricultural / land uses. Given that the decommissioning phase would be circa 60 years on from the commencement of operation, it is not possible to ascertain the future baseline for transport with any degree of certainty. As such, it is proposed to scope out the decommissioning phase from further assessment. It is, however, proposed that a commitment for a Decommissioning Traffic Management Plan is made within the DCO application to protect

		the future road authority's interests and to ensure the safe movement of all road users at that time. This would be secured by a requirement to the DCO.

6.8.10 Opportunities for enhancing the environment

Enhancements to existing PRoW and public road passing places could be delivered as part of the Proposed Development. As the traffic impacts of the Proposed Development are temporary in nature, there would be no other ability to provide further future transport enhancements.

6.8.11 Proposed assessment methodology

The assessment would be undertaken in accordance with the Institute of Environmental Management and Assessment (IEMA) Environmental Assessment of Traffic and Movement (2023).

This guidance notes two rules to be used as a screening process to identify the appropriate extent of the assessment area and likelihood of impacts. These are:

- 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%); and
- Rule 2 – Include highway links of high sensitivity where traffic flows have increased by 10% or more.

Where the predicted percentage increase in traffic flow is lower than these thresholds, then the impact is considered insignificant and as such, no further assessments are required.
Where construction traffic flows meet, or exceed these thresholds, the significance of traffic and transport effects (including any cumulative development) will be determined by assessing the sensitivity of receptors against the magnitude of change to categorise significance as Major, Moderate, Minor or Negligible (**Appendix D**). The effects that are considered are noted in **Section 6.8.7** previously.
It is not anticipated that a formal Transport Assessment will be required as these are not generally considered necessary for temporary construction works. A reduced scope Transport Assessment is therefore proposed and will be submitted in support of the DCO application.
Where large scale High Voltage component loads are required for the electrical grid connection, these will be delivered as Abnormal Indivisible Loads. Detailed swept path analyses will be undertaken for the main constraint points on the route from the nearest suitable trunk road junction through to the proposed substation access junction to demonstrate that components can be delivered to Site and to identify any temporary road works which may be necessary. A Route Survey Report and Framework Abnormal Load Transport Management Plan describing the route and the proposed

operational management of the deliveries will be submitted in support of the DCO application.

6.8.12 Difficulties and uncertainties

The assessment of construction traffic will assume the use of standard construction techniques appropriate for the type of works being undertaken. The final techniques, plant selection and programme are expected to be determined by the appointed contractor, in consultation with relevant authorities prior to commencement of construction.

6.8.13 References

- East Riding of Yorkshire Council PRoW Map https://experience.arcgis.com/experience/4ba3481cedba4b2c906cbd117f5bb5f1
- Sustrans National Cycle Network map https://explore.osmaps.com/?lat=53.847239&lon=-0.910383&zoom=10.7157&style=Standard&type=2d&overlays=os-ncn-layer
- IEMA Guidelines: Environmental Assessment of Traffic and Movement (2023)

6.8.14 Scoping questions

- Do you agree with the proposed list of consultees?
- Are there any other key stakeholders or stakeholder organisations that should be consulted?
- Do you agree with the proposed study area?
- Do you agree that the data sources listed to inform the EIA baseline characterisation are appropriate?
- Are there any additional data sources or guidance documents that should be considered?
- Do you agree that the surveys proposed to inform the EIA baseline characterisation are appropriate?
- Do you agree that the identification of what constitutes the baseline environment is appropriate and that all relevant receptors have been identified?
- Are any receptors/assets/resources not identified that you would like to see included in the EIA?
- Do you agree with the proposed additional (secondary and tertiary) mitigation measures and is this mitigation appropriate?
- Do you agree that all potentially significant effects have been identified?
- Do you agree with the receptors/elements that are proposed to be scoped in and out of further assessment?
- Do you agree with the proposed factor-specific assessment approach?

6.9 Water

6.9.1 Consultation

No consultation regarding the water assessment has been undertaken to date. The following bodies will be consulted to inform further assessment beyond the scoping stage, these include but are not limited to:

- The Environment Agency;
- The Lead Local Flood Authority (East Riding of Yorkshire Council);
- The Internal Drainage Boards (Ouse and Humber, and Foss (2008); and
- The Canal and River Trust

6.9.2 Study area

For the purposes of this assessment, the Site and a 1km buffer have been considered as the study area with regard to identifying hydrological feature related receptors that could be impacted by the construction, operation and/or decommissioning of the Proposed Development. In the absence of any specific guidance relating to solar developments professional judgement has been used to determine the study area, informed by the guidance provided within DMRB LA 113 – Road drainage and the water environment (2020). A 1km buffer is considered an appropriate buffer for water environment assessments, as it is a sufficient distance to enable the deposition of silts in overland flows and dilution of any concentrated pollutants. Waterbodies at a greater distance than the buffer would not be at significant risk of being affected.

6.9.3 Data sources to inform the EIA baseline characterisation

Initial baseline information on the physical environment have been collected from the following sources:

- Site boundary
- Flood Map for Planning;
- Risk of Flooding from Surface Water maps;
- Statutory Main River Map;
- Water environment and WFD classifications;
- Yorkshire and Humber Internal Drainage Board asset map;
- Canal and River Trust asset map;
- Water stressed areas;
- Online aerial imagery; and
- Ordnance Survey Mapping.

6.9.4 Surveys to inform the EIA baseline characterisation

A walkover survey of the Site and surrounding area will be undertaken as part of the baseline assessment relating to water receptors.

6.9.5 Baseline conditions

The information below outlines the receptors within the Site and study area which have been identified on mapping, the receptors are categorised into sub-sections and supported by the relevant figures. The receptor descriptions below are considered as the baseline conditions.

Yorkshire and Humber Internal Drainage Board Watercourses
The Yorkshire and Humber Internal Drainage Board asset map identifies several Internal Drainage Board watercourses and culverts/structures within the Site boundary and the 1 km study area, these are shown on **Appendix N, Figure 1**. The main Internal Drainage Board watercourse tributaries through the Site are Foss Dyke, located in the south/southeastern site area and draining southwards, and Charity Drain which is located more centrally within the Site and drains southwest/westwards. The Internal Drainage Board boundary covers most of the Site area, excluding the area of the proposed area of search for underground grid connection cable. Internal Drainage Board designated watercourses are maintained by the Internal Drainage Board and are subject to Internal Drainage Board byelaws.

Environment Agency Main River
The Environment Agency Main River map identifies one Environment Agency designated Main River within the Site and study area, these are shown on **Appendix N, Figure 1**. The river is identified as The Beck / Bielby Beck, which is located within the proposed area of search for underground grid connection cable. The river intersects the Site boundary, flowing from east to west and is culverted below Pocklington Canal to cross from south to north of the canal. Environment Agency designated Main Rivers are subject to Environment Agency permitting should any work activities be required in or around the river.

Canal and River Trust
The Canal and River Trust asset map identifies Pocklington Canal within the Site and study area which is located within the proposed area of search for underground grid connection cable, this is shown on **Appendix N, Figure 1**. The Canal and River Trust notes that the majority of the canal is designated as a SSSI for its wildlife value, with the lower reaches lying within the Lower Derwent Valley National Nature Reserve. The Canal and River Trust will be consulted on any work undertaken within or close to the canal to identify any assessments required.

Ordinary Watercourses
Given the extents of the Site there are many unnamed and likely unmapped watercourses, which will be neither classified as Internal Drainage Board maintained watercourses or Main Rivers. These are classified as Ordinary Watercourses and will come under the jurisdiction of the Lead Local Flood Authority. Ordinary watercourses can include field drainage ditches, highway ditches and rivers or streams. Given the Internal Drainage Board boundary extends across the Site it is likely the Internal Drainage Board will act on behalf of the Lead Local Flood Authority as consultee for any works required in or around these Internal Drainage Board maintained watercourses, this will be confirmed as part of future consultation with both the Lead Local Flood Authority and the Internal Drainage Board.

WFD Waterbodies

There are three WFD waterbodies identified within the Site and study area, these are shown on **Appendix N, Figure 1**. It is the responsibility of the Environment Agency to ensure the quality of WFD waterbodies are not degraded as a result of development proposals.

The centrally located WFD waterbody to the Site is 'Foulness from Black Beck to Market Weighton Canal Water Body', located in Land Parcels C and D. The waterbody has been classified as 'poor' ecological status under Cycle 3 of the WFD.

The second WFD waterbody within the Site is 'Pocklington Beck from Bielby Beck to River Derwent Water Body' and is located within the area of search for underground grid connection cable towards the north, it is the same Main River watercourse identified as The Beck / Bielby Beck. The waterbody has been classified as 'moderate' ecological status under Cycle 3 of the WFD.

Lastly, the WFD Canal Waterbody mapping identifies 'Pocklington Canal Water Body' within the Site boundary located within the area of search for underground grid connection cable towards the north. The waterbody has been classified as 'good' ecological status under Cycle 3 of the WFD.

In the baseline situation, it is considered that the watercourses within the Site would be subject to limited inputs of pollutants, particularly nutrients and metals, associated with farming activities, road/urban runoff and sewer company discharges.

Flood Map for Planning

The Environment Agency Flood Map for Planning identifies several fields within the Site which are subject to flooding. The fluvial flood risk categories as classified into either Flood Zone 2 (representing a 1 in 100 to 1 in 1000 annual probability of fluvial flooding or a 1 in 200 to 1 in 1000 annual probability of tidal flooding) or Flood Zone 3 (a greater than 1 in 100 annual probability of fluvial flooding or a greater than 1 in 200 annual probability of tidal flooding). The Flood Map for Planning is provided on **Appendix N, Figure 2** and also **Appendix B**.

The mapping shows flooding within the Site which is predominantly limited to land adjacent to Foss Dyke towards the east of the Site. Given the connectivity to flood extents associated with the River Humber this flooding may be classified as tidal, or fluvial and tidal.

There are limited extents of flooding associated with Charity Drain towards the west of the Site. These areas of flooding are more tightly aligned with the watercourse and is limited to field boundaries.

The proposed area of search for underground grid connection cable towards the north of the Site is within a flooding area, it is assumed these flood extents are associated with The Beck / Bielby Beck.

There is no further information provided for flood extents identified by the Flood Map for Planning. The Environment Agency will be consulted to determine if any modelled flooding information is available to further assess baseline conditions of flooding.

Surface Water Flooding

The Risk of Flooding from Surface Water maps produced by the Environment Agency have been used to identify the areas of surface water flood risk from pluvial sources within the Site and study area, the mapping is provided in **Appendix N, Figure 3**. The

Environment Agency mapping categorises the flooding from low risk to high risk based on the expected return period of the flooding .
The mapping generally shows that surface water risk extents within the Site are greatest where areas have already been identified as being within Flood Zone 2 or Flood Zone 3, as the surface water flood maps can indicatively show the route of watercourses. The surface water flooding mapping shows in addition there are also many isolated areas within the Site which are subject to surface water flooding, it is assessed that these areas are likely due to localised topographic depressions or low points with poor onwards overland drainage.

Water Protection
The hydrogeology and groundwater Source Protection Zones have been considered as part of **Land, Soils and Groundwater** in **Section 6.5** of this report.
Water receptors relevant for water resources have been assessed using Defra's MAGIC maps, the information is included in **Appendix N, Figure 4**.
The western and northern extents of the Site are located within Drinking Water Safeguard Zones (Surface Water). They are identified where the protected area has been assigned as being "at risk" of failing the drinking water protection objectives of the Water Environment (Water Framework Directive) (England & Wales) Regulations 2017. These Safeguard Zones are a non-statutory, joint initiative between the Environment Agency and water companies that define areas where actions and measures will be targeted to address water contamination and avoid or minimise extra treatment needed by water companies.
The west of the Site is located within Drinking Water Protected Areas (Surface Water) zone. This is defined by the Water Environment (Water Framework Directive) (England & Wales) Regulations 2017 (or Water Framework Directive Regulations) as locations where raw water is abstracted for human consumption providing, on average, more than 10 cubic metres per day, or serving more than 50 persons, or is intended for such future use. Water sources used for drinking supplies are protected under the WFD Regulations to ensure they are not polluted and avoid / minimise the need for additional purification treatment which can be costly and resource intensive.

Water Resources
In 2021 the Environment Agency looked across the current and future water usage and climate change scenarios, to provide a water stress situation for each water company area. It was concluded that Yorkshire Water was in an area classified as not water stressed.

6.9.6 Additional (secondary and tertiary) mitigation

Construction
The production and implementation of an Outline CEMP will include measures to safeguard water receptors during construction. Some mitigation measures that are anticipated to be taken account of are:

- No vehicle, equipment or material storage is permitted within the Flood Zone 2 or Flood Zone 3 or within 20m of watercourses where practicable.
- The placement of stockpiled materials as far away as practically possible from sensitive receptors (including the watercourses).

- Vegetation removal is undertaken on a phase-by-phase basis to avoid excessive exposure of bare soil.
- Silt fencing or straw bales to be placed downslope of construction works to prevent silt entering watercourses.
- Additional silt fencing kept on site for deployment at short notice.
- A wheel wash at the site accesses to reduce silt migration across the Site.
- Vehicles showing signs of fuel/oil drips, missing fuel caps, or damaged hydraulics will be rejected and not used on Site before repair.
- Fuels will be stored in a double skinned locked and bunded fuel bowser as far away from watercourses as reasonably practicable. Refuelling will be carried out over a drip tray. These will be regularly maintained and inspected for rainwater. Rainwater will be removed by specialist removal. A spill kit will be located next to any bowser.
- Spill kits will contain as a minimum: spill booms, granules, mats and gully covers.
- If groundwater pumping is necessary for excavations, the wastewater must be disposed of in accordance with Environment Agency guidance.
- All surface waters and drains must be protected from silt runoff using gully guards, straw bales, gravel traps or silt fencing.
- Trenchless Horizontal Directional Drilling methods are likely to be used for laying any cables beneath watercourses classified as Internal Drainage Board assets, WFD classified waterbodies, Main Rivers, and canals. These methods will be supported by a drilling fluid breakout plan.
- When working in the Flood Zone 2 and Flood Zone 3, site managers should register with any nearby relevant Environment Agency Flood Warning systems (Floodline Warning Direct) to ensure those working within the Flood Zone are safe by leaving the Flood Zone for the duration of the active warning.

Due to the connection between quality of surface water and quality of groundwater, the Surface Water Management Plan will also be important in avoiding, minimising and mitigating effects on watercourses. The Surface Water Management Plan will include best practice working methods for the protection of surface water from pollution and other adverse impacts, which could have subsequent effects on watercourses.
The management plans will include mitigation measures such as:

- Pollution incident control;
- Emergency preparedness;
- Extreme weather events;
- Construction site security; and
- Site materials and waste management.

Operation

- The Outline OEMP will establish the procedures for any possible pollution or spill incidents within the site to protect water quality.
- An Outline Surface Water Drainage Strategy will be provided which will include the principles for management of surface water runoff from proposed areas of hardstanding.

Decommissioning

- The potential impacts from decommissioning (removal of solar modules) would be similar to the potential impacts during construction. The Outline DEMP will include measures to safeguard water receptors during decommissioning.

6.9.7 Description of likely significant effects

Based on the initial baseline assessment, the sensitivity of potential receptors to impacts associated with the scheme are identified as follows.

Water Quality

Nearby watercourses to the Site are shown in **Appendix N, Figure 1**.

Potential receptors to water quality impacts include known habitats and species associated with the watercourses located on and close to the Site, as detailed in **Section 6.2**, surveys will be carried out to establish a baseline of habitats and species within the study area. Drinking water protected areas and zones have also been identified north and west of the Site, including in Land Parcel B, as shown in **Appendix N, Figure 4**, which could be sensitive to construction, operation, and decommissioning activities.

WFD Waterbodies

There is increased sensitivity due to close proximity to WFD designations shown in **Appendix N, Figure 1**, and potential for run-off of contaminants into these water courses. Watercourses classified under the WFD are particularly sensitive to any water quality impacts. As the Site falls partially within a Drinking Water Protected Area, it suggests local surface water is used for drinking supply, further increasing the sensitivity of watercourses to inputs of pollution and significant water usage.

Flood Risk

Locations susceptible to flood risk from rivers and/or surface water are shown in **Appendix N, Figure 2**, and **Appendix N, Figure 3**. Potential receptors to any increases in flood risk include residential properties located close to the watercourses within or downstream of the Site, particularly east of Foggathorpe adjacent to Foss Dyke, low lying agricultural land, and other sensitive land uses downstream of the Proposed Development.

6.9.8 Receptors/matters to be scoped into further assessment		
Receptor/Matter	**Phase**	**Justification**
Water Quality	Construction / Operation/ Decommissioning	During the construction phase, there is the potential for transfer of sediment and pollutants to surface watercourses. Surface watercourses within the Site are of increased sensitivity due to the proximity to WFD designations, a Drinking Water Protected Area. In view of this, and the current uncertainty regarding the nature of works in close proximity to Site watercourses, surface water quality impacts during construction have been scoped in. During the operational phase, there is the potential for water quality impacts to local watercourses due to accidental releases of chemicals or contaminated runoff, for example associated with chemical use within the substation areas.. Due to the uncertainty regarding the exact location of proposed infrastructure and the potential proximity of infrastructure (including the higher risk substation area) to surface watercourses, impacts on surface water quality have been scoped in. The potential effects during decommissioning will be similar to those expected during the construction phase.
WFD Waterbodies	Construction / Operation/ Decommissioning	For the reasons outlined as part of Water Quality, a WFD Screening Assessment has also been scoped in and will support the assessment of water quality impacts on surface watercourses. A WFD Screening Assessment is proposed, in accordance with the guidance in the Nationally Significant Infrastructure Projects: Advice on the Water Framework Directive. .
Flood Risk	Construction / Operation / Decommissioning	During the construction phase, an increase in flood risk could result from uncontrolled runoff from construction compounds, temporary access tracks, compacted soils or other impermeably surfaced areas. Flood risk impacts could also result from storage of materials or groundworks within flood zones or within overland flow routes. Construction of

		crossings over existing watercourse could also result in disruption to existing flows and increase in flood risk. Due to the existing high flood risk areas within the Site and the potential for construction activities to increase this risk, flood risk during the construction phase has been scoped in. At present, it is assumed as a conservative approach that some of the infrastructure would be located within the 'design' 1 in 100 year plus climate change fluvial flood extent or the 1 in 200 year tidal flood extent. Some infrastructure is also likely to be located within areas at increased risk of surface water flooding. Any disruption to overland flow routes or displacement of floodwater could result in an increase in flood risk. Any land raising, for example for the creation of roads or landscaping works within the biodiversity mitigation areas, could also impact existing overland flow routes or flood storage. An increase in flood risk could also result from creation of additional hardstanding areas where runoff is not appropriately managed. In view of the above, flood risk impacts during operation have been scoped in. The potential effects during decommissioning would be similar to those expected during the construction phase.

6.9.9 Receptors/matters to be scoped out of further assessment

Receptor/Matter	Phase	Justification
Water Resources	Construction / Operation Decommissioning	The site is not within a water stressed area and no significant surface water use demand is anticipated during the construction, operation or decommissioning phase. Therefore, impacts on surface water resources due to abstraction during construction, operation and decommissioning have been scoped out. Rainwater harvesting can be considered as part of the design to help mitigate the usage of non-potable water.

6.9.10 Opportunities for enhancing the environment

The cessation of arable agricultural activities may result in a reduction of the application of pesticides, herbicides and fertilisers within the Site. In turn, the vegetation cover will stabilise soils and reduce the mobilisation of these materials.

6.9.11 Proposed assessment methodology

The below sets out the proposed assessment methodology for those aspects scoped into the EIA at this stage. The purpose of the ES Water Chapter is to:

- Identify the hydrological, and flood risk baseline for the Site.
- Assess the potential effect of the proposed development on this baseline environment.
- Propose suitable mitigation (where necessary) for the reduction of any significant effects.
- Present the predicted residual effects.
- Identify any cumulative effects.

A Study Area of 1 km has been recommended as per the reasons set out in **Section 6.9.2**. This is a generalised approach, however, more specific assessment may indicate a much-reduced zone of influence, for example when considering areas up-gradient of the Site, within separate hydrological catchments. A study area will be agreed for any proposed studies either based on the generalised approach or specific assessment.

