



HELIOS RENEWABLE
ENERGY
PROJECT

Preliminary Environmental Information Report

Volume 1: Non-Technical Summary

October 2023



Helios Renewable Energy Project
Preliminary Environmental Information Report
Planning Inspectorate Reference: EN010140

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Prepared on behalf of Enso Green Holdings D Limited

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PREFACE

The Preliminary Environmental Information Report ('PEIR') has been prepared by Stantec on behalf of Enso Green Holdings D Limited (the 'Applicant') in relation to an application to be made to the Secretary of State ('SoS') for the Department for Energy Security and Net Zero under Section 37 of the Planning Act 2008 ('the PA2008'), seeking a Development Consent Order ('DCO') for the Helios Renewable Energy Project ('the Proposed Development').

This report is a Non-Technical Summary ('NTS') of the preliminary environmental information for the Proposed Development, and forms Volume 1 of the PEIR. The Main Text is provided in Volume 2 and the Technical Appendices in Volume 3, which collectively comprise the PEIR.

The PEIR forms part of a suite of documents supporting statutory pre-application consultation and publicity for the Proposed Development under Sections 42, 47 and 48 of the PA2008. The statutory consultation runs from 9:00am on 26th October 2023 until 11:59:59pm on 7th December 2023.

Electronic copies of the documents referred to above will be available to download free of charge during the statutory consultation period at the Applicant's website: <https://www.helios-renewable-energy-project.co.uk/project-documents/>

A full set of consultation documents can also be provided on a USB drive for £15, or as a hard copy for £1,000, on written request to the Applicant via post or email at the details below (reasonable postage charges may also apply). Hard copies of the Non-Technical Summary are also available free of charge upon request.

Please send any responses, requests for copies of documents or queries to:

- Email: info@helios-renewable-energy-project.co.uk
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1. Introduction

1.1. Background

- 1.1.1. This document provides a non-technical summary of the PEIR prepared to support statutory pre-application consultation being undertaken in respect of a proposed DCO application for the Helios Renewable Energy Project. A PEIR is a document that sets out the preliminary environmental information regarding a proposed scheme in order to allow statutory bodies, the local community and the general public, consulted as part of the formal DCO consultation process, to come to an informed view on the likely significant environmental effects of the proposals. The structure of the PEIR mirrors that of an Environmental Statement ('ES') and contains the initial findings of the assessment of the likely significant environmental effects resulting from the construction, operation and maintenance, and decommissioning phases of the Proposed Development, including measures necessary to mitigate any potential significant adverse environmental effects. The information contained within the PEIR is preliminary, reflecting the design of the proposals to date. It does not represent a final project design and the findings and conclusions contained herein are also preliminary and subject to change.
- 1.1.2. The Applicant will continue to obtain information that will inform the final assessment of effects which will subsequently be included within the ES that will support the DCO application and report the findings of the Environmental Impact Assessment ('EIA').

1.2. The Site and Proposed Development

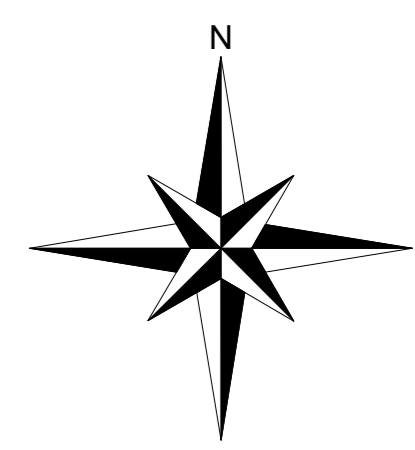
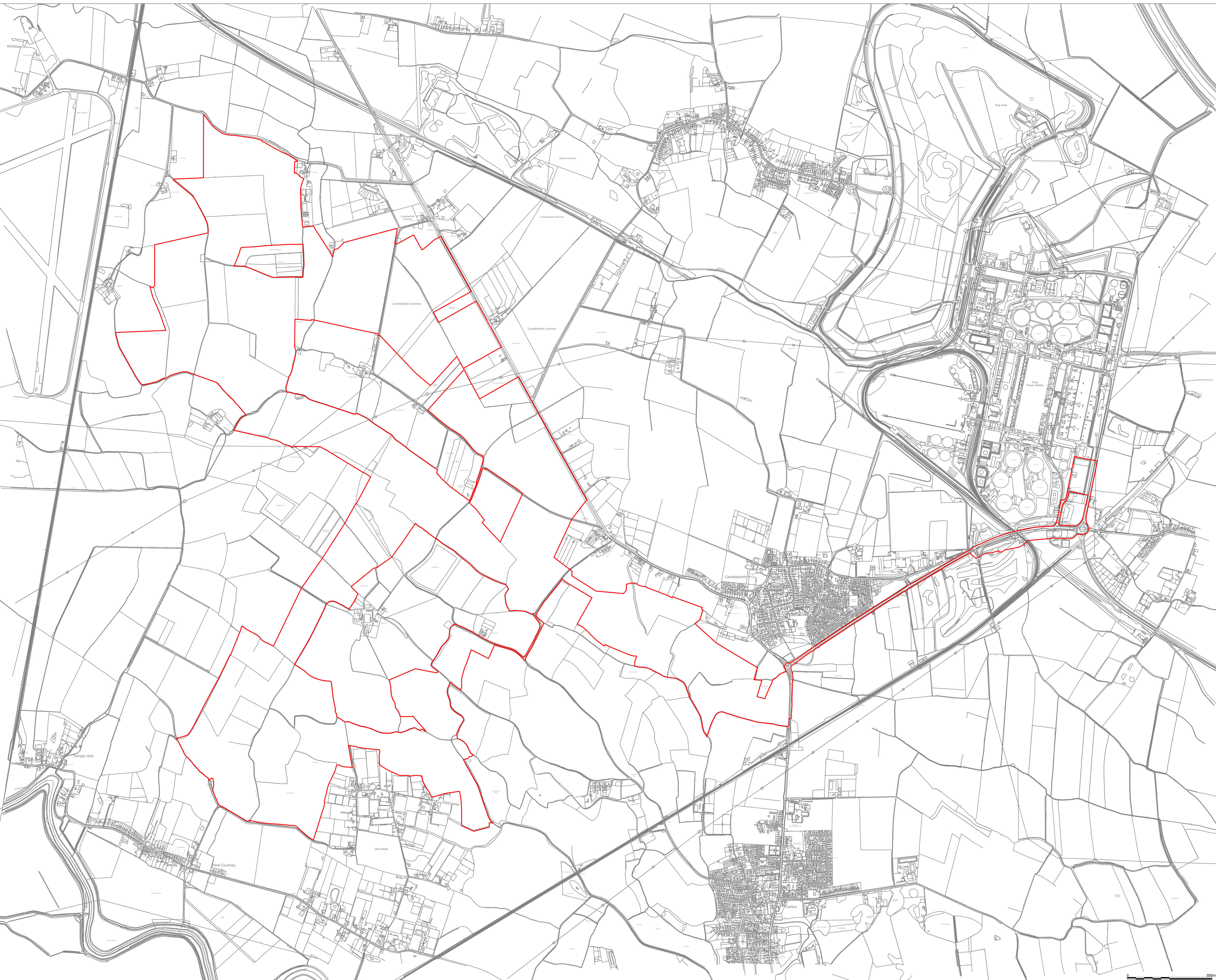
- 1.2.1. The Site, shown on Figure 1.1, comprises land to the south-west of the village of Camblesforth and to the north of the village of Hirst Courtney, in the administrative area of North Yorkshire Council. The Site predominantly comprises agricultural land, consisting of fields used for grazing and arable farming.
- 1.2.2. The Proposed Development comprises the construction, operation and maintenance, and decommissioning of a solar energy electricity generating project on 475.68 hectares ('ha') of land.

1.3. The Applicant

- 1.3.1. Enso Green Holdings D Limited (the 'Applicant') is a joint-venture partnership between Enso Energy and Cero Generation. Enso Energy is one of the UK's most experienced renewable energy developers, with an unparalleled focus on solar energy. Cero Generation is a leading solar energy company, working across Europe to support the transition to a net-zero future.

Figure 1.1 Site Location Plan

KEY
Site Boundary



Revisions:
01 - (12/07/2022 JS) Revised boundary
02 - (21/02/2023 JS) Revised boundary
03 - (20/04/2023 JS) Revised boundary
04 - (28/04/2023 JS) Revised boundary
05 - (12/06/2023 JS) Revised boundary
06 - (20/07/2023 JS) Revised boundary
07 - (03/08/2023 AD) removal of sheets 2 & 3

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2. Environmental Impact Assessment Methodology

2.1. The Environment Impact Assessment ('EIA') Process

- 2.1.1. The EIA requirements for Nationally Significant Infrastructure Projects are transposed into law through the *Infrastructure Planning (Environmental Impact Assessment) Regulations 2017* (the 'EIA Regulations'). The Proposed Development is a 'Schedule 2' development under paragraph 3(a) of the EIA Regulations as it constitutes an '*industrial installation for the production of electricity*' and is not a project listed in Schedule 1. Schedule 2 development must be subject to EIA if it is considered '*likely to have significant effects on the environment by virtue of factors such as its nature, size or location*'. The criteria on which this judgement must be made are set out in Schedule 3 to the EIA Regulations.
- 2.1.2. The PEIR presents the preliminary findings of the EIA undertaken for the Proposed Development and has been compiled in accordance with the EIA Regulations and relevant guidance from the Planning Inspectorate.
- 2.1.3. The EIA Regulations set out the statutory process and minimum requirements for the provision of adequate environmental information to enable the EIA process. The EIA, activities, surveys and studies will be reported in the ES that will be submitted with the DCO application.

2.2. EIA Scoping

- 2.2.1. The Applicant submitted a Scoping Report in support of a formal request for a Scoping Opinion to the Planning Inspectorate in June 2022, who conduct scoping on behalf of the Secretary of State for Energy Security and Net Zero. The Planning Inspectorate's EIA Scoping Opinion¹ was adopted in July 2022. The following topics have been scoped into the ES – i.e. included for detailed assessment:

- Cultural Heritage;
- Landscape and Views;

¹ The consenting authority's opinion on the main likely effects of a development.

- Biodiversity;
- Water Environment;
- Transport and Access;
- Noise and Vibration;
- Climate Change;
- Socio-Economics; and
- Soils and Agricultural Land.

2.2.2. Human Health, Major Accidents and Disasters, Lighting and Waste have also been scoped into the ES but are addressed within the assessments for the topics set out above, where relevant, rather than as separate topics.

2.2.3. The topics scoped out of the ES, i.e., those environmental aspects where significant effects are not anticipated as a result of the Proposed Development, comprise:

- Air Quality;
- Land Contamination;
- Electric, Magnetic, and Electromagnetic Fields;
- Telecommunications, Television Reception, and Utilities;
- Wind Microclimate;
- Daylight, Sunlight, and Overshadowing;
- Glint and Glare; and
- Minerals.

2.3. Assessment Methodology

2.3.1. The assessments in the PEIR identify, describe and assess the likely significant effects of the Proposed Development on the environment during the construction, operation and maintenance, and decommissioning phases. The significance of each

environmental effect identified is generally determined by the following factors:

- The sensitivity, importance or value of the environment (such as people or wildlife); and
- The change taking place to the environment (i.e. the magnitude and duration of the change taking place).

2.3.2. Generic criteria to be used in carrying out this process are detailed below. Some technical chapters may use discipline-specific criteria with their own terms for magnitude, sensitivity and significance and, where used, this will be explained in the relevant chapter.

2.3.3. An environmental effect can be categorised as either permanent or temporary. The duration of temporary effects comprises:

- Short-term (a period of up to 1 year);
- Medium-term (a period of between 1 year and up to 5 years); and
- Long-term (a period of more than 5 years).

2.3.4. The methodology for determining the scale or magnitude of impact is set out Table 2.1 below.

Table 2.1: Methodology for Assessing Magnitude

Magnitude of Impact	Criteria for Assessing Magnitude of Impact
High	Total loss or major/substantial alteration to key elements/features of the baseline (pre-development) conditions such that the post development character/composition/attributes will be fundamentally changed.
Medium	Loss or alteration to one or more key elements/features of the baseline conditions such that post development character/composition/attributes of the baseline will be materially

Table 2.1: Methodology for Assessing Magnitude

Magnitude of Impact	Criteria for Assessing Magnitude of Impact
	changed.
Low	A minor shift away from baseline conditions. Change arising from the loss/alteration will be discernible/detectable but not material. The underlying character/composition/attributes of the baseline condition will be similar to the pre-development circumstances/situation.
Very Low	Very little change from baseline conditions. Change barely distinguishable, approximating to a 'no change' situation.

