

Heckington Fen Solar Park

EN010123

Chapter 6 – Landscape and Visual

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CHAPTER 6: LANDSCAPE & VISUAL

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Table of contents:

CHAPTER 6: LANDSCAPE & VISUAL	1
6 Landscape & Visual	3
6.1 Executive Summary	3
6.2 Introduction	3
6.3 Assessment Approach.....	7
6.4 Baseline Conditions	20
6.5 Assessment of Likely Significant Effects	39
6.6 Mitigation and Enhancement.....	56
6.7 Cumulative and In-Combination Effects	58
6.8 Summary	64

List of Tables:

Table 6.1 Consultation with LCC’s landscape advisor – Additional viewpoints.....	9
Table 6.2 Overall sensitivity of landscape and visual receptors	14
Table 6.3: Degrees of Significance Matrix	15
Table 6.4: Assessment of Landscape Value (after GLVIA3 Box 5.1 and TGN 02/21) ..	26
Asset	26
Pegasus’ Analysis	26
Table 6.5 Shortlisted viewpoints.....	33
Table 6.6 Summary of assessment of the selected viewpoints – construction phase..	44
Table 6.7 Summary of assessment of PRoWs users – construction phase.....	48
Table 6.8 Summary assessment of the selected viewpoints – operational phase.....	52
Table 6.9 Summary assessment of PRoWs users – operational phase.....	54
Table 6.10: Summary of Effects, Mitigation and Residual Effects	70

6 LANDSCAPE & VISUAL

6.1 EXECUTIVE SUMMARY

6.1.1 This Landscape and Visual Impact Assessment **Chapter 6** (document reference 6.1.6) seeks to determine the landscape and visual effects, brought about by the Proposed Development, upon the identified receptors and whether such effects are significant or not.

6.1.2 It is important to acknowledge that significant effects on landscape character and visual amenity are an inherent consequence of a new development of this type and scale. However, in this case, the potential adverse effects have been determined to be limited by the existing vegetation that characterises the close to medium range landscape, distance, and large scale of the landscape, which collectively diminish the perception of scale and mass of the Proposed Development. The proposed mitigation planting has the potential to considerably reduce the identified significant effects, which would be geographically highly limited, both in character and visual terms.

6.1.3 Whilst certain elements of the Proposed Development would, inevitably, be more visible, for a scheme of its scale the residual landscape and visual effects are considered to be highly limited. Those effects which have been identified as being significant should therefore be balanced against the benefits of the Proposed Development.

6.2 INTRODUCTION

6.2.1 This chapter, prepared by Pegasus Environmental (part of Pegasus Group), contains an assessment of the landscape and visual effects of the Proposed Development as described within **Chapter 4** during the construction, operation, and decommissioning stages.

6.2.2 This chapter considers the effects on:

- Landscape elements within the area of the Order limits.
- Landscape designations.
- Landscape character.
- Visual amenity (views).

6.2.3 Landscape effects relate to the character of the landscape that falls within the Proposed Development and surrounding area, and are concerned with landscape elements, landscapes of regional or local distinctiveness and special interest areas including landscape designations. Visual effects are experienced by people through changes in available views. These separate but related issues form the basis of this Landscape and Visual Impact Assessment (LVIA) **Chapter 6** (document reference 6.1.6) of the Environmental Statement (ES) that will be submitted with the DCO application.

6.2.4 To ensure consistency of terminology used when distinguishing different areas within the Order Limits, definitions of terminology are broadly defined below (also refer to **Chapter 2: EIA Methodology and Consultation** for terminology description). Further details of the site description, Proposed Development and operational components can be found in **Chapter 3: Site Description, Site Selection and Iterative Design Process** (document reference 6.1.3) and **Chapter 4: Proposed Development** (document reference 6.1.4) of this ES:

- Proposed Development: areas within the Order limits that are proposed primarily for the ground mounted solar photovoltaic (PV) electricity generation, energy storage facility (also known as Energy Storage System (ESS)), underground cable route to, and above and below ground works at,

the National Grid Bicker Fen Substation, and any associated ancillary infrastructure, including temporary construction compounds and security fencing- see **Figure 2.3** (document reference 6.2.2).

