Steeple Renewable Project

Non Technical Summary

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CONTENTS

1. INTRODUCTION

This document provides a Non-Technical Summary (NTS) of the of the Environmental Statement (ES), prepared on behalf of Steeple Solar Farm Limited (the "Applicant") and forms part of a suite of documents supporting an application under the Planning Act 2008 to the Secretary of State (SoS) for the Department for Energy Security and Net Zero (DESNZ) for a Development Consent Order (DCO) for the Steeple Renewables Project, (hereafter referred to as "the Proposed Development").

The Environmental Impact Assessment (EIA) presents the findings of the development proposal for the construction, operation, and decommissioning of a ground mounted solar photovoltaic (PV) electricity generation station with a capacity of over 50 Megawatts (MW) and associated development comprising of energy storage and grid connection infrastructure on land at Sturton le Steeple (hereafter referred to as "the Site"). The EIA is produced in accordance with the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (hereafter referred to as "the EIA Regulations") and the Planning Act 2008.

By virtue of its potential generating capacity, which stands at over 50MW, and as an onshore generating station in England, which does not generate electricity from wind, the Proposed Development constitutes a Nationally Significant Infrastructure Project (NSIP). Therefore, instead of applying to the local authority for planning permission, the application must be made to the Planning Inspectorate that will appoint an Examining Authority to examine the application and make a recommendation on the same to the SoS of DESNZ, who will then determine the application.

The Proposed Development is located in the county of Nottinghamshire, within the administrative area of Bassetlaw District Council (BDC), on an area of agricultural land approximately 5km to the south of Gainsborough and includes part of the existing West Burton Power Station site. The land within the Order limits (boundaries of the land area within the Proposed Development) that forms the subject of the ES, extends to approximately 888.3ha. The Order limits is shown on **Figure 1**.

THE APPLICANT

The Applicant, Steeple Solar Farm Limited is a wholly owned subsidiary of Renewable Energy Systems (RES) Limited, formed to create and develop the Proposed Development.

RES Limited is the world's largest independent renewable energy company, working across 24 countries and active in wind, solar, energy storage, green hydrogen, transmission and distribution. As an industry innovator for over 40 years, RES has delivered more than 28GW of renewable energy projects across the globe and supports an operational asset portfolio exceeding 43GW worldwide for a large client base.

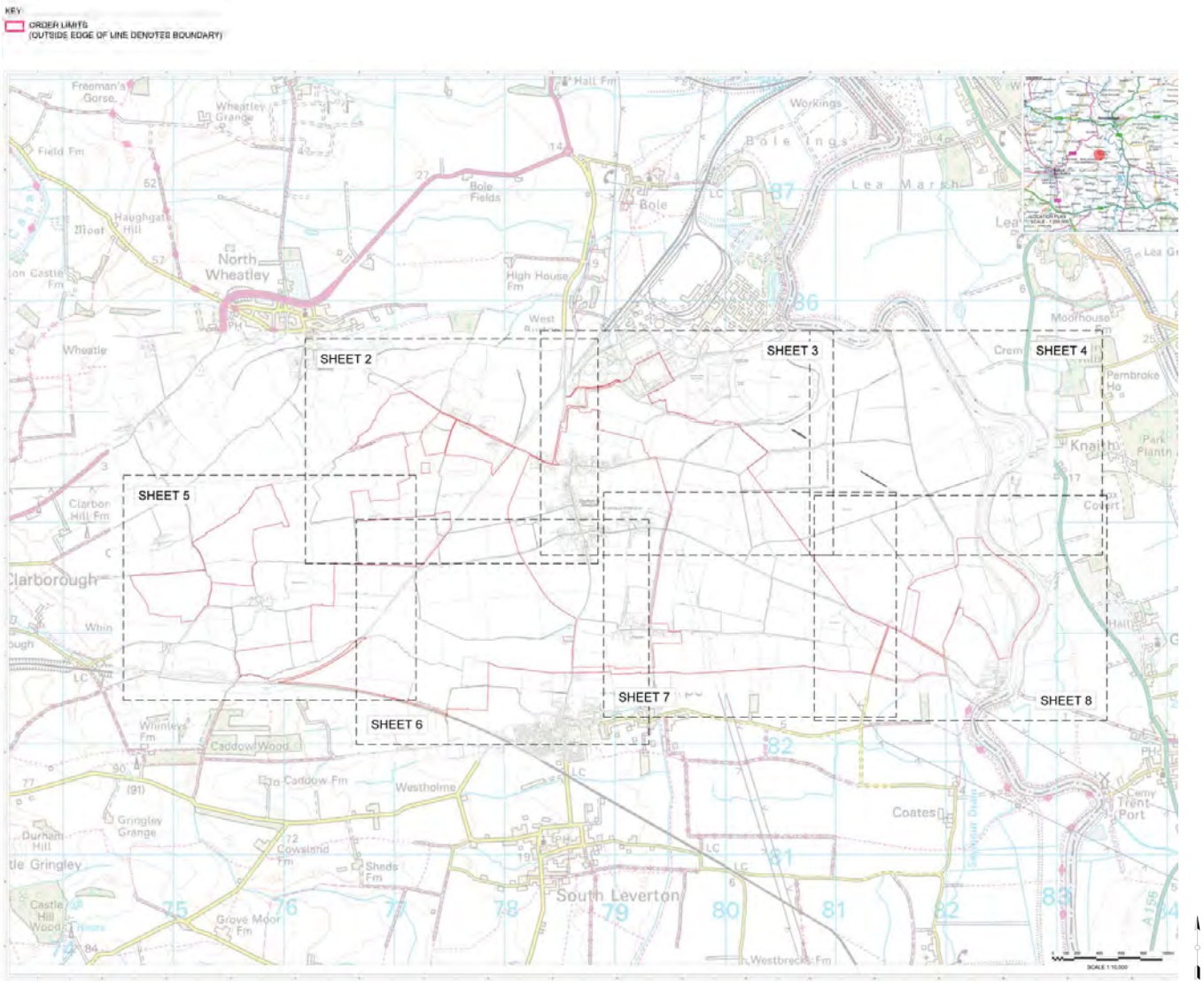

FIGURE 1: SITE LOCATION PLAN (TO SEE FIGURE 1 IN MORE DETAIL SEE APPENDIX)

2. EIA METHODOLOGY AND PUBLIC CONSULTATION

An EIA is a process for identifying the likely significance of environmental effects (beneficial or adverse) arising from a proposed development, by comparing the existing environmental conditions prior to development (the baseline) with the environmental conditions during/following the construction, operational and decommissioning phases of a development.

The EIA process considers measures to avoid, reduce, or mitigate any significant adverse effects on the environment and, where possible, enhance the environment. In this way, the assessment process feeds back to inform the final design.

The EIA is carried out prior to the submission of a planning application, during the development of a project. Reporting these effects enables the consenting authority, the examining authority, statutory consultees, and wider public to consider the environmental effects of an application.

The ES is the document that sets out the findings of an EIA and summarised using non-technical language in an accompanying NTS document. This document is the Steeple Renewables Project NTS and meets the requirements of the EIA Regulations.

SCOPING

In order to determine the content of the EIA, the EIA Regulations make provision for, but do not statutorily require, an applicant to request that the Planning Inspectorate (on behalf of the SoS) provide a written opinion as to the information to be provided (i.e. 'scoped') within the ES - this is referred to as a Scoping Opinion.

A request for a Scoping Opinion, which included information regarding the proposed scope and methodology of the technical studies to be included within the ES, was submitted on behalf of the Applicant on the 23rd April 2024 to the Planning Inspectorate. The Planning Inspectorate provided a Scoping Opinion on the 3rd June 2024. The Scoping Opinion confirmed that the topics proposed were generally acceptable and appropriate.

STATUTORY CONSULTATION AND PRELIMINARY ENVIRONMENTAL INFORMATION REPORT

Prior to the completion of the ES, a Preliminary Environmental Information Report (PEIR) was prepared to support statutory consultation. The PEIR was published in January 2025 to inform the public and stakeholders of the Applicant's preliminary assessment of the likely significant environmental effects of the Proposed Development at the point of writing.

The Applicant sought the views of consultees on the information contained within the PEIR, and there was an opportunity within the process up to submission of the DCO application for both the EIA and the project design to have regard to comments received. All issues raised during consultation on the PEIR have been considered during the EIA process and used to inform the final impact assessment for the ES, which this NTS summarises.

ES SCOPE

This ES comprises studies on each of the aspects of the environment identified as likely to be significantly affected by the Proposed Development (the 'technical chapters'), which are supported with figures and technical appendices where appropriate.

The ES is divided into three volumes as follows:

- **Environmental Statement Volume 1: Chapters** – Comprises the main volume of the ES, including opening chapters that describe the EIA context, the Site, the Proposed Development, and set out the scope of the ES. This is followed by the technical chapters for each environmental discipline relevant to the proposals. The volume concludes with a summary chapter;
- **Environmental Statement Volume 2: Appendices** – Comprises the associated technical appendices which support each environmental topic within Volume 1; and
- **Environmental Statement Volume 3: Figures** – Comprises the associated figures, maps and plans which support each environmental topic within Volume 1.

The following technical chapters are included:

- Landscape and Visual Impact and Residential Amenity;
- Ecology and Biodiversity;
- Hydrology, Hydrogeology and Flood Risk and Drainage;
- Cultural Heritage;
- Socio-Economics;
- Noise and Vibration;
- Climate Change;
- Transport and Access;
- Air Quality;
- Land Use and Agriculture; and
- Miscellaneous Issues (none of these topics require individual chapters in the ES, either due to the brevity of the assessment, or the small impact associated with the Proposed Development).
    - Electric, Magnetic and Electromagnetic Fields;
    - Telecommunications and Utilities;
    - Waste; and
    - Major Accidents and Disasters.

Baseline conditions, that is the existing conditions of the Site, are discussed in each technical chapters describing the key elements and baseline receptor(s) as it relates to each technical discipline. Often baseline survey work has been undertaken to understand the baseline conditions of the Site and surrounding context.

Each chapter includes an 'Assessment of Likely Significant Effects' section to identify, evaluate and assess the degree of significant of the potential effect (if any). Effects will be assessed only for the construction, operational and decommissioning phases of the Proposed Development. Effects will be stated before additional mitigation in the first instance.

Where necessary, mitigation measures have been proposed to ameliorate effects specific to an environmental theme, many of which are purposely incorporated into the design of the proposals and are highlighted as 'embedded mitigation' and generally considered in the initial 'Assessment of Likely Significant Effects'. 'Additional mitigation' measures may also be proposed that are not included within the design.

With additional mitigation measures in place, a secondary assessment of likely significant effects is completed to identify the 'residual effects;' these are defined as the effects that remain on receptors following the implementation of mitigation measures. They could be beneficial or adverse and are rated on a sliding scale from major to negligible/neutral with a conclusion on whether the effect is 'Significant' or 'Not Significant.' Generally, effects assessed as being of 'major' or 'moderate' significance are considered to be significant effects in the context of the EIA Regulations, unless otherwise stated in technical chapter methodologies. Significant effects must be taken into account by the relevant decision makers.

CUMULATIVE EFFECTS AND IN-COMBINATION EFFECTS

Within EIA, cumulative effects are generally considered to arise from the Proposed Development and from 'other developments' in the vicinity acting together to generate elevated levels of effects. This is known as 'cumulative effects.' The list of relevant cumulative developments for the Proposed Development are listed in Table 2.9 of Chapter 2: EIA Methodology and Public Consultation in the ES and presented at **Figure 2**.

Additionally, within EIA 'In-combination effects' arise where a single receptor (e.g., residential dwellings) are affected by multiple environmental impacts stemming from the Proposed Development. This differs from cumulative effects and is assessed in the ES.

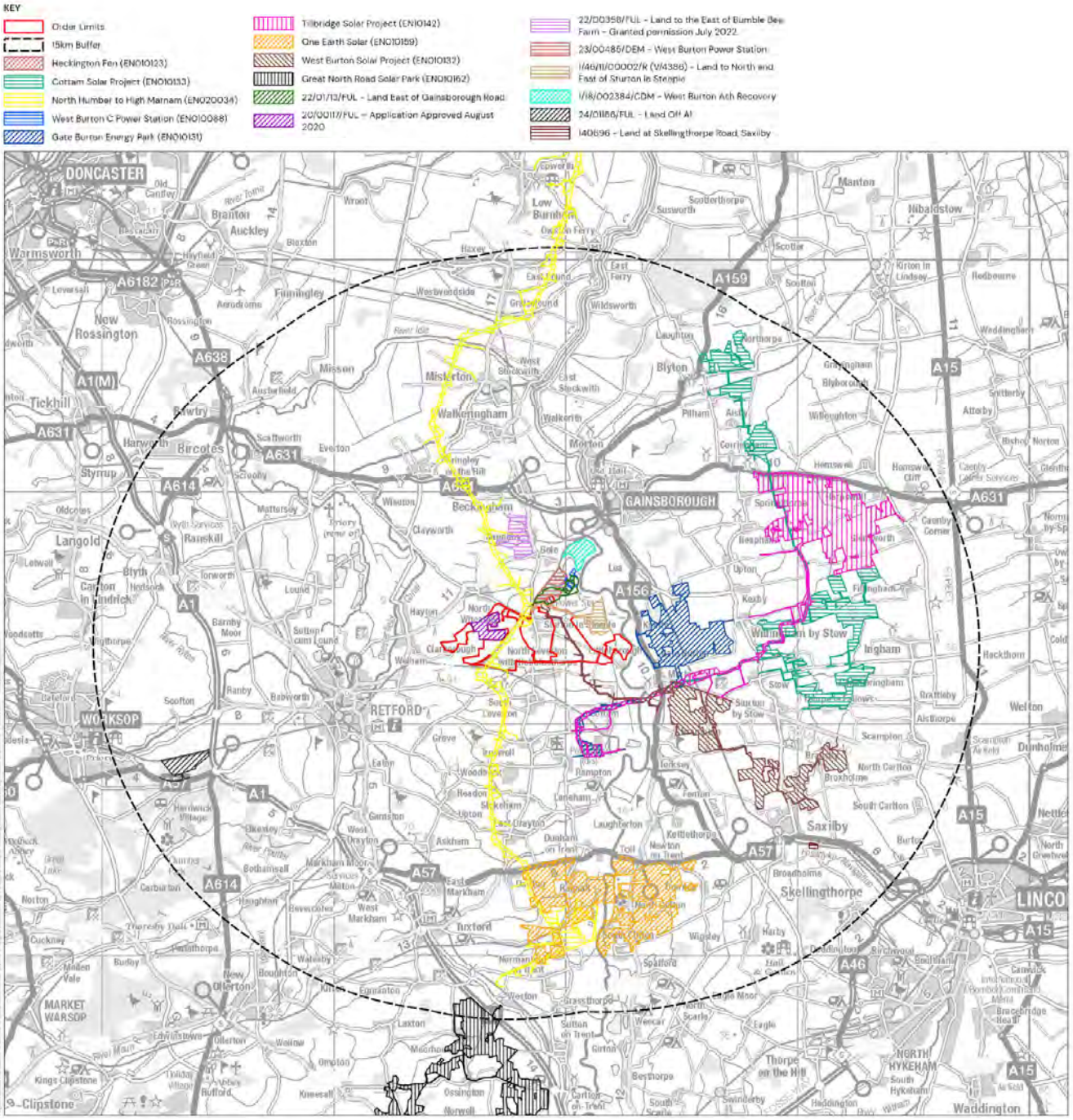

FIGURE 2: CUMULATIVE SCHEMES PLAN

3. SITE DESCRIPTION, SITE SELECTION AND ITERATIVE DESIGN PROCESS

THE SITE

The land within the Order limits that forms the subject of the ES extends to approximately 88.3 hectares (ha) encompassing the entire Proposed Development, shown in Figure 1. The Site is located within the administrative area of Bassetlaw District Council (BDC). The nearest settlement to the Site is Sturton le Steeple. The Site itself can be divided into two 'halves' that are formed around Sturton le Steeple, which is excluded from the Site: the western half;' and 'the eastern half.'

The Site primarily comprises multiple agricultural fields defined by hedgerow and individual trees. The Site also includes part of the existing West Burton A Power Station site covering the area around the existing 400kV substation, and a number of local roads, including sections of Wheatley Road; Station Road; Gainsborough Road, and Wood Lane; Littleborough Road, and Common Lane. The River Trent lies adjacent to the eastern boundary of the Site.

In terms of landform, the Site lies towards the northern extent of National Character Area (NCA) 48: Trent and Belvoir Vales. In general, the Site is flat and low lying at approximately 3m Above Ordnance Datum (AOD), rising more steeply to high ground at approximately 75m AOD along the western boundary.

The Site is crossed by a series of overhead electricity transmission/distribution lines, underground fuel, and water pipelines which pass through the Site.

A series of Public Right of Ways (PRoWs) cross through the Site. The long-distance path known as the Trent Valley Way travels through the Site from east to west through the southern edge of the settlement of Sturton le Steeple.

There are no European statutory designated sites (Ramsar, Special Areas of Conservation (SAC) & Special Protection Areas (SPA)) or national sites (Site of Special Scientific Interest (SSSI), National Nature Reserve (NNR), Local Nature Reserve (LNR)) within the site, however, there are six SSSIs, four SACs, one SPA and one Ramsar site within 30km of the Site. Clarborough Tunnel SSSI is the closest located 40m to the south of the Site. All other statutory designated sites are located over 1.6km from the Site.

There are thirty non-statutory designated sites and two areas of Ancient Semi-Natural Woodland (ASNW) or Plantations of Semi-Woodland Sites (PAWS) within 30km of the Site. Four Local Wildlife Sites (LWs) are located wholly, or partially within the Site: Littleborough Lagoons; Mother Drain; Thornhill Lane Drain; and Blue Stocking Lane. West Burton Meadow and High House Road Verges SINCs are located outside of the Site but are adjacent to the boundary.

There are no designated heritage assets located within the Site. Within 3km of the Site, the following designated heritage assets are located:

- Nine Grade I Listed Buildings;
- Eight Grade II* Listed Buildings;
- Six Scheduled Monuments;
- Two Conservation Areas; and
- 123 Grade II Listed Buildings.

The Site's western half lies within Flood Zone 1. A central band of the Site lies within Flood Zone 2. The eastern half of the Site falls within Flood Zone 3. The flood risk in this area is primarily fluvial (i.e., river flood risk) but there is a degree of tidal influence on the River Trent. Flood defenses are present along the River Trent.

The Order limits and surrounding context are shown on the Site's Constraint Plan at **Figure 3**.

SITE SELECTION AND ITERATIVE DESIGN PROCESS

As part of the iterative EIA and design process, the design of the Proposed Development has evolved to take account of various environmental constraints. In this respect, environmental desktop and on-site reviews, interim assessments of the emerging Proposed Development and relevant knowledge gained from environmental baseline surveys and extensive consultation with consultees, have influenced the evolution of the proposals. Adopting this iterative design process has enabled the early identification of mitigation measures which have then become inherent in the design.

The Site was selected by the Applicant for a number of reasons, including the following:

- Solar irradiance yield (amount of solar energy), as the Site is located in the east of the UK it benefits from higher levels of solar irradiance yield;
- The Site benefits from its proximity to the Point of Connection (less than 1km) at the existing substation at the West Burton A Power Station site;
- The Site comprises generally large, open flat fields which allow for sufficient infrastructure to be located outside of the areas at the highest risk of flooding;
- There are no overriding environmental constraints (e.g., habitats, species, land designations and protected areas, agricultural land classification, flood risk), and low impact on local communities; and
- Safe access points off the local highway, and acceptable physical constraints (e.g., utilities).

During the design process the following factors were considered and influenced the Indicative layout:

- **Landscape** - The design sought to integrate the Proposed Development into the landscape, preserving key qualities of landscape character (retaining existing field patterns, hedgerows, woodland and trees), and minimising views from settlements (such as North Leverton with Habblesthorpe) and residential properties. Key infrastructure such as the BESS Compound and Onsite Substation were located close to the existing West Burton Power A Station, designed to be in keeping with existing electrical infrastructure;
- **Ecology** – Trees and hedgerow have been retained where possible across the Site. Buffers have also been applied to badger setts (30m), trees with potential bats (5m) and to ancient and veteran trees, as well as root protection area for all other trees (15m);
- **Heritage** – Design features such as potential areas of archaeologically significant assets as indicated by the geophysical survey are void of development within the Site, exclusion of the Scheduled Monument 'Segelocum Roman Town' and reduction in Order Limits to retain existing historic field boundary pattern;
- **Transport** - Suitable routes to Site were identified for construction vehicles and abnormal loads. Access points included removal of entrance points from Thornhill Lane and Off Main Street. The design of access points ensured entrances to and across from PRoWs were set back to minimise traffic exposure to the PRoWs;
- **Hydrology** – Attenuation basins located near the Onsite Substation and BESS Compound and a further two attenuation basins in the western half of the Site are proposed to reduce existing flooding within Sturton le Steeple. Buffers to watercourses and water mains are provided to infrastructure; and
- **Utilities** - Buffers between the solar infrastructure and existing overhead lines and underground utilities were agreed with transmission and distribution network operators. Other utilities such as gas, telecoms, sewage and water pipes were identified through utility and title searches, and discussions with asset owners, and appropriate buffers agreed and applied.