2.3.5. The sensitivity of a receptor is based on the relative importance of the receptor² using the scale set out in Table 2.2 below.

Table 2.2: Methodology for Determining Sensitivity

Sensitivity	Criteria for Determining Sensitivity of Receptor/Resource
High	The receptor/resource has little ability to absorb change without fundamentally altering its present character, or is of international or national importance.
Medium	The receptor/resource has moderate capacity to absorb change without significantly altering its present character, or is of high importance.
Low	The receptor/resource is tolerant of change without detriment to its character, is of low or local importance.
Very Low	The receptor/resource is tolerant of change without detriment to its character, or does not make a significant contribution to local character or distinctiveness and is not designated

² A human, built, or environmental feature upon which an effect may be felt.

Assessment of Effect Significance

2.3.6. After the magnitude of the impact and the sensitivity of the receptor/resource have been determined, the effect significance will be classified using the matrix in Table 2.3. This illustrates the interaction between impact magnitude and receptor sensitivity. Most environmental disciplines classify effects as negligible, adverse or beneficial, where effects are minor, moderate or major. Major and moderate effects are typically considered to be significant, whilst negligible and minor effects are not considered significant. Where this differs for a technical assessment it is set out in the corresponding chapter.

Table 2.3: Effect Significance Matrix

Magnitude	Sensitivity			
	High	Medium	Low	Very Low
High	Major Adverse / Beneficial	Major Adverse / Beneficial	Moderate Adverse / Beneficial	Minor Adverse / Beneficial
Medium	Major Adverse / Beneficial	Moderate Adverse / Beneficial	Minor Adverse / Beneficial	Negligible
Low	Moderate Adverse / Beneficial	Minor Adverse / Beneficial	Negligible	Negligible
Very Low	Minor	Negligible	Negligible	Negligible

Generic Effect Definitions

2.3.7. Table 2.4 below provides generic definitions of the terminology used to categorise effects.

Table 2.4: Generic Effect Definitions

Effect	Description
Major	An effect that is likely to be an important consideration at a national to regional level because it will contribute to achieving national/regional objectives or is likely to result in exceedance of statutory objectives or

Effect	Description
	breaches of legislation.
Moderate	An effect that is likely to be an important consideration at a regional level.
Minor	An effect that is likely to be an important consideration at a local level.
Negligible	An effect that is likely to have a negligible or neutral influence, irrespective of other effects.

2.3.8. Environmental effects have been evaluated with reference to definitive standards and legislation, where available. Where it has not been possible to quantify effects, qualitative assessments have been carried out, based on available knowledge and professional judgement. Where uncertainty exists, this has been noted in the chapter.

2.3.9. The PEIR includes a description of the current environmental conditions known as the baseline conditions (identified from published information and surveys on the Site), against which the likely significant environmental effects of the Proposed Development have been assessed. The PEIR also looks at the future baseline and how, in the absence of the Proposed Development, the Site may change.

2.4. Consultation

2.4.1. The PEIR is being published to support statutory consultation and publicity under Sections 42, 47 and 48 of the PA2008. Consultation responses on the information provided will aid the Applicant in refining the Proposed Development’s design. The final design will be assessed for likely significant environmental effects in the ES to be submitted in support of the DCO application. The consultation process will also be used to continue to obtain information that will inform the final assessment of impacts which will be contained within the ES.

2.4.2. Feedback on the PEIR received from consultees, along with a summary of other relevant issues raised during consultation, will be recorded and referenced within the ES and the Consultation Report, to be submitted with the DCO application, which will also include commentary on how the feedback was considered and how it informed the evolution of the Proposed Development’s design.

3. Site and Development Description

3.1. The Site Location and Description

- 3.1.1. The Site is irregularly shaped and comprises agricultural land, consisting of fields used for grazing and arable farming. It extends to 475.68ha. The main part of the Site sits within a wider area of land bounded to the north-east by the A1041, to the west by agricultural fields between the Site and the Selby Branch of the East Coast Mainline railway further west, and to the south by agricultural fields and agricultural and horticultural development surrounding Moss Green Lane.
- 3.1.2. Nearby settlements include the villages of Camblesforth and Hirst Courtney to the northeast and south of the Site, respectively. Selby, located approximately 1.5km to the north of the Site, is the principal settlement closest to the Site.
- 3.1.3. Transport routes in proximity to the Site include the M62 and A63 which extend on east – west alignments beyond the southern and northern extents of the Site, respectively. Public Rights of Way ('PRoW') cross the Site and the wider landscape, often following farm tracks or rural lanes. The Trans Pennine Trail long-distance walking and cycling route extends south from Selby and in proximity to the western and southern parts of the Site boundary, immediately adjacent to the western boundary at the closest point. The industrial complexes of Drax (immediately north of the eastern extent of the Site) and Eggborough Power Stations (approximately 3.3km to the southwest) form prominent features in the surrounding landscape.

3.2. The Proposed Development

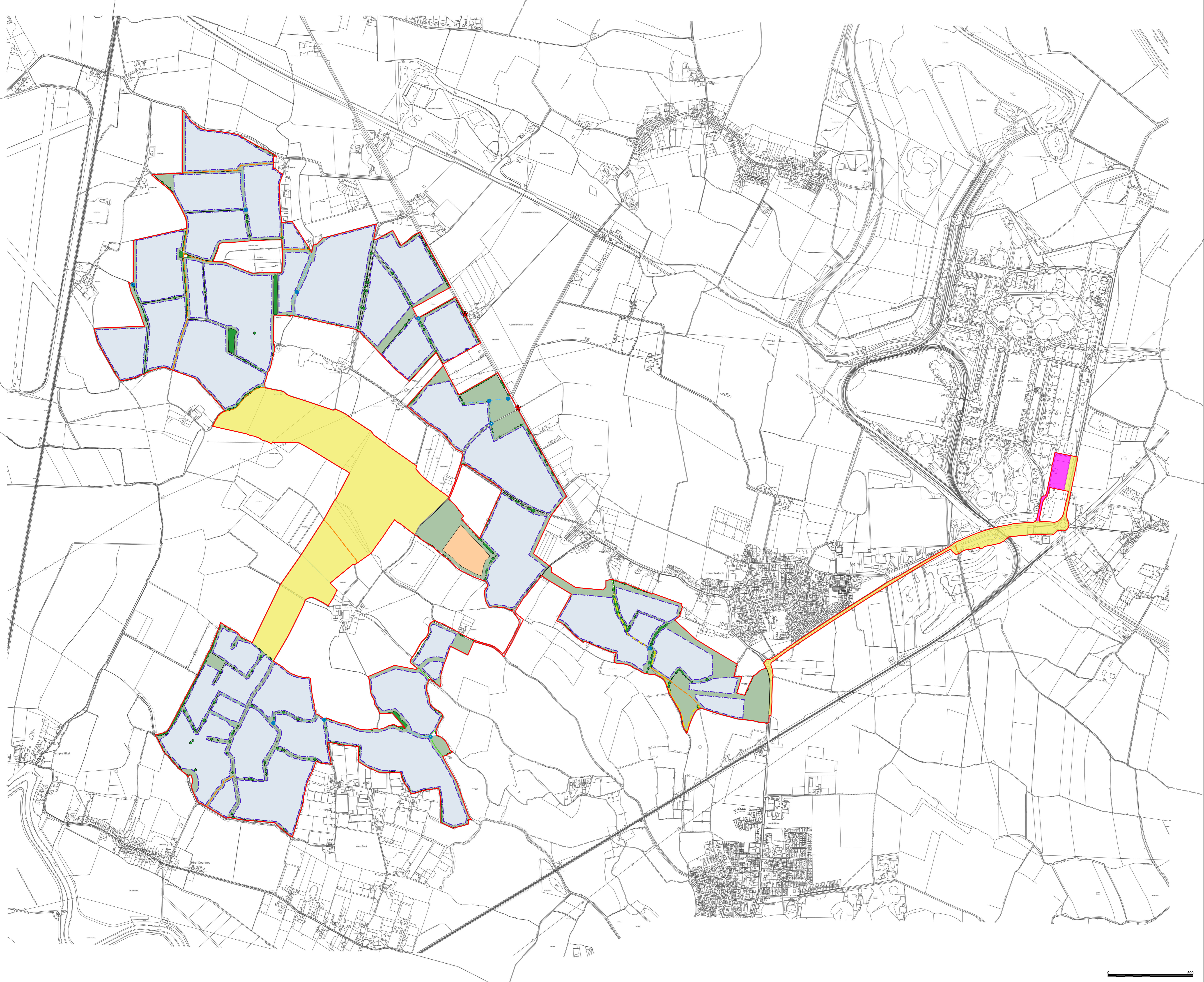
- 3.2.1. The Proposed Development comprises a renewable energy generating project with a modelled operational lifespan of up to 40 years. Solar panel technology is rapidly evolving, and the application will include flexibility to ensure the latest technology can be utilised at the point of construction to maximise the Proposed Development's benefits.
- 3.2.2. The Proposed Development consists of ground-mounted solar photovoltaic ('PV') arrays and on-Site energy storage, together with associated infrastructure and an underground cable connection to the existing National Grid Substation at the Drax Power Station. The agreed grid connection for the Proposed Development will allow

the export (to the national grid) of up to 190MW of electricity at any time.

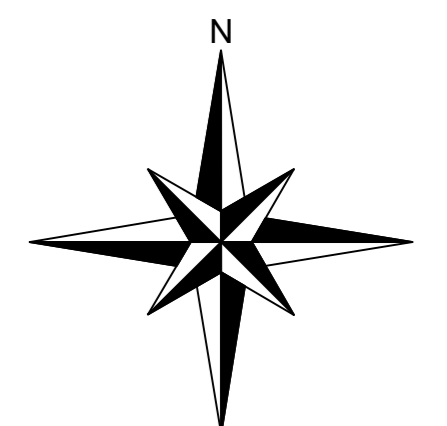
3.2.3. The Proposed Development includes the following key elements:

- Solar PV modules (the Solar Farm Zone shown on Figure 3.1 consists of these modules) (essentially panels capable of capturing sunlight to generate electricity);
- Mounting structures (a metal frame to hold the panels);
- Field stations including inverters, transformers and switchgear;
- On-Site substation (with a maximum voltage of 132 kilovolts) and energy storage compound (including the battery energy storage system);
- Distribution cables (low voltage cables connecting the solar PV modules, inverters and field stations);
- Grid connection cables (underground cables with a maximum voltage of 132 kilovolts connecting to the National Grid substation at Drax Power Station) (see Figure 3.1);
- Fencing (wire fencing up to 2.1m tall), security (including closed-circuit television ('CCTV')) and ancillary infrastructure;
- Access tracks;
- Landscape and ecological enhancements; and
- Archaeological mitigation.

Figure 3.1 Parameter Plan

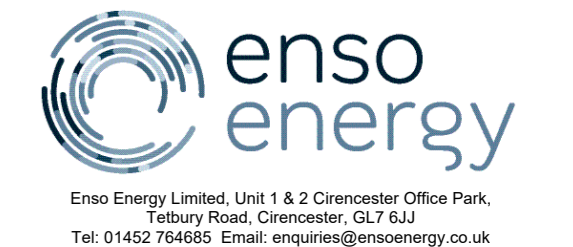


- KEY**
- Site Boundary
 - Existing Vegetation
 - Public Footpath
 - Other Route with Public Access
 - Trans Pennine Way
 - Permissive Footpath
 - Security Fence
 - Solar Farm Zone
Includes:
- Solar PV Modules
- Inverters/Transformers
- Access Tracks
- Access Gates
 - Substation and Battery Energy Storage System (BESS) Compound
Includes:
- 152kV Substation
- BESS and associated infrastructure
- Access Tracks
- Access Gates
- Fencing
- Earth Flood Defence Bund
- Attenuation Ponds
 - National Grid Substation and Access
 - Existing Culvert
 - Green Infrastructure
Includes:
- Habitat Areas
- Access Track Crossings
 - Proposed Site Entrance
 - Underground Cable Corridor



Revisions:
 First Issue - 21/04/2023 JS
 01 - (28/04/2023 JS) Revised boundary
 02 - (12/06/2023 JS) Revised boundary
 03 - (15/06/2023 JS) Revised layout
 04 - (20/07/2023 JS) Revised layout and boundary
 05 - (04/08/2023 AD) Key and graphical changes
 06 - (30/08/2023 JS) Revised layout and key updates

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Scale: 1:10,000 @ A1	Date: 30/08/2023	



4. Alternatives and Design Evolution

4.1. Introduction

4.1.1. Under the EIA Regulations, the Applicant must provide a description in the ES of the reasonable alternatives that have been studied by the Applicant that are relevant to the Proposed Development and indicate the main reasons for selecting the Proposed Development.

