



# EAST PARK ENERGY

**East Park Energy**

**EN010141**

## **Design Approach Document**

**Document Reference: EN010141/DR/5.6**

Infrastructure Planning (Applications: Prescribed Forms and  
Procedure) Regulations 2009: Regulation 5(2)(q)

**September 2025**

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# EAST PARK ENERGY

Planning Act 2008

Infrastructure Planning (Applications: Prescribed  
Forms and Procedure) Regulations 2009

## Design Approach Document

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## Executive Summary

- ES1.** This Design Approach Document (DAD) explains how the design of the East Park Energy project has evolved from project inception through to submission of this application for development consent. The DAD sets out the project vision and design principles, the way the design has evolved, and how good design will be secured post-consent.
- ES2.** The DAD is structured around the Planning Inspectorate's four-stage good design process to present a transparent, end-to-end narrative from initial project brief and objectives through to design delivery mechanisms. This structure shows how the Applicant tested options through consultation, research, and assessment.
- ES3.** The design process has been led by competent design experts in consultation with the local community, local project stakeholders and statutory consultees to deliver on this design vision. Design decisions have been made in line with a series of project design principles that were prepared based on guidance set out by the Planning Inspectorate and the National Infrastructure Commission.
- ES4.** At each stage of design process, the Applicant has made decisions on design outcomes based on inputs from the project team that have been informed by environmental surveys and assessments, engineering and technical requirements, landowner and legal requirements, and commercial viability. In addition, the Applicant has engaged positively with local communities, stakeholders, and statutory consultees to gather feedback and evolve the design. Key design outcomes at each stage of the design process have been summarised within this Design Approach Document.
- ES5.** Finally, the DAD sets out how good design is secured. It explains how the draft Development Consent Order uses Requirements and a suite of outline control documents to guide detailed design, construction, operation and decommissioning, while allowing appropriate technological flexibility. It also confirms how ongoing engagement will inform delivery and management over the project lifecycle.



## 1. Introduction

### 1.1. Introduction

- 1.1.1. This Design Approach Document (DAD) has been prepared on behalf of BSSL Cambsbed 1 Ltd ('the Applicant') as part of the Development Consent Order (DCO) Application for East Park Energy ('the Scheme').
- 1.1.2. The Scheme comprises a new ground-mounted solar photovoltaic energy generating station and an associated on-site battery energy storage system (BESS) and substation on land to the north-west of St Neots. The Scheme also includes the associated infrastructure for connection to the national grid at the Eaton Socon National Grid Substation.
- 1.1.3. The Scheme has a total generating and export capacity of greater than 50 MW, and therefore is classified as a Nationally Significant Infrastructure Project (NSIP) under the Planning Act 2008.
- 1.1.4. The purpose of this Design Approach Document is to set out:
- the approach that the Applicant has taken to design from the outset of the project;
  - the design vision and principles that have influenced decision making;
  - the design evolution that has resulted in the Scheme being applied for;
  - how design measures have been secured through the provisions of the **draft DCO [EN010141/DR/3.1]**, and the framework for delivering on design post-consent.



## 2. Achieving Good Design

### 2.1. Defining 'Good Design'

- 2.1.1. To develop a strategic approach to design it is firstly important to establish what signifies '**Good Design**', and what this means in practice.
- 2.1.2. In October 2024, the Planning Inspectorate published their 'Advice on Good Design' for NSIPs. This guidance explains why good design is important, what success might look like, and how it might be delivered in applications for NSIPs.
- 2.1.3. The guidance emphasises the importance of good design for NSIPs, and references the National Policy Statements (NPS) which set out the requirement to deliver good design and the criteria by which it will be assessed. It is the NPS that the Scheme will be determined in accordance with.
- 2.1.4. The guidance states that:
- "Achieving good design requires a holistic approach to deliver high quality, sustainable infrastructure that responds to place and takes account of often complex environments. Good design is not primarily about how infrastructure looks, although these considerations (the aesthetics) are important.*
- Achieving high quality, good design outcomes requires an effective, intentional, transparent, deliverable process to be planned, followed and secured. Success in good design comes from a combination of securing both good process and good outcomes.*
- Given the scale and impact of NSIP developments, achieving well-designed project outcomes addressing sustainability and climate change is essential."*
- 2.1.5. The guidance sets out the importance of explaining decisions taken in the design process and the reasons for them, including how environmental impact assessment (EIA) and consultation has informed the design process.
- 2.1.6. Separately, the National Infrastructure Commission advises that in order to achieve '**Good Design**' organisations and sectors should develop design visions for individual projects which embrace design principles. In doing so, everyone involved in a project should appreciate the wider context, engage meaningfully, and continually measure and improve.
- 2.1.7. In this context, '**Good Design**' for East Park Energy is taken to be a scheme that evolves through a collaborative approach, bringing together a range of multi-disciplinary specialists behind a combined vision and set of design principles that are developed into a comprehensive and integrated scheme masterplan in consultation with stakeholders.

## 2.2. Policy Context for Good Design

2.2.1. This section sets out the policy context for design on nationally significant energy infrastructure projects.

### National Policy

#### Overarching National Policy Statement for Energy EN-1

2.2.2. Section 4.1 of the Overarching National Policy Statement for Energy (EN-1) ('NPS EN-1') notes that when considering any proposed development, the SoS should take into account its potential benefits and potential adverse effects.

2.2.3. Applicants are required to mitigate specific effects as far as possible, and any measures proposed by the Applicant to address potential adverse effects should follow the mitigation hierarchy.

2.2.4. The mitigation hierarchy is a well-established sequential approach to addressing potential environmental effects, as follows (with a solution higher up the hierarchy being preferable):

- Avoid.
- Prevent.
- Reduce, and.
- Offset / Compensate.

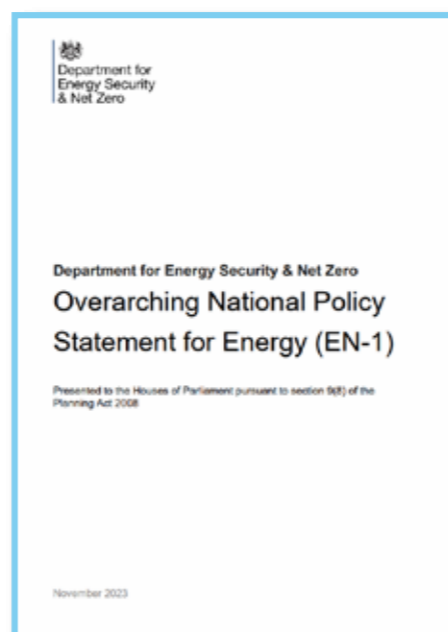
2.2.5. Section 4.2 of NPS EN-1 reinforces the need to follow the mitigation hierarchy and emphasises that Applicant's should set out how residual impacts will be compensated for as far as possible.

2.2.6. NPS EN-1 also notes that where residual effects remain after the mitigation hierarchy has been applied, these are unlikely to outweigh the need for development.

2.2.7. Paragraphs 4.7.5 to 4.7.9 of NPS EN-1 set out how good design should be embedded into a development proposal, including by:

- Establishing design principles at the outset;
- Considering independent design review;
- Taking opportunities to demonstrate good design in terms of siting relative to existing landscape character, landform and vegetation;
- Ensuring sensitive use of materials in associated development; and
- Incorporating nature inclusive design.

2.2.8. Paragraphs 4.7.10 to 4.7.12 require the Secretary of State to be satisfied that energy infrastructure is sustainably designed with the applicant demonstrating consideration of both functionality (fitness for purpose and sustainability) and aesthetics (its contribution to local quality, amenity benefits, and visual effects on landscape/seascape). In weighing proposals, the Secretary of State must also consider the scheme's ultimate purpose and its operational needs.



*“The visual appearance of a building, structure, or piece of infrastructure, and how it relates to the landscape it sits within, is sometimes considered to be the most important factor in good design. But high quality and inclusive design goes far beyond aesthetic considerations. The functionality of an object – be it a building or other type of infrastructure – including fitness for purpose and sustainability, is equally important.*

*Applying good design to energy projects should produce sustainable infrastructure sensitive to place, including impacts on heritage, efficient in the use of natural resources, including land-use, and energy used in their construction and operation, matched by an appearance that demonstrates good aesthetic as far as possible. It is acknowledged, however that the nature of energy infrastructure development will often limit the extent to which it can contribute to the enhancement of the quality of the area.*

*Good design is also a means by which many policy objectives in the NPSs can be met, for example the impact sections show how good design, in terms of siting and use of appropriate technologies, can help mitigate adverse impacts such as noise. Projects should look to use modern methods of construction and sustainable design practices such as use of sustainable timber and low carbon concrete. Where possible, projects should include the reuse of material.*

*Given the benefits of good design in mitigating the adverse impacts of a project, applicants should consider how good design can be applied to a project during the early stages of the project lifecycle.”*

**NPS EN-1: Paragraphs 4.7.1 to 4.7.4**

## National Policy Statement for Renewable Energy Infrastructure EN-3

2.2.9. The National Policy Statement for Renewable Energy Infrastructure (EN-3) in paragraph 2.5.1 makes clear that the good design criteria set out in NPS EN-1 apply to renewable energy infrastructure.

2.2.10. Paragraph 2.5.2 of NPS EN-3 requires that:

*“Proposals for renewable energy infrastructure should demonstrate good design, particularly in respect of landscape and visual amenity, opportunities for co-existence/co-location with other marine and terrestrial uses, and in the design of the project to mitigate impacts such as noise and effects on ecology and heritage”.*

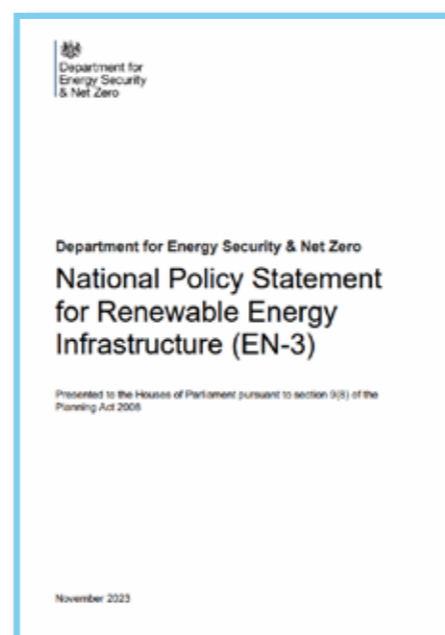
2.2.11. Section 2.10 of NPS EN-3 provides specific considerations relating to the design of solar energy development, including factors such as:

- Irradiance and site topography;
- Network connection;
- Proximity to dwellings;
- Agricultural land classification and land type;
- Accessibility;
- Public rights of way;
- Security and lighting;
- Site layout and appearance;
- Decommissioning;
- Biodiversity, ecological and geological conservation, and water management;
- Landscape and visual impact, and residential amenity;
- Glint and glare;
- Cultural heritage; and
- Construction, including traffic and transport, noise, and vibration.

## National Policy Statement for Electricity Networks Infrastructure EN-5

2.2.12. The National Policy Statement for Electricity Networks Infrastructure (‘NPS EN-5’) reiterates in section 2.4 the criteria for good design set out in NPS EN-1. However, Paragraph 2.4.3 of NPS EN-5 is clear:

*“...the Secretary of State should bear in mind that electricity networks infrastructure must in the first instance be safe and secure, and that the functional design constraints of safety and security may limit an applicant’s ability to influence the aesthetic appearance of that infrastructure.”*



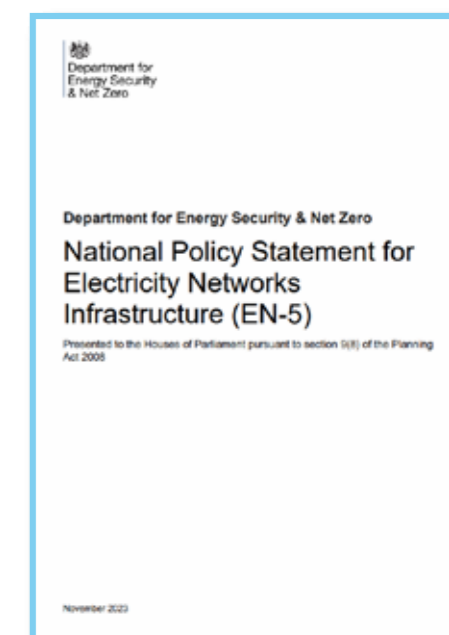
## Horlock Rules

2.2.13. Paragraphs 2.9.18 of NPS EN-5 sets out that the ‘Horlock Rules’ which establish guidelines for the design and siting of electricity substations should be embodied in applicants’ proposals for the infrastructure associated with new overhead lines. Whilst the Scheme does not include overhead lines, it will include a 400 kV electricity substation (the ‘East Park Substation’) for which the best practice established by the Horlock Rules has been applied.

2.2.14. Paragraph 2.9.19 of NPS EN-5 states that in accordance with the Horlock Rules, applicants should:

- consider environmental issues from the earliest stage to balance the technical benefits and capital cost requirements for new developments against the consequential environmental effects in order to keep adverse effects to a reasonably practicable minimum.
- seek to avoid altogether internationally and nationally designated areas of the highest amenity, cultural or scientific value by the overall planning of the system connections.
- protect as far as reasonably practicable areas of local amenity value, important existing habitats and landscape features including ancient woodland, historic hedgerows, surface and ground water sources and nature conservation areas.
- take advantage of the screening provided by land form and existing features and the potential use of site layout and levels to keep intrusion into surrounding areas to a reasonably practicable minimum.
- keep the visual, noise and other environmental effects to a reasonably practicable minimum.
- consider the land use effects of the proposal when planning the siting of substations or extensions.
- consider the options available for terminal towers, equipment, buildings and ancillary development appropriate to individual locations, seeking to keep effects to a reasonably practicable minimum.
- use space effectively to limit the area required for development consistent with appropriate mitigation measures and to minimise the adverse effects on existing land use and rights of way, whilst also having regard to future extension of the substation.
- make the design of access roads, perimeter fencing, earth-shaping, planting and ancillary development an integral part of the site layout and design, so as to fit in with the surroundings.
- in open landscape especially, high voltage line entries should be kept, as far as possible, visually separate from low voltage lines and other overhead lines so as to avoid a confusing appearance.
- study the inter-relationship between towers and substation structures and background and foreground features so as to reduce the prominence of structures from main viewpoints. Where practicable the exposure of terminal towers on prominent ridges should be minimised by siting towers against a background of trees rather than open skylines.

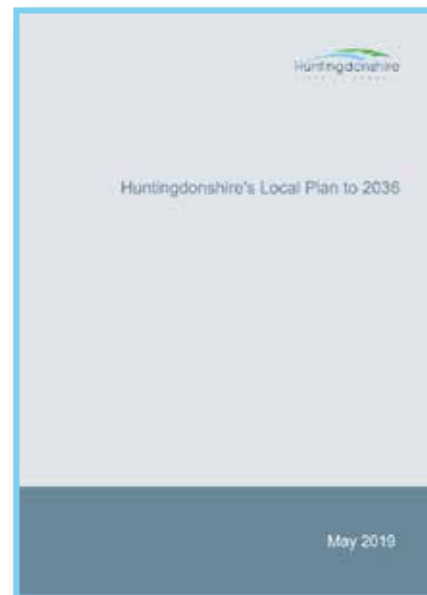
2.2.15. The Horlock Rules are considered further in Section 5.6.



## Local Policy

2.2.16. The Site is located to the north-west of the town of St Neots, and is across two administrative areas; Bedford Borough Council (a unitary authority) and Huntingdonshire District Council (a two-tier authority with Cambridgeshire County Council).

2.2.17. Bedford Borough Council's Local Plan 2030 requires consideration of good design through Policies 28S to 30 that cover place making, design quality, and design impacts; in addition, Policy 57 on the impacts of renewable energy expects design to mitigate the impacts of development.



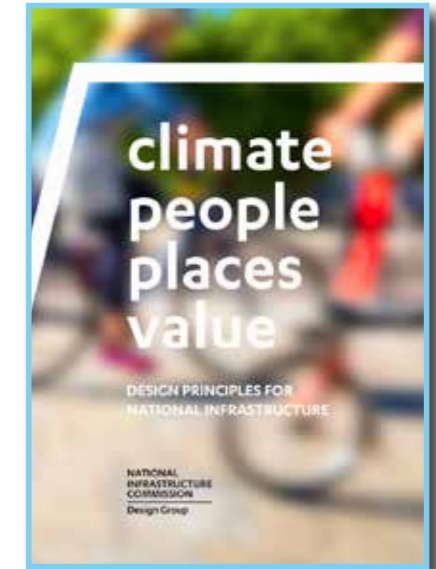
2.2.18. Huntingdonshire District Council's Local Plan to 2036 requires consideration of good design through Policies 11 to 13 that cover design context, design implementation, and placemaking.

2.2.19. The policies of the local plans collectively advocate for a design-led approach to energy infrastructure that is responsive, sustainable, and integrated into the local context. Policies focus on delivering high-quality design by ensuring that new development, including energy infrastructure is functionally efficient whilst reinforcing the character and identity of the area.

## Guidance

2.2.20. In addition to planning policy requirements, the approach to good design has also been informed by established best practice guidance, including:

- Nationally Significant Infrastructure Projects: Advice on Good Design;
- Climate, People, Places, Value: Design Principles for National Infrastructure; and
- National Design Guide: Planning Practice Guidance for Beautiful, Enduring and Successful Places.



## Climate.

### Mitigate greenhouse gas emissions and adapt to climate change.

Seek opportunities to enable the decarbonisation of society through the mitigation of emissions, and allow the project to adapt over time to build resilience.

## People.

### Reflect what society wants and share benefits accordingly.

Design infrastructure for people, not architects or engineers; make it human scale, easy to navigate and instinctive to use, helping to improve quality of life.

## Places.

### Provide a sense of identity and improve our environment.

Provide a strong sense of identity and improve the natural and built environment; make a positive contribution to landscapes within and beyond the project boundary.

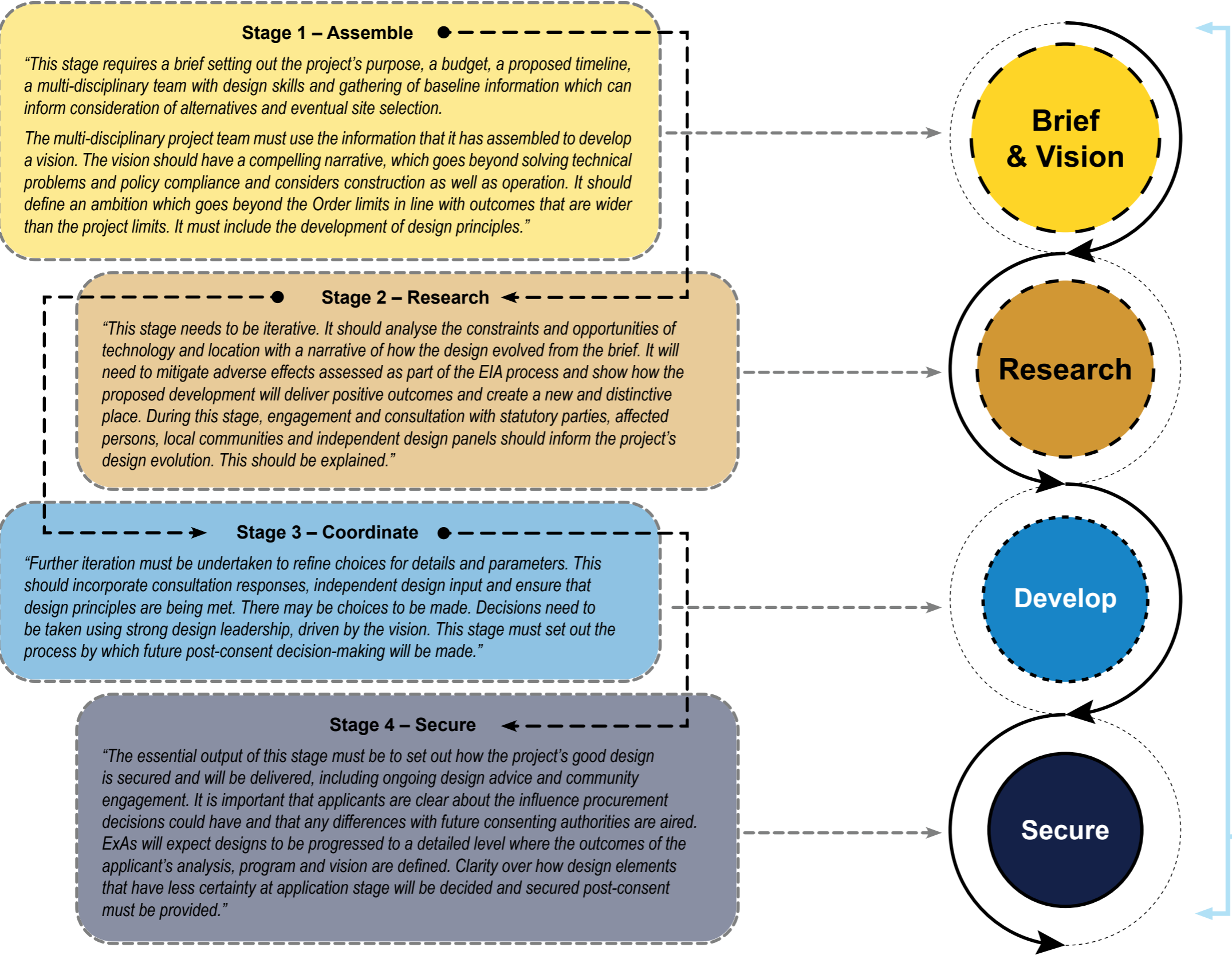
## Value.

### Achieve multiple benefits and solve problems well.

Achieve multiple benefits and solve problems well; add value by defining issues clearly from the outset and providing overall direction for everyone working on the project.

2.3. Achieving Good Design

2.3.1. The Planning Inspectorate have set out a four-stage process for the achievement of good design which they expect to see evidenced at the examination phase of the project, as follows:



2.3.2. The Planning Inspectorate’s advice on good design is intended for all types of Nationally Significant Infrastructure Project, including highways, airports, reservoirs, and renewable energy generating facilities such as solar farms. The guidance therefore notes that the extent to which each of the four stages needs to be covered and evidenced will be dependent on the nature of the infrastructure proposed, as well as the characteristics of the receiving site. In this context a solar development could be expected to provide more evidence of good design than, for example, an underground pipeline, because there is more scope for good design to benefit people, place and nature; equally there could be less scope for good design in a solar development than, for example, an airport, where there is far greater scope for good design to benefit people, place and nature.

2.3.3. The Applicant has followed a four-stage design process from inception to submission of the DCO application, and this DAD sets out this process and importantly, the outcomes of each stage and how good design will be secured.

2.3.4. This DAD is subsequently structured around four stages that the Applicant has related to the four stages advised by the Planning Inspectorate. The Applicant has defined these stages as:

- Stage 1 – Brief and Vision
- Stage 2 – Research
- Stage 3 – Develop
- Stage 4 – Secure

### 3. Stage 1: Brief and Vision

#### 3.1. Brief

##### Project Requirements

3.1.1. The Applicant identified the following project requirements that needed to be fulfilled by the Scheme:

- Purpose – To develop a solar energy generating station designed to optimise a 400 MW connection to the National Grid through the Eaton Socon Substation, that also also delivers multiple beneficial outcomes for society and the environment.
- Viability – The project must be commercially viable, which means optimising the available land to minimise grid connection costs and maximise developable land for solar to ensure the development is generating at full capacity as often as possible.
- Programme – The project should aim to be fully operational and energised in advance of 2031 to ensure the delivery of Scheme benefits.

##### Design Process

3.1.2. The design process that has been followed is set out on this page, illustrating the Scheme evolution and broad structure of this DAD.



#### Project Team

3.1.3. The Applicant is being advised by various external consultants including:

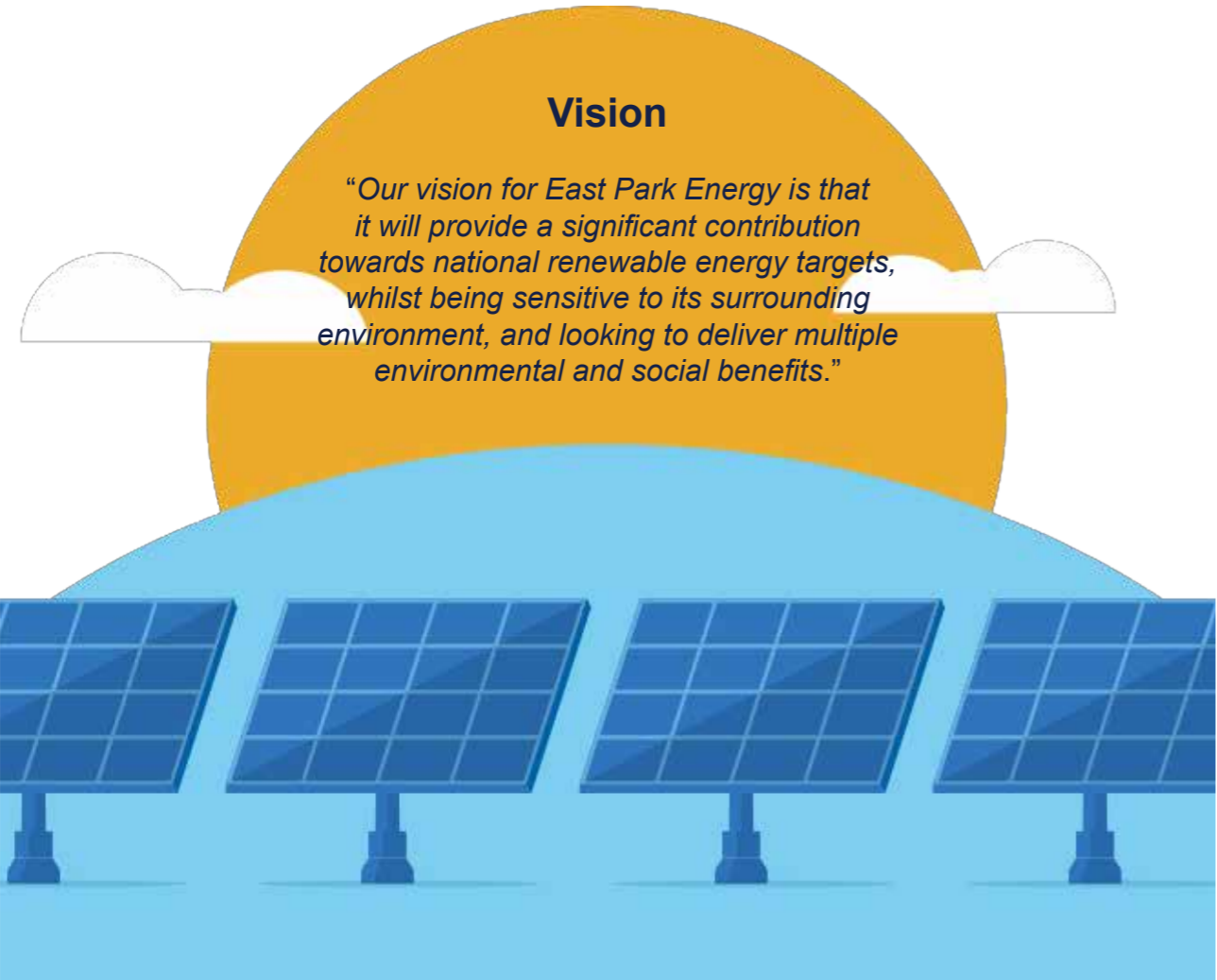
- Planning and Environment – Axis, supported by AOC Archaeology, Avian Ecology, Wallingford Hydro Solutions, Fichtner, NVC, Amion Consulting, Smith Grant, Reading Agricultural Consultants, Neo Environmental, Cura Terrae;
- Engineering – Brockwell Energy, Ignis Energia, IPS Power, AECOM;
- Engagement – Cavendish, Lexington;
- Land – WSP, CBRE, TLT, Brown&Co; and
- Legal – Burges Salmon.

3.1.4. Design decisions have ultimately been the responsibility of the Development Director at Brockwell Energy, with a key design board of Brockwell Energy and Axis.



3.2. Vision

- 3.2.1. The purpose of the Vision stage is to define the project's strategic objectives, and establish a unified vision and approach for how the project will achieve this.
- 3.2.2. A good 'vision' for an infrastructure project is one that is succinct and clearly articulates the strategic objectives and desired outcomes of the development. It encapsulates a holistic view of the project's purpose, integrating economic, environmental, and social objectives to ensure sustainable and resilient outcomes. The vision must be aspirational yet achievable, providing a roadmap that guides the planning and design processes. It should foster a sense of ownership and commitment among stakeholders, encouraging continuous collaboration and innovation.
- 3.2.3. The Applicant's vision for East Park Energy is as follows:  
*'To provide a significant contribution towards national renewable energy targets, whilst being sensitive to its surrounding environment, and looking to deliver multiple environmental and social benefits.'*
- 3.2.4. This vision effectively captures three strategic objectives and outcomes for the project that link to the three pillars of sustainable development; economic benefit, environmental benefit, and social benefit.



3.3. Design Principles

Early Design Principles

- 3.3.1. In 2020 the (then) National Infrastructure Commission (NIC) published the guidance document 'Design Principles for National Infrastructure' which identifies four high level design principles which should guide the planning and delivery of major projects:
  - **Climate** mitigate greenhouse gas emissions and adapt to climate change;
  - **People** reflect what society wants and share benefits widely;
  - **Places** provide a sense of identity and improve our environment; and
  - **Value** achieve multiple benefits and solve problems well.
- 3.3.2. At the outset of the project a series of 'Early Design Principles' were adopted in order to guide decision-making in relation to site selection and design, and to avoid or minimise the environmental impacts as far as practicable.