- Energy Park: area within the Order limits that are proposed primarily for the ground mounted solar photovoltaic (PV) electricity generation and energy storage facility inclusive of the Onsite Substation and Energy Storage System (ESS)- see **Figure 1.3** (document reference 6.2.1).
- Cable Route Corridor: area within the Order limits that are proposed for the grid connection cable between the Onsite Substation and the National Grid Bicker Fen Substation and the new point of connection at National Grid Bicker Fen Substation- see **Figure 3.5** (document reference 6.2.2).
- Off-site Cable Route Corridor: a subsection area of the Cable Route Corridor within the Order limits for the proposed grid connection cable between the Energy Park boundary and the new point of connection at National Grid Bicker Fen Substation- see **Figure 3.5** (document reference 6.2.3).
- National Grid Bicker Fen Substation Extension Works: area within the Order limits for an extension to the National Grid Bicker Fen Substation required for the new electrical equipment necessary to connect the electricity generated by the Proposed Development into the National Grid infrastructure system- see **Figure 2.3** (document reference 6.2.2).
- Habitat Enhancement Areas: areas within the Order limits that are proposed for green infrastructure, habitat creation, and a community orchard- see **Figure 4.1e** (document reference 6.2.4).

6.2.5 **Figure 2.3- Proposed Development** illustrates the location, extent, and geographical relationship between the above listed elements.

6.2.6 Heckington Fen Solar Park, as the project title for the draft Development Consent Order, is interchangeably referenced as Heckington Fen Energy Park within the ES documentation as the Proposed Development includes an energy storage element. Heckington Fen Solar Park, or Heckington Fen Energy Park, encompasses all components within the Proposed Development.

6.2.7 Following the submission of PEIR Chapter 6, the design of the Proposed Development evolved, and the decision was made that the proposed solar modules would be fixed and bi-facial, south facing, organised in west to east aligned arrays. Further work was also carried out with regard to the position of the Onsite Substation and noise modelling, resulting in the Energy Storage System being centralised to provide sufficient buffer from noise sensitive receptors. The previously proposed decentralised 132kV substations have been omitted with a single 400kV substation now being proposed near the centre of the Energy Park, near the existing built form associated with Six Hundreds Farm: the grain dryer, smaller barns, and derelict cottage, located along Six Hundreds Drive. Collectively the built form at Six Hundreds Farm introduces built form in the landscape.

6.2.8 In addition, input from National Grid Electricity Transmission (NGET) in Spring 2023 resulted in the National Grid Bicker Fen Substation Extension Works to expand and include additional elements of energy related infrastructure to allow design flexibility. This is explained in **Chapter 4: Proposed Development** (document reference 6.1.4) of this ES and includes two areas: additional land on the southern edge of the existing Substation and extending to Vicarage Dove – AW1, and land on its western edge – AW2, together known as the “Additional Works” and as illustrated on Figure 3.9 (document reference 6.2.3). The Additional Works areas were outside of accepted Order Limits in the February 2023 application. The Order Limits have been revised to include the Additional Works as part of the Change Application.

6.2.9 The Additional Works within land south of the Substation would include two alternative design options: an outdoor Air-Insulated Switchgear System (AIS) or an indoor Gas-Insulated Switchgear System (GIS). Only one of these two options would be built as a result of the Proposed Development. As a worst-case scenario, the existing plantation woodland (western part of woodland W7, refer to **Appendix 6.3** Arboricultural Impact Assessment, Tree Survey and Tree Protection Plan (document reference 6.3.6.3/APP-179)) located in the area immediately south of the existing National Grid Bicker Fen Substation would have to be partially removed to accommodate the proposed alternative AIS or GIS and no mitigation or enhancement planting would be possible within AW1 or AW2. The existing mature Oak trees present along Vicarage Drove (G42 – G45 and the eastern part of woodland W7, refer to **Appendix 6.3** Arboricultural Impact Assessment, Tree Survey and Tree Protection Plan (document reference 6.3.6.3/APP-179)) would be retained. The development within land west of the Substation would be a new cable sealing end compound (CSE), with the infrastructure similar to that already present there. In order to offset the proposed tree removal within woodland W7, a new woodland tree planting is being proposed in the northern most part of the Energy Park along with the addition of small scale hedgerow trees along the previously proposed hedgerow that will mark the northern edge of the Energy Park. This **Chapter 6** (document reference 6.1.6), updated in June 2023, takes this new infrastructure into account when assessing the potential significant effects of the Proposed Development.