4.2. Site Selection

4.2.1. One key commercial requirement for a solar project is the ability to export the electricity generated. This can either be to the national grid infrastructure or to a local energy user. The location near to an available grid connection at Drax Power Station is a key advantage of this Site and a search of land within 5km of the connection was conducted to find an appropriate Site. This process involved:

- Review of Land Availability and Suitability;
- Selection and Assembly of Land; and
- Refinement of Land.

4.2.2. A review of land availability and suitability was undertaken, which particularly focused on the sunlight levels (irradiance) and topography, which directly impact the efficacy of the solar PV modules. The land surrounding the Drax Power Station grid connection comprises large open areas of relatively flat land with gently undulating topography which would provide a uniform exposure to irradiance.

4.2.3. A number of other factors were also considered when selecting the Site. These included proximity to residential dwellings, areas protected for landscape, ecological importance, glint and glare, ability to access a site, flood risk, and agricultural land value, and agricultural land availability.

4.2.4. Following an analysis of the above, the Applicant concluded that the Site represented a suitable area for solar and energy storage development, and that there was not another identifiable area that provided a better alternative site that could connect to the National Grid substation at Drax Power Station.

4.3. The 'do nothing' Alternative

- 4.3.1. Under the 'do nothing' scenario, the Site would remain in agricultural use and the beneficial and adverse effects outlined in the PEIR relating to the Proposed Development would not occur.
- 4.3.2. The Proposed Development will have an export capacity of 190MW which could supply the approximate annual domestic needs of 44,800 homes (equivalent to an approximate saving of 35,500 tonnes of CO₂ per year in England). The 'do nothing' approach would mean there would be no contribution to the UK's requirement to reduce carbon emissions and to achieve its goal of net zero by 2050. As a result, the 'do nothing' alternative is not considered to be a reasonable alternative.

4.4. Consideration of Alternative Designs

- 4.4.1. The Proposed Development design has evolved through an iterative process and will continue to do so following consultation. Changes made since the initial design included amending the extent of the Site to reduce visibility of the Proposed Development from residential dwellings in the nearby villages of Hirst Courtney and Camblesforth.
- 4.4.2. The Proposed Development will retain the existing field boundary structure of ditches, hedgerows, trees and woodland blocks, with appropriate offsets to these features, avoiding loss or change to the existing landscape character. New hedges have been added to the Proposed Development's layout, along the lines of historic hedgerows, breaking up the visual impact of the larger fields. Permissive paths to connect and improve the existing PRow network will be provided. A series of new habitat areas with a mosaic of native trees, grassland and wetland features to establish new habitats is also proposed.
- 4.4.3. The Site layout has also changed in response to areas of flood risk.

5. Construction and Decommissioning Methodology and Phasing

5.1. Construction Activity

5.1.1. The construction of the Proposed Development is anticipated to start in 2026 for a period of approximately 12 months (and therefore completion is expected in 2027). During the construction phase, a primary construction compound will be required, with up to five secondary construction compounds. The primary construction compound will be located near the Site's two access and egress points on the A1041. All compounds and temporary access tracks will be removed once construction is completed and the areas they occupy reinstated, as appropriate.

5.1.2. The activities on-Site during the construction phase will include the following:

- Site establishment and enabling works for construction:
 - Ground clearance, where necessary;
 - Delivery of construction materials, plant and equipment;
 - Establishment of site fencing;
 - Establishment of construction compounds;
 - Construction of internal access roads;
 - Setting out the positions for the infrastructure and equipment;
 - Trenching for cable routes; and
 - Habitat creation.

- Construction of the Proposed Development:
 - Installation of solar PV array foundations and piling;
 - Construction of on-site electrical infrastructure to facilitate the generation of electricity such as solar PV framing and panels, 132kV substation and energy storage;
 - Laying of cables including Point of Connection ('POC') cable groundworks and string cabling between the solar PV array;
 - POC electrical works;

- Installation of security lighting and CCTV;
- Installation of fencing and gates;
- Final installation checks;
- Testing and commissioning;
- Site clearance and compound removal; and
- Landscape planting and ecological enhancements.

5.2. Construction Phase Management

- 5.2.1. An Outline Construction Traffic Management Plan ('oCTMP') will be submitted with the ES. This document will set out the methods that will be used to regulate the delivery of materials and movement of construction personnel to the Site during the construction phase.
- 5.2.2. An Outline Construction Environmental Management Plan ('oCEMP') will also be submitted with the ES. The oCEMP will work in parallel with the oCTMP and will detail the environmental requirements relevant to the construction phase in order to ensure good construction practices and reduce the risk of accidents or potential for adverse, avoidable effects on the environment.
- 5.2.3. The final, detailed CEMP and CTMP documents will be prepared following the grant of the DCO and submitted to North Yorkshire Council ('NYC') for approval prior to construction work starting on the Site. This will be secured through appropriately worded DCO requirements.
- 5.2.4. Construction activities will be undertaken within the core hours of Monday to Friday 08:00-18:00 and 08:00-13:00 on Saturdays. Works may be required outside of these hours, which would be agreed with NYC in advance.
- 5.2.5. Where possible, deliveries to the Site will be timed to avoid Heavy Goods Vehicle ('HGV') movements during the traditional morning and afternoon traffic peak times, 08:00-09:00 and 17:00-18:00.

5.3. Decommissioning Phase Management

- 5.3.1. The decommissioning of the Proposed Development is anticipated to take approximately 12 months. Following cessation of energy generation and exportation

at the Site all the solar infrastructure including PV modules, mounting structures, cabling on or near to the surface, inverters stations, fencing and ancillary infrastructure, and the substation and battery energy storage system ('BESS') compound would be removed and recycled, or disposed of in accordance with good practice and market conditions at that time. All compounds and temporary access tracks will be removed once decommissioning is complete.

- 5.3.2. An Outline Decommissioning Environmental Management Plan ('oDEMP') will be submitted with the ES. Similar to the oCEMP, the oDEMP will detail the environmental requirements relevant to the decommissioning phase in order to ensure good working practices and reduce the risk of accidents or potential for adverse, avoidable, effects on the environment.
- 5.3.3. The final, detailed DEMP will be submitted to NYC for approval prior to decommissioning starting on the Site. This will be secured through an appropriately worded DCO requirement.

6. Cultural Heritage

6.1. Baseline

- 6.1.1. In order to determine the baseline conditions on the Site with regard to the historic environment, competent experts conducted a Site walkover and reviewed available online and published information sources. This process identified no designated heritage assets (listed buildings or conservation areas) on the Site nor, Registered Parks and Gardens, Registered Battlefields or World Heritage Sites within 3km of the Site. A number of above-ground designated heritage assets were located within 3km of the Site, comprising: four Scheduled Monuments; five Grade I Listed Buildings; one Grade II* Listed Building; 65 Grade II Listed Buildings; and two Conservation Areas. Those identified for the assessment comprise Manor Farmhouse (Grade I Listed); Camblesforth Hall (Grade II Listed); and Carlton Towers (Grade I Listed), as shown in Figure 6.1, due to their proximity to the Site and potential for effects to the setting of these assets as a result of the Proposed Development. No effects were identified to the other heritage assets and therefore these were not taken forward for assessment.
- 6.1.2. With regard to archaeology, surveys on the Site identified areas of archaeological potential, comprising D-shaped enclosures with likely internal features. These enclosures may be pre-historic or Roman in date.
- 6.1.3. The survey undertaken on the Site excluded the proposed underground cable route corridor, including to the grid connection at Drax Power Station. Although the archaeological potential of these areas is therefore unidentified, this approach was agreed with the NYC Principal Archaeologist due to the limited below-ground impact occurring during the insertion of the cables, which will not cause significant impacts to any below ground archaeological asset.

6.2. Assessment

- 6.2.1. Potential effects on buried archaeology result from direct impacts associated with a proposed development, whereas a proposed development's effects on built heritage assets result from changes to their setting. Using the baseline information gathered and the details of the Proposed Development, an assessment of the potential for direct, indirect, beneficial, adverse and cumulative effects was undertaken.

- 6.2.2. During the construction phase, direct effects on identified areas of archaeology would be neutral; direct effects to the unidentified archaeology would be minor adverse; and indirect effects to the designated heritage assets would be neutral. These effects are not considered to be significant in EIA terms.
- 6.2.3. Once the Proposed Development is completed and operational, effects on the setting of the Camblesforth Hall and Manor Farmhouse would be neutral and effects on the setting of the Carlton Towers would be minor adverse. None of these effects are considered significant in EIA terms.
- 6.2.4. During decommissioning, the effects on the setting of the Carlton Towers would be minor beneficial. This effect is not significant in EIA terms.

6.3. Mitigation

Embedded Mitigation

- 6.3.1. The design of the Proposed Development's Solar Farm Zone has evolved to embed mitigation measures and minimise potential environmental effects. This included moving solar PV panels away from sensitive heritage receptors and including landscaping measures which will reinstate field boundaries and provide additional screening. In addition, within areas of identified archaeology, solar PV modules will be on ground-mounted footings, with any cables raised and attached beneath the PV panels. Access tracks crossing these areas will be raised above ground level and lighter weight vehicles with low-impact tires will be used.

Measures to be adopted by the Project

- 6.3.2. An Archaeological Mitigation Strategy has been developed for the Site through consultation with the NYC Principal Archaeologist. The mitigation includes an Archaeological Watching Brief to be undertaken during the implementation of the underground cable corridor.