**Early Design Principle 1.**

The Scheme will seek opportunities to deliver solar development as efficiently as practicable to support national electricity network decarbonisation targets.

Climate

**Early Design Principle 2.**

The Scheme will be sensitive to landscape and views, and how people perceive the landscape.

People  
Places

**Early Design Principle 3.**

The Scheme will be sensitive to heritage assets, looking to protect the most valuable assets that contribute to a sense of place.

People  
Places

**Early Design Principle 4.**

The Scheme will be sensitive to biodiversity, and look to provide enhancement where possible.

People  
Places

**Early Design Principle 5.**

The Scheme will seek opportunities to leave a positive legacy through the delivery of multiple social and environmental benefits.

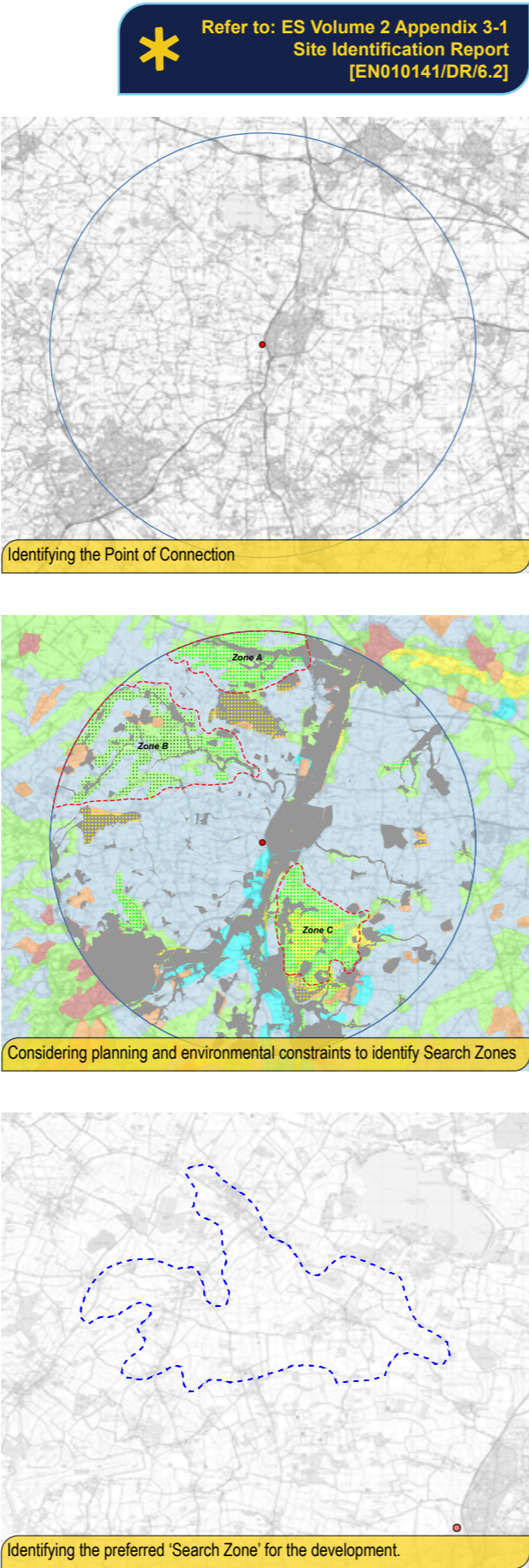
Climate  
People  
Value

4. Stage 2: Research

4.1. Site Selection

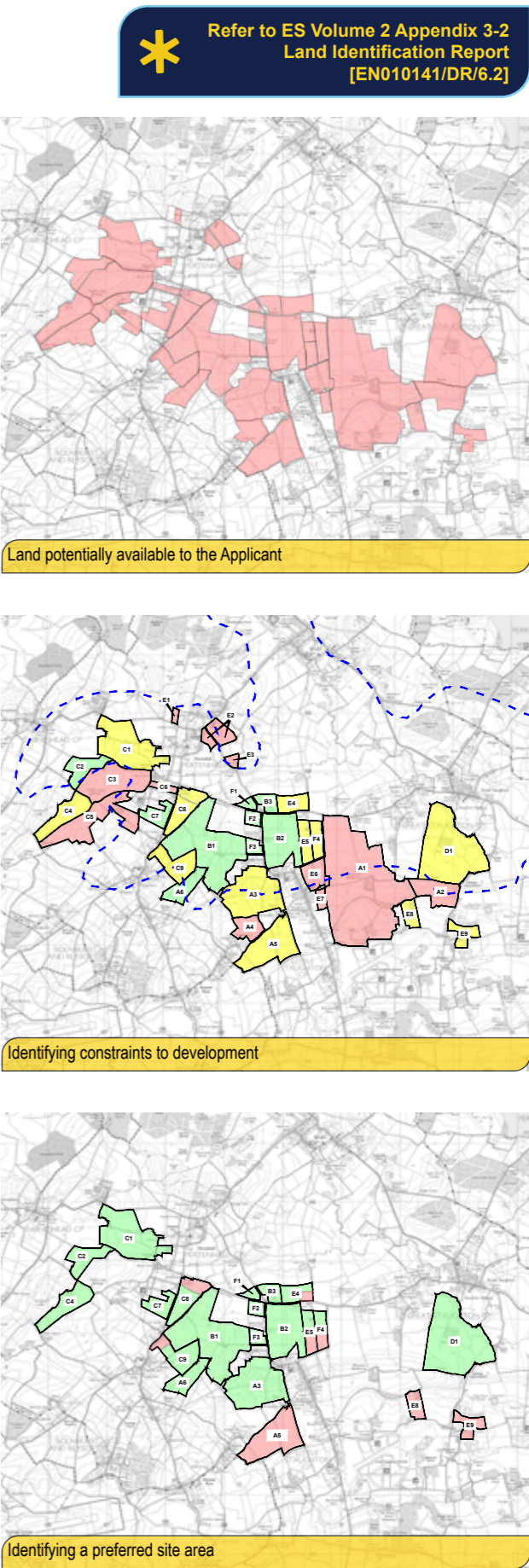
Site Identification

- 4.1.1. The starting point for any renewable energy generation project is identifying a part of the electricity transmission or distribution network where there is available grid capacity to connect a renewable energy project.
- 4.1.2. A search for a Point of Connection (PoC) was undertaken by the Applicant in 2021, which involved analysis of the grid to identify parts of the network with potential available capacity to connect a 400 MW solar scheme. Following an application to National Grid it was established that the Eaton Socon Substation has the available capacity to connect a 400 MW solar scheme, and that this could be completed within a commercially viable timeframe and cost.
- 4.1.3. As a starting assumption a 400 MW solar farm could be expected to require between 800 to 1,600 acres of land to deliver, which approximately equates to between 325 and 650 hectares.
- 4.1.4. The Applicant undertook a site identification exercise to find the most appropriate location for a large-scale solar NSIP capable of utilising the available grid capacity within the Eaton Socon Substation. A 15km area of search around the Eaton Socon Substation was taken as a starting point, with the land in this area of search reviewed against known planning and environmental constraints in accordance with the 'factors influencing site selection' set out in NPS EN-3.
- 4.1.5. This concluded by identifying a 'Search Zone' to the north-west of the Eaton Socon Substation that was considered the most suitable location for a large-scale solar development. The recommendation given at the conclusion of the first stage was that BSSL (formerly RNA Energy) should approach landowners in the Search Zone to gauge interest in developing a project.



Land Identification

- 4.1.6. Following identification of a broad search zone, a second stage of site selection was undertaken as reported in **ES Vol 2 Appendix 3-2: Land Identification Report [EN010141/DR/6.2]** which comprised a review of the land within the Search Zone where landowners expressed an interest in the Scheme, in order to establish constraints to development and refine the overall landholding to be taken forward.
- 4.1.7. NPS EN-1 states that: "Design principles should be established from the outset of the project to guide the development from conception to operation". Therefore, the land identification stage was guided by the Early Design Principles set out at Section 3.3 of this Design Approach Document.
- 4.1.8. Following a review of the land against the Early Design Principles, large tracts of potential land were excluded from the potential site. The culmination of the second stage of site selection was the identification of a proposed site to be taken forward for the Scheme.
- 4.1.9. The landholding for the proposed site was subsequently increased as set out in **ES Vol 2 Appendix 3-3: Land Identification Report Addendum [EN010141/DR/6.2]** and in **ES Vol 2 Appendix 3-4: Land Identification Report Further Addendum [EN010141/DR/6.2]**.
- 4.1.10. By taking the approach set out above and in the Site Identification Report and Land Identification Report, the Applicant has embedded design and a consideration of site context within the Site Selection process.



4.2. Site Context

Order Limits

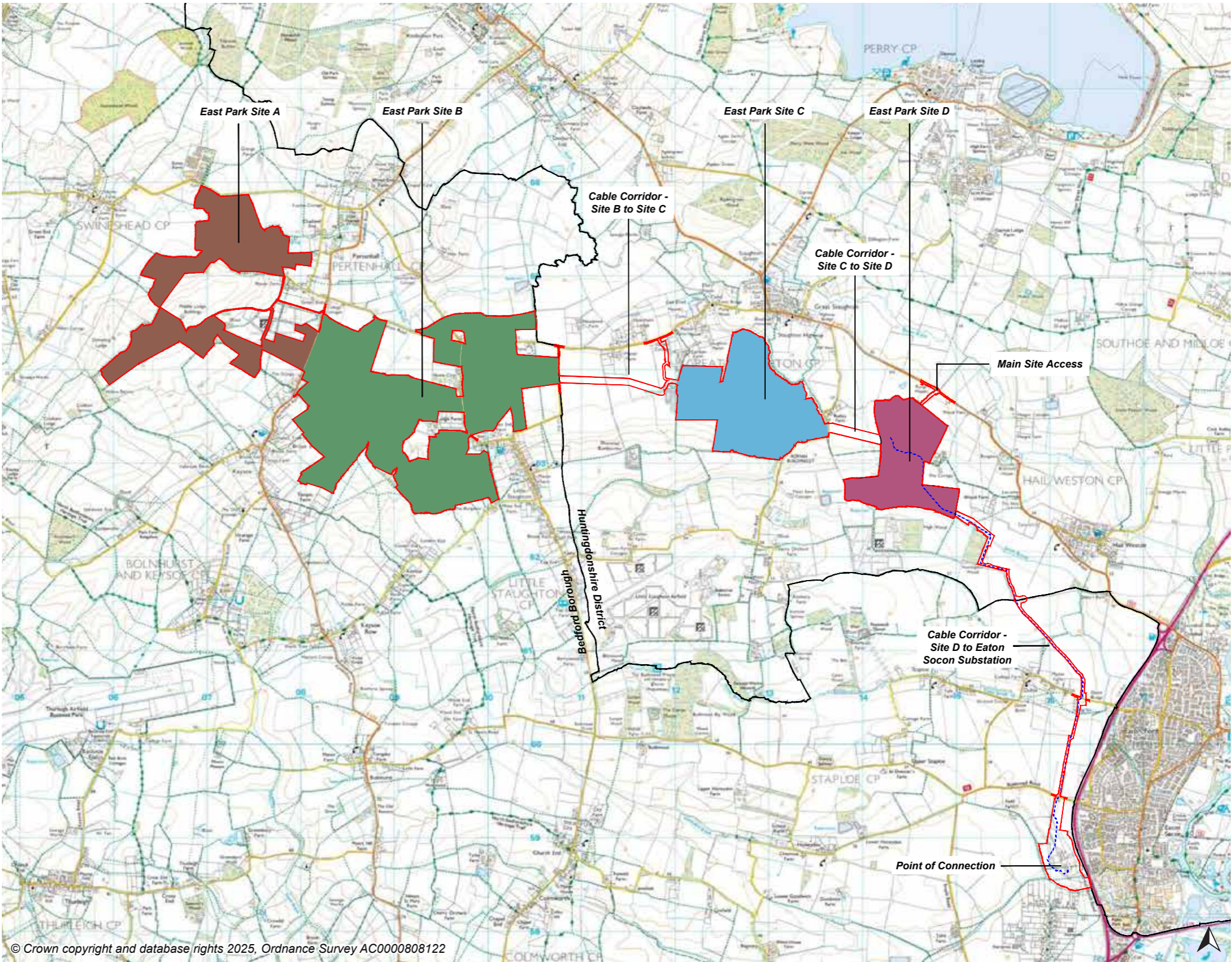
4.2.1. The land required for the construction, operation and maintenance of the Scheme, which includes land required for permanent and temporary purposes, is shown on **ES Vol 3 Figure 1-1: Site Location [EN010141/DR/6.3]**. This is referred to as the 'Order Limits', or the 'Site'. The Site area extends to approximately 773 hectares (ha) .

4.2.2. With reference to **Figure 1** (opposite), for ease of reference the Order Limits have been sub-divided into East Park Sites A to D. The Order Limits also cover land outside of East Park Sites A to D which will be required for access, cabling, and the grid connection to the Eaton Socon Substation. East Park Sites A to D can be described as follows:

- East Park Site A – covering land west of the B660 between Pertenhall and Swineshead at the western end of the Site.
- East Park Site B – covering land between Pertenhall, Keysoe, and Little Staughton.
- East Park Site C – covering land south of Great Staughton.
- East Park Site D – covering land around Pastures Farm between Great Staughton and Hail Weston. East Park Site D comprises arable fields with access proposed via a new access from the B645.

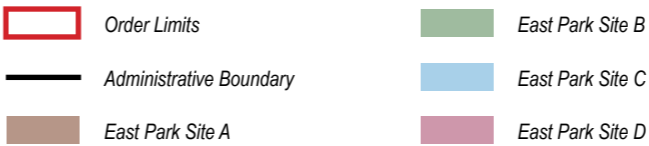
4.2.3. With reference to **Figure 1**, there are three linear corridors proposed for underground cabling. These are shown as:

- Cable Corridor – Site B to Site C – which connects Site B to Site C across an unnamed road and arable fields.
- Cable Corridor – Site C to Site D – which connects Site C to Site D across Moor Road and an arable field.
- Grid Connection – Site D to Eaton Socon Substation – which connects Site D to the Eaton Socon Substation and crosses open arable fields, the Duloe Brook, and Duloe Road and Bushmead Road.



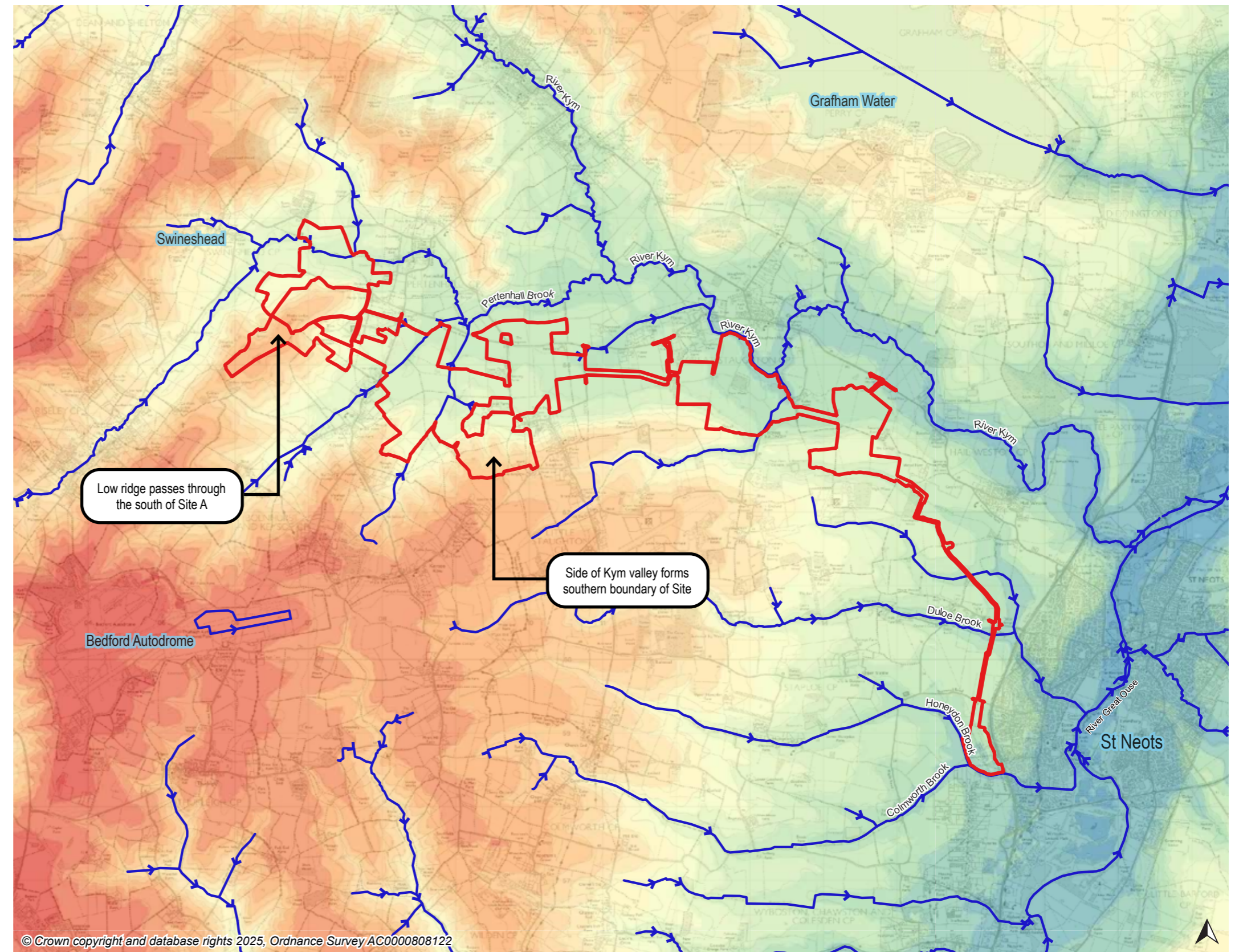
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Figure 1: Order Limits



## Topography and Hydrology

- 4.2.4. The Site is located on the south side of a broad shallow clay vale landform formed by a number of west-east tributaries to the River Great Ouse, which flows north-south to the east of the Site through the town of St Neots approximately 3.7km east of Site D.
- 4.2.5. The local landscape is generally more undulating than the Site which is located predominantly in a low-lying area with relatively limited topographic variation. The landform rises to the north of the Site towards Grafham Water, to the west of the Site towards a ridgeline beyond Swineshead, and to the south of the Site towards a high point around the Bedford Aerodrome.
- 4.2.6. The following is a summary description of landform within the Site:
- The landform within the Site is broadly flat with minimal undulation, which is typical of a landscape which is largely used for arable farmland.
  - Referring to **Figure 2** there are some minor undulations within the Site, notably:
    - A low ridge at the south-western extent of Site A which broadly runs from Riseley through to Pertenhall.
    - An area of slightly higher ground at the southern extents of Sites B, C and D which subtly raise it above the northern extents of those parts of the Site.
- 4.2.7. The Order Limits are located predominantly within Flood Zone 1, with areas of Flood Zone 2 and 3 associated with Pertenhall Brook to the west through Site A; with an unnamed watercourse through Site B; and with the River Kym to the north of Site C.



**Figure 2: Topography and Hydrology**

Order Limits  
Watercourse

## Land Use

- 4.2.8. The landscape pattern of the local area is broadly consistent, comprising medium- to large-scale arable farmland interspersed with blocks of woodland, particularly in the more elevated parts of the landscape to the north of the Site.
- 4.2.9. The Site comprises open, large-scale arable farmland with hedgerow cover throughout the Site forming field boundaries, and intermittent hedgerow tree cover. With regards woodland cover, there are small blocks or belts of tree cover within or directly adjacent to the Site.
- 4.2.10. There are several existing solar farms in close proximity to the Site, which are located:
- To the south of Pertenhall (adjacent to East Park Site A);
  - At Little Staughton Airfield (1.2km south-west of East Park Site C); and
  - At High Wood to the west of Hail Weston (0.1km south of East Park Site D).
- 4.2.11. There are a number of existing utilities which cross the Site, including
- High voltage pylons and power lines across East Park Site D and the grid connection corridor;
  - Overhead electrical lines in East Park Site B and East Park Site C
  - Anglian Water pipeline across East Park Site D;
  - Two high pressure gas pipeline across East Park Site B; and
  - A high pressure gas pipeline across the cable corridor between East Park Site B and Site C.

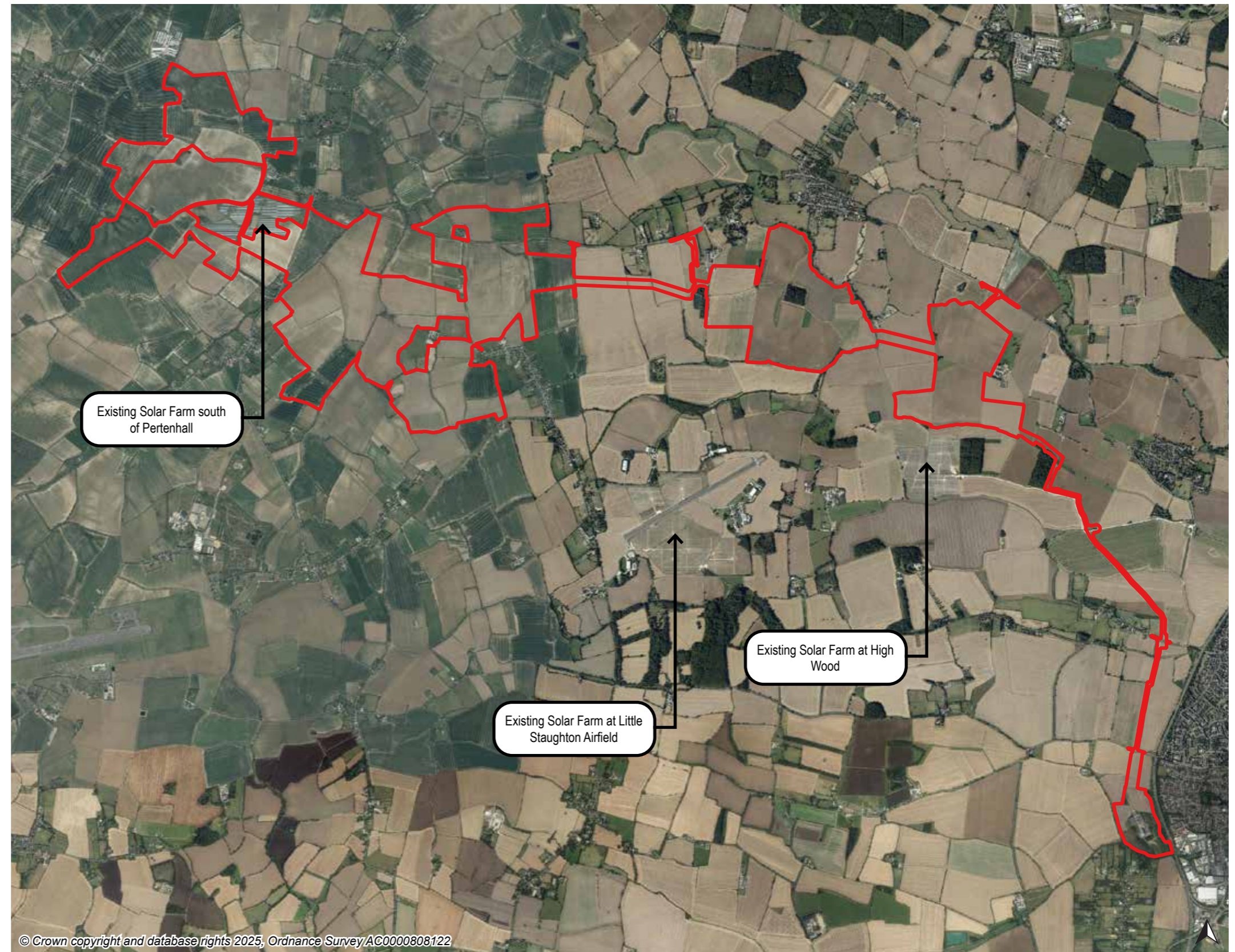


Figure 3: Land Use

 Order Limits

Green Infrastructure

4.2.12. Green Infrastructure is defined locally as:

*“A strategically planned and managed network of green spaces, access routes, wildlife habitats, landscapes and historic features which meet the needs of existing and new communities by providing:*

- an essential environmental foundation and support system;*
- a healthy and diverse environment;*
- attractive places to live and visit and a good quality of life; and*
- a sustainable future”*

4.2.13. The local authorities have prepared green infrastructure plans or strategies for their administrative areas that seek to protect and enhance green infrastructure. The following plans have been prepared:

- Bedford Green Infrastructure Plan 2009; and
- Cambridgeshire Green Infrastructure Strategy 2011.

4.2.14. These plans have been reviewed in so far as they relate to the Site and are summarised in the following sections.

Bedford Green Infrastructure Plan 2009

4.2.15. The Site is not located within or adjacent to any of the Green Infrastructure Opportunity Zones identified in the Bedford Green Infrastructure Plan 2009.

4.2.16. The document does however identify green infrastructure opportunities in relation to the Landscape Character Areas identified at the local (Borough) level. Of most relevance are those which relate to LCA 1B Riseley Clay Farmland in which East Park Site A and B are located. The Site also encompasses part of LCA 1D Thurleigh Clay Farmland, however as only temporary works are proposed in this area there is limited opportunity for the provision or management of green infrastructure as part of the Scheme.

4.2.17. For LCA 1B Riseley Clay Farmland the Bedford Green Infrastructure Plan notes the following:

*Key features include the scattered woodland, good areas of neutral grassland and the Parkland at Melchbourne. GI would provide alternative assets for the growing population at Rushden. This area has been identified as a secondary area of search, but this is an area valued for its rural quality and tranquillity*

*Green Infrastructure opportunities include:*

- Woodland management and expansion;*
- Restoration of pasture e.g. in corridor of River Til; and*
- Enhancement and linkage of Green Lanes.*



Existing fragment of green lane centrally located within Site B

4.2.18. The overall ‘Priority Landscape Projects’ are then identified as:

- *“Woodland creation – spinneys, larger woods , linking hedgerows;*
- *Wildflower grassland recreation e.g. to enhance watercourses, field margins and amenity of rights of way;*
- *Green and quiet lane complex – Keysoe - Honeydon – Colmworth; and*
- *Farmland habitats: field margins, ponds, hedgerows and feature trees.”*

4.2.19. The Bedford Green Infrastructure Plan also identified potential opportunities in relation to the historic environment, biodiversity, and access. None of these opportunities relate specifically to the Site.

Cambridgeshire Green Infrastructure Strategy 2011

4.2.20. The Site is not located within any of the ‘Strategic Areas’ for green infrastructure identified in the Cambridgeshire Green Infrastructure Strategy 2011.

4.2.21. The document is structured around the Strategic Areas, identifying both Target Areas and Projects within each Strategic Area. The closest Strategic Area is Strategic Area 3: Great Ouse which covers the

Ouse Valley, Ouse Washes and the Old West River. The towns of St Neots and Huntingdon each fall within the Strategic Area.



Seasonally bare clay soils (such as the photo from East Park Site A) encourage rilling and increased surface water run-off, contributing to downstream flooding

4.2.22. Whilst the Site is not within the Strategic Area it has the potential to contribute to some of the identified opportunities for the nearby Grafham Water Target Area, including:

*“Climate Change: the Grafham Water area sits on a clay plateau above Huntingdon and Kimbolton with the majority of the land being arable agriculture which drains very quickly causing flooding, particularly in Kimbolton. Increasing the area of woodland will slow the storm water surge that occurs in this area.”*

4.2.23. There are no other specific green infrastructure opportunities that the Scheme supports within the area.

Agricultural Land Classification

- 4.2.24. Natural England maintains the Provisional Agricultural Land Classification for England, which identifies the Site as being partly Grade 2 and partly Grade 3 (undifferentiated) agricultural land.
- 4.2.25. The Applicant has undertaken an Agricultural Land Classification (ALC) survey with the survey methodology informed by well-established guidelines and criteria for classifying the quality of agricultural land. The ALC Survey Report is presented as **ES Vol 2 Appendix 13-1: Agricultural Land Classification and Soil Resources [EN010141/DR/6.2]**.
- 4.2.26. The ALC distribution across the Site is shown on **Figure 3** and the areas of each grade are given below:
- Grade 2 – 21.2%;
  - Subgrade 3a – 45.2%;
  - Subgrade 3b – 23.6%;
  - Ungraded – 5.4%; and
  - Non-agricultural – 4.6%.
- 4.2.27. The Site therefore includes areas of ‘best and most versatile’ land.