This iterative design process has continued throughout the EIA process, with the design also responding to consultee comments received during statutory consultation, and a summary has been included in the ES in Chapter 3: Site Description, Site Selection and Iterative Design Process.

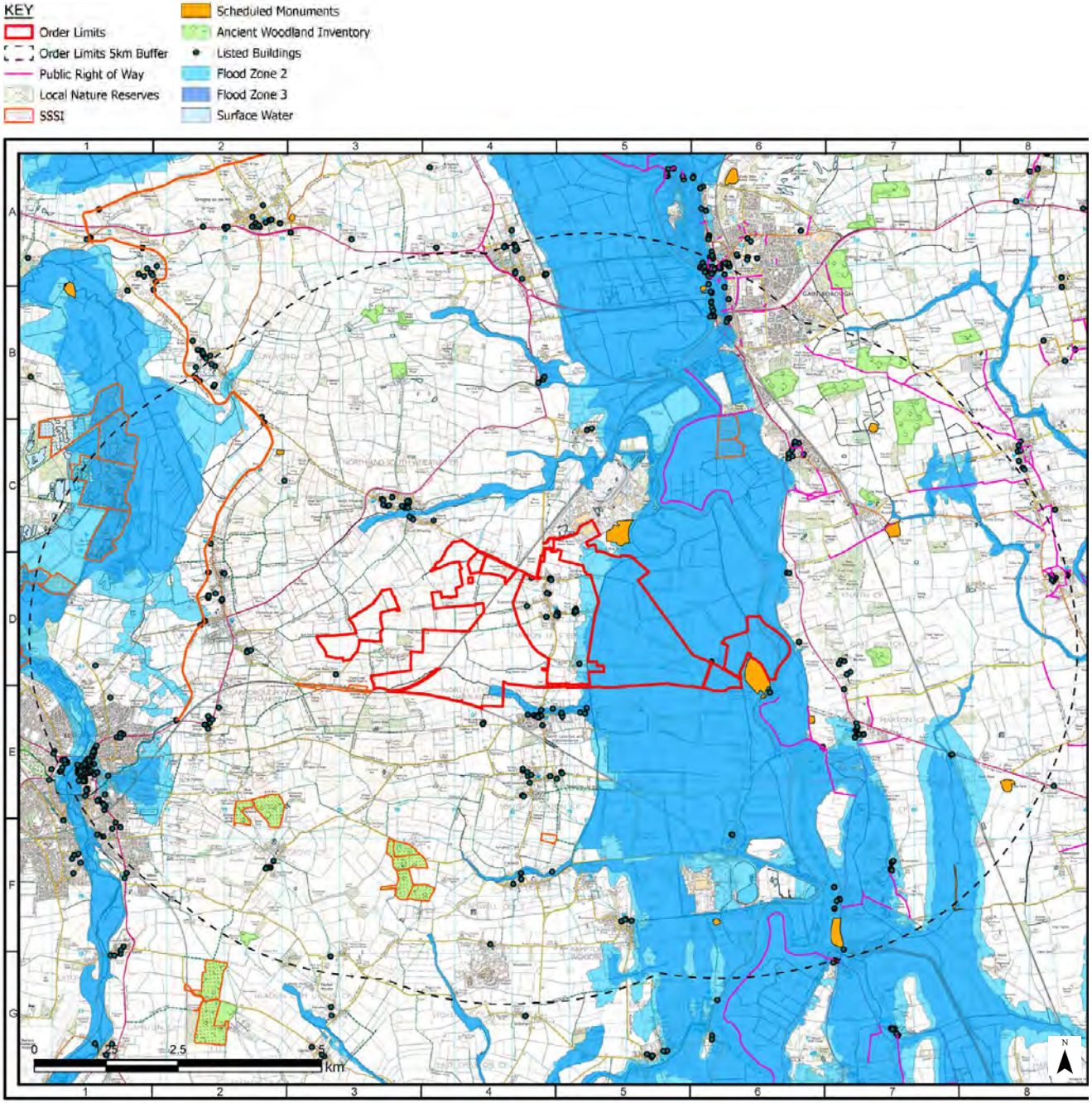

FIGURE 3: SITE CONSTRAINTS PLAN

4. PROPOSED DEVELOPMENT

The Proposed Development is a Nationally Significant Infrastructure Project (NSIP), as it comprises the construction of an onshore generating station in England, which does not generate electricity from wind, and has a generating capacity of more than 50 megawatts (MW). A Works Plan is included in the DCO application detailing the maximum extents of the Proposed Development. **Figure 4** provides an illustrative representation of how the Proposed Development could be set out within the spatial parameters of the Works Plan.

A number of design aspects and features of the Proposed Development cannot be confirmed until the tendering process for the design and construction of the Proposed Development has been completed. Therefore, several technical parameters have yet to be finalised for the Proposed Development. The Applicant is therefore using design parameters which will fix a worst-case scenario for any element of the design, which is not fixed, dependent on the receptor in question.

The main components of the Proposed Development comprise:

- Solar PV panels, which will be mounted on metal mounting structures with an upper maximum height of 3m and capture solar radiation, converting it to electrical current;
- Solar Conversion Units, which are supporting infrastructure to the solar panels including inverters, transformers and switchgear. The Solar Conversion Units enable the electricity generated by the solar panels to be exported to the national grid, by converting the Direct Current (DC) into Alternating Current (AC). The Solar Conversion Unit would be a maximum height of 3.2m;
- The Battery Energy Storage System (BESS), located in proximity to the existing substation at the West Burton A Power Station site, containing a number of batteries, power conversion units and transformers to store and discharge energy when required. The BESS enclosures (containers) will be located together in a BESS Compound, spaced apart, and would be a maximum height of 2.9m;
- An Onsite Substation Compound housing a substation and control buildings, which will manage the flow of electricity from the Proposed Development to the Point of Connection at the West Burton A Power Station site. The maximum height of the substation is 12m AGL relating to a small component; however, the majority of the built form comprising this element of the Proposed Development is no more than 4m in height;
- Low and medium voltage (up to 33 kv) cabling will be required to connect the solar PV panels to the Solar Conversion Units and Onsite Substation. The depth of these buried cables will typically 1.5–1.7m;
- High voltage cables are required to export all the electricity generated by the Proposed Development to the existing substation at the West Burton Power Station site. Large areas of high voltage cabling (400kv) are not required due to the close proximity of the Site to the existing substation at the West Burton A Power Station site. It is anticipated the high voltage cable length will be approximately 1km or less;
- Fencing around the Site will comprise stock wire deer fencing up to 2.4m in height around the solar panelled areas, with wooden posts piled into the ground. Security fencing around the BESS compound

would comprise security metal fencing with a maximum height of 3m;

- A pole-mounted Closed Circuit Television (CCTV) system will be mounted around the perimeter of the operational Proposed Development and will be inward facing. The CCTV cameras will comprise a maximum height of 3.5m AGL. In general, it is anticipated that the Proposed Development would not be lit, however, security lighting would be required around key electrical infrastructure;
- Internal access tracks will connect solar panelled areas to one another. Existing farm access tracks will be used where possible. Construction access tracks will likely be made of crushed aggregate and would be 4m wide. These access tracks will be retained to facilitate the operational maintenance of the Proposed Development;
- Two new permissive paths will be implemented to connect existing Public Right of Ways (PRoWs). The permissive paths will operate during the life of the Proposed Development;
- For the construction process only, it is anticipated that there will be up to five construction compounds for storage of equipment and material, worker facilities including site offices, welfare facilities, parking (with turning area) and waste storage areas; and
- A number of habitat creation and landscaping proposals are provided in the design of the Proposed Development including Biodiversity Mitigation Areas in the east and western halves of the Site (approximately 200ha combined), void of development. These will include the retention and creation of habitats and retention and additional planting of hedgerows, trees and woodland.

ACCESS

The proposed construction accesses for the Proposed Development are set out below:

- Gainsborough Road, located approximately 340 metres to the north of the Gainsborough Road / Station Road junction; and
- Station Road, is located approximately 320 metres to the west of the Gainsborough Road / Station Road junction.

These two primary points of access will respectively serve the eastern and western 'halves' of the Site, leading to the construction compounds. During the operational phase, the two primary points of access and internal access tracks will be retained for use (e.g., maintenance).

DRAINAGE

Following a Flood Risk Assessment, a Surface Water Drainage Strategy has been prepared and sets out the outline drainage strategy for the Site. The documents outlines how surface water will be managed in order to prevent any increase in flood risk. It describes measures to manage drainage from new infrastructure and manage any required changes to existing land drainage arrangements through use of sustainable drainage systems (SuDS).

Chapter 4 - Proposed Development of the ES provides further detail on each component of the Proposed Development.

TIMESCALES OF THE PROPOSED DEVELOPMENT

It is currently anticipated that construction work will begin at the earliest in2027 and will run for 24 months. The Proposed Development will begin commercial operation in 2029. The operational life of the Proposed Development is up to 40 years and decommissioning is therefore estimated to take place no earlier than 2069. Decommissioning is expected to span approximately 12 months.

CONSTRUCTION ACTIVITIES

The types of construction activities associated with the Proposed Development are likely include (but are not limited to):

- Importing construction materials;
- Constructing the construction compounds – these will likely move over the course of the construction process as each section is built out;
- Creating new access points for the Site;
- Installing the security fencing around the Site;
- Importing PV panels and the battery energy storage equipment;
- Erecting PV frames and modules;
- Digging cable trenches and laying cables for connection to the West Burton A Power Station substation;
- Installing supporting infrastructure;
- Constructing onsite electrical infrastructure for the export of generated electricity; and
- Creating new habitats.

An Outline Construction Traffic Management Plan (oCTMP) has been developed as part of the EIA which will guide the delivery of materials and staff onto the Site during the construction phase (see Chapter 13 -Transport and Access of the ES for further information) to minimise the potential for significant effects. Additionally, an Outline Construction Environmental Management Plan (oCEMP) is submitted with the DCO application setting out management measures during the construction phase to minimise or mitigate impacts on the environment.

OPERATIONAL PHASE

During operation of the Proposed Development, human activity on the Site will be minimal and would be restricted principally to vegetation management, equipment maintenance and servicing, sheep grazier maintenance, replacement of any components that fail and monitoring to ensure the continued effective operation of the Proposed Development.

DECOMMISSIONING PHASE

The Proposed Development will be decommissioned at the end of its approved operational phase (i.e., 40 years after operation). All above ground infrastructure and cabling less than 0.9m below ground will be removed. Any cabling buried 1m+ below ground may not be removed at decommissioning. These items would be recycled or disposed of in accordance with good practice and market conditions at the time. A Decommissioning Plan, to include timescales and transportation methods will be agreed in advance with the Local Planning Authority.

After the 40 years of operation, the whole Site will be available to revert to agricultural use and will be returned to the landowner. This will include the areas that used for biological mitigation. The permissive paths will also be closed to the public once the Proposed Development is decommissioned.

The effects of decommissioning are often similar to, or to a lesser extent than, the construction effects and have been considered where possible in the ES. However, there can be a high degree of uncertainty regarding decommissioning as engineering approaches and technologies evolve over the operational life of the Proposed Development.

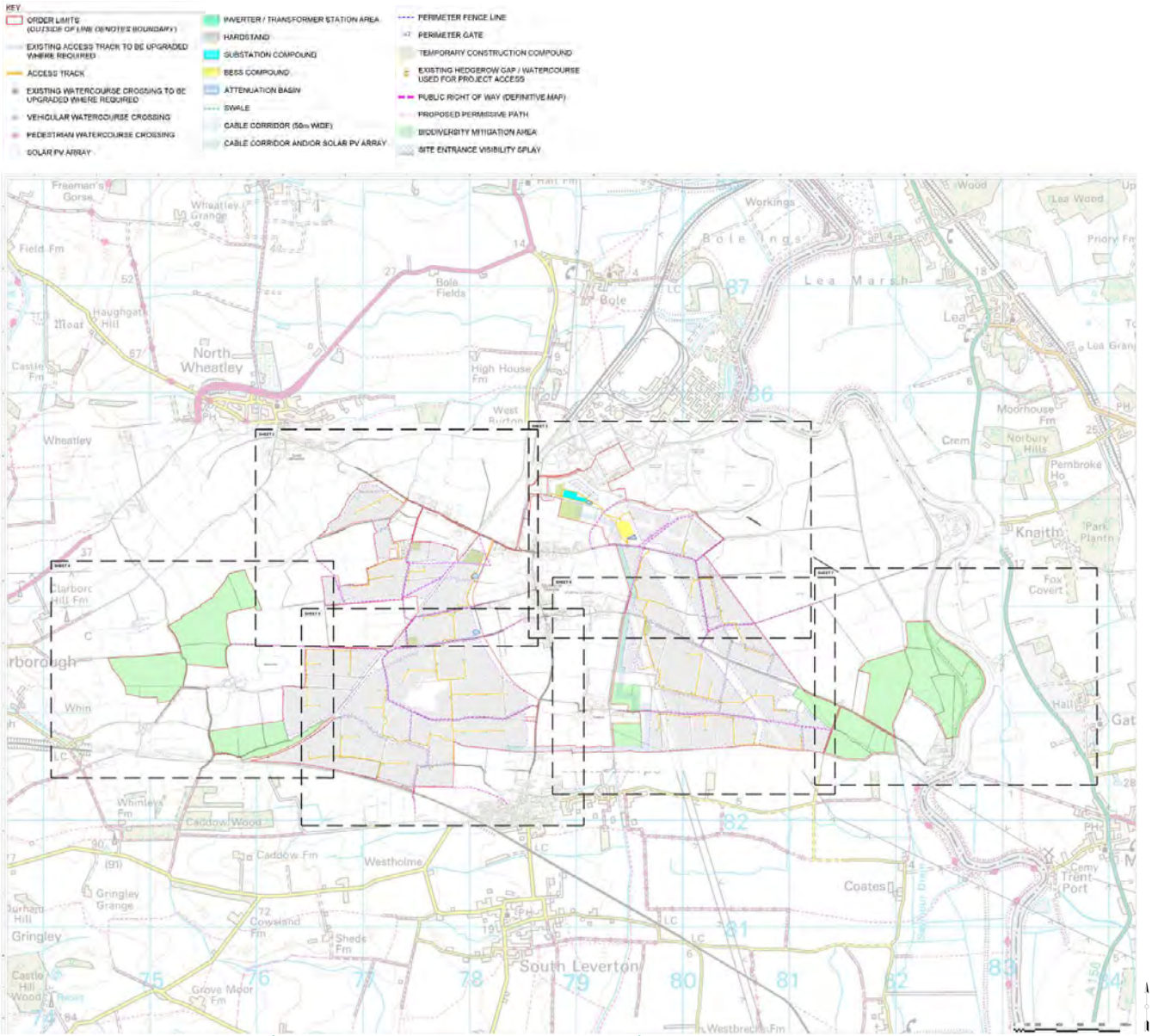

FIGURE 4: INDICATIVE SITE LAYOUT (TO SEE FIGURE 4 IN MORE DETAIL SEE APPENDIX)

5. LANDSCAPE AND VISUAL AND RESIDENTIAL AMENITY

INTRODUCTION

This Chapter of the ES has assessed if the Proposed Development would give rise to significant Landscape and Visual and Residential Amenity effects. In line with best practice and the requirements of National Policy, it considers the effects during the construction, operation and decommissioning phases.

Full details of the landscape and visual impacts and residential amenity assessment are provided in Chapter 6: Landscape and Visual and Residential Amenity of the ES.

BASELINE CONDITIONS

The Site is not located within any national statutory protected landscape designations, such as a National Landscape (formerly known as an 'Area of Outstanding Natural Beauty'). Further, the Site does not lie within any regional or local non-statutory landscape designations.

The Site lies towards the northern extent of National Character Area (NCA) 48: Trent and Belvoir Vales.

The Landscape Character Assessment prepared by Bassetlaw District Council in 2009 sets out that the Site lies across the 'Mid Notts Farmlands' and 'Trent Washlands' Character Areas.

The landscape character of the Site itself is broadly typical of the two character areas that cover it. The Site can generally speaking be divided into two halves from a character perspective, with the eastern section being more associated with the Trent valley with fewer hedgerows and more dividing drainage ditches and watercourses, and the western half more typical of the Mid-Nottinghamshire farmland with a stronger network of hedgerows and slightly more undulating ground.

The electricity infrastructure that passes through the eastern section of the Site is a notable characteristic of that part of the landscape, with the former West Burton Power Station site and the nearby Cottam Power Station site being prominent elements in the landscape.

A number of settlements or clusters of properties are located nearby but beyond the Site boundaries, including Sturton le Steeple, North Leverton with Habblesthorpe and Fenton. Individual properties are also located close to the boundaries of the Site and within the wider surrounding area.

With regard to visual receptors, it is evident that the core area of any likely visibility would extent to no more than 1km from the Site in all directions, with the exception of a small number of locations, which are slightly more elevated in the landscape. Computer modelling known as a 'screened zone of theoretical visibility' (see **Figure 5**) illustrates the theoretical extent of where the Proposed Development would be visible from, which includes the 'screening' effect from existing vegetation and buildings. This modelling illustrates there is no potential visibility of the Proposed Development from the majority of the settlements within 5km of the Site. The only settlements where some views of the Proposed Development may be available are Sturton le Steeple, North Leverton with Habblesthorpe, Fenton and South Wheatley.

A number of Public Rights of Way (PRoWs) are located within the vicinity of the Site, including the Trent Valley Way, as indicated by (see **Figure 6**) A number of roads run in the vicinity of the Site, including the A620; A156; A631; the A1500 and the A638, as indicated by (see **Figure 7**). Finally, the Sheffield-to-Lincoln railway line passes through the western section of the Site.

LIKELY SIGNIFICANT EFFECTS

The construction of the Proposed Development would result in notable short-term impacts from construction activities that would include the movement of construction vehicles and plant, temporary construction compounds and the construction of the Proposed Development itself. However, with regard to the trees, woodland and hedgerows with the Site itself, all vegetation would be retained with the exception of limited removals of hedgerows to facilitate internal access tracks (existing hedgerow gaps have been used for internal access tracks, where feasible). This therefore would not result in any significant adverse effects on the most sensitive landscape features at the Site, however for some landscape features including hedgerow and ground cover, **significant adverse effects** are identified. Once the construction phase is complete and the Proposed Development is operation there would be **no significant adverse effects** on the landscape features of the Site.

With regard to the landscape character, the construction phase would cause notable, but temporary effects upon the Landscape Character of the Site, due to the size of the Proposed Development. Such effects would be **significant adverse**, but temporary given the duration (24 months) and nature of the construction work. The operational phase would also cause notable effects upon the Landscape Character of the Site, due to the extent and size of the Proposed Development, along with highly localised effects upon the 'Mid Notts Farmlands' and 'Trent Washlands' Character Areas. Such effects would be **significant adverse**.

With regard to visual receptors, there would be significant visual effects on a small number of the properties in the village of Sturton le Steeple, the small cluster of properties at Fenton and a small number of individual properties that lie outside of the closest settlements but have clear, open views across part of the Site (views that are not blocked by other properties or vegetation). For the majority of residential properties however the change in views is low, resulting in **not significant effects**.

At the initial stages of planning for the Proposed Development, it was determined that an appropriate offset would be required from the Trent Valley Way, which passes through the Site, and this has been included as part of the design for the Proposed Development. Notwithstanding, it is acknowledged that there would be **significant adverse visual effects** on users of small sections of that route (less than 1km), in addition to other PRoWs that pass through or are close to the Site. This would apply to those sections which have clear, open views across part of the Site, which are not blocked by existing vegetation. For the majority of the routes however the magnitude of impact would be no greater than low, resulting in **not significant visual effects**.