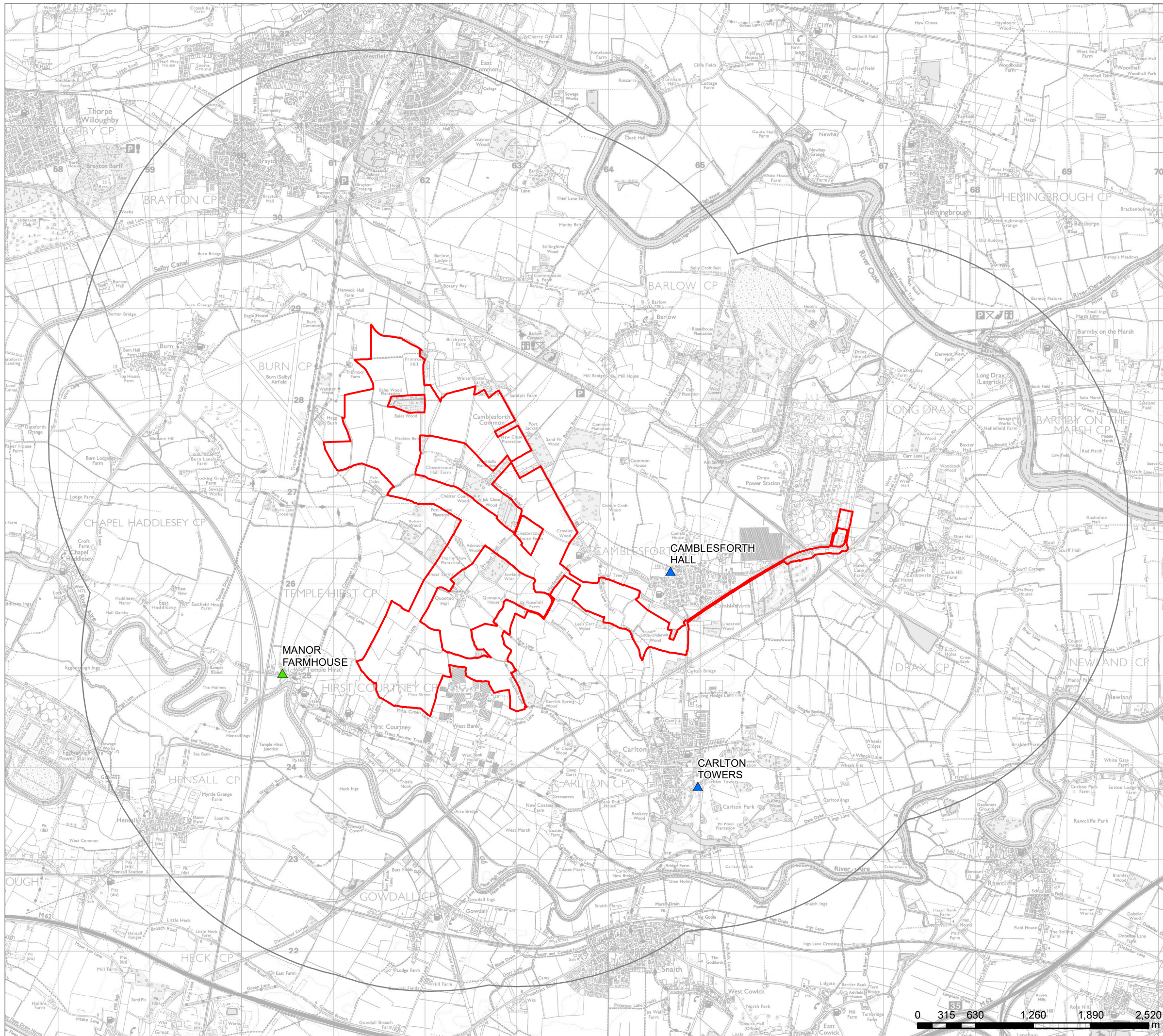
Additional Mitigation

- 6.3.3. During the operational phase of the Proposed Development, interpretation boards will be established at the Site, providing information on the archaeological context of the Site and surrounding area and help disseminate information to the public.

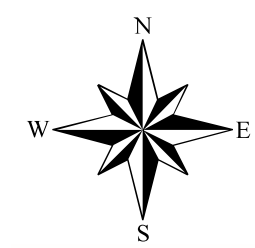
6.4. Residual Effects

- 6.4.1. Residual effects are the effects from a proposed development on the environment that remain following the implementation of measures to prevent or reduce effects (mitigation measures). In the case of the Proposed Development, the residual construction phase and operational effects on cultural heritage are considered to range from neutral to minor adverse. Decommissioning effects are considered to range from neutral to minor beneficial. These residual effects on cultural heritage are not considered to be significant in EIA terms.

Figure 6.1 Assets Considered Within PEIR



- Key**
- Site
 - 3km Buffer
 - ▲ Grade I Listed Building
 - ▲ Grade II Listed Building



Project Title		
Helios Renewable Energy Project		
Drawing Title		
Figure 6.1 - Assets Considered Within PEIR		
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7. Landscape and Views

7.1. Baseline

7.1.1. In EIA, the term 'landscape' applies to an area of land judged as an environmental asset. Effects on views are considered to be distinct from landscape effects and are reported separately in the PEIR. In order to identify the landscape and visual baseline conditions on the Site, desktop studies and field surveys were undertaken. The investigation into the baseline conditions identified that there are no statutory designations on the Site (in legal or policy terms). The Site is not designated in landscape terms, and there are no national designations for landscape or scenic beauty within the study area. Kerrick Spring Wood, an Ancient Woodland³, lies adjacent to the Site boundary and there are several conservation areas⁴ and listed buildings within proximity of the Site (as shown on Figure 7.1). The landscape of the Site comprises a number of agricultural fields delineated by hedgerows, drainage ditches and occasional tree belts, with a sporadic network of lanes and farm tracks following some field boundaries. The wider area is largely flat and primarily agricultural, with a number of towns and villages and the industrial built form of Drax Power Station. In visual terms, the Site is visible in open views from the network of PRoWs and lanes that cross it. There are also close-range views of the Site from a limited number of residential properties that lie on the southwestern edge of Camblesforth. However, there are no views from the cores of local settlements, including Camblesforth and Carlton. Visibility of the Site diminishes rapidly to the south, east and north, due to a combination of landform and vegetation.

7.2. Assessment

7.2.1. In order to determine the effect that the Proposed Development will have on the landscape and identified views, an assessment of the likely direct, indirect, beneficial, adverse and cumulative significant effects has been undertaken for: the construction phase; the first and fifteenth years of the operational phase (the latter taking account of the residual effect with the benefit of established planting mitigation); and the decommissioning phase.

³ Ancient woodlands are woods that have existed since at least AD 1600 and have developed irreplaceable, complex ecosystems.

⁴ An area of special architectural or historic interest protected under the Planning (Listed Buildings and Conservation Areas) Act 1990.

- 7.2.2. The assessment of potential effects is based on a similar scale as set out in Chapter 2 of this NTS, whereby effects are rated on a scale of negligible to major, where the greater the sensitivity of the receptor and magnitude of change as a result of the Proposed Development, the more likely the effect is moderate or major. In general, major or major/moderate effects, whether negative or positive, are deemed to be 'significant'.
- 7.2.3. The assessment has considered the potential effects of the Proposed Development on landscape features, landscape character and visual receptors. Measures have been included in the design of the Proposed Development to prevent significant negative effects and includes factors such as planting (referred to as 'embedded mitigation' and discussed in section 7.3 below).
- 7.2.4. All effects on landscape features, landscape character and visual receptors identified from the construction and decommissioning phases are not significant. These effects are considered to range from no effect identified to effects of moderate negative significance. Operational effects on landscape features and landscape character would be of moderate to major/moderate negative significance, which are not significant effects. Similarly, operational effects on visual receptors would be of moderate negative significance, which are not significant.

7.3. Mitigation

Embedded Mitigation

- 7.3.1. The design of the Proposed Development and its integrated landscape strategy has evolved over an 18-month period as part of an iterative mitigation by design process and this led to a number of changes to the design including the removal of fields from the Proposed Development and the reduction in the area of the substation and BESS parameters. Development characteristics were also implemented to mitigate the landscape and visual effects, these included a height restriction on the solar PV panels, inverters/transformers and fences, and ensuring no impacts to existing trees and woodland. Further landscape mitigation has also been considered, comprising the creation and enhancement of habitats across the Site.

Measures to be adopted by the Project

- 7.3.2. Best practice measures will be implemented during the construction and

decommissioning phases of the Proposed Development, and these will include the operation of a CEMP and DEMP as discussed in Chapter 5 of this NTS. These documents will include measures for the protection of existing vegetation on the Site, limiting hours of work on the Site, ensuring that all unloading/loading of materials and equipment is undertaken within the Site boundary, and cleaning construction and decommissioning vehicles regularly to limit noise, dust and dirt levels.

- 7.3.3. Mitigation to be applied to the operational phase of the Proposed Development comprises the maintenance and management of the proposed landscape planting, which will be set out in a Landscape Environmental Management Plan ('LEMP') and secured by a DCO requirement.

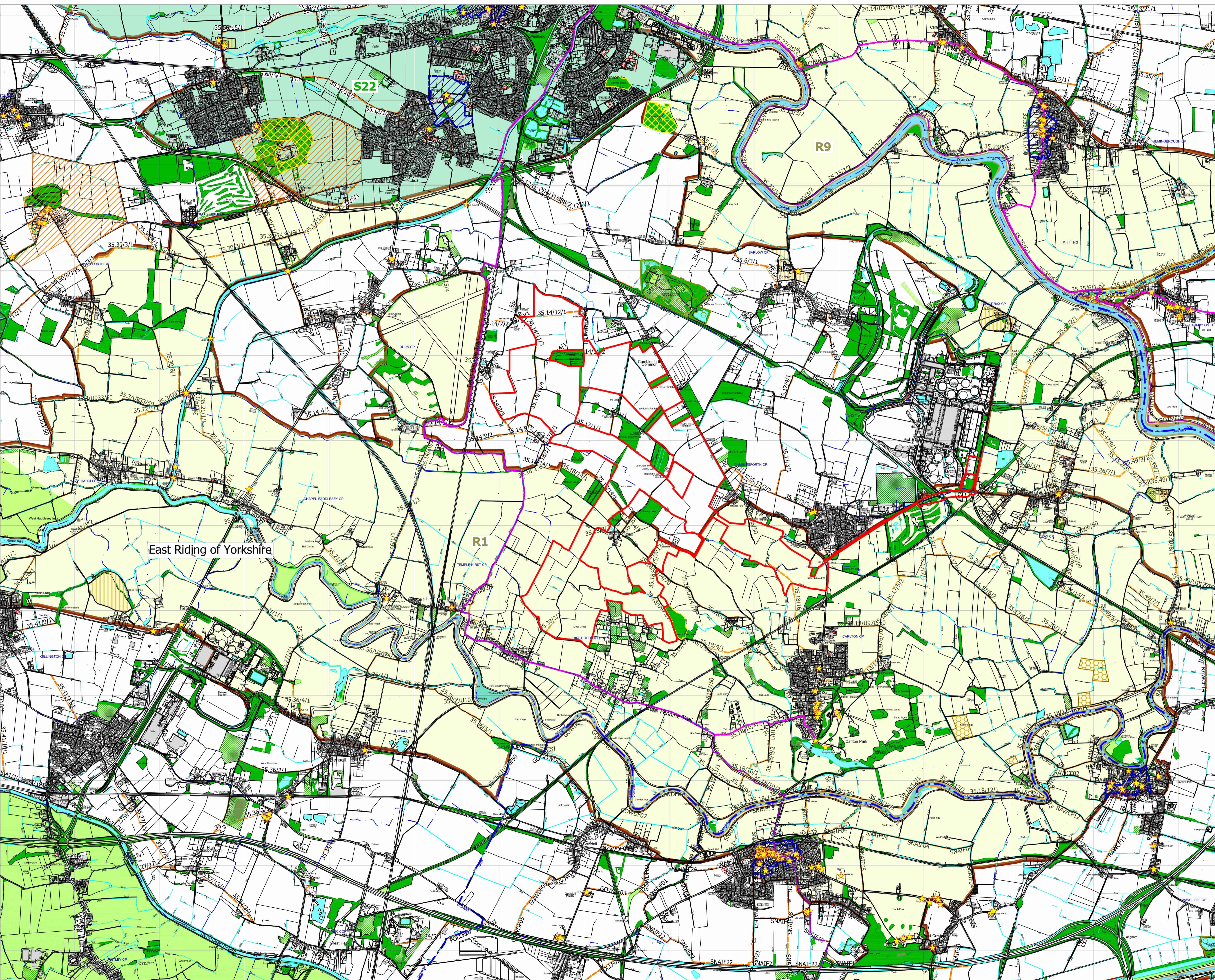
Additional Mitigation

- 7.3.4. No additional mitigation measures were considered beyond the management and maintenance of the proposed landscape planting once the Proposed Development is operational.

7.4. Residual Effects

- 7.4.1. Residual effects, being those that remain following the implementation of mitigation measures, for the construction and decommissioning phases of the Proposed Development range from moderate negative to no effects. These effects will be temporary, short-term and not significant.
- 7.4.2. Residual effects on landscape features during the Proposed Development's operational phase have been identified as moderate negative and positive following the maturation of planting, which will not be significant. There will be a moderate negative and moderate positive effect on landscape character and a moderate negative to neutral effect on visual receptors. None of these effects will be significant.

Figure 7.1 Designations in the Surrounding Area



- KEY**
- Site Boundary
 - Ancient Woodland #
 - Existing Woodlands, Copses and Tree Belts ^
 - Existing Scrub ^
 - Existing Water Courses and Features ^
 - Contours/Spot Heights (Metres AOD) ^
 - Public Rights of Way *
 - National Trails # / Long Distance Walks ^
 - Countryside Rights of Way Access Areas #
 - Sustrans Cycle Route +
 - Cycle Route ++
 - ★ Listed Buildings ~
 - Conservation Area #/##
 - Scheduled Monument ~
 - Green Belt ^^
 - Sites of Special Scientific Interest #
 - Local Nature Reserve #
 - Locally Important Landscape Area (Policy ENV15)
 - Strategic/Regional Green Infrastructure Corridor
 - Sub Regional Green Infrastructure Corridor



Project Title:
Helios Renewable Energy Project

Drawing Title:
Context and Designations Plan

DRWG No: Figure 7.2	Rev: 0	Sht no: -
Drawn by: JM	Checked by: JM	
Scale: 1:20,000 @ A1	Date: AUGUST 2023	

8. Biodiversity

8.1. Baseline

8.1.1. The dominant habitats on the Site are arable fields bound by hedgerows, drainage ditches, and tree lines. Scattered woodland parcels are situated within, and directly adjacent to, the Site. The baseline was established through a mixture of desktop study, site visits and species-specific surveys comprising:

- Breeding bird survey;
- Non-breeding bird survey;
- Badger survey;
- Water vole and otter survey;
- Great crested newt eDNA survey;
- Bat activity survey (seasonal); and
- Invertebrate walkover survey.