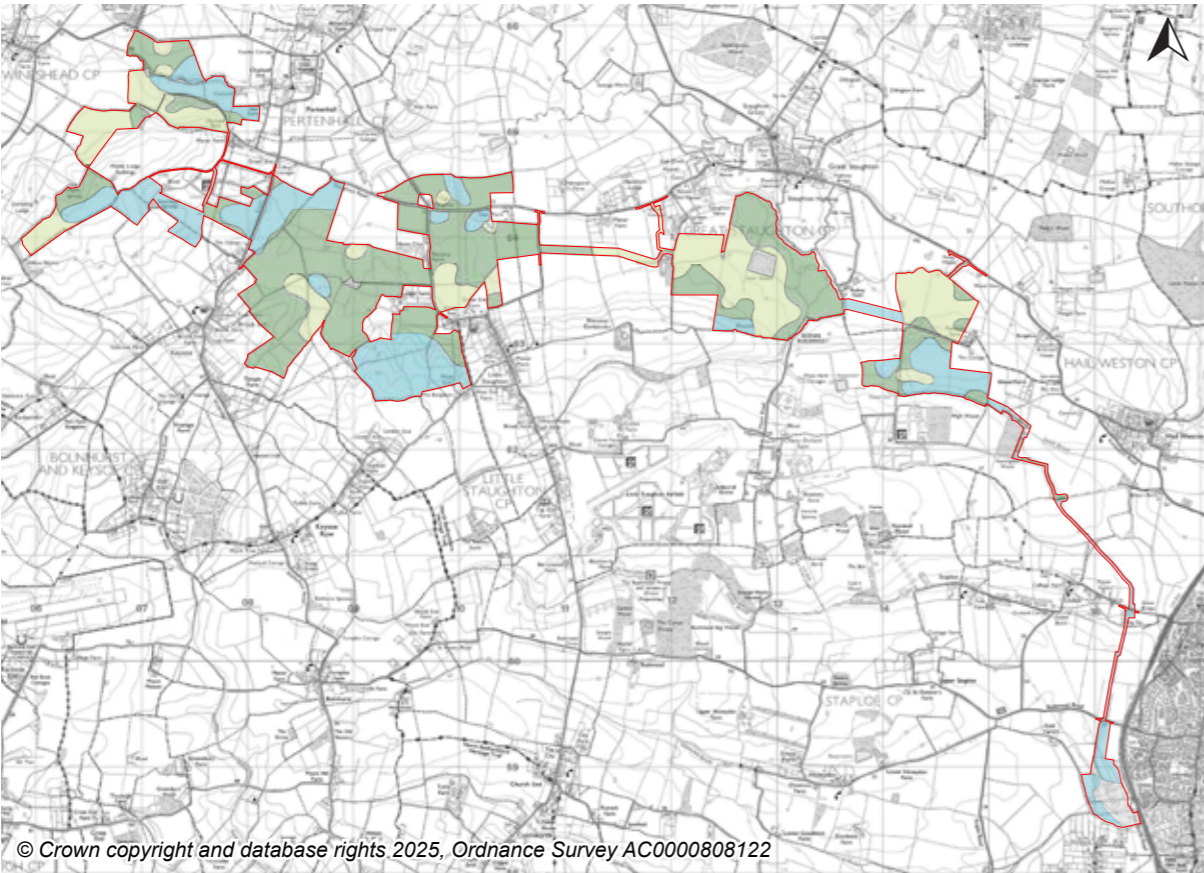
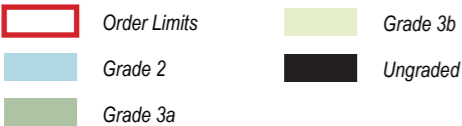


Figure 4: Agricultural Land Classification



Biodiversity and Nature Conservation

Designated Sites

- 4.2.28. There are no statutory nature conservation designations within the Order Limits. The closest is the Swineshead Wood Site of Special Scientific Interest (SSSI) located circa 950 m west of the Site.
- 4.2.29. The following non-statutory nature conservation designations are in close proximity to the Site:
- Kangaroo Meadow County Wildlife Site, which is adjacent to Site B and is recognised for the presence of neutral grassland; and
  - Huntingdon Wood County Wildlife Site, which is adjacent to the south side of the grid connection between Site D and the Eaton Socon Substation.

Habitats

- 4.2.30. The only priority habitat types within the Site are woodland, which is intermittent in small blocks around the Site, and hedgerows, which are more prevalent in field boundaries through the Site. Habitat surveys undertaken by the Applicant have confirmed that the predominant habitat type is farmland under rotational arable cultivation. There are no irreplaceable habitats within the Site, but Huntingdon Wood (an area of ancient woodland) is located adjacent to the Grid Connection between Site D and the Eaton Socon Substation.

Species

- 4.2.31. Ecological surveys undertaken across the Site have found the Site to be used by fauna typical of a lowland arable agricultural landscape. The Site supports a range of lowland bird species, bats, badgers, and great crested newts amongst other species groups.



Kangaroo Meadow



Pertenhall Brook



Typical arable habitats with intermittent trees and woodland clumps

## Settlement

4.2.32. The local settlement pattern is dispersed and typically rural in character comprising occasional distinct village settlements. From west to east the principal settlements in closest proximity to the Site are Swineshead, Pertenhall, Keysoe, Keysoe Row, Little Staughton, Great Staughton, Hail Weston, and Duloe. The town of St Neots lies east of the A1 to the east of the Site and is the largest settlement local to the Site. Outside of the settlements there are occasional individual properties and farmsteads including some in close proximity to the Site. The following properties lie 'inset' within the Order Limits, in that they are excluded from the Order Limits but surrounded by the Site:

- Lodge Farm, a residential property with associated equestrian land uses inset within Site B to the north-west of Little Staughton; and
- The Kangaroo, a former public house which is now a residential property and dog kennels inset within Site B at the junction between Little Staughton Road and Staughton Road.

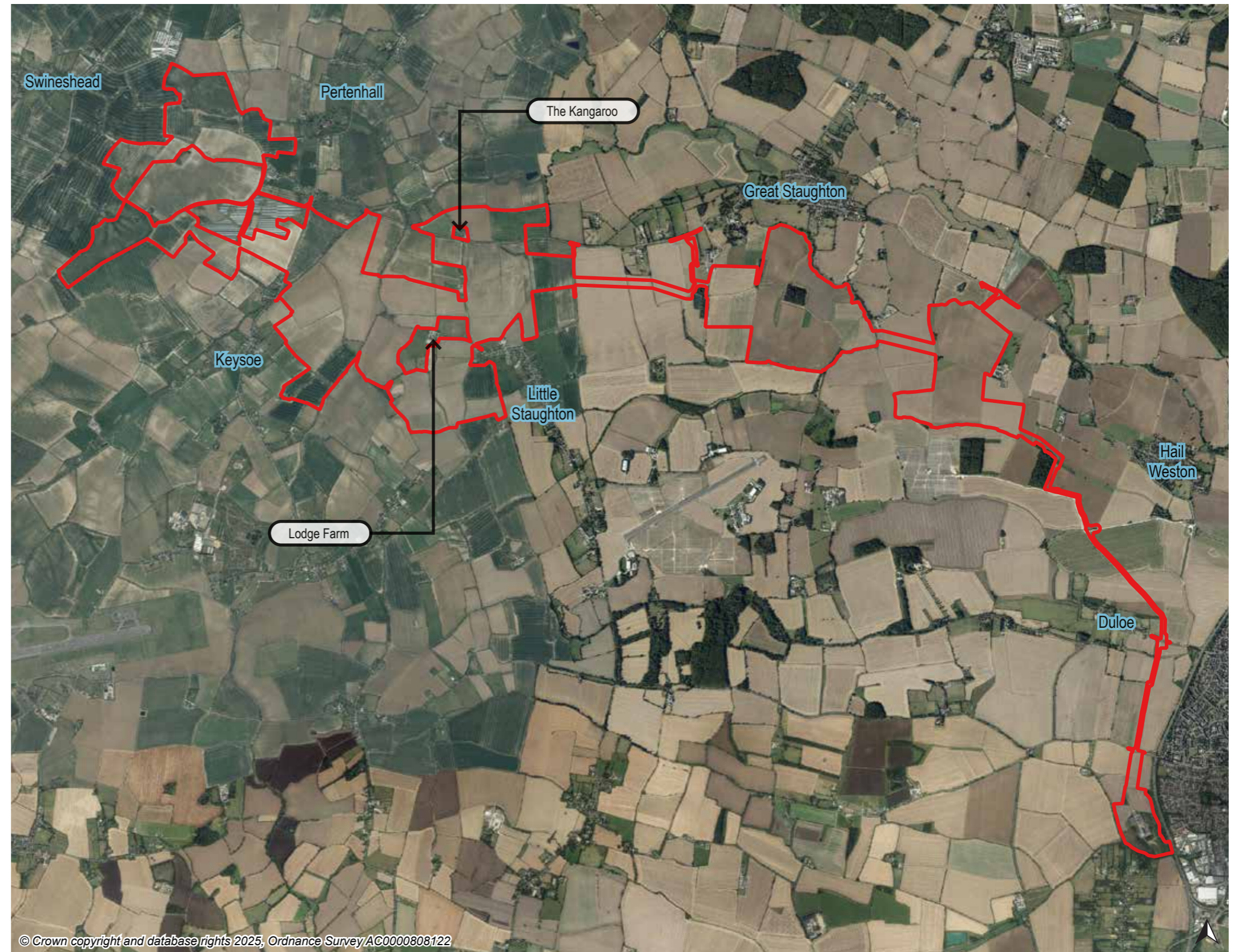


Figure 5: Settlement

 Order Limits

Cultural Heritage and Archaeology

Designated Assets

Scheduled Monuments

- 4.2.33. At the time of the site selection process there were no statutory designated heritage assets within the Site, however archaeological investigation undertaken as part of the environmental assessment of the Scheme has discovered the site of a Roman Town in East Park Site C. Due to the national importance of the archaeological finding, the Applicant has been engaging with Historic England on the find since it was identified in January 2024. Recognising the potential significance of the archaeology, and seeking to protect it in the future, the Applicant made a decision to apply to the Secretary of State for Culture, Media and Sport (via Historic England) to designate the area as a scheduled monument. The application was accepted and the archaeology was designated as a scheduled monument in September 2024. The location of this scheduled monument is shown on **Figure 6**. There are no other statutory designated heritage assets within the Order Limits.
- 4.2.34. There is one scheduled monument adjacent to the southern boundary of East Park Site C, 'two bowl barrows, 900 m and 1,000 m east of Old Manor Farm'. 'Roman site, Rushey Farm' scheduled monument is located circa 130 m south of the East Park Site C boundary, and 'Old Manor House' scheduled monument is located circa 770 m west of the East Park Site C boundary.
- Listed Buildings
- 4.2.35. There are a large number of listed buildings in the landscape around the Site, however none of these listed buildings are within the Site. The most notable of the nearby listed buildings are the series of Grade I listed churches located at Great Staughton, Little Staughton, Pertenhall, Keysoe, and Swineshead, as shown on **Figure 6**.
- 4.2.36. Four of the Grade I listed churches have tall spires that are prominent in a number of views from the wider landscape, with one of the churches (at Great Staughton) having a slightly less prominent tower. The visual setting of these churches is an important consideration, and they are noted in the landscape

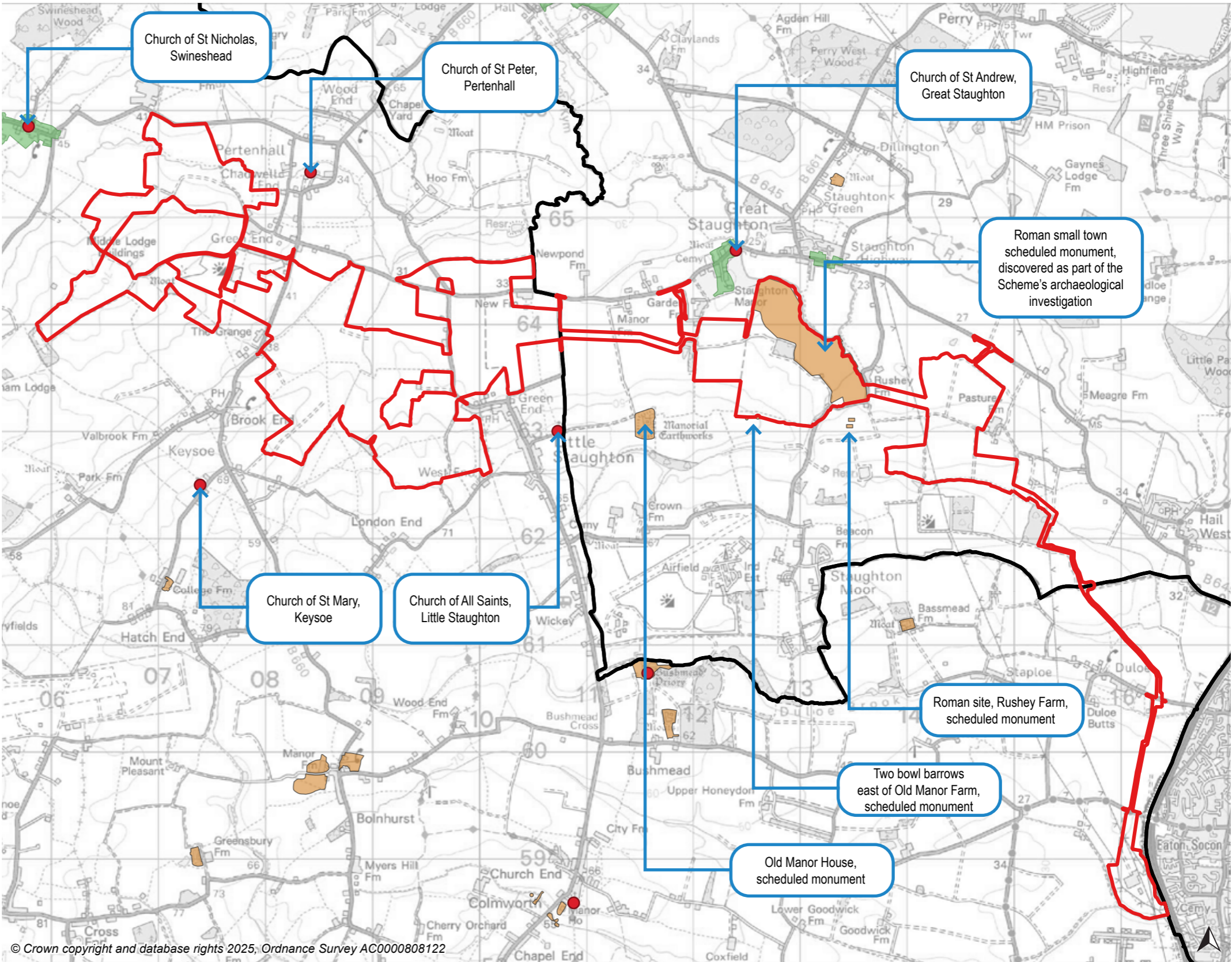
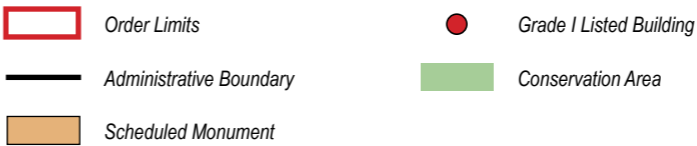
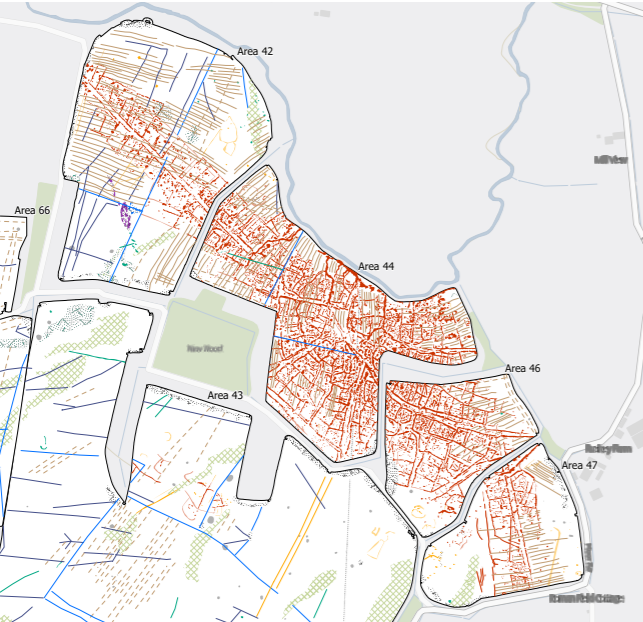


Figure 6: Designated Heritage Assets





Archaeological geophysical survey finding of the Roman Small Town scheduled monument within East Park Site C



View across Roman Small Town scheduled monument - there are no extant visible remains above ground



View of Church of All Saints, Little Staughton

character assessments as contributing to the local sense of place.

4.2.37. Of particular note is the Grade I listed All Saints Church at Little Staughton which is sited on a ridgeline east of the village. The land slopes steeply, downwards from south to north along the ridge. As such when constructed, and in the modern environment, the church appears as a dominant, individualistic building which is visible in all compass directions, with long range views of the church available from the north and south.

#### Conservation Areas

4.2.38. There are conservation area designations nearby at Great Staughton and Swineshead. Neither of the conservation areas has supporting conservation area appraisals.

#### Non-Designated Assets

4.2.39. There are a large number of non-designated heritage assets in the vicinity of and within the Site that are set out within **ES Vol 1 Chapter 6: Cultural Heritage and Archaeology [EN010141/DR/6.1]** and supporting appendices in **ES Volume 2 [EN010141/DR/6.2]**.



View of the Two bowl barrows east of Old Manor Farm scheduled monument - there are no extant visible remains above ground



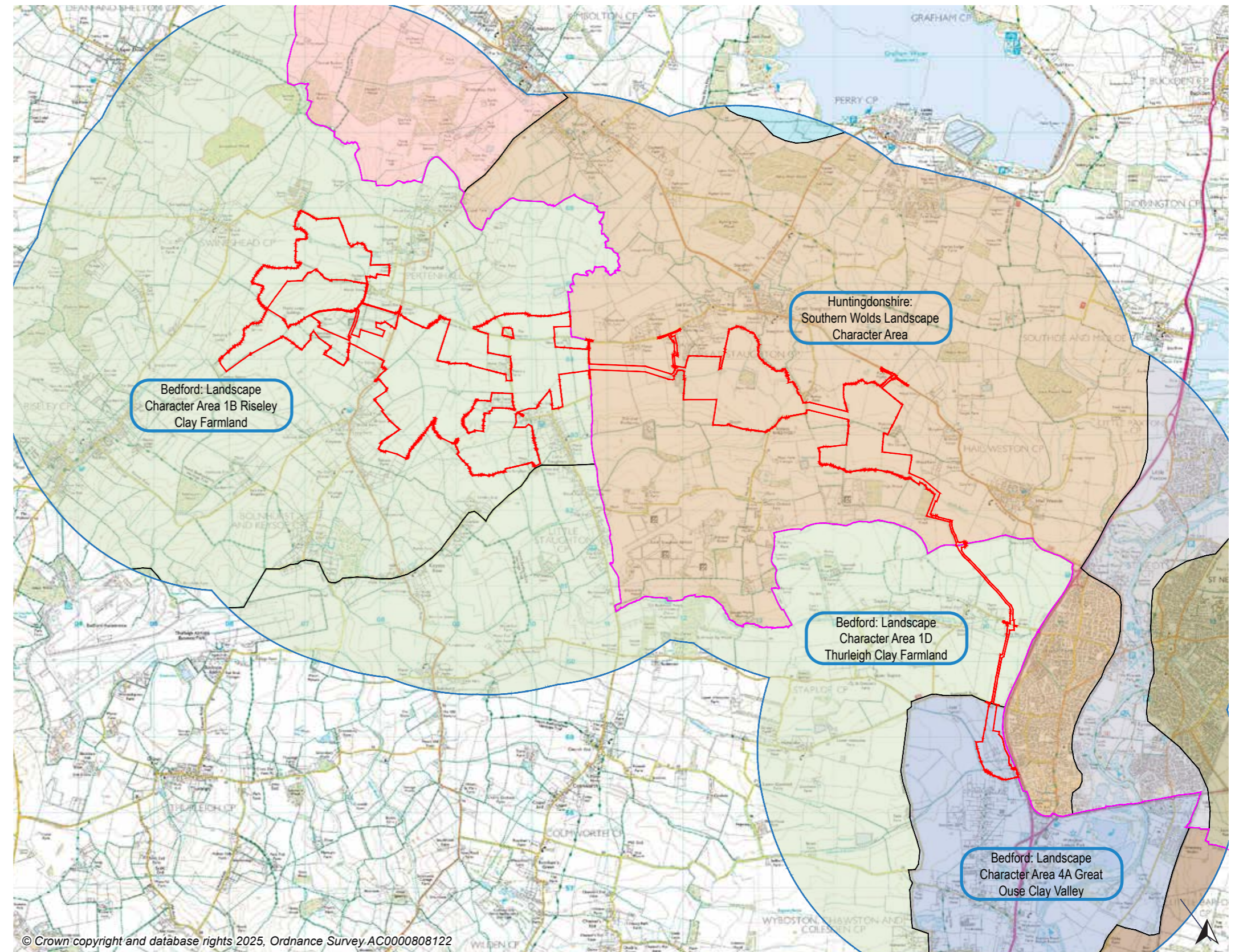
View of Church of St Peter, Pertenhall



View of Church of St Andrew, Great Staughton

## Landscape Character

- 4.2.40. The Scheme is located across two local authority boundaries and each authority has produced a landscape character assessment, which are:
- Bedford Borough Landscape Character Assessment 2020.
  - Huntingdonshire Landscape and Townscape Supplementary Planning Document 2022.
- 4.2.41. East Park Site A and Site B are located within Bedford LCA 1B Riseley Clay Farmland. East Park Site C and D are located within Huntingdonshire Southern Wolds LCA. The 400 kV Grid Connection crosses Huntingdonshire Southern Wolds LCA and Bedford LCA 1D Thurleigh Clay Farmland, with the point of connection at the Eaton Socon Substation in Bedford LCA 4A Great Ouse Clay Valley.



**Figure 7: Landscape Character Areas**

Order Limits

## LCA 1B Riseley Clay Farmland

4.2.42. A low-lying landscape with subtly varied topography. The area is dominated by arable farmland but scattered woodlands give variety, often crowning the horizon in long views across the level fields. The large and medium fields are bounded by hedges and ditches, the former in mixed condition. Smaller fields and occasional horse pastures are clustered around settlements. Hedgerow trees, usually ash or oak are present, many mature and sometimes within fields marking lost hedgerows. This is a rural area with a dispersed but regular pattern of scattered farmsteads and small villages with frequent medieval earthworks and tall stone churches.

4.2.43. The following points are identified as visual sensitivities of the landscape:

- The sense of openness, wide views and skylines given variety by the subtly changing landform and the scattered woodlands which are vulnerable to the influence of large scale features including turbines and agri-industrial sheds.
- The views to church spires, which are visually prominent landmarks in the landscape.



### Landscape Management Guidelines

4.2.44. The following are the landscape management guidelines for the LCA:

- Conserve, enhance and restore the woodlands through effective long term management and replanting to retain their character and ecological value.
- Promote traditional woodland management techniques such as coppicing.
- Promote the use of locally appropriate species such as oak and field maple within woodlands and hedgerows and for shelter belts in preference to non-native conifers.
- Encourage growth of new hedgerow trees. Enhance the hedgerows by replanting and consistent management and resist development that will result in further loss/fragmentation of hedgerows and hedgerow trees.
- Conserve the historic field pattern and avoid further enlargement or subdivision for horse paddocks. Conserve field trees through management of surrounding arable land by for instance avoiding ploughing over tree root zones and taking opportunities to plant new field trees.
- Conserve the existing neutral unimproved grassland sites and take opportunities to extend these

and create new species rich hay meadows.

- Conserve and where appropriate encourage restoration of the historic parkland to maintain and restore key elements such as parkland trees and boundary features.
- Record and conserve historic features such as moated sites and medieval earthworks and promote greater understanding of these.
- Conserve the character of the rural roads with their wide grass verges and limit urbanising influences – widening/kerbing and ensure that traffic management measures are sympathetic to rural character, avoiding unnecessary signage and associated clutter. Seek to rationalise street signage as far as possible.
- Conserve historic features such as moated sites and medieval earthworks, and their settings, and promote greater understanding of these.
- Seek to contribute to green infrastructure (GI) strategy objectives in conserving and enhancing areas of wetland habitats/tributaries, so that these form a robust and connected network.
- Promote planting of trees and hedges along the rural roads, and appropriate management of verges to enhance local character.



### Development Guidelines

4.2.45. The following are the development guidelines for the LCA:

- Conserve the scattered farmsteads and historic villages with their pattern of dispersed 'ends' and the views to the stone churches.
- Retain the individuality of settlements avoiding merging these through linear development along roads.
- Conserve open views across the rural landscape which are vulnerable to change from large scale development including renewable energy and agri-industrial buildings.
- Ensure proposals for solar farms and associated infrastructure are appropriately integrated into this tranquil and rural setting.

## Southern Wolds LCA

- 4.2.46. The Southern Wolds forms a transition area between the Northern Wolds which lie to the north west and the Great Ouse Valley which is to the east. The Central Claylands is also situated to the north of part of this area. The topography of the Southern Wolds is similar to that of the Northern Wolds, comprising ridges and valleys, but due to the larger scale of the rivers here, it consists of just two broad valleys with very gently undulating ground divided by the steep ridge containing Grafham Water. Settlements are more scattered in this area and parishes larger suggesting a more dispersed pattern of historic development. There are several ancient monuments including medieval moats and sites of Roman buildings.
- 4.2.47. It is stated that the “strongest visual characteristic of the Southern Wolds is the extent of woodland cover, particularly on the central ridge which divides the Kym and Ellington valleys. For most of the area the River Kym meanders through a broad, shallow valley but around Kimbolton the valley sides become steeper creating a bowl around the village. Large fields of arable crops are interspersed with woodland and copses and separated by substantial hedgerows. This part of the Southern Wolds has a very rural character and benefits from long views over the surrounding countryside.”



### Development Guidelines

- 4.2.48. The following are the development guidelines for the LCA:
- Ensure high quality landscaping to soften the impact of any new building on the edges of settlements to improve integration with the surrounding countryside.
  - Enrich the area by reinforcing its special qualities and acknowledging its local character.
  - Protect the rural character of long distance views of and from the Kym Valley.
  - Promote opportunities for conservation and wildlife initiatives to support the area's contribution to biodiversity.
  - Improve the nature conservation value of the rivers and their immediate valley sides.



Movement and Access

- 4.2.49. Vehicular access towards the Site is from the A1 to the east, via the junction with the B645 towards Great Staughton. There is a network of smaller 'B roads' or unclassified roads that connect local settlements and the differing parts of the Site.
- 4.2.50. The local area is crossed by a network of public rights of way including footpaths, bridleways and byways open to all traffic. There are three long distance recreational trails within 3km of the Site, albeit none of which cross into the Site: the North Bedfordshire Heritage Trail which passes through Riseley and Keysoe Row; the Three Shires Way north of Great Staughton that provides a circular route around Grafham Water; and the Ouse Valley Way which follows the River Great Ouse through St Neots. There are occasional small areas of public space located around / within villages and the largest area of accessible natural green space is Swineshead Wood open access land which is located to the north of Swineshead.

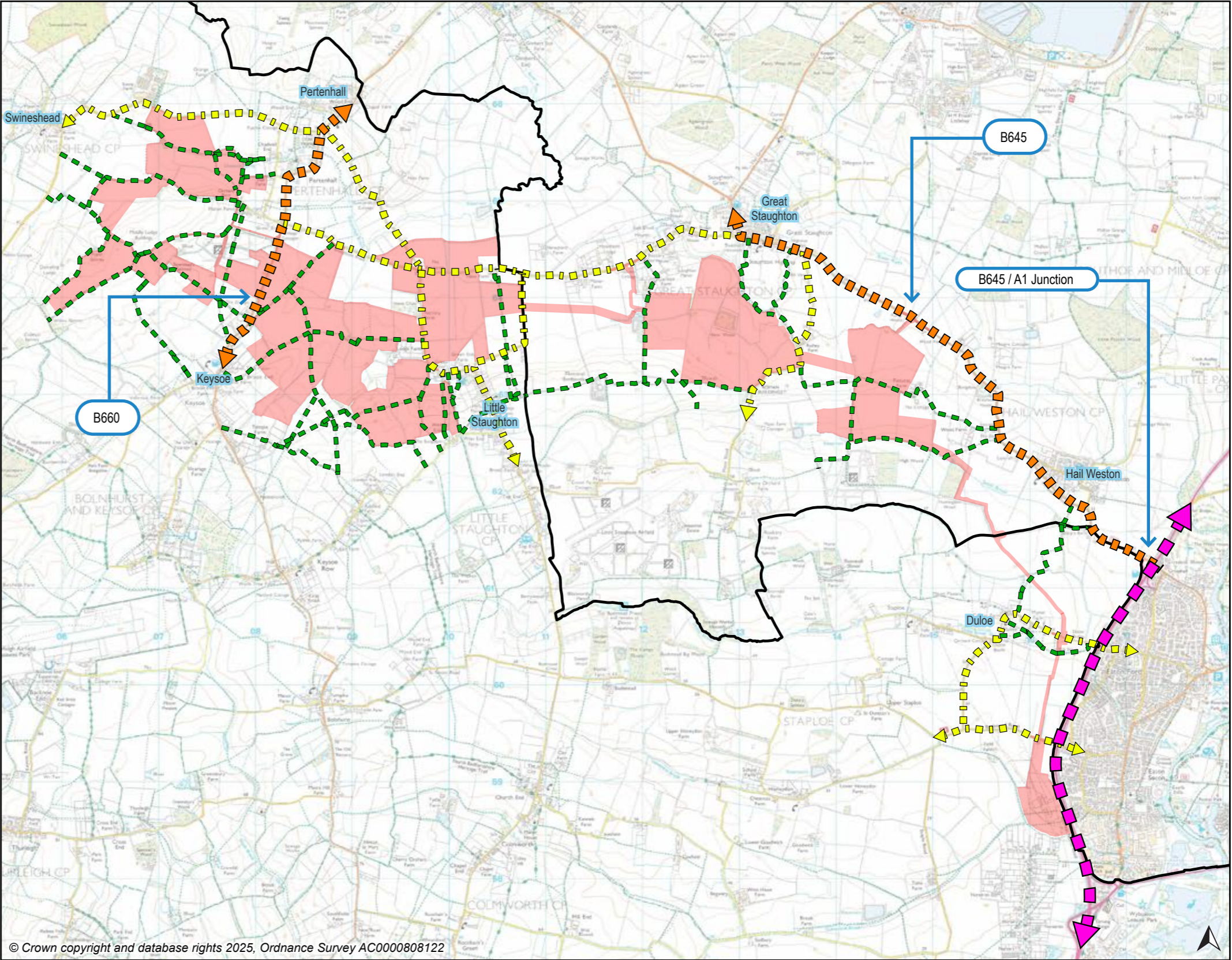


Figure 8: Movement and Access

- |  |                         |  |                     |
|--|-------------------------|--|---------------------|
|  | Order Limits            |  | 'B' Road            |
|  | Administrative Boundary |  | Other Road          |
|  | 'A' road (A1)           |  | Public Right of Way |

Views

- 4.2.51. There are no recognised viewpoints overlooking the Site, such as those identified in Ordnance Survey mapping or within a national or regional view management study (e.g. spires of Oxford, or London View Management Framework).
- 4.2.52. As set out previously, the visual environment around the Site is defined by long, wide views and a sense of openness, with skylines given variety by the subtly changing landform and the scattered woodlands. Views to church spires, which are visually prominent landmarks in the landscape, are a notable characteristic.
- 4.2.53. As part of the evidence base to the Great Staughton Neighbourhood Plan (GSPN), the community has produced a Views and Vistas Assessment (Appendix A of the GSPN) that identifies a number of views the community are seeking to protect through Policy GSPN 7 of the Neighbourhood Plan. Of the views identified in Appendix A of the GSPN, views 6, 11/12 and 32 are towards the Site and shown on the images below.