6.2.10 The following elements within the Proposed Development have been identified as having the potential to result in adverse landscape and visual effects, and have been used as height and massing parameters to determine the degree of change and significance of effects:

- Short term effects associated with the construction phase of the Proposed Development
- Fixed PV Mounting (solar modules) up to 3.5m high (fixed bi-facial, south facing system).
- Up to 127 no. of Inverter and Transformer Stations located amongst the solar modules
- Main Onsite Substation Compound: the overall footprint of the compound would be approximately 185m x 110m with the maximum height of the equipment assumed to be up to 15m (based on the Rochdale envelope approach). The majority of the associated infrastructure would be between 4m – 6m in height with 3no. of Main Step-down Transformers of up to 12m in height.
- Energy Storage System ESS, proposed to be located in the central part of the Energy Park, near the existing agricultural barns associated with Six Hundreds Farm. Its overall footprint would be approximately 280m x 280m. It would contain the energy storage containers, inverters, transformers, switchgears and control room. It is envisaged that certain elements associated with this infrastructure would be up to 6m in height (the energy storage containers, inverters / power converters, and control room.)
- Security fence, 3m high, with 3.5m high CCTV mounted on steel poles within the perimeter fence and within the Energy Park. The security fence would be metal mesh rather than palisade fencing. Optionally, deer style fence could be used, and this is considered to have a similar or lesser degree of change and scale of effects.
- Main Gate House (No. 1) and Minor Gate Houses (No. 2): small scale built form of up to 5m x 5m footprint and up to 4m in height, minor gate houses would be 3m x 3m x 4m.
- National Grid Bicker Fen Substation Extension Works: An AIS solution would occupy an area of up to 145m x 45m x 15m, to include a new control room

(8m x 5m x 4m) and access road (4.5m wide), and would comprise equipment similar to that currently installed at the Substation.

- A GIS solution would occupy an area of up to 75m x 75m and would also include a new control room and access road. Part of the infrastructure required would be housed in a barn like building of up to approximately 20m x 30m x 15m, located along its edge rather than in the centre. The area would also include small scale energy infrastructure similar to that already present within the Substation. The GIS building would be a permanent structure, likely to be retained after decommissioning of the Proposed Development.
- Area AW2 would comprise a Cable Sealing End (CSE) compound (up to 15m in height), which is a connection point to transition between an underground cable and above ground apparatus. The AW2 area will be required regardless of whether the design solution is AIS or GIS.
- 2 no. of Substations: Electrical District Network Operator supply for construction.
- 6 no. of Construction and Operational Compounds located across the Energy Park: including the Construction & Operational Phase Laydown, offices, welfare facilities, and Spares Containers (No. up to 20): small scale built form of up to 13m x 4m footprint and up to 4m in height.

6.2.11 This **Chapter 6** (document reference 6.1.6) considers the Proposed Development in terms of its maximum parameters: the extent and height of the solar modules, substation elements, fencing etc, as listed above.

6.2.12 This chapter also considers the potential landscape and visual mitigation measures that will be implemented to prevent, reduce and offset the identified landscape and visual effects, where appropriate, and whether such mitigation measures are compatible with the local landscape. It is important to note that all of the proposed mitigation measures are 'built-in' into the Proposed Development.