8.1.2. The Site is not located within any statutory designated sites for nature conservation. However, there are 10 international (including European) statutory designated sites within 10km of the Site, and three UK statutory designated sites located within a 5km radius of the Site boundary, the most important comprising: Barlow Common Local Nature Reserve; Eskamhorn Meadows Site of Special Scientific Interest ('SSSI'); River Derwent Special Area of Conservation ('SAC') and SSSI; Lower Derwent Valley SAC; Humber Estuary SAC; Thorne Moor SAC; Skipwith Common SAC; Thorne & Hatfield Moors Special Protection Area ('SPA'); Lower Derwent Valley SPA/Ramsar site; and Humber Estuary SPA/Ramsar site.

8.1.3. The Site is also not located within a non-statutory designated site for nature conservation. There are 15 non-statutory designated sites within 2km of the Site, the closest being Field near Primrose Hill, Cat Babbleton North Yorkshire Site of Importance for Nature Conservation ('SINC') and Sand Pitt Wood and Barffs Close Plantation North Yorkshire SINC, both located adjacent to the Site.

8.2. Assessment

- 8.2.1. This assessment has been undertaken with reference to applicable wildlife and countryside legislation, national and local planning policy, and the Chartered Institute of Ecology and Environmental Management ('CIEEM') (2018) guidelines. For the purposes of the ES Chapter, the CIEEM guidelines on ecological impact assessment have been aligned with the significance ratings as set out in Chapter 2 on this NTS, ranging from negligible to major effects. Moderate and major effects are considered significant. The significance of effects is also determined by the scale at which the effect is felt: local, regional, national and international.
- 8.2.2. The Proposed Development has been identified as having an operational lifespan of up to 40 years for the purpose of the assessment. Ecological effects will be described in terms of their duration as short, medium term and long-term as follows:
- Short term effects are defined as 0 - 3 years;
 - Medium term effects are defined as 3 - 15 years; and
 - Long term effects are defined as > 15 years.
- 8.2.3. During construction, the Proposed Development's effects on the non-statutory designated sites would be negligible. The direct effects on habitats on the Site and indirect effects to neighbouring habitats would be negligible-minor adverse. However, the overall impact on habitats would be major beneficial due to the delivery of measurable biodiversity net gains through habitat enhancement and provision. Effects on breeding bird species would be minor adverse. All of these effects are not significant, with the exception of the major beneficial effect to habitats, which is significant in EIA terms.
- 8.2.4. During the Proposed Development's operational phase, it is considered that with the delivery of new habitats of high ecological value, the delivery of enhancements to extant habitat, the management of habitat buffers, good practice measures, habitat connectivity with the non-designated statutory sites and habitats within the wider environment will create a larger, stronger, and more ecologically resilient natural corridors in the landscape compared to the current baseline, which comprises intensively managed farmland bordering the non-statutory sites. The effects on non-statutory designated sites would therefore be moderate beneficial, and the effects

on habitats would be major beneficial, both of which are considered significant in EIA terms.

- 8.2.5. During decommissioning, the Proposed Development's effects on non-statutory designated sites would be negligible and negligible-minor adverse on habitats are anticipated. The effects from the Proposed Development's decommissioning on breeding birds would be minor adverse. All of these effects are not significant in EIA terms.

8.3. Mitigation

Embedded Mitigation

- 8.3.1. The design of the Proposed Development includes a number of embedded mitigation measures to reduce potential effects on biodiversity. These include retaining hedgerows, ditches and woodlands, and focusing development on areas of lower ecological value. The implementation of buffer zones to sensitive or high value ecological features and habitat creation are also proposed.

Measures to be adopted by the Project

- 8.3.2. The assessment has also considered the oCEMP, which will include measures such as habitat protection buffers, species protection plans, managed lighting and noise/traffic, and a commitment to the implementation of an Ecological Clerk of Works⁵. The oCEMP will be secured as a requirement of the DCO.
- 8.3.3. Through the provision of biodiversity net gain and an Outline landscape environmental management plan ('oLEMP'), the Proposed Development will deliver enhancements to the habitats present on the Site.

Additional Mitigation

- 8.3.4. To avoid impacts on nesting birds during the Proposed Development's construction, vegetation will be removed outside of bird breeding season. If its removal is necessary during the breeding season, any suitable nesting habitat will be checked by an ecologist. A variety of artificial nesting features will be added to existing

⁵ An Ecological Clerk of Works oversees the management of the risks on construction sites associated with managing biodiversity to comply with relevant wildlife law and commitments secured in the consent for a development.

habitats (such as mature trees, hedgerows, woodland areas) to increase nesting opportunities. Mitigation for bats will be implemented to manage any temporary lighting, and the enhancement of bat habitats to improve foraging opportunities is also proposed. Roosting bat surveys of mature trees or buildings will be undertaken as required, and a minimum of 60 bat roost boxes on suitable matured and semi-mature trees will be put in place.

- 8.3.5. With regards to badgers, all solar PV panels will be raised off the ground and the perimeter fence will include suitable gaps or badger gates to allow free movement. Prior to the commencement of construction works, a badger survey will also be undertaken. Similarly, a water voles survey will also be carried out prior to the commencement of construction works, if required.
- 8.3.6. During the operational phase, long-term monitoring will be implemented to assess the success of mitigation and enhancement measures and if necessary, provide recommendations for remedial measures.
- 8.3.7. Prior to the decommissioning of the Proposed Development, updated surveys will be undertaken to identify potential effects and necessary mitigation measures in order to comply with planning policy and wildlife legislation.

8.4. Residual Effects

- 8.4.1. A significant major beneficial residual effect at the local level on habitats is anticipated during the Proposed Development's construction phase, due to the provision of extensive habitat creation and enhancement. A minor adverse effect on breeding birds is also expected.
- 8.4.2. During the Proposed Development's operational phase, a moderate beneficial residual effect at a county level has been identified on non-statutory designated sites and major beneficial effects on habitats at a local level are expected, through the implementation of habitat management practices which will improve habitat connectivity.
- 8.4.3. During decommissioning, the Proposed Development's residual effects have been identified as negligible to minor adverse, which are not significant in EIA terms.

9. Water Environment

9.1. Baseline

- 9.1.1. The 'water environment' refers to above ground features such as rivers, streams, ditches, lakes and ponds, as well as below ground features such as groundwater contained within rocks beneath the Site. The assessment of the water environment on the Site included consideration of the existing watercourses, risks of flooding and current drainage patterns. A review of the baseline conditions identified that the River Aire lies approximately 700m south of the Site and the River Ouse lies approximately 2.2km to the northeast of the Site. The River Aire is a tributary of the River Ouse downstream of the Site. A number of drainage ditches are located across the Site, which drain into the River Aire and River Ouse.
- 9.1.2. The southern, central and western areas of the Site fall within a groundwater Source Protection Zone (Zone III Total Catchment⁶). The majority of the northern part of the Site lies outside the designation, with a small area falling within Zone I Source Protection Zone⁷. The Site is identified as having a potential flood risk of high to very low for watercourses, surface water and groundwater, and low to very low for overwhelmed sewers and artificial sources.

9.2. Assessment

- 9.2.1. The Proposed Development has the potential to affect the water environment through changes in existing drainage patterns; the construction of new watercourse crossings and resultant elevated flood risk; and activities which could cause pollution and/or a degradation in water quality in watercourses, drainage ditches, groundwater or nearby sensitive ecological receptors.
- 9.2.2. During construction, the Proposed Development's effects relating to surface water runoff rates, and resultant flood risk is negligible to minor adverse; the effects relating to new watercourse crossings on flood risk would be negligible; effects on water

⁶ The area protected surrounding a potable water supply source within which all the groundwater ends up at the abstraction point (where water is removed from the ground).

⁷ The zone within which it would take 50 days for a pollutant spilled to groundwater to travel to the water source. This zone would have a default minimum radius of 50m.

quality to on-Site watercourses would be negligible; effects on nearby sensitive ecological receptors would be negligible; effects relating to contamination of the River Ouse and River Aire would be minor adverse to negligible; effects relating to contamination of the Humber Estuary would be minor adverse; and effects on water quality of groundwater would be major adverse to minor adverse.

9.2.3. During the operational phase, the Proposed Development's effects relating to surface water runoff rates, and resultant flood risk would be moderate to minor beneficial; the effects relating to new watercourse crossings on flood risk would be negligible; the effects on water quality on on-Site watercourses would be negligible; the effects relating to the contamination of the River Ouse, River Aire and Humber Estuary would be minor adverse to negligible; and the effects on water quality of groundwater would be minor adverse.

9.2.4. During the decommissioning, the effects relating to surface water runoff rates, and resultant flood risk would be minor adverse to negligible; the effects on water quality of on-Site watercourses would be negligible; the effects relating to the contamination of the River Ouse and River Aire would be minor adverse to negligible; the effects relating to the contamination of the Humber Estuary would be minor adverse; and effects on the water quality of groundwater would be minor to moderate adverse, which is considered significant but would be temporary and reversible with time.

9.3. Mitigation

Embedded Mitigation

9.3.1. The Proposed Development's layout has been subject to a sequential approach to ensure any sensitive equipment is located in the areas of lowest flood risk. The Proposed Development will not impact the overall existing drainage characteristics of the Site. However, the Proposed Development's design will include the provision of swales to encourage loss by infiltration.

Measures to be adopted by the Project

9.3.2. During the Proposed Development's construction, operational and decommissioning phases, if a flood alert is issued by the Environment Agency, contractors and operating staff would evacuate the Site. Maintenance visits will be scheduled for periods outside of elevated flood risk. Vegetation across the Site will be maintained

in line with the LEMP to reduce soil erosion and overland flow.

- 9.3.3. During construction, the CEMP will be implemented which will outline best practice site management and implement principles of pollution prevention, construction activities will be schedule to avoid periods of elevated flood risk and use of temporary drainage if required.
- 9.3.4. A DEMP containing an enhanced monitoring schedule and pollution control measures to safeguard groundwater quality covering the decommissioning phase will be secured by a suitably worded DCO requirement, requiring details to be submitted to and approved by NYC.

Additional Mitigation

- 9.3.5. During construction and decommissioning, on-Site watercourses and groundwater will be monitored regularly to ensure there is no deterioration of water quality. The design of the Proposed Development's equipment and any floodplain compensation will be finalised in the ES, following the results of site-specific flood modelling.

9.4. Residual Effects

- 9.4.1. Following additional mitigation measures and those adopted by the project, the Proposed Development's residual effects on the water environment during construction and decommissioning would be minor adverse to negligible. During the Proposed Development's operational phase, residual effects would be moderate beneficial to negligible.

10. Transport and Access

10.1. Baseline

10.1.1. The Site is located in proximity to the A1041, Hirst Road, and the East Coast Main Railway Line. The Site contains several unclassified roads, which are primarily used for the movement of agricultural vehicles. In addition, numerous PRoW cross the Site or are in close proximity. It is anticipated that construction vehicles will access the Site via the M62, A614, A645, A1041 Bawtry Road and then onto the Site by one of the two site entrances.

10.2. Assessment

10.2.1. During construction, the Proposed Development's effects relating to accidents and safety, severance, driver delay, pedestrian delay (including cyclists and equestrians), and hazardous loads would be negligible, and pedestrian amenity (including fear and intimidation and including cyclists and equestrians) would be minor adverse. None of these effects are considered significant in EIA terms. The effects for the Proposed Development's decommissioning phase are considered to be the same as those assessed in the construction phase.

10.2.2. During the operational phase, traffic movements are anticipated to be around five visits to the Site per month for maintenance purposes. As such, all effects are assessed as being negligible, and not significant in EIA terms.