The baseline assessment will include a review of the following data:

- Environment Agency flood mapping datasets, including fluvial / tidal Flood Map for Planning, Surface Water Flood Risk mapping and Reservoir flood risk mapping;
- Ordnance Survey mapping;
- Defra's Catchment Data Explorer platform;
- British Geological Survey mapping;
- Defra's MAGIC maps;
- Modelled flood data from the Environment Agency (fluvial / tidal sources).
- Mapping and data relating to surface water flood risk, reservoir flood risk, groundwater flood risk and other sources of flooding from the Lead Local Flood Authority and Internal Drainage Board.
- Details of any historical flood events obtained from the Environment Agency, Lead Local Flood Authority and Internal Drainage Board.
- Details of nearby surface water abstractions (public and private) obtained from the Lead Local Flood Authority and / or a third party data provider (e.g. Envirocheck).
- Local Authority Surface Water Management Plan and Strategic Flood Risk Assessment.

A targeted visual inspection of any key hydrological features will be undertaken e.g. proposed watercourse crossings, location of sensitive abstractions, locations with infrastructure proposed within the flood zones.

A FRA will be prepared as an appendix to the ES, in accordance with the requirements of the Overarching National Policy Statement for Energy (NPS EN-1) (2023). This will include a review of the above data sources, an assessment of the flood risk to the development from all flooding sources (including consideration of climate change), and identification of any mitigation measures required to ensure the development will be safe, will remain operational during a flood event, and will not result in an increase in flood risk elsewhere.

The FRA will include an Outline Surface Water Drainage Strategy based on the use of Sustainable Drainage Systems, which will demonstrate how surface water runoff from the Proposed Development will be managed. The FRA may include a fluvial flood modelling exercise and / or floodplain compensation calculations, dependent on the nature of the scheme elements proposed within the 1 in 100 year / 1 in 200 year plus flood extent. The requirement (or otherwise) for additional modelling will be determined through consultation with the Environment Agency, Internal Drainage Board and Lead Local Flood Authority.

A WFD Screening Assessment is proposed, in accordance with the guidance in Nationally Significant Infrastructure Projects: Advice on the Water Framework Directive. This will form an appendix to the ES. The Screening Assessment will identify any WFD water bodies that could be impacted by the Proposed Development and will determine whether any activities associated with the Proposed Development require further consideration through subsequent stages of WFD assessment. The Screening Assessment will be undertaken in consultation with the Environment Agency.

For the assessment of water quality, the source and pathways of potential pollutants during the construction, operational and decommissioning phases will be identified and the Outline CEMP and Surface Water Management Plan will include specific measures to safeguard water receptors during construction, the same will apply for decommissioning. This will be submitted in support of, and secured by, the DCO application. During the operational phase the Detailed Surface Water Drainage Strategy would provide an assessment of water quality proposed to be discharged to either the ground or watercourses, the assessment will be undertaken as the Simple Index Approach as outlined in CIRIA The Sustainable Drainage Systems Manual C753.

The assessment of effects will assume that the relevant embedded mitigation and standard good practice measures and any applicable consents / permits are in place before assessing the effects. The assessment will be based on a source-pathway-receptor methodology, where the sensitivity of the receptors and the magnitude of change upon those receptors is identified within the study area. The significance of the likely effects of the development will be classified by taking into account the sensitivity of receptors and the magnitude of the effect on them. Likely significant effects would be those effects identified as of moderate or major significance. The assessment criteria proposed for the water assessment is presented in **Appendix D**.

6.9.12 Difficulties and uncertainties

No difficulties or uncertainties with regards to water have been identified at this stage.

6.9.13 References

- The Water Environment (WFD) (England and Wales) Regulations 2017. Available online: https://www.legislation.gov.uk/uksi/2017/407/contents/made
- Department for Energy Security and Net Zero (2023) Overarching National Policy Statement for Energy (EN-1). Available online: https://www.gov.uk/government/publications/overarching-national-policy-statement-for-energy-en-1
- Department for Levelling Up, Housing and Communities (2022) Flood Risk and Coastal Change Planning Practice Guidance. Available online: https://www.gov.uk/guidance/flood-risk-and-coastal-change
- Flood Map for Planning, Environment Agency (July 2024). Available online: https://flood-map-for-planning.service.gov.uk/
- Risk of Flooding From Surface Water maps data (June 2024). Available online: https://www.data.gov.uk/dataset/95ea1c96-f3dd-4f92-b41f-ef21603a2802/risk-of-flooding-from-surface-water-extent-3-3-percent-annual-chance
- MAGIC Map (Drinking Water Safeguard Zone (Surface Water), Sites of Special Scientific Interest; Special Areas of Conservation, Special Protection Areas) (June 2024). Available online: https://magic.defra.gov.uk/magicmap.aspx
- Statutory Main River Map, environment Agency (June 2024). Available online: https://www.data.gov.uk/dataset/4ae8ba46-f9a4-47d0-8d93-0f93eb494540/statutory-main-river-map
- Catchment data explorer, Environment Agency (June 2024). Available online: https://environment.data.gov.uk/catchment-planning/
- Ordnance Survey Mapping viewed online via MAGIC Map (2024). Available online: https://magic.defra.gov.uk/magicmap.aspx
- Figure 1: map showing results of water stress classification, Water stressed areas – final classification 2021 Version 1.0, Environment Agency, (July 2021). Available online: https://www.gov.uk/government/publications/water-stressed-areas-2021-classification

  Woods Ballard, B., Udale-Clarke, H., Illman, S., Scott, T., Ashley, R. and Kellagher, R. (2015). The Sustainable Drainage Systems Manual C753. CIRIA.
- Nationally Significant Infrastructure Projects: Advice on the Water Framework Directive. Available online: Nationally Significant Infrastructure Projects: Advice on the Water Framework Directive - GOV.UK

6.9.14 Scoping questions

- Do you agree with the proposed list of consultees?
- Do you agree with the proposed study areas?

- Do you agree that the data sources listed to inform the EIA baseline characterisation are appropriate?
- Are any receptors/assets/resources not identified that you would like to see included in the EIA?
- Do you agree with the proposed additional (secondary and tertiary) mitigation measures and is this mitigation appropriate?
- Do you agree with the receptors/matters that are proposed to be scoped in and out of further assessment?
- Is the CIRIA Simple Index Approach considered satisfactory for areas of proposed drainage infrastructure?

6.10 Population

The term 'population' in this section relates to the impacts to the population primarily in relation to the socio-economic effects which may occur as a result of the construction, operation and decommissioning of the Proposed Development.

6.10.1 Consultation

No consultation regarding the population assessment has been undertaken to date. It is envisaged that consultation will be undertaken with East Riding of Yorkshire Council Public Rights of Way Officers to discuss and agree approaches to any PRoW diversions/closures (if required) and details of any new PRoWs.

6.10.2 Study areas

The potential effects on population in relation to the Proposed Development will be assessed at different spatial extents depending on the nature of the impact.

There is no statutory guidance when assessing potential impacts to population. However, the Design Manual for Roads and Bridges (DMRB) 'LA 112 Population and Human Health' document (hereafter referred to as LA 112) provides direction when assessing the impacts of a project in relation to population and human health. While it is recognised that the DMRB is primarily used for assessing transport-related development, in the absence of other guidance, the LA 112 scoping methodology has been adopted combined with professional judgement. LA 112 is regarded as a robust and recognised form of guidance when undertaking EIA.

In accordance with LA 112, the assessment of potential impacts to the below matters is focused on land within the Site and a radius extending 500 m:

- Private property and housing (i.e., the risk of demolition or impacts to access resulting from the use of land as a result of the Proposed Development);
- Community land and assets (i.e., the risk of land being required for the project/access and severance to community land or assets as a result of the Proposed Development);
- Agricultural land holdings,(i.e., the risk of demolition or from land which will be required/access as a result of a Proposed Development); and
- Walkers, cyclists and horse riders (via impacts to public rights of way).

If during the assessment, it is identified there are other receptors affected beyond this study area, they will also be considered in the ES.

The assessment of the agricultural economy (i.e., contribution to the loss of land available for agricultural purposes and the potential impact on the wider agricultural sector through loss of employment opportunities) will focus on effects within the East Riding of Yorkshire administrative boundaries.

The assessment on employment (i.e., job creation through the Proposed Development and the potential loss of agricultural jobs) and associated gross value added (GVA) in relation to the Proposed Development will focus on the effects within the East Riding of Yorkshire administrative boundaries.

As detailed in **Section 6.6.2**, it is considered unlikely that there would be anything other than negligible, distant and filtered glimpses of the solar PV modules or two on-site substations beyond 3km. A 3km study area has been selected as the visibility between tourism receptors and the Proposed Development is likely to be the main influence of visitor experiences in the area.

The assessment of occupancy rates as a result of the increase in workforce staff during construction will based on the availability of accommodation options within local settlements e.g. York City.

6.10.3 Data sources to inform the EIA baseline characterisation

- OS mapping, Defra's Magic maps and site plans have been used to describe the baseline of the surrounding area in relation to population (refer to **Section 6.10.5**);
- East Riding of Yorkshire Public Rights of Way Map;
- LA 112 will be utilised to guide the information presented in the subsequent PEIR and ES baseline descriptions;
- The Visit England website will be used to consider the presence of tourist assets within the study area and for data relating to the occupation of beds within accommodation providers in the study area; and
- East Riding of Yorkshire website for references to tourism assets in the area

6.10.4 Surveys to inform the EIA baseline characterisation

No surveys have been undertaken and none are expected to inform this assessment.

6.10.5 Baseline conditions

Private property and housing
There are no properties or houses at risk of demolition in order to construct/operate the Proposed Development.
The land earmarked for the Proposed Development is not allocated for residential development and no new planning applications have been submitted for housing development within the study area.

Community land and assets
LA 112 defines community land as "*common land, village greens, open green space, allotments, sports pitches etc".*
The Proposed Development will cover a large area of agricultural land which is not used as community land. There is no community land located within the study area.
LA 112 defines community assets as *"village halls, healthcare facilities, education facilities, religious facilities etc)".* There are no community assets located within the study area.

Agricultural land holdings, agricultural economy, development land and businesses

There are approximately 1,847 agricultural land holdings in the East Riding of Yorkshire (Department for Environment, Food and Rural Affairs, 2024). The Proposed Development will cover a large area of agricultural land which is privately owned by multiple landowners.

The total amount of farmed land in East Riding of Yorkshire accounts for around 201,115 hectares of land and supports the employment of 6,105 people (full and part time roles) (Department for Environment, Food and Rural Affairs, 2024). The regional GVA by the agriculture, mining, electricity, gas, water and waste industry in 2022 in East Riding of Yorkshire was £670 million (Office for National Statistics, 2024c).

There are several businesses located with the Site boundary including Melbourne Raceway (previously RAF Melbourne) and a rally school. Within the study area there are numerous businesses including landscape suppliers, a turf business and leisure pursuits such as camping sites, accommodation, gyroplane school and an equestrian centre.

Walkers, cyclists and horse riders

The Wilberforce Way passes through the area of search for underground grid connection cable, in an east west direction along the Pockington Canal, to the north of Melbourne.

The Bubwith Rail Trail runs south of the Proposed Development, eastward from Bubwith, following the old Market Weighton to Selby line through Foggathorpe and to the north of Holme upon Spalding Moor. Parts of this trail is made up of Seaton Ross Bridleway No.14 (SROSB14) & Foggathorpe Bridleway No.15 (FOGGB15) which are detailed below.

The following PRoWs are within, intersect or are within 500 m of the Site:

- Melbourne Footpath No.1 (MELBF01): Commences in Melbourne Village in St Monicaas Close and leads east for some 42 metres then southwards through the Park to Ash Lane at a point opposite Park Farm. Known as Parkfield Path;
- Melbourne Footpath No.2 (MELBF02): Commences on Ash Lane and leads southwards around the east side of Park Farm to Throughleys Lane;
- Melbourne Footpath No.3 (MELBF03): Commences in Throughleys Lane and leads southwards west of White Farm to the Foggathorpe parish boundary at Lords Drain;
- Melbourne Footpath No.4 (MELBF04): Commences at the southern end of Melbourne Park between Nos. 6 and 7 and leads south-south-westerly for some 30 metres turns west-north-westerly for some 30 metres then southwards to and along the western edge of Bracepits Wood and The Park to Ash Lane;
- Melbourne Bridleway No.5 (MELBB05): Commences on Ash Lane and leads along the eastern edge of Great West Wood and north-eastwards to join path No 4 north of Bracepits Wood. Known as Intakes Lane;
- Melbourne Bridleway No 6. (MELBB06): Commences on Intakes Lane and leads westwards to Kidd Lane south of Melbourne Grange;

- Melbourne Footpath No.7 (MELBF07): Commences on Kidd Lane 130 metres south of Melbourne Grange and leads westwards through Clays Plantation to the south-west corner of Eastroad Plantation and continuing along the south side of a hedge and ditch for approximately 246 metres;
- Melbourne Footpath No. 9 (MELBF09): Commences at Scamland Bridge on the road leading from Melbourne to Seaton Ross and leads in a south-easterly direction across East Common and by the west side of East Farm to the Seaton Ross-Cottingwith Road north-west of Melbourne;
- Foggathorpe Footpath No.1 (FOGGF01):Commences on the Market Weighton - Selby Road at a point about 80 yards east of the entrance to Foggathorpe Manor House and leads southwards across the railway to Foggathorpe House;
- Foggathorpe Footpath No. 10 (FOGGF10): Commences at Laytham at a point about 70 yards south of the east end of New Road and leads eastwards to the first bend on the Laytham - Seaton Ross Road;
- Foggathorpe Footpath No. 11 (FOGGF11): Commences on the Laytham – Melbourne Road at a point about 450 yards of the junction of New Road and leads eastwards and northwards to Owlet Hall Land then along Owlet Hall Lane for a distance of about 230 yards;
- Foggathorpe Bridleway No. 12 (FOGGB12): Commences at Laytham about 70 yards north of the west end of New Road and leads westwards along Belt Lane to the Ellerton parish boundary;
- Foggathorpe Bridleway No.15 (FOGGB15): Commences on Station Road and leads east-north-easterly for some 1199m then continues east-north-easterly for some 4m to join Seaton Ross Bridleway No. 14;
- Ellerton & Aughton Footpath No.6 (ELTNB06): Commences at the eastern end of Ruddings Lane and leads in a mainly south westerly direction past Aughton Ruddings Farm to Long Lane, opposite the north eastern corner of Common End Plantation;
- Ellerton & Aughton Bridleway No.7 (ELTNB07): Commences at the eastern end of Ruddings Lane and leads in an easterly direction to the Foggathorpe parish boundary to join path No. 12;
- Bielby Footpath No.1 (BIELF01): Commences on the south-western side of Mill Lane some 60m south of Mill Bridge and leads south-westerly for some 35m then southerly to the east end of Galecarr Lane. Known as Bridge Lane;
- Bielby Footpath No.2 (BIELF02): Commences on Galecarr Lane and leads southwards by the east and south of Galecarr Farm then south along the west bank of Galecarr Drain to the Everingham-Seaton Ross Road;
- Bielby Footpath No.6 (BIELF06): Commences at Mill Bridge and leads in a northerly direction along the east bank of the Pocklington Canal to Coats Bridge (Broken by Thornton Path No: 4);
- Bielby Bridleway No.7 (BIELB07): Commences at Coats Bridge and leads in a north easterly direction along the western bank of the Pocklington Canal to the Allerthorpe parish boundary, to join path No: 5;
- Thornton Footpath No.3 (THORF03): Commences at the Swingbridge on Pocklington Canal and leads in a north-westerly direction along the south-

western edge of Thornton Wood passing to the north of Woodhouse Farm and thence to the Melbourne-Pocklington Road;

- Thornton Footpath No.2 (THORF02): Commences south of Byholme Field and leads north-east then north to the west of Hall Flat to the Allerthorpe parish boundary;
- Seaton Ross Footpath No.2 (SROSF02): Commences on Mains Lane south of Mains Farm and leads in a generally north easterly direction to Carr Gate and then north west to Carr Lane then north east across High Bridge to the Seaton - Everingham Road just west of White House;
- Seaton Ross Footpath No.3 (SROSF03): Commences on Breckstreet Lane and leads north westwards then south west-wards to Breckstreet Farm;
- Seaton Ross Footpath No.4 (SROSF04): Commences on Breckstreet Lane and leads south eastwards to West End then continues southwards past Ladysmith then eastwards to the south of Manor House Farm to Church Lane;
- Seaton Ross Footpath No.5 (SROSF05): Commences on West End to the west of West House Farm and leads south-wards to footpath 7 and then southwards again past the greenhouses to South End;
- Seaton Ross Footpath No.7 (SROSF07): Commences on footpath 4 south west of Manor House Farm and leads south then southwest across West Field to Fosses Farm;
- Seaton Ross Bridleway No.14 (SROSB14): Commences at the eastern end of Foggathorpe Bridleway No. 15 and leads east-north-easterly for some 10m then continues east-north-easterly for some 608m to join the A163 at Lincoln Flats; and
- Allerthorpe Footpath No.2 (ALLEF02): Commences at the west end of the road leading from the Allerthorpe - Melbourne Road towards Waplington Hall and leads westwards to the north of Waplington Hall through Letterbox Plantation then leads in a south westerly then westerly direction to Warren.

None of these PRoWs are designated national trails. It is assumed that these PRoWs are used regularly by walkers, cyclists and horse riders as a means of leisure, travel or for farm machinery to move around farmland.

Tourism and occupancy rates

The Melbourne Raceway is located within the Site boundary which holds motorsport and drag racing events that attracts local and international visitors. There are a number of camping sites and other accommodation located in the local area.

Population, employment and productivity

The population of East Riding of Yorkshire is approximately 342,200, with the population increasing by 2.4% between the last two censuses (2011 and 2021) (Office for National Statistics, 2022).

Between July 2023 and June 2024, the total number of people in East Riding of Yorkshire that were in employment was 157,300 and 3,500 were unemployed (Office for National Statistics, 2024a).

In 2023, the largest sectors for employment in the East Riding of Yorkshire include Manufacturing (14.6%), Wholesale and Retail Trade, Repair of Motor Vehicles and Motorcycles (14.6%), and Human Health and Social Work Activities (13.1%) (Office for National Statistics, 2024a). Approximately, 6,000 people are employed in the agricultural sector in East Riding of Yorkshire, which includes farmers, partners, regular workers and casual workers (Invest East Yorkshire, 2024) and approximately 7,000 people are employed in the construction sector (Office for National Statistics, 2024a).

GVA is a measure of economic productivity that quantifies the contribution of an entity (company, industry or area) to an economy, producer or sector. The regional GVA output of East Riding of Yorkshire in 2022 was £8,935 million (Office of National Statistics, 2024b). The regional GVA in 2022 in East Riding of Yorkshire (Office for National Statistics, 2024c) is:

- £530 million by the construction industry (for all construction related activities);
- £670 million by agriculture, mining, electricity, gas, water and waste;
- £400 million by employment activities; tourism and security services; and
- £373 million by accommodation and food service activities.

6.10.6 Additional (secondary and tertiary) mitigation

An Outline Public Rights of Way Management Plan will be produced and submitted in support of the DCO application. This Outline Public Rights of Way Management Plan will detail the proposed changes/diversions to a PRoW and how these changes will be managed to minimise effects on walkers, cyclists or horse riders using an affected PROW. The Outline Public Rights of Way Management Plan will inform the ES.

Construction
During construction, where it is not possible to avoid diversions or closures of existing PRoWs; any new permanent and alternative PRoW will be designed to either replicate or improve a PRoW route, quality, safety and accessibility. Any proposed changes to a PRoW will be agreed in consultation with East Riding of Yorkshire Council, to ensure there are suitable diversions/replacements in place.
Any temporary diversions will be detailed in an Outline Public Rights of Way Management Plan, which will set out the PRoWs commitments. The Outline Public Rights of Way Management Plan will specifically address what impacts, if any, will occur for any walkers, cyclists or horse riders using an affected PRoW.

Operation
Once operational, it is anticipated that a PRoW will either be available to use in the same manner as pre-construction or if a new route for a PRoW is in place, this will also be open for use. No additional mitigation during operation is therefore proposed.

Decommissioning
It is anticipated that during the decommissioning phase where it is not possible to avoid diversions or closures of existing PRoWs; any temporary PRoWs will be

designed in consultation with East Riding of Yorkshire Council. The decommissioning phase is likely to have a similar impact as that of the construction phase.