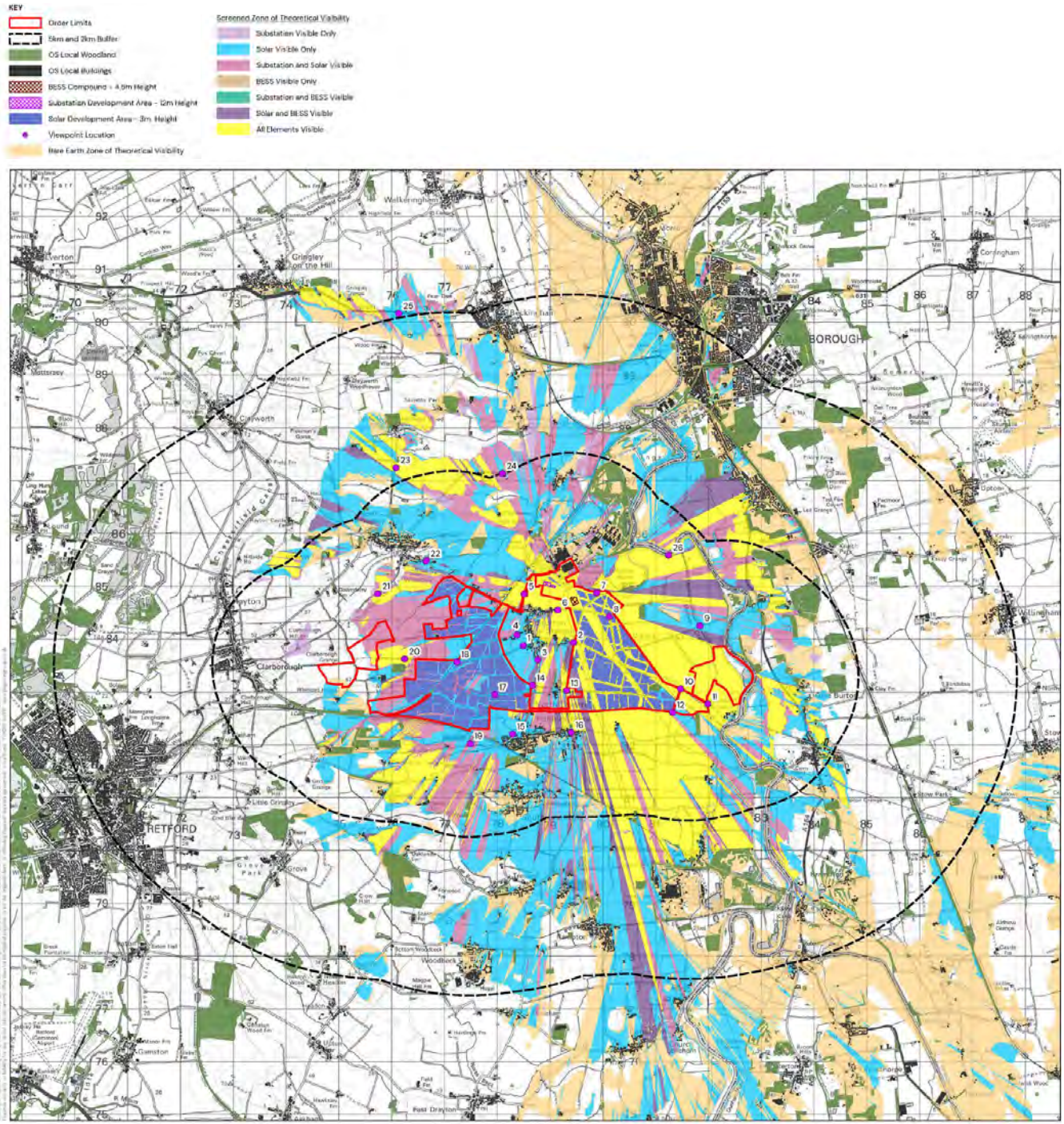

FIGURE 5: SZTV AND VP LOCATIONS (5KM RADIUS)

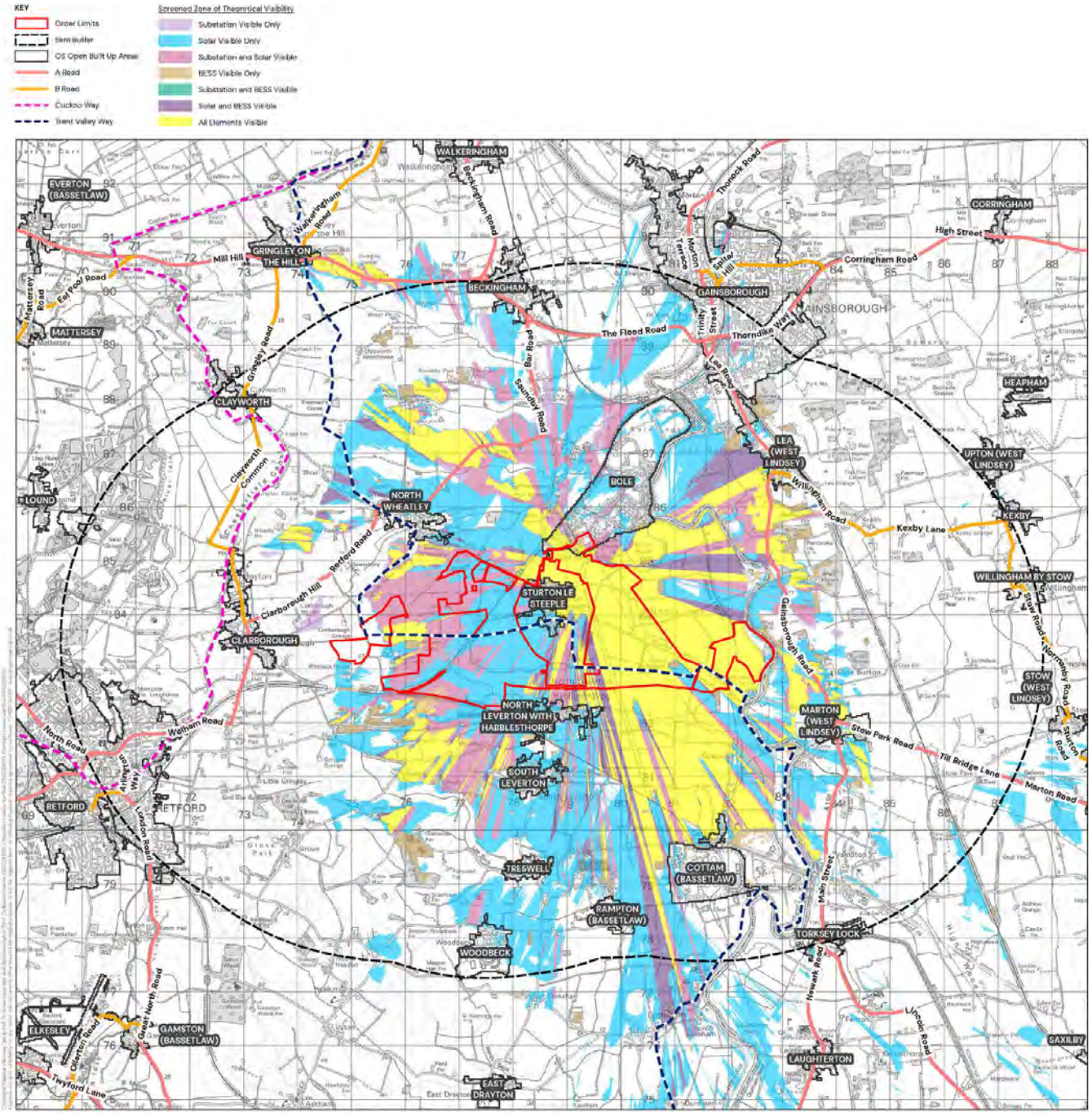

FIGURE 6: SZTV AND VISUAL RECEPTORS (SETTLEMENTS, A ROADS, B ROADS AND LONG DISTANCE ROUTES)

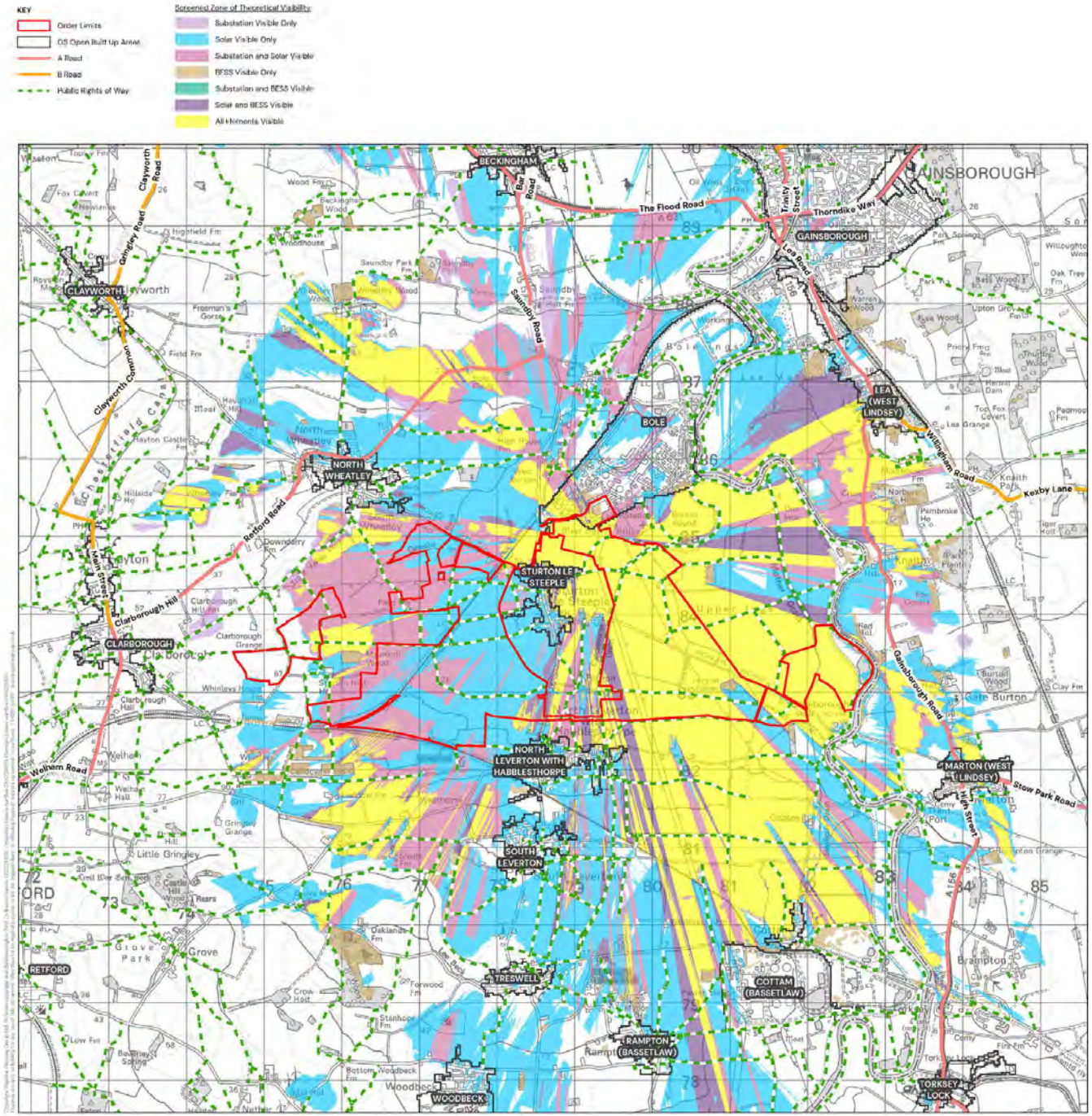

FIGURE 7: SZTV AND VISUAL RECEPTORS (SETTLEMENTS, A ROADS, B ROADS AND LONG DISTANCE ROUTES)

With regard to road users, **no significant visual effects** are anticipated on any of the A or B roads within the vicinity of the Site. However, for users of a number of minor roads in proximity to the Site (i.e., Leverton Road, Sturton Road, Station Road, Wheatley Road, Littleborough Road, Low Holland Lane, Three Leys Lane, Fenton Lane, Freeman's Lane and Springs Lane), there would be **significant adverse visual effects** on some sections that have clear, open views across part of the Site, which are not blocked by existing vegetation. Mitigation has been included as part of the design of the Proposed Development, which includes offsetting the Proposed Development from these roads and planting new vegetation to assist in minimising effects.

MITIGATION AND ENHANCEMENT

The primary mitigation adopted in relation to landscape and visual impacts and residential amenity is that which has been embedded within the design of the Proposed Development, such as the protection of trees and hedgerows during the construction phase, the appropriate management of hedgerows, planting of existing gaps in vegetation to further assist with screening the Proposed Development, planting of species rich native hedgerows with hedgerow trees adjacent to footpaths and on boundaries with no existing vegetation, and linear woodland planting and the installation of small woodland copses to provide new habitats and further assist with screening.

Whilst mitigation such as individual native hedgerow tree planting, and small woodland copses are proposed, the visual mitigation elements largely comprise a combination of hedgerow planting and hedgerow management. This involves growing the existing hedgerows out to a height of 3m and then their continued maintenance at 3m and planting new native hedgerows (where boundaries are currently open, either fully or in part including gapping up and the reparation of existing hedgerow lines).

At the final stages of designing the Proposed Development, the species profile of the existing hedgerows on the Site would be used to form a new hedgerow mix that responds to the character and environmental conditions of the Site. As the Site comprises mainly arable land and is not the subject of salt winds (i.e., ocean winds), it is anticipated that the hedgerows could achieve a growth rate of approximately 500mm per year.

The effectiveness of vegetation will improve over time, and this has been considered in the assessment. Consideration to the local landscape character has also been undertaken to avoid creating landscape features that are not already apparent within the vicinity of the Site.

CUMULATIVE AND IN-COMBINATION EFFECTS

The potential cumulative effects of the Proposed Development have been considered. The 'Zone of Influence' (a geographic area identified of where potential effects could be felt) for the consideration of landscape and visual effects is a 10km radius from the Proposed Development, which is considered to represent the maximum distance from the Proposed Development where any of the cumulative schemes for assessment would have the potential to result in significant effects with the Proposed Development.

The cumulative effects assessment within the ES has determined that the potential for significant cumulative effects on the landscape character is limited. The schemes that are consented and likely to come forward will form part of the environmental conditions of the Site such that the wider landscape would already be characterised to some degree by the presence of energy development. This would not however change the landscape character effects associated with the Proposed Development. Each scheme would be required to mitigate their own effects such that effects would not be significant. The same can be said with those schemes that are proposed and not yet consented.

Further mitigation has been included as part of the design of the Proposed Development, including new vegetation planting to help with minimising impacts. However, **no significant cumulative landscape effects** would arise.

Similarly, the Proposed Development with the identified cumulative schemes have the potential to result in an increase of visual effects; however, the potential for cumulative visual effects is low due to the limited visibility of the Proposed Development from much of the wider landscape. There may be some cumulative and sequential views with one or other of the cumulative schemes for assessment, but such instances would be rare and generally limited to glimpses of one or other of the cumulative schemes. No significant visual effects are anticipated.

No significant in-combination effects are identified in relation to landscape and visual and residential amenity receptors.

CONCLUSION

Some **significant adverse effects** have been identified (to hedgerows during the construction phase, the land cover and the character of the Site itself, and to users of some PRoWs and roads which pass through the Site), but these are highly localised and limited in nature, with many of the effects reduced by Year 15 of operation following the implementation of the landscape mitigation planting. This planting will also result in **significant beneficial effects** in terms of the hedgerow network at the Site.

6. ECOLOGY AND BIODIVERSITY

INTRODUCTION

This chapter provides an assessment of the potential impacts and effects of the Proposed Development on ecology and nature conservation during the construction, operational, and decommissioning phases.

The following ecological features are considered:

- Statutory designated sites for nature conservation (including European designated sites);
- Non-statutory designated sites for nature conservation;
- Habitat; and
- Protected species including Bats, Skylark, Barn Owl, Otter, Water Vole, Great Crested Newts and Dormouse.

The assessment has been supported by Nottinghamshire Biodiversity and Geological Records Centre (NBGRC) and Lincolnshire Environmental Records Centre (LERC). This data has been supplemented by ecological surveys undertaken between October 2023-February 2025.

Full details of the ecology and biodiversity assessment are provided in Chapter 7: Ecology and Biodiversity of the ES.

BASELINE CONDITIONS

The Site extends to ca. 888 ha and is set within an agricultural landscape in the Trent Valley. It is primarily large arable fields with boundary hedgerows and individuaVl trees. There is a network of ditches and drains and several ponds and waterbodies. There are occasional small woodland blocks, grassland pasture fields, and agricultural buildings.

The Site does not coincide with any internationally or nationally statutory designated sites although Clarborough Tunnel SSSI is 40 m west of the Site. Five Local Wildlife Sites (LWS) are within the Site, and two LWS are within 100 m of the Site - see **Figure 8**, **9** and **10** showing the context of designated and non-designated sites in the local vicinity.

Breeding bird activity is widespread across the Site. There is a typical breeding bird assemblage for the habitats and location. Most recorded bird species of conservation concern breed throughout the county and are 'common' or 'fairly common' within Nottinghamshire. Skylark breeds on open habitat across the Site and barn owl is also present.

There is also a typical wintering bird assemblage, with the parts of the Site closer to the River Trent (particularly the wetland and adjacent farmland habitats in the Eastern Biodiversity Mitigation Area) supporting higher species diversity and numbers of birds, typically waders and waterbirds, as well as hunting birds of prey.

Most of the Site is of limited value for bats. The woodlands, hedgerows, dense scrub, waterbodies and watercourses provide more suitable bat foraging and commuting habitat and there is habitat connectivity with the surrounding landscape in all directions. Bat activity levels are typical for the habitats and the open arable fields do not appear to be regularly used for foraging or commuting.

Much of the Site is of limited value for otters and although most of the Site's watercourses and ditches could be used by otter, there is only limited evidence of this.

There are historical records of water vole at the Site, and some of the drains and ditches have suitable habitat. No water vole were recorded at the Site during field surveys, but it is possible that water vole may be present at very low densities.

No great crested newts have been recorded on the Site. Some offsite ponds within 250 m could support great crested newts, however, regular tilling and spraying give rise to few opportunities for great crested newts within 250 m of the offsite ponds, apart from small areas of grassland pasture, narrow strips of hedgerows and grassland field margins. If the offsite ponds did support newts, the distance to construction works means that an adverse effect on newts is not likely.

An aquatic invertebrate survey has been undertaken in targeted watercourses including component parts of LWSs with aquatic invertebrate interest and other potentially suitable wet ditches. The surveyed watercourses support moderately diverse assemblages of aquatic invertebrates, but fewer notable species were recorded in the surveyed sections of LWS watercourses than were listed on the LWS citation. The other surveyed watercourses were not identified as supporting notable species or assemblages.

Terrestrial invertebrate interest is assessed on a habitat quality and desk study basis as likely to be limited. Reptiles are also assessed on a habitat quality and desk study basis and are likely to be of limited conservation interest if/where present.

Fish have not been surveyed but have been considered on a habitat quality basis, and taking into account desk study information, as likely to be of limited conservation interest.

Dormice are present offsite to the south but are assumed to be absent from the Site (but with potential to colonise the Site as time passes).

Other faunal species of principal importance are considered, and on a precautionary basis are assumed to be present in low numbers for the purposes of mitigation.

LIKELY SIGNIFICANT EFFECTS

During the construction and decommissioning phase, there could be **significant** and **non-significant adverse effects** relating to:

- Habitat loss (agricultural land, minor loss of hedgerow and grassland field margins);
- Temporary loss/disturbance (for laydown areas and compounds, and hedgerow and field margins where cut and cover cabling is used);
- Habitat damage/degradation (to retained features such as trees and hedgerows adjacent to works, from soil compaction or damage from vehicles);
- Disturbance of species (within and adjacent to the Site, from noise, light, vibration and the presence of vehicles and people; damage, destruction, killing or injuring (for instance badger setts and active bird nests)); and
- Contamination / pollution (potential ground, water and air pollution from spillages, dust and vehicles).