GSPN View 6 (Viewpoint 62 of ES Vol 1 Chapter 5: Landscape and Visual [EN010141/DR/6.1])



GSPN View 11 / 12 (Viewpoint 56 of ES Vol 1 Chapter 5: Landscape and Visual [EN010141/DR/6.1])



GSPN View 32 (Viewpoint 63 of ES Vol 1 Chapter 5: Landscape and Visual [EN010141/DR/6.1])

Summary of Constraints and Opportunities

- 4.2.54. Analysis of the Site context and baseline conditions assists in gaining a greater understanding of what contributes to a sense of place. This process which has been informed by site work has identified the following constraints and opportunities.

Constraints

- 4.2.55. The following constraints have been identified:
- Views towards tall church spires, which are visually prominent;
  - Open, wide views across the Kym valley;
  - Areas of potential flood risk, including areas of Flood Zones 2 and 3;
  - Mature hedgerows and hedgerow trees within field boundaries;
  - Areas of best and most versatile agricultural land;
  - Amenity of settlements, rural farmsteads and other residences;
  - Utility corridors across the Site;
  - Roman small town to the south of Great Staughton scheduled monument;
  - Setting of designated and non-designated heritage assets;
  - Network of public rights of way across the Site;
  - Access to the Site avoiding narrow routes through villages of Great Staughton, Little Staughton, Keysoe, Pertenhall and Swineshead;

Opportunities

- 4.2.56. The following opportunities have been identified:
- Retaining the existing woodland, hedgerows, individual trees, ditches and watercourses across the Site;
  - Restoring hedgerows and hedgerow trees to the landscape, whilst increasing tree and woodland cover;
  - Improving habitat connectivity by enhancing existing wildlife corridors, and creating additional connections between areas of existing habitat;
  - Furthering an understanding of the historic environment through knowledge sharing and research;
  - Creation and enhancement of waterside meadows alongside watercourses through the Site;
  - Creation and enhancement of 'Green Lanes' through the Site for public rights of way; and
  - Opportunity to improve natural flood management through establishment of permanent grasslands and increased tree and woodland cover to slow the flow of surface water run-off into nearby watercourses, including the River Kym.

### 4.3. Initial Design Technical Assumptions

4.3.1. The design of the Scheme has been an iterative process in response to outcomes of the EIA process and consultation and engagement with stakeholders, including the local community. However, there are a number of early design assumptions and decisions that were taken at the outset of the development relating to the technical and functional requirements of the Scheme.

4.3.2. This section sets out the early design assumptions and decisions that contributed to the initial Scheme layout. These assumptions and decisions are set out under the following headings:

- Ground Mounted Solar PV Generating Station;
- Battery Energy Storage System; and
- On-Site Substation and Grid Connection.

#### Ground Mounted Solar PV Generating Station

4.3.3. The Scheme will comprise the installation of solar PV panels which convert sunlight into direct current (DC) electricity. The following technical components are required to operate the Solar PV Generating Station:

- Solar PV modules and mounting structures;
- Inverters;
- Transformers; and
- Switchgear.

4.3.4. This section sets out the factors which were considered at the outset of the design process in relation to the layout and specification of the technical components that together form the Solar PV Generating Station:

- Factor 1: Fixed vs Tracking Solar Array;
- Factor 2: Orientation of Solar Array;
- Factor 3: Height of Solar Arrays;
- Factor 4: Pitch of Solar Arrays;
- Factor 5: Angle of Solar Panels;
- Factor 6: Type of Mounting Structure; and
- Factor 7: Type of Inverter.

#### Factor 1: Fixed vs Tracking Solar Array

4.3.5. It is possible to install the panels as either 'fixed' arrays, where the angle of the panels is fixed, or 'tracker' arrays, where the angle of the panels can change to follow the sun at different times of the year.

4.3.6. Fixed arrays are solar panels that are mounted on arrays which are fixed to a single height and orientation, i.e. they are generally fixed to face due south.

4.3.7. Solar tracking arrays are solar panels that are mounted on arrays which are motorised and automated to track the sun across the sky. In this way they can turn to face the sun as it rises in the east, and track it through to sunset in the west, which allows them to maximise generation across the full extent of the day and deliver better yields.

4.3.8. The key differences between fixed arrays and solar tracking arrays are that:

- Fixed arrays are substantially cheaper to deploy and a more reliable technology;
- Fixed arrays require less maintenance, and as such less traffic is likely to be generated in the operational phase; and
- Fixed arrays generate slightly less electricity per panel across the day than tracking arrays, and as such have a reduced yield.

4.3.9. Considering the factors set out above, the Applicant has chosen to deploy fixed arrays with the Scheme.

#### Factor 2: Orientation of Solar Array

4.3.10. Two configurations were considered for the solar PV layout:

- South-facing, where all solar arrays are oriented due south with regular spacing between rows; and
- East-west facing, where east-facing solar tables and west-facing solar tables are arranged back-to-back.

4.3.11. The east-west configuration can achieve a slightly higher installed capacity per hectare of land as arrays can be arranged more densely, with reduced spacing required between rows due to shading impacts. A consequence of the increased density is greater shading of the ground beneath the panels, which has the potential to reduce grass establishment and impact soil quality in the long-term.

4.3.12. Despite the ability to increase installed capacity per hectare, the increase in generation capacity from an east-west facing array does not increase proportionately with the installed capacity. This is because the panels are not oriented optimally across the middle part of the day when solar irradiance is highest.

4.3.13. East-west facing arrays therefore have much higher costs to install, without a proportionate return from a significantly increased yield.

4.3.14. Considering the factors set out above, the Applicant has chosen to use south-facing arrays with the Scheme.

#### Factor 3: Height of Solar Arrays

4.3.15. The height of the solar arrays is dependent on the maximum and minimum parameters for the top and bottom edges of the solar arrays, which can be varied dependent on the angle of the panels and the arrangement of panels on each solar PV table.

4.3.16. The lower the bottom edge of the solar arrays, the greater the shading impact beneath the solar panels and consequently grasses and herbs can be less successful in establishing beneath the arrays. In addition, a low bottom edge to the solar arrays restricts the ability graze the grasslands beneath solar arrays with sheep, as panels would be damaged by the livestock. In the Applicant's experience, a bottom edge of the solar panels of 0.8m provides an optimum balance between maximising the deployment of solar, whilst allowing grasslands to establish successfully with grazing from livestock.

4.3.17. The higher the top edge of the solar arrays, the greater the spacing required between each row of solar panels due to shading influences from one row onto another. In addition, a higher top edge for the solar arrays can result in a greater visual impact. The Applicant expects the solar arrays to be built out on solar PV tables with a top edge height of between 2.4m and 2.6m above ground level, and therefore selected a maximum top height parameter of 3m to allow for any slight variations in ground level across the Site. Considering the early design principle to be sensitive to views it is also beneficial to avoid heights of solar panels going above 3m, as 3m is a suitable maximum hedgerow height and would be in

keeping with the scale of hedgerows found in the landscape.

#### Factor 4: Pitch of Solar Arrays

- 4.3.18. The 'pitch' is the horizontal spacing between rows of solar panels. This distance is crucial for optimising energy capture by minimising shading between panels, and ensuring accessibility for maintenance.
- 4.3.19. Based on a maximum height of up to 3m, a suitable pitch between solar arrays is between 7.5m and 12m as this has been modelled to demonstrate an optimum layout when considering year-round shading impacts between rows of solar panels, whilst maximising the density and therefore efficiency of the land use.

#### Factor 5: Angle of Solar Panels

- 4.3.20. The angle of the solar panels is the relative angle from the horizontal plane that the solar panels are tilted towards the sun, which on a fixed solar array is a fixed angle. Factors influencing the angle of the solar panels are the height and pitch of the solar arrays, with the angle of the panels set to provide an optimum tilt towards the sun. The angle of the solar panels can be altered to reduce glint and glare impacts. Based on a height of up to 3m and pitch of between 7.5m and 12m, the Applicant has determined that the angle of the panels will be between 15 and 25 degrees from the horizontal.

#### Factor 6: Type of Mounting Structure

- 4.3.21. The ground mounting structure for solar panels can take either an intrusive (such as posts) or non-intrusive (such as ballast) form. Typically solar arrays are mounted using metal posts that are ram-driven into the ground to a depth suitable to provide an anchor. However, dependent on ground conditions it can sometimes be a requirement to provide concrete around the posts to ensure a sufficient anchor to the ground. The Applicant has reviewed the ground conditions at the Site and established that ram-driven posts would be the most suitable mounting structure. In some locations across the Site, excavation may not be appropriate, for instance due to the presence of archaeology. In these locations it is possible to mount the solar arrays using concrete sleepers (as ballast) to secure them in position without excavation.

#### Factor 7: Type of Inverters

- 4.3.22. There are two principal types of inverter that can be utilised for solar arrays; string inverters, or centralised inverters.
- 4.3.23. String inverters are inverters typically attached to the mounting frames of solar panels and connect together the wiring from different rows for conversion to AC. They are distributed across the solar arrays, with the advantage of being relatively small and easy to mount onto the solar PV tables.
- 4.3.24. Centralised inverters are either small shipping containers or large cabinets that house a single large-capacity inverter to which the solar arrays connect. Fewer centralised inverters are required compared to string inverters, and they would be distributed throughout the solar arrays alongside transformers.
- 4.3.25. The key differences between string inverters and centralised inverters are that:
- String inverters can be mounted directly to the solar arrays and do not require foundations or footings – centralised inverters do require foundations or footings;
  - String inverters are more expensive to install than centralised inverters, but can be more efficient and can result in lower downtime losses; and
  - String inverters have a lower sound power level – centralised inverters have a higher sound power level.
- 4.3.26. The Applicant is looking to maintain flexibility as to the type of technology utilised in the Scheme,

with a final decision on approach expected to be made at the detailed design stage following a grant of development consent. This will enable the Applicant to select the most efficient and economic technology at the time.

#### Battery Energy Storage System

- 4.3.27. The BESS will be an integral element of the Scheme's associated infrastructure used to store electricity generated during periods of low demand from the National Grid and release the electricity at times of peak demand.
- 4.3.28. This section sets out the factors which were considered at the outset of the design process in relation to the layout and specification of the technical components that together form the Battery Energy Storage System.
- Factor 8: DC coupled (decentralised) or AC coupled (Centralised)**
- 4.3.29. BESS can be connected directly to the solar panels which generate electricity in DC (DC coupled). This allows them to be distributed across the Site and can result in lower energy losses by avoiding the need to convert between AC and DC.
- 4.3.30. AC coupled BESS allow the BESS units to be located centrally, and provide greater flexibility in relation to storing electricity generated from solar panels but also directly charging from the grid.
- 4.3.31. An AC coupled system has been selected to reduce the need for large items of equipment to be distributed across the Site, instead focusing the BESS in one location which can have specific control measures put in place to manage the facility in case of an incident (such as a fire).
- 4.3.32. It was therefore decided that the BESS facility will be located in a single compound.

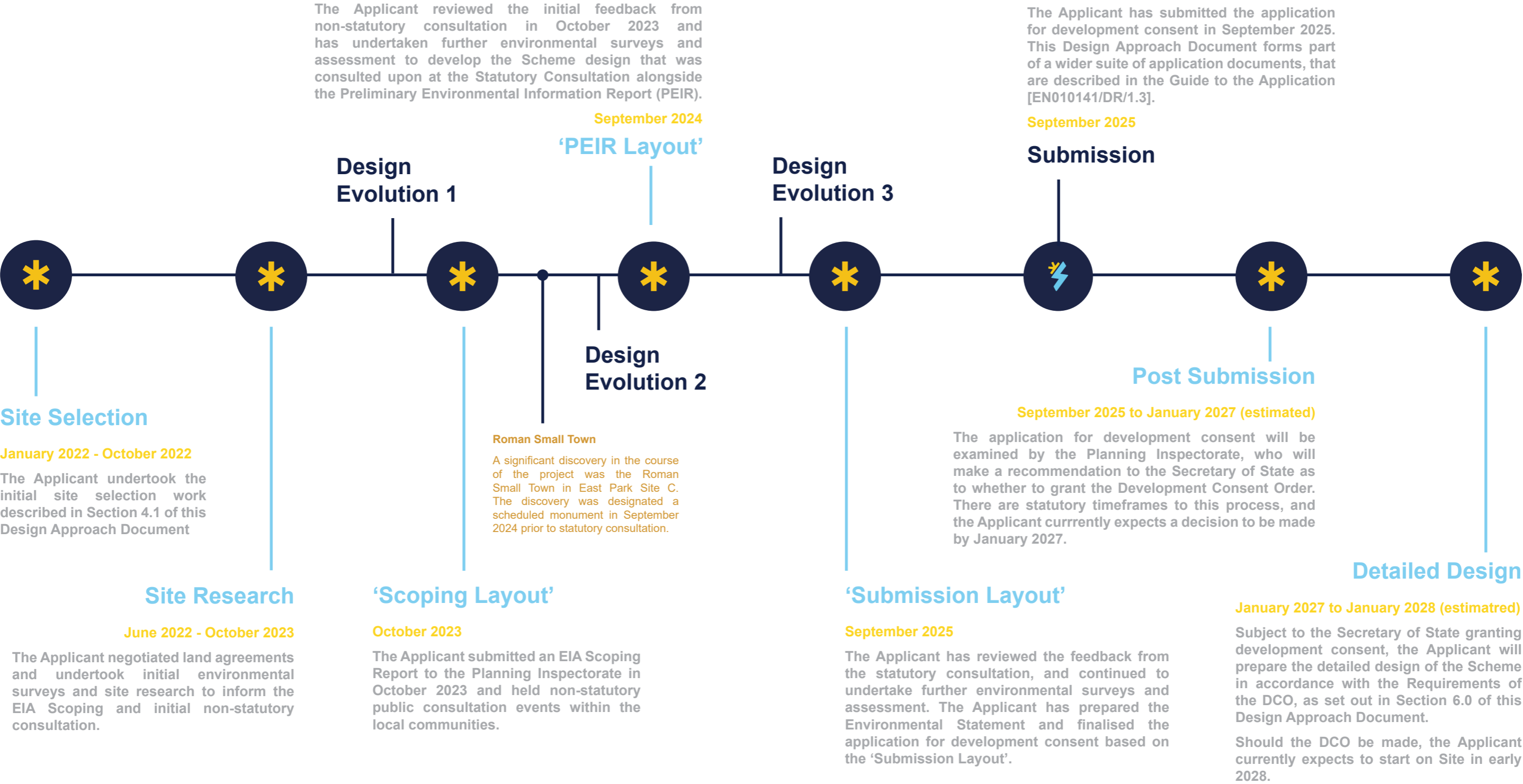
#### On-Site Substation and Grid Connection

- 4.3.33. The Scheme has a requirement for a connection with the National Grid. The point of connection provided by the National Grid ESO is the Eaton Socon Substation, however the Applicant also identified and considered a possible alternative; connecting into the overhead electricity transmission lines which cross East Park Site D.
- 4.3.34. Following a review, the Applicant established that a connection to the overhead electricity transmission lines is not feasible because of the export capacity of the Scheme at 400 MW. Supply of this level of electricity generation to the transmission network would require significant reinforcement works along the transmission lines and at the Eaton Socon Substation that would be technically and commercially prohibitive in this location. The Applicant consulted with National Grid ESO on the possibility of connecting into the transmission network and National Grid has also confirmed that there would be technical and commercial constraints that rule this out as a viable option. Therefore, it was established that the Scheme must provide a direct grid connection to the Eaton Socon Substation.
- 4.3.35. A grid connection to the Eaton Socon Substation would comprise a 400 kV single circuit cable corridor. This cable corridor could be above or below ground, however, to minimise environmental impacts it has been determined that this should be an underground buried cable connection. An overhead connection has therefore not been considered.

5. Stage 3: Develop


5.1. Introduction

5.1.1. This section provides an overview of the design development between the site selection and identification of constraints and opportunities and the initial design assumptions set out in Section 4, through to the selection of the final design that is being applied for as part of this application for development consent.



## 5.2. Project Design Principles

5.2.1. The Early Design Principles subsequently evolved into a series of project 'Design Principles' as an understanding of the Scheme also evolved, and in response to the EIA process. The final Design Principles that have ultimately guided the design process are set out below:




**Design Principle 1.**

The Scheme will seek opportunities to deliver solar development as efficiently as practicable to support national electricity network decarbonisation targets.

Climate

- Principle 1.1:** Maximise the contribution of renewable electricity generation towards national Net Zero targets.
- Principle 1.2:** Minimise waste and embodied carbon during construction.
- Principle 1.3:** Design with resilience to climate change.




**Design Principle 2.**

The Scheme will be sensitive to landscape and views, and how people perceive the landscape.

People  
Places

- Principle 2.1:** Protect views towards tall church spires, which are visually prominent landmarks in the landscape and contribute towards creating a sense of place.
- Principle 2.2:** Protect the sense of openness, wide views and skylines with long views from elevated positions across the Kym valley.
- Principle 2.3:** Protect the pattern of dispersed farmsteads and rural villages with their distinctive structure of 'ends' and associated small irregular fields.
- Principle 2.4:** Protect hedgerows and hedgerow trees.
- Principle 2.5:** Protect the nature conservation value of the rivers, and protect and restore riverside meadows.
- Principle 2.6:** Protect recreational access via rights of way network and the network of quiet lanes.




**Design Principle 3.**

The Scheme will be sensitive to heritage assets, looking to protect the most valuable assets that contribute to a sense of place.

People  
Places

- Principle 3.1:** Protect the setting of the most significant built heritage assets, recognising the contribution that they make to local distinctiveness.
- Principle 3.2:** Protect known and unknown archaeology through archaeological investigation and mitigation.
- Principle 3.3:** Further our knowledge and understanding of the historic environment through transparency of research




**Design Principle 4.**

The Scheme will be sensitive to biodiversity, and look to provide enhancement where possible.

People  
Places

- Principle 4.1:** Deliver a biodiversity net gain through a responsible approach to environmental management.
- Principle 4.2:** Improve habitat connectivity through a holistic approach to landscape and ecological design.




**Design Principle 5.**

The Scheme will be sensitive to the water environment, looking to avoid harm to watercourses and improve water quality where practicable.

Climate  
People  
Value

- Principle 5.1:** Avoid development at risk of fluvial flooding, and minimise the impact of pluvial flooding to the development.
- Principle 5.2:** Enhance watercourses through the provision of green infrastructure to provide more natural bankside environments.
- Principle 5.3:** Utilise sustainable drainage measures to minimise surface water run-off from the development area.




**Design Principle 6.**

The Scheme will be sensitive to local amenity and human health.

People

- Principle 6.1:** Avoid and minimise taking construction traffic through local settlements.
- Principle 6.2:** Avoid and minimise impacts arising from noise, vibration, dust or other pollution.



**Design Principle 7.**

The Scheme will seek opportunities to leave a positive legacy through the delivery of multiple social and environmental benefits.

- Principle 7.1:** Respond to community feedback to improve the project wherever practicable.
- Principle 7.2:** Provide opportunities for engagement with communities across the lifecycle of the project.

5.2.2. These Design Principles were used to inform and guide the design process that is described in the subsequent sections of the DAD, and in the design parameters for the Scheme which are set out in the **Design Parameters and Principles Statement [EN010141/DR/7.1]**.

5.3. Design Evolution 1 – Non-Statutory Consultation

Scoping Layout

- 5.3.1. Design Evolution 1 was presented in October 2023 as part of the Non-Statutory Consultation exercise that the Applicant held with the public, and was the layout presented with the EIA Scoping Report which was submitted to the Planning Inspectorate on 30th October 2023. This layout is referred to as the ‘Scoping Layout’.
- 5.3.2. The Scoping Layout presented the first spatial layout for the Scheme, zoning areas where the Solar PV Generating Station, BESS, Substation, Grid Connection and Green Infrastructure would be located. This layout was informed by the early site constraints and opportunities work, and the initial design assumptions. The layout therefore formed a starting point for consultation engagement and feedback.
- 5.3.3. The key features of the Scoping Layout are shown on Figure 9.

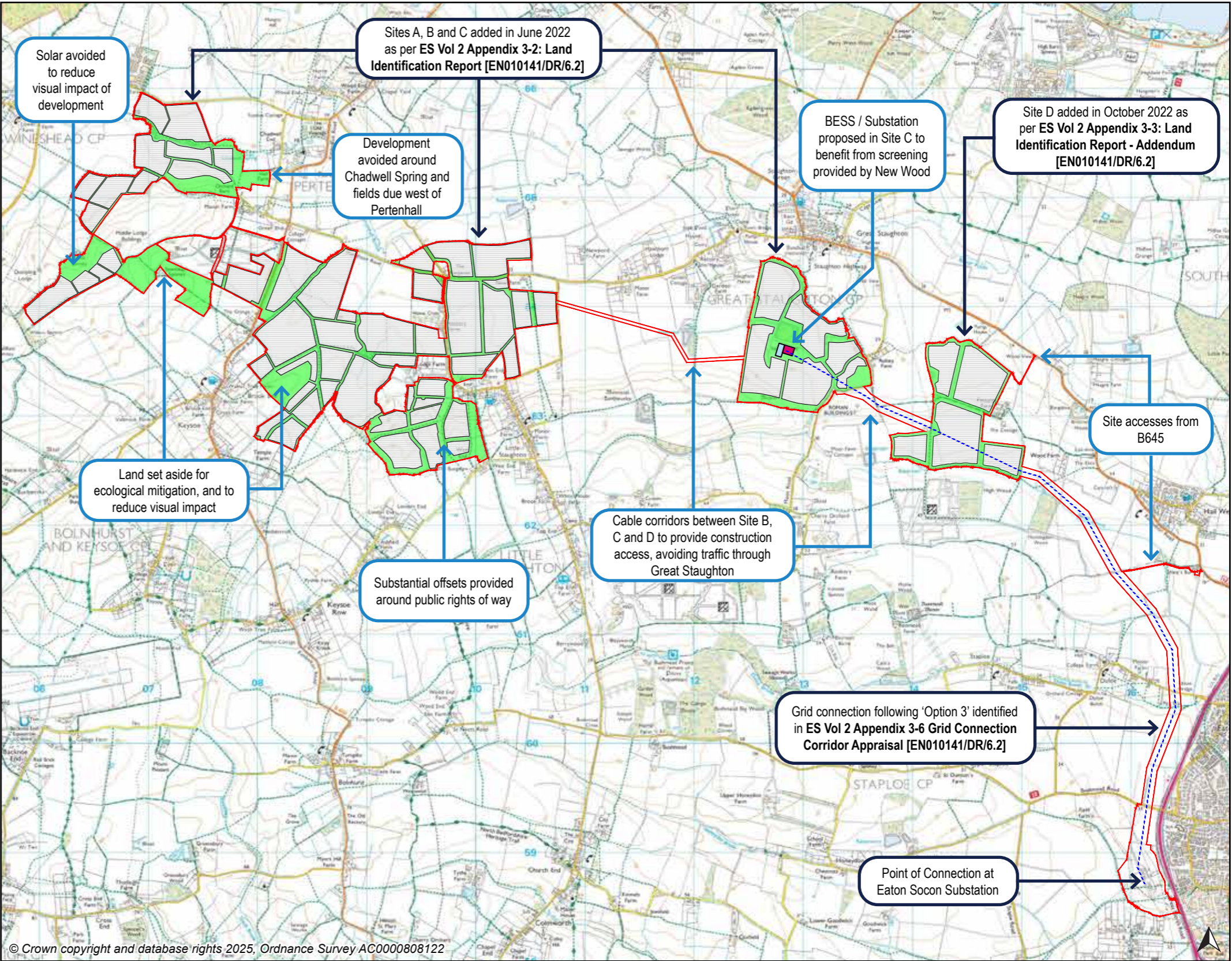
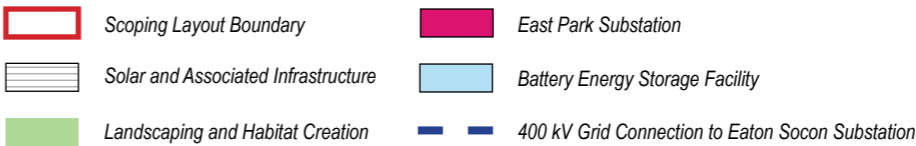


Figure 9: Scoping Layout (Design Evolution 1)



## Response to Design Principles

5.3.4. Table 1 sets out key responses to design principles that have resulted in the Scoping Layout.

Table 1: Response to Design Principles - Scoping Layout

Design Principle	Response to Design Principle (Scoping Layout)
Design Principle 1 – The Scheme will seek opportunities to deliver solar development as efficiently as practicable to support national electricity network decarbonisation targets	The Scoping Layout achieves the required installed generation capacity set out in the project brief. Consideration was given to different panel arrangements as set out in the Initial Design Assumptions at Section 4, and the best arrangement for the Scheme was chosen. At this stage there was limited scope to minimise waste or embodied carbon emissions through design decisions.
Design Principle 2 – The Scheme will be sensitive to landscape and views, and how people perceive the landscape	The Scoping Layout was the result of a land identification process informed by early design principles to avoid development across the most sensitive parts of the landscape. The Scoping Layout integrated buffers to existing landscape features, roads, and settlements, and a minimum offset of 10m to all public rights of way. Offsets from the public right of way at the south of Site B were included to ensure open views across the Kym valley to the north could be retained.
Design Principle 3 – The Scheme will be sensitive to heritage assets, looking to protect the most valuable assets that contribute to a sense of place	The Scoping Layout was the result of a land identification process informed by early design principles to avoid development in the immediate setting of designated heritage assets. Careful consideration was given to the land identification and masterplanning of the Scheme in the vicinity of All Saints Church at Little Staughton, as set out in Section 5.5 of this DAD. The Scoping Layout integrated a wide buffer to the south of Site C to provide an offset to the existing bowl barrow scheduled monument. The Roman small town scheduled monument was unknown at the time of the Scoping Layout.
Design Principle 4 – The Scheme will be sensitive to biodiversity, and look to provide enhancement where possible	The Scoping Layout sought to retain the existing field pattern by ensuring all existing fencelines could be retained. Sensitive habitats were mapped and retained as part of the layout. Broad areas in Site A and Site B were set aside for grasslands to offset impacts on ground nesting birds.
Design Principle 5 – The Scheme will be sensitive to the water environment, looking to avoid harm to watercourses and improve water quality where practicable	The Scoping Layout incorporated minimum 8m buffers to all ditches and watercourses, with wider buffers to the Pertenhall Brook, an unnamed watercourse through Site B, and the River Kym.
Design Principle 6 – The Scheme will be sensitive to local amenity and human health	The Scoping Layout sought to reduce the impact of construction traffic on local communities by ensuring access could be taken that avoided vehicle movements through Great Staughton, Little Staughton, Keysoe, Pertenhall and Swineshead.
Design Principle 7 – The Scheme will seek opportunities to leave a positive legacy through the delivery of multiple social and environmental benefits	The Scoping Layout incorporated broad areas for landscaping and green infrastructure with the intention they would be later designed for environmental benefits. The Applicant invited feedback as part of the non-statutory consultation exercise on the Scoping Layout to identify opportunities for improvement.

## Consultation on Scoping Layout

5.3.5. The Applicant consulted on the Scoping Layout during a specific Non-Statutory Consultation period which ran from 17th October 2023 to 21st November 2023. This section summarises the feedback received.



### Engagement through Non-Statutory Consultation

5.3.6. The following key points of design-related feedback were raised on the Scoping Layout:

#### Feedback

5.3.7. The following feedback was raised:

- Concerns raised about the visual impact of the Scheme on the landscape and public rights of way;
- Concerns raised about the impact of the Scheme on agricultural land;
- Concerns that key landscape vistas should be safeguarded;
- Concerns that the distance either side of public footpaths would not be sufficient;
- Concerns about the topography of the area and utilising north-facing slopes which could be inefficient; and
- Concerns about proximity of the Scheme to residential properties.

#### Opportunities

5.3.8. The following opportunities were identified:

- Opportunity to integrate the design with the natural environment to enhance biodiversity;
- Opportunity to provide open access areas to the general public; and
- Opportunity for a publicly accessible nature conservation area to the west of Little Staughton.

### Outcomes

5.3.9. The key outcomes from consultation on Design Evolution 1 were:

- The Applicant updated the layout in response to concern about development in some specific areas (covered further below under Design Evolution 2);
- The Applicant reviewed the offsets to public rights of way across the Scheme to ensure minimum 10m buffer either side of all public rights of way (i.e. 20m corridors); and
- The Applicant removed an area of solar development to the west of Little Staughton to allow the possibility of a nature conservation area to the west of Little Staughton.