6.10.7 Description of likely significant effects

Private property and housing
There are no properties or houses at risk of demolition as a result of the construction, operation or decommissioning of the Proposed Development. As detailed in **Section 6.6.8**, there is potential for views of the Proposed Development in surrounding villages (Melbourne, Seaton Ross, Laytham, Ellerton, Foggathorpe, Bielby and Thornton) and scattered residential dwellings. However, minimising the potential visibility on these receptors will be a key consideration when finalising the design and route of the Proposed Development. It is therefore anticipated that there will be no significant effects on private property and housing as a result of the Proposed Development.

Community land and assets
The Site is not being used as community land and there are no community assets located within the study area. It is anticipated that there will be no significant effects on community land and assets as a result of the Proposed Development.

Agricultural land holdings, agricultural economy, development land and businesses
The Proposed Development will cover a large area of privately owned agricultural land. The majority of this agricultural land will be taken out of full production for the lifetime of the Proposed Development, reducing the land available for food production. There may be businesses/tenants/occupiers currently undertaking agricultural operations across the Site who may cease production during construction and operation of the Proposed Development. The Applicant is in discussions with the landowners regarding renumeration, however these are ongoing. Where possible, the land may still be used for light grazing and hay cropping during the construction and operational phases allowing for the possible continuation of some agricultural employment. As a result of the Proposed Development, there is likely to be a reduction in land available for agricultural use, which may result in the subsequent loss of agricultural employment opportunities, including businesses that are supported by the agricultural sector. The loss of available land for agricultural use and agricultural employment opportunities may potentially impact the wider agricultural economy of the East Riding of Yorkshire through a potential reduction in GVA contributed to the local economy.
Accommodation and camp sites within the study area may also be directly and adversely impacted as a result of the visual changes associated with a development of this type which may potentially affect the visitor experience and thus lead to a loss of business.

An ALC survey has been undertaken of the Site which identified that the Site is predominately Grade 3b and 4 land, with small pockets of Grade 5 land. The ALC concluded that loss of land associated with the Proposed Development would not result in the loss of best and most versatile agricultural land. Due to the soil not being classified as BMV and the temporary nature of the Proposed Development (i.e., the

land can be returned to agricultural land following decommissioning), there is unlikely to be significant effects on food security.

Walkers, cyclists and horse riders All PRoWs will be retained in their existing alignment, where practicable. However there is the possibility that PRoWs within and around the Site will need to be temporarily diverted or permanently closed as a result of the construction activities. If permanently closed, the PRoWs are likely to be replaced with a new PRoW. As a result of these changes, it is likely that PRoWs users will be inconvenienced (i.e., having to use a different or potentially longer route). Should any permanent diversions be required, efforts will be made to ensure that a diversion will take the shortest feasible route and enhancement is provided to existing routes.

There is also the potential that the inconveniences of the temporarily diverted or permanently closed PRoWs which may increase users journey duration or present a barrier which could restrict or prevent their use. Barriers to people undertaking travel and/or exercise will be avoided where possible. Where impacts may occur, the Outline Public Rights of Way Management Plan will detail the proposed mitigation measures in order to remove or minimise the potential for impacts. This will be submitted in support of, and secured by, the DCO application.

As detailed in LA 112, an increase in the length of a PRoW by 250-500m could create a moderate level of effect on users, with an increase of more than 500m to have a major effect. At this stage, it is unknown if any changes to a PRoW will exceed these distances. In addition there is potential for significant effects relating to disturbance and inconvenience for PRoWs users, depending on the sensitivity on the receptors.

Tourism
There is the potential for the Melbourne Raceway to be permanently/temporarily closed or for the number of events to be reduced as a result of the Proposed Development, affecting visitor numbers. The campsite may also be directly impacted visually by the Proposed Development, which could result in a decrease in the number of visitors and therefore a reduction in revenue and potential loss of employment opportunities.

Occupancy rates
The number of construction/operational staff is currently unknown, however there is a potential for a proportion of staff to require temporary accommodation, which will impact capacity rates.

Employment and productivity
The number of construction/operational staff is currently unknown but there is potential for likely significant beneficial effects to employment and GVA associated with the construction phase. There is also the potential for adverse effects relating to employment and GVA from the resulting temporary loss of agricultural land.

6.10.8 Receptors/matters to be scoped into further assessment

LA 112 sets out the following receptors to be covered in relation to population:

- Private property and housing;
- Community land and assets;
- Development land and businesses;
- Agricultural land holdings; and
- Walkers, cyclists and horse riders.

For completeness, based on experience of similar projects elsewhere and professional understanding, the potential for effects on the agricultural economy, employment, productivity (i.e., GVA), tourism and occupancy rates have also been considered.

As noted in **Section 5.5**, a human health chapter will not be prepared, as the potential effects on human health will be covered in the air quality, landscape and visual, noise and vibration, and transport and access and population assessments.

Receptor/Matter	Phase	Justification
Agricultural land holdings and agricultural economy	Construction, operation and decommissioning	There is potential for significant effects to agricultural land holdings and the agricultural economy through the reduction or potential cessation of agricultural production.
Businesses and employment land	Construction, operation and decommissioning	There is potential for significant effects to businesses through the ceasing of agricultural production (including supplementary agricultural businesses and the nearby camp site).
Walkers, cyclists and horse riders	Construction, operation and decommissioning	There is potential for significant effects to walkers, cyclists and horse riders as a result of temporary and/or permanent diversions of a PRoW or of Wilberforce Way, relating to inconvenience and barriers to accessing existing PRoWs or Wilberforce Way.
Employment and GVA	Construction, operation and decommissioning	There is potential for significant effects to local employment and GVA. The loss of productive land may result in reduced agricultural

		employment opportunities. However, it is anticipated that the construction of the Proposed Development will result in a large number of construction staff, resulting in employment opportunities and increase spending in the local area. It is anticipated that a small number of jobs will be created during operation of the Proposed Development.
Tourism	Construction, operation and decommissioning	The Applicant is currently in discussions regarding the Melbourne Raceway. Although it is envisioned that events will continue during construction and operation of the Proposed Development, this is yet to be confirmed. The reduction in or cancelling of events could affect attendance and associated revenue for the local area. There is also potential for likely visual effects on the nearby campsite which may affect visitor numbers and subsequently revenue.
Occupancy rates	Construction and decommissioning	The influx of construction/decommissioning workers into the area may have an impact on visitor accommodation and occupancy rates.

6.10.9 Receptors/matters to be scoped out of further assessment

Receptor/Matter	Phase	Justification
Private property and housing	Construction, operation and decommissioning	There will be no properties or houses at risk of demolition as a result of the construction, operation or decommissioning of the Proposed Development. The land for the Proposed Development is not allocated for residential development and no new planning applications have been submitted for housing developments within the Site boundary. As detailed in **Sections 6.6.8** and **6.10.7,** potential visibility on neighbouring villages and scattered residential properties will be a key consideration

		when finalising the design and route of the Proposed Development. It is therefore anticipated there will be no significant effects on private property and housing, therefore it is proposed that this matter be scoped out of further assessment.
Community land and assets	Construction, operation and decommissioning	The Proposed Development will cover a large area of privately owned agricultural land. This land is not being used as community land and there are no community assets located within the Site boundary. Therefore no significant effects are expected in relation to community land or assets. It is proposed that this matter be scoped out of further assessment.
Occupancy rates	Operation	Although the number of operational staff is currently unknown, it is anticipated that these positions will be permanent and therefore will be filled by staff living within a commutable distance of the Proposed Development. Therefore, it is considered that there is unlikely to be significant impacts to local occupancy rates during operation.
Receptors located outside of the study areas	Construction, operation and decommissioning	As detailed in **Section 6.10.8** and in line with LA 112, it is proposed that any receptors located outside of the proposed study areas be scoped out of further assessment.

6.10.10 Opportunities for enhancing the environment

There is opportunity to create new or to enhance the current condition of affected PRoWs, including upgrading access, signage or safety.

It is also expected that an Outline Employment, Skills and Supply Chain Plan will be prepared as part of the DCO.

6.10.11 Proposed assessment methodology

In accordance with LA 112, the assessment will consider the likelihood of significant effects for land use and accessibility relating to:

- Agricultural land holdings;

- Businesses and employment land; and
- Walkers, cyclists and horse riders via impacts to PRoWs.

In the absence of other guidance, professional judgement will be used to inform the assessment of effects on receptors to be included in the assessment but are not listed in LA 112 guidance. These receptors are:

- Agricultural Economy;
- Employment and GVA; and
- Tourism and occupancy rates.

To provide continuity, it is proposed that the terminology and significance criteria detailed in LA 112 will be used regardless of whether the receptor is listed in LA 112 or not. Further detail on the significance criteria (listed below) that will be applied is presented in **Appendix D**:

- Receptor value (sensitivity);
- Magnitude of change (impact); and
- Significance of effects.

The assessment will include the likely effects during all phases of the Proposed Development i.e., construction, operation and decommissioning.

Consideration will be given to the presence and number of receptors within the study areas through the creation of a baseline socio-economic project. If a receptor is absent from the study area, no further consideration will be given to the potential for significant effects.

Professional judgement will be used to consider the likely effects that the Proposed Development would have and whether the effect is likely to be beneficial, neutral or adverse. The effect will be quantified with regards to the nature of the impact, the probability of the impact and the duration, frequency and reversibility of the impact.

For any level of adverse impacts identified through this process, consideration will be given to the implementation of mitigation measures to remove, reduce or mitigate the level of effect. If the effect is positive, consideration will be given to the measures that could be implemented in order to enhance the level of effect.

Residual effects will then be assessed which will take into account any proposed mitigation measures.

6.10.12 Difficulties and uncertainties

To ensure transparency within the EIA process, the following difficulties and uncertainties have been identified:

- The Applicant is currently in discussions with the affected landowners, each at different stages of negotiation. The number of tenanted farmers who may be affected by the Proposed Development is unknown. However, this information will be determined to inform the ES and DCO application; and
- As the Proposed Development does not have a fixed layout, it is currently not possible to determine the number and length of PRoW that will be affected. However, this information will be determined to inform the ES and DCO application.

6.10.13 References

- Department for Environment, Food and Rural Affairs (2024). Structure of the agricultural industry in England the UK at June. Statistical data set. English geographical breakdowns. Available at: https://www.gov.uk/government/statistical-data-sets/structure-of-the-agricultural-industry-in-england-and-the-uk-at-june
- Design Manual for Roads and Bridges (2020), LA 112 - Population and human health'. Available at:https://www.standardsforhighways.co.uk/search/1e13d6ac-755e-4d60-9735-f976bf64580a
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- INVEST East Yorkshire (2024). Agri Food and Bio Renewables. Available online: https://investeastyorkshire.co.uk/agri-food-bio-renewables/#:~:text=The%20East%20Riding%20is%20home%20to%20over%202%2C000,of%20the%20Yorkshire%20and%20Humber%20region%E2%80%99s%20agricultural%20GVA
- Office for National Statistics (2022). How the population changed in East Riding of Yorkshire: Census 2021. Available online: https://www.ons.gov.uk/visualisations/censuspopulationchange/E06000011/
- Office of National Statistics (2024a). Labour Market Profile – East Riding of Yorkshire. Available online: https://www.nomisweb.co.uk/reports/lmp/la/1946157108/report.aspx#tabrespop
- Office of National Statistics (2024b). Regional gross value added (balanced) per head and income components. Available online: https://www.ons.gov.uk/economy/grossvalueaddedgva/datasets/nominalregionalgrossvalueaddedbalancedperheadandincomecomponents
- Office for National Statistics, (2024c). Regional gross value added (balanced) by industry: local authorities by ITL1 region. Available online: https://www.ons.gov.uk/economy/grossdomesticproductgdp/datasets/regionalgrossvalueaddedbalancedbyindustrylocalauthoritiesbyitl1region

6.10.14 Scoping questions

- Do you agree with the proposed Study Areas?
- Do you agree that the data sources listed to inform the EIA baseline characterisation are appropriate?
- Are any receptors/assets/resources not identified that you would like to see included in the EIA?
- Do you agree with the proposed additional (secondary and tertiary) mitigation measures and is this mitigation appropriate?
- Do you agree with the receptors/matters that are proposed to be scoped in and out of the EIA?
- Do you agree with the proposed factor-specific assessment approach?

7. Cumulative effects

7.1 Proposed assessment methodology

7.1.1 Schedule 4 paragraph (5)(e) of the EIA Regulations states that the ES should include "*a description of the likely significant effects of the development on the environment resulting from… the cumulation of effects with other existing and/or approved projects, taking into account any existing environmental problems relating to areas of particular environmental importance likely to be affected or the use of natural resources*".

7.1.2 Regulation 5(2) states that the EIA must identify, describe and assess in an appropriate manner, in light of each individual case, the direct and indirect significant effects of the proposed development on the following factors: population and human health; biodiversity, land; soil; water; air and climate; material assets; cultural heritage; and the landscape. Regulation 5(2)(e) refers to the need to assess *"the interaction between [those] factors"*.

7.1.3 Cumulative effects occur as a result of several actions on an environmental receptor which may overlap or act in combination. The following types of cumulative effects will be considered in accordance with the EIA Regulations and best practice guidance:

- **Intra-project combined effects** – the interaction and combination of different environmental residual (post-additional mitigation) effects from within the Proposed Development affecting a receptor; and
- **Inter-project cumulative effects** – the combined residual (post-additional mitigation) effects of the Proposed Development and 'other existing development and/or approved development' on a single receptor/resource.

7.1.4 Relevant guidance has been considered during the preparation of this EIA Scoping Report and will also be employed in the production of the PEIR and ES, comprising primarily the Nationally Significant Infrastructure Projects: Advice on Cumulative Effects Assessment[25] on inter-project cumulative effects and guidance from the Institute of Environmental Management and Assessment (IEMA)[26].

7.1.5 The following approach will be adopted for the assessment of cumulative effects, based on previous experience, the types of receptors being assessed, the nature of the Proposed Development, the other existing development and/or approved development under consideration and the information available to inform the assessment.

Intra-project combined effects

7.1.6 The approach to the assessment of interactions of environmental effects (intra-project combined effects) will consider the changes in baseline conditions at common sensitive receptors (i.e., those receptors that have been identified as experiencing likely significant environmental effects by more than one environmental factor) due to the Proposed Development. The assessment will be based upon residual (post-additional mitigation) effects of 'slight/minor' or greater significance only ('negligible' residual effects will not

be considered). The assessment will also include consideration of where multiple non-significant effects could combine to become significant. The study area for the assessment of intra-project combined effects will be informed by the study areas for the individual environmental factor assessments.

7.1.7 The assessment of the intra-project combined effects will be undertaken using a two-stage approach:

Stage 1 – Screening

7.1.8 Screening will be undertaken to determine whether a sensitive receptor is exposed to more than one type of residual (post-additional mitigation) effect during the construction, operation and/or decommissioning phases of the Proposed Development. Those common sensitive receptors exposed to two or more types of residual (post-additional mitigation) effects, with significance of 'slight/minor' or greater, will be taken forward to Stage 2 of the assessment.

7.1.9 If there is only one type of effect on a sensitive receptor (i.e., only one environmental factor assessment chapter has identified effects on that sensitive receptor), then it will be considered that there are no potential intra-project combined effects and the sensitive receptor will not be taken forward to Stage 2 of the assessment.

Stage 2 – Assessment of intra-project combined effects

7.1.10 A quantitative assessment of the overall significance of the intra-project combined effects on common sensitive receptors identified at Stage 1 will be undertaken, based on technical information provided in the environmental factor assessment chapters and supporting appendices, as well as professional judgement. Given that the types of effects may be very different in some cases, a quantitative assessment may not be possible, and it may be necessary to apply professional judgement in determining the significance of each individual effect.

7.1.11 The evaluation at the receptor level will consider: the magnitude of change at the common receptor; previously identified sensitivity; duration and reversibility of interaction. The focus will be on determining a change in the level of effect likely to be experienced and whether this is significant or not.

Inter-project cumulative effects

7.1.12 The approach to the assessment of inter-project cumulative effects will consider the deviation from the baseline conditions at common sensitive receptors as a result of changes brought about as a result of the Proposed Development in combination with one or more other existing development and/or approved development(s). The assessment of the inter-project cumulative effects will be based upon the residual (post-additional mitigation) effects that have been identified in the various environmental factor assessments for the Proposed Development, as well as available environmental information for the other existing development and/or approved developments.

7.1.13 In accordance with the Nationally Significant Infrastructure Projects: Advice on Cumulative Effects Assessment[21], the identification of other existing development and/or approved developments will comprise two clear stages, as follows:

- **Stage 1**: establish a long list of other existing development and/or approved developments based on appropriate spatial and temporal limits.
- **Stage 2**: apply a clear rationale to establish a short list of other existing development and/or approved developments which, in combination with the Proposed Development, have the potential to result in a significant cumulative effect for inclusion within the assessment.

Stage 1: Long list methodology

7.1.14 In accordance with the Nationally Significant Infrastructure Projects: Advice on Cumulative Effects Assessment[21], the first task in establishing the long list of relevant 'other existing development and/or approved development(s)' is to determine the 'search area'. The 'search area' will be determined by affording consideration to the Zone of Influence (ZoI) for each environmental factor assessed.

7.1.15 The ZoI for each environmental factor is defined as the spatial area over which an effect is likely to be experienced. The ZoI for each environmental factor will be identified based on the extent of the likely effects as identified as the study area in each of the individual environmental factor assessments, whilst also reflecting any additional area over which cumulative effects may occur for particular cumulative scenarios (e.g. sequential cumulative visual effects on users of linear routes).

7.1.16 The overall combined 'search area' for the long list of relevant 'other existing development and/or approved development(s)' will be based on the largest ZoI in terms of distance.

7.1.17 Following the adoption of the ZoI, a planning application search will be undertaken to identify other existing development and/or approved developments within the ZoI, using the planning portals of East Riding of Yorkshire Council, City of York Council, North Yorkshire Council and the Planning Inspectorate. However, it is recognised that East Riding of Yorkshire Council, as the 'host' local planning authority, may be aware of additional proposals not yet fully in the public domain and hence comment is sought on any further developments that should, in the authority's opinion, be included in the inter-project cumulative effects assessment process.

7.1.18 Only the following types of other existing developments and/or approved developments will be considered for inclusion on the long list, as the Applicant considers that any development that does not fall within these types would not likely give rise to a significant cumulative effect:

- Employment developments;
- Residential developments of 10+ dwellings;
- Minerals and waste applications;
- Industrial developments;

- NSIP developments (as defined by the Planning Act 2008)
- Transport infrastructure developments (rail, trunk roads or motorways only); and
- Energy infrastructure developments.

7.1.19 Furthermore, of the development types listed above, only those that meet one or more of the following criteria will be included on the long list (in accordance with the 'Tier 1' and 'Tier 2' descriptions in the Nationally Significant Infrastructure Projects: Advice on Cumulative Effects Assessment[21]):

- Projects that are under construction but that would not be completed prior to the Proposed Development commencing[2];
- Projects with planning permission within the last five years[3] (whether under the Planning Act 2008 or other regimes), but not yet implemented;
- Submitted applications (whether under the Planning Act 2008 or other regimes), but not yet determined;
- Projects on the Planning Inspectorate's Programme of projects where an EIA Scoping Report has been submitted, but for which an application has not yet been submitted.

7.1.20 The Applicant's interpretation of the last bullet point above is that this solely relates to NSIPs. However, the Applicant will widen this particular criteria to include projects screened as EIA development under other regimes where an EIA Scoping Report has been submitted, but for which an application has not yet been submitted.

7.1.21 It should be noted that with reference to 'Tier 3' descriptions in the Nationally Significant Infrastructure Projects: Advice on Cumulative Effects Assessment[21], the following other existing development and/or approved development(s) will not be considered for inclusion in the long list. None of the below will have sufficient environmental assessment information freely and publicly available to inform the inter-project cumulative effects assessment, nor a high level qualitative assessment. The Applicant therefore does not consider the below to be 'existing development and/or approved development':

[2] In accordance with the Nationally Significant Infrastructure Projects: Advice on Cumulative Effects Assessment[21], other projects that are expected to be completed before construction of the Proposed Development, and the effects of those projects have been fully determined within their respective applications, are considered as part of the baseline

[3] A five-year period is considered a reasonable time period to capture all other existing development and/or approved developments that still have the potential to be built. Standard planning permission conditions typically state that development must be begun no later than the expiration of three years from the date of permission. Developments with planning permission older than five years will likely have been built or will not likely be built at all.