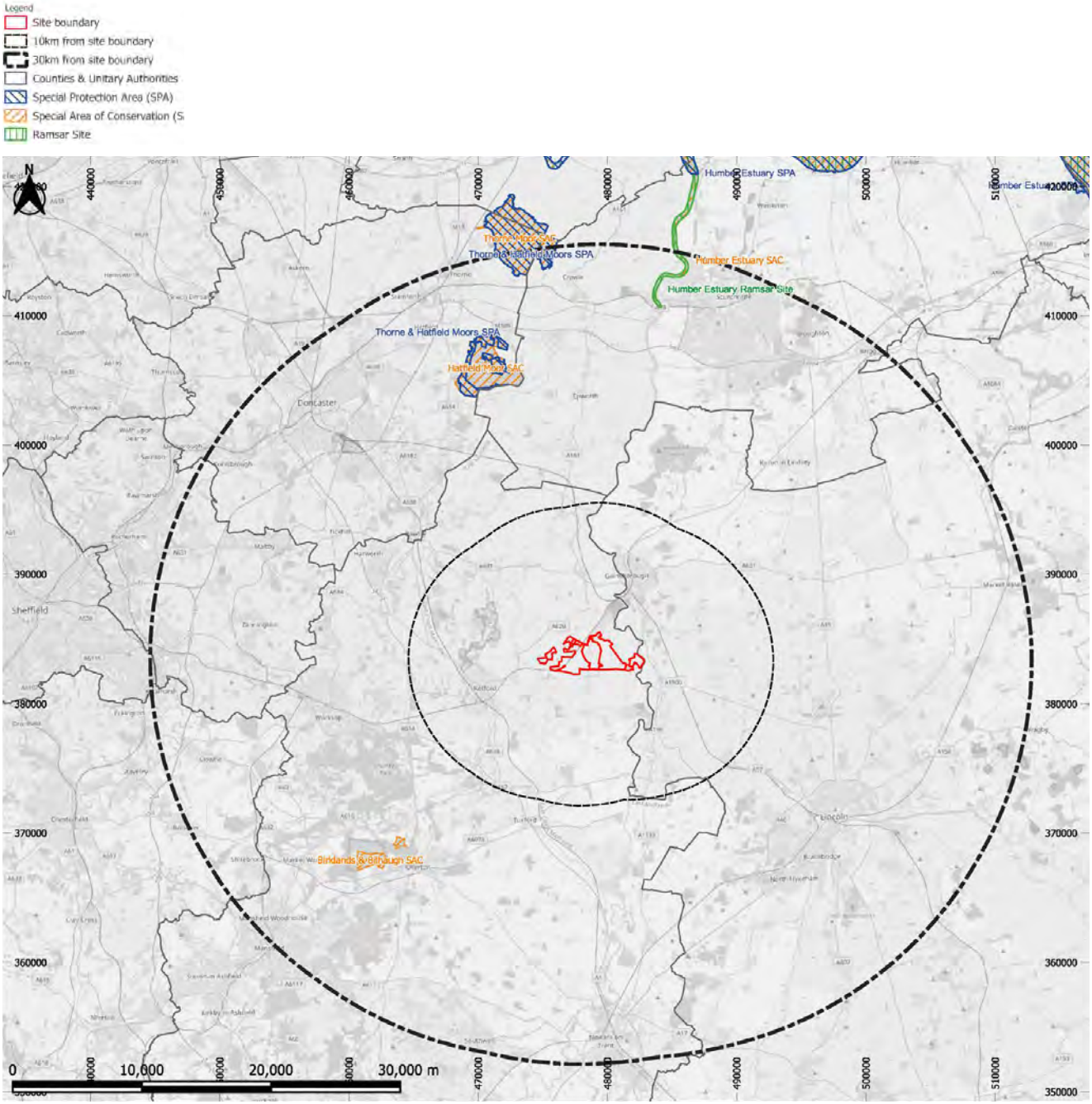

FIGURE 8: INTERNATIONALLY DESIGNATED SITES INCLUDING THE HUMBER ESTUARY SPA

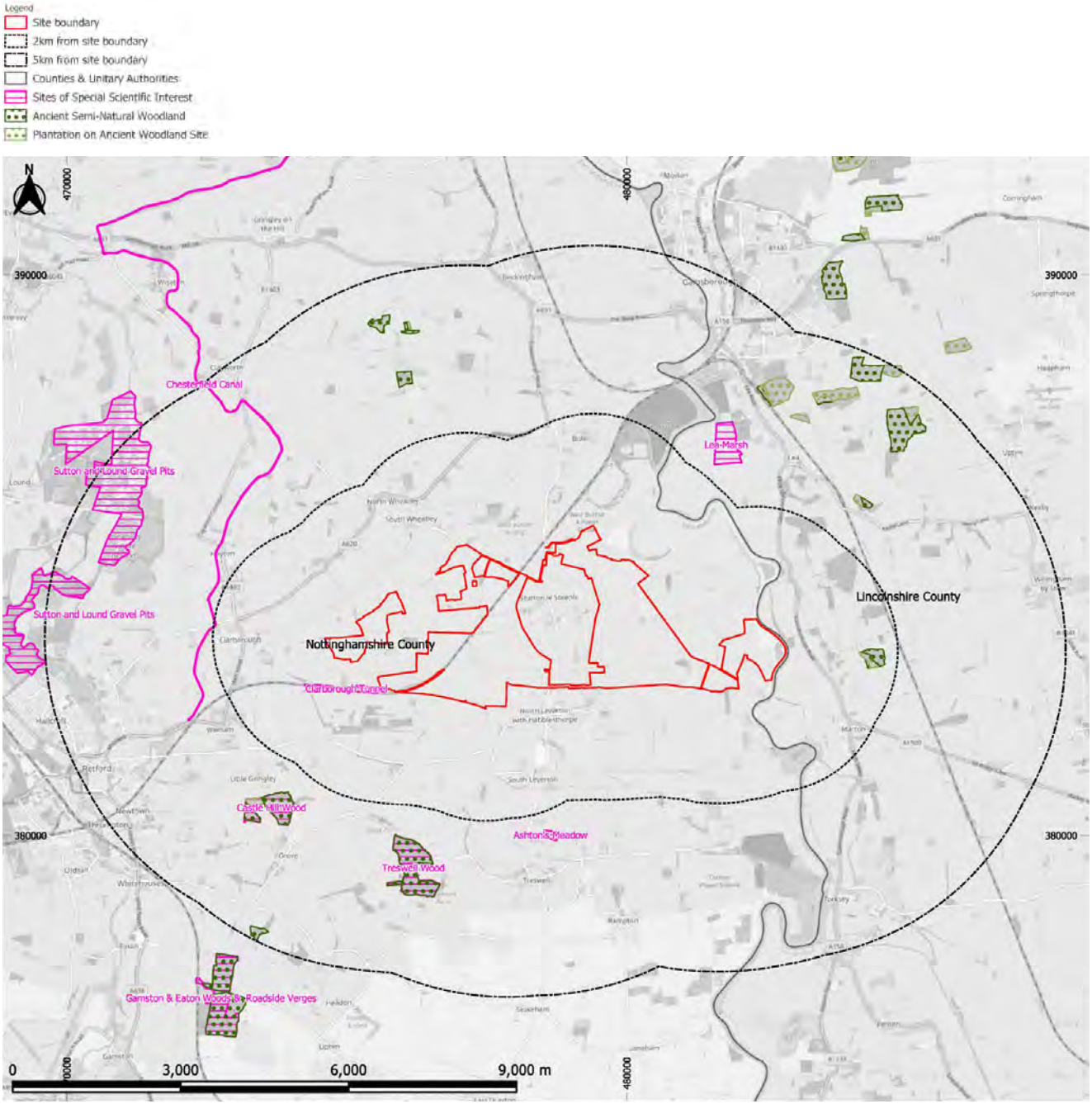

FIGURE 9: NATIONALLY DESIGNATED SITES OF NATURE CONSERVATION

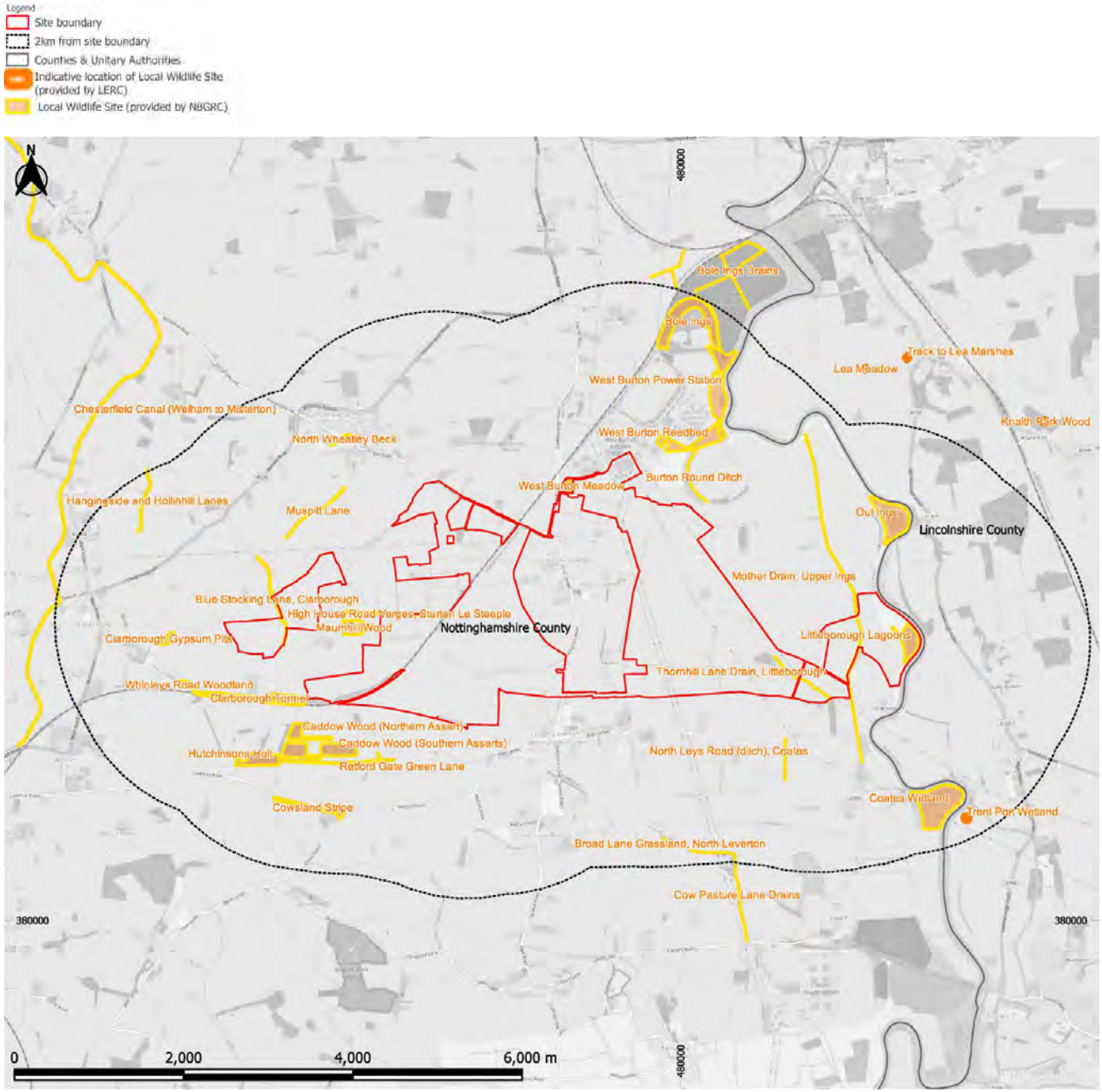

FIGURE 10: LOCALLY DESIGNATED SITES OF NATURE CONSERVATION

It should be noted decommissioning effects are very difficult to assess in most cases. This is because the future state of the Site and the habitat and faunal interest of the Site cannot be predicted without making certain assumptions, and nor can factors such as timing of works and extent of habitat. Notwithstanding this, the source of impacts (if they arose) would be expected to be similar to those at construction phase.

During the operational phase there could be **significant** and **non-significant adverse effects**:

- Fragmentation (of habitats and species populations); barrier effects (to certain species from security fencing / installation of built infrastructure);
- Disturbance of species (within and adjacent to the Site, from noise, light and the presence of vehicles and people); changes to foraging and commuting behaviours; and
- Changes to foraging and commuting behaviours.

However, **significant** and **non-significant beneficial effects** will come into effect during the operational phase. The Site will support a modified range of habitats and species, and reduction of pesticide application as the Site transitions from intensive arable management to less intensive grazing. This would benefit a range of aquatic and terrestrial invertebrate species and other species that prey upon them.

MITIGATION AND ENHANCEMENT

Best practice measures are set out in the Outline Construction Environmental Management Plan for the construction phase and the Outline Decommissioning Plan for the decommissioning phase. These include measures such as timing works to avoid impacts, for example favouring vegetation clearance outside of the bird nesting period; precautionary methods of working to avoid disturbance, damage, killing / injury (such as pre-works check, careful timing and precautionary vegetation clearance methods in areas suitable for reptiles and great crested newt); securing and implementing protected species licences as required, for badgers; and measures in the Biodiversity Mitigation Areas to mitigate impacts on skylark.

Enhancement measures include habitat creation in the Biodiversity Mitigation Area, such as wildflower grassland, species-rich hedgerows, scrub, and ponds and ditches; habitat improvements such as infilling of gaps in hedgerows, and improvements to plant species diversity by additional planting / seeding in retained habitats; improved management of retained habitats, such as grasslands within the nearby LWS; management of hedgerows to favour breeding birds and to increase their potential for dormouse; management of ditches and woodlands to improve their biodiversity value; installation of other wildlife features such as bat and bird boxes. The Outline Landscape and Ecological Mitigation Plan implemented during the construction and operational phases will secure the measures listed and supports the delivery of Biodiversity Net Gain (there is no requirement for NSIP projects).

CUMULATIVE AND IN-COMBINATION EFFECTS

In general, **no significant cumulative ecological effects** are likely due to the mitigation measures detailed in the ecology assessment of the ES. Each of the other developments considered will in turn be required to provide avoidance and mitigation measures and to achieve Biodiversity Net Gain.

Only **significant cumulative effects** on skylark have been identified for:

- Cottam Solar Project – cumulative effect of Local to District significance is concluded;
- Gate Burton Energy Park Ltd - the cumulative effect is not likely to increase beyond significance at the Local level; and
- Tillbridge Solar Project - the cumulative effect is not likely to increase beyond significance at the Local level.

No significant in-combination effects are identified in relation to ecological receptors.

CONCLUSION

With mitigation in place, **no significant adverse effects** on designated nature conservation sites or important habitats are likely. Most species have **no significant adverse effects** identified due to the Proposed Development, or **slightly beneficial effects** in the long-term.

Effects on skylark of the Proposed Development are assessed as **adverse** and (**locally significant**) and **adverse** (**significant** at the **District level**). Cumulative effects on skylark are assessed as **adverse** and **significant** at the **District level**.

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8. HYDROLOGY, HYDROGEOLOGY, FLOOD RISK AND DRAINAGE

INTRODUCTION

This chapter provides an assessment of the potential impacts and effects of the Proposed Development with respect to hydrology, surface water and groundwater quality, hydrogeology, water resources and flood risk during the construction, operational, and decommissioning phases.

A 1km zone of influence (area around Proposed Development where potential effects could occur) has been assessed for surface water, groundwater and flood risk receptors. Beyond this distance significant effects are unlikely to occur.

The assessment has been supported by publicly available mapping and modelled flood data from the Environment Agency. A targeted visual inspection of key hydrological features was undertaken in July 2024.

Full details of the hydrology assessment are provided in Chapter 8: Hydrology, Hydrogeology, Flood Risk and Drainage of the ES.

BASELINE CONDITIONS

Key potential receptors identified within the assessment include the River Trent to the east and the Ordinary Watercourses (these are rivers, streams and ditches not classified as "main river" status) crossing the Site; underlying groundwater; existing areas of flood risk; and local water supplies- see **Figure 11**.

The latest Environment Agency published Flood Zone map shows that the western half of the Site lies within Flood Zone 1, representing a less than 1 in 1000 annual probability of fluvial or tidal flooding. A central band of the Site (affecting approximately 5% of the Site) lies 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. The eastern half of the Site (approximately 45% of the Site) falls within Flood Zone 3 with 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 risk in this area is primarily fluvial (river risk related) but there is a degree of tidal influence on the River Trent. Flood defences are present along the River Trent. **Figure 12** shows flood zones within the local vicinity of the Site.

LIKELY SIGNIFICANT EFFECTS

An assessment is made of the potential impacts on the identified receptors for each phase of the Proposed Development taking into account the embedded mitigation measures. Embedded design features include: siting of construction compounds away from watercourses; all works near watercourses to be undertaken in accordance with the relevant consents; use of rainwater harvesting where possible to minimise water demand; a targeted ground investigation to identify and mitigate areas of contamination; design of watercourse crossings to maintain existing flows; and inclusion of a Surface Water Drainage Strategy to ensure there is no increase in the rate of runoff from the Proposed Development whilst ensuring the quality of runoff discharged from the Site.

Construction and decommissioning activities have the potential to result in the release of chemicals, concrete washout and silt laden runoff which could enter via overland flow or through local drainage features into nearby watercourses. Open cut trenching for cable laying could also result in the release of sediment if not undertaken with appropriate control measures. However, considering best practice measures set out in the

Outline Construction Environmental Management Plan and Outline Decommissioning Plan, effects would be **not significant**.

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 BESS Compound and Onsite Substation Compound. However, considering the embedded design features such as fire safety features within BESS Enclosures and drainage strategy for the BESS area, the effects would be **not significant**.

MITIGATION AND ENHANCEMENT

Additional mitigation measures have been proposed to reduce the significance of identified effects. Additional mitigation proposed to reduce construction, operational and decommissioning phase impacts include the provision of management plans including:

- Outline Construction Environmental Management Plan;
- Outline Operational Management Plan;
- Outline Soil Management Plan;
- Outline Fire Risk Management Plan; and
- Outline Decommissioning Plan.

As an enhancement measure, two surface water detention basins have been proposed to the west of Sturton le Steeple to help reduce the known flooding issues within the village.

Taking into account the proposed mitigation, overall adverse effects are assessed as **not significant** for all phases of the Proposed Development. A **minor beneficial effect** has been identified relating to the proposed creation of surface water detention basins that will provide a reduction in flood risk to Sturton le Steeple village.

CUMULATIVE AND IN-COMBINATION EFFECTS

Potential cumulative effects have been assessed in relation to other developments within the identified zone of influence for water impacts. The cumulative effect of the other development considered together with the Proposed Development has been assessed as **not significant**.

No significant in-combination effects are identified in relation to hydrological, hydrogeological, flood risk and drainage receptors.

CONCLUSION

Overall, **no significant effects** have been identified in relation to hydrology, hydrogeology, flood risk or drainage.