5.4. Design Evolution 2 – Statutory Consultation

PEIR Layout

- 5.4.1. Design Evolution 2 was presented in September 2024 as part of Statutory Consultation, and was the layout presented with and assessed as part of the Preliminary Environmental Information Report (PEIR). This layout is referred to as the ‘PEIR Layout’.
- 5.4.2. The PEIR Layout was the second spatial layout for the Scheme, presenting updated zoning areas for where the Solar PV Generating Station, BESS, Substation, Grid Connection and Green Infrastructure would be located. This layout also included the first iteration of the Illustrative Environmental Masterplan as a drawing of how the Applicant expects the Scheme could come forward in accordance with the DCO (should the DCO be granted).
- 5.4.3. In addition to the Outcomes from Design Evolution 1, the PEIR Layout was informed by the following information:

Environmental Factors

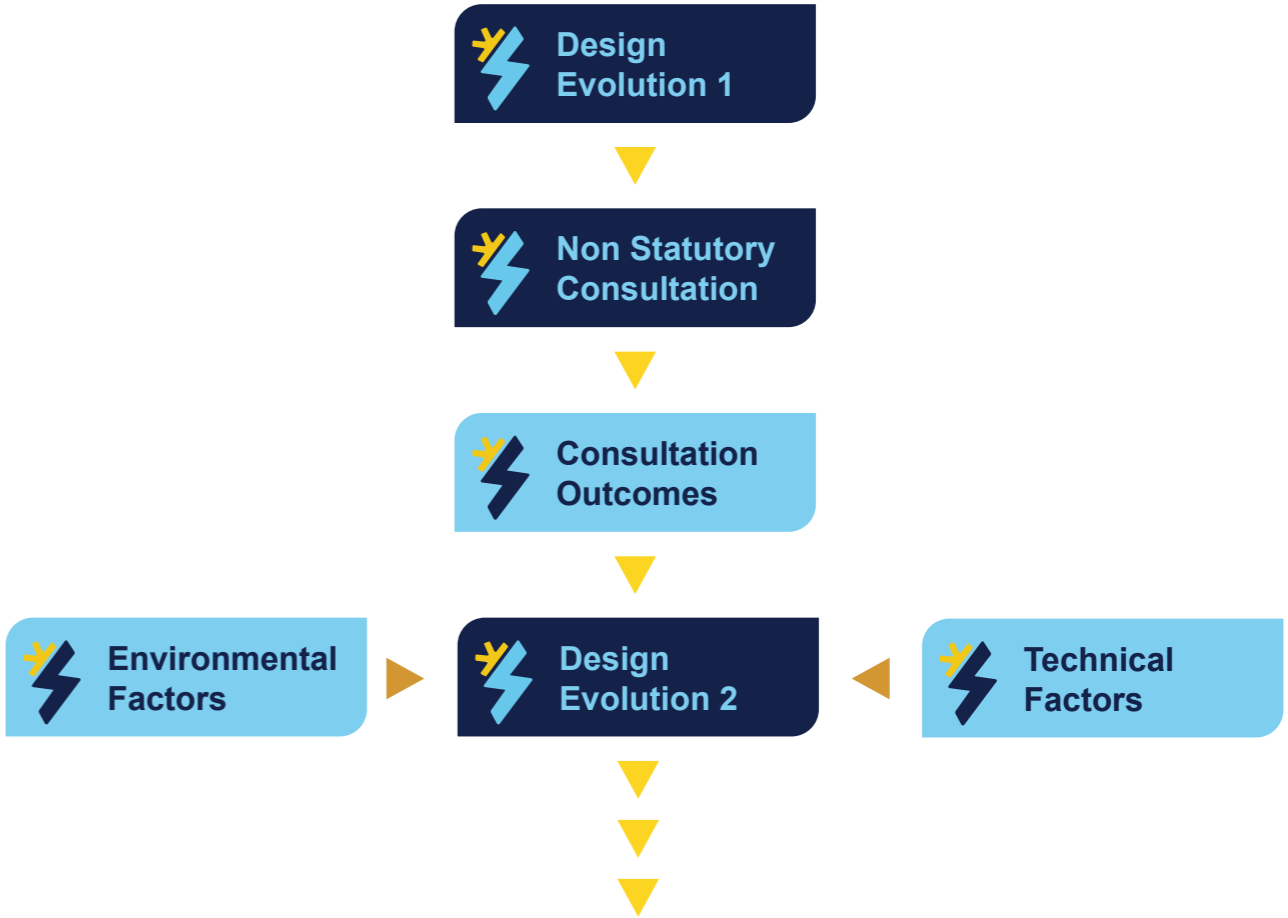
- 5.4.4. The following environmental factors informed the design process for the PEIR layout:
  - The Applicant completed an archaeological geophysical survey of most of the Site which identified the probable remains of a Roman small town in Site C. The Applicant consulted Historic England and Cambridgeshire County Council on the findings who gave a strong preference for solar development to be removed from the area. Recognising the potential significance of the archaeological remains, the Applicant took the decision to remove solar development from the north of Site C.
  - The Applicant reviewed the Environment Agency’s detailed flood model and completed fluvial flood modelling of the watercourses through the Site, resulting in greater offsets between the main watercourses and the solar development to ensure structures are proposed outside of Flood Zones 2 and 3.
  - The Applicant reviewed the definitive alignment of public rights of way to ensure that the offsets between public rights of way and solar development fencelines was based on the definitive legal alignment of routes, rather than Ordnance Survey or similar mapping.

Technical Factors

- 5.4.5. The following technical factors informed the design process for the PEIR layout:
  - The Applicant instructed an engineering and construction feasibility review exercise for the Grid Connection which furthered the design team’s understanding of the technical requirements for a 400 kV underground cable connection. This resulted in a change to the alignment of the Grid Connection to optimise its alignment relative to the existing land use, and allowed the team to reduce the anticipated working width of the corridor as part of the Scheme Boundary.
  - The Applicant held further consultation with affected landowners who expressed a strong preference for an alternative access route to be used between Site C and Site D, resulting in the identification of the alternative access through land to the north-west of Site C.
  - The Applicant took the decision to remove developable area from Site C as a result of the discovery of the Roman small town its subsequent scheduling, and as such additional land needed to be added into the Scheme boundary to ensure that the Scheme could maximise its generation potential within the grid connection available in accordance with Design Principle 1; therefore, additional land was added adjacent to the western side of Site C.

- The Applicant identified an alternative location for the BESS and on-site substation following consultation with Cambridgeshire Fire and Rescue Service, who raised concerns over access to Site C and the use of Moor Road. The potential access constraints in addition to the archaeological discovery in Site C led to the identification of an alternative location for the BESS and on-site Substation within Site D.
- The Applicant reviewed the alignment of fencelines across the Scheme as part of a consolidation exercise to reduce the amount of fencing.
- The Applicant amended the alignment of the cable connection between Site C and Site D following the identification of an alternative location for the BESS and on-site substation, and in response to the archaeological findings in Site C.

- 5.4.6. The Applicant identified two separate options for the siting of the co-located BESS and Substation facilities. These would be in either East Park Site C (as per the Scoping Layout) or in East Park Site D. Feedback was sought as part of the consultation exercise on whether the public or stakeholders had a preference for either Site C or Site D.
- 5.4.7. The key features of the PEIR Layout are shown on **Figure 10**.



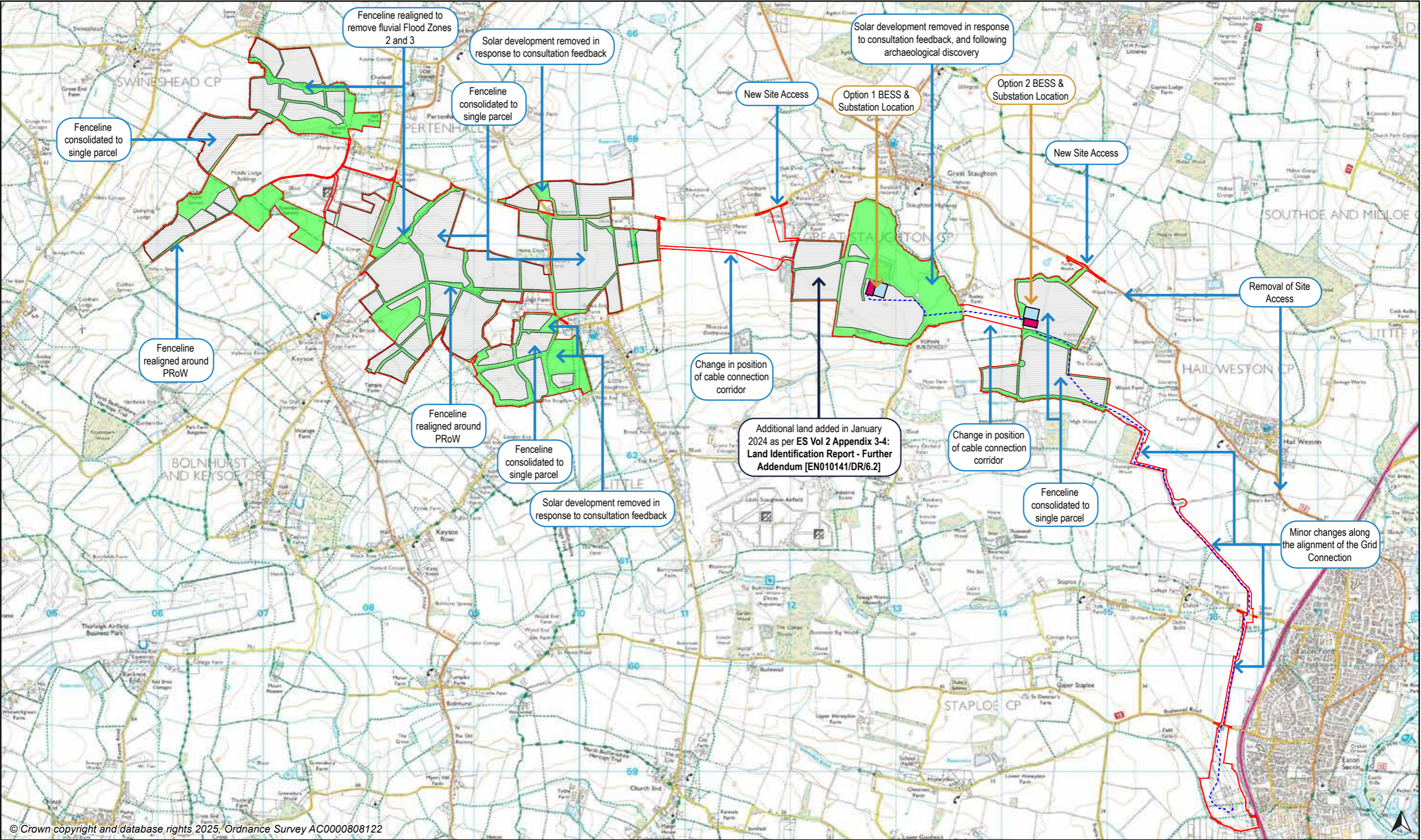


Figure 10: PEIR Layout (Design Evolution 2)

- PEIR Layout Boundary
- Solar and Associated Infrastructure
- Landscaping and Habitat Creation
- East Park Substation
- Battery Energy Storage Facility
- 400 kV Grid Connection to Eaton Socon Substation

Response to Design Principles

5.4.8. Table 2 sets out key responses to design principles that have resulted in the PEIR Layout.

Table 2: Response to Design Principles - PEIR Layout

Design Principle	Response to Design Principle (PEIR Layout)
Design Principle 1 – The Scheme will seek opportunities to deliver solar development as efficiently as practicable to support national electricity network decarbonisation targets	The PEIR Layout resulted in a slight reduction in generation capacity across the Scheme, but this was judged to be outweighed by the environmental and social benefits of the design amendments. Additional land was added to the west of Site C to compensate for the more substantial removal of land in the north of Site C for the archaeological findings. At this stage there was limited scope to minimise waste or embodied carbon emissions through design decisions.
Design Principle 2 – The Scheme will be sensitive to landscape and views, and how people perceive the landscape	The PEIR Layout resulted in improvements to the layout around Little Staughton by removing areas of solar development to reduce the visual impact. In addition, changes in the north of Site C for archaeological benefit have secondary benefits for users along the River Kym, where a sense of openness alongside the river can be retained. The PEIR Layout included an Illustrative Environmental Masterplan that showed the anticipated landscape proposals for the Scheme. The landscape proposals were guided by the design principles to produce a scheme that is sensitive to landscape and views, including through the creation of Green Lanes, provision of extensive hedgerow and woodland planting for landscape integration and visual screening, omission of solar development areas, retention of public rights of way, and the creation of enhanced riverside walks through Site A and B.
Design Principle 3 – The Scheme will be sensitive to heritage assets, looking to protect the most valuable assets that contribute to a sense of place	The PEIR Layout omitted the newly discovered Roman small town scheduled monument from the developable area of the Scheme rather than continuing to develop the area and implement archaeological mitigation measures. Recognising the significance of the archaeology the Applicant made the decision to apply to schedule the findings in order to protect the archaeology in the long-term beyond the lifetime of the Scheme.
Design Principle 4 – The Scheme will be sensitive to biodiversity, and look to provide enhancement where possible	The PEIR Layout incorporated significant new areas of species-diverse grassland, native species hedgerows, woodland belts, and woodland copses that would collectively provide enhanced habitat connectivity across the Site. Riparian vegetation enhancements and meadows alongside watercourses in Site A and B should create much improved wildlife corridors compared to the baseline scenario of arable fields abutting the watercourses.
Design Principle 5 – The Scheme will be sensitive to the water environment, looking to avoid harm to watercourses and improve water quality where practicable	The PEIR Layout revised the zoning of the proposed developable areas to ensure there would be no permanent structures within the extent of fluvial flood zones 2 and 3. The more natural bankside habitat enhancements set out above for Design Principle 4 should enhance the watercourses. Removing land from arable usage to create grasslands should result in natural flood management by reducing surface water run-off across the Site, whilst blocks of woodland and proposed hedgerows should ‘slow the flow’ of surface water towards watercourses.

Design Principle	Response to Design Principle (PEIR Layout)
Design Principle 6 – The Scheme will be sensitive to local amenity and human health	The PEIR Layout continued the principle of avoiding construction traffic through the settlements of Great Staughton, Little Staughton, Keysoe, Pertenhall and Swineshead. The layout was also developed to mitigate for potential noise impacts on residential properties. Design measures were introduced in response to feedback at the non-statutory consultation to reduce impacts on the local community where practicable.
Design Principle 7 – The Scheme will seek opportunities to leave a positive legacy through the delivery of multiple social and environmental benefits	The PEIR Layout incorporated additional areas of green space over and above those identified for the Scoping Layout, and proposed permissive paths within Site B to create additional circular walking routes in the vicinity of Little Staughton. The Applicant invited feedback as part of the statutory consultation exercise on the PEIR Layout to identify opportunities for improvement.

Consultation on PEIR Layout

5.4.9. The Applicant consulted on the PEIR layout as part of the Statutory Consultation which ran from 24th September to the 29th October 2024. A summary of the feedback received is set out below.



Engagement through Statutory Consultation

5.4.10. The following key points of design-related feedback were raised on the PEIR Layout:

Feedback

5.4.11. The following feedback was raised:

- Concern that the scheme will eliminate views from, and of, heritage sites and rural areas including Little Staughton Church;
- Concern that the BESS should not be located near residential areas or areas of archaeological sensitivity;
- Concern that the BESS should be hidden from view where possible;
- Concern that Site C is located too close to the Roman Small Town;
- Concern regarding the proposed site access for the construction of the scheme, particularly surrounding the use of Moor Road, the B645 and B660 for construction traffic;
- Concern that public rights of way will be lost or ‘fenced in’ and industrialised, impacting access to countryside for recreation;
- Concern that buffer zones should be increased around Lodge Farm and The Kangaroo;
- Concern that panels should be set back from South Brook along the southern boundary of Site D; and
- Concern regarding the impact of cable trenching on areas of archaeological sensitivity and other potential historical sites.

### Opportunities

5.4.12. The following opportunities were identified

- Opportunity to increase the size of buffer zones between properties and solar panels;
- Opportunity to upgrade public footpaths to bridleway status;
- Opportunity to set solar panels back from roads as much as possible; and
- Opportunity to improve public rights of way / expand the public rights of way network across the Site.

### Outcomes

5.4.13. The key outcomes from consultation on Design Evolution 2 were:

- The Applicant selected 'Option 2' for the BESS and Substation location, such that these features will be located within East Park Site D;
- The Applicant set back solar development by additional 10m from Bridleway 37 in East Park Site A to create increased buffer and additional space for a woodland belt to provide visual screening;
- The Applicant removed solar development from a field in the south of East Park Site D, to the west of Little Staughton;
- The Applicant removed or set back solar development in fields around Lodge Farm to the north-west of Little Staughton in East Park Site B;
- The Applicant set back solar development in fields north of Little Staughton in East Park Site B;
- The Applicant changed alignment of the site access north of Lodge Farm to provide additional offset to property, and reduce potential conflicts with Footpath 8;
- The Applicant changed the position and extent of offsets for solar development around The Kangaroo;
- The Applicant widened the Order Limits between East Park Site B and Site C at the request of the landowner in order to provide flexibility to avoid field drains;
- The Applicant change the alignment of the site access between Great Staughton Road and East Park Site C (north-west of Site C) through the Zantra land such that it aligned with their needs; and
- The Applicant set back solar development from Garden Farm in the west of East Park Site C, and set back further south from Staughton Manor to allow additional space for woodland belt planted mitigation.

## 5.5. Design Evolution 3 – Submission Layout

### Submission Layout

5.5.1. Design Evolution 3 represents the layout being submitted as part of this application for development consent, and is the layout that has been assessed through the Environmental Statement. This layout is referred to in this DAD as the 'Submission Layout'.

5.5.2. The Submission Layout is shown on the following documents accompanying the application for development consent:

- **Works Plan [EN010141/DR/2.3];**
- **ES Vol 3 Figure 2-1: Illustrative Environmental Masterplan [EN010141/DR/6.3];** and
- Illustrative Landscape Masterplan at Appendix A of the **outline Landscape and Ecological Management Plan [EN010141/DR/7.7].**

5.5.3. The Scheme is described in detail within **ES Vol 1 Chapter 2: The Scheme [EN010141/DR/6.1].**

5.5.4. In addition to the Outcomes from Design Evolution 2, the Submission Layout was informed by the following information:

### Environmental Factors

5.5.5. The majority of the environmental survey and assessment required to inform the Scheme design was completed in advance of Design Evolution 2 (PEIR Layout), however the following environmental factors informed the design progression for the Submission Layout:

- The Applicant obtained updated Environment Agency fluvial flood model data based on the national update in Spring 2025 to ensure that the developable areas lie outside of areas of fluvial flood risk; and
- The Applicant made a series of small changes on the southern side of the Roman small town scheduled monument in Site C, removing a small parcel of solar development, and introducing additional proposed planting to better delineate the boundary to the scheduled monument, and create a sense of separation between the monument and the solar development to the south.

5.5.6. The key features of the Submission Layout are shown on Figure 11.

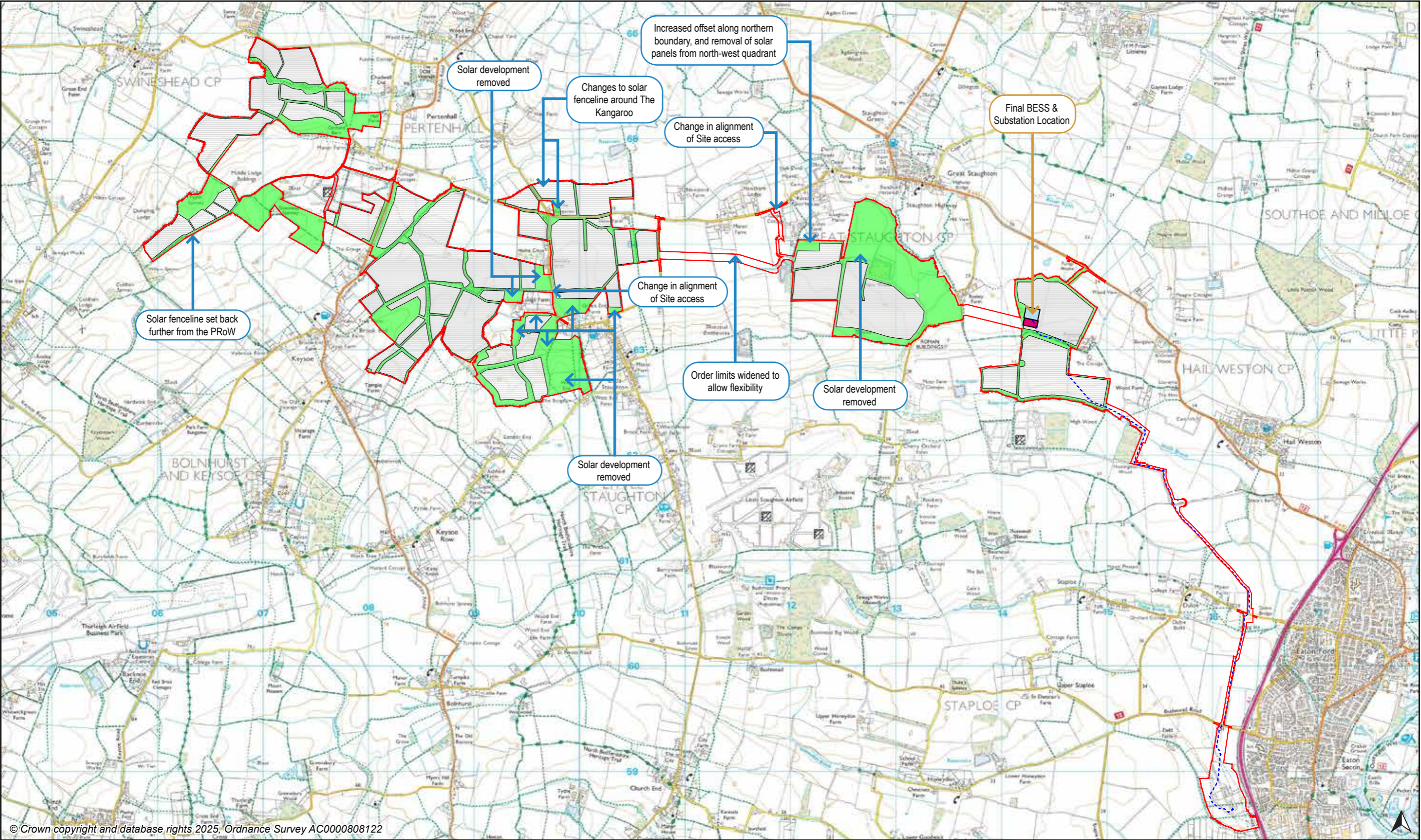



Figure 11: Submission Layout (Design Evolution 3)

- Order Limits
- Solar and Associated Infrastructure
- Landscaping and Habitat Creation
- East Park Substation
- Battery Energy Storage Facility
- 400 kV Grid Connection to Eaton Socon Substation

5.6. Submission Layout: Response to Design Principles

5.6.1. This section of the Design Approach Document sets out the Scheme’s response to the Design Principles set out in Section 3.4, which are secured via the **Design Parameters and Principles Statement [EN010141/DR/7.1]**. Further detail on how the design is secured is set out in Section 6 of this Design Approach Document.



**Design Principle 1.**

The Scheme will seek opportunities to deliver solar development as efficiently as practicable to support national electricity network decarbonisation targets.

Climate

*Principle 1.1: Seek to maximise the positive contribution of renewable electricity generation towards national Net Zero targets*

- 5.6.2. The Applicant has sought to maximise the energy generation potential of the land available for the Scheme, ensuring the Scheme will be able to optimise the 400 MW connection agreement at the Eaton Socon Substation.
- 5.6.3. The Scheme would be expected to generate approximately 433 GWh of electricity a year, which based on average electricity usage per household in Bedford Borough is enough to power approximately 117,000 homes per annum. This would also result in a saving of approximately 5.4 million tonnes of carbon dioxide from being emitted to the atmosphere over the lifetime of the project, when comparing against the carbon intensity of a standard combined cycle gas turbine (CCGT), as set out in **ES Vol 1 Chapter 15: Climate Change [EN010141/DR/6.1]**.
- 5.6.4. The extent of land for the solar energy generating station (Work No. 1) on the **Works Plan [EN010141/DR/2.3]** covers approximately 446 hectares, which is equivalent to 1,102 acres. With reference to paragraph 2.10.17 of NPS EN-3, a typical solar farm requires between 2 to 4 acres for each MW of output; for the Scheme’s 400 MW output it would be utilising approximately 2.75 acres per MW, which is consistent with the guidelines in NPS EN-3.
- 5.6.5. The Applicant’s indicative design shown on **ES Vol 3 Figure 2-1: Illustrative Environmental Masterplan [EN010141/DR/6.3]** is based on utilising 690 watt solar panels, which are now becoming readily available on the UK market. The efficiency and generation capacity of solar panels has been increasing as manufacturing processes improve, and research yields new technologies. It is possible that solar panels could achieve further generation improvements in advance of construction, or through the operational phase, and if commercially viable the Applicant has ensured there is flexibility within the **draft DCO [EN010141/DR/3.1]** to install them as part of the Scheme. Any improvements to the generation capacity and efficiency of solar panels would allow the Applicant to further maximise the utilisation of the connection agreement.
- 5.6.6. The indicative design shown on **ES Vol 3 Figure 2-1: Illustrative Environmental Masterplan [EN010141/DR/6.3]** would have an installed capacity of circa 485 MW, which equates to approximately 21.3% overplanting. To maximise the efficiency and commercial viability of the Scheme, the Applicant has been seeking to ensure there would be a minimum of 20% overplanting, but anything over 40%

NPS EN-3 states at footnote 92 that:  
“Overplanting” refers to the situation in which the installed generating capacity or nameplate capacity of the facility is larger than the generator’s grid connection. This allows developers to take account of degradation in panel array efficiency over time, thereby enabling the grid connection to be maximised across the lifetime of the site. Such reasonable overplanting should be considered acceptable in a planning context so long as it can be justified and the electricity export does not exceed the relevant NSIP installed capacity threshold throughout the operational lifetime of the site and the proposed development and its impacts are assessed through the planning process on the basis of its full extent, including any overplanting.

overplanting would likely not make commercial sense to install given the cost / benefit over the course of a full year.

5.6.7. As set out in Section 4.3 of this Design Approach Document and in **ES Vol 1 Chapter 3: Alternatives and Design Evolution [EN010141/DR/6.1]**, the Applicant has explored different arrangements of panels to maximise the generation from the Scheme, and concluded that the Design Parameters for Work No. 1 set out in the **Design Parameters and Principles Statement [EN010141/DR/7.1]** provide the optimal approach to meet their needs.

*Principle 1.2: Seek to minimise waste and embodied carbon during construction*

- 5.6.8. The Applicant has prepared an **outline Waste Management Plan [EN010141/DR/7.12]** that sets out how waste will be minimised across the construction, operation, and decommissioning phases of the Scheme. If the DCO is granted, a full Waste Management Plan would be prepared by the appointed contractor, with approval by the relevant local planning authority.
- 5.6.9. The Applicant has committed within the **outline Construction Environmental Management Plan [EN010141/DR/7.3]** to reduce carbon emissions as far as practicable across the project lifecycle, and has further committed within the **outline Skills, Supply Chain and Employment Plan [EN010141/DR/7.11]** that carbon reduction policies will be required from the project supply chain and potential contractors.
- 5.6.10. **ES Vol 1 Chapter 15: Climate Change [EN010141/DR/6.1]** includes a greenhouse gas assessment for the Scheme that concludes there would be a significant benefit from the Scheme in reducing carbon emissions to the atmosphere.

*Principle 1.3: Seek to design with resilience to climate change*

- 5.6.11. The UK Government has set a legally binding commitment to achieve net zero carbon emissions by 2050 in order to limit the worst potential impacts of climate change. To achieve this they have set the objective of decarbonising the energy system by achieving Clean Power 2030. The primary purpose of the Scheme is to contribute towards the objective of a decarbonised electricity network, which in turn aims to deliver greater national and international resilience to climate change.
- 5.6.12. In designing the Scheme, the Applicant has utilised future climate predictions to ensure resilience to changes in climate, for example in ensuring that development is sited outside areas of fluvial flood risk, utilising Environment Agency data that includes for forecast increases in extreme rainfall events over the next century, as set out in **ES Vol 2 Appendix 8-1: Flood Risk Assessment [EN010141/DR/6.2]**.
- 5.6.13. The Applicant is proposing to utilise sustainable drainage systems that are designed for potential future increases in rainfall as a result of climate change to manage surface water run-off from the Scheme, as set out in the **outline Surface Water Management Plan [EN010141/DR/7.13]**.
- 5.6.14. The **outline Landscape and Ecological Management Plan [EN010141/DR/7.7]** sets out how the final planting specification for the Scheme will be developed to provide greater resilience to climate change, such as periods of extreme weather including drought.
- 5.6.15. The Applicant is committed to providing water storage tanks at the East Park Substation and at the Operations and Maintenance Area to harvest rainwater from the rooftops of the two buildings. As set out in the **outline Operational Environmental Management Plan [EN010141/DR/7.5]**, this water would be used for operational maintenance such as panel cleaning, and watering of any proposed planting that is showing signs of stress from drought during the implementation period (as set out in the **outline Landscape and Ecological Management Plan [EN010141/DR/7.7]**).
- 5.6.16. Based on the indicative design shown on **ES Vol 3 Figure 2-1: Illustrative Environmental Masterplan**

[EN010141/DR/6.3], the total roof area of the East Park Substation could be up to 1,030 m<sup>2</sup>, and of the Storage, Operations and Maintenance Building could be up to 800 m<sup>2</sup>. The annual average rainfall at the Site is approximately 610 mm (sourced from Met Office data), which for the total roofspace (1,830 m<sup>2</sup>) available is equivalent to approximately 1,116,130 litres of rainwater per year that could potentially be harvested. Utilising this harvested rainwater reduces demand on mains water supply, providing greater resilience for future changes in climate during times of drought.