10.3. Mitigation

Embedded Mitigation

10.3.1. Throughout the lifespan of the project (including construction and decommissioning), access to the existing PRoWs on the Site will be maintained, with no diversion or closures.

10.3.2. Access/ egress points and on-Site tracks will be provided for vehicles during the construction, operational and decommissioning phases of the Proposed Development.

10.3.3. During the operational phase, planting and landscaping will be provided to conceal

any reflections from the solar PV panels which could affect drivers on nearby roads.

Measures to be adopted by the Project

- 10.3.4. An oCTMP will be prepared and submitted alongside the DCO application. The CTMP will provide a framework for the management of construction vehicle movements. Similarly, during decommissioning, a Decommissioning Traffic Management Plan ('DTMP') will be agreed with NYC prior to the commencement of the decommissioning phase of the Proposed Development, which will be secured through a DCO requirement. This will follow the principles of the oCTMP.

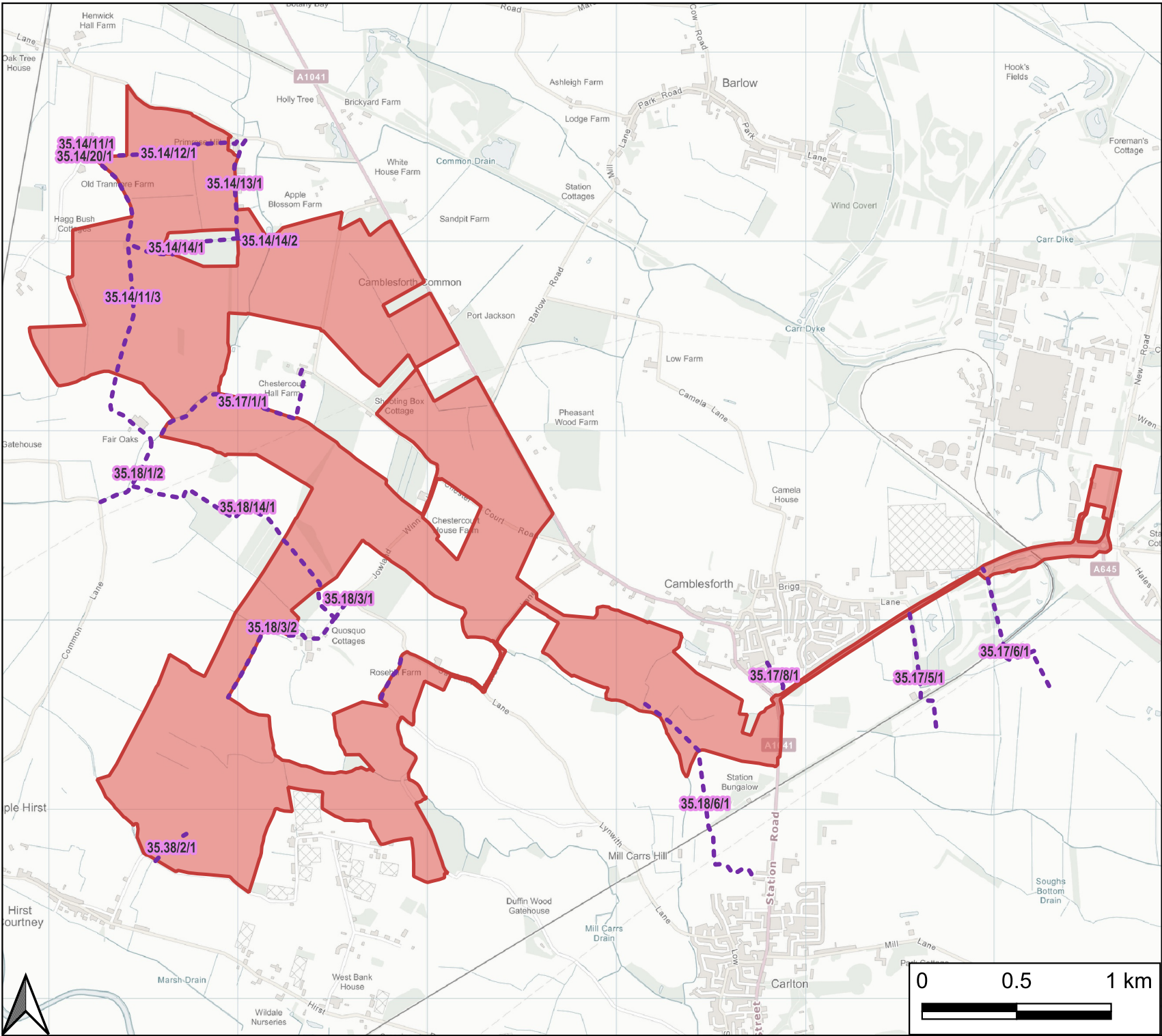
Additional Mitigation

- 10.3.5. No additional mitigation measures are required during the construction, operational and decommissioning phases.

10.4. Residual Effects

- 10.4.1. Residual effects on transport and access during the Proposed Development's operational phase would be negligible. During the construction and decommissioning phase, all effects on transport and access would be negligible except for a minor adverse effect on pedestrian amenity (including fear and intimidation, including on cyclists and equestrians). All residual effects on transport and access are not significant in EIA terms.

Figure 10.1 Public Rights of Way



- Key**
- Site Boundary
 - Public Rights of Way



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Public Rights of Way		
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Figure 10.3	-	-
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Scale	Date	
NTS	22/08/2023	



11. Noise

11.1. Baseline

11.1.1. The existing noise on the Site is dominated by local road and rail traffic movements. The baseline noise levels were established by noise surveys undertaken at a number of locations across the Site, which were agreed with Selby District Council's (now NYC) Environmental Health Department and are considered to be representative of the noise conditions at the Site. To determine the likely significant noise effects of the Proposed Development, receptors sensitive to noise were investigated. The baseline assessment identified 46 noise sensitive receptors ('NSR') within 400m of the Site boundary and these included residential properties associated with Temple Hirst, Hirst Courtney, Camblesforth, Drax and the surrounding local roads which will experience an uplift in traffic flow during the Proposed Development's construction and decommissioning phases (see Figure 11.1).

11.2. Assessment

11.2.1. The Noise ES chapter assessed the potential effects of the Proposed Development as follows:

- Noise and vibration during the construction and decommissioning phases due to construction and decommissioning activities and the operation of machinery;
- Road traffic noise during the construction and decommissioning phases;
- Noise during the operational phase of the Proposed Development.

11.2.2. Operational vibration has been scoped out of the assessment and is therefore not considered further.

11.2.3. Predictions of specific noise levels were made using computer noise modelling. The modelling has been based on the construction activities and programme set out in the *Construction and Decommissioning Methodology and Phasing* section of this NTS and assumed typical noise levels from plant and machinery likely to be used during the construction, operation and decommissioning of the Proposed Development.

11.2.4. Construction and decommissioning sound and vibration effects on the NSRs have

been identified as negligible (not significant) and construction and decommissioning traffic noise would be minor adverse to negligible (not significant). Operational effects from plant / machinery noise during daytime and night-time have been identified as negligible (not significant) during the daytime and night-time periods, prior to the implementation of additional mitigation measures.

11.3. Mitigation

Embedded Mitigation

- 11.3.1. The Proposed Development has been designed to ensure that all noise generating plant is optimally located and distributed throughout the Site to minimise impacts on sensitive receptors and plant specification will be adopted as design targets to further minimise impacts.

Measures to be adopted by the Project

- 11.3.2. The CEMP to be secured as part of the DCO application will ensure the works are carried out in accordance with Best Practicable Means⁸.

Additional Mitigation

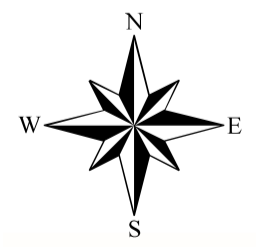
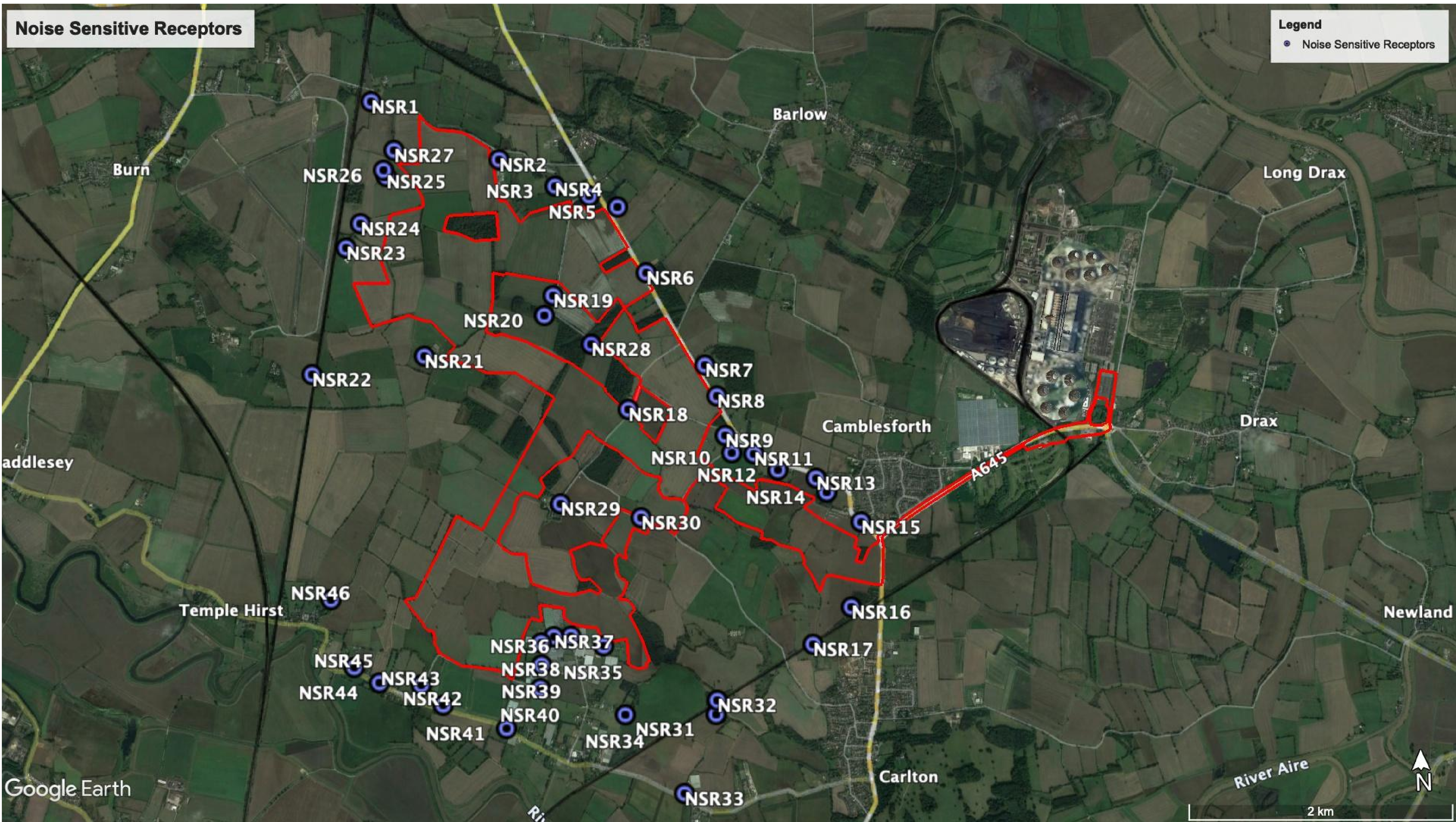
- 11.3.3. No additional mitigation measures are required during the Proposed Development's construction, operational and decommissioning phases.

11.4. Residual Effects

- 11.4.1. The Proposed Development's residual effects relating to the construction, operational and decommissioning phases will not exceed minor adverse, which is considered not significant in EIA terms.

⁸ Best Practicable Means refers to the measures put in place to reduce the risk of noise disturbance from a development on local noise sensitive receptors. These measures include the selection of the quietest techniques and equipment, in addition to considering factors such as timing, duration, location and opportunities for acoustic screening or separation, to ensure that impacts are controlled in so far as is reasonably practicable.