- Projects on the Planning Inspectorate's Programme of projects where an EIA Scoping Report has not been submitted;
- Projects that have been identified in the relevant Development Plan(s) (and emerging Development Plans); and
- Projects identified in other plans and programmes (as appropriate) which set the framework for future development consents/approvals, where such development is reasonably likely to come forward.

7.1.22 Only if the other existing development and/or approved developments meet the Stage 1 criteria will they then be taken forward to Stage 2. The long list will be kept under review, with the intention of agreeing the long list with East Riding of Yorkshire Council prior to the completion of the ES to allow for a robust assessment of inter-project cumulative effects.

Stage 2: Short list methodology

7.1.23 Following the formation of the long list, the eligible other existing development and/or approved developments identified require further assessment (Stage 2) to establish a short list of other existing development and/or approved developments which, in combination with the Proposed Development, have the potential to result in significant cumulative effects.

7.1.24 The criteria used to determine whether to include or exclude an existing development and/or approved development on the short list will reflect the process established by the Nationally Significant Infrastructure Projects: Advice on Cumulative Effects Assessment[21] and have regard to relevant policy and guidance documents and consultation with the appropriate statutory consultation bodies (particularly East Riding of Yorkshire Council). The Nationally Significant Infrastructure Projects: Advice on Cumulative Effects Assessment[21] states that the criteria should address the following:

- **Temporal scope:** The relative construction, operation and decommissioning programmes of the other existing and/or approved developments identified in the ZoI together with the Proposed Development, to establish whether there is overlap and any potential for interaction.
- **Scale and nature of development:** The scale and nature of the other existing and/or approved developments identified in the ZoI that are likely to interact with the Proposed Development. Statutory definitions of major development and EIA screening thresholds may be of assistance when considering issues of scale.
- **Other factors:** For example, the nature and, or capacity of the receiving environment, which could make a significant cumulative effect with the other existing and/or approved developments more or less likely. Consider using a source-pathway receptor approach to inform the assessment.

7.1.25 The Nationally Significant Infrastructure Projects: Advice on Cumulative Effects Assessment[21] suggests that professional judgement may also be used to supplement the threshold criteria and in order to avoid excluding 'other existing development and/or approved development' that is:

- *"Below the threshold criteria limits but has characteristics likely to give rise to a significant effect; or*
- *Below the threshold criteria limits but could give rise to a cumulative effect by virtue of its proximity to the proposed NSIP [i.e. the Proposed Development]."*

7.1.26 The Nationally Significant Infrastructure Projects: Advice on Cumulative Effects Assessment[21] also notes "Professional judgement could be applied to support the exclusion of other existing and, or approved development that exceeds the thresholds but may not give rise to evident effects. All the other existing and, or approved development considered should be documented and the reasons for inclusion or exclusion clearly stated."

7.1.27 Taking the above into consideration, the other existing development and/or approved developments on the long list will be reviewed against the following criteria to form the short list of other existing development and/or approved developments:

- **Criteria 1**: The other existing development and/or approved development has a construction, operational and/or decommissioning phase that may overlap with any phase of the Proposed Development.
- **Criteria 2**: The other existing development and/or approved development and the Proposed Development share common sensitive receptors/resources which are assessed and described in the supporting environmental documentation, and have the potential to be significantly affected by the combination of the other existing development and/or approved development and the Proposed Development.
- **Criteria 3**: The other existing development and/or approved development has sufficient environmental assessment information readily and publicly available (including traffic flows) to inform the inter-project cumulative effects assessment. The assessment of each existing development and/or approved development on the short list will be proportionate to the environmental assessment information available[4].

7.1.28 Where an existing development and/or approved development meets all of the above criteria, it will be included on the 'short list' and will be taken forward for further consideration in the assessment. The short list will be kept under review, with the intention of agreeing the short list with East Riding of Yorkshire Council prior to the completion of the ES to allow for a robust assessment of inter-project cumulative effects.

[4] In the unlikely event that a Tier 1 or 2 development, which it is known will be progressed, but has insufficient environmental assessment information, a detailed inter-project cumulative effects assessment may not be possible. It may, however, still be prudent to consider the development in the inter-project cumulative effects assessment. The assessment may therefore take the form of listing the development and why it hasn't been considered in detail, or the potential inter-project cumulative effect could be discussed at a high level (qualitatively) using professional judgement.

7.1.29 Where existing development and/or approved developments are discounted from the short list, they will continue to be monitored to ensure that any changes to those existing development and/or approved developments are identified and their omission from the short list is reassessed prior to undertaking the cumulative assessment for the ES.

Stage 3: Information gathering

7.1.30 The other existing development and/or approved developments that form part of the short list will be subject to a review of environmental information, where available, including details of:

- Location;
- Programme, including construction, operation and decommissioning;
- Baseline data;
- Effects arising from such other existing development and/or approved developments on common sensitive receptors; and
- Proposed design.

Stage 4: Assessment

7.1.31 There is no formal guidance on the criteria for determining significance of inter-project cumulative effects. The following principles will be considered when assessing the significance of inter-project cumulative effects, in accordance with the Nationally Significant Infrastructure Projects: Advice on Cumulative Effects Assessment[21] and in consideration of any mitigation measures required to avoid, prevent, reduce or, if possible, offset any identified significant adverse inter-project cumulative effects:

- The duration of effect (temporary or permanent);
- The extent of effect (the geographical area);
- The type of effect (whether additive or synergistic);
- The frequency of the effect;
- The value and resilience of the receptor affected; and
- The likely success of mitigation.

7.2 Difficulties and uncertainties

7.2.1 The assessment of inter-project cumulative effects will be limited to publicly available information obtained from the relevant planning applications on the planning portals of East Riding of Yorkshire Council, City of York Council, North Yorkshire Council and the Planning Inspectorate. For some of the identified other existing development and/or approved developments, relevant information for this assessment may not be available. Where this is the case, the inter-project cumulative effects assessment will be based upon assumptions and professional judgement, reliant on the review of mitigation measures proposed as part of the other existing development and/or approved developments rather than the Proposed Development.

Appendix A Proposed Development Location and Land Parcels

A.1 Proposed Development Location

Provided in a separate document.

A.2 Land Parcels

Provided in a separate document.

Appendix B Environmental and Planning Features

B.1 Environmental Planning Features

Provided in a separate document.

B.2 Environmental Planning Features - Flood Zones

Provided in a separate document.

Appendix C Concept Masterplan

Provided in a separate document.

Appendix D Significance Criteria

Air Quality

The significance level attributed to each effect will be assessed based on the magnitude of change due to the Proposed Development and the sensitivity of the affected receptor.

Construction and decommissioning phase: dust and particulate matter emissions impact

The Institute of Air Quality Management (IAQM) 'Guidance on the Assessment of Dust from Demolition and Construction, V2.2' (2024) criteria and methodology will be adopted to determine the sensitivity of the receptor and the magnitude of change.

Three separate potential dust impacts will be considered:

- Annoyance due to dust soiling;
- The risk of health effects due to an increase in exposure to Particulate Matter with a diameter of 10 microns or less (PM_{10}); and
- Harm to ecological receptors.

Sensitivity of the area

The sensitivity of the area takes into account a number of factors, comprising:

- The specific sensitivities of receptors in the area;
- The proximity and number of those receptors;
- In the case of PM_{10}, the local background concentration; and
- Site-specific factors, such as whether there are natural shelters, such as trees, to reduce the risk of wind-blown dust.

Table D1, Table D2 and **Table D3** below are derived from Institute of Air Quality Management Guidance of the Assessment of Dust from Demolition and Construction v2.2 2024 and show how the sensitivity of the area may be determined for dust soiling, human health and ecological impacts respectively. These tables take account of a number of factors which may influence the sensitivity of the area when determining dust impacts during the construction and decommissioning phases.

Table D1: Sensitivity of the area to dust soiling effects on people and property

Receptor sensitivity	Number of receptors	Distance from the source (m)			
		<20	<50	<100	<250
High	>100	High	High	Medium	Low
	10-100	High	Medium	Low	Low
	1-10	Medium	Low	Low	Low
Medium	>1	Medium	Low	Low	Low
Low	>1	Low	Low	Low	Low

Receptor sensitivity	Number of receptors	Distance from the source (m)			
		<20	<50	<100	<250
Notes[5]: *The sensitivity of the area should be derived for each of the four activities: demolition, construction, earthworks and trackout.* *Estimate the total number of receptors within the stated distance. Only the highest level of area sensitivity from the table needs to be considered. For example, if there are 7 high sensitivity receptors <20 m of the source and 95 high sensitivity receptors between 20 and 50 m, then the total of number of receptors <50 m is 102. The sensitivity of the area in this case would be high.* *For trackout, the distances should be measured from the side of the roads used by construction traffic. The impact declines with distance from the site, and it is only necessary to consider trackout impacts up to 50 m from the edge of the road.*					

Table D2: Sensitivity of the area to human health impacts

Receptor sensitivity	Annual mean PM10 concentration	Number of receptors	Distance from the source (m)			
			<20	<50	<100	<250
High	>32 µg/m3	>100	High	High	High	Medium
		10-100	High	High	Medium	Low
		1-10	High	Medium	Low	Low
	28-32 µg/m3	>100	High	High	Medium	Low
		10-100	High	Medium	Low	Low
		1-10	High	Medium	Low	Low
	24-28 µg/m3	>100	High	Medium	Low	Low
		10-100	High	Medium	Low	Low
		1-10	Medium	Low	Low	Low
	<24 µg/m3	>100	Medium	Low	Low	Low
		10-100	Low	Low	Low	Low
		1-10	Low	Low	Low	Low
Medium	>32 µg/m3	>100	High	Medium	Low	Low
		10-100	Medium	Low	Low	Low
		1-10	Medium	Low	Low	Low
	28-32 µg/m3	>100	Low	Low	Low	Low
		10-100	Low	Low	Low	Low
		1-10	Low	Low	Low	Low
	24-28 µg/m3	>100	Low	Low	Low	Low
		10-100	Low	Low	Low	Low
		1-10	Low	Low	Low	Low
	<24 µg/m3	>100	Low	Low	Low	Low
		10-100	Low	Low	Low	Low
		1-10	Low	Low	Low	Low
Low	-	≥1	Low	Low	Low	Low

[5] Notes are derived from Institute of Air Quality Management Guidance of the Assessment of Dust from Demolition and Construction v2.2 and explain how the sensitivity of the area to dust soiling effects on people and property is determined.

Receptor sensitivity	Annual mean PM10 concentration	Number of receptors	Distance from the source (m)			
			<20	<50	<100	<250
Notes[6]: The sensitivity of the area should be derived for each of the four activities: demolition, construction, earthworks and trackout. Estimate the total within the stated distance (e.g. the total within 250 m and not the number between 100 and 250 m), noting that only the highest level of area sensitivity from the table needs to be considered. For example, if there are 7 high sensitivity receptors <20 m of the source and 95 high sensitivity receptors between 20 and 50 m, then the total of number of receptors <50 m is 102. If the annual mean PM10 concentration is 29 µg/m3, the sensitivity of the area would be high. Most straightforwardly taken from the national background maps but should also take account of local sources. The values are based on 32 µg/m3 being the annual mean concentration at which an exceedance of the 24-hour objective is likely in England, Wales and Northern Ireland. In Scotland there is an annual mean objective of 18 µg/m3. In the case of high sensitivity receptors with high occupancy (such as schools or hospitals) approximate the number of people likely to be present. In the case of residential dwellings, just include the number of properties. For trackout, the distances should be measured from the side of the roads used by construction traffic. The impact declines with distance from the site, and it is only necessary to consider trackout impacts up to 50 m from the edge of the road.						

Table D3: Sensitivity of the area to ecological impacts

Receptor sensitivity	Distance from the source (m)	
	<20	<50
High	High	Medium
Medium	Medium	Low
Low	Low	Low
Notes[7]: *The sensitivity of the area should be derived for each of the four activities: demolition, construction, earthworks and trackout and for each designated site.* *Only the highest level of area sensitivity from the table needs to be considered.* *For trackout, the distances should be measured from the side of the roads used by construction traffic. The impact declines with distance from the site.*		

[6] Notes are derived from Institute of Air Quality Management Guidance of the Assessment of Dust from Demolition and Construction v2.2 and explain how the sensitivity of the area to human health impacts is determined.

[7] Notes are derived from Institute of Air Quality Management Guidance of the Assessment of Dust from Demolition and Construction v2.2 and explain how the sensitivity of the area to ecological impacts is determined.

Dust emission magnitude

Table D4 below is derived from Institute of Air Quality Management Guidance of the Assessment of Dust from Demolition and Construction v2.2 and indicates the scale of magnitude for dust emission impacts.

Table D4: Scale of magnitude for dust emission impacts

Activity	Dust emissions magnitude	Description
Demolition	Large	Total building volume >75,000 m^3, potentially dusty construction material (e.g. concrete), on-site crushing and screening, demolition activities >12 m above ground level.
	Medium	Total building volume 12,000 m^3 – 75,000 m^3, potentially dusty construction material, demolition activities 6-12 m above ground level.
	Small	Total building volume <12,000 m^3, construction material with low potential for dust release (e.g. metal cladding or timber), demolition activities <6 m above ground, demolition during wetter months.
Earthworks	Large	Total site area >110,000 m^2, potentially dusty soil type (e.g. clay), >10 heavy earth moving vehicles active at any one time, formation of bunds >6 m in height.
	Medium	Total site area 18,000 m^2 – 110,000 m^2, moderately dusty soil type (e.g. silt), 5 – 10 heavy earth moving vehicles active at any one time, formation of bunds 3 – 6 m in height.
	Small	Total site area <18,000 m^2, soil type with large grain size (e.g. sand), <5 heavy earth moving vehicles active at any one time, formation of bunds <3 m in height.
Construction	Large	Total building volume >75,000 m^3, on site concrete batching, sandblasting.
	Medium	Total building volume 12,000 m^3 – 75,000 m^3, potentially dusty construction material (e.g. concrete), on site concrete batching.
	Small	Total building volume <12,000 m^3, construction material with low potential for dust release (e.g. metal cladding or timber).
Trackout	Large	>50 Heavy Duty Vehicle (>3.5 t) outward movements in any one day, potentially dusty surface material (e.g. high clay content), unpaved road length >100 m.

Activity	Dust emissions magnitude	Description
	Medium	20 – 50 Heavy Duty Vehicle (>3.5 t) outward movements in any one day, moderately dusty surface material (e.g. high clay content), unpaved road length 50 m – 100 m.
	Small	<20 Heavy Duty Vehicle (>3.5 t) outward movements in any one day, surface material with low potential for dust release, unpaved road length <50 m.

Significance of effect

Dust risks are described in terms of 'high', 'medium', 'low' or 'negligible', as shown in **Table D5** below and are derived from Institute of Air Quality Management Guidance of the Assessment of Dust from Demolition and Construction v2.2. The determination of the risk category determines the level of mitigation that must be applied. For those cases where the risk category is 'negligible', no mitigation measures beyond those required by legislation will be required.

The Institute of Air Quality Management Guidance of the Assessment of Dust from Demolition and Construction v2.2 makes reference to the use of professional judgement when assessing the significance of the effects of dust impacts from construction and decommissioning activities. 'High risk' is considered to be **significant** and 'medium risk', 'low risk' and 'negligible' are considered to be **not significant**.

Table D5: Level of effects for dust emission impacts

Activity	Sensitivity of the area	Dust emission magnitude		
		Large	Medium	Small
Demolition	High	**High risk**	Medium risk	Medium risk
	Medium	**High risk**	Medium risk	Low risk
	Low	Medium risk	Low risk	Negligible
Earthworks	High	**High risk**	Medium risk	Low risk
	Medium	Medium risk	Medium risk	Low risk
	Low	Low risk	Low risk	Negligible
Construction	High	**High risk**	Medium risk	Low risk
	Medium	Medium risk	Medium risk	Low risk
	Low	Low risk	Low risk	Negligible
Trackout	High	**High risk**	Medium risk	Low risk
	Medium	Medium risk	Medium risk	Low risk
	Low	Low risk	Low risk	Negligible

Operation of equipment during construction and decommissioning phases

Exhaust emissions from construction and decommissioning plant may have an impact on local air quality in the vicinity of the Site. A qualitative impact assessment will be undertaken with reference to the Greater London Authority Non-Road Mobile Machinery Practical Guide, and based on professional judgement and considering the following factors:

- The duration of the construction/decommissioning phase;
- The number and type of construction/decommissioning plant that could be required; and
- The number and proximity of sensitivity receptors to the Site.

Road traffic exhaust emissions during construction, operation (including maintenance) and decommissioning phases

Construction and decommissioning traffic will comprise haulage/construction vehicles and vehicles used for workers' trips to and from the Site. The greatest impact on air quality due to emissions from construction and decommissioning phase vehicles will be in areas adjacent to the Site access and nearby road network. A screening level qualitative assessment for construction and decommissioning road traffic exhaust emissions will be undertaken with reference to the Environmental Protection UK and Institute of Air Quality Management 2017 guidance and Design Manual for Roads and Bridges LA 105 Air Quality, using professional judgement and by considering the following information:

- The number of road traffic movements likely to be generated;
- The number and proximity of sensitive receptors to the Site and along the likely routes to be used by construction/decommissioning vehicles; and
- The likely duration and the nature of the construction/decommissioning activities undertaken.

A screening level qualitative assessment for operational road traffic exhaust emissions will be undertaken to confirm the predicted operational traffic movements fall below the Environmental Protection UK and Institute of Air Quality Management 2017 guidance and Design Manual for Roads and Bridges LA 105 Air Quality screening criteria.

Sensitivity of the receptor

Matrices for determining the sensitivity of the receptor are not available in Environmental Protection UK and Institute of Air Quality Management 2017 guidance or Design Manual for Roads and Bridges LA 105 Air Quality, and therefore matrices from Institute of Air Quality Management Guidance of the Assessment of Dust from Demolition and Construction v2.2 as shown in **Table D6** will be used.

Table D6: Scale of receptor sensitivity

Sensitivity of receptor	Human receptors	Ecological receptors
High	Locations where members of the public are exposed over a time period relevant to the air	Locations with an international or national designation and the

Sensitivity of receptor	Human receptors	Ecological receptors
	quality objective for PM_{10} (in the case of the 24-hour objectives, a relevant location would be one where individuals may be exposed for eight hours or more in a day). Examples include residential properties, hospitals, schools and residential care homes should also be considered as having equal sensitivity to residential areas for the purposes of this assessment.	designated features may be affected by dust soiling. Locations where there is a community of a particularly dust sensitive species such as vascular species included in the Red Data List For Great Britain published by Joint Nature Conservation Committee. Examples include a Special Area of Conservation (SAC) designated for acid heathlands or a local site designated for lichens adjacent to the demolition of a large site containing concrete (alkali) buildings.
Medium	Locations where the people exposed are workers and exposure is over a time period relevant to the air quality objective for PM_{10} (in the case of the 24-hour objectives, a relevant location would be one where individuals may be exposed for eight hours or more in a day). Examples include office and shop workers, but will generally not include workers occupationally exposed to PM_{10}, as protection is covered by health and safety at work legislation.	Locations where there is a particularly important plant species, where its dust sensitivity is uncertain or unknown. Locations with a national designation where the features may be affected by dust deposition. Example is a Site of Special Scientific Interest (SSSI) with dust sensitive features.
Low	Locations where human exposure is transient. Examples include public footpaths, playing fields, parks and shopping streets.	Locations with a local designation where the features may be affected by dust deposition. Example is a Local Nature Reserve (LNR) with dust sensitive features.

Magnitude of change

Table D7 below presents the Environmental Protection UK and Institute of Air Quality Management 2017 guidance and Design Manual for Roads and Bridges LA 105 Air Quality screening criteria respectively that is used for assessing construction, operation (including maintenance) and decommissioning phase road traffic exhaust emissions.