6.2.13 This **Chapter 6** (document reference 6.1.6) should be read in conjunction with:

- **Figure 1.1** Order Limits (document reference 6.2.1), updated to reflect the addition of AW1 and AW2 in the Order Limits;
- **Figure 1.4** Field Plan (document reference 6.2.1);
- **Figure 2.1** Indicative Site Layout (document reference 6.2.2);
- **Figure 2.2a** Cumulative Sites - Shortlisted (Regional Context) (document reference 6.2.2), updated to reflect the addition of AW1 and AW2 in the Order Limits;
- **Figure 2.2b** Cumulative Sites - Shortlisted (Local Context) (document reference 6.2.2), updated to reflect the addition of AW1 and AW2 in the Order Limits;
- **Figure 2.3** Proposed Development (document reference 6.2.2), updated to reflect the addition of AW1 and AW2 in the Order Limits;
- **Figure 3.5** Indicative Cable Route (document reference 6.2.3), updated to reflect the addition of AW1 and AW2 in the Order Limits;
- **Figure 3.6** Environmental Designation Plan (document reference 6.2.3), updated to reflect the addition of AW1 and AW2 in the Order Limits;
- **Figure 4.3** Indicative Phasing Plan (document reference 6.2.4);
- **Figure 6.1a** Site Location Plan – Energy Park (document reference 6.2.6), updated to reflect the addition of AW1 and AW2 in the Order Limits;
- **Figure 6.1b** Site Location Plan – Off-site Cable Route Corridor & National Grid Bicker Fen Substation Extension Works (document reference 6.2.6), updated to reflect the addition of AW1 and AW2 in the Order Limits;

- **Figure 6.2** Landscape Strategy Plan (document reference 6.2.6), updated with additional planting;
- **Figure 6.3** Landscape Character Plan (document reference 6.2.6) updated to reflect the addition of AW1 and AW2 in the Order Limits;
- **Figure 6.4** Visual Receptors Plan (document reference 6.2.6), updated to reflect the addition of AW1 and AW2 in the Order Limits;
- **Figure 6.5a** Screened Zone of Theoretical Visibility - Solar Areas and Proposed Viewpoint Locations Plan (document reference 6.2.6);
- **Figure 6.5b** Screened Zone of Theoretical Visibility - Substation Equipment with EES and Proposed Viewpoint Locations Plan (document reference 6.2.6);
- **Figure 6.5c** Screened Zone of Theoretical Visibility - National Grid Bicker Fen Substation Extension Works and Proposed Viewpoint Locations Plan (document reference 6.2.6), updated to reflect the additional development areas and maximum height and footprint parameters of the alternative AIS and GIS;
- **Figure 6.6** Context Baseline Views and Photoviews (document reference 6.2.6), updated to incorporate the additional Viewpoints 24 - 26;
- **Figure 6.7** Photomontages (document reference 6.2.6), updated to incorporate the additional Viewpoints 24 - 26;
- **Appendix 6.1** LVIA Methodology (document reference 6.3.6.1);
- **Appendix 6.2** Omitted Viewpoints A1 and A3 at Great Hale Fen (document reference 6.3.6.2);
- **Appendix 6.3** Arboricultural Survey, Impact Assessment and Protection Plan (document reference 6.3.6.3 updated to reflect the addition of AW1 and AW2 in the Order Limits);
- **Appendix 6.4** Extract from National Character Area 46 The Fens (document reference 6.3.6.4);
- **Appendix 6.5** Extract from the North Kesteven Landscape Character Assessment (document reference 6.3.6.5);
- **Appendix 6.6** Extract from the Landscape Character Assessment of Boston (document reference 6.3.6.6);
- **Appendix 6.7** Scoping Out - Landscape Character Receptors (document reference 6.3.6.7);
- **Appendix 6.8** Scoping Out - Visual Assessment (document reference 6.3.6.8) updated to reflect the addition of AW1 and AW2 in the Order Limits;
- **Appendix 6.9** Detailed Visual Assessment (document reference 6.3.6.9) updated to reflect the addition of AW1 and AW2 in the Order Limits;
- **Appendix 6.10** Summary of Section 42 Consultation Responses since PEIR (document reference 6.3.6.10).
- **Appendix 6.11** Legislative and Policy Framework (document reference 6.3.6.11) updated to reflect the update in the draft NPS EN 1-, EN-3 and EN-5 policies .

6.3 ASSESSMENT APPROACH

6.3.1 The assessment considers the effect on the landscape resource (both direct effects and effects on how the landscape character is perceived) and the effect on visual amenity (views) in construction, operation, and decommissioning. Cumulative effects, arising from the effect of the Proposed Development in conjunction with other solar farms are also considered, where applicable. Following the feedback on the PEIR, a number of additional solar farms have been identified, and these are discussed later in Section 6.7 of this **Chapter 6** (document reference 6.1.6) of the ES.