Figure 11.1 Noise Sensitive Receptors



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Helios Renewable Energy Project		
Drawing Title		
Noise Sensitive Receptors		
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Figure 11.3	.	.
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JM	NM	
Scale	Date	
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12. Climate Change

12.1. Baseline

12.1.1. 'Climate' is generally understood to mean the weather conditions prevailing over a long period of time, and climate change refers to changes in recorded long-term climate trends. The two main approaches that can be taken to determine a project's climate change impact within EIA, and those covered in this assessment, involve identifying:

- The direct and indirect influence of the Proposed Development on climate change (climate change mitigation); and
- The vulnerability of the Proposed Development to climate change (climate change adaptation/ resilience).

12.1.2. Regionally, the climate is warm and temperate, with significant rainfall all year round. Within the local area, annual average rainfall is 646.93mm, with the driest month being March. The average annual maximum temperature is 13.67°C. July is the warmest month with an average of 21.11°C and December is the coldest month with temperatures averaging 0.17°C.

12.1.3. In Selby District, carbon emissions have declined steadily in the period between 2005 and 2021. There is a downward trend in the contribution from each of the four main sources of emissions⁹, with the greatest percentage decrease in commercial emissions at 80.6% over the 16 year period. Per capita emissions have declined from 18.2 tonnes of carbon dioxide ('CO₂') in 2005 to 11.6 tonnes of CO₂ in 2021.

12.2. Assessment

12.2.1. Carbon emissions arising from construction phase vehicle emissions are assessed as resulting in a minor adverse effect locally, prior to the implementation of mitigation measures. This is considered to be not significant in EIA terms.

12.2.2. The generation of electricity from the Proposed Development will displace generation of fossil fuel electricity generation. A carbon saving of approximately 36,558 tonnes

⁹ Industry, Commercial, Domestic, and Transport.

of carbon dioxide equivalent ('tCO₂e')¹⁰ per year is predicted, which is a total saving of 1,462,334 tCO₂e over the Proposed Development's lifespan. This is considered to be in keeping with the trajectory to net zero by 2050, resulting in a major beneficial (significant) at the local level and a minor beneficial effect at the national level.

- 12.2.3. Anticipated effects from climate change adaptation, in relation to infrastructure, are negligible to moderate beneficial (not significant to significant). The anticipated effects of climate change on future site users have been assessed as negligible (not significant), and effects on the natural environment (ecology, landscape and planting) are considered to be negligible to moderate adverse (not significant to significant). Effects on climate change on flood risk are assessed as negligible to moderate beneficial (not significant to significant).

12.3. Mitigation

Embedded Mitigation

- 12.3.1. The assessment of climate change resilience to climate changes and hazards has accounted for several embedded mitigation measures these include the retention of habitats, ecological buffer zones being implemented, location of plant and equipment in areas of very low surface water flood risk, flood resilient design and landscaping and planting of the Site.

Measures to be adopted by the Project

- 12.3.2. An oCEMP and oCTMP will be submitted alongside the DCO application. With respect to minimising the number of vehicle movements and subsequent emissions, the CTMP will provide for measures to reduce the number of traffic movements involved in the delivery of materials to the Site, as well as ways to promote the most sustainable methods of construction workers to get to the Site.
- 12.3.3. During the operational phase of the Proposed Development, the design specifications for the infrastructure (solar PV panels, substation etc.) will be confirmed through DCO requirements. The management of the Proposed Development will be undertaken in accordance with the LEMP which will secure the

¹⁰ Carbon dioxide equivalent or 'CO₂e' means the number of metric tons of carbon dioxide emissions with the same global warming potential as one metric ton of another greenhouse gas.

long-term planting on the Site. The LEMP secured through a DCO requirement.

- 12.3.4. A BESS Safety Management Plan, will also be implemented to manage the potential risk to the operation of the BESS posed by extreme heat.

Additional Mitigation

- 12.3.5. On-Site users will adhere to appropriate health and safety measures and visits can be schedules outside of periods of climatic extremes, such as heatwaves or elevated flood risk. Regarding flood risk, swales will be located at low points across the Site to intercept extreme surface water flow and encourage infiltration and the site-specific flood modelling will be assessed in the ES to inform the design of the Proposed Development's equipment on the Site.

12.4. Residual Effects

- 12.4.1. During the Proposed Development's construction phase, no significant adverse residual effects are expected.
- 12.4.2. With respect to climate resilience during the operational phase, no significant adverse residual effects are expected. Significant beneficial residual effects are anticipated on climate change resilience of infrastructure in relation to flood risk and drainage and with respect to the offset of carbon emissions from renewable energy generation. These residual effects are considered significant in EIA terms.

13. Socio-Economics

13.1. Baseline

- 13.1.1. Socio-economic conditions in this PEIR refer to the Proposed Development's contribution to the local economy through factors such as job creation and spending at local shops, as well as addressing effects on existing residential properties in the area, local amenity, tourism and recreational facilities.
- 13.1.2. Two areas have been defined for this assessment (see Figure 13.1). The Local Area has been defined as the three electoral wards comprising Camblesforth and Carlton; Brayton and Barlow; and Thorpe Willoughby and Hambleton, as these encompass the main settlements within closest proximity to the Site. The Wider Area comprises the whole of the Yorkshire and Humber region. The Local Area has a population of circa 8,361, with an older age profile and lower percentage (59% compared to 62%) than the Wider Area. The percentage of those considered economically active is 61% in the Local Area, higher than the Wider Area (59%) and equal to the national average. In regard to occupation, residents of the Local Area tend to be employed in jobs identified as more skilled than compared to those of the Wider Area, as well as the national average.

13.2. Assessment

- 13.2.1. The construction phase of the Proposed Development will support up to 200 direct jobs and a further 80 indirect jobs could be supported through the supply chain (a negligible effect, which not significant). An economic contribution of £3.6m in the Wider Area during the Proposed Development's 12-month construction phase is anticipated (a negligible effect, which is not significant). Workforce expenditure (i.e. the money the construction workforce will spend in the wider and local area) will result in a minor beneficial effect, which is not significant. Effects on local amenity (consisting of accommodation, food services, noise and transport) are anticipated to result in a negligible to minor adverse effect, which is not significant. The Proposed Development's decommissioning phase will generate similar effects to the construction phase.
- 13.2.2. During the operational phase of the Proposed Development, the effects of its contribution towards renewable energy generation has been identified as moderate

beneficial, which is significant in EIA terms. Similar to the construction and decommissioning phases, a negligible effect (not significant) has been identified on local amenity.

13.3. Mitigation

Embedded Mitigation

- 13.3.1. Planting of the landscaping at the Site and its ongoing maintenance to mitigate visual impacts on local amenity is proposed. The Proposed Development will maintain and improve the local PRow network in and around the Site.

Measures to be adopted by the Project

- 13.3.2. For the Proposed Development's construction and decommissioning phases, the measures set out in the CTMP and CEMP would be adhered to. For the operational phase, a LEMP would be implemented to manage the growth of planting proposals.

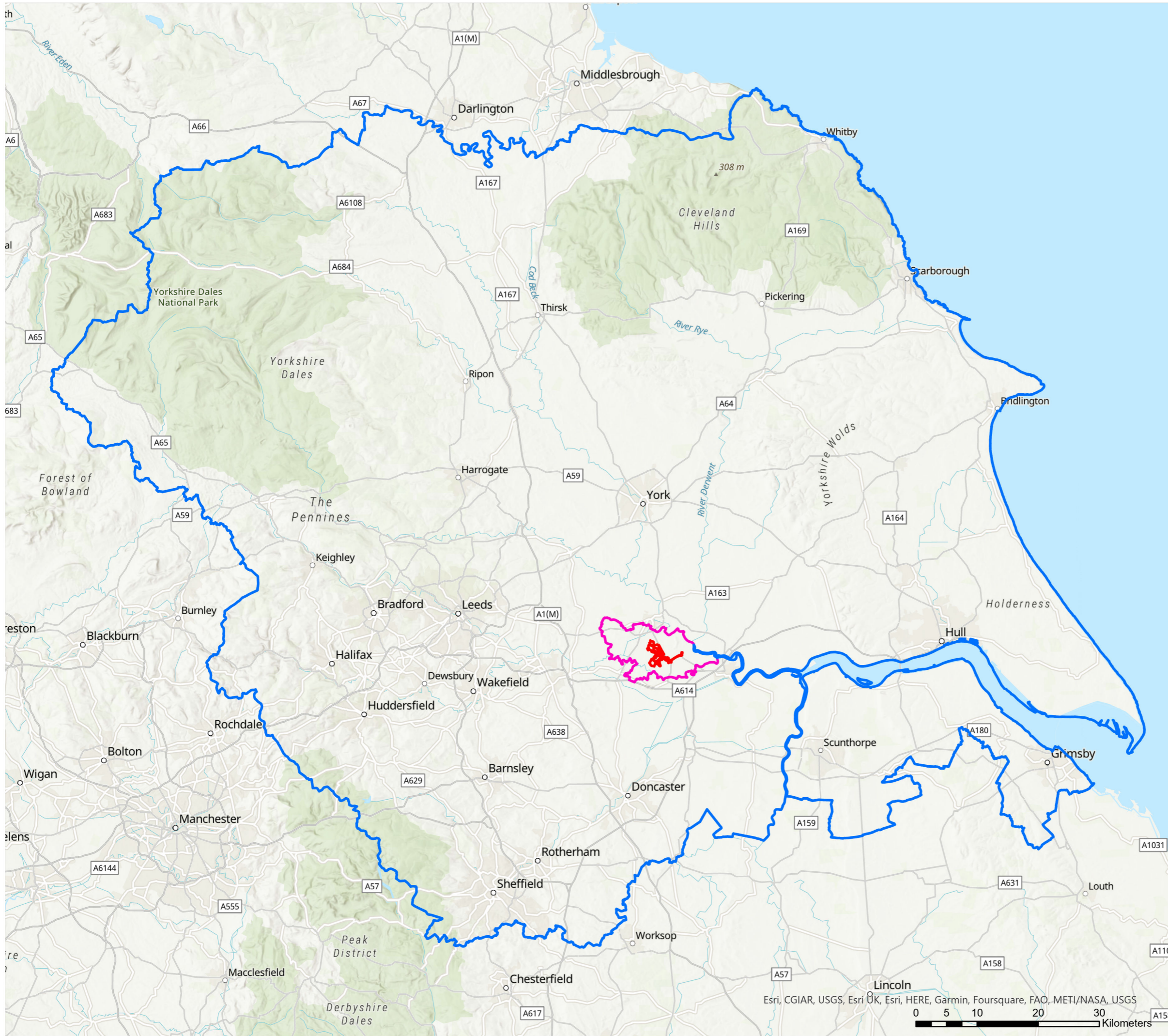
Additional Mitigation

- 13.3.3. No additional mitigation measures have been identified.

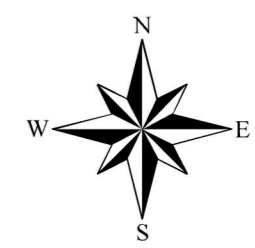
13.4. Residual Effects

- 13.4.1. There is not expected to be any significant residual effects during the construction and decommissioning phases of the Proposed Development.
- 13.4.2. A major beneficial residual effect, which is significant in EIA terms, has been identified for the contribution of the Proposed Development towards renewable energy generation. All other residual effects during the operational phase are not significant.

Figure 13.1 Wider and Local Study Areas



- Key**
- Site Boundary
 - Local Study Area
 - Wider Study Area



Project Title		
Helios Renewable Energy Project		
Drawing Title		
Figure 13.1: Local and Wider Study Area		
DRWG No	Rev	Sht no
333133627	A	1
Drawn by	Checked by	
AW	DM	
Scale	Date	
1:600,000 @ A3	24/08/2023	

14. Soils and Agricultural Land

14.1. Baseline

- 14.1.1. Desktop research identified that the Site is of Grade 2 "very good" agricultural land quality, with much of the wider area in the vicinity of the Site similarly shown to be of Grade 2. In addition, the desktop research identified the Site as having a high likelihood of comprising best and most versatile ('BMV') agricultural land¹¹.
- 14.1.2. A detailed survey has been undertaken on the Site which identified that it generally comprises sandy soils with sandy subsoils, with agricultural land quality varying between Grades 1 "excellent" and 2 in the southern areas to Subgrade 3a "good to moderate" in the northern areas. There are five farm businesses that farm the land within the Site, which generally farm arable crops.