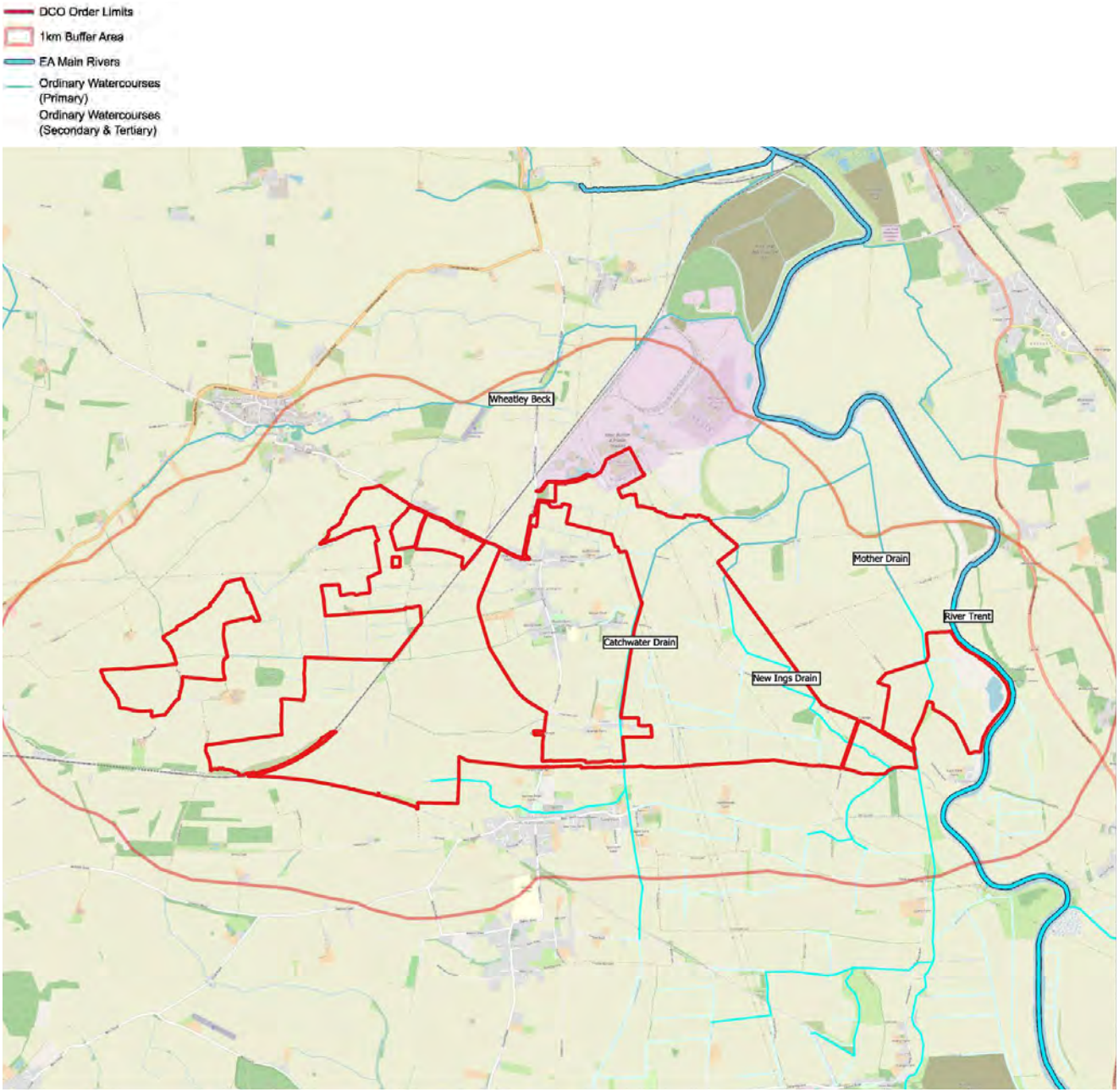


FIGURE 11: WATERCOURSES

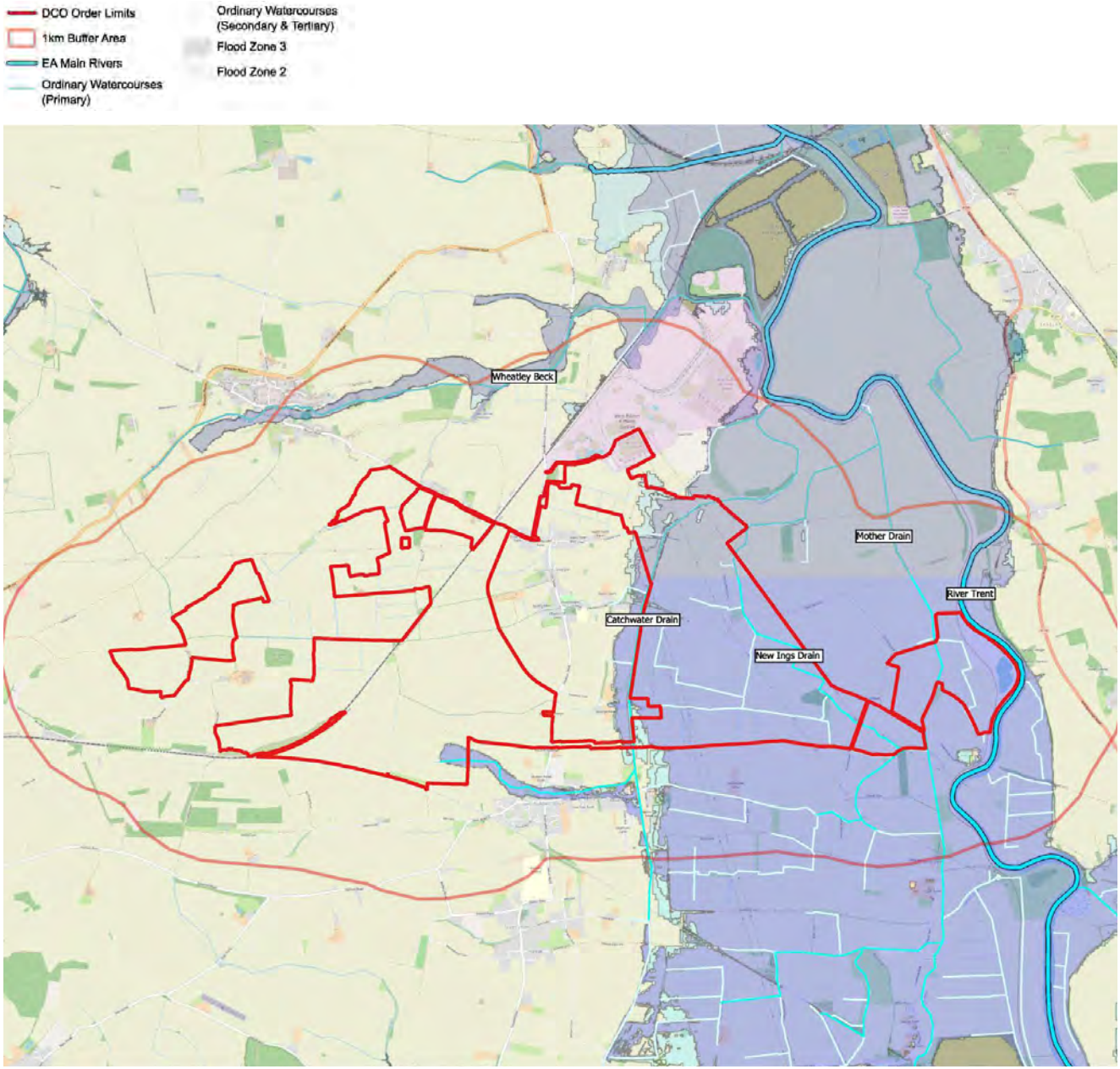


FIGURE 12: FLOOD ZONES

8. CULTURAL HERITAGE

INTRODUCTION

This chapter has considered potential effects upon the significance of cultural heritage receptors. Buried archaeological remains, earthworks, buildings / structures, and all other aspects of the historic environment have all been considered.

The assessment contained within the ES chapter has been informed by desk-based research, and data collection supplemented by walkovers of the Site.

Full details of the heritage assessment are provided in Chapter 9: Cultural Heritage of the ES.

BASELINE CONDITIONS

A geophysical survey has been carried out across the majority of the Site, and together with data obtained from the Nottinghamshire Historic Environment Record (NHER) indicates that there are discrete areas of archaeological potential within the Site, typically comprising enclosures and associated linear features. No medieval archaeology is recorded within the Site, and only a very small amount has been identified within 1km of the Site; however, the geophysical survey data suggests that some remnant ridge and furrow is present across the Site.

No post-medieval heritage is recorded within the Site, and nearly all of the recorded heritage from this period in the wider area comprises extant buildings focussed within the nearby settlements and/or associated farmsteads.

Further evaluative works across the Site are proposed post-determination, and the results of this fieldwork will inform the design and/or approach to mitigation.

There are no designated heritage assets within the Site, while six Scheduled Monuments, nine Grade I Listed Buildings, eight Grade II* Listed Buildings, 123 Grade II Listed Buildings and two Conservation Areas are located within 3km of the Site. The Site makes a minor contribution, in heritage terms, to the significance of the following assets which have therefore been identified as potentially sensitive receptors to the Proposed Development:

- The Scheduled Monument 'Segelocum Roman Town';
- The Scheduled Monument 'Medieval Settlement and Open Field System Immediately South East of Low Farm';
- Grade I Listed Church of St Martin;
- Grade II* Listed Church of St Peter and St Paul;
- Grade II* North Leverton Windmill; and,
- Grade II Listed Manor Farmhouse.

The Site does not contribute to the setting, or significance of any other heritage assets within 3km of the Site, or beyond. **Figure 13** shows the heritage assets considered in the Cultural Heritage Chapter of the ES .

Some hedgerows within the Site could be considered to be 'important' in heritage terms (they accord with some of the archaeology and history criteria within relevant legislation) – see **Figure 14**. The majority border the Site and some cross parts of the Site.

LIKELY SIGNIFICANT EFFECTS

The construction phase of the Proposed Development would not result in any direct, physical impacts to any designated assets. There is the potential for below

ground impacts associated with the construction phase of the Proposed Development, such as piling. The Proposed Development has been offset from what are perceived to be the larger areas of archaeological potential of the Site, as identified via the geophysical survey and desk-based research. This includes remains in the east of the Site, adjacent to the Scheduled Monument 'Segelocum Roman Town' and also discrete areas of archaeology across the Site.

There is potential for the excavation of the underground cable route corridor within the Site to cause physical impacts to below-ground archaeological deposits; however, none of the areas identified for cable infrastructure correspond with any of the key areas of archaeological potential to date. . The narrow width of the cable routes would not typically allow archaeological deposits, which could be considered significant, to be removed in their entirety. **No significant effects** are therefore anticipated.

With regard to the potentially important hedgerows that comprise the Site, the majority of these will be unaffected as the Proposed Development would retain / enhance them as secured in the Outline Landscape and Environmental Management Plan. **No significant effects** are anticipated.

Based on the routing of the construction traffic, traffic will avoid the cores of nearby settlements and as such, there would be no impact (e.g., dust deposition) on any heritage assets.

With regard to the operational phase, only indirect effects would occur as no construction would take place. The largest (**moderate adverse – not significant**) effect relates to how the Proposed Development would be seen from the Grade II listed Church of St Peter and St Paul within Sturton le Steeple. The Proposed Development is anticipated to result in some visible built form in the wider surrounds of the asset and will impact some longer distance views towards the church tower, with the Proposed Development appearing in the foreground of longer-range views of the tower. However, key elements of the asset's significance will remain unchanged. It is considered that there will be no areas from which any views of the tower would be blocked entirely by the Proposed Development. It is anticipated that whilst the Proposed Development may be visible as an element within views of the tower, the amount of the tower visible in those views will remain largely unchanged. **No significant effects** are anticipated.

The decommissioning of the Proposed Development would not result in any physical effects to heritage assets. Following appropriate mitigation, based on the results of the trial trench evaluation, it is anticipated that areas of significant archaeological potential will not require any intrusive works to remove the infrastructure of the Proposed Development, given the above-ground nature of all of the elements within, or the potential avoidance of areas of significance. Therefore, **no significant effects** either direct or indirect are anticipated during this phase.

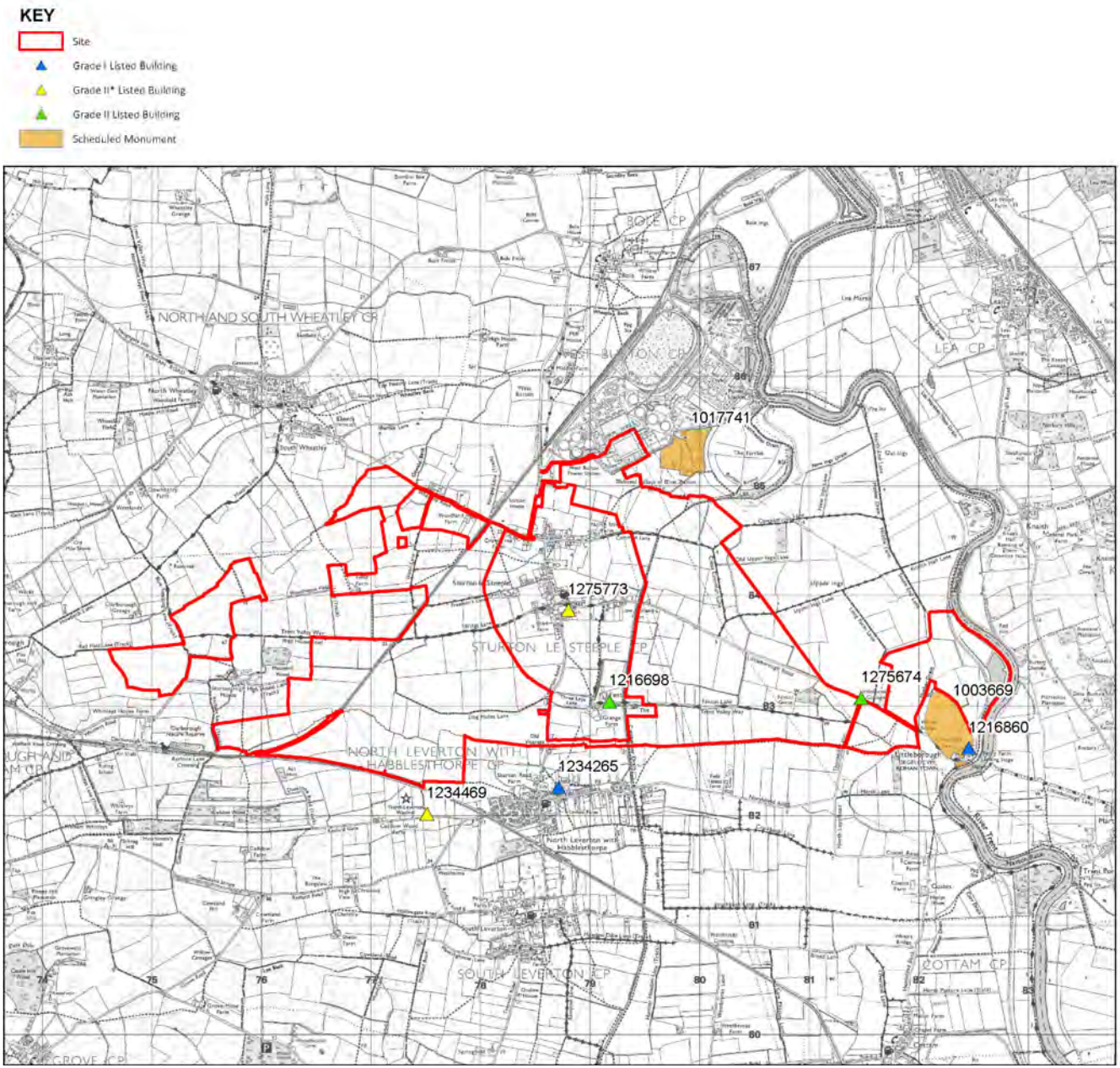


FIGURE 13: ASSETS CONSIDERED IN ES

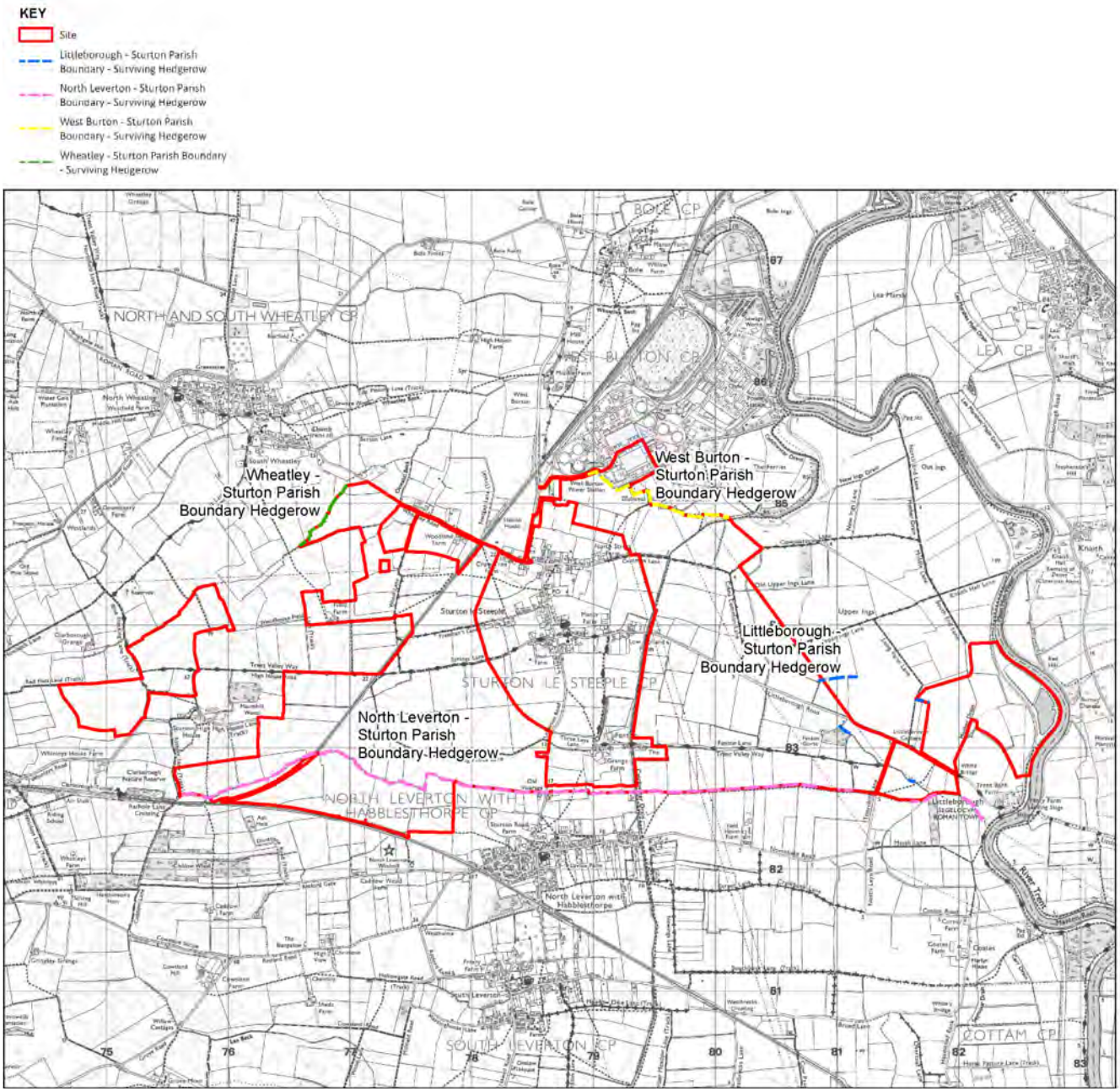


FIGURE 14: IMPORTANT HEDGEROW

MITIGATION AND ENHANCEMENT

With regards to below ground archaeology, development has been offset from identified areas of significant archaeology within the east of the Site. A programme of targeted trial trenching on 'will be undertaken prior to determination of the application to identify whether any other areas of archaeological significance require further mitigation. Further trenching would be undertaken post-consent, with these programmes of works used to identify whether any other areas of archaeological significance require further mitigation.

Should significant archaeological remains be encountered during the trial trench evaluation, such remains could either be avoided by the Proposed Development, or 'no dig' methods of construction utilised. Should such methods of mitigation be employed, the magnitude of impact to the identified areas of archaeological potential arising from the Proposed Development would be no change. The anticipated effect on the sensitive archaeology receptors would **not be significant**.

Dependent on the results of the further evaluative works, alternate forms of mitigation on discrete areas may be appropriate e.g., strip, map and sample excavation (archaeological technique used to investigate large areas by machine stripping the topsoil, then mapping and sampling features) or archaeological watching brief.

With regard to the cable trenches, should these areas be identified as having potential for **significant archaeological remains**, then an appropriate programme of mitigation could be undertaken during the excavation works for the cable trenches, which would allow for the recording of any archaeological deposits which may be disturbed, such as an archaeological watching brief.

With regard to the operational phase, a scheme of interpretation, facilitated via the erection of information boards, will be implemented on the Site. This will provide information on the heritage of the area along with other aspects of the surrounding natural and built environment and will help to provide further information on the heritage assets within the area, including information on the anomalies identified during the geophysical survey to help better reveal the historic environment of the area.

No mitigation measures are considered to be likely for the decommissioning phase.

CUMULATIVE AND IN-COMBINATION EFFECTS

With regard to the cumulative schemes for assessment, a number of them have been assessed as not having the potential to result any cumulative effects with the Proposed Development. This is due to separating distance, and a review of the heritage information submitted in support of the cumulative schemes. Either no heritage effects were identified at all, or no effects or harm were identified to heritage assets identified as experiencing an effect from the Proposed Development.

No significant cumulative effects are anticipated.

No significant in-combination effects are identified in relation to cultural heritage receptors.

CONCLUSION

This ES Chapter has identified **no significant residual effects** with respect to cultural heritage (above and below ground).

9. SOCIO-ECONOMICS

INTRODUCTION

This Chapter of the ES has set out the baseline conditions with respect to socioeconomics and has then gone on to assess the likely significant effects of the Proposed Development.

Full details of the socio-economics assessment are provided in Chapter 10: Socio-Economics of the ES.