Scoping Criteria

6.3.2 The proposed scope of work including the approach to the landscape and visual assessment, and preliminary viewpoint selection, were submitted for comments as part of the Environmental Impact Assessment Scoping Report (**Appendix 1.1** (document reference 6.3.1.1)), submitted to the Planning Inspectorate on 07 January 2022. In addition, a discussion has taken place with a landscape consultant acting on behalf of Lincolnshire County Council (LCC) with feedback provided by officers at North Kesteven District Council (NKDC) and Boston Borough Council (BBC). Additional locations have been suggested as part of this process, and this is explained later in this sub-section.

6.3.3 This assessment of the likely significant effects of the Proposed Development has taken account of all of the attributes of the local landscape, and this helped to guide the extent of the study area. This was informed by a review of published documents, including relevant landscape character assessments, and field surveys (April and May 2022). Additional field work was carried out in mid-December 2022 to capture the additional viewpoints suggested by LCC's landscape consultant – as discussed below, to carry out winter photography – as recommended in the Scoping Opinion (**Appendix 1.2** (document reference 6.3.1.2)), and to confirm the findings of the assessment.

6.3.4 In accordance with best practice, the assessment considers the following potential effects:

- Construction Phase – landscape elements within the Order limits; effects on landscape character of the study area; and effects on visual receptors associated with the study area.
- Operational Phase – landscape elements within the Order limits; effects on landscape character of the study area; effects on visual receptors associated with the study area.
- Decommissioning Phase.

Summary of Consultation

6.3.5 The Scoping Opinion (**Appendix 1.2** (document reference 6.3.1.2)) was adopted by the Secretary of State on 17 February 2022 with the following feedback provided, with regard the landscape and visual issues:

- the ES should give consideration to the worst-case impact of the panel types, as well as considering the maximum parameters of development.
- The ES should consider the impact of both overhead lines and undergrounding where this remains uncertain.
- The ES should include an assessment which is based on the worst-case scenario, recognising all components of the Proposed Development and their potential locations.
- The ES should explain how the lighting design has been developed to minimise light spill and avoid direct intrusion into nearby properties.

6.3.6 Similar comments have been provided by Lincolnshire County Council specifically referring to the proposed cabling; lighting; dimensions and potential effects of the energy storage element of the Proposed Development; substation; construction compound; cumulative schemes; and separate Zone of Theoretical Visibility mapping for solar modules and other taller elements of the Proposed Development.

6.3.7 Similar comments have been provided by North Kesteven District Council with the request for additional two viewpoints: on the edge of South Kyme and Heckington.

6.3.8 The summary of the consultees’ comments and how these have been addressed in this **Chapter 6** (document reference 6.1.6) are included in **Appendix 6.10** (document reference 6.3.6.10).

Consultation and Viewpoint Selection

6.3.9 The Scoping Report (**Appendix 1.1** (document reference 6.3.1.1)) submitted to the Planning Inspectorate proposed a set of preliminary viewpoints in order to present the ‘worse case scenario’ views of the Proposed Development in the landscape. The ‘worse case scenario’ is defined as the most sensitive landscape and visual receptors with the highest visibility of the Proposed Development. Subsequently, Lincolnshire County Council and North Kesteven District Council provided feedback with regard to the scope of work, methodology and viewpoint selection. Following site surveys, the selection was expanded at the PEIR stage. Further consultation with the landscape advisor acting on behalf of Lincolnshire County Council (LCC), and Officers at North Kesteven District Council and Boston Borough Council took place shortly before submitting the PEIR Chapter 6, and consequently not all of the suggested additional viewpoints were captured. The suggested viewpoints are geographically dispersed and cover various parts of the study area, being located along Public Rights of Way (PRoWs) or local roads. Additional consultation with the LCC’s landscape advisor took place in early September 2022, to confirm the previously requested additional viewpoints and agree on the viewpoints to be captured and included in this **Chapter 6** (document reference 6.1.6).

6.3.10 The following **Table 6.1** provides a summary of the suggested viewpoints and justification for the inclusion or omission from this LVIA. The following paragraphs provide a detailed narrative.