14.2. Assessment

- 14.2.1. The construction of the Proposed Development would result in potential effects relating to the solar PV arrays, tracks, fixed equipment, fencing, cabling, substation and landscaping. Overall, the installation of the solar PV arrays and cabling would result in a negligible (not significant) effect on soils, and the installation of fixed equipment would result in the disturbance of BMV land. However, given that this agricultural land would be capable of restoration at the decommissioning phase, it would not be 'lost' and overall, the effect would be moderate adverse (not significant).
- 14.2.2. The operational phase of the Proposed Development would result in no effects on agricultural land quality, moderate beneficial (not significant) effects on soils, moderate or minor adverse (not significant) effects on farm business and neutral (not significant) effects on food production.
- 14.2.3. The decommissioning of the Proposed Development can be timed to be carried out when soil conditions are suitable and avoid any adverse agricultural effects and the land would become available for agricultural use therefore decommissioning effects would be neutral (not significant).

¹¹ This is classified as agricultural land that comprises Agricultural Land Classification Grades 1, 2 and 3a.

14.3. Mitigation

Measures to be adopted by the Project

- 14.3.1. An Outline Soil Management Plan has been prepared for the Site, which outlines the appropriate mitigation measures which will be implemented in order to reduce potential impacts to soils being handled or transported.

Additional Mitigation

- 14.3.2. No additional mitigation has been considered.

14.4. Residual Effects

- 14.4.1. Following the implementation of the mitigation, residual effects during the construction phase are identified as negligible to moderate adverse, which are not considered significant in EIA terms. Similarly, the decommissioning phase would not result in any significant effects.
- 14.4.2. During the operational phase, the Proposed Development would result in no significant adverse effects on agricultural land quality or farm business, a moderate beneficial (not significant) effects on soils and neutral (not significant) effects on the change in land use from arable to grassland.

15. Cumulative Effects

15.1. Introduction

15.1.1. The PEIR has also considered the potential for likely significant cumulative effects on the environment. Cumulative effects are those which may result from the Proposed Development in combination with other existing and/ or approved developments in the area.

15.2. Intra-Project Effects

15.2.1. During the construction and decommissioning phases of the Proposed Development, users of 'PRoWs within the Site and its vicinity have the potential to experience a combined effect of noise disturbance and the visual effect of construction and decommissioning activities; however, any adverse effects would be short term, temporary and not significant. There is also the potential for soils and agricultural land and water environment (contamination) intra-project effects, in relation to soil quality and structure and its trafficking via construction vehicle however, with the implementation of mitigation, these effects would not be significant.

15.2.2. Similarly to the construction and decommissioning phases, the operational phase of the Proposed Development has the potential to result in a combined effect of noise disturbance (from plant) and visual impacts on users of PRoWs within the Site and its vicinity, as well from glint and glare. However, with the landscape planting proposals in place, and the noise mitigation incorporated into the Proposed Development's design, significant intra-project effects are not anticipated.

15.3. Inter-Project Effects

15.3.1. An EIA must assess the likely significant effects of a development that may arise cumulatively when combined with other relevant development in the area. The table below details the 14 projects that have been identified for the assessment of likely significant cumulative effects on the environmental for the purposes of the PEIR. The information contained within Table 15.1 is based upon information available on Selby District Council's website.

15.3.2. The significant residual cumulative effects identified in the assessment are set out

below.

Table 15.1: Cumulative Schemes

Scheme Address and Reference Number	Description	Status	Distance and Direction from the Site
<p>Land South of A645, Wade House Lane, Drax</p> <p>(Ref: 2023/0128/EIA)</p>	<p>Development of a ground-mounted solar farm including associated infrastructure.</p>	<p>Awaiting decision (validated in February 2023).</p>	<p>Application's site boundary overlaps with the Proposed Development's underground cable corridor to the grid connection.</p>
<p>East Yorkshire Solar Farm</p> <p>(PINS Ref: EN010143)</p>	<p>The installation of solar photovoltaic generating panels, associated electrical equipment, cabling and on-site energy storage facilities together with grid connection infrastructure. The point of connection will be at Drax Substation, situated approximately 6.2km to the south-west of the PV site. The generating capacity of the Scheme will exceed 50MW and its maximum capacity is anticipated to be</p>	<p>Application for Development Consent at Pre-Examination stage.</p>	<p>Application's grid connection corridor boundary immediately to the east of the Proposed</p>

Table 15.1: Cumulative Schemes

Scheme Address and Reference Number	Description	Status	Distance and Direction from the Site
	400MW.		Development's underground cable corridor to the grid connection.
<p>Drax Bioenergy with Carbon Capture and Storage Project NSIP</p> <p>(PINS Ref: EN010120)</p>	<ul style="list-style-type: none"> • Carbon capture infrastructure at the Drax Power Station; • Compression and treatment of carbon dioxide at the Drax Power Station to allow connection to a National Grid carbon dioxide transport system; • Potential Upgraded Drax Jetty and Road Improvements to facilitate the transport of abnormal indivisible loads; and • Potential Environmental Mitigation Area to the north of the Drax Power Station. 	<p>Application for Development Consent at Examination stage.</p>	<p>Adjacent to the eastern part of the Site boundary.</p>

Table 15.1: Cumulative Schemes

Scheme Address and Reference Number	Description	Status	Distance and Direction from the Site
Land Off New Road, Drax (Ref: 2020/1357/FULM)	Development of an energy storage facility including battery storage containers; substations; power conversion systems; transformers and associated switchgear; HVAC equipment; communications and grid compliance equipment; temporary construction compound; CCTV; fencing; infrared lighting; access, drainage and landscaping works and associated development.	Consented in May 2021. Not yet under construction.	Adjacent to the eastern part of the Site boundary.
Land Off Hales Lane, Drax (Ref: 2021/1089/FULM)	Development of a battery storage facility, associated infrastructure, access and grid connection.	Consented in May 2022. Not yet under construction.	Adjacent to the eastern part of the Site boundary.
Land North and South of Camela Lane, Camblesforth	Development of a ground mounted solar farm including associated infrastructure.	Consented in July 2022. Not yet under construction.	Adjacent to the eastern part of the Site boundary.

Table 15.1: Cumulative Schemes

Scheme Address and Reference Number	Description	Status	Distance and Direction from the Site
(Ref: 2021/0788/EIA)			
Drax Power Station, Drax (Ref: 2022/0107/NYSCO)	Recovery of ash resource from Barlow Ash Mound, North West of Drax Power Station.	Request for EIA Scoping Opinion submitted. Planning application not yet submitted.	Adjacent to the eastern part of the Site boundary.
Land to the East of New Road, Drax (Ref: 2022/0711/EIA)	Hybrid Planning Application comprising two parts: (i) outline planning application (all matters reserved) for the construction of a converter station at Drax, Selby; and (ii) full planning application for the installation of high voltage direct current underground cables from the River Ouse to the converter station and high voltage alternating current underground cables from the converter station to the existing Drax Substation,	Awaiting decision (validated in August 2022).	Approximately 150m to the north of the Site boundary, at its closest point.

Table 15.1: Cumulative Schemes

Scheme Address and Reference Number	Description	Status	Distance and Direction from the Site
	<p>as well as all associated temporary works including compounds, accesses and bellmouths as part of the construction of Scotland-England Green Link 2 (SEGL2), a two gigawatt reinforcement of the electricity transmission system between Peterhead, Scotland and Drax, England.</p> <p>[Installation of underground high voltage direct current cables from Mean Low Water Springs at Fraisthorpe, East Riding to the River Ouse and associated temporary works relating to land in an adjoining authority].</p>		
<p>Land Adjacent to Barlow Common Road, Barlow, Selby</p> <p>(Ref: 2022/0287/SCN)</p>	<p>EIA Screening Opinion request for a 50MW BESS on land off Barlow Common Road.</p>	<p>EIA Screening stage – EIA not required (April 2022)</p> <p>Application not yet submitted.</p>	<p>Approximately 875m to the north of the Site boundary.</p>

Table 15.1: Cumulative Schemes

Scheme Address and Reference Number	Description	Status	Distance and Direction from the Site
<p>Newlands Farm, Turnham Lane, Cliffe, Selby</p> <p>(Ref: 2021/0348/SCN)</p>	<p>EIA Screening Opinion request for five wind turbines.</p>	<p>EIA Screening stage – EIA required (June 2021).</p> <p>Application not yet submitted.</p>	<p>Approximately 2.5km to the north of the Site boundary.</p>
<p>Eggborough Power Station, Selby Road, Eggborough</p> <p>(Ref: 2019/1343/EIA)</p>	<p>Hybrid application for demolition of part of the former power station and ancillary buildings and its redevelopment, comprising:</p> <p>(i) access into the site, internal roads, employment units, car parking, drainage infrastructure and landscaping; and</p> <p>(ii) outline for the scale of redevelopment of the remainder of the site for employment floorspace, proposed buildings with ridge being between 9.5 metres and 24.5 metres, car parking, drainage</p>	<p>Consented in October 2020.</p> <p>Under construction.</p>	<p>Approximately 2.9km to the west of the Site boundary.</p>

Table 15.1: Cumulative Schemes

Scheme Address and Reference Number	Description	Status	Distance and Direction from the Site
	infrastructure and strategic landscaping.		
Land near Osgodby Grange, South Duffield Road, Osgodby, Selby (Ref: 2021/0978/FULM)	Installation of renewable energy generating station comprising ground mounted PV solar arrays together with substation, transformer stations, site accesses, internal access tracks, security measures, access gates, other ancillary infrastructure and landscaping and biodiversity enhancements	Consented in July 2022. Not yet under construction.	Approximately 7km to the north east of the Site boundary.
Former Kellingley Colliery, Turvers Lane, Kellingley, Knottingley (Ref: 2016/1343/OUTM)	Outline application including means of access (all other matters reserved) for the construction of an employment park up to 1.45 million square feet ('sq ft') (135,500 square metres) gross internal area of floorspace, comprising B2, B8 and ancillary B1 uses, ancillary non-residential institution (Use Class D1) and retail uses (Use Classes A1 – A5) and related ancillary infrastructure.	Consented in February 2019. Under construction.	Approximately 10km to the west of the Site boundary.

Table 15.1: Cumulative Schemes

Scheme Address and Reference Number	Description	Status	Distance and Direction from the Site
Bradholme Farm, High Levels Bank, Thorne, Doncaster (Ref: 21/00500/OUTA)	Outline planning application for the demolition of an existing bungalow and associated buildings/ structures and all hardstanding and erection of up to 2,900,000 sq ft of employment space (Class E(g), B2 and B8 uses) with all matters reserved apart from access.	Awaiting decision.	Approximately 10km south east of the Site boundary.

15.3.3. The significant residual cumulative effects identified in the assessment are set out below.

- As identified in Chapter 12 Climate Change, a moderate beneficial (significant) effect is identified at the local level to a reduction in carbon emissions associated with the cumulative operation of several schemes related to the generation or storage of renewable energy; and
- As identified in Chapter 8 Biodiversity, the solar developments identified from the list of cumulative developments for assessment make clear commitments to achieve measurable biodiversity gains; therefore, a major beneficial (significant) cumulative effect to habitats has been identified at the local level.

16. Summary and Conclusions

16.1.1. The full results of the Proposed Development's significant residual effects will be determined following assessments to be undertaken as part of the ES to be submitted in support of the DCO application.

16.1.2. However, at this stage, the Proposed Development is expected to result in the following significant beneficial effects:

Construction Phase

- Effects on habitats (major beneficial).

Operational Phase

- Effects on non-statutory designated sites (moderate beneficial);
- Effects on habitats (major beneficial);
- The Proposed Development will result in the offset of carbon emissions through the generation of renewable electricity at a local level (major beneficial);
- The Proposed Development will have a moderate beneficial effect on renewable energy generation in the Yorkshire and Humber region during the operational phase;
- Flood mitigation embedded into the scheme will improve infrastructure resilience to flood risk, from surface water and the drainage regime, resulting in a significant (moderate) beneficial effect; and
- The Proposed Development will result in reduced flood risk generally, resulting in a significant (moderate) beneficial effect.

Decommissioning Phase

- There are no significant beneficial effects anticipated during decommissioning.

16.1.3. The Proposed Development is not expected to result in any significant adverse effects during its construction, operational and decommissioning phases.