BASELINE CONDITIONS

Bassetlaw experienced population growth of 7.7% between 2013 and 2023, whilst Nottinghamshire experienced growth of 6.2%. Employment growth in Bassetlaw was below comparator areas between 2015 and 2023 at 2%, compared to growth of 8.9% for Nottinghamshire. The construction sector in Bassetlaw, which is likely to see a boost during the construction phase, supports 4.9% of total employment, whilst in Nottinghamshire this sector supports 5.8% of employment. The claimant count (a measure of unemployment in the UK, specifically referring to the number of people claiming Jobseeker's Allowance and Universal Credit, principally for the reason of being unemployed) in both Bassetlaw and Nottinghamshire sits below the rates in the East Midlands and England, whilst the growth in businesses is higher for both areas relative to the regional and national figures.

Scarborough Tourism Economic Accommodation Model (STEAM) data indicated that in 2019 36 million visitors brought over £1.9billion into the Nottinghamshire economy and over 23,000 jobs were supported. By 2029, Nottinghamshire County aims to attract five million additional visitors, 2,900 additional Full Time Equivalent (FTE) jobs, £240million additional economic impact, and £80million additional Gross Value Added (GVA) associated with tourism and recreation. However, although the Nottinghamshire Visitor Economy Strategy sets out ambitious aims for the County area, the tourism sector in Bassetlaw is not a major source of employment with tourism supporting a smaller proportion of jobs at the district scale in comparison to the wider county, region and national scale.

LIKELY SIGNIFICANT EFFECTS

With respect to the construction phase, economic benefits will arise through the provision of temporary jobs. The assessment within this chapter of the ES indicates that the Proposed Development will have the following temporary and short-term effects:

- A total of 382 temporary jobs would be generated over the 24 month construction programme;
- The Proposed Development will generate £29.5million of GVA per annum over the 24-month construction phase; and
- An increase (of up to 363 construction workers) in demand on serviced (e.g., a hotel room with housekeeping) and non-serviced accommodation (e.g., an apartment).

Beneficial effects (**significant** and **not significant**) are identified for the construction phase. **No adverse effects** have been identified.

With respect to the operational phase, there would be no permanent jobs on the Site. Rather, frequent visits will be made by offsite workers to maintain the Proposed Development.

Business rates are an important economic contributor to an area. It is estimated that the solar element of the Proposed Development could generate around £2million per annum in business rates. Over the intended 40-year lifespan of the Proposed Development, business rates generated could total around £44million (present value). For the area of Bassetlaw, this is considered to be a **significant beneficial effect**. Given that Bassetlaw falls within Nottinghamshire, and it is possible that central government could re-invest funds within Nottinghamshire, there is also the potential for beneficial effects relating to business rates at the Nottinghamshire scale. The operational effect is therefore considered to be **beneficial, not significant**.

With regard to the decommissioning phase of the Proposed Development, associated activities are typically less labour-intensive than the construction phase. As such, the workforce during decommissioning could reasonably be expected to equate to around 50% of the construction workforce. Therefore, it is assumed that the Proposed Development could support around 82 temporary construction jobs during its decommissioning phase which is expected to last for around 12 months. Applying the same multiplier as previously used to the 82 on-site jobs, the Proposed Development could support 109 temporary jobs in the wider economy during the 12-month decommissioning phase. In total, the Proposed Development could support 191 temporary jobs, both direct jobs on-site and indirect/induced roles in the wider economy, during the 12-month decommissioning period. The level of effect relating to the decommissioning phase with respect to employment within Bassetlaw is a **significant beneficial effect**. For the wider area of Nottinghamshire (excluding Bassetlaw), the level of effect is considered to be a **beneficial, not significant**.

Applying the same method used to calculate GVA, it is estimated that over the approximate 12-month decommissioning phase the GVA impact associated with the decommissioning phase is estimated at £14.7million per annum. For the area of Bassetlaw, this equates to a **significant beneficial effect**. For Nottinghamshire (excluding Bassetlaw), there is not expected to be a GVA increase seen, leading to a negligible, **not significant effect**. Additionally, during the decommissioning phase there will be an increase of up to 182 workers in demand on Serviced and Non-Serviced Accommodation.

MITIGATION AND ENHANCEMENT

There are **no significant adverse effects** related to socioeconomics in any of the phases of the Proposed Development. As such, no mitigation is required.

With regard to enhancement measures, during the construction and decommissioning phases there is expected to be significant beneficial effects with respect to employment. The Applicant is committed to the enhancement of these effects as far as is practicably possible. As such, opportunities for employment and skills are supported through the preparation of an Outline Supply Chain, Employment and Skills Plan (OSCESP), which has been submitted with the application. Correspondence has been and continues to be undertaken with Bassetlaw District Council and Nottinghamshire County Council to ensure that the content and detail presented within the OSCESP are appropriate to all relevant stakeholders. The OSCESP outlines a number of key measures to enhance employment and skills in the area, such as:

- The use of local labourers where possible. This will be supported by Bassetlaw District Council and local stakeholders, such as Job Centre Plus and local recruitment companies;
- The Proposed Development will maximise the diversity of the workforce by employing candidates of different genders, ethnicities, and ages, as well as recruiting disadvantaged or under-represented groups such as the long-term unemployed; and
- The construction phase of the Proposed Development will include work placements to provide meaningful insights into the construction sector for people in education or not in education, such as ex-offenders.

The above measures contained within the OSCESP seek to ensure that the Proposed Development not only supports the local economy, but also provides valuable opportunities for skill development and employment for local residents during the construction and decommissioning phases, resulting in a major beneficial residual effect. It is acknowledged that the major beneficial residual effect relates to development phases that are temporal in nature, however, the legacy effect of upskilling the local workforce where possible will result in a long-term significant benefit at the Bassetlaw and Nottinghamshire scale.

CUMULATIVE AND IN-COMBINATION EFFECTS

The cumulative effects of the Proposed Development are expected to mirror the effects of the Proposed Development in isolation. The construction and decommissioning phases will see **significant beneficial cumulative effects** in terms of employment and economic contribution. Regarding accommodation demanded, due to the scale of the cumulative schemes for assessment, a worst-case scenario indicates a **significant cumulative adverse effect** may result during the construction phase of the Proposed Development. Despite this potential effect, it is believed that a more realistic scenario will be far less severe and **not significant**.

For the operational and decommissioning phases, all effects, in terms of employment, economic contribution, business rates and accommodation demand, are expected to be beneficial (**significant** and **not significant**).

No significant in-combination effects are identified in relation to socio-economic receptors.

CONCLUSION

The Proposed Development will result in **beneficial effects** in terms of employment, economic contribution, and business rates in all relevant phases of development. The only **significant adverse effect** comes when considering the accommodation demand effects during the construction phase of the cumulative schemes, but this is due to the worst-case scenario assessment and the more realistic scenario in reality the effect is expected to be less severe and ultimately not significant.

10. NOISE AND VIBRATION

INTRODUCTION

The Noise and Vibration Chapter of the ES has considered the potential effects of noise and vibration associated with the Proposed Development, including that associated with changes in traffic and electrical equipment to be installed at the Site. Potential residential receptors and users of Public Rights of Ways (PRoWs) have been considered and assessed (as required) in close proximity to the Site (within 2km).

Full details of the noise and vibration assessment are provided in Chapter 11: Noise and Vibration of the ES.

BASELINE CONDITIONS

The existing environment at the majority of properties neighbouring the Site is typical of a relatively rural area and to consist of sound generated by vehicles moving and the local and more distant wider road network, birds and wildlife, farm machinery, localised human activities and aircraft overhead with some industrial sound from existing industry located to the north of the Site.

Existing sources of vibration primarily emanate from traffic movements in the area, from Heavy Goods Vehicles (HGVs) in particular. Some existing vibration may also result from the very occasional tremor during thedemolition works at the West Burton A Power Station site.

LIKELY SIGNIFICANT EFFECTS

The main activities that have the potential to generate noise and vibration during the construction and decommissioning phase are the formation or removal of the access tracks, installation/removal of the solar panel frame supports (which may involve piling), construction / break-up of hard standing, horizontal direction drilling, cable trenching and landscaping, when occurring in proximity to neighbouring residences. Further, the construction of the BESS and any ancillary equipment, the installation of a transmission connection, and the installation of ecological and landscape mitigation measures. However, the majority of these works will be undertaken at substantial distances (more than 200m away) from neighbouring properties and therefore effects arising from the construction and decommissioning phases are anticipated to be **not significant**, when incorporating the adoption of a Construction Environmental Management Plan and the use of 'best practicable means' to reduce and mitigate construction noise and vibration levels as far as reasonably possible.

Other activities will either occur at distances that are very unlikely to result in levels that would breach typical noise limits or involve relatively light construction methods that would equally result in the generation of comparably low temporary levels of noise and vibration.

Occasional temporary noise and vibration generated during the construction phase may well be perceptible to users of PRoWs within and surrounding the Site without the implementation of mitigation measures.

Traffic generated during construction, decommissioning, maintenance and general operational requirements of the Proposed Development will result in relatively small increases in average daily traffic noise from along local roads. This aspect is therefore also considered **not significant**.

Due to the nature of the Proposed Development, **no significant effects** are anticipated upon residential receptors during the operational phase.

With regard to users of PRoWs during the operational phase, perceived effects will be entirely subjective. The resultant operational noise will be at a level for which it would be easy to hold a conversation, even when positioned directly adjacent to any electrical equipment installed as necessary to the Proposed Development. Further, there is no evidence to suggest that these typical acoustic levels of onsite operational noise would result in any potential health impacts. **No significant effects** are therefore anticipated.

MITIGATION AND ENHANCEMENT

The following construction noise and vibration mitigation measures will be implemented where appropriate and proportionate, facilitated via the Outline Construction Environmental Management Plan:

- Consideration shall be given to noise and vibration emissions when selecting or modifying the plant and equipment to be used on the Site, with quieter variants given preference;
- All plant and equipment will be used in accordance with manufacturers' instructions, maintained in good working order and fitted with the appropriate silencers, mufflers or acoustic covers where applicable;

- Where noise generated from a specific activity is expected to be directional, steps will be taken to orientate the equipment such that noise is directed away from any sensitive areas;
- Stationary sources of noise shall be sited as far away as reasonably possible from residential properties and consideration given as to whether it is necessary to install acoustic barriers to provide screening;
- The movement of vehicles to and from the Site shall be controlled and employees instructed to ensure compliance with the noise control measures adopted;
- Reducing the number of construction activities occurring simultaneously;
- The re-routing and/or temporary closure of relevant PRoWs;
- Restricting activities being performed within a certain distance of sensitive locations; and,
- Minimising the level of construction traffic associated with the Proposed Development.

CUMULATIVE AND IN-COMBINATION EFFECTS

The construction and decommissioning phases of the cumulative schemes for assessment, including the decommissioning of the West Burton A Power Station, are unlikely to result in any substantial cumulative impacts when occurring at the same time as the Proposed Development. Standard controls and mitigation for construction noise and vibration will likely apply in any case as each cumulative scheme will be required to mitigate its own effects. **No significant cumulative effects** are therefore anticipated.

With regard to the operational phase, the cumulative assessment demonstrates that the predicted levels of noise at all receptors would be **not significant**.

No significant in-combination effects are identified in relation to noise and vibration receptors.

CONCLUSION

An assessment of the potential noise and vibration impacts associated with the Proposed Development has been undertaken which demonstrates that isolative and cumulative impacts associated with operation and construction/decommissioning of the Site can be considered to be not significant, upon the successful implementation of typical mitigation measures. Further, **no significant effects** are anticipated during the construction, operational or decommissioning phases of the Proposed Development when considered in isolation.

11. CLIMATE CHANGE

INTRODUCTION

The Climate Change chapter assesses the potential effects of the Proposed Development on the climate, in particular the effect on greenhouse gas (GHG) emissions, and the vulnerability of the Proposed Development itself to climate change, known as climate change adaptation.

An Emissions Reduction Assessment has also been undertaken to quantify the amount of carbon within materials comprising the Proposed Development, and GHG emissions arising from the Proposed Development (e.g., via construction plant and machinery emissions).

The climate change adaptation assessment considered the vulnerability of the Proposed Development in response to future climate projections as well as the extent to which the climate worsens or improves the effects of the Proposed Development on the environment.

Full details of the climate change assessment are provided in Chapter 12: Climate Change of the ES.

BASELINE CONDITIONS

Existing site conditions have been determined with respect to average maximum and minimum summer and winter temperatures, average summer and winter sunshine hours and average summer and winter wind speeds.

With respect to the future baseline (i.e., the future environmental conditions of the Site in the absence of the Proposed Development), the United Kingdom Climate Projections (UKCP) shows a general trend towards warmer, wetter winters and drier, hotter summers. However, it should be noted that both temperature and rainfall patterns across the UK are not consistent and will vary depending on seasonal and regional scales and will continue to vary in the future. Temperatures across the East Midlands region are projected to increase, the highest of which relate to summer temperatures. Winter rainfall is projected to increase, and summer rainfall is likely to decrease. With regard to wind, wind speeds are not currently available at the regional level and there remains considerable uncertainty in the projections. The global projections over the UK show a modest increase in near-surface wind speeds over the UK for the second half of the 21st century for the winter season. An increase in the frequency of winter storms over the UK is also expected.

LIKELY SIGNIFICANT EFFECTS

The total greenhouse gas emissions arising from the construction phase are estimated to equate to 273,000 tonnes of carbon dioxide equivalent (tCO2e). One tonne of CO2e means the same climate impact as releasing one tonne of carbon dioxide (CO2), largely from the carbon that is within the materials needed to construct the Proposed Development. The assessment within the Climate Change chapter sets out that this is a **not significant effect** on the climate.

The total operational GHG emissions are estimated to equate to 174,000 tCO2e over its operational lifetime (40 years). However, as it is predicted that over the 40-year operational lifetime of the Proposed Development, there will be a total GHG emissions saving of 1,380,000 tCO2e (as the Proposed Development is a renewable energy development), when compared against emissions that would result from taking the same energy supply from the National Grid. Therefore, the operational phase of the Proposed Development with respect to GHG emissions is considered to have a **significant beneficial** effect.

The total GHG emissions from the decommissioning phase of the Proposed Development are estimated to equate to 14,300 tCO2e, which is considered **no significant effect** on the climate.

With respect to the vulnerability of the Proposed Development, it is not considered that the Proposed Development could be affected by climate change (including strong winds, extreme events, overheating, wildfires and flood risk) to such an extent that the construction and/or operation of the Proposed Development could potentially become unviable.

Therefore, **no significant adverse effects** are predicted.

MITIGATION AND ENHANCEMENT

As with the majority of construction projects, there will be unavoidable GHG emissions resulting from the construction phase of the Proposed Development as materials, energy, fuel use and transportation will be required. Measures such as the below, enforced via the successful implementation of the CEMP /CTMP, will be applied to the Proposed Development with the intention of minimising those emissions as far as possible:

- Designing, constructing, and implementing the Proposed Development in such a way as to minimise the creation of waste and maximise the use of alternative materials with lower embodied carbon, such as locally sourced products and materials with a higher recycled content where feasible;
- Reusing suitable infrastructure and resources already available within the Proposed Development where possible to minimise the use of natural resources and unnecessary materials (e.g., reusing excavated soil for fill requirements); and
- Increasing recyclability by segregating construction waste to be re-used and recycled where reasonably practicable.

Further measures are set out in the Outline Construction Environmental Management Plan and Outline Construction Traffic Management Plan, for which detailed versions are secured via DCO requirements.

CUMULATIVE AND IN-COMBINATION EFFECTS

For emissions reduction, the cumulative effects of carbon emissions have been considered with other planned renewable energy projects, including those within the administrative area of Bassetlaw District Council. The cumulative assessment for the construction and decommissioning phases has concluded that effects would be **not significant**. The cumulative operational effects are considered to be **beneficial, significant**.

The Proposed Development's resilience to a changing climate is not likely to be affected by the presence of other developments, assuming required compliance with regulatory standards and accepted good practice mitigation measures.

With respect to 'in-combination climate effects', the assessment considered the projected climate change in more detail in relation to landscape and visual impact and residential amenity, ecology and biodiversity, cultural heritage, and land use and agriculture, and glint and glare. **No significant in-combination effects** were identified for these topics as a consequence of projected climate change.

CONCLUSION

The results of the Emissions Reduction Assessment have indicated that the potential environmental effects resulting from GHG emissions to the global atmosphere are concluded to be **not significant** for both the construction and decommissioning phases, and **beneficial**, **significant** for the operational phase, both for the Proposed Development in isolation, and cumulatively.

For climate change adaptation, **no significant effects** have been identified for the relevant topic areas as a result of a changing climate. Further, it is not considered that the Proposed Development could be affected by climate to such an extent that the construction, decommissioning and/or operation of the Proposed Development could potentially come unviable.

12. TRANSPORT AND ACCESS

INTRODUCTION

The Transport and Access chapter of the ES assesses the potential likely significant effects of the Proposed Development on vehicular traffic flows, severance (ending an existing transportation connection), non-motorised user delay, driver delay, non-motorised user amenity, accidents and safety, fear and intimidation, hazardous loads, and dust and dirt deposition during the construction phase.

The assessment of the operational and decommissioning phases was 'scoped out' at the EIA Scoping Stage.

The Transport and Access chapter of the ES has been prepared alongside a Transport Statement and Outline Construction Traffic Management Plan. Full details of the transport and access assessment are provided in Chapter 13: Transport and Access of the ES.

BASELINE CONDITIONS

Existing traffic and transport information was collected through sources such as Automatic Traffic Count Surveys, Highway Search, Personal Injury Collision Data and Base Mapping. The local highway network to the Site includes the A638/A614, A631, A620 (Gainsborough Road / Saundby Road), Sturton Road / Gainsborough Road, Station Road / Wheatley Road, Cross Street, Leverton Road and Main Street. The proposed routing of vehicles to the Proposed Development is identified in **Figure 15**. Each of the highway and Public Right of Way links scoped into the assessment show no links assumed to be particularly sensitive to traffic related impacts.

LIKELY SIGNIFICANT EFFECTS

Professional Transport and Access assessment guidance sets out that a significant effect could occur where traffic flows increase by 30%, or more than 10% where the highway link is of high sensitivity, with specific environmental or population sensitivities in close proximity.

The ES chapter considers, in detail, a link at Station Road (West) due to the impact of Heavy Goods Vehicles (HGVs) associated with the Proposed Development during the construction phase.

The HGV traffic flow on this is considered to have a **not significant effect**, with mitigation measures in place through adopting best practices set out in the Outline Construction Traffic Management Plan, which aims to minimise the effect of the construction phase on local residents, businesses, and the local and strategic highway network and it contains a package of mitigation measures such as the timing of deliveries into the Site to avoid congestion on the highway network.

Based on the low accidents recorded in the vicinity of the Site, impacts arising from the construction phase on accidents and safety have been assessed as **not significant**. Further, the Proposed Development falls into the lowest category for fear and intimidation, and therefore effects on fear and intimidation are anticipated to be **not significant**. The Proposed Development is not anticipated to be associated with any hazardous loads.