Table 6.1 Consultation with LCC’s landscape advisor – Additional viewpoints

No.	Location	Comments on inter-visibility	Justification
A1	Great Hale Fen, along Great Hale Drove on the approach to Last Farm.	Lack of any evident inter-visibility with the Proposed Development.	Included to illustrate lack of inter-visibility (refer to Appendix 6.2) (document reference 6.3.6.2), but excluded from written assessment.
A2	Great Hale Fen along Great Hale Drove, near White House Farm.	Lack of any evident inter-visibility with the Proposed Development.	Included to illustrate lack of inter-visibility (refer to Appendix 6.2) (document reference 6.3.6.2), but excluded from written assessment.
A3	Little Hale Fen, between Willow Farm and the South Forty Foot Drain.	Lack of any evident inter-visibility with the Proposed Development.	Excluded from site photography and written assessment.
B	Sidebar Lane near Pattingden House.	Increasingly distant views. Theoretical visibility of the Energy Park.	Included in this LVIA as Viewpoint 20.
C	Track leading to Mill Green Farm	Close range views from the north. Located along dead end track leading to a single property. No PRoW. Private view.	Excluded from the LVIA. Included in Chapter 7- RVAA (document reference 6.1.7).

No.	Location	Comments on inter-visibility	Justification
D	PRoW along Head Dike	Medium range views of the Energy Park. PRoW. Views partially interrupted.	Located between Viewpoint E (see below) and Viewpoint 1. Excluded as views would be similar or comparable to Viewpoint 1 and Viewpoint 21. Excluded from the LVIA.
E	PRoW along Head Dike.	Long range views of the Energy Park. PRoW. Views partially interrupted.	Included in this LVIA as Viewpoint 21.
F	PRoW along the northern edge of the Energy Park	Very close range views of the Energy Park. PRoW.	Lack of access with the route of PRoW interrupted by a dike, no footbridge present. Excluded from the LVIA. Viewpoint 2 of the LVIA serves as a proxy view.
G	Amber Hill, Claydike Bank	Long range views of the Energy Park. Minor road & cluster of properties.	Included in this LVIA as Viewpoint 22.
H	Brown's Drove, north of Swineshead.	Medium range views of the Energy Park. Minor road & cluster of properties.	Included in this LVIA as Viewpoint 22. Also, included in Chapter 7-RVAA (document reference 6.1.7).

6.3.11 Viewpoints A1 - A3 are located across the various parts of Great Hale Fen: along Great Hale Drove and on the approach to Last Farm (Viewpoint A1) and near White House Farm (Viewpoint A2); and within Little Hale Fen, between Willow Farm and the South Forty Foot Drain (Viewpoint A3). The SZTV plans (**Figure 6.5a – 6.5c**) (document reference 6.2.6) indicate patches of theoretical visibility, but as confirmed on site there is lack of any evident inter-visibility with any particular area associated with the proposed Energy Park. Views south east, towards the National Grid Bicker Fen Substation Extension Works are screened by the man-made bank associated with the South Forty Foot Drain.

6.3.12 No clear or uninterrupted views towards the Proposed Development have been gained from these three suggested locations (Viewpoints A1 – A3) or any other publicly accessible location within Great Hale Fen and Little Hale Fen. For completeness, however, two locations have been included and photography taken to illustrate this lack of inter-visibility (refer to **Appendix 6.2**) (document reference 6.3.6.2). These are located within Great Hale Fen and correspond to the suggested Viewpoints A1 and A2, due to both viewpoints being covered by the SZTV for the Energy Park (**Figure 6.5a** and **Figure 6.5b**) (document reference 6.2.6). Whilst these two viewpoints have been included in the site survey and site photography, due to the lack of any evident inter-visibility with the proposed Energy Park, they have been excluded from the visual assessment with only site photography provided in the aforementioned **Appendix 6.2** (document reference 6.3.6.2), for context.