Table D7: Indicative criteria for requiring an air quality assessment

Environmental Protection UK and Institute of Air Quality Management 2017 guidance	
The development will	**Indicative criteria to proceed to an air quality assessment**
Cause a significant change in Light Duty Vehicle traffic slows on local roads with relevant receptors	A change of Light Duty Vehicle flows of: -more than 100 Annual Average Daily Traffic within or adjacent to an Air Quality Management Area -more than 500 Annual Average Daily Traffic elsewhere.
Cause a significant change in Heavy Duty Vehicle flows on local roads with relevant receptors	A Change of Heavy Duty Vehicle flows of: -more than 25 Annual Average Daily Traffic within or adjacent to an Air Quality Management Area -more than 100 Annual Average Daily Traffic elsewhere.
Design Manual for Roads and Bridges LA 105 Air Quality	
-Daily traffic flow changes of 1,000 Annual Average Daily Traffic or more; or -Heavy Duty Vehicle flow changes of 200 or more. *Internationally, nationally and locally designated sites of ecological conservation importance on protected species and on habitats and other species identified as being of principal importance for the conservation of biodiversity (known as designated habitats[8]) within 200m of the affected road network shall be included in the air quality assessment.	

Significance of effect

The Environmental Protection UK and Institute of Air Quality Management 2017 guidance and Design Manual for Roads and Bridges LA 105 Air Quality make reference to the use of professional judgement when assessing the significance of the effects of road traffic exhaust emissions during construction and decommissioning phases.

The Environmental Protection UK and Institute of Air Quality Management 2017 guidance recommends that the following factors should be taken into account when making judgement on the overall significance of effect of a development:

- The existing and future air quality in the absence of the development;
- The extent of current and future population exposure to the impacts; and
- The influence and validity of any assumptions adopted when undertaking the prediction of impacts.

[8] Designated habitats include 'Ramsar' sites, special protection areas, special areas of conservation, sites of special scientific interest, local nature reserves, local wildlife sites, nature improvement areas, ancient woodland and veteran trees.

Biodiversity

This assessment will be undertaken in accordance with CIEEM Guidelines undertaken in accordance with CIEEM Guidelines as summarised below:

This preliminary assessment comprises the following steps:

- Identify relevant ecological features (e.g. designated sites, habitats, species or ecosystems) that may be impacted;
- Determine the ecological importance of receptors using geographic frames of reference; and
- Provide a scientifically rigorous and transparent assessment of the likely ecological impacts and resultant effects. Impacts and effects may be positive or negative.

Criteria that will be taken into account when determining significance comprise:

- Duration (short-term, medium-term or long-term);
- Permanence (permanent or temporary) and changes in significance (increase or decrease); and
- Reversibility - e.g. is the change reversible or irreversible.

The geographic frames of reference used for this assessment to help determine the ecological importance of receptors in accordance with the CIEEM Guidelines are as follows:

- International (i.e. Ramsar Sites, SACs and SPAs) (normally within the geographic area of Europe);
- UK or national;
- Regional;
- County;
- District; and
- Local (within approximately 5km of the Site boundary).

The ecological importance of species populations is based on their size, recognised status (such as through published lists of species of conservation concern and designation of Biodiversity Action Plan (BAP) status) and legal protection.

When assigning ecological importance to species populations, the following will be considered: legal protection, distribution, rarity, population trends and population size. The assessment of ecological importance relies on the professional opinion and judgment of experienced ecologists, informed by relevant population information and scientific research.

When assigning ecological importance to plant communities, these will be assessed in terms of their intrinsic value, habitat for supporting protected species and for supporting plants species of nature conservation concern.

When describing ecological impacts and effects, reference is made to the following characteristics as required:

- **Positive or negative:** Positive represents a change that improves the quality of the environment e.g. by increasing species diversity, extending habitat or improving water quality. This may also include halting or slowing an existing decline in the quality of the environment. Negative represents a change which reduces the quality of the environment e.g. destruction of habitat, removal of foraging habitat, habitat fragmentation, pollution.
- **Extent:** The spatial or geographical area over which the impact/effect may occur under a suitably representative range of conditions (e.g. noise transmission under water).
- **Magnitude:** The size, amount, intensity and volume - this should be described on a quantitative basis where possible.
- **Duration:** Defined in relation to ecological characteristics (such as the lifecycle of a species) as well as human timeframes.
- **Frequency and timing:** The number of times an activity occurs.
- **Reversibility:** An irreversible effect is one from which recovery is not possible within a reasonable timescale or there is no reasonable chance of action being taken to reverse it. A reversible effect is one from which spontaneous recovery is possible or which may be counteracted by mitigation. In some cases, the same activity can cause both reversible and irreversible effects.

CIEEM Guidelines require a clear statement as to whether or not an effect is significant and at what geographical scale, for example ‘significant at the national level’. In accordance with CIEEM Guidelines a significant effect is an effect that either supports or undermines biodiversity conservation objectives for ‘important ecological features’ or for biodiversity in general. A significant effect can be either positive of negative.

Climate

This GHG assessment will establish existing and future baseline GHG emissions. Aligned with the GHG Protocol, it will quantify applicable Kyoto Protocol GHGs as measured in tonnes of carbon dioxide equivalence (tCO_2e), where equivalence means having the same warming effect as CO_2 over 100 years. The six original Kyoto Protocol gas groups are CO_2, methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), sulphur hexafluoride (SF_6) and perfluorocarbons (PFCs). Nitrogen trifluoride (NF_3), a chemical released in certain high-tech industries, was added in 2013. The global warming potential of each is presented in **Table D8**.

Table D8: Kyoto Protocol GHGs and their global warming potential based upon Intergovernmental Panel on Climate Change's Fifth Assessment Report

Greenhouse gas/group	Chemical formula	Global warming potential (CO_2e)
Carbon dioxide	CO_2	1
Methane	CH_4	28
Nitrous oxide	N_2O	265
Hydrofluorocarbons	HFCs	Depends on specific gas
Sulphur hexafluoride	SF_6	23,900
Perfluorocarbons	PFCs	Depends on specific gas
Nitrogen Trifluoride	NF_3	16,100

Data associated with the activities contributing to the construction phase of the Proposed Development will be provided by the Applicant. Where it is not possible to provide this data, as this assessment represents a forecast of emissions and some information may not yet be known, secondary data (such as estimates, extrapolations, benchmarks, and proxy data such as distance travelled) will be used. Emissions will then be quantified by applying the most relevant and up-to-date emission factors.

An emission factor is a representative value that relates the quantity of a pollutant released into the atmosphere with an activity associated with the release of that pollutant. Emission factors are typically available from government publications, independent agencies, and scientific research journals. However, the quality and accuracy of such factors can vary significantly. Factors can differ depending on the research body and/or underlying methodologies applied. It is, therefore, good practice to apply emission factors only from reputable sources.

The approach to GHG assessment will follow the GHG Protocol's core principles:

- **Relevance**: selecting an appropriate inventory boundary that reflects the GHG activities of the Proposed Development and serves the decision-making needs of users.
- **Completeness**: accounting for all emission sources within the chosen inventory boundary, with any specific exclusions disclosed and justified.
- **Consistency**: aiming to collect meaningful and consistent data over time whilst transparently documenting any significant changes to data quality and/or format.
- **Transparency**: addressing all relevant issues in a coherent and clear manner.
- **Accuracy**: minimising uncertainty and avoiding systematic over- or under-quantification of emissions, and ensuring any necessary estimates or assumptions required are conservative and guided by industry standards.

In line with the GHG Protocol and IEMA guidance, a materiality threshold of 1% may be set whereby emissions that are expected to contribute to less than 1% of the overall emissions inventory may be excluded from the assessment.

Emissions from materials will be quantified by utilising One Click LCA, scientific research papers, Environmental Product Declarations, Inventory of Carbon and Energy (University of Bath, 2019) and Department for Energy Security and Net Zero's (2023) conversion factors to use the most accurate densities and emission factors possible.

Conversions between mass, volume and area will be calculated where appropriate to allow the application of specific emissions factors

Assessment criteria and assessment of significance

Impact assessments normally assess to what degree a development will affect the baseline environment of the study area. In the case of GHG emissions, any emissions will have a long-term, irreversible negative effect on the global climate, which is considered to be highly receptive to any emissions of GHGs. A specific source of GHG emissions cannot be linked to impacts at a specific location, but would have impacts globally.

This GHG assessment will therefore evaluate the significance of emissions based upon IEMA guidance, which provides a framework for determining significance against the goals of the 2015 Paris Agreement (i.e., against a science-based 1.5°C trajectory) (see **Table D9**).

The IEMA guidance acknowledges that some projects may replace existing development or baseline activity with a higher GHG profile and thus the significance of a project's emissions should be based on its net impact over its lifetime, which may be positive, negative or negligible. It states that significance should not be determined purely on the magnitude of GHG emissions, but whether a project contributes to reducing GHG emissions consistent with a trajectory towards net zero by 2050.

If GHG emissions cannot be avoided, a goal of the EIA process should be to identify mitigation options to reduce a project's residual emissions at all stages. If GHG emissions remain significant but cannot be further reduced, approaches to compensate a project's remaining emissions should be considered.

Table D9: Framework for assessment of significant GHG effects

Significance	Level	Criteria
Significant	Major adverse	Project adopts a business-as-usual approach, not compatible with the national Net Zero trajectory, or aligned with the goals of the 2015 Paris Agreement (i.e., a science-based 1.5°C trajectory). GHG impacts are not mitigated or reduced in line with local or national policy for projects of this type.
	Moderate adverse	Project's GHG impacts are partially mitigated, and may partially meet up-to-date policy; however, emissions are still not compatible with the national Net Zero trajectory, or aligned with the goals of the 2015 Paris Agreement.
Not significant	Minor adverse	Project may have residual emissions, but the project is compatible with the goals of the 2015 Paris Agreement, complying with up-to-date policy and good practice.
	Negligible	Project has minimal residual emissions and goes substantially beyond the goals of the 2015 Paris Agreement, complying with up-to-date policy and best practice.
Significant	Beneficial	Project causes GHG emissions to be avoided or removed from the atmosphere, substantially exceeding the goals of the 2015 Paris Agreement with a positive climate impact.

Cultural Heritage

Importance of the receptor

The importance of a heritage asset is the overall value assigned to it reflecting its statutory designation or, in the case of non-designated assets, the professional judgement of the assessor with reference to national and local guidance and the planning policy tests (**Table D10**). Historic England guidance also refers to an asset's *"level of significance"*, which in this usage has the same meaning as importance.

Any feature which does not merit consideration in planning decisions may be said to have negligible importance. It is the role of the professional judgements made by the assessor to identify any heritage assets within the Site that are considered to be of negligible importance, for which no further assessment or mitigation works will be proposed.

Table D10: Criteria for assessing the importance of heritage assets

Importance of the asset	Criteria
Very High (International)	World Heritage Sites and other assets of equal international importance, that contribute to international research objectives
High (National)	Grade I and II* Registered Parks and Gardens, Scheduled Monuments, Protected Wreck Sites, Registered Battlefields, Grade I and II* Listed Buildings, and undesignated heritage assets of equivalent importance that contribute to national research objectives. Also Conservation Areas, Grade II Registered Parks and Gardens and Grade II Listed Buildings which have particular characteristics that merit a high level of importance.
Medium (National or Regional)	Conservation Areas, Grade II Registered Parks and Gardens, Grade II Listed Buildings except where their particular characteristics merit a higher level of importance, heritage assets on local lists and undesignated assets that contribute to Regional research objectives.
Low (Local)	Locally listed heritage assets, except where their particular characteristics merit a higher level of importance, undesignated heritage assets of Local importance, including assets that may already be partially damaged.
Negligible	Identified historic remains of no importance in planning considerations, or heritage assets and findspots that have already been removed or destroyed (i.e. ‘site of’).
Unknown / Uncertain	Heritage assets for which a level of importance cannot be defined on current information.

Magnitude of change (impact upon heritage significance)

Table D11: Criteria for classifying magnitude of impact upon heritage significance

Impact magnitude	Criteria
Major	Change to key historic building elements so that an asset is totally altered; OR change to most/all key archaeological materials such that the resource is totally altered; OR comprehensive change to the setting such that the significance of the asset is severely compromised.
Moderate	Change to many key historic building elements, such that the asset is significantly modified; changes to many key archaeological materials such that the resource is clearly modified; changes to setting of an asset, such that the significance of the asset is compromised.
Minor	Change to key historic building elements, such that the asset is slightly different; changes to key archaeological materials such that the asset is slightly altered; changes to setting of an asset, such that its significance is slightly compromised.
Negligible	Very minor changes to historic building elements, archaeological materials or setting that hardly affect them/it.
No Change	No change to fabric, archaeological materials or setting.

Impacts may be described as permanent/temporary, and beneficial/adverse. Temporary impacts may be described as either short, medium or long term. For the purposes of this assessment, permanent impacts are those which are irreversible (e.g. physical impacts to archaeological remains; changes to the setting of heritage assets as a result of permanent elements of the Proposed Development such as the substation, road alterations, or planting), whilst temporary impacts are reversible (e.g. changes to the setting of heritage asset during the construction phase or as a result of elements of the Proposed Development that will be removed on decommissioning). Short term temporary impacts are those that would occur for a duration of under 48 months (i.e. during construction or decommissioning), long term temporary impacts those that would occur while the Proposed Development is operational.

Determining magnitude using the criteria set out in **Table D12** below requires professional judgement with reference to the planning policy tests for “substantial harm” and “less than substantial harm”.

Table D12: Criteria for classifying magnitude of impact upon heritage significance

Impact magnitude	Criteria
Major	Change to key historic building elements so that an asset is totally altered; OR change to most/all key archaeological materials such that the resource is totally altered; OR comprehensive change to the setting such that the significance of the asset is severely compromised.
Moderate	Change to many key historic building elements, such that the asset is significantly modified; changes to many key archaeological materials such that the resource is clearly modified; changes to setting of an asset, such that the significance of the asset is compromised.
Minor	Change to key historic building elements, such that the asset is slightly different; changes to key archaeological materials such that the asset is slightly altered; changes to setting of an asset, such that its significance is slightly compromised.
Negligible	Very minor changes to historic building elements, archaeological materials or setting that hardly affect them/it.
No Change	No change to fabric, archaeological materials or setting.

Significance of effect

The assessment of the significance of effect in this chapter will combine analysis of the baseline data (e.g. desk-based assessment, site visit and ZTVs) with the parameters of the Proposed Development presented in the reasonable worst-case scenario (**Table D12**) above.

Significance of effect will be determined using a combination of importance of the asset (receptor) and the magnitude of impact upon that asset (receptor). The significance of effect matrix is presented in **Table D13** below and provides a guide to decision-making but is not a substitute for professional judgement and interpretation, particularly where the importance or impact magnitude levels are not clear or are borderline between categories. The significance of effect may therefore be described on a continuous scale from 'no effect' to 'very large'. The significance of effect can be either beneficial or adverse. Where the matrix presents two options for significance of effect, professional judgement is used to determine the likely significance with regard to the specific circumstances of the importance of the asset and magnitude of effect (which will be fully described where necessary). These criteria are based on professional judgement.

'Very large', 'large' and 'moderate' effects are regarded as 'significant' while 'slight' effects, and 'neutral' effects and 'no effects' are regarded as 'not significant'. Where the significance matrix indicates a range for the effect significance (e.g. 'slight or moderate'), professional judgement is applied to select the most applicable option (which would be justified by evidence, as appropriate) or an effect significance range can be applied. If a significance of effect is assigned as 'slight or moderate', this would be considered significant unless further information could be provided to downgrade the significance effect to 'slight'.

Table D13: Criteria for assessing the significance of effect

Magnitude of impact	Importance of receptor				
	Negligible	**Low**	**Medium**	**High**	**Very High**
Major	Neutral	Slight	Moderate or Large	Large or Very Large	Very Large
Moderate	Neutral	Slight	Slight or Moderate	Moderate or Large	Large or Very Large
Minor	Neutral	Neutral or Slight	Slight	Moderate	Moderate or Large
Negligible	Neutral	Neutral or Slight	Neutral or Slight	Slight	Slight or Moderate
None	No Effect	No Effect	No Effect	No Effect	No Effect

Landscape and Visual

In accordance with GLVIA3, the significance of landscape and visual effects is determined by considering in tandem the sensitivity of landscape and visual receptors (landscape elements, landscape character areas, landscape designations and groups of people who may be affected by changes in visual amenity) and the magnitude of effect arising from the Proposed Development.

Landscape and visual sensitivity

Sensitivity (described as 'high', 'medium' or 'low') is judged by combining component judgements about the value and susceptibility of the receptor, as illustrated in **Table D14** and **Table D15** below.

Intermediate assessments of value or susceptibility may be applied (e.g. high/medium, medium/low or national/regional, regional/community). Likewise, when combining susceptibility and value to determine sensitivity, an intermediate assessment is adopted where overall sensitivity is judged to lie between levels. In all instances, professional judgement is employed. **Table D14** and **Table D15** below should not be interpreted rigidly to give a specific answer. Note that equal weighting is attributed to susceptibility and value when determining overall landscape sensitivity but that a greater weight is intentionally attributed to the susceptibility of the visual receptor than to value. This is in recognition of the fact that relatively few views are specifically recognised through designation or cultural reference but acknowledges that value associations may still influence visual sensitivity.

Table D14: Landscape sensitivity criteria

		Susceptibility		
		High	**Medium**	**Low**
Value	**National**	High	High/Medium	Medium
	Regional	High/Medium	Medium	Medium/Low
	Community	Medium	Medium/Low	Low

Table D15 Visual sensitivity criteria

		Susceptibility		
		High	Medium	Low
Value	National	High	High/Medium	Medium
	Regional	High/Medium	High/Medium	Medium/Low
	Community	High/Medium	Medium	Low

Landscape and visual magnitude of effect

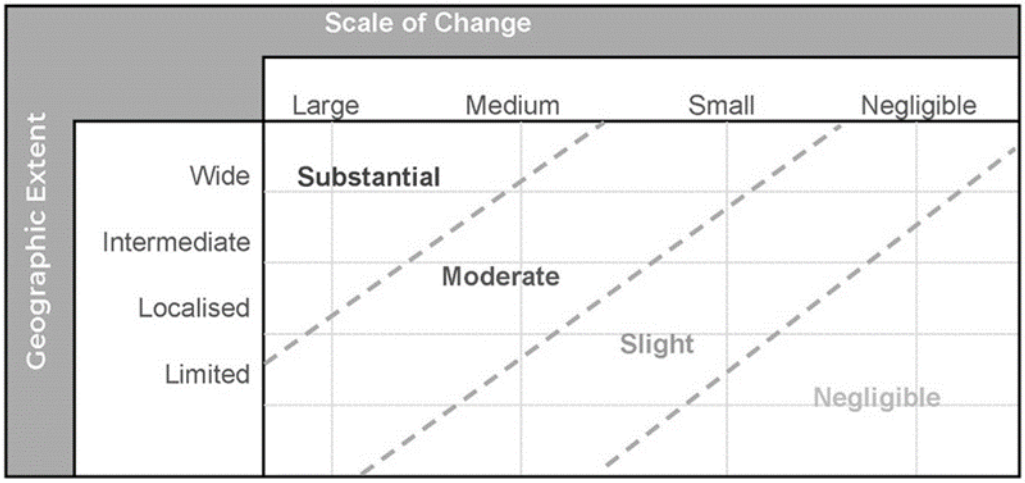
The magnitude of effect arising from the Proposed Development (described as 'substantial', 'moderate', 'slight' or 'negligible') is assessed in terms of its scale, geographic extent of the area or receptor that is influenced and its duration.

Scale of change (expressed as 'large', 'medium', 'small' or 'negligible') is the first and primary factor in determining magnitude. Geographical extent and duration of the effect are modifying factors to the overall magnitude judgement, which may be higher if the effect is particularly widespread and/or long lasting, or lower if it is constrained in geographic extent and/or timescale.

The diagrams presented below in **Figure D1** illustrate in outline how these two modifying factors will be considered in a two-stage process. A judgement is first formed about the scale of the change to the landscape or visual receptor. The geographic extent of the effect is then considered as a modifying influence in the first part of **Figure D1** (Stage 1).

The result or outcome of Stage 1 is then considered again in relation to the duration of the effect as illustrated in the second part of **Figure D1**. The outcome of Stage 2 is the overall magnitude of effect judgement reported in the assessment. **Figure D1** is not intended to be interpreted rigidly as a chart to provide definitive answers; professional judgement is employed as appropriate to arrive at an overall judgement on the magnitude of effect.