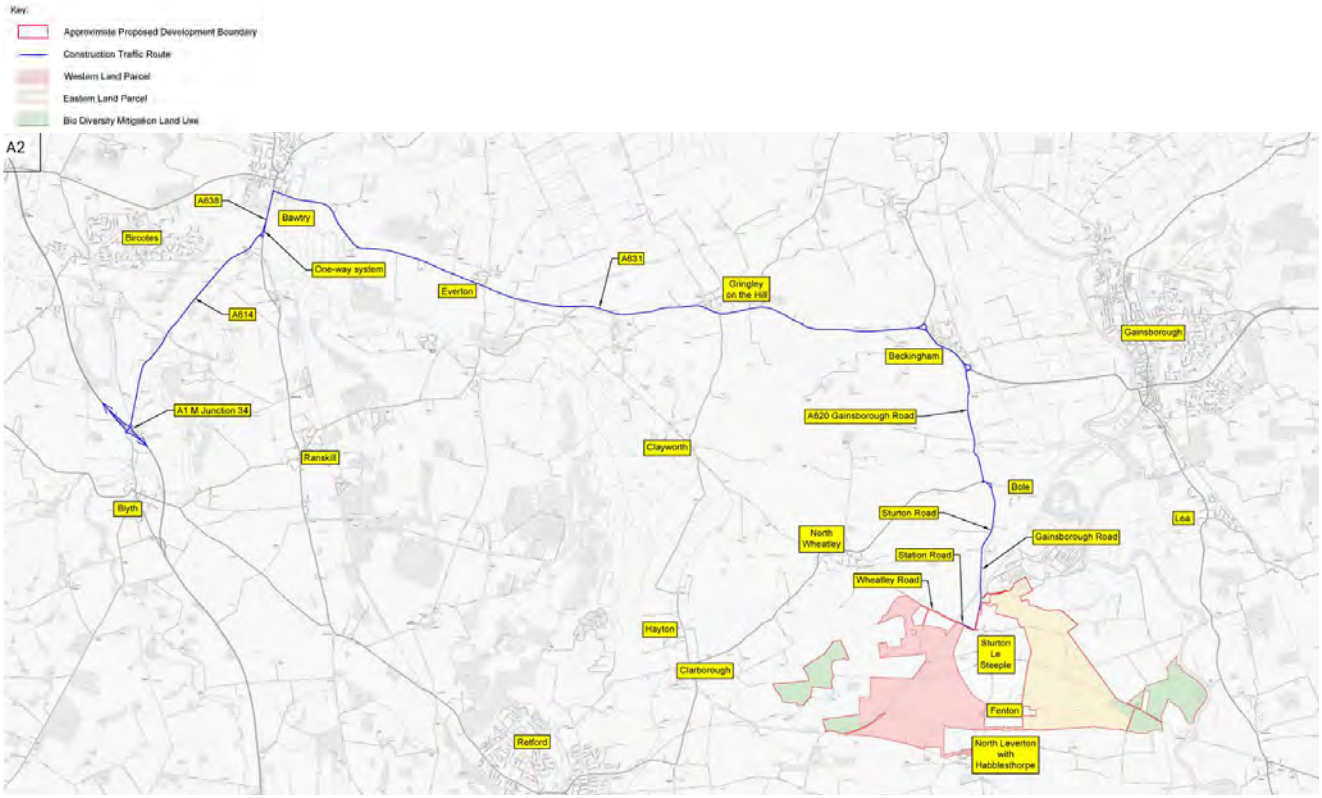


FIGURE 15: PROPOSED DEVELOPMENT LOCATION AND ROUTING PLAN

MITIGATION AND ENHANCEMENT

Standard measures and the adoption of construction best practice methods to avoid, minimise, or manage adverse environmental effects to have been incorporated into the approach to the construction methodology and design of the Proposed Development so far as practicable. In particular, the requirements for deliveries and workforce to route to the Proposed Development from the north of the Site through the restricted construction traffic route.

An Outline Construction Traffic Management Plan, including a PRoW Management Plan and Construction Worker Travel Plan (CTWP), will be implemented during the construction phase of the Proposed Development. It restricts construction vehicles to defined routes, limiting the impact on villages and urban areas. It also includes measures such as restricting deliveries during peak periods, staggered timing of inbound and outbound construction traffic movements and appropriate signage and traffic control. The PRoW Management Plan seeks to mitigate the effect of the Proposed Development on the PRoW routes which cross and abut the Site, and the potential impact on non-motorised users. The PRoW Management Plan will also remain applicable and will be implemented throughout the operational phase of the Proposed Development. The CWTP aims to encourage lift sharing, minibuses and restricted routing for deliveries and workforce. These will be agreed with the Local Highways Authority and National Highways prior to the commencement of the construction phase and are secured via DCO requirement.

CUMULATIVE AND IN-COMBINATION EFFECTS

A review of other local developments, either allocated, consented, or recently constructed and occupied, has been carried out to determine the cumulative effect of these schemes with the Proposed Development on the local and strategic highway network in the 2027 and 2029 future year scenarios, with the Proposed Development in operation. In accordance with professional guidance, none of the relevant transport links scoped into the cumulative assessment need to be assessed as thresholds were not met or exceeded. **No significant cumulative effects** are therefore anticipated.

No significant in-combination effects are identified in relation to transport and access receptors.

CONCLUSION

No significant effects are anticipated, following the successful implementation of mitigation measures.

14. AIR QUALITY

INTRODUCTION

The Air Quality Chapter of the ES focuses on the potential air quality effects at existing sensitive receptors during the construction and decommissioning phases during the following processes:

- Dust emissions during the construction phase of the Proposed Development;
- Road Traffic emissions during the construction, operational and decommissioning phases; and
- Emissions from plant and equipment during the construction, operational and decommissioning phases of the Proposed Development.

The pollutants of concern for human health from construction and operational road traffic are nitrogen dioxide (NO_2) and particulate matter (PM_{10} and $PM_{2.5}$). During construction, there is also the potential for impacts to occur from dust soiling and elevated PM_{10} emissions

Full details of the air quality assessment are provided in Chapter 14: Air Quality of this ES.

BASELINE CONDITIONS

The Site is not located within or near to an Air Quality Management Area (AQMA).

Monitored concentrations in the vicinity of the Site show pollutant concentrations have been below the Air Quality Objectives in 2023, the most recently available year of monitoring data.

Existing sensitive receptors at the roadside, residential dwellings, healthcare facilities and schools located along the proposed construction traffic routes, have the potential to be affected by an increase in emissions from construction traffic for the construction phase. There are no internationally designated ecological sites within 200m of the proposed construction routes, therefore there are **no likely significant effects** to national sensitive habitats or species. See **Figure 16** shows the locations of sensitive receptors in close proximity to the proposed construction routes.

LIKELY SIGNIFICANT EFFECTS

The predicted construction traffic flows have been screened against relevant air quality criteria for the air quality assessment and were considered to fall below the screening criterion, for which **significant effects** are likely. As such, **no significant effects** are considered to be likely. The effects of the decommissioning phase are largely expected to mirror those of the construction phase; therefore, **no significant effects** are likely.

In addition, dust emissions during the construction and decommissioning phases will be controlled via the Outline Construction Environmental Management Plan and Outline Decommissioning Plan, respectively, and as such **no significant effects** are anticipated.

Predicted operational traffic flows have been screened against relevant air quality criteria for the air quality assessment for human receptors and ecological receptors and considered to be **not significant**.

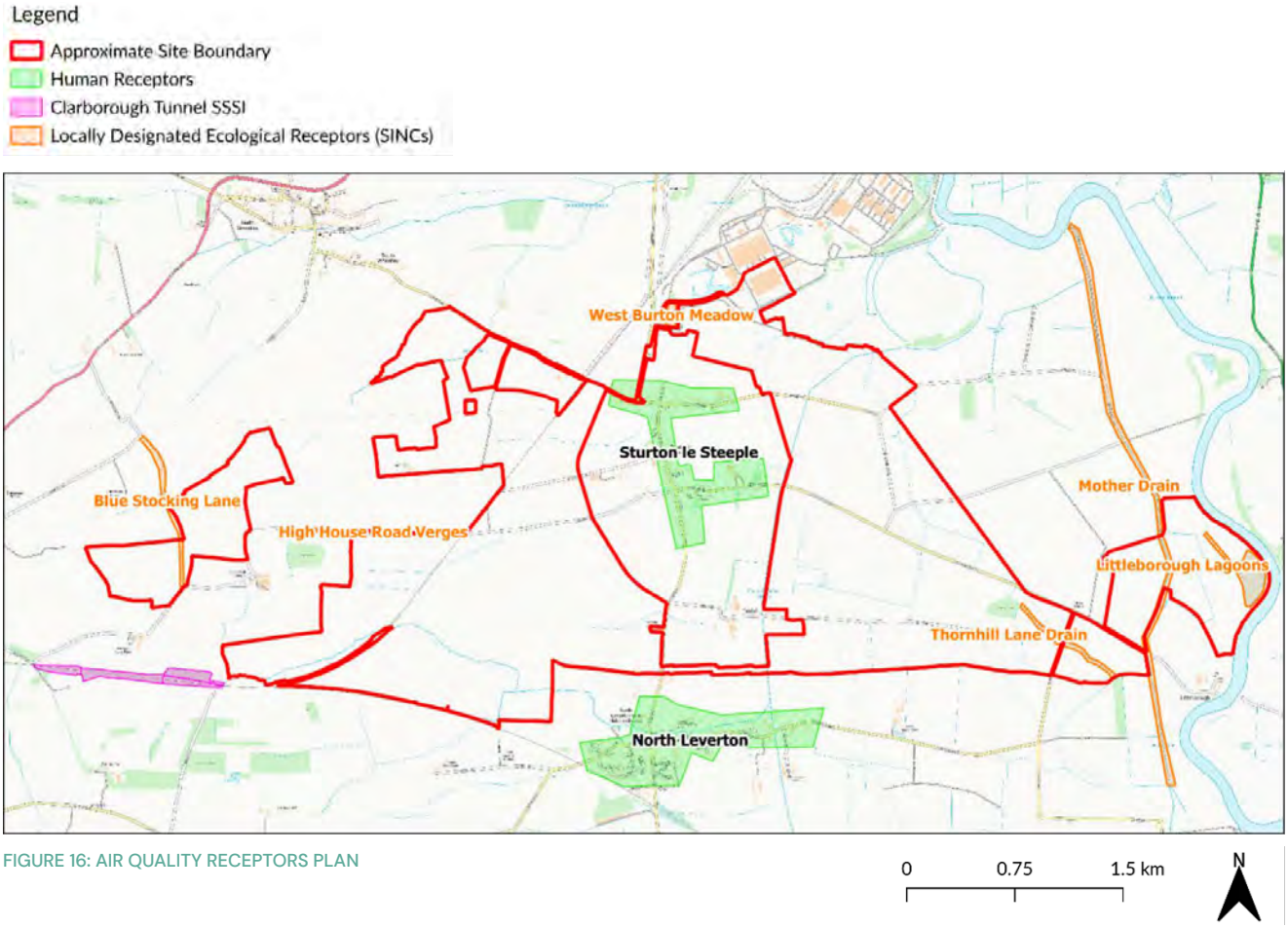


FIGURE 16: AIR QUALITY RECEPTORS PLAN

MITIGATION AND ENHANCEMENT

Although **no significant effects** have been identified, emissions to air will be controlled by relevant management plans including the Outline Construction Environmental Management Plan, Outline Construction Traffic Management Plan and Outline Decommissioning Plan.

Routing arrangements during the construction and decommissioning phases to minimise travel through the village of Sturton le Steeple are secured via DCO requirement as part of the Outline Construction Traffic Management Plan, minimising emissions at sensitive receptors within Sturton le Steeple.

CUMULATIVE AND IN-COMBINATION EFFECTS

It is considered likely that there will be **no significant cumulative effects** from construction or operational traffic associated with the Proposed Development and other developments located within Nottinghamshire and Lincolnshire area due to the implementation of relevant mitigation measures and management plans within their respective applications.

No significant in-combination effects are identified in relation to air quality receptors.

CONCLUSION

It is concluded that the proposed package of mitigation will ensure that the Proposed Development is acceptable and that there will be **no adverse significant effects** to air quality.

14. LAND USE AND AGRICULTURE

INTRODUCTION

The Land Use and Agriculture Chapter of the ES focuses on the agricultural land quality of the Site and the potential effects of the Proposed Development upon agricultural resources during the construction, operational and decommissioning phases.

Agricultural land quality is assessed by use of Natural England's Agricultural Land Classification (ALC) system. The ALC system divides land into grades 1 to 5, with grade 3 divided into subgrades of 3a and 3b. The National Planning Policy Framework (NPPF) (2024) places Grades 1, 2, and subgrade 3a within the definition of the 'Best and Most Versatile' (BMV) agricultural land. National policy advises that while land type should not be a predominating factor with sites for development, land of lower ALC grade (i.e., non BMV) should be preferred where possible.

Full details of the land use and agriculture assessment are provided in Chapter 15: Land Use and Agriculture of the ES.

BASELINE CONDITIONS

The Site involves approximately 888.3 ha of agricultural land. The area of the Site to be occupied by solar panels extends to 467 ha and comprises a mixture of Grades 1, 2, 3a and 3b land. Grade 1, 2 and 3a are considered to be BMV land; whereas Grades 3b and below are not considered to be BMV land. The composition of the Site is set out below (rounded to the nearest whole hectare)- see **Figure 17** for a map of the agricultural land classification grading.

Table 1

ALC GRADE	DESCRIPTION	AREA (HA)	PROPORTION (%)
1	Excellent	56	6.3
2	Very good	154	17.3
3a	Good	430	48.5
3b	Moderate	82	9.2
4	Poor	0	0
5	Very poor	0	0
NA	Non-agricultural	0	0
NS	Not surveyed (ecological enhancement)	166	18.7
Total		**888**	**100.0**

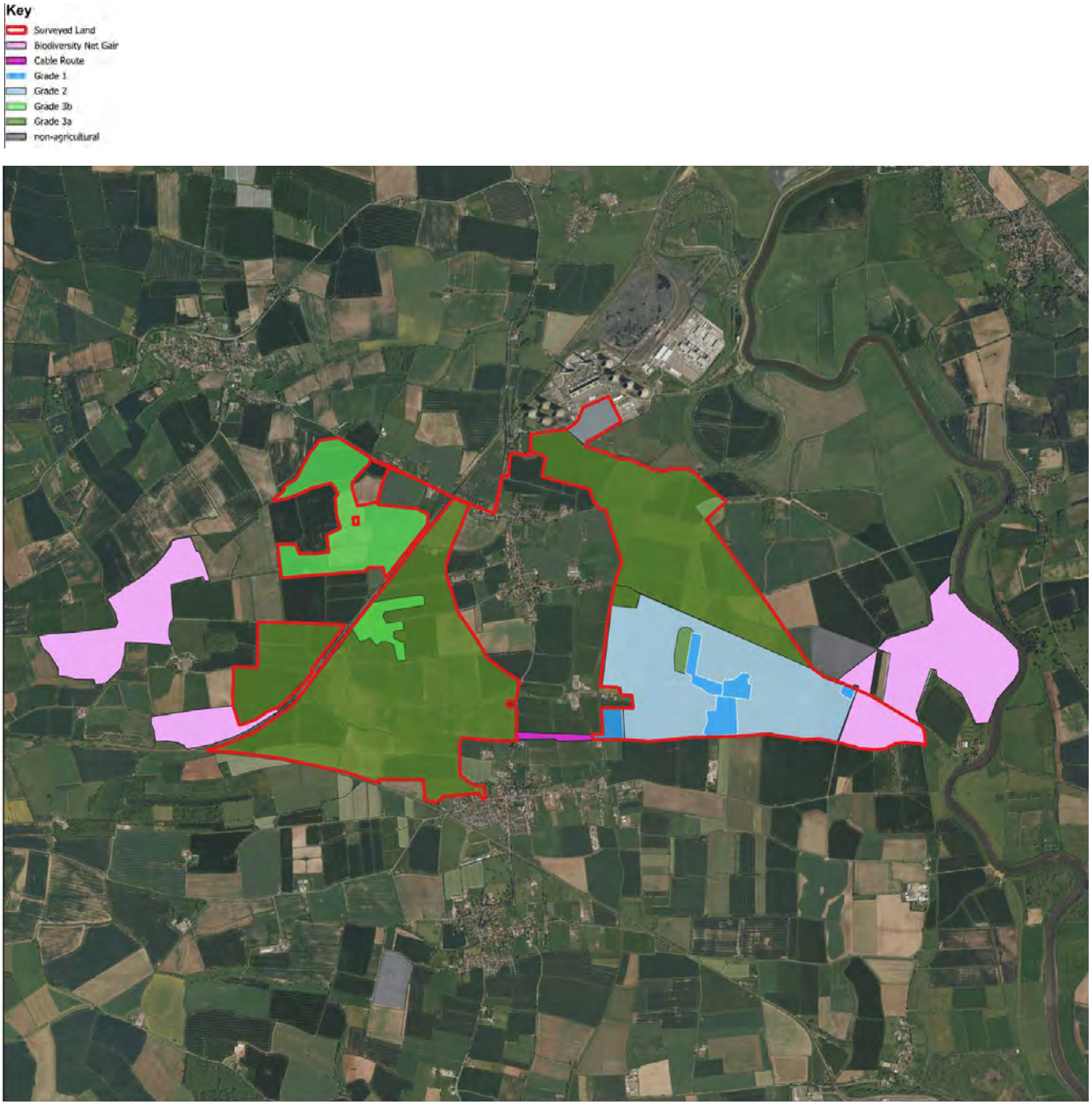


FIGURE 17: ALC GRADES PLAN

LIKELY SIGNIFICANT EFFECTS

As set out above, the Site comprises a large proportion of BMV land; a sensitive receptor. However, the impact of the Proposed Development is temporary (i.e., the Proposed Development's lifetime is 40 years from the start of operation). Therefore the change of use of BMV land to solar development does have implications on the ability to farm the land for arable uses, however, these effects are not considered to be a permanent loss of land within a wider agricultural use and effects are generally considered to be **not significant**.

However, consultation has been ongoing with Natural England regarding the matter of potential effects arising from provision of new woodland and ponds. In a worst-case scenario, the permanent loss for ponds of c 1 ha of agricultural land (likely mostly non-BMV) and the potentially permanent downgrading of circa 12.1 ha of mostly BMV land for woodland planting, would be a medium magnitude impact, on land of high sensitivity, which would result in an effect of **moderate significance.** Taking this worst-case assessment the effect is therefore **significant**.

While the soil is temporarily taken out of arable rotation, the impact on the land is low. Solar projects typically involve minimal ground disturbance and can provide a valuable break from intensive agricultural practices associated with arable rotation. This 'fallow' (resting) period allows the soil to recover from the constant cultivation, chemical inputs, and compaction associated with modern farming practices.

The farm businesses on the Site are full time arable enterprises and are also resilient to a degree of change. The effects especially on farm businesses, will be significant for those businesses but, in terms of this wider environmental assessment, the effect would be minor adverse which is considered to be **not significant**.

Once the Proposed Development is decommissioned the land will be returned to its current condition and returned to the landowner.

MITIGATION AND ENHANCEMENT

Measures have been included within the Outline Soil Management Plan (secured via DCO requirement) that has been submitted with the ES to minimise effects as far as possible. Example measures include the best practice methodology for soil handling, seed mixes for stockpiles of soil, and the use of appropriate equipment to construct the Proposed Development to avoid unnecessary damage to soils.

CUMULATIVE AND IN-COMBINATION EFFECTS

The are considered to be **no significant adverse cumulative effects** as the development is not leading to a significant permanent loss of BMV, such that, notwithstanding other schemes in the area, significant cumulative effects are not predicted.

No significant in-combination effects are identified in relation to land use and agriculture receptors.

CONCLUSION

Overall, following ongoing consultation with Natural England, a significant effect on BMV land has been identified for the areas proposed for new woodland and ponds. No other **significant adverse residual effects** are identified for the construction, operation and decommissioning phases of the Proposed Development in regard to land use and agriculture.

15. GLINT AND GLARE

INTRODUCTION

The potential glint and glare impacts of the Proposed Development upon road safety, residential amenity, railway infrastructure and operations, aviation activity, and PRoWs have been assessed.

Full details of the glint and glare assessment are provided in Chapter 15: Glint and Glare of the ES.

BASELINE CONDITIONS

The surrounding area of the Site is rural, with existing vegetation, non-residential buildings and intervening terrain and non-residential buildings, that provide a level of mitigation for reflecting panels. A number of receptors have been included for the Glint and Glare assessment:

- Local roads (i.e., Main Street, Leverton Road and Wheatley Road);
- Regional roads (200m section of A156/Gainsborough Road);
- Residential dwellings;
- Railway receptors (e.g., drivers of trains that are traveling along the railway that bisects the western portion of the Site); and
- Aviation (i.e., aerodromes within 15km of the Site).

LIKELY SIGNIFICANT EFFECTS

The operational phase has been assessed only, as this is considered to be the 'worst case' for the glint and glare discipline (i.e., the maximum amount of solar panels will be on the Site, which gives rise to the possible worst case scenario in terms of reflections from solar panels).

With regard to road safety, solar reflections are possible towards a small section of the A156/Gainsborough Road. With screening in the form of existing and additional vegetation and intervening terrain it is predicted views that of reflecting panels are obstructed for the entire 200m section of the A156/Gainsborough Road, such that effects would be **not significant**.

For residential dwellings in the vicinity of the Site, with screening in the form of existing and additional vegetation, non-residential buildings and intervening terrain views of reflecting panels are obstructed for 200 of the 212 residential dwellings assessed, such that effects would be **not significant**. For 12 of the residential dwellings, marginal views are considered possible in tandem with sufficient mitigating factors. Resultant effects are considered to still be **not significant**.