5.6.17. **ES Vol 2 Appendix 15-3: Climate Resilience Assessment [EN010141/DR/6.3]** provides an assessment of the Scheme’s climate resilience, with mitigation measures set out within the **outline Construction Environmental Management Plan [EN010141/DR/7.3]**, **outline Operational Environmental Management Plan [EN010141/DR/7.5]**, and **outline Decommissioning Environmental Management Plan [EN010141/DR/7.6]**.



**Design Principle 2.**

The Scheme will be sensitive to landscape and views, and how people perceive the landscape.

People  
Places

*Principle 2.1: Seek to protect views towards tall church spires, which are visually prominent landmarks in the landscape and contribute towards creating a sense of place*

5.6.18. As set out in **ES Vol 2 Appendix 3-2: Land Identification Report [EN010141/DR/6.3]**, the Applicant identified at the outset of the design process that church spires are visually prominent landmarks in the local landscape, and contribute towards the sense of place. An ‘Early Design Principle’ was therefore adopted (as per Section 3.3 of this Design Approach Document) that sought to protect views towards these features.

5.6.19. The five grade I listed churches within the vicinity of the Site were identified as:

- **Church 1:** Church of St Andrew, Great Staughton;
- **Church 2:** Church of All Saints, Little Staughton;
- **Church 3:** Church of St Mary, Keysoe;
- **Church 4:** Church of St Peter, Pertenhall; and
- **Church 5:** Church of St Nicholas, Swineshead.

5.6.20. The location of each of the churches is shown on Figure 6 earlier in this Design Approach Document.



Church of All Saints, Little Staughton



Church of St Mary, Keysoe



Church of St Andrew, Great Staughton



Church of St Peter, Pertenhall

5.6.21. As demonstrated by the photographs, four of the five churches have tall church spires, with Church 1 at Great Staughton having a simpler steeple structure. A field-based visual analysis of the churches found that:

- **Church 1:** The church is sited in an enclosed churchyard adjacent to Staughton Highway in a low-lying position close to the River Kym which lies to its immediate south. The church is prominent from the adjacent highway, and the tower is intermittently visible from the landscape to the north and south-east but is not a prominent visual landmark in the local landscape.
- **Church 2:** The church is sited in somewhat open churchyard in a prominent elevated position along a ridgeline to the east of Little Staughton, separate from the main residential streets of the village. The church and spire are a prominent visual landmark from the landscape to its north and south due to the elevated and exposed position.
- **Church 3:** The church is sited in an enclosed churchyard to the north of Church Road to the south and west of Keysoe in an elevated position on the south side of a narrow valley, separate from the main residential streets of the village. The church spire is a prominent visual landmark in views from the west, north and north-east.
- **Church 4:** The church is sited in an enclosed churchyard in a low-lying position central to the village of Pertenhall and adjacent to the Pertenhall Brook. The church spire is intermittently visible from elevated positions in the surrounding landscape, but less prominent in views from low-lying positions due to the extent of mature tree cover around the church.
- **Church 5:** The church is sited in an open churchyard adjacent to High Street in a low-lying position within the village of Swineshead. The church spire is visible from around Swineshead and from elevated positions in the local landscape.

5.6.22. The following pages set out for each church the design process that has been followed to avoid and reduce the impact of the Scheme on views towards each church.

Church 1: Church of St Andrew, Great Staughton

- 5.6.23. The church is prominent from the adjacent highway, and the tower is intermittently visible from the landscape to the north and south-east but is not a prominent visual landmark in the local landscape.
- 5.6.24. Views of Church 1 from the north of Great Staughton will not be affected by the introduction of the Scheme. From the ridgeline south of Site C, the vegetation around the church steeple conceals it from views. There are views across Site C from the south-east towards Church 1, as shown below.

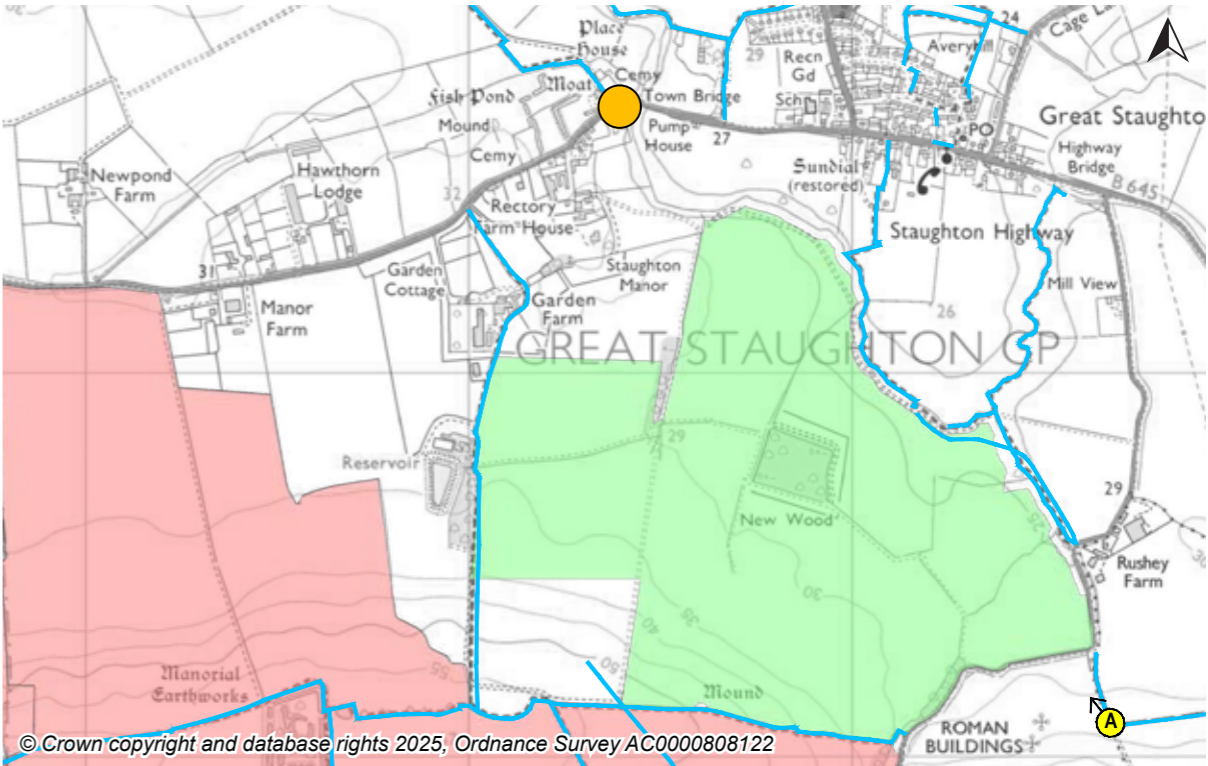


Figure 12: Visual Analysis of Church 1

- Church 1: Church of St Andrew, Great Staughton
- Land included within the Site
- Land excluded from the Site as part of site selection (refer to ES Vol 2 Appendix 3-2: Land Identification Report [EN010141/DR/6.2])
- Public right of way
- ➔ Photograph of Church 1



Photograph A: From Bridleway 37 looking south-east towards church

- 5.6.25. At Photograph A, the steeple of Church 1 is visible amongst the trees that surround it. With the exclusion of solar development from across all the fields in the north of Site C, this view towards the church will not be interrupted by solar panels.
- 5.6.26. In conclusion, the introduction of the Scheme will have a limited impact on views towards Church 1.

Church 2: Church of All Saints, Little Staughton

- 5.6.27. The church is sited in a prominent elevated position along a ridgeline to the east of Little Staughton, separate from the main residential streets of the village. The church and spire are a prominent visual landmark from the landscape to its north and south due to the elevated and exposed position.
- 5.6.28. Early design development during the site selection phase recognised the potential impact on views towards this church, and excluded land from the Site accordingly. Figure 13 shows land that was excluded from the Site in red. The photographs on the following pages demonstrate the nature of views towards the church from the local landscape.

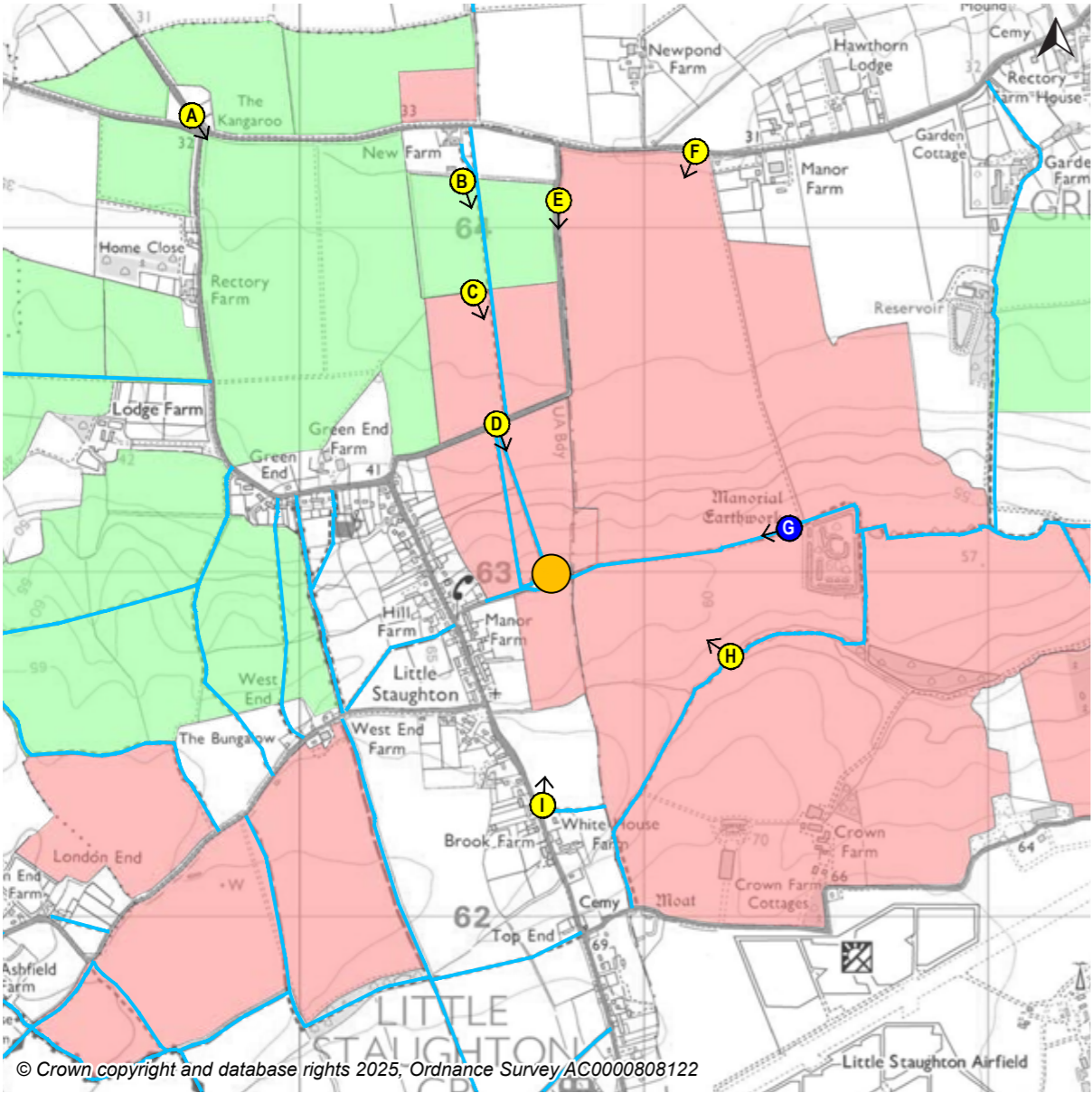


Figure 13: Visual Analysis of Church 2

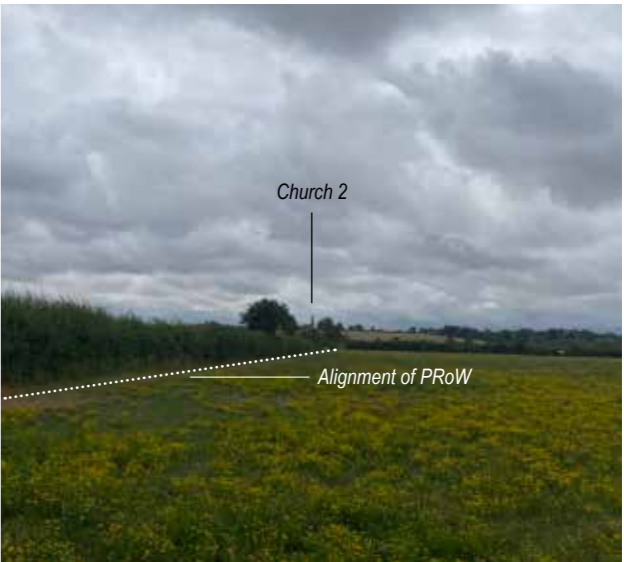
- Church 2: Church of All Saints, Little Staughton
- Land included within the Site
- Land excluded from the Site as part of site selection (refer to ES Vol 2 Appendix 3-2: Land Identification Report [EN010141/DR/6.2])
- Public right of way
- Photograph of Church 2 demonstrating solar development will not be visible in combination with views of the church
- Photograph of Church 2 where solar development will be visible in combination with views of the church



Photograph A: From Little Staughton Road near The Kangaroo

- 5.6.31. At Photographs B and C from Footpath 1 which is on a north-south orientation towards the church, the footpath follows along the eastern side of the field directly adjacent to mature, tall hedgerows. The effect of these hedgerows is that from the public right of way itself, the church is not visible due to the angle of the hedgerow and perspective towards the church.
- 5.6.32. Photographs B and C are not taken from the public right of way, but from slightly within the field (where public access is restricted) to illustrate the position of the public right of

- 5.6.29. At Photograph A and from the surrounding roads, mature hedgerows contain views within the road corridor.
- 5.6.30. From locations where the church can be seen the hedgerows will provide effective screening of the solar development, such that the church would continue to be seen in a similar way as existing.



Photograph B: From northern end of Footpath 1, south of New Farm



Photograph C: From central point along Footpath 1, south of New Farm

- way in relation to the hedgerow, and the angle towards the church on the ridgeline.
- 5.6.33. The Applicant has therefore included the northern of the two fields adjacent to Footpath 1 within the Site, but excluded the southern of the two fields due to the closer proximity to the church.



Photograph D: From northern end of Footpath 5, on south side of road

5.6.35. At Photograph E from the road that runs north-south to the north of the church, mature hedgerows on the western side of the road would provide effective screening of the solar development. The church would remain visible on the horizon as per existing views.



Photograph E: From road to the north of the church



Photograph F: From Little Staughton Road, west of Great Staughton

5.6.34. At Photograph D from the foot of the ridgeline looking up towards the church (and from the sections of road to its east and west), there would be no views of the Scheme when looking up towards the church, as a result of excluding this land from the Scheme.

5.6.36. At Photograph F from Little Staughton Road to the west of the church there are open, uninterrupted views towards the church on the horizon. There would be no solar development visible in the intervening fields between the road and the church, and existing hedgerows to the west would provide effective screening of proposed solar. The view towards the church would therefore reflect the existing, as a result of excluding this land from the Scheme



Photograph G: From Footpath 213/1 to the east of the church

5.6.39. At Photograph H from the footpath to the south-east of the church the intervening landform would screen views of the Scheme. Views towards the church would remain as existing.

5.6.40. At Photograph I from the south of the church along Colmworth Road and from nearby public rights of way the intervening landform would screen views of the Scheme. Views towards the church would remain as existing.



Photograph I: From Colmworth Road, south of the church

5.6.37. At Photograph G from the east of the church when walking along the ridgeline towards the church there would be no solar development visible between the footpath and the church.

5.6.38. There would be wider views of solar development in Site B to the north-west (as shown by Viewpoint 54 of **ES Vol 1 Chapter 5 Landscape and Visual [EN010141/DR/6.1]**). Whilst solar development would be visible, it would not reduce the prominence of the church as a landmark along the ridgeline.



Photograph H: From Footpath 213/24 to the south-east of the church

5.6.41. In conclusion, whilst there would be views out from Church 2 where solar development would be visible to the north-west at Site B, the early design and site selection process has ensured that key public views towards the church where it is a prominent landmark would almost entirely remain free from solar development. There would be limited positions where solar development is visible in combination with views of the church.

Church 3: Church of St Mary, Keysoe

- 5.6.42. The church is sited in an elevated position on the south side of a narrow valley to the west of Keysoe, separate from the main residential streets of the village. The church spire is a prominent visual landmark in views from the west, north and north-east.
- 5.6.43. Early design development during the site selection phase recognised the potential impact on views across the valley towards this church, and excluded land from the Site accordingly. Figure 14 shows land that was excluded from the Site in red.

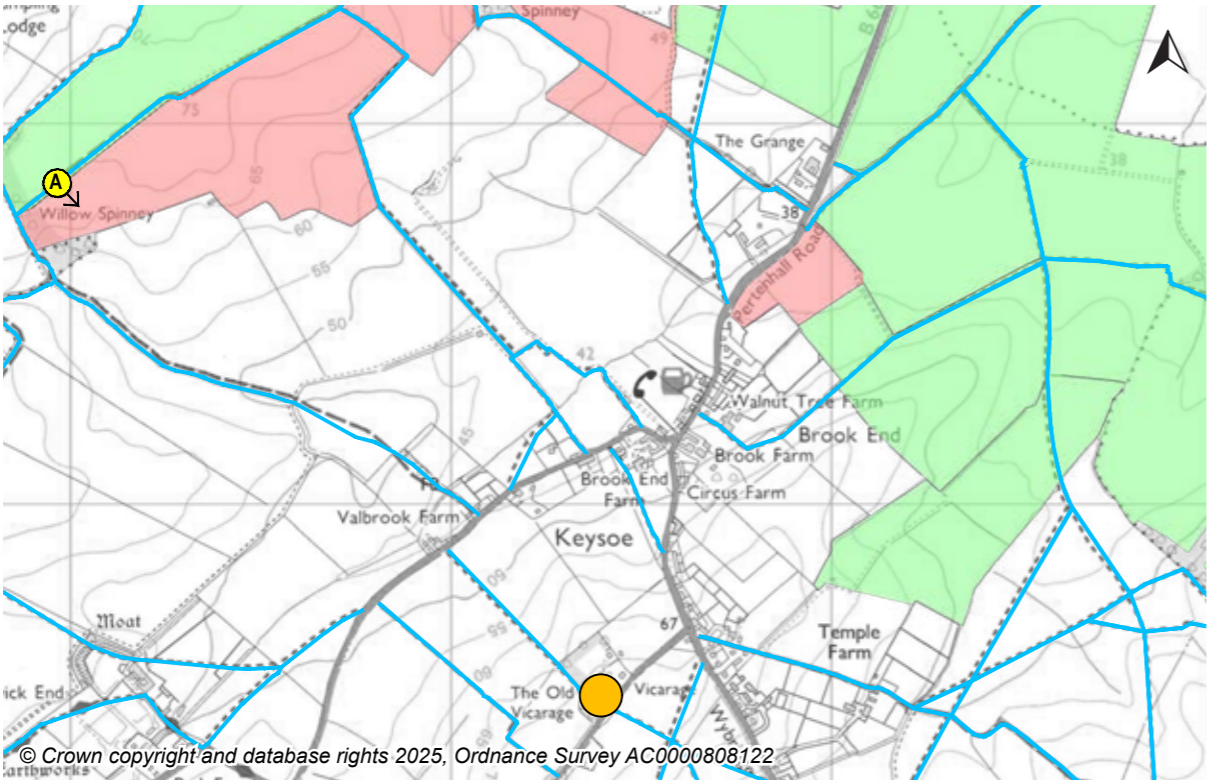


Figure 14: Visual Analysis of Church 3

- Church 3: Church of St Mary, Keysoe
- Land included within the Site
- Land excluded from the Site as part of site selection (refer to ES Vol 2 Appendix 3-2: Land Identification Report [EN010141/DR/6.2])

- Public right of way
- Photograph of Church 3 demonstrating solar development will not be visible in combination with views of the church



Photograph A: From Bridleway 37 looking south-east towards church

- 5.6.44. At Photograph A on the north side of the narrow valley, views will be uninterrupted towards Church 3, which will remain a prominent landmark on the horizon.
- 5.6.45. In conclusion, Church 3 is separated from the Site, and as a result of landform is not a prominent feature in views from across the Site, with limited locations where solar development will obstruct views of the spire.

Church 4: Church of St Peter, Pertenhall

- 5.6.46. The church is sited in a low-lying position central to the village of Pertenhall. The church spire is intermittently visible from elevated positions in the surrounding landscape, but less prominent in views from low-lying positions due to the extent of mature tree cover around the church.
- 5.6.47. The extent of vegetation around the church and the influence of surrounding topography is such that the church spire at Pertenhall is a less prominent visual landmark from the surrounding area than Church 2 and Church 3.

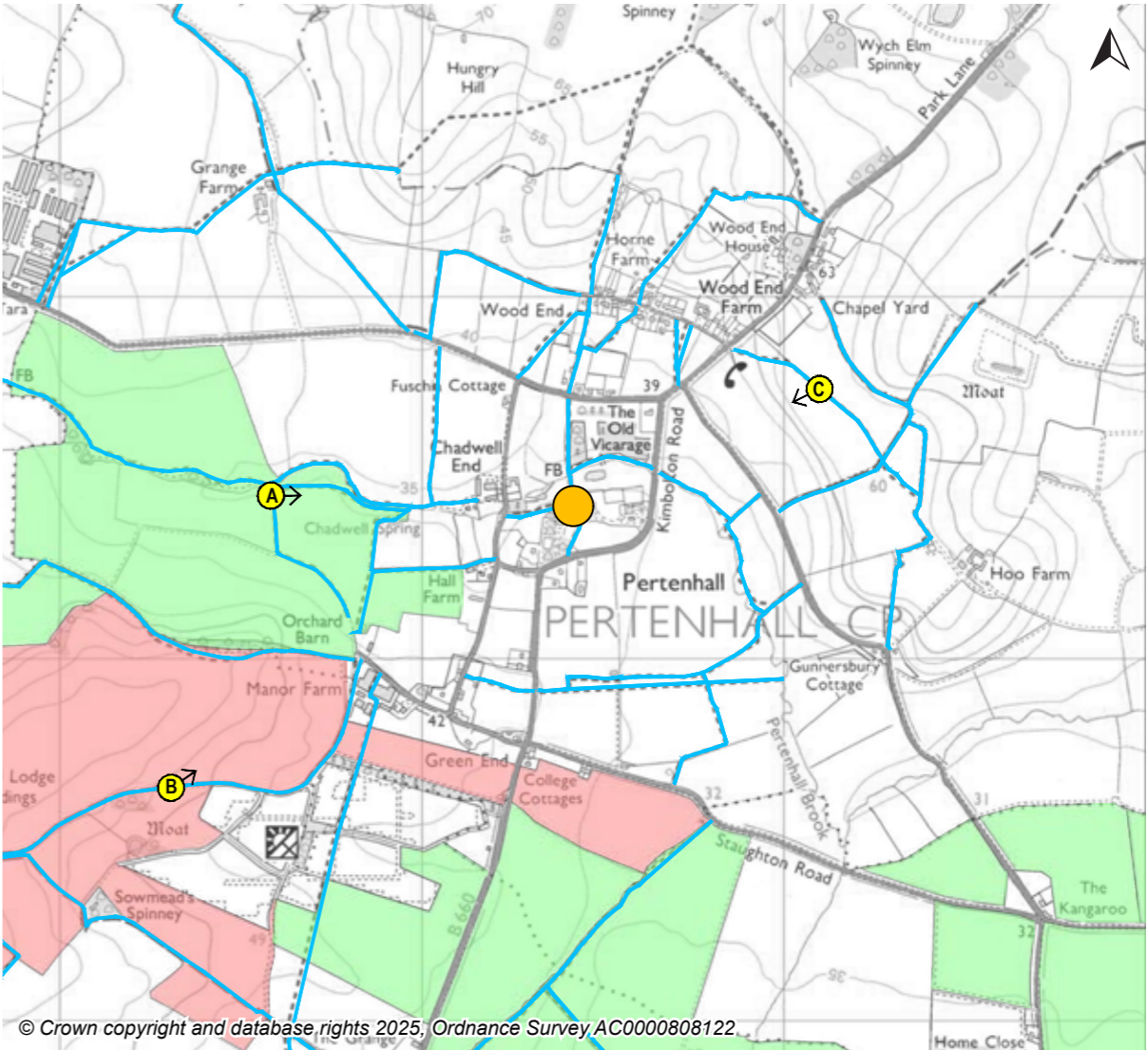


Figure 15: Visual Analysis of Church 4

- Church 4: Church of St Peter, Pertenhall
- Land included within the Site
- Land excluded from the Site as part of site selection (refer to ES Vol 2 Appendix 3-2: Land Identification Report [EN010141/DR/6.2])

- Public right of way
- Photograph of Church 4



Photograph A: From Footpath 29 just south of Pertenhall Brook

5.6.49. At Photograph B from Bridleway 37 within Site A, the top of the church spire is just visible above intervening landform. As at Photograph A, the limited extent of the spire that is visible does not make it a prominent visual landmark. Land in the foreground has been excluded from the Scheme to avoid impacts to this view.

5.6.50. At Photograph C from the ridgeline to the east of Pertenhall the church spire is most visible. Here, the Applicant avoided development of the fields in the immediate backdrop of the church. There would be wider views of solar

5.6.48. At Photograph A which is representative of views in the north of Site A, the top of the church spire at Church 4 is just visible above the surrounding treeline. The limited extent of the spire that is visible does not make it a prominent visual landmark. Whilst solar panels would be visible in the foreground, they would not interrupt the view of the church spire.



Photograph B: From Bridleway 37 west of existing solar farm

development in the north of Site A, but views of the church would be uninterrupted.

5.6.51. In conclusion, Church 4 benefits from its low-lying position, the surrounding topography, and the extent of tree cover around its boundary. As such, the church is a less prominent visual landmark, and where solar development and the church would be visible, it is generally only the very top of the church spire.



Photograph C: From Footpath 5 on ridge east of Pertenhall

Church 5: Church of St Nicholas, Swineshead

- 5.6.52. The church is sited in a low-lying position within the village of Swineshead. The church spire is visible from around Swineshead and from elevated positions in the local landscape.
- 5.6.53. Early design development during the site selection phase recognised the potential impact on views from elevated positions near Middle Lodge Buildings, and excluded land from the Site accordingly. Figure 16 shows land that was excluded from the Site in red.

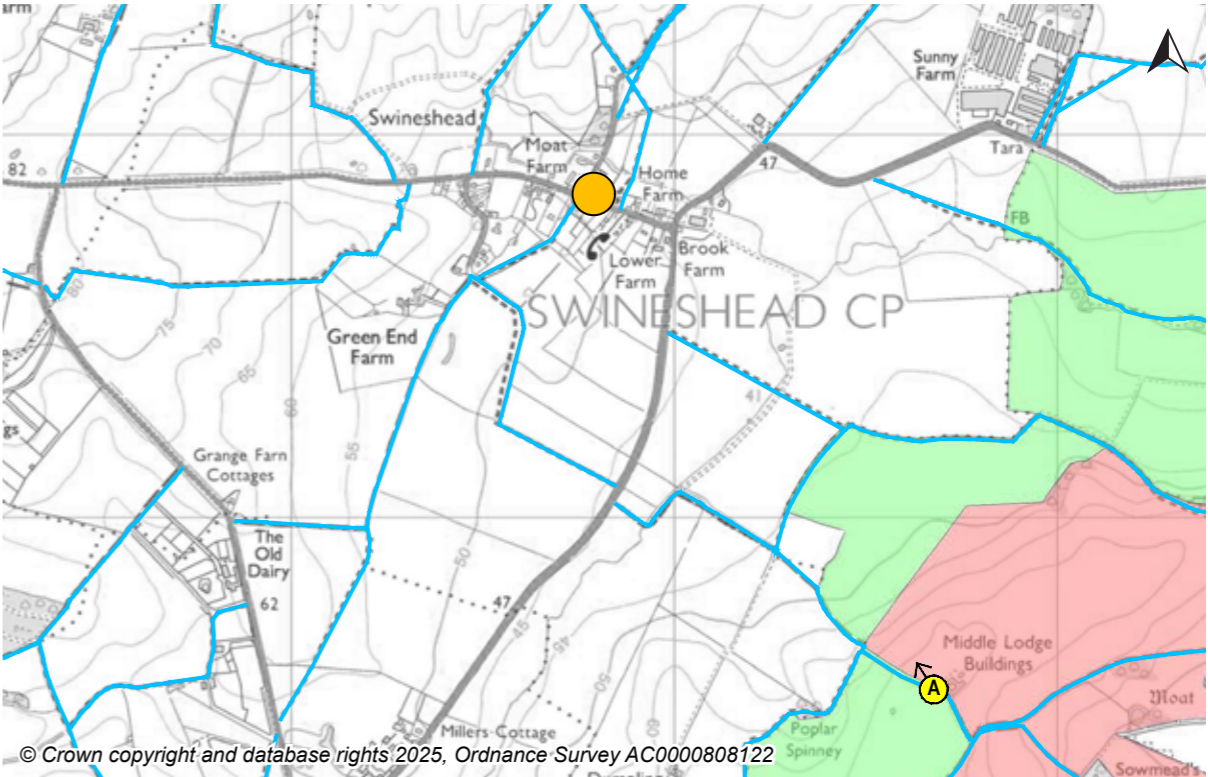


Figure 16: Visual Analysis of Church 5

- Church 5: Church of St Nicholas, Swineshead
- Land included within the Site
- Land excluded from the Site as part of site selection (refer to ES Vol 2 Appendix 3-2: Land Identification Report [EN010141/DR/6.2])
- Public right of way
- Photograph of Church 5



Photograph A: From Bridleway 37 looking south-east towards church

- 5.6.54. Photograph A demonstrates that the exclusion of land in the foreground of the view ensures that there would be uninterrupted views towards the church spire at Swineshead from the elevated ridgeline at Middle Lodge Buildings.
- 5.6.55. In conclusion, Church 5 is separated from the Site, and as a result of landform is not a prominent feature in views from across the Site, with limited locations where solar development will obstruct views of the spire.