Stage 1 - Modifying Influence of Geographic Extent on Magnitude of Effect



Stage 2 - Modifying Influence of Duration on Magnitude of Effect

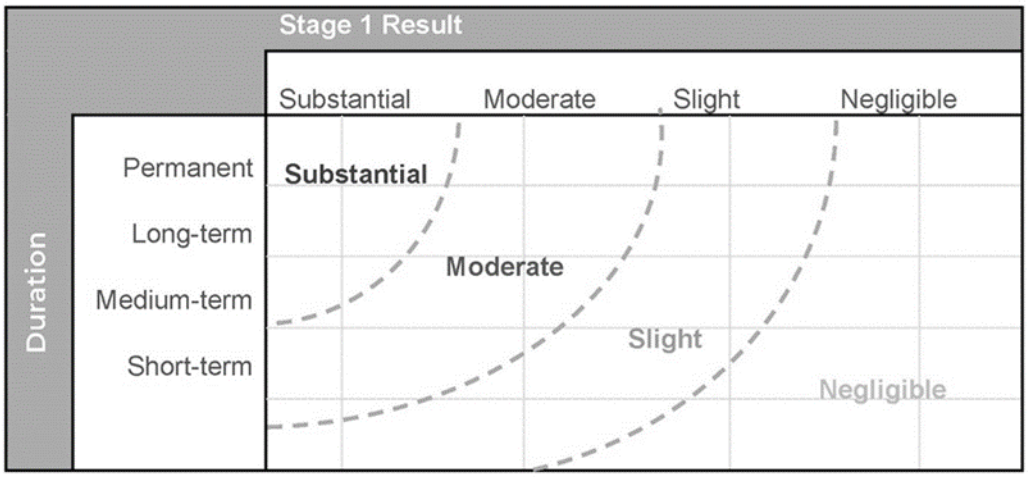


Figure D1: Combining scale of change, extent and duration to determine magnitude of landscape and visual effects

Where magnitude of effect (or other judgements) is judged to lie between levels, an intermediate assessment is adopted and is expressed as e.g. 'moderate/slight'.

Landscape and visual significance of effects

The significance of a landscape or visual effect is assessed through professional judgement, combining the sensitivity of the receptor with the predicted magnitude of effect, as summarised in **Table D16**. **Table D16** is not used as a prescriptive tool and illustrates the typical outcomes, allowing for the exercise of professional judgement.

Table D16: Significance of effect criteria

		Magnitude of effect			
		Negligible	**Slight**	**Moderate**	**Substantial**
Receptor sensitivity	**Low**	Negligible	Minor	Moderate/ Minor	Moderate
	Medium	Minor/ Negligible	Moderate/ Minor	Moderate	Major/ Moderate
	High	Minor	Moderate	Major/ Moderate	Major

Effects classified as 'major' or 'major/moderate' are considered to be significant.

Effects classified as 'moderate/minor', 'minor', 'minor/negligible' or 'negligible' significance are considered to be not significant.

Moderate effects lie somewhere in the middle of the range of effects identified. Within the meaning of this term in the assessment there is a spectrum of effects ranging from those tending towards a major/moderate effect (significant) to those tending towards a moderate/minor effect (not significant). 'Moderate' effects may therefore be either significant or not significant depending on where they fall on this spectrum. Where 'moderate' effects are predicted, professional judgement is applied to determine whether the effect is significant or not ensuring that the potential for significant effects to arise will be thoroughly considered and justification is provided for the judgement reached as appropriate. Clarification 3 (5) of Landscape Institute Technical Guidance Note LITGN-2024-01: Notes and Clarifications on Aspects of Guidelines for Landscape and Visual Impact Assessment Third edition recognises this as an appropriate approach to identifying significant effects in LVIA.

Nature of effects

Landscape and visual effects can be beneficial or adverse and, in some instances, may be considered neutral in nature. Neutral effects are those which overall are neither adverse nor beneficial but may incorporate a combination of both. Whether an effect is beneficial, neutral or adverse is identified based on professional judgement.

Changes to rural landscapes involving construction of utilitarian objects of a large scale are generally considered to be adverse. In this assessment it will be assumed that where new infrastructure is introduced into the landscape or views, this would generally constitute an adverse effect.

Residential visual amenity assessment

With respect to visual impact, the focus of a Landscape and Visual Impact Assessment is on public views and public visual amenity. Residential Visual Amenity Assessment is a stage beyond Landscape and Visual Impact Assessment and focuses exclusively on private views and private visual amenity and may be used by the decision-maker when weighing potential effects on residential amenity against other material considerations.

Landscape Institute Technical Guidance Note 02/19 (TGN 2/19) notes that:

"*Changes in views and visual amenity are considered in the planning process. In respect of private views and visual amenity, it is widely known that, no one has 'a right to a view" and "It is not uncommon for significant adverse effects on views and visual amenity to be experienced by people at their place of residence as a result of introducing a new development into the landscape. In itself this does not necessarily cause particular planning concern. However, there are situations where the effect on the outlook/visual amenity of a residential property is so great that it is not generally considered to be in the public interest to permit such conditions to occur where they did not exist before*."

Visual aids

Zone of Theoretical Visibility maps (ZTVs) will be generated using Geographical Information Systems (GIS) principally to assist in identifying areas where visibility of the Proposed Development would not occur. These also assist in viewpoint selection and to identify areas from where part or all of the Proposed Development may be visible.

The ZTVs are based on a number of variants to illustrate different levels of potential visibility: A standard screening ZTV takes account of buildings and significant blocks of woodland in the landscape; whilst a detailed screening ZTV uses LIDAR data to provide the most detailed review of visibility.

Land, soil and groundwater

Preliminary *Risk Assessment*
A desk-based assessment will be completed in accordance with relevant British Standards and authoritative technical guidance. The assessment of the contamination status of land within the Order Limits is in line with the technical approach presented in Land Contamination Risk Management. The scope of works will include:

- Review of the history of development on the Site and surroundings;
- Assessment of local geology, hydrogeology and hydrology;
- Review of relevant information held by appropriate statutory authorities;
- Review of any previous site investigation reports made available;
- Completion of a reconnaissance survey to assess the visual condition of the Site;
- Development of an initial Conceptual Site Model;
- Preliminary consideration of geotechnical constraints and hazards; and
- Identification of the need for further action, e.g. intrusive investigations

The assessment of contaminated land is based on the development of a Conceptual Site Model. This approach identifies sources, pathways and receptors at a site and assesses the potential for a link to exist between a source of contamination and a receptor which may then constitute a risk:

- Source: this is the identification of a specific source of contamination that is located on- or off-site.
- Pathway: this is the means by which the contaminant could migrate through the environment to reach a receptor.
- Receptor: can be property, humans, and the environment (e.g., controlled waters/ecology) which could be affected by contamination.

Receptor sensitivity for land and soil

Sensitivity criteria for land and soil, derived from the IEMA (2022) Guide: A New Perspective on Land and Soil in Environmental Impact Assessment, are defined in Table D17.

Table D17: Receptor sensitivity for land and soil

Sensitivity (in-situ soil)	Soil resource
Very High	**Biomass production:** Agricultural Land Classification Grades 1 & 2. **Ecological habitat, soil biodiversity and platform for landscape:** Soils supporting protected features within a European site (e.g., Special Area of Conservation (SAC), Special Protection Area (SPA), Ramsar); Peat soils; Soils supporting a National Park, or Ancient Woodland. **Soil carbon:** Peat soils. Soils with potential for ecological/landscape restoration. **Soil hydrology:** Very important catchment pathway* for water flows and flood risk management. **Archaeology, cultural heritage, community benefits and geodiversity:** Scheduled Monuments and adjacent areas; World Heritage and European designated sites; Soils with known archaeological interest; Soils supporting community/recreational/educational access to land covered by National Park designation. **Source of materials:** Important surface mineral reserves that would be sterilised (i.e., without future access).
High	**Biomass production:** Agricultural Land Classification Grade 3a. **Ecological habitat, soil biodiversity and platform for landscape:** Soils supporting protected features within a UK designated site (e.g., UNESCO Geoparks, Site of Special Scientific Interest (SSSI) or Areas of Outstanding Natural Beauty (now Protected Landscapes), Special Landscape Area, and Geological Conservation Review sites); Native Forest and woodland soils; Unaltered soils supporting semi-natural vegetation (including UKBAP priority habitats). **Soil carbon:** Organo-mineral soils (e.g., peaty soils). **Soil hydrology:** Important catchment pathway* for water flows and flood risk management. **Archaeology, cultural heritage, community benefits and geodiversity:** Soils with probable but as yet unproven (prior to

Sensitivity (in-situ soil)	Soil resource
	being revealed by construction) archaeological interest; Historic parks and gardens; Regionally Important Geological and Geomorphological Sites; Soils supporting community/recreational/educational access to Regionally Important Geological and Geomorphological Sites and Areas of Outstanding Natural Beauty (now Protected Landscapes). **Source of materials:** Surface mineral reserves that would be sterilised (i.e. without future access).
Medium	**Biomass production:** Agricultural Land Classification Grade 3b. **Ecological habitat, soil biodiversity and platform for landscape:** Soils supporting protected or valued features within non-statutory designated sites (e.g., Local Nature Reserves (LNRs), Local Geological Sites (LGSs), Sites of Nature Conservation Importance (SNCIs), Special Landscape Areas; Non-Native Forest and woodland soils. **Soil carbon:** Mineral soils. **Soil hydrology:** Important minor catchment pathway* for water flows and flood risk management. **Archaeology, Cultural heritage, community benefits and geodiversity:** Soils with possible but as yet unproven (prior to being revealed by construction) archaeological interest; Soils supporting community/recreational/educational access to land. **Source of materials:** surface mineral reserves that would remain accessible for extraction.
Low	**Biomass production:** Agricultural Land Classification Grades 4 & 5. **Ecological habitat, soil biodiversity and platform for landscape:** Soils supporting valued features within non-designated notable or priority habitats/landscapes. Agricultural soils. **Soil carbon:** Mineral soils. **Soil hydrology:** Pathway* for local water flows and flood risk management. **Archaeology, cultural heritage, community benefits and geodiversity:** Soils supporting no notable cultural heritage, geodiversity nor community benefits; Soils supporting limited community/recreational/educational access to land. **Source of materials:** Surface mineral reserves that would remain accessible for extraction.
Negligible	As for low sensitivity, but with only indirect, tenuous, and unproven links between sources of impact and soil functions.
** As defined by the site and catchment characteristics according to the professional judgement of a catchment hydrologist.*	

Receptor importance for groundwater

The importance criteria presented in **Table D18** are derived from the Design Manual for Roads and Bridges LA 113: Road Drainage and the Water Environment.

Table D18: Receptor importance for groundwater

Importance	Typical criteria	Typical examples
Very High	Nationally significant attribute of high importance	Principal aquifer providing a regionally important resource, and/or supporting a site protected under EC and UK legislation; Groundwater that locally supports a Groundwater dependent terrestrial ecosystem; Source Protection Zone 1
High	Locally significant attribute of high importance	Principal aquifer providing locally important resource or supporting a river ecosystem; Groundwater that supports a Groundwater dependent terrestrial ecosystem; Source Protection Zone 2.
Medium	Of moderate quality and rarity	Aquifer providing water for agriculture or industrial use with limited connection to surface water; Source Protection Zone 3.
Low	Lower quality	Unproductive strata

Magnitude *of impact (change) for land and soil*

The magnitude of impact (change) is classified using the criteria presented in **Table D19**, which are derived from the IEMA Guide: A New Perspective on Land and Soil in Environmental Impact Assessment.

Table D19: Magnitude of impact (change) criteria for land and soil

Magnitude of impact (change)	Description of impacts restricting proposed land use
Major[#]	Permanent, irreversible loss of one or more soil functions or soil volumes (including permanent sealing or land quality downgrading), over an area of more than 20 hectares or loss of soil-related features (as set out in Table 2 of the IEMA guidance), as advised by other factor specialists in the EIA team (including effects from 'temporary developments'*). *or* Potential for permanent improvement in one or more soil functions or soil volumes due to remediation or restoration over an area of more than 20 hectares, or gain in soil-related features (as set out in Table 2 of the IEMA guidance), as advised by other factor specialists in the EIA team (including effects from 'temporary developments'*).
Moderate	Permanent, irreversible loss of one or more soil functions or soil volumes, over an area of between 5 hectares and 20 hectares or loss of soil-related features (as set out in Table 2 of

Magnitude of impact (change)	Description of impacts restricting proposed land use
	the IEMA guidance), as advised by other factor specialists in the EIA team (including effects from 'temporary developments'*). *or* Potential for improvement in one or more soil functions or soil volumes due to remediation or restoration over an area of between 5 hectares and 20 hectares, or gain in soil-related features (as set out in Table 2 of the IEMA guidance), as advised by other factor specialists in EIA team.
Minor	Permanent, irreversible loss over less than 5 hectares or a temporary, reversible loss of one or more soil functions or soil volumes, or temporary, reversible loss of soil-related features (as set out in Table 2 of the IEMA guidance), as advised by other factor specialists in EIA team. *or* Potential for permanent improvement in one or more soil functions or soil volumes due to remediation or restoration over an area of less than 5 hectares or a temporary improvement in one or more soil functions due to remediation or restoration or off-site improvement, or temporary gain in soil-related features (as set out in Table 2 of the IEMA guidance), as advised by other factor specialists in EIA team.
Negligible	No discernible loss or reduction or improvement of soil functions or soil volumes that restrict current or proposed land use.
[#] The IEMA Guide has what is assumed to be an error in this cell, but reference to Table 5 of the IEMA Guide confirms that the magnitude should be shown as Major, which is presented here, instead of reproducing the perceived IEMA error ** Temporary developments can result in a permanent impact if resulting disturbance or land use change causes permanent damage to soils.*	

Magnitude of impact (change) for groundwater

The magnitude of impact has been classified using the criteria presented in **Table D20** below, which are adapted from Design Manual for Roads and Bridges LA 113: Road Drainage and the Water Environment

Table D20: Magnitude of impact criteria for groundwater

Magnitude of impact	Criteria	Typical example
Major adverse	Results in loss of attribute and/or quality and integrity of the attribute.	Loss of, or extensive change to, an aquifer. Loss of regionally important water supply.

Magnitude of impact	Criteria	Typical example
		Potential high risk of pollution to groundwater from routine runoff. Loss of, or extensive change to groundwater dependent terrestrial ecosystem or baseflow contribution to protected surface water bodies. Reduction in water body Water Framework Directive classification. Loss or significant damage to major structures through subsidence or similar effects.
Moderate adverse	Results in effect on integrity of attribute, or loss of part of attribute	Partial loss or change to an aquifer. Degradation of regionally important public water supply or loss of significant commercial/ industrial/ agricultural supplies. Potential medium risk of pollution to groundwater from routine runoff. Partial loss of the integrity of groundwater dependent terrestrial ecosystem. Contribution to reduction in water body Water Framework Directive classification. Damage to major structures through subsidence or similar effects or loss of minor structures.
Minor adverse	Results in some measurable change in attributes, quality or vulnerability	Potential low risk of pollution to groundwater from routine runoff. Minor effects on an aquifer, groundwater dependent terrestrial ecosystems, abstractions and structures.
Negligible	Results in effect on attribute, but of insufficient magnitude to affect the use or integrity	No measurable impact upon an aquifer and/or groundwater receptors.

Magnitude of impact	Criteria	Typical example
Minor beneficial	Results in some beneficial effect on attribute or a reduced risk of negative effect occurring	Reduction of groundwater hazards to existing structures. Reductions in waterlogging and groundwater flooding.
Moderate beneficial	Results in moderate improvement of attribute quality	Contribution to improvement in water body Water Framework Directive classification. Improvement in water body catchment abstraction management Strategy (or equivalent) classification. Support to significant improvements in damaged groundwater dependent terrestrial ecosystem.
Major beneficial	Results in major improvement of attribute quality	Removal of existing polluting discharge to an aquifer or removing the likelihood of polluting discharges occurring. Recharge of an aquifer. Improvement in water body Water Framework Directive classification.
No change		No loss or alteration of characteristics, features or elements; no observable impact in either direction.

Significance of effect for *land and soil*

The significance of effect for land and soil is based on the sensitivity of the receptor and the magnitude of impact (change), as outlined in **Table D21** and derived from the IEMA Guide: A New Perspective on Land and Soil in Environmental Impact Assessment. The significance of effect can be adverse or beneficial.

The significance of an effect is reported as either ‘significant’ or ‘not significant’. Any effects determined as ‘moderate’ or above are considered to be significant. Any effects determined as ‘slight’ or below are considered not significant.

Where the significance matrix indicates a range for the effect significance (e.g. ‘slight or moderate’), professional judgement can be applied to select one option (which would be justified by evidence, as appropriate), or an effect significance range can be applied. Where a range for the effect of significance means that the effect could be either significant or not significant, professional judgement has been applied to define the significance (for example with the range ‘slight to moderate’, where slight would be not significant, but moderate would be significant). Where both categories within

the range fall within either ‘significant’ or ‘not significant’, the range has not been adjusted to a single descriptor (for example if the range is ‘neutral or slight’, as both effects are considered to be not significant; or if the range is ‘large or very large’, as both effects are considered to be significant).

Table D21: Significance of effect criteria for land and soil

Sensitivity	Magnitude of impact (change)				
	No Change	Negligible	Minor	Moderate	Major
Negligible	Neutral	Neutral or Slight*	Neutral or Slight	Neutral or Slight	Slight
Low	Neutral	Neutral or Slight	Neutral or Slight	Slight	Slight or Moderate
Medium	Neutral	Neutral or Slight	Slight	Moderate	Moderate or Large
High	Neutral	Slight	Slight or Moderate	Moderate or Large	Large or Very Large
Very high	Neutral	Slight	Moderate or Large	Large or Very Large	Very Large

***** *This cell is listed as ‘Slight’ in the IEMA Guide, but has been adjusted to ‘Neutral or Slight’ to be consistent with the ranking scheme (the significance of effect should be equal to or lower than the adjacent cell to the right, not higher)*

Significance of effect for groundwater

The significance of effect for groundwater relating to potential contamination is based on the importance of the receptor and the magnitude of impact, as outlined in **Table D22** below and adapted from Design Manual for Roads and Bridges LA 104: Environmental Assessment and Monitoring. The significance of effect can be adverse or beneficial.

The significance of an effect is reported as either ‘significant’ or ‘not significant’. Any effects determined as ‘moderate’ or above are considered to be significant. Any effects determined as ‘slight’ or below are considered not significant.

Where the significance matrix indicates a range for the effect significance (e.g. ‘slight or moderate’), professional judgement can be applied to select one option (which would be justified by evidence, as appropriate), or an effect significance range can be applied. Where a range for the effect of significance means that the effect could be either significant or not significant, professional judgement has been applied to define the significance (for example with the range ‘slight to moderate’, where slight would be not significant, but moderate would be significant). Where both categories within the range fall within either ‘significant’ or ‘not significant’, the range has not been adjusted to a single descriptor (for example if the range is ‘neutral or slight’, as both effects are considered to be not significant; or if the range is ‘large or very large’, as both effects are considered to be significant).

Table D22: Significance of effect criteria for groundwater

Importance	Magnitude of impact				
	No change	Negligible	Minor	Moderate	Major
Very high	Neutral	Slight	Moderate or Large	Large or Very Large	Very Large
High	Neutral	Slight	Slight or Moderate	Moderate or Large	Large or Very Large
Medium	Neutral	Neutral or Slight	Slight	Moderate	Moderate or Large
Low	Neutral	Neutral or Slight	Neutral or Slight	Slight	Slight or Moderate

Noise and Vibration

Criteria for determining receptor sensitivity, presented in **Table D23**, will be informed from guidance within:

- DMRB LA 111 'Noise and Vibration'; and
- IEMA 'Guidelines for Environmental Noise Impact Assessment'.

Table D23: Receptor sensitivity

Receptor Sensitivity	Type of Receptor
High	Residential properties, educational establishments, hospitals, places of worship, hotels, children's nurseries, nursing homes.
Medium	Commercial premises including offices, halls, public municipal areas, bars and restaurants.
Low	Industrial premises.
Negligible	All other areas such as those used primarily for agricultural purposes.

Magnitude of impact

Criteria for determining the magnitude of impact, presented in **Table D24**, will be informed by a variety of guidance documents, depending on the phase of the Proposed Development.