With regard to train divers operating trains along the section of railway that bisects the western portion of the Site effects would be **not significant**.

Solar reflections towards West Burton Airfield and Grove Farm Airfield have glare intensities with 'potential for temporary after-image'. As such, an **adverse effect** is predicted. The glare scenario is considered in the context of the activity at the airfield and is deemed operationally accommodatable (meaning operations would not be impacted as training exercises are understood not to occur at the aerodromes). **No significant effects** are anticipated; albeit engagement with relevant stakeholders will continue to be held.

Solar reflections towards Forwood Farm airfield occur outside of a pilot's main field of view. Therefore, any effects on this aerodrome are considered to be **not significant**. **No other significant effects** are anticipated for the other aerodromes assessed.

Due to the low sensitivity of users of PRoWs and nearby waterways, including boat traffic, solar reflections on these receptors are considered to be **not significant**. Glint and Glare effects towards receptors on PRoWs and waterways are transient, and time and location sensitive, whereby a pedestrian could move beyond the solar reflection zone with ease. Additionally, screening in the form of existing vegetation, buildings and intervening terrain will reduce the visibility of reflecting panels towards these receptors and therefore further mitigate any impact. **No significant effects** are anticipated.

MITIGATION AND ENHANCEMENT

The significant effects upon ground-based receptors such as roads and residential dwellings, and railway operations and infrastructure can be minimised by various mitigation strategies, the most common being, for example, the provision of screening along the boundary of the Proposed Development to obstruct views of potentially reflecting panels.

CUMULATIVE AND IN-COMBINATION EFFECTS

Cumulative effects with the solar farms in the vicinity of the Site were considered to be possible and assessed. **No significant cumulative effects** were identified on any of the assessed receptors.

No significant in-combination effects are identified in relation to glint and glare receptors.

CONCLUSION

The Proposed Development is considered to have **no significant** glint and glare impacts upon road safety, residential amenity, railway infrastructure and operations, aviation activity, public rights of way, bridleways and waterways.

16. MISCELLANEOUS ISSUES

INTRODUCTION

The Miscellaneous Issues ES Chapter assesses the following topics:

- Electric, Magnetic and Electromagnetic Fields;
- Telecommunications and Utilities;
- Waste; and
- Major Accidents and Disasters.

None of these topics require individual chapters in the ES, either due to the brevity of the assessment, or the small impact associated with the Proposed Development.

Electric, Magnetic and Electromagnetic Fields

This section sets out the approach to the potential of electric, magnetic and electromagnetic fields (EMFs) produced by the Proposed Development. EMF is produced both naturally and as a result of certain human activities. EMFs are inevitable wherever electricity is produced, distributed, and used, including electrical substations, power lines and electric cables and around domestic, office or industrial equipment that uses electricity.

Electric fields are produced by voltage. Magnetic fields are produced by the flow of electric current; however, most materials do not readily block magnetic fields. The intensity of both electric fields and magnetic fields diminishes with increasing distance from the source.

Baseline Conditions

The underground grid connection 400 kV cable system is approximately less than 1km in length between the Onsite Substation and the existing West Burton 400kv Substation. It will be located on private land within the Order Limits that is not publicly accessible; however, the public and occupational exposure reference levels have been used in this assessment to ensure that there are no adverse effects on the closest publicly accessible areas and residential areas.

A proposed connection point for the underground 400 kV cable system will be to the existing substation at the West Burton Power Station site that is located adjacent to the northern extent of the Site, which connects to the existing 400 kV overhead transmission network. This infrastructure also has the potential to generate electro-magnetic fields (EMFs) as it includes equipment greater than 132kV.

Likely Significant Effects

Effects during the construction and decommissioning phases of the Proposed Development are scoped out of the assessment as the cables will not produce any significant EMFs until the Proposed Development is generating electricity when it is operational.

An underground high voltage 400kV cable system will be installed to connect the Proposed Development substation with the existing West Burton Power Station substation and is expected to be less than 1km in length. The highest EMFs produced by underground cables are located directly above the buried cables, and field strength decreases with distance from the source. The 400kV cable is a short length of approximately 0.7km to the existing substation at the West Burton Power Station site and the nearest residential receptor is located more than 100m from the likely route of the underground cable (bearing in mind that the PoC is adjacent to the north / north-east of the Site, within the existing West Burton Power Station site). Therefore, in accordance with public exposure limit values, EMFs will have no effect on local residents and **no significant effects** are anticipated.

Mitigation and Enhancement

The requirement to consider EMF exposure guidance is fully understood by the Applicant and has been factored into the consideration of the route alignment inside the Site from an early stage.

No specific mitigation measures are considered necessary, given the distance of potential residential receptors to the short cable route that will connect the Proposed Development to the existing substation at the West Burton Power Station site.

Cumulative and In-Combination Effects

The cumulative schemes for assessment are predominantly large-scale infrastructure schemes, primarily solar farms and battery storage applications. Some of those schemes may connect to the existing substation at the West Burton Power station site. Each scheme will have easements and provisions in place to protect existing below ground infrastructure, such that **no significant cumulative effects** are considered to be likely.

No significant in-combination effects are identified in relation to EMF receptors.

Conclusion

No significant effects have been identified for EMFs with the Proposed Development in place during any phase (construction, operation or decommissioning).

Telecommunications and Utilities

Introduction

This section assesses the effects of the Proposed Development on telecommunication infrastructure and existing utilities. The Proposed Development has the potential to affect the existing telecommunications and utility infrastructure below ground.

Baseline Conditions

Three existing telecommunications assets are located within the Site, under the ownership of:

- Openreach (British Telecommunications plc);
- Vodafone; and
- National Grid.

The area surrounding the Proposed Development receives television signals that were made exclusively digital after the digital switchover was completed in the Nottinghamshire region in 2011.

The area within and surrounding the Site is predominantly served by the Belmont transmitter (Lincolnshire), which is located approximately 39km to the east of the Site.

Additional searches were undertaken for the presence of radio masts within the vicinity of the Site, which found:

- Fishpond Hill (Nottinghamshire, England) DAB transmitter, located 36km to the south-west; and
- Belmont (Lincolnshire, England) DAB transmitter, located 39km to the east.

On site utilities include water, sewers, a high-pressure gas pipeline, water mains, and electrical cables. Knowledge of the utilities during design and construction allows any effects to be negated by avoiding them or by use of stable structures, such as pipe bridges. The relevant statutory undertakers have been informed and consulted with regard to the Proposed Development

Likely Significant Effects

The Proposed Development consists of fixed low-lying infrastructure and is therefore unlikely to interfere with digital television signals and therefore **no significant effects** are anticipated in the construction, operation and decommissioning phases.

The potential exists for utilities to be affected during the construction phase, through damage caused as a result of excavation and engineering operations. Prior to the construction and decommissioning phases, the design team and appointed Contractor will review the locations and alignments of the utilities using utilities plans and use them to inform the plans for the proposed works to ensure all known utilities are avoided. Without any precautionary measures to avoid damage to utilities, this could lead to a temporary adverse effect. Risks will be minimised by, for example, locating the Proposed Development outside of utilities' protected zones, and the use of ground penetrating radar prior to any excavation to identify any potential unknown utilities. Measures such as these would reduce the likelihood of significant effects on utilities during construction and decommissioning.

The design of the Proposed Development will seek to ensure that any buffers that the operator of the high-pressure gas pipeline requests are in place at the detailed design stage, including no solar panels or BESS infrastructure in this area.

No significant effects are anticipated in regard to utilities during the construction and decommissioning phases.

The potential exists for utilities to be affected during the operational phase of the Proposed Development through damage caused as a result of maintenance operations. However, effects are expected to be a lesser degree than the construction and decommissioning stages than the operational phase of the Proposed Development, as no below-ground works will be required. **No significant effects** on utilities are considered likely.

Mitigation and Enhancement

The risk to existing utilities on the Site during the construction and decommissioning phases would be minimised, as the design of the Proposed Development will incorporate any offset distances from existing utilities, to be agreed with the relevant stakeholders. A CEMP will be implemented on the Site prior to any construction taking place, which will further reduce the likelihood of significant effects. No further mitigation is considered to be required.

Cumulative and In-Combination Effects

No significant cumulative effects are anticipated to occur in combination with other cumulative schemes in the locality, as the Proposed Development is not considered likely to result in any adverse effects on telecommunication, television or utilities.

No significant in-combination effects are identified in relation to telecommunication, television or utilities receptors.

Conclusion

No significant effects have been identified for telecommunication, television or utilities receptors with the Proposed Development in place during any phase (construction, operation or decommissioning).

Waste

Introduction

This section of the ES chapter sets out the approach to waste management that will be applied to the design and the expected waste streams during each phase of the Proposed Development. Waste' is defined as materials that are unwanted, having been left over after the completion of a process which would otherwise be discarded. The legal definition of waste also covers substances or objects, which fall outside of the commercial cycle or out of the chain of utility.

Baseline Conditions

Waste at the Site is currently associated with agricultural practice. Potential waste streams currently include left over crop and straw bales, fertiliser sacks and chemical containers. During construction, agricultural uses will cease within the main development areas. The biodiversity mitigation areas will be retained and could continue for agricultural use.

Likely Significant Effects

The Site comprises mainly agricultural land; therefore, no demolition waste will be produced as part of the Proposed Development. It is also anticipated that minimal site preparation and excavation waste would be generated from the Proposed Development.

All electrical infrastructure such as solar PV modules will be manufactured off the Site and delivered to the Site ready for installation. Therefore, any associated waste is expected to be minimal, including any packaging waste.

Construction activities will also generate waste materials as a result of general handling, losses and surpluses and these wastes can be mitigated through good

site practices, including proper storage and handling of materials to avoid damage, and accurate quantity estimates and efficient purchasing arrangements to avoid over ordering.

The generation of construction-related waste can be significantly reduced through the choice of materials and other opportunities and this will be explored as far as possible before construction of the Proposed Development begins. Possibilities to reuse or recycle materials will be explored before resorting to landfill options, in accordance with the Waste Hierarchy. The main anticipated construction waste streams are all capable of being recycled (e.g., cardboard, plastic, metal among other materials), with recycling routes generally available for such materials. The overall recovery rate from landfill diversion is expected to be at least 60-89% of materials and as such, **no significant effects** are anticipated.

During the operational phase of the Proposed Development waste arising is expected to be substantially less than during the construction phase and would include welfare facility waste; equipment needing replacing; waste metals; and general waste (paper, cardboard, wood, etc.). Further, some waste could arise from the maintenance of the operational Proposed Development, including solar PV modules, inverters, BESS and transformers. No replacement of cabling is anticipated during the operational phase of the Proposed Development. The operational phase effects associated with waste are anticipated to be **not significant**.

During decommissioning, waste streams are expected to include, but not be limited to, solar infrastructure, batteries, cables, welfare facility waste, waste metals, and wastewater. Prior to decommissioning, opportunities to minimise waste as far as possible will be explored and are anticipated to be **not significant**.

Mitigation and Enhancement

Waste arisings from the Proposed Development will be designed out where possible. Opportunities to re-use material resources will be sought where practicable. Where re-use and prevention are not possible, waste arisings will be managed in line with the Waste Hierarchy. Design considerations will seek to minimise waste from the construction phase, and are likely to follow approaches such as:

- Maximise the use of reclaimed materials during construction;
- Maximise recycling opportunities in the decommissioning phase;
- Use prefabricated and standardised components in the standard product sizes (e.g., panels, mounting structures). As these are made in a factory-controlled environment, they tend to generate less waste and if standard product sizes are made use of, this minimises wastage on site;
- Segregation of construction waste on site to maximise potential for reuse/recycling; and
- These mitigation measures are set out within the Outline Construction Environmental Management Plan, submitted with this DCO application.

Cumulative and In-Combination Effects

Cumulative effects are possible with other solar farm developments in the local vicinity. A new industry is emerging for the recycling of solar panels, and the resale of any operational panels. These streams could be explored during the decommissioning phase of the Proposed Development, as technology is assumed to have advanced at the end of the Proposed Development's operational life. Management of the potential cumulative volumes of waste would be managed through the final Decommissioning Plan.

As such, **no significant cumulative effects** are anticipated in regard to waste.

No significant in-combination effects are identified in relation to waste receptors.

Conclusion

No significant effects have been identified for waste receptors with the Proposed Development in place during any phase (construction, operation or decommissioning).

Major Accidents and Disasters

Introduction

This section summarises the potential effects of the project on the risks of major accidents or disasters occurring and affecting the Proposed Development. 'Accidents' are an occurrence resulting from uncontrolled developments in the course of construction, operation and decommissioning (e.g., major emission, fire or explosion). 'Disasters' are naturally occurring extreme weather events or ground related hazard events (e.g., subsidence, landslide, earthquake).

Baseline Conditions

A number of receptors are present in the vicinity of the Site that could be vulnerable to major accidents or disasters, either because of their proximity to the Site or their importance to the surrounding area. These include:

- Villages, farms, and residential homes;
- Roads;
- Railways;
- Designated ecological sites, woodland, farmland, and waterbodies; and
- Underground infrastructure services including electricity, water, communications, and gas (this is assessed in the Telecommunications and Utilities section above).

Likely Significant Effects

There are various health and safety considerations particularly for workers during construction and decommissioning of the Proposed Development. As a result, workers are considered to be the most at-risk group. However, the risk to both construction workers and the general public is low and not significant during the construction and decommissioning phases. The risk of construction would be managed in accordance with all applicable legislation and as such, **no significant effects** are anticipated.

The Proposed Development's infrastructure, such as batteries, could lead to a fire risk if there was equipment failure. However, such risk is low, and to a lesser extent for workers during the construction and decommissioning phases than onsite employees during the operational phase, as the BESS will be containerised, this reducing the risk of damage which may cause fires. The risk of fire is small and is mitigated by the design of the equipment and the design of the Proposed Development. Therefore, the Proposed Development is not expected to have an effect on the risk of a major accident occurring as a fire during construction and decommissioning. **No significant effects** are anticipated.

The construction and decommissioning of the cable crossing the railway on the Site underground will be managed to the specific requirements of Network Rail and therefore the risk of a rail accident as a result of the crossing will be minimised. Therefore, **no significant effects** pertaining to rail accidents are anticipated. Liaison with Network Rail is underway, and the Applicant expects to put in place Protective Provisions for the benefit of Network Rail.

With regard to the operational phase, the Proposed Development would operate to Health and Safety Guidance. Maintenance activities associated with the Proposed Development would be performed in accordance with relevant legislation. **No significant effects** are anticipated.

The Proposed Development includes a BESS Compound in the north of the Site. There are potential operational hazards associated with BESS infrastructure, such as a thermal runaway fire event in the BESS compound due to electrical fault, arson, or lightening strike. The potential effects of an uncontrolled fire include temporary displacement of species caused by smoke, with some potential abandonment of birds nests resulting in chick mortalities. Buffer zones have been incorporated around the BESS, minimising such risk. For human residential receptors, whilst smoke from an uncontrolled fire event would disperse to over 300m from the BESS Compound to these receptors, there would still be odour impacts and potential minor health impacts. However, given that serious injuries or fatalities are unlikely due to large separation distances, **no significant effects** are considered to be likely.

Additionally, a potential event in respect of severe weather and flooding is that heavy rain could result in surface water and/or river flooding, resulting in partial or full submersion of the BESS Compound in flood water. This may result in the pathway of contaminated flood water running off to nearby ecological receptors. However, measures such as a leak detection system and alarm fitted to relevant parts of the Proposed Development, in addition to the drainage strategy for the BESS compound, and bunding around the BESS area, will minimise the potential for significant effects. With these designed in measures, the likelihood of a flooding event at the BESS compound (and therefore the potential for significant effects) is considered to be low and as such, **no significant effects** are likely.

Mitigation and Enhancement

Minimising the risk of major accidents during construction and decommissioning will be addressed through appropriate risk assessments as required in the oCEMP and the outline Decommissioning Plan. An Outline Fire Risk Management Plan has been produced for the Proposed Development and will be updated through the operational lifetime of the Proposed Development, to reduce the risk of fire and propagation within the BESS compound.

Cumulative and In-Combination Effects

The cumulative schemes for assessment are all large-scale infrastructure schemes, primarily solar parks and battery storage schemes. The majority of these schemes are not located in proximity to the Site to have any notable interrelationship.

With regard to the adjacent Wood Lane Solar Farm, **no significant cumulative effects** are anticipated. The same Health and Safety restrictions will apply, which would limit the exposure of receptors to significant risk.

No significant cumulative effects are anticipated with respect to major accidents and disasters.

No significant in-combination effects are identified in relation to major accidents and disasters receptors.

Conclusion

No significant effects have been identified for major accidents and disasters receptors with the Proposed Development in place during any phase (construction, operation or decommissioning).

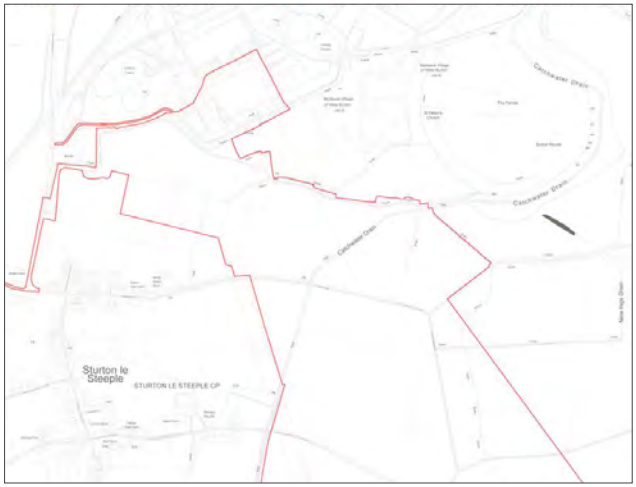
17. SUMMARY

The ES demonstrates that there are no overriding environmental constraints which would preclude the Proposed Development on the Site.

The design of the Proposed Development has taken account of the likely significant environmental effects (alone and in-combination with other cumulative developments) and where necessary,. Mitigation measures form an integral part of the Proposed Development to ensure that the environment is suitably protected.

18. APPENDIX

FIGURE 1: SITE LOCATION PLAN – FURTHER DETAIL



KEY

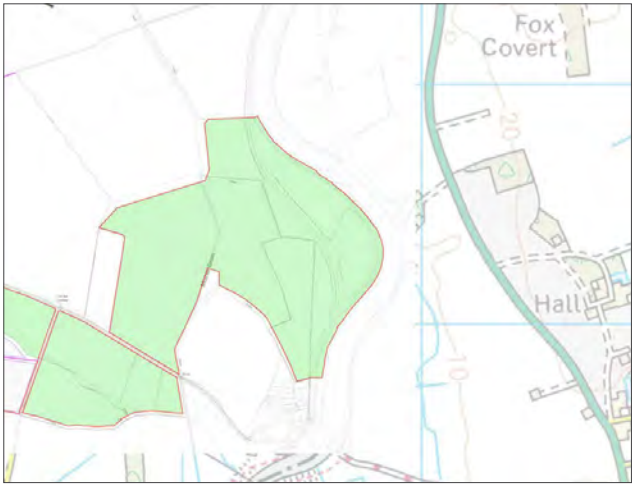
SITE BOUNDARY

(OUTSIDE EDGE OF LINE DENOTES BOUNDARY)

FIGURE 4: INDICATIVE SITE LAYOUT – FURTHER DETAIL


STURTON LE STEEPLE CP
Fenton


KEY
ORDER LIMITS (OUTSIDE OF LINE DENOTES BOUNDARY)
EXISTING ACCESS TRACK TO BE UPGRADED WHERE REQUIRED
ACCESS TRACK
EXISTING WATERCOURSE CROSSING TO BE UPGRADED WHERE REQUIRED
VEHICULAR WATERCOURSE CROSSING
PEDESTRIAN WATERCOURSE CROSSING
SOLAR PV ARRAY
INVERTER / TRANSFORMER STATION AREA
HARDSTAND
SUBSTATION COMPOUND
BESS COMPOUND
ATTENUATION BASIN
SWALE
CABLE CORRIDOR (50m WIDE)
CABLE CORRIDOR AND/OR SOLAR PV ARRAY
PERIMETER FENCE LINE
PERIMETER GATE
TEMPORARY CONSTRUCTION COMPOUND
EXISTING HEDGEROW GAP / WATERCOURSE USED FOR PROJECT ACCESS
PUBLIC RIGHT OF WAY (DEFINITIVE MAP)
PROPOSED PERMISSIVE PATH
BIODIVERSITY MITIGATION AREA
SITE ENTRANCE VISIBILITY SPLAY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