*Principle 2.2: Seek to protect the sense of openness, wide views and skylines with long views from elevated positions across the Kym valley*

- 5.6.56. The Applicant has sought to protect the sense of openness, wide views and skylines across the Kym valley through a consideration of design from the outset of the project, which began with the land identification stage reported in **ES Vol 2 Appendix 3-2: Land Identification Report [EN010141/DR/6.2]**.
- 5.6.57. The elevated positions where views are available across the valley are from the ridgeline through East Park Site A at the west of the Site, and the ridgeline to the south of East Park Site B that extends west to east through Little Staughton towards East Park Site D.
- 5.6.58. At the western end of the Site, the Applicant avoided introducing solar development on the east side of the ridgeline to protect views out across the Kym valley towards the east. Whilst solar development will be visible at the base of the valley across East Park Site B, this will be seen in the context of the extensive tree and hedgerow cover within Site B. The openness of views across the landscape will remain intact. The images below are from Viewpoint 12 of the Landscape and Visual Impact Assessment reported in **ES Vol 1 Chapter 5: Landscape and Visual [EN010141/DR/6.1]**. They present firstly the existing view from Viewpoint 12 on Bridleway 37 through Site A, and secondly a visualisation of how the Scheme could appear in Year 10 of operation.



- 5.6.59. On the east side of Little Staughton, the Applicant has avoided development in the open landscape between East Park Site B and Site C, which retains the sense of openness of views across the valley. The Scheme would not be visible in the below photograph from Viewpoint 53 of **ES Vol 1 Chapter 5: Landscape and Visual Amenity [EN010141/DR/6.1]**.



- 5.6.60. On the western side of Little Staughton the Applicant's design response within the southern extent of Site B has been to provide a wide set back to development on the northern sides of public rights of way to retain views out over the solar arrays towards the distant horizon. Therefore, whilst the solar development is prominent in the foreground of views, the connection with the wider landscape of the Kym valley to the north is not lost.
- 5.6.61. In addition to setting back the solar development, as shown on **ES Vol 3 Figure 2-1: Illustrative Environmental Masterplan [EN010141/DR/6.3]**, the Applicant's proposed planting design does not attempt to provide a complete visual screen of the Scheme, but instead allow filtered views out across the valley. In this way there will be less enclosure for users of the route wishing to look out over the valley, but effective screening of oblique views of the solar development in views along the footpath. The images below are from Viewpoint 36 of the Landscape and Visual Impact Assessment reported in **ES Vol 1 Chapter 5: Landscape and Visual [EN010141/DR/6.1]**. They present firstly the existing view from Viewpoint 36 on Footpath 10 in Site B, and secondly a visualisation of how the Scheme could appear in Year 10 of operation.



- 5.6.62. At the eastern end of the ridgeline to the south of East Park Site C, the Applicant has taken a similar design approach to the above, providing wide set backs between the public rights of way along the ridgeline and the solar development to the north. Therefore, whilst the solar development is visible, the openness of views across the Kym valley to the north are not lost. The image below is from Viewpoint 57 of the Landscape and Visual Impact Assessment reported in **ES Vol 1 Chapter 5: Landscape and Visual [EN010141/DR/6.1]**. It shows a visualisation of how the Scheme could appear in the first year of operation from Footpath 213/1.



*Principle 2.3: Seek to protect the pattern of dispersed farmsteads and rural villages with their distinctive structure of 'ends' and associated small irregular fields*

- 5.6.63. The closest settlements to the Scheme that have a structure of 'ends' with small scale irregular fields lying proximate to the Order limits are Pertenhall and Little Staughton. The Applicant has had regard to the existing landscape pattern around these settlements during the design process.
- 5.6.64. At Pertenhall, 'Green End' lies at the southern extent of the village as a ribbon of residential development set amongst small irregular shaped fields, as shown on the aerial image on the left hand side below. The image on the right hand side below shows an extract from **ES Vol 3 Figure 2-1: Illustrative Environmental Masterplan [EN010141/DR/6.3]** overlaid at the same location. This demonstrates the Scheme will retain the landscape pattern in the immediate vicinity of 'Green End' at Pertenhall.



- 5.6.65. At Little Staughton, 'Green End' lies at the northern end of the village as a ribbon of development set amongst small irregular shaped fields to its south and west sides, as shown on the aerial image on the left hand side below. The image on the right hand side below shows an extract from **ES Vol 3 Figure 2-1: Illustrative Environmental Masterplan [EN010141/DR/6.3]** overlaid at the same location. The Order Limits do not include the small irregular shaped fields, with substantial offsets also included to retain the landscape pattern in the immediate setting of Little Staughton.



*Principle 2.4: Seek to protect hedgerows and hedgerow trees*

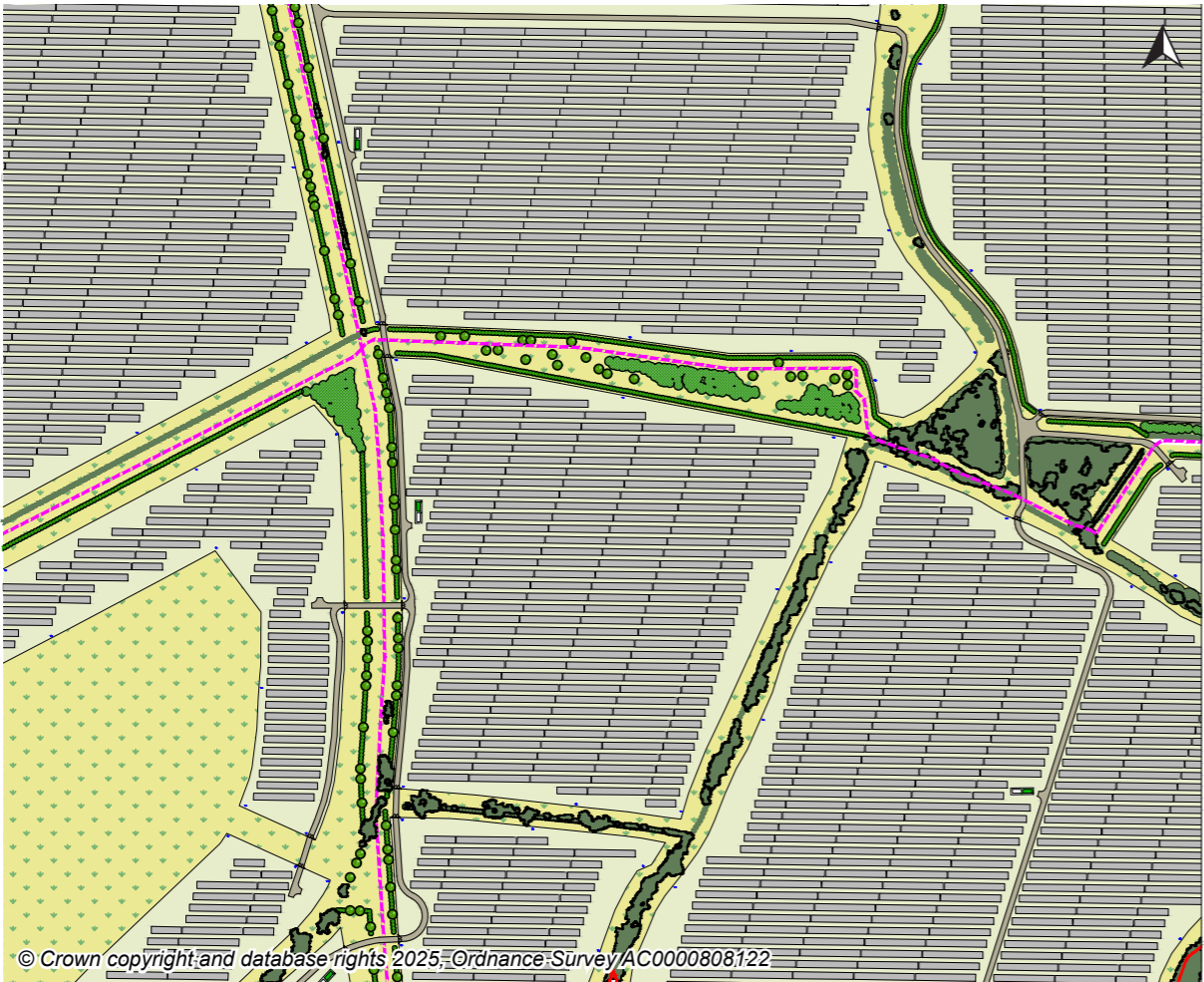
- 5.6.66. From the outset, the Applicant has sought to avoid removing trees and hedgerows as far as practicable by identifying them through desk- and field-based survey, and then by providing for suitable buffers within the Scheme design. The design incorporates minimum 6m buffers between all hedgerows and fencing for solar areas, and this buffer is secured by the limits of deviation of Work No. 1 as shown on the **Works Plan [EN010141/DR/2.3]**. Where there are existing trees or woodland within the Site, this buffer has been extended accordingly.
- 5.6.67. An arboricultural survey of all trees and hedgerows within the Order limits has been undertaken and is presented in **ES Vol 2 Appendix 2-2: Arboricultural Assessment [EN010141/DR/6.2]**. The Arboricultural Assessment includes an assessment of the likely impact of the Scheme and confirms that based on the **Works Plan [EN010141/DR/2.3]** and commitments made in the **outline Construction Environmental Management Plan [EN010141/DR/7.3]** for the siting of fencing and cabling, the Scheme will not result in the loss of any trees.
- 5.6.68. In total it is anticipated that a total of 84m of hedgerow would need to be removed to facilitate construction of the Scheme, with 42m of this to be reinstated at the end of the construction phase. These removals relate to creating construction or operation access points, which cannot be avoided.
- 5.6.69. By way of enhancement, the landscape proposals shown on the **ES Vol 3 Figure 2-1: Illustrative Environmental Masterplan [EN010141/DR/6.3]** include for the creation of approximately:
- 19 hectares of native species woodland or woodland belt;
  - 17.4 km of native species hedgerow; and
  - 375 individual native species trees.

*Principle 2.5: Seek to protect the nature conservation value of the rivers, and protect and restore riverside meadows*

- 5.6.70. As set out in Section 4.2, the watercourses through the Site are the Pertenhall Brook which flows west to east through East Park Site A, and an unnamed watercourse which flows south to north through East Park Site B. Currently, each of these watercourses have arable fields either side, with seasonal arable cultivation coming up close to the boundaries of the watercourses.
- 5.6.71. The Applicant has ensured there are suitable offsets to each watercourse embedded within the Scheme design, and has avoided placing development within fluvial Flood Zones 2 and 3. The offsets from the top of watercourse banks are minimum 10m, but often much greater to avoid areas of flood risk, as secured by the limits of deviation of Works No. 1 and 6 on the **Works Plan [EN010141/DR/2.3]**.
- 5.6.72. Within the buffer zones to the watercourses and in the fields adjacent, the Applicant is proposing grassland meadows that will enhance biodiversity along the river corridors, and bind the soils year-round compared to the existing situation where fields are cultivated annually creating bare soils that will increase run-off and siltation to the watercourses. The grassland meadows are supported by intermittent blocks of woodland, trees and hedgerows that will also function to reduce run-off and improve biodiversity.
- 5.6.73. Where crossings of the watercourses are required the Applicant has sought to use existing crossings, or has chosen sections of the watercourse that are less sensitive. Mitigation measures for the construction phase are secured by the **outline Construction Environmental Management Plan [EN010141/DR/7.3]**.

*Principle 2.6: Seek to protect recreational access via rights of way network and the network of quiet lanes*

- 5.6.74. The Applicant has designed the Scheme to retain all existing public rights of way within the Order limits throughout the operational phase. All public rights of way will have a minimum 10m buffer between the centreline of the definitive right of way alignment and the solar fenceline either side, and such will be sat within minimum 20m wide corridors that will include grasslands, hedgerows, trees and woodland planting. The Applicant considered narrower and wider corridors as part of the design process, but concluded that 20m wide corridors were generally the right balance for efficiency of land use, whilst protecting amenity as far as possible. The final proposals for the landscape design of these corridors will be in substantial accordance with the Indicative Landscape Proposals shown in the **outline Landscape and Ecological Management Plan [EN010141/DR/7.7]**.
- 5.6.75. In accordance with the objectives of the local green infrastructure strategies and the landscape management guidelines, where these routes pass through the Scheme the Applicant is proposing to make them 'green lanes' that will function not only for recreational access, but also as wildlife corridors improving habitat connectivity and ecosystem benefits.
- 5.6.76. The extract from **ES Vol 3 Figure 2-3: Illustrative Environmental Masterplan [EN010141/DR/6.3]** below shows the illustrative design treatment of public footpaths through East Park Site B, with public rights of way shown by dashed pink lines set within wide green corridors.



**Figure X: Example green Lanes through Site B**

--- Public right of way

- 5.6.77. The visualisations below are taken from Viewpoint 33 of the Landscape and Visual Impact Assessment as set out in **ES Vol 1 Chapter 5: Landscape and Visual [EN010141/DR/6.1]** and illustrate how the green lanes through the Site would potentially appear once the Scheme is built.



Existing view south from Footpath 13 within East Park Site B




Proposed view south from Footpath 13 within East Park Site B in the first year of operation



Proposed view south from Footpath 13 within East Park Site B in year 10 of operation

- 5.6.78. The surfacing and landscaping of the public rights of way will be managed throughout the lifetime of the Scheme in accordance with the **outline Landscape and Ecological Management Plan [EN010141/DR/7.7]**.
- 5.6.79. The Applicant has also prepared an **outline Public Rights of Way Management Plan [EN010141/DR/7.8]** that sets out how public rights of way will be managed during the construction and operational phases to maintain safe access. The Applicant is committed to minimising disruption to the public along the PRoW network wherever possible, but this needs to be balanced with the Applicant's commitment to safety during the construction and operation of the Scheme. Where a potential conflict between these two objectives has been identified by the Applicant, a pragmatic approach to safety will be taken, balancing the risks to PRoW users against the disruption that removing the risk will cause.



**Design Principle 3.**

The Scheme will be sensitive to heritage assets, looking to protect the most valuable assets that contribute to a sense of place.

**People  
Places**

*Principle 3.1: Seek to protect the setting of the most significant built heritage assets, recognising the contribution that they make to local distinctiveness*

- 5.6.80. As set out in **ES Vol 2 Appendix 3-2: Land Identification Report [EN010141/DR/6.3]**, the Applicant identified an Early Design Principle at the outset of the design process to be sensitive towards heritage assets, and in particular those which contribute towards the sense of place.
- 5.6.81. The Applicant undertook early desk-based assessment and fieldwork to identify designated and non-designated heritage assets in close proximity to the Site. The most significant built heritage assets are set out in Section 4.2 under the heading of 'Cultural Heritage and Archaeology', with supporting Figure 6 of this Design Approach Document.
- 5.6.82. The setting of heritage assets lies in what it contributes to the significance of the heritage asset or to the ability to appreciate that significance. The setting of a heritage asset is the surroundings in which it is experienced. Its extent is not fixed and may change as the asset and its surroundings evolve.
- 5.6.83. It has been set out earlier in this Design Approach Document with reference to Design Principle 2.1 how the Applicant identified the positive contribution that the churches and church spires make to the visual environment and sense of place, and the work for Design Principle 2.1 applies equally to the Applicant's approach to responding to Design Principle 3.1 for the historic environment.
- 5.6.84. Whilst the work for Design Principle 2.1 focused on views towards the churches in the landscape, the Applicant has also considered and assessed the impact on views from the churches, and this has formed part of the design process, notably at the site selection stage reported in **ES Vol 2 Appendix 3-2: Land Identification Report [EN010141/DR/6.3]**.
- 5.6.85. The Scheme is a temporary but long-term development and there is a commitment to decommission the Scheme after 40 years of operation. At this point the setting of most heritage assets would likely return to the existing baseline scenario. A full assessment of the impacts and effects of the Scheme on the historic environment is reported within **ES Vol 1 Chapter 6: Cultural Heritage and Archaeology [EN010141/DR/6.1]**.

*Principle 3.2: Seek to protect known and unknown archaeology through responsible archaeological investigation*

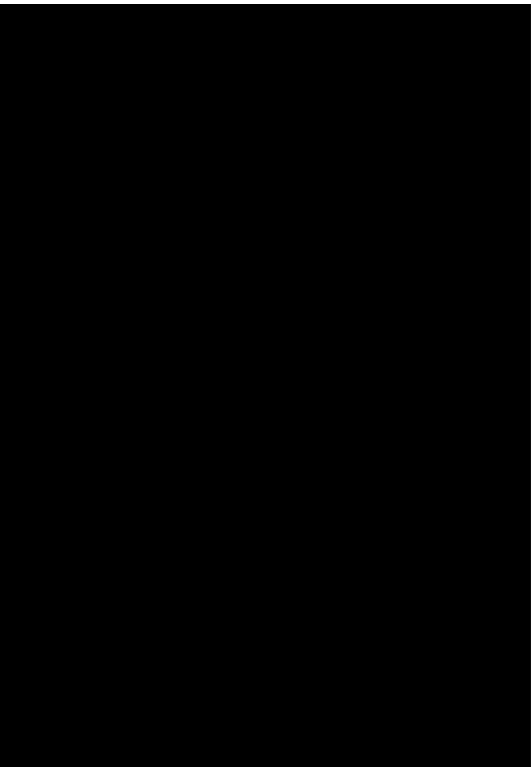
- 5.6.86. The Applicant has undertaken desk-based assessment supported by archaeological geophysical survey across the Order Limits. The archaeological geophysical survey was undertaken in accordance with a Written Scheme of Investigation that was agreed with Bedford Borough Council and Cambridgeshire County Council as the relevant archaeological advisers for the Site. The results of the archaeological geophysical survey are presented in an appendix to ES Chapter 6, contained within **ES Volume 2 [EN010141/DR/6.2]**.
- 5.6.87. The archaeological geophysical investigation identified a number of potential archaeological remains, including the remains of a potential Roman town to the south of Great Staughton within East Park Site C. Recognising the potential significance of the archaeological discovery within Site C and as a responsible developer, the Applicant engaged with the county archaeologists and Historic England at the earliest opportunity to discuss the finding. The Applicant undertook a limited number of trial trenches at the site of the Roman town to establish the condition of the archaeological remains.

Once it was established that there were significant archaeological remains that corresponded to the archaeological geophysical survey, and seeking to protect it in the future, the Applicant made a decision to apply to the Secretary of State for Culture, Media and Sport (via Historic England) to designate the area as a Scheduled Monument. The application was accepted and the archaeology was designated as a scheduled monument in September 2024.

- 5.6.88. The Applicant amended their design prior to Design Evolution 2 (PEIR Layout) to remove solar development from the area of the archaeological finding, and has been developing a mitigation strategy for the necessary cable connection between Sites C and D.
- 5.6.89. The Applicant has engaged with the county archaeologists working on behalf of Bedford Borough Council and Cambridgeshire County Council and agreed a Written Scheme of Investigation for intrusive archaeological investigation across East Park Sites A to D in order to better understand the significance of the archaeological remains, and to guide design decisions on future mitigation. The reports of the trial trenching are set out within the appendices to ES Chapter 6 in **ES Volume 2 [EN010141/DR/6.2]**.
- 5.6.90. The findings of the Applicant's archaeological investigations to date have guided the production of an **outline Archaeological Mitigation Strategy [EN010141/DR/7.15]** that also includes for further future investigation.
- 5.6.91. In areas of archaeological constraint across the Site the Applicant has retained the option to develop these areas using preservation in-situ techniques such as no-dig solutions, or if necessary through preservation by record techniques. The approach to be taken is set out in the **outline Archaeological Mitigation Strategy [EN010141/DR/7.15]**.

*Principle 3.3: Seek to further our knowledge and understanding of the historic environment through transparency of research*

- 5.6.92. The **outline Archaeological Mitigation Strategy [EN010141/DR/7.15]** includes provisions for the potential dissemination of findings from all archaeological investigation findings as part of the Scheme. This includes sharing all reports with the relevant Historic Environment Records, and sharing results with journals where remains of sufficient importance or interest are uncovered.
- 5.6.93. The Applicant has also prepared an **outline Heritage Enhancement Strategy [EN010141/DR/7.16]** as part of the application for development consent. This plan sets out how the Applicant intends to increase the understanding, experience and appreciation of the historic environment.
- 5.6.94. The Applicant's commitment to this principle has been evident through the pre-application period where educational sessions have been set up for both the local primary school at Great Staughton, and with Great Staughton Parish Council in March 2025. The event with the Parish Council was well attended with over sixty local community members eager to learn more about the archaeological discoveries.



Community educational session with Great Staughton Parish Council held in March 2025 to give insight into the scheduled monument and to offer interpretations into how the Romans may have lived and worked in the area, as well as what the finding could mean for further archaeological investigations



**Design Principle 4.**

The Scheme will be sensitive to biodiversity, and look to provide enhancement where possible.

People  
Places

*Principle 4.1: Seek to deliver a biodiversity net gain through a responsible approach to environmental management*

- 5.6.95. The Applicant has sought from the outset of the design process to ensure that biodiversity net gain is achieved on-site by the Scheme, despite biodiversity net gain not being mandatory for NSIPs until November 2025 at the earliest, and possibly now May 2026 based on the Government's latest consultation.
- 5.6.96. A **Biodiversity Net Gain Report [EN010141/DR/17]** has been prepared based on the Illustrative Landscape Proposals drawing contained within the **outline Landscape and Ecological Management Plan [EN010141/DR/7.7]** the Scheme is expected to be able to achieve a 79.51% increase in area-based habitats; 36.91% increase in linear habitats; and 5.95% increase in watercourse habitats.
- 5.6.97. As the assessment has been based on an illustrative design, out of caution and to avoid any future compliance issue, the Applicant is electing to claim and commit to a future BNG of:
- 70% net gain in area-based habitat units;
  - 30% net gain in hedgerow units; and
  - 5% in watercourse units.
- 5.6.98. This is less than assessed for the illustrative design, but allows future flexibility if required at the detailed design. The Applicant will endeavour at that stage to meet or even exceed the higher BNG totals as assessed in the **BNG Report [EN010141/DR/7.17]**, particularly with regard to watercourse units. Further detail on BNG is available in the **BNG Report [EN010141/DR/7.17]**.
- 5.6.99. The proposed habitats will be managed in accordance with the provisions of the **outline Landscape and Ecological Management Plan [EN010141/DR/7.7]**.

*Principle 4.2: Seek to improve habitat connectivity through a holistic approach to landscape and ecological design*

- 5.6.100. The design of the Scheme shown on **ES Vol 3 Figure 2-1: Illustrative Environmental Masterplan [EN010141/DR/6.3]** aims to enhance ecosystem function and habitat connectivity across the Site. The baseline conditions of the Site support biodiversity but include fragmented areas of habitat, and the arable cultivation of fields causes annual disturbance and produces crop monocultures that are limited in their ecological benefits. The Scheme proposals such as the riverside meadows (covered under Design Principle 2.5 earlier in this Design Approach Document) and the extent of new linear habitats (including over 17km of proposed hedgerow) will substantially improve habitat quality and connectivity, providing nesting, roosting and foraging opportunities for a wider range of species.
- 5.6.101. The approach follows guidance within the green infrastructure strategies including by the proposal of networks of new hedgerow connecting existing isolated blocks of woodland, with new woodland copses also proposed as 'stepping stones' between wider ecological corridors such as the watercourses that cross East Park Sites A and B.
- 5.6.102. The Applicant is proposing to retain existing hedgerows and trees (as set out under Design Principle 2.4), and buffers to the hedgerows will improve habitat connectivity across the Site.



**Design Principle 5.**

The Scheme will be sensitive to the water environment, looking to avoid harm to watercourses and improve water quality where practicable.

Climate  
People  
Value

*Principle 5.1: Seek to avoid development at risk of fluvial flooding, and minimise the impact of pluvial flooding to the development*

- 5.6.103. The Scheme has been designed to avoid development within fluvial Flood Zones 2 and 3, with amendments made as the design evolved to ensure that this aligned with up to date flood modelling. The Applicant has prepared **ES Vol 2 Appendix 8-1: Flood Risk Assessment [EN010141/DR/6.2]** that sets out the flood risk to the Scheme.
- 5.6.104. There are isolated areas of potential pluvial (surface water) flood risk around the Site and the Applicant has avoided placing sensitive infrastructure within these areas. A small area of surface water flood risk intersects with the footprint of the BESS facility, however there are operational reasons why the BESS must be sited in this position, and the layout of the BESS shown on **ES Vol 3 Figure 2-1: Illustrative Environmental Masterplan [EN010141/DR/6.3]** demonstrates that all battery storage units and other infrastructure can be sited outside of the area of surface water flooding. The surface water flood risk at the BESS facility would instead be captured by the proposed drainage for the BESS facility, and discharged to a nearby ditch or watercourse in accordance with greenfield rates. The **outline Surface Water Management Plan [EN010141/DR/13]** sets out how surface water at the BESS facility would be managed.
- 5.6.105. In other areas of surface water flood risk across the Site, the depth of potential flooding is limited and the Applicant is proposing solar arrays in these areas. The solar arrays have a design parameter that the bottom edge of the solar panels must be a minimum of 800mm from ground level, and therefore the infrastructure will not be affected by flooding.
- 5.6.106. The Applicant has accounted for potential future changes in climate as part of the flood risk mapping and modelling to ensure the Scheme is resilient across its lifetime.

*Principle 5.2: Seek to enhance watercourses through the provision of green infrastructure to provide more natural bankside environments*

- 5.6.107. As set out earlier in this Design Approach Document for Design Principle 2.5, the Applicant is taking a positive approach to the protection of existing watercourses and proposal of riparian vegetation and other landscape enhancements to improve the ecological function of watercourses.
- 5.6.108. As is demonstrated by the photograph of Pertenhall Brook in winter 2024, there appears to be extensive silt within the watercourse likely as a result of surface water run-off across bare soils during winter months. The Scheme should improve the quality of watercourses by reducing such run-off across a large area of land that drains towards these ditches and watercourses.



Pertenhall Brook through Site A

*Principle 5.3: Utilise sustainable drainage measures to minimise surface water run-off from the development area*

- 5.6.109. The Scheme has the potential to reduce surface water run-off during winter months through natural flood management measures.
- 5.6.110. Under arable cultivation, the Site is typically subject to seasonal ploughing, crop rotation, and periods of bare soil, particularly post-harvest and during early sowing. These conditions lead to compaction, reduced infiltration rates, and increased vulnerability to surface water runoff and erosion. By contrast, the Scheme will introduce a species-diverse grassland sward that will remain in place year round. This groundcover will deliver a range of hydrological benefits. The structure of the grassland including the dense root network and surface thatch acts to intercept rainfall, slow overland flow, and improve soil porosity, thereby enhancing infiltration and reducing runoff volumes.



Example of rilling within East Park Site A where soils are exposed through winter months, quickening surface water run-off towards nearby watercourses and ultimately, the River Kym

the Site and help to trap sediment during periods of heavy rainfall. Woodland planting on sloping ground or at strategic low points further contributes to infiltration, shading, and long-term soil stability.

- 5.6.112. The Applicant has prepared an **outline Surface Water Management Plan [EN010141/DR/7.11]** that provides greater detail about how surface water will be managed across the Site during the construction and operational phases of the Scheme.