Although the lowest measure of magnitude of impact is defined as 'negligible', it should be noted that noise levels may still be audible/perceptible during construction, operation (including maintenance) and decommissioning, but does not cause any change in behaviour, attitude or other physiological response.

Table D24: Magnitude of impact criteria

Impact	Magnitude of impact			
	Negligible	Low	Medium	High
Construction and decommissioning phases – daytime noise (BS 5228-1:2009+A1: 2014)	Less than 55 dB $L_{Aeq,T}$	Between 55 and 65 dB $L_{Aeq,T}$	Between 66 and 75 dB $L_{Aeq,T}$	Greater than 75 dB $L_{Aeq,T}$
Construction phase and decommissioning - road traffic noise (DMRB LA 111 'Noise and Vibration')	Less than 1 dB increase in road traffic noise	1.0 to 2.9 dB increase in road traffic noise	3.0 to 4.9 dB increase in road traffic noise	Greater than or equal to 5 dB increase
Operational phase – daytime noise (BS 4142: 2014 + A1: 2019 / World Health Organisation, 1999 / BS 8233: 2014)	Rated noise level equal to or less than 35 dB $L_{Ar,T}$	Rated noise level between 36 and 40 dB $L_{Ar,T}$	Rated noise level between 41 and 50 dB $L_{Ar,T}$	Rated noise level greater than 50 dB $L_{Ar,T}$
Operational phase – night-time noise (BS 4142: 2014 + A1: 2019 / World Health Organisation, 1999 / BS 8233: 2014)	Rated noise level equal to or less than 30 dB $L_{Ar,T}$	Rated noise level between 31 and 35 dB $L_{Ar,T}$	Rated noise level between 36 and 45 dB $L_{Ar,T}$	Rated noise level greater than 45 dB $L_{Ar,T}$

For the operation (including maintenance) phase, BS 4142 advises that where rating levels and background levels are low, which is typically the case in rural areas, the assessment of operational noise should take the absolute noise level into context. The Association of Noise Consultants Guide to BS 4142 provides some clarity to this by stating:

"BS 4142 does not define 'low' in the context of background sound levels nor rating levels. The note to the Scope of the 1997 version of BS 4142 defined very low background sound levels as being less than about 30 dB L_{A90}, and low rating levels as being less than about 35 dB $L_{Ar,Tr}$".

The Association of Noise Consultants Guide suggests that: *"…similar values would not be unreasonable in the context of BS 4142, but that the assessor should make a judgement and justify it where appropriate"*.

In this case, it is considered that a minimum rating level of 40 dB $L_{Ar,Tr}$ during the daytime, and *35* dB $L_{Ar,Tr}$ for the low magnitude impact criteria, would align with guidance in Planning Practice Guidance, which defines noise below the lowest observed adverse effect level (LOAEL) as follows:

"Noise can be heard, but does not cause any change in behaviour, attitude or other physiological response. Can slightly affect the acoustic character of the area but not such that there is a change in the quality of life".

BS 8233:2014 'Guidance on sound insulation and noise reduction for buildings' and the World Health Organisation 'Guidelines for Community Noise' (1999) provide guidance levels for *internal* noise within dwellings of 30 dB $L_{Aeq,T}$ for good sleeping conditions at night. However, as residents are likely to be inside their properties at night, BS 8233:2014 states that building envelope attenuation reduces external noise by approximately 15 dB for a partially open window. Consequently, an external high magnitude criteria, indicating a significantly adverse effect level (SOAEL) of 45 dB $L_{Ar,Tr}$ will be adopted for the night-time.

Based on the adaptation of absolute limits, World Health Organisation 1999 provides guidance on permissible levels above which adverse effects are likely to occur. Therefore, the criteria for *LOAEL* and SOAEL adopted within this assessment are considered as a design limit, above which the onset of LOAEL and SOAEL would occur.

Significance of effect

The significance of effect is determined by combining the sensitivity of the receptor and the magnitude of impact, as presented in **Table D25**. The assessment of significance relies on best practice, the relevant published standards and guidance documents, and professional judgement.

The significance of an effect is reported as either 'significant' or 'not significant'. Where an effect is assessed as 'negligible' or 'minor', this is considered to achieve the lowest observed adverse effect level (LOAEL) within NPSE and is considered **not significant**. Where the effect is classed as 'moderate' or 'major', this is considered to achieve the significant observed adverse effect level (SOAEL) and is classed as **significant**. NPSE discusses that the SOAEL, which also implies the LOAEL, cannot be defined by a single objective noise-based measure to all sources of noise in all situations, and is likely different for varying noise sources, receptors, and times.

Table D25 Significance of effect

Magnitude of impact	Sensitivity of receptor/receiving environment to change			
	High	Medium	Low	Negligible
High	Major	Moderate	Minor	Negligible
Medium	Moderate	Minor	Negligible	Negligible
Low	Minor	Negligible	Negligible	Negligible
Negligible	Negligible	Negligible	Negligible	Negligible

Transport and Access
Sensitivity of the receptor

The levels of sensitivity for the assessment of receptors related to traffic and transport impacts are defined within **Table D26** and based upon reasonable application of professional judgement and experience.

Table D26: Sensitivity of a receptor

Sensitivity level	Definition
Very High	The receptor has no ability to absorb change without fundamentally altering its present character or is of national or international importance.
High	The receptor has little ability to absorb change without fundamentally altering its present character or is of national or international importance.
Medium	The receptor has moderate capacity to absorb change without significantly altering its present characteristics.
Low	The receptor is tolerant of change without detriment to its present characteristics.
Negligible	The receptor can fully absorb change without any change to its present character.

It is necessary to identify user groups ('receptors') and associated locations ('links'), which may be sensitive to changes in the traffic and transport network conditions. A sensitive area may be where pedestrian activity is high, for example.

The IEMA Guidelines set out the following user groups as a starting point for the assessment of receptor sensitivity:

- Non-motorised users;
- Public PRoW users;
- Motorists and freight vehicles;
- Public transport; and
- Emergency services.

The IEMA Guidelines also set out a list of potentially sensitive receptor geographic locations. These sensitive locations and receptors within these locations will be considered and have informed the assessment of significance when traffic associated with the Proposed Development is assigned to the road network:

- People at home;
- People at work;

- Sensitive and/or vulnerable groups (including children; youth; elderly; income; persons with disabilities; ethnic and racial minorities; people with social disadvantages; and access/geographic factors);
- Locations with concentrations of vulnerable groups (e.g., hospitals, places of worship, schools, etc.);
- Retail areas;
- Recreational areas;
- Tourist attractions;
- Collision clusters and routes with road safety concerns; and
- Junctions and highway links at (or over) capacity.

For traffic and transport, receptors are the users of the road, PRoW, and communities through which construction and decommissioning traffic may travel.

The sensitivity of receptors will be identified for each link and will be completed through a desktop-based review. In the absence of numerical thresholds and guidelines to determine the sensitivity level of a receptor, the sensitivity of receptors will be identified using the assessor's professional judgement based on a range of factors including but not limited to density of properties along link, length of link, footpath provision.

Table D27 below provides a more detailed criteria for the assessment of receptor sensitivity and sets out the different types of sensitive receptors relevant to traffic and transport.

Table D27: Receptor sensitivity to traffic and transport

Affected party (sensitive receptor)	Built environment indicator on link	Receptor sensitivity
People at home	Residential properties	• Negligible: No properties with direct frontage. • Low: Few properties (e.g. one side of the link) with direct highway frontage on construction traffic routes. • Medium: A number of properties with direct highway frontage (e.g. two sides of the link – low density) on construction traffic routes. • High: A large number of properties with direct frontage (e.g. two sides of the link – higher density).

Affected party (sensitive receptor)	Built environment indicator on link	Receptor sensitivity
People at work	Employment uses (Offices, Industrial Units etc)	• Negligible/Low: Not adversely impacted when at work.
Sensitive groups (children; youth; elderly; income; persons with disabilities; ethnic and racial minorities; people with social disadvantages; and access/geographic factors)	Disabled parking bays, retirement/care centres, playgrounds/centres and schools	• Negligible: No indication of sensitive groups present. • Low: At least 1 indicator of sensitive groups present, with direct highway frontage. • Medium: Low number of sensitive groups present, with direct highway frontage. • High: Multiple indicators of sensitive groups present, with direct highway frontage.
Sensitive Locations	Hospitals, schools, historic buildings, places of worship	• Negligible: No indication of sensitive groups present. • Low: At least 1 indicator of sensitive groups present, with direct highway frontage. • Medium: Low number of sensitive groups present, with direct highway frontage. • High: Multiple indicators of sensitive groups present, with direct highway frontage.
Users walking	Crossing points, PRoW, footways	• Negligible: No indication of sensitive groups present. • Low: At least 1 indicator of sensitive groups present.

Affected party (sensitive receptor)	Built environment indicator on link	Receptor sensitivity
		• Medium: Medium use by receptor group – footways present. • High: High receptor use with no footways.
Users cycling/scooting	On/off-road routes, designated routes or infrastructure	• Negligible: No indication of sensitive groups present. • Low: At least 1 indicator of sensitive groups present e.g. off-road cycle route. • Medium: On-road cycle route present with segregation. • High: On-road cycle route present with no segregation.
Recreational areas/Open spaces	Parks, playgrounds/areas, shopping and community centres	• Negligible: No indication of sensitive groups present (unlikely usage) • Low: At least 1 indicator of sensitive groups present. • Medium: Low number of sensitive groups present. • High: Multiple indicators of sensitive groups present e.g. children present.
Road users	Road links/junctions, baseline traffic volume, existing signage/infrastructure.	• Presence of affected parties outlined in this table determine the sensitivity. • For driver delay assessment (motorists at junctions): ➢ Negligible: No indication of delay present (unlikely usage)

Affected party (sensitive receptor)	Built environment indicator on link	Receptor sensitivity
		➢ Low: Less than 0.3 ratio of flow to capacity. ➢ Medium: 0.3 to 0.5 ratio of flow to capacity. ➢ High: 0.5 to 0.85 ratio of flow to capacity. ➢ Very High: Greater than 1.00 ratio of flow to capacity.

Magnitude of impact

The magnitude of an impact by category of assessment is outlined below.

Severance

The IEMA Guidelines consider severance to be the perceived division that can occur within a community when it becomes separated by major transport infrastructure**.** The IEMA Guidelines note that severance is affected by changes in total traffic flow and should pay attention to local conditions.

Driver delay

The effect on driver delay will be assessed in accordance with the IEMA Guidelines

Driver delay can develop at several points on the road network surrounding a development owing to the addition of traffic associated with the development in question. Additionally, the existing traffic on the road network may also be reaching or already at maximum capacity which can contribute to driver delay related to the proposed development.

The IEMA Guidelines note that driver delay is likely to be significant if there are already delays on the existing road network.

The IEMA Guidelines do not set assessment thresholds for driver delay.

The change in delay with and without the Proposed Development is therefore primarily based on notable changes to delay using modelling results e.g., ratio of flow to capacity and change in delay in seconds.

Pedestrian delay

The IEMA Guidelines do not provide a specific methodology to assess the magnitude of impact on pedestrian delay. As a result, changes to the volume, composition or speed of traffic on a road link can influence pedestrian delay.

In the absence of set thresholds, pedestrian delay can be calculated by determining when the traffic on the network surrounding the Proposed Development is already at, or close to, capacity. An increase in total traffic of approximately 30% can double the delay experienced by pedestrians attempting to cross the road.

It should, however, be noted that the IEMA Guidelines do not recommend making use of definitive thresholds owing to the range of local factors and conditions that can influence pedestrian delay.

Consideration of the magnitude of impact on pedestrian delay will be determined using professional judgement.

Non-motorised user amenity

The IEMA Guidelines define non-motorised user amenity as the relative pleasantness of a journey, and is affected by traffic flow, traffic composition and pavement widths/separation from traffic.

Fear and intimidation

The assessment of effects on fear and intimidation will be based on the IEMA Guidelines and is a three-step process undertaken to calculate a degree of hazard score, comprised of three elements:

- Calculating the annual average daily traffic (AADT) over an 18-hour day (all vehicles per hour, two-way);
- Calculating the total 18-hour HGV flow; and
- Calculating the average vehicle speed.

The assessment follows the degree of hazard thresholds set out in the IEMA Guidelines and these are set out below in **Table D28**.

Table D28: Fear and intimidation: degree of hazard

Average traffic flow over 18-hour day – all vehicles/hour two-way (a)	Total 18-hour heavy vehicle flow (b)	Average vehicle speed (c)	Degree of hazard score
+1,800	+3,000	->40	30
1,200-1,800	2,000-3,000	30-40	20
600-1,200	1,000-2,000	20-30	10
<600	<1,000	<20	0

The total degree of hazard score is calculated by summing the score for each element (a, b, and c) from **Table D28** and a level of fear and intimidation is determined, which is set out in **Table D29**.

Table D29: Level of fear and intimidation

Level of fear and intimidation	Total hazard score (sum of a, b, c from Table 14.10)
Extreme	71+
Great	41-70
Moderate	21-40
Small	0-20

The assessment of the magnitude of impact on fear and intimidation is based on the change in total degree of hazard from baseline conditions. The assessment has followed the IEMA Guidelines and is outlined in **Table D30**.

Table D30 Fear and intimidation: magnitude of impact

Magnitude of impact	Changes in step/traffic flows (AADT) from baseline conditions
High	Two step changes in level.
Medium	One step change in level, but with: >400 vehicle increase in average 18-hour all vehicles two-way all vehicle flow; and or >500 heavy vehicle increase in total 18-hour heavy vehicle flow.
Low	One step change in level, with: <400 vehicle increase in average 18 hour all vehicle two-way all vehicle flow'; and/or <500 heavy vehicle increase in total 18-hour heavy vehicle flow.
Negligible	No change in step changes.

Road safety

The IEMA Guidelines reference the use of a collision cluster assessment to identify the magnitude of impact at a more detailed level.

The IEMA Guidelines set out the use of the 'Safe System' best practice approach, broadly comprised of three stages:

- Identify the study area using historic crash data;
- Undertake evidence-led, objective modelling techniques to establish a baseline road safety level for the roads within the study area on which impact thresholds are exceeded in relation to either non-motorised users or motorised user traffic. This analysis can be carried out using tools such as the International Road Assessment Programme Star Ratings protocols or similar tools produced by individual highways authorities; and
- Assess the effects of additional developments traffic for all users (including vulnerable groups) across the whole width of the highway corridor. This model should also assess the effect of any changes to the baseline road network, such as the provision of access junctions.

The IEMA Guidelines also recommend the production of standard and prescribed Road Safety Audits to review the road safety attributes of any proposed engineering changes in the adopted highway prior to submission.

Hazardous and large loads

The Proposed Development may involve the transportation of dangerous, hazardous or AIL by road. Such movements may involve specialist loads that might be involved in the construction or decommissioning phases of the Proposed Development.

The IEMA Guidelines note that the traffic and movement assessment needs to clearly outline the estimated number and composition of such loads. No specific thresholds are provided in the Guidelines, but it is noted that risk or catastrophe analysis may be required where the number of hazardous and large loads is significant.

In the absence of specific thresholds from IEMA Guidelines, the magnitude of impact criteria in **Table D31** will be applied.

Table D31: Hazardous and large loads: magnitude of impact criteria

Impact	Negligible	Low	Medium	High
Hazardous/large loads	<30% increase in traffic	Quantitative assessment of road capacity based on existing traffic flows and predicted future levels.		

Magnitude of impact summary

Table D32 provides a summary of the magnitude of impact thresholds adopted from IEMA Guidelines. The thresholds are only a starting point for the assessment, and in the assessment of specific effects, are accompanied by a desktop review and professional judgement.

Table D32: Magnitude of impacts: summary

Impacts	Magnitude of impact			
	Negligible	Low	Medium	High
Severance	Changes in total traffic flow of less than 30%.	Changes in total traffic flow of 30%-60%.	Changes in total traffic flow of 60%-90%.	Change in total traffic flow over 90%.
Driver delay	Vehicle delay changes are less than 30 seconds as a result of the Proposed Development	Vehicle delay changes are between 31 and 40 seconds as a result of the Proposed Development	Vehicle delay changes are between 41 and 60 seconds as a result of the Proposed Development	Vehicle delay changes are between 61 and 90 seconds as a result of the Proposed Development

Impacts	Magnitude of impact			
	Negligible	Low	Medium	High
Pedestrian delay	Assessment of this effect is based on a desktop review of pedestrian facilities on links and on the change in total traffic in construction.			
Non-motorised user amenity	Assessment of this link is based on a desktop review of non-motorised user facilities on links used by construction traffic.			
Fear and intimidation	No change in step changes.	One step change in level, with: <400 vehicle increase in average 18 hour all vehicle two-way all vehicle flow' and/or <500 heavy vehicle increase in total 18-hour heavy vehicle flow.	One step change in level, but with: >400 vehicle increase in average 18-hour all vehicles two-way all vehicle flow; and or >500 heavy vehicle increase in total 18-hour heavy vehicle flow.	Two step changes in level
Road safety	Assessment of this link is based on a review of the latest five-year period collision record and cluster analysis.			
Hazardous and large loads	<30% increase in traffic.	Quantitative assessment of road capacity based on existing traffic flows and predicted future levels		

Significance of effect

The significance of the effect upon identified receptors is determined by combining the assessed magnitude of impact and the sensitivity of the receptor.

The IEMA Guidelines establish thresholds in respect to changes in the volumes and composition of traffic to facilitate a subjective judgment of traffic impacts and significance. However, the IEMA Guidelines note that there is no clear definition of a significant effect in the EIA Regulations:

"For many effects, there are no simple rules or formulae that define appropriate assessment thresholds and therefore there is a need for interpretation and judgement on the part of the competent traffic and movement expert, backed up by data or quantified *information where possible […]. The competent traffic and movement expert will need to make it clear how they have defined whether a change (and the resultant effect) is considered significant or not"*.

A quantitative approach to the assessment of traffic and transport related effects will be used, in accordance with the IEMA Guidelines. This relies on percentage changes in daily traffic movements along road links, which determine the significance of effect. However, some traffic and transport related effects, for example non-motorised user amenity and road safety, cannot be assessed using changes in traffic movements associated with the Proposed Development. To that end, the assessment carried out within this chapter will equally need to rely on other assessment criteria as set out in the IEMA Guidelines, alongside professional judgement.

Table D33 sets out the significance matrix used to determine significant effects. The shaded boxes indicate those significance ratings are deemed to be 'significant' effects ('major' or 'moderate'). For this assessment, any effects with a significance level of minor or less are considered to be not significant. It should also be noted that any impacts may be temporary (such as construction traffic) or permanent; and that effects may be positive (beneficial) or negative (adverse).

Table D33: Significance of effect matrix

Magnitude of impact	Sensitivity of receptor				
	Very High	High	Medium	Low	Negligible
High	Major	Major	Moderate	Moderate	Minor
Medium	Major	Moderate	Moderate	Minor	Negligible
Low	Moderate	Moderate	Minor	Negligible	Negligible
Negligible	Minor	Minor	Negligible	Negligible	Negligible

The significance of effect terms presented in **Table D33** are defined in **Table D34** below.

Table D34: Significance of effect definitions

Significance of effect	Indicative definition
Major	Changes which are likely to be perceptible and which would significantly change conditions which would otherwise prevail to the extent that it would significantly affect travel behaviour.
Moderate	Changes which are likely to be perceptible and which materially change conditions which would otherwise prevail to the extent that it may affect travel behaviour to a measurable degree.
Minor	Changes which are likely to be perceptible but not to the extent that they would materially change

Significance of effect	Indicative definition
	conditions which would otherwise prevail.
Negligible	Changes which are just perceptible.

Population

In the absence of statutory guidance for the assessment of likely significant effects on population receptors, the assessment methodology described in DMRB LA 112 will be followed.

In accordance with DMRB LA 112, a population assessment should consider the likelihood of significant effects for land use and accessibility relating to the following five receptor groups:

- Private property and housing;
- Community land and assets;
- Development land and businesses;
- Agricultural land holdings; and
- Walkers, cyclists and horse riders.

This should include likely effects during all phases of the Proposed Development i.e. construction, operation (including maintenance) and decommissioning. As the level of effects during decommissioning is expected to be similar to or less than those during construction, the decommissioning phase has not been considered further in this preliminary assessment.

Through each of the five receptor groups outlined above, consideration will be given to the presence and number of receptors as described in Section 13.6 above. Where receptors are absent from the study area, no further consideration will be given to the potential for significant effects.

For each receptor that is present, professional judgement will be used to consider the likely effects that the Proposed Development would have and to determine if the effect is likely to be beneficial, neutral or adverse.

The receptor value (sensitivity) detailed in DMRB LA 112 will be used to determine the sensitivity of each receptor to change, as presented in **Table D35**.

Table D35: Environmental value (sensitivity) and descriptions

Receptor value (sensitivity)	Description
Very high	**Development land and businesses:** 1) existing employment sites (excluding agriculture) and land allocated for employment (e.g. strategic employment sites) covering >5ha. **Agricultural land holdings:** 1) areas of land in which the enterprise is wholly reliant on the spatial relationship of land to key agricultural infrastructure; and 2) access between land and key agricultural infrastructure is required on a frequent basis (daily). **Walkers, cyclists and horse riders:** 1) national trails and routes likely to be used for both commuting and recreation that record frequent (daily) use. Such routes connect communities with employment land uses and other services with a direct and convenient walkers, cyclists and horse riders route. Little/no potential for substitution. 2) routes regularly used by vulnerable travellers such as the elderly, school children and people with disabilities, who could be disproportionately affected by small changes in the baseline due to potentially different needs. 3) rights of way for walkers, cyclists and horse riders crossing roads at grade with >16,000 vehicles per day.
High	**Development land and businesses:** 1) existing employment sites (excluding agriculture) and land allocated for employment (e.g. strategic employment sites) covering >1 - 5ha. **Agricultural land holdings:** 1) areas of land in which the enterprise is dependent on the spatial relationship of land to key agricultural infrastructure; and 2) access between land and key agricultural infrastructure is required on a frequent basis (weekly). **Walkers, cyclists and horse-riders:** 1) regional trails and routes (e.g. promoted circular walks) likely to be used for recreation and to a lesser extent commuting, that record frequent (daily) use. Limited potential for substitution; and/or 2) rights of way for walkers, cyclists and horse riders crossing roads at grade with >8,000 - 16,000 vehicles per day.
Medium	**Development land and businesses:** 1) existing employment sites (excluding agriculture) and land allocated for employment (e.g. strategic employment sites) covering <1ha.

Receptor value (sensitivity)	Description
	Agricultural land holdings: 1) areas of land in which the enterprise is partially dependent on the spatial relationship of land to key agricultural infrastructure; and 2) access between land and key agricultural infrastructure is required on a reasonably frequent basis (monthly). **Walkers, cyclists and horse riders** 1) public rights of way and other routes close to communities which are used for recreational purposes (e.g. dog walking), but for which alternative routes can be taken. These routes are likely to link to a wider network of routes to provide options for longer, recreational journeys, and/or 2) rights of way for walkers, cyclists and horse riders crossing roads at grade with >4000 – 8000 vehicles per day.
Low	**Development land and businesses:** 1) proposed development on unallocated sites providing employment with planning permission/in the planning process. **Agricultural land holdings:** 1) areas of land which the enterprise is not dependent on the spatial relationship of land to key agricultural infrastructure; and 2) access between land and key agricultural infrastructure is required on an infrequent basis (monthly or less frequent). **Walkers, cyclists and horse riders:** 1) routes which have fallen into disuse through past severance, or which are scarcely used because they do not currently offer a meaningful route for either utility or recreational purposes, and/or 2) rights of way for walkers, cyclists and horse riders crossing roads at grade with <4000 vehicles per day.
Negligible	**Development land and businesses:** 1) N/A. **Agricultural land holdings:** 1) areas of land which are infrequently used on a non-commercial basis. **Walkers, cyclists and horse riders** 1) N/A.

The magnitude of impact from DMRB LA 112 will be used to consider the likely level of impact to each key receptor, as presented in **Table D36**.

Table D36: Magnitude of impact and typical descriptions

Magnitude of impact (change)	Typical description
Major	**Development land and businesses and agricultural land holdings:** 1) loss of resource and/or quality and integrity of resource; severe damage to key characteristics, features or elements. e.g. direct acquisition and demolition of buildings and direct development of land to accommodate highway assets; and/or 2) introduction (adverse) or removal (beneficial) of complete severance with no/full accessibility provision. **Walkers, cyclists and horse riders:** >500m increase (adverse)/decrease (beneficial) in walkers, cyclists and horse riders journey length.
Moderate	**Development land and businesses and agricultural land holdings:** 1) partial loss of/damage to key characteristics, features or elements, e.g. partial removal or substantial amendment to access or acquisition of land compromising viability of property, businesses, community assets or agricultural holdings; and/or 2) introduction (adverse) or removal (beneficial) of severe severance with limited/moderate accessibility provision. **Walkers, cyclists and horse riders:** >250m - 500m increase (adverse) or decrease (beneficial) in walkers, cyclists and horse riders journey length.
Minor	**Development land and businesses and agricultural land holdings:** 1) a discernible change in attributes, quality or vulnerability; minor loss of, or alteration to, one (maybe more) key characteristics, features or elements, e.g. amendment to access or acquisition of land resulting in changes to operating conditions that do not compromise overall viability of property, businesses, community assets or agricultural holdings; and/or 2) introduction (adverse) or removal (beneficial) of severance with adequate accessibility provision. **Walkers, cyclists and horse riders:** >50m - 250m increase (adverse) or decrease (beneficial) in walkers, cyclists and horse riders journey length.
Negligible	**Development land and businesses and agricultural land holdings:** 1) very minor loss or detrimental alteration to one or more characteristics, features or elements. e.g. acquisition of non-operational land or buildings not directly affecting the viability of property, businesses, community assets or agricultural holdings; and/or

Magnitude of impact (change)	Typical description
	2) very minor introduction (adverse) or removal (beneficial) of severance with ample accessibility provision. **Walkers, cyclists and horse riders:** <50m increase (adverse) or decrease (beneficial) in walkers, cyclists and horse riders journey length.
No change	No loss or alteration of characteristics, features, elements or accessibility; no observable impact in either direction.

The significance of effect will then be derived by combining the sensitivity of the receptor with the magnitude of impact as a result of the Proposed Development as presented in **Table D37**, and as described in DMRB LA 112. An effect of 'Moderate', 'Large' or 'Very Large' is deemed to be significant. A 'Neutral' or 'Slight' effect is deemed not significant.

Table D37: Significance matrix

		Magnitude of impact				
Environmental value (sensitivity)		No change	Negligible	Minor	Moderate	Major
	Negligible	Neutral	Neutral	Neutral or Slight	Neutral or Slight	Slight
	Low	Neutral	Neutral or Slight	Neutral or Slight	Slight	Slight or Moderate
	Medium	Neutral	Neutral or Slight	Slight	Moderate	Moderate or Large
	High	Neutral	Slight	Slight or Moderate	Moderate or Large	Large or Very Large
	Very high	Neutral	Slight	Slight or Moderate	Large or Very Large	Very Large

Water

Sensitivity of the receptor

The criteria used for determining the sensitivity of the receptor in this assessment, based on professional judgement, are presented in **Table D38** below.

Table D38: Receptor sensitivity criteria

Sensitivity	Criteria
High	The receptor has low ability to absorb change without fundamentally altering its present character, is of high environmental value, or of national importance. In terms of hydrological receptors, this relates to: • A watercourse of National importance; • Areas of Flood Zone 3 or at high risk of surface water (or other forms of) flood risk; • WFD recorded watercourse achieving 'Good' or targeted as 'Good' status (including immediately downstream watercourses); • Regional sewer or water supply networks; • A flood plain or defence protecting between 1 and 100 residential properties or industrial premises from flooding; • Protected or designated areas, e.g. Sites of Special Scientific Interest (SSSIs), Ramsar sites, Special Protection Areas (SPAs), Special Areas of Conservation (SACs), which are highly sensitive to disruption; • Water stressed area;
Medium	The receptor has moderate capacity to absorb change without significantly altering its present character, has some environmental value, or is of regional importance. In terms of hydrological receptors this relates to: • A watercourse of Countywide importance; • Areas of Flood Zone 2 or medium surface water flood risk; • WFD recorded watercourse achieving 'Moderate' or targeted as 'Moderate' status (including immediately downstream watercourses); • Local sewer or water supply networks; •
Low	The receptor is tolerant of change without detriment to its character, is of low environmental value, or local

Sensitivity	Criteria
	importance. In terms of hydrological receptors this relates to: • A watercourse of Local to District importance; • Areas of Flood Zone 1 or low surface water flood risk; • WFD recorded watercourse achieving 'Poor' or targeted as 'Poor' status (including immediately downstream watercourses); • On-site sewer or water supply networks;

Magnitude of impact (change)

The criteria used for determining the magnitude of impact in this assessment are presented in **Table D39** below. These criteria are based on professional judgement and assessed using supporting evidence.

Table D39: Magnitude of impact criteria

Magnitude of impact	Criteria
High	Total loss or major alteration to key elements or features of the baseline conditions to the extent that post-development character or composition of baseline conditions will be fundamentally changed. (E.g. large increase or decrease in peak flood level, significant deterioration or improvement of water quality).
Medium	Loss or alteration to one or more key elements or features of the baseline conditions to the extent that post-development character or composition of the baseline conditions will be materially changed. (E.g. moderate increase or decrease in peak flood level, moderate deterioration or improvement of water quality).
Low	Minor shift away from baseline conditions. Changes arising will be detectable but not material; the underlying character or composition of the baseline conditions will be similar to the pre-development situation. (E.g. slight increase or decrease in peak flood level, slight deterioration or improvement of water quality).

Magnitude of impact	Criteria
Negligible	Very little change from baseline conditions. Change is barely distinguishable, approximating to a 'no change' situation. (E.g. no discernible effects on hydrological elements (neither beneficial nor adverse).

Significance of effect

The determination of the significance of effect is achieved using the matrix presented in **Table D40**, based on professional judgement. Effects can be either adverse or beneficial.

Table D40: Significance of effect

Magnitude of impact	Sensitivity		
	High	**Medium**	**Low**
High	Major	Major/moderate	Moderate/minor
Medium	Major/moderate	Moderate	Minor
Low	Moderate/minor	Minor	Minor/negligible
Negligible	Negligible	Negligible	Negligible

The terms used within **Table D41** are defined as follows:

- Major adverse/beneficial effect: where the development will cause significant deterioration/improvement (respectively) to the existing environment.
- Moderate adverse/beneficial effect: where the development will cause noticeable deterioration/improvement (respectively) to the existing environment.
- Minor adverse/beneficial effect: where the development will cause perceptible deterioration/improvement (respectively) to the existing environment.
- Negligible: no discernible improvement or deterioration to the existing environment.

For the purposes of this assessment, **moderate** or **major** beneficial/adverse effects are deemed to be **significant**. **Minor** beneficial/adverse or **negligible** effects are deemed to be **not significant**.

Where the significance matrix indicates a range for the effect significance (e.g. ‘moderate/minor’), professional judgement can be applied to select one option (which would be justified by evidence, as appropriate) or an effect significance range can be applied. If a significance of effect is assigned as ‘moderate/minor’, this would be considered significant unless further information could be provided to support and justify the significance effect as ‘minor’.

Appendix E Proposed Structure of the Environmental Statement

The following structure is proposed, based on Annex A of the Planning Inspectorate's Nationally Significant Infrastructure Projects: Advice on the Preparation and Submission of Application Documents 2024.

Non-Technical Summary

Volume 1 – Introductory chapters

Chapter 1: Background and Context

Chapter 2: Location of the Proposed Development

Chapter 3: Description of the Proposed Development

Chapter 4: Reasonable Alternatives Considered

Chapter 5: Approach to Environmental Impact Assessment

Volume 2 – Assessment chapters

Chapter 6: Air Quality

Chapter 7: Biodiversity

Chapter 8: Climate

Chapter 9: Cultural Heritage

Chapter 10: Land, Soil and Groundwater

Chapter 11: Landscape and Visual

Chapter 12: Noise and Vibration

Chapter 13: Population

Chapter 14: Transport and Access

Chapter 15: Water

Chapter 16: Cumulative Effects

Volume 3 – Supporting Figures

Volume 4 – Supporting Technical Appendices, visualisations, and non-technical summary

Appendix F Habitat Survey Report

Provided in a separate document.

Appendix G Landscape and Visual Figures

Figure G.1 Landscape Designations and Proposed LVIA Study Area

Provided in a separate document.

Figure G.2 Landscape Character Assessment

Provided in a separate document.

Figure G.3 ZTV for Solar PV modules within Parcel B

Provided in a separate document.

Figure G.4 ZTV for Solar PV modules within Parcel C

Provided in a separate document.

Figure G.5 ZTV for Solar PV modules within Parcel D

Provided in a separate document.

Figure G.6 ZTV for Solar PV modules within Parcel E

Provided in a separate document.

Figure G.7 ZTV for Substation locations

Provided in a separate document.

Figure G.8 Potential Visual Receptors

Provided in a separate document.

Appendix H Indicative Agricultural Land Classification Plan

Provided in a separate document.

Appendix I Great Crested Newt Presence or Absence (eDNA) Survey Report

Provided in a separate document.

Appendix J Breeding Bird Survey Report

Provided in a separate document.

Appendix K Non-Breeding Bird Survey Report

Provided in a separate document.

Appendix L Biodiversity Figures

Figure 1A National and International Designated Sites

Provided in a separate document.

Figure 1B Location of Non-Statutory Sites

Provided in a separate document.

Figure 2 Great Crested Newts eDNA Survey Results 2023

Provided in a separate document.

Appendix M Noise Sensitive Receptors

Provided in a separate document.

Appendix N Water Figures

Figure 1 Watercourse Designations

Provided in a separate document.

Figure 2 Flood Zones

Provided in a separate document.

Figure 3 Risk of Flooding from Surface Water – Extents

Provided in a separate document.

Figure 4 Surface Water Protected Areas

Provided in a separate document.

Appendix O Detailed Unexploded Ordnance (UXO) Risk Assessment

Provided in a separate document.

Appendix P Digital Utility Overview Plan

Provided in a separate document.

Appendix Q Commitments Register

Air Quality			
Ref.	**Commitment**	**Securing mechanism**	**Phase**
AQ1	Dust mitigation measures for controlling emissions from potentially dust generating activities.	Outline CEMP	Construction
AQ2	Dust mitigation measures for controlling emissions from potentially dust generating activities.	Outline DEMP	Decommissioning

Biodiversity			
Ref.	**Commitment**	**Securing mechanism**	**Phase**
BIO1	Measures to offset significant effects on legally protected species.	Outline LEMP	Construction
BIO2	Measures to safeguard ecological receptors.	Outline CEMP	Construction
BIO3	Pre-construction surveys for any mobile species onsite, undertaken as part of any precautionary working methods.	Outline LEMP/CEMP	Construction
BIO4	Natural England protected species licences to be sought where required.	Outline CEMP	Construction
BIO5	Management and monitoring of ecological features and adherence to measures in management plans.	Outline LEMP Outline OEMP	Operation
BIO6	Measures to safeguard ecological receptors.	Outline DEMP	Decommissioning
BIO7	Pre-decommissioning surveys for any mobile species onsite, undertaken as part of any precautionary working methods.	Outline LEMP/DEMP	Decommissioning
BIO8	Opportunities for enhancing the environment, including creation of new habitat, hedgerow planting, enhancement of field boundaries.	biodiversity design, to form part of Outline LEMP	Construction, operation and decommissioning

BIO9	Habitat Management Plan for the delivery of ecological enhancements.	Detailed LEMP	Operation

Climate			
Ref.	**Commitment**	**Securing mechanism**	**Phase**
CLI1	Good practice construction measures, including low carbon practices.	Outline CEMP	Construction
CLI2	Measures to decrease the risk of climate hazards during the construction phase, including weather monitoring, provision of welfare facilities, provision of an Emergency Response Plan, provision of an Incident Response Plan, monitoring and maintenance of onsite equipment and appropriate storage of said equipment, and safe storage of hazardous materials.	Outline Detailed CEMP	Construction
CLI3	Best practice maintenance and operation measures.	Outline OEMP	Operation
CLI4	Monitoring and assessment of condition of onsite equipment/assets.	Outline OEMP	Operation
CLI5	Good practice decommissioning measures, including low carbon practices.	Outline DEMP	Decommissioning
CLI6	General adherence to the additional mitigation measures proposed during the construction phase.	Outline DEMP	Decommissioning
CLI7	Habitat Management Plan for the delivery of ecological enhancements.	Detailed LEMP	Construction, operation and decommissioning

Cultural Heritage			
Ref.	**Commitment**	**Securing mechanism**	**Phase**
CH1	Programme of archaeological investigation.	Outline Written Scheme of Investigation (WSI)	Construction

CH2	Avoidance of impacts on heritage assets through design of the Proposed Development layout.	Outline Archaeological Management Strategy (AMS)	Construction, operation and decommissioning
CH3	Operational phase mitigation to offset any potential operational phase adverse effects, may include planting and landscaping.	Outline LEMP	Operation
CH4	Enhancement opportunities including the erection of new information boards.	Outline OEMP	Operation

Land, Soils and Groundwater			
Ref.	**Commitment**	**Securing mechanism**	**Phase**
LSG1	Mitigation measures to ensure that damage to land, soils and groundwater can be minimised during the construction phase.	Outline CEMP, Outline Soils Resource Management Plan	Construction
LSG2	Measures to ensure the safe storage and use of fuels or chemicals to protect groundwater resources.	Outline CEMP	Construction
LSG3	If piled foundations are adopted, a piling risk assessment will be produced to assess potential groundwater risk.	Detailed CEMP	Construction
LSG4	Good practice operational measures.	Outline OEMP	Operation
LSG5	Mitigation measures to ensure that damage to land, soils and groundwater can be minimised during the decommissioning phase.	Outline DEMP, Outline Soils Resource Management Plan	Decommissioning

Landscape and Visual			
Ref.	**Commitment**	**Securing mechanism**	**Phase**
LV1	Consideration to be given to site selection for the location of construction compounds and laydown areas.	Works Plans	Construction
LV2	Lighting of any construction compounds will be designed to minimise visual intrusion.	Detailed CEMP	Construction

LV3	Protection of existing trees, woodland and hedgerows.	Outline LEMP	Construction
LV4	Vegetation removal is to be minimised.	Outline LEMP	Construction
LV5	Comprehensive landscape mitigation strategy to deliver landscape and biodiversity enhancements.	Detailed LEMP	Construction, operation and decommissioning

Noise and Vibration			
Ref.	**Commitment**	**Securing mechanism**	**Phase**
NOI1	Best practicable means to be applied during construction works to minimise noise and vibration.	Outline CEMP	Construction
NOI2	Measures including selection of plant and attenuation.	Outline OEMP	Operation
NOI3	Best practicable means to be applied during decommissioning works to minimise noise and vibration.	Outline DEMP	Decommissioning

Transport and access			
Ref.	**Commitment**	**Securing mechanism**	**Phase**
TRA1	Design of suitable access arrangements with full consideration given to the road safety of all road users.	Outline CTMP	Construction
TRA2	Production of an Outline Construction Traffic Management Plan, to include a Staff Sustainable Access Plan and a Framework Abnormal Load Transport Management Plan.	Outline CTMP	Construction
TRA3	Retention of mitigation (such as potential passing places), subject to agreement with ERYC	Outline OEMP	Operation
TRA4	Measures to ensure traffic management.	Outline DEMP	Decommissioning

Water

Ref.	Commitment	Securing mechanism	Phase
WAT1	Measures to safeguard water receptors, including materials storage, management of vegetation removal, silt fencing, wheel washing, fuel storage, spill kits, wastewater disposal and a drilling fluid breakout plan (if HDD is to be used).	Outline CEMP	Construction
WAT2	Production of a Surface Water Management Plan to avoid, minimise and mitigate effects on watercourses, including best practice methods for the protection of surface water from pollution and other adverse impacts.	Surface Water Management Plan	Construction
WAT3	Measures for protection of water quality.	Outline OEMP	Operation
WAT4	Management of surface water runoff from proposed areas of hardstanding.	Outline Surface Water Drainage Strategy	Operation
WAT5	Measures to safeguard water receptors.	Outline DEMP	Decommissioning

Population			
Ref.	**Commitment**	**Securing mechanism**	**Phase**
POP1	Management of any proposed diversions of Public Rights of Way.	Outline Public Rights of Way Management Plan	Construction, decommissioning

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