- 5.6.111. Complementing the grassland are new and retained linear and structural landscape features, including native hedgerow planting, woodland blocks, and enhanced field margins. These green infrastructure elements provide additional surface roughness, intercept overland flow, and act as natural drainage buffers. Hedgerows, in particular, slow lateral movement of water across



Example of rilling within East Park Site B where soils are exposed through winter months, creating small streams flowing towards nearby watercourses



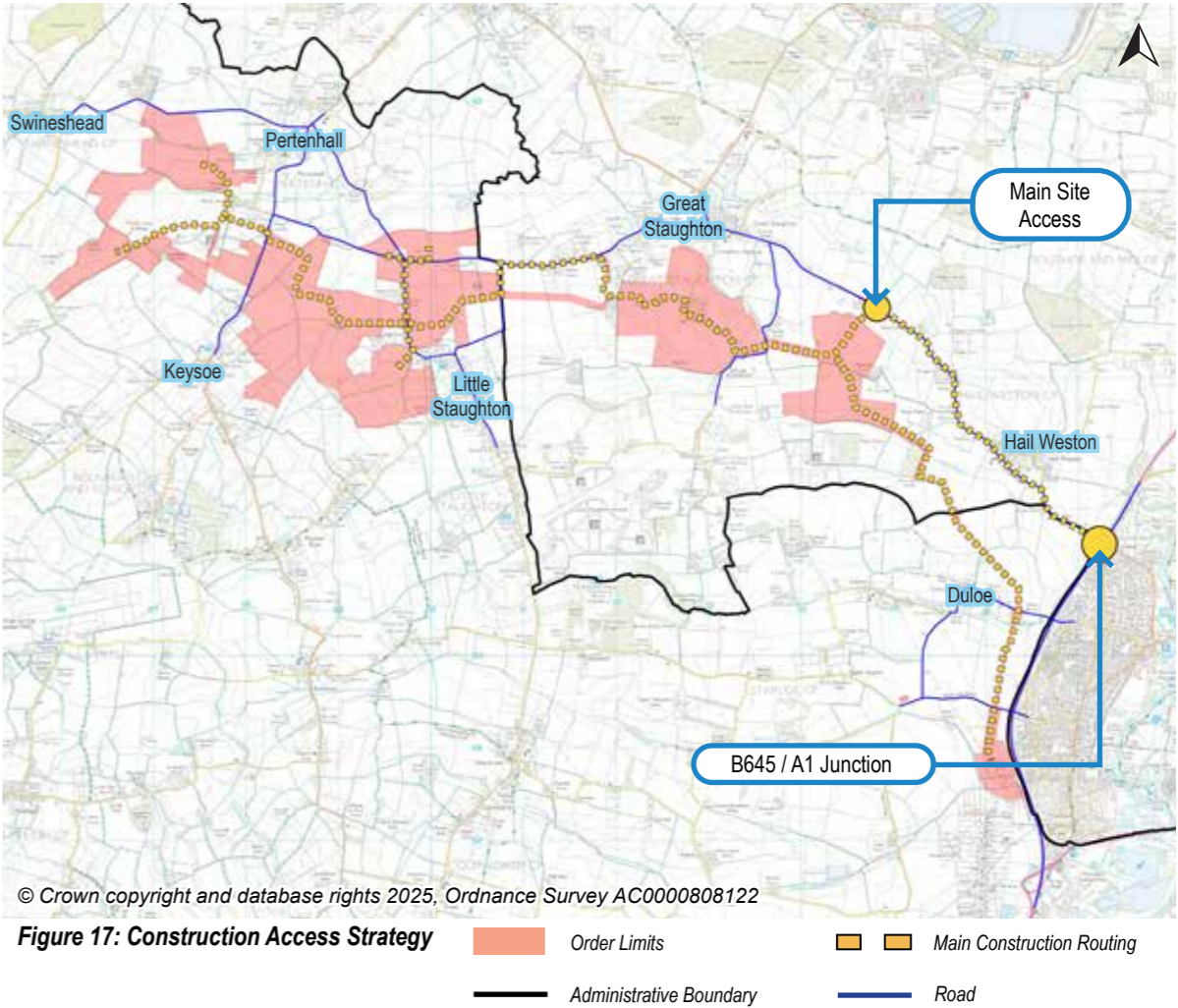
**Design Principle 6.**

The Scheme will be sensitive to local amenity and human health.

People

*Principle 6.1: Seek to avoid and minimise taking construction traffic through local settlements*

- 5.6.113. It was identified early on that there are a number of villages in proximity to the Site that construction traffic should avoid if possible, namely Great Staughton, Little Staughton, and Pertenhall. The Applicant has therefore had an objective to design the Scheme to avoid traffic through these settlements, notably for the construction phase where there can be large numbers of vehicle movements relative to the current levels of traffic.
- 5.6.114. The final construction strategy has achieved this objective, as shown on **Figure 17**. Construction traffic will be routed from the B645 / A1 junction along the B645 to the Main Site Access into East Park Site D. From here, construction traffic will utilise a series of permanent and temporary access tracks in a westward direction to reach Sites A, B and C, bypassing the village of Great Staughton and avoiding the need to route through the other villages close to the Site.



- 5.6.115. The Applicant has prepared an **outline Construction Traffic Management Plan [EN010141/DR/7.4]** that sets out the approach to the construction routing shown on the above diagram. By avoiding taking construction traffic through villages, the indirect impacts from noise, vibration, and air quality are avoided, reducing the potential human health impact on local communities.

*Principle 6.2: Seek to avoid and minimise impacts arising from noise, vibration, dust or pollution*

- 5.6.116. The Applicant has taken a robust approach to environmental protection by preparing a series of environmental management plans to control potential impacts associated with the construction, operation, and eventual decommissioning of the Scheme. These documents form part of the environmental control framework secured through the Development Consent Order and will be further refined and implemented by the appointed contractors in accordance with relevant legislation, best practice guidance, and site-specific requirements. The DCO require that the outline plans provided with the application will be developed into full plans, that must be in substantial accordance with the outline plans. The full plans will need to be approved by the LPAs prior to the various phases of the development.
- 5.6.117. For the construction phase, an **outline Construction Environmental Management Plan [EN010141/DR/7.3]** has been prepared which sets out a comprehensive range of measures designed to prevent, reduce and manage temporary effects arising from construction activities. These include site-specific controls to minimise dust generation, control surface water and pollution risks, manage construction traffic, and limit noise and vibration through working hours restrictions, plant selection and appropriate site layout.
- 5.6.118. For the operational phase, an **outline Operational Environmental Management Plan [EN010141/DR/7.5]** has been prepared to guide the ongoing environmental management of the site over its lifetime. This includes measures to minimise disturbance from maintenance activities, protect retained and newly created habitats, and ensure the continued effectiveness of surface water drainage and pollution prevention measures.
- 5.6.119. In preparation for the eventual decommissioning of the site, an **outline Decommissioning Environmental Management Plan [EN010141/DR/7.6]** has also been prepared. This anticipates future works to dismantle and remove infrastructure and sets out preliminary strategies to minimise the associated environmental impacts, including dust, noise, waste, and potential contamination.
- 5.6.120. The Applicant has undertaken an assessment of the potential impacts of the Scheme in the following ES chapters:
- **ES Vol 1 Chapter 9: Traffic and Transport [EN010141/DR/6.1];**
  - **ES Vol 1 Chapter 10: Noise and Vibration [EN010141/DR/6.1];** and
  - **ES Vol 1 Chapter 11: Air Quality [EN010141/DR/6.1].**
- 5.6.121. In addition, an assessment of the potential inter-related impacts on human health are set out in **ES Vol 1 Chapter 16: Other Environmental Topics [EN010141/DR/6.1].**



**Design Principle 7.**

The Scheme will seek opportunities to leave a positive legacy through the delivery of multiple social and environmental benefits.

Climate  
People  
Value

*Principle 7.1: Seek to respond to community feedback to improve the project wherever practicable*

- 5.6.122. As set out in this Design Approach Document, and in the **Consultation Report [EN010141/DR/5.1]**, pre-application consultation and engagement with the local community has been a key part of the design development process. The Applicant has undertaken two rounds of consultation in addition to separate individual meetings with local residents and parish councils as part of the Scheme's community engagement.
- 5.6.123. The Applicant has set out in the outline Construction Environmental Management Plan **[EN010141/DR/7.3]** that a Community Liaison Group (CLG) would be set up from the outset of construction, and the CLG would then continue throughout the lifetime of the Scheme. The CLG will provide a forum for the local community to provide continuous feedback to the Applicant on all aspects of the Scheme.

*Principle 7.2: Seek to provide opportunities for engagement with communities across the lifecycle of the project*

- 5.6.124. In addition to the CLG set out above, the Applicant will engage local communities through opportunities to 'get involved' with the Scheme.
- 5.6.125. The Scheme will create opportunities for the community to participate in the long-term stewardship of the proposed landscape and ecological features. The establishment of species-diverse grasslands, native hedgerows, and woodland planting offers scope for local involvement in habitat management and biodiversity monitoring. This may include volunteer planting or habitat management days, or educational visits that support nature recovery while promoting local ownership of environmental outcomes. As set out in the **outline Landscape and Ecological Management Plan [EN010141/DR/7.7]**, the responsibility for implementing and maintaining the landscape proposals will remain with the Applicant.
- 5.6.126. As set out earlier for Design Principle 3.3, the Applicant has already held community engagement events in relation to archaeology, and has aspirations to continue this during the construction and operational phases of the Scheme. The Applicant has prepared an **outline Heritage Enhancement Management Plan [EN010141/DR/7.16]** which sets out how the local community will also be invited to engage in future archaeological investigations at the Site. This could include open days, site tours during fieldwork, or potentially even involvement in fieldwork.
- 5.6.127. The Applicant intends to create interpretation panels near publicly accessible areas within the Scheme to explain the benefits of the project, including in relation to the historic environment, biodiversity and nature conservation, and net zero.
- 5.6.128. By embedding opportunities for engagement across the project lifecycle, the Scheme will support social value, education, and inclusive participation.

5.7. Horlock Rules

5.7.1. Paragraph 2.9.18 of NPS EN-5 sets out that the ‘Horlock Rules’ which establish guidelines for the design and siting of electricity substations should be embodied in applicants’ proposals for the infrastructure associated with new overhead lines. Whilst the Scheme does not include overhead lines, it will include a 400 kV electricity substation (the ‘East Park Substation’) for which the best practice established by the Horlock Rules has been applied. Table 3 below sets out the Applicant’s response to the Horlock Rules.

Table 3: Horlock Rules

Horlock Rule	Applicant’s Response
Consider environmental issues from the earliest stage to balance the technical benefits and capital cost requirements for new developments against the consequential environmental effects in order to keep adverse effects to a reasonably practicable minimum.	The Applicant has explored different options for the siting of the East Park Substation to identify a solution that is economically viable, technically suitable, and keeps environmental effects to a reasonably practicable minimum. At the Statutory Consultation the Applicant consulted on an Option 1 and Option 2 for both the East Park Substation and BESS facility (as set out in <b>ES Vol 1 Chapter 3: Alternatives and Design Evolution [EN010141/DR/6.1]</b> ).
Seek to avoid altogether internationally and nationally designated areas of the highest amenity, cultural or scientific value by the overall planning of the system connections	The Applicant has sited the East Park Substation outside of any nationally designated area.
Protect as far as reasonably practicable areas of local amenity value, important existing habitats and landscape features including ancient woodland, historic hedgerows, surface and ground water sources and nature conservation areas.	The Applicant has sited the East Park Substation such that it avoids any locally designated areas, sensitive habitats, vegetation removal, water sources, or areas of nature conservation.
Take advantage of the screening provided by land form and existing features and the potential use of site layout and levels to keep intrusion into surrounding areas to a reasonably practicable minimum.	The Applicant has sited the East Park Substation away from sensitive visual receptors, utilising existing vegetation and landform to provide screening, however the Substation will be visible from intermittent locations in the wider landscape. An assessment of the visual effects of the Scheme which includes the East Park Substation is presented in <b>ES Vol 1 Chapter 5: Landscape and Visual [EN010141/DR/6.1]</b> .
Keep the visual, noise and other environmental effects to a reasonably practicable minimum.	A key consideration in the siting of both the East Park Substation and BESS facility was the potential noise generated, which dictated the available positions within the Site that it could be located. The final location for the Substation has been chosen as it provides maximum separation from nearby residential properties to the east and west of Site D, whilst being on an optimum alignment for the proposed cabling. An assessment of the noise impacts of the Scheme including the East Park Substation is presented in <b>ES Vol 1 Chapter 10: Noise and Vibration [EN010141/DR/6.1]</b> .
Consider the land use effects of the proposal when planning the siting of substations or extensions.	The East Park Substation is proposed on agricultural land as brownfield or previously developed land is not available within the Order Limits. The agricultural land classification is grade 3a where the East Park Substation is proposed, however alternative land of a lower grade in the north of Site D would not have been suitable due to noise and surface water constraints, as well as technical efficiency in optimising the cable routes.
Consider the options available for terminal towers, equipment, buildings and ancillary development appropriate to individual locations, seeking to keep effects to a reasonably practicable minimum.	The East Park Substation will contain the minimum equipment necessary to safely and efficiently operate the Scheme.

Horlock Rule	Applicant’s Response
Use space effectively to limit the area required for development consistent with appropriate mitigation measures and to minimise the adverse effects on existing land use and rights of way, whilst also having regard to future extension of the substation.	The Applicant does not expect the East Park Substation to require future expansion. The Scheme is being applied for on a temporary basis and will be decommissioned at the end of the operational phase. The proposed footprint for the East Park Substation is the maximum required to safely and efficiently operate the Scheme.
Make the design of access roads, perimeter fencing, earth-shaping, planting and ancillary development an integral part of the site layout and design, so as to fit in with the surroundings.	The East Park Substation is integrated within the layout for the wider Scheme. Mitigation proposals around the Substation are shown on <b>ES Vol 3 Figure 2-1: Illustrative Environmental Masterplan [EN010141/DR/6.1]</b> .
In open landscape especially, high voltage line entries should be kept, as far as possible, visually separate from low voltage lines and other overhead lines so as to avoid a confusing appearance.	The Applicant is not proposing any overhead lines outside of the East Park Substation. The 400 kV grid connection to the Eaton Socon Substation will be below ground.
Study the inter-relationship between towers and substation structures and background and foreground features so as to reduce the prominence of structures from main viewpoints. Where practicable the exposure of terminal towers on prominent ridges should be minimised by siting towers against a background of trees rather than open skylines.	The Applicant has assessed the visual impacts of the East Park Substation within <b>ES Vol 1 Chapter 5: Landscape and Visual [EN010141/DR/6.1]</b> . Verifiable visualisations have been included from Viewpoint 68 and Viewpoint 76, presented in <b>ES Volume 3 [EN010141/DR/6.3]</b> .

## 5.8. Response to Landscape Character Guidelines

- 5.8.1. As set out in Section 4.2 of this Design Approach Document, there are a series of landscape and development management guidelines identified by the published character assessments for the landscape character areas covering the Site.
- 5.8.2. Table 4 sets out the Scheme's design response to the published guidelines for LCA 1B Riseley Clay Farmland in Bedford Borough.
- 5.8.3. Table 5 sets out the Scheme's design response to the published guidelines for the Southern Wolds LCA in Huntingdonshire District.

Table 4: LCA 1B Riseley Clay Farmland - response to published guidelines

Guideline	Scheme Design Response
<b>Landscape Management Guidelines</b>	
Conserve, enhance and restore the woodlands through effective long term management and replanting to retain their character and ecological value.	Areas of woodland within the Order Limits have been retained as part of the Scheme, with no woodland loss anticipated. The Applicant is proposing approximately 19 hectares of additional woodland planting as part of the Scheme.
Promote traditional woodland management techniques such as coppicing.	The <b>outline Landscape and Ecological Management Plan [EN010141/DR/7.7]</b> sets out that proposed areas of woodland will be managed by coppice and thinning on rotation across the lifetime of the Scheme.
Promote the use of locally appropriate species such as oak and field maple within woodlands and hedgerows and for shelter belts in preference to non-native conifers.	The <b>outline Landscape and Ecological Management Plan [EN010141/DR/7.7]</b> sets out indicative species mixes which are all native and locally appropriate.
Encourage growth of new hedgerow trees. Enhance the hedgerows by replanting and consistent management and resist development that will result in further loss/ fragmentation of hedgerows and hedgerow trees.	Hedgerows are being retained across the Site, with very limited hedgerow loss proposed, and approximately 17km of new hedgerows proposed, including hedgerows with hedgerow trees.
Conserve the historic field pattern and avoid further enlargement or subdivision for horse paddocks. Conserve field trees through management of surrounding arable land by for instance avoiding ploughing over tree root zones and taking opportunities to plant new field trees.	The Scheme has been designed to retain the existing field pattern and protect hedgerow trees.
Conserve the existing neutral unimproved grassland sites and take opportunities to extend these and create new species rich hay meadows.	The Site is almost entirely arable farmland that will be managed as neutral grassland or species-diverse meadows as part of the Scheme. The Scheme will result in hundreds of hectares of new grassland habitats within an area of the country where this habitat type is more limited.
Conserve and where appropriate encourage restoration of the historic parkland to maintain and restore key elements such as parkland trees and boundary features.	There is no historic parkland within the Order Limits.
Record and conserve historic features such as moated sites and medieval earthworks and promote greater understanding of these.	The Applicant has undertaken comprehensive desk- and field-based archaeological investigation to increase an understanding of the archaeological resource at the Site. The design and layout of the Scheme has avoided features as far as practicable, with an <b>outline Archaeological Mitigation Strategy [EN010141/DR/7.15]</b> and <b>outline Heritage Enhancement Strategy [EN010141/DR/7.16]</b> prepared to mitigate impact, and ensure public benefit.

Guideline	Scheme Design Response
Conserve the character of the rural roads with their wide grass verges and limit urbanising influences – widening/ kerbing and ensure that traffic management measures are sympathetic to rural character, avoiding unnecessary signage and associated clutter. Seek to rationalise street signage as far as possible.	The Scheme utilises existing field access points as far as practicable. Once the Scheme is constructed and operational there will be limited additional signage or infrastructure along the roads, and no long-term traffic management measures. The Scheme is set back from roads with existing hedgerows retained to provide screening and reduce the urbanising influence of the Scheme. New hedgerows are proposed to provide supplementary visual screening and landscape integration.
Seek to contribute to GI strategy objectives in conserving and enhancing areas of wetland habitats/tributaries, so that these form a robust and connected network.	The Scheme would support the achievement of the objectives of the GI strategy, including through substantial areas of woodland and grassland creation, and the creation of new green lanes through the Site.
Promote planting of trees and hedges along the rural roads, and appropriate management of verges to enhance local character.	The Scheme incorporates new hedgerows and woodland belts alongside sections of road.
<b>Development Guidelines</b>	
Conserve the scattered farmsteads and historic villages with their pattern of dispersed 'ends' and the views to the stone churches.	The Applicant has set out the design response in relation to these elements at Design Principle 2.1 and 2.3 of this Design Approach Document.
Retain the individuality of settlements avoiding merging these through linear development along roads.	The Scheme is not a linear development, and due to the nature of the Scheme would not result in perceived coalescence of settlement.
Conserve open views across the rural landscape which are vulnerable to change from large scale development including renewable energy and agri-industrial buildings.	The Applicant has set out the design response in relation to this element at Design Principle 2.2 of this Design Approach Document.
Ensure proposals for solar farms and associated infrastructure are appropriately integrated into this tranquil and rural setting.	This Design Approach Document sets out how the Scheme has been designed and integrated into the setting.

Table 5: Southern Wolds LCA - response to published guidelines

Guideline	Scheme Design Response
<b>Development Guidelines</b>	
Ensure high quality landscaping to soften the impact of any new building on the edges of settlements to improve integration with the surrounding countryside.	The Scheme includes comprehensive landscape proposals shown on the Illustrative Landscape Proposals at Appendix A of the <b>outline Landscape and Ecological Management Plan [EN010141/DR/7.7]</b> .
Enrich the area by reinforcing its special qualities and acknowledging its local character.	The Applicant has had regard to the local characteristics of the area in developing the Scheme layout, based on a detailed consideration of the Site context as set out in Section 4 of this Design Approach Document.
Protect the rural character of long distance views of and from the Kym Valley.	The Applicant has set out the design response in relation to this element at Design Principle 2.2 of this Design Approach Document.
Promote opportunities for conservation and wildlife initiatives to support the area's contribution to biodiversity.	The Applicant has set out the design response in relation to this element at Design Principle 4 of this Design Approach Document.
Improve the nature conservation value of the rivers and their immediate valley sides.	The Applicant has set out the design response in relation to this element at Design Principle 2.5 and 5.2 of this Design Approach Document.

## 5.9. Environmental Effects

### Mitigation Hierarchy

- 5.9.1. The iterative design process that has been followed has been informed at all stages by environmental surveys and assessment in order to avoid, prevent, reduce, and offset / compensate potential environmental impacts and effects. This approach is often referred to as the 'mitigation hierarchy' with mitigation being selected as high up the hierarchy as possible. It is a requirement of the EIA Regulations and national policy to follow the mitigation hierarchy to minimise environmental effects as far as practicable.
- 5.9.2. This Design Approach Document sets out how the Scheme design has evolved in response to environmental baseline data, surveys, and assessment in line with the mitigation hierarchy. The assessment of environmental effects has been undertaken within the **Environmental Statement [EN010141/DR/6.1 / 6.2 / 6.3]**.

### Residual Environmental Effects

- 5.9.3. The environmental effects of the Scheme are set out within the **Environmental Statement [EN010141/DR/6.1 / 6.2 / 6.3]**, with a summary of the residual environmental effects contained within **ES Vol 1 Chapter 18: Summary of Environmental Effects [EN010141/DR/6.1]**.
- 5.9.4. The ES identifies that even with the proposed mitigation and enhancement measures, there would be some residual significant adverse effects remaining. The Applicant has considered these residual environmental effects and concluded that there is no further design mitigation that could be provided to reduce the effects without compromising on the efficiency and viability of the Scheme. Further detail can be found in the ES.

## 6. Stage 4: Secure

### 6.1. Introduction

- 6.1.1. Several detailed design elements of the Scheme cannot yet be finalised, as these are dependent on the outcome of the tender process for design and construction. Given the rapid advancement in solar photovoltaic (PV) and energy storage technologies, the Scheme may also incorporate technologies not currently available. Therefore, it is essential that sufficient flexibility is integrated into the DCO, if consent is granted, to allow for these emerging technological opportunities.
- 6.1.2. This section of the DAD therefore sets out how the good design measures set out in this document and across the wider application for development consent are secured by the **draft DCO [EN010141/DR/3.1]** so that the final design of the Scheme will be undertaken in accordance with the principles set out in this document, and therefore the local community and other project stakeholders can be confident that good design is secured.

### 6.2. DCO

- 6.2.1. Should the Secretary of State (SoS) grant development consent for the Scheme, the DCO itself will formally define and regulate the authorised development.
- 6.2.2. Schedule 1 of the **draft DCO [EN010141/DR/3.1]** provides a description of the authorised development, clearly setting out each numbered Works Package that collectively forms the Scheme. These Works Packages correspond directly to the works identified on the **Works Plan [EN010141/DR/2.3]**, including specified limits of deviation to allow flexibility in the final design and positioning within clearly defined parameters.
- 6.2.3. Schedule 2 of the **draft DCO [EN010141/DR/3.1]** contains a series of 'Requirements', which govern the detailed delivery, operation, and ongoing maintenance of the Scheme. These Requirements ensure that the Scheme must be delivered in accordance with the principles and parameters set out within the **outline Design Parameters and Principles Document [EN010141/DR/7.1]**, unless otherwise approved by the relevant local planning authority. The Design Principles set out in this DAD are included within the outline Design Parameters and Principles Document. Additionally, Schedule 2 mandates that detailed design proposals must be submitted to and approved by the local planning authorities prior to construction commencing. These submissions must be accompanied by a clear explanation demonstrating how the design complies with the established Design Principles, ensuring robust and enforceable control over the Scheme's final form and function.
- 6.2.4. This structured approach ensures that, whilst providing necessary flexibility, the consented Scheme remains closely aligned with the assessed proposals and commitments, thereby ensuring that the environmental impacts and benefits presented within the Application remain valid throughout delivery.

### 6.3. Documents, Strategies and Plans

- 6.3.1. The detailed design and environmental integrity of the Scheme are secured through a suite of control documents that form an integral part of the application for development consent. These documents set the standards, principles, and parameters to ensure the Scheme is delivered, operated, and eventually decommissioned in accordance with commitments assessed and consulted upon throughout the DCO process. The following outline documents have been prepared as part of the application and if the DCO is granted would be developed into final documents that must be in substantial accordance with the outline documents in accordance with the Requirements in Schedule 2 of the **draft DCO [EN010141/DR/3.1]**:

### Design Parameters and Principles Statement

- 6.3.2. The **Design Parameters and Principles Statement [EN010141/DR/7.1]** establishes the parameters and principles for the detailed design phase. They provide a robust framework to guide design development, ensuring compliance with the assessed environmental impacts and visual considerations while permitting flexibility to adopt technological advancements and practical implementation solutions.

### Outline Construction Environmental Management Plan

- 6.3.3. The **outline Construction Environmental Management Plan [EN010141/DR/7.3]** details measures to manage and mitigate environmental impacts arising during the construction phase. This includes environmental best practice, pollution control measures, site management procedures, and communication protocols to minimise disruption and environmental harm.

### Outline Construction Traffic Management Plan

- 6.3.4. The **outline Construction Traffic Management Plan [EN010141/DR/7.4]** sets out the approach to managing construction traffic, detailing strategies to minimise disruption to local communities and ensure highway safety. It covers haul routes, vehicle movement management, access arrangements, and procedures for managing construction-related vehicle movements.

### Outline Operational Environmental Management Plan

- 6.3.5. The **outline Operational Environmental Management Plan [EN010141/DR/7.5]** sets out environmental management requirements and mitigation measures during the operational phase. It includes strategies for noise mitigation, pollution control, and monitoring commitments to ensure long-term environmental performance.

### Outline Decommissioning Environmental Management Plan

- 6.3.6. The **outline Decommissioning Environmental Management Plan [EN010141/DR/7.6]** sets out proposed methods and environmental controls for decommissioning the Scheme, ensuring impacts are minimised at the end of its operational lifespan.

### Outline Landscape and Ecological Management Plan

- 6.3.7. The **outline Landscape and Ecological Management Plan [EN010141/DR/7.7]** describes the landscape planting and ecological mitigation and enhancement measures, ensuring the Scheme integrates sensitively into its landscape context and delivers biodiversity net gains. It also includes at Appendix A the Illustrative Landscape Masterplan, which the final design for the Scheme must be in substantial accordance with.

### Outline Public Rights of Way Management Plan

- 6.3.8. The **outline Public Rights of Way Management Plan [EN010141/DR/7.8]** establishes the proposed approach for managing existing public rights of way affected by the Scheme, detailing temporary diversions, enhancements, and reinstatement proposals to safeguard public accessibility and safety.

### Outline Soil Management Plan

- 6.3.9. The **outline Soil Management Plan [EN010141/DR/7.9]** specifies the methodology for the careful handling, storage, reuse, and reinstatement of soils during the project lifecycle, ensuring the protection of soil quality and structure.

### Outline Battery Safety Management Plan

- 6.3.10. The **outline Battery Safety Management Plan [EN010141/DR/7.10]** provides protocols and safety measures for the management and operation of the East Park BESS, addressing fire prevention, detection, suppression, emergency response procedures, and ongoing maintenance requirements.

### Outline Skills, Supply Chain and Employment Plan

- 6.3.11. The **outline Skills, Supply Chain and Employment Plan [EN010141/DR/7.11]** sets out the principles for maximising local and regional economic benefits through employment, skills development, and supply chain engagement.

### Outline Waste Management Plan

- 6.3.12. The **outline Waste Management Plan [EN010141/DR/7.12]** details the anticipated waste streams throughout construction, operation, and decommissioning, setting targets for waste reduction, reuse, recycling, and disposal in line with sustainable management practices.

### Outline Surface Water Management Plan

- 6.3.13. The **outline Surface Water Management Plan [EN010141/DR/7.13]** outlines the approach to managing surface water runoff and drainage, ensuring protection of water quality, control of flood risk, and compliance with sustainable drainage principles throughout all phases of the Scheme.

### Outline Archaeological Mitigation Strategy

- 6.3.14. The **outline Archaeological Mitigation Strategy [EN010141/DR/7.15]** sets out archaeological evaluation and mitigation methodologies, specifying how potential impacts on archaeological assets will be managed, monitored, and mitigated, preserving important heritage assets and archaeological features.

### Outline Heritage Enhancement Strategy

- 6.3.15. The **outline Heritage Enhancement Strategy [EN010141/DR/7.16]** describes enhancement measures aimed at securing public benefits for the historic environment.

## 6.4. Engagement

- 6.4.1. If the DCO is granted by the SoS, the Applicant will continue to engage with key stakeholders and the local community during the detailed design process, the construction period, and the operational life of the Scheme.
- 6.4.2. A CLG will be set up and funded by the Applicant and will meet on a regular basis (frequency to be agreed at commencement). The CLG will be established prior to the start of construction, will comprise representatives of relevant stakeholder groups and act as a forum for community engagement.
- 6.4.3. A designated Community Liaison Officer will be appointed to lead the CLG and will issue regular construction updates, facilitating dialogue and addressing any issues raised by the community throughout the construction phase.
- 6.4.4. The CLG will continue to operate throughout the operational and decommissioning phases of the Scheme, likely at a reduced frequency, to allow interest groups to be kept informed of any major maintenance activities or works planned at the site, and to allow the local community to raise any concerns.

## 7. Conclusion

7.4.1. This Design Approach Document sets out the approach taken by the Applicant to the design of the Scheme, and how the Scheme will be delivered to meet the project's Brief and Vision.

7.4.2. This Design Approach Document started by setting out what 'Good Design' meant for the East Park Energy Project:

*'Good Design' for the East Park Energy Project is taken to be a scheme that evolves through a collaborative approach, bringing together a range of multi-disciplinary specialists behind a combined vision and set of design principles that can mature into a comprehensive and integrated scheme masterplan in consultation with stakeholders.*

7.4.3. At the outset of the project a clear design vision was established:

*"Our vision for East Park Energy is that it will provide a significant contribution towards national renewable energy targets, whilst being sensitive to its surrounding environment, and looking to deliver multiple environmental and social benefits."*

7.4.4. The design process has been led by competent design experts in consultation with the local community, local project stakeholders and statutory consultees to deliver on this design vision. Design decisions have been made in line with a series of project design principles that were prepared based on guidance set out by the Planning Inspectorate and the National Infrastructure Commission.

7.4.5. At each stage of design process, the Applicant has made decisions on design outcomes based on inputs from the project team that have been informed by environmental surveys and assessments, engineering and technical requirements, landowner and legal requirements, and commercial viability. In addition, the Applicant has engaged positively with the local communities, stakeholders, and statutory consultees to gather feedback and evolve the design. Key design outcomes at each stage of the design process have been summarised within this Design Approach Document.

7.4.6. The outcome of the design process is a Scheme that represents 'Good Design' and meets the definition and objective set out by the Applicant from the outset. The Scheme also meets the vision for the project, as a commercially viable and deliverable solar development that will make a significant contribution towards national renewable energy targets, whilst (with reference to Section 5.5) being sensitive to its surrounding environment and delivering multiple environmental and social benefits.

7.4.7. The design of the Scheme is secured as set out in Section 6 of this Design Approach Document.