6.3.13 The suggested Viewpoint A3 is distant in relation to the Energy Park. Whilst it is covered by the SZTV for the National Grid Bicker Fen Substation Extension Works **Figure 6.5c** (document reference 6.2.6) the man-made bank associated with the South Forty Foot Drain considerably restricts views to the south east and towards this part of the Proposed Development. This visual segregation is reinforced by small scale tree and shrub vegetation that covers the bank. The view is influenced by the existing large scale high

voltage electricity pylons and Bicker Fen Wind Farm. The existing facilities at the National Grid Bicker Fen Substation are not evident. For that reason, this particular location was excluded from the site photography and assessment.

6.3.14 In addition, LCC's landscape advisor suggested viewpoints to the north and north west of the proposed Energy Park (Viewpoints B – F). Viewpoint B was suggested along the northern section of Sidebar Lane, near Pattingden House, and is included in this **Chapter 6** (document reference 6.1.6) as a standalone Viewpoint 20. Viewpoint C is located to the north of the Energy Park next to Mill Green Farm with the track not serving any other properties. Thus, this location was considered to be a private view and is included in **Chapter 7 (Figure 7.3 RVAA Photomontages, Viewpoint 1)** (document reference 6.2.7). With regard to Viewpoints D and E, these are located along the same PRow that follows Head Dike and leads west towards Fenside and further west across Howell Fen and Star Fen. Viewpoint E has been included in this LVIA as Viewpoint 21 as it illustrates views from the more distant parts of the western study area where PRows are less frequent, and is informative to the discussion on the potential landscape character effects. Viewpoint D has been judged to be too close and too similar, thus comparable to the already selected Viewpoint 1. Viewpoint E / Viewpoint 21 therefore has been judged to be more informative to the decision making process.

6.3.15 With regard to Viewpoint F, this viewpoint was suggested on the basis that it offers very close and uninterrupted views of the Energy Park, being located along a PRow that skirts the northern edge of the Energy Park – Public Footpath Heck/15/1. This location and indeed this section of Public Footpath Heck/15/1, however, is inaccessible. Travelling from Sidebar Lane, Public Footpath Heck/15/1 ends near the north western corner of the Energy Park, at the closest drain with no footbridge present. The visual assessment presented later in this **Chapter 6** (document reference 6.1.6), however, includes the effects upon the receptors associated with this PRow on the basis that the PRow would be re-connected.

6.3.16 Viewpoint G is located at Amber Hill along Claydike Bank. It is included in the LVIA as Viewpoint 22. It helps to ascertain the sequential visibility of the Energy Park as one travels across the medium to long range landscape to the east and north east. Similarly, Viewpoint H has been judged to be informative, given the proximity to various residential receptors and is also duplicated in **Chapter 7 (Figure 7.3 RVAA Photomontages, Viewpoint 10)** (document reference 6.2.7).

6.3.17 With regards to the additional development areas within the National Grid Bicker Fen Substation Extension Works - the alternative AIS or GIS design options, the southern part of the study area is largely devoid of any sensitive receptors, as confirmed at the PEIR stage and during the works on this **Chapter 6** (document reference 6.1.6). To inform the assessment and confirm that the predicted effects would not be significant three additional viewpoints have been selected: Viewpoints 24 – 26 (**Figure 6.6 Context Baseline Views and Photoviews** (document reference 6.2.6)).

Study Area

6.3.18 The landscape and visual section of the Scoping Report (**Appendix 1.1** (document reference 6.3.1.1)), submitted to the Planning Inspectorate on 07 January 2022, was based on a preliminary 5km radii study area, which was analysed through desktop studies and not verified by any site work. This exercise was supported by a preliminary Screened Zone of Theoretical Visibility (SZTV), which illustrated the visibility of the proposed solar modules only, assumed to be 4.5m in height, being the main and geographically most extensive component of the Proposed Development during its operational phase. At that stage, this was considered to be appropriate and proportionate approach, given the overall physical footprint of the solar modules and likelihood of their permanence in terms of future design iterations. Therefore, the preliminary SZTV plan

excluded other taller elements of infrastructure within the Energy Park, with their design still being developed at the time. This initial preliminary SZTV was based on the OS dataset, which included larger areas of woodland and tree planting, but excluded small areas of woodland, tree belts, and hedgerow vegetation.

6.3.19 The subsequent PEIR Chapter 6 was based on extensive field work, supported by further desktop research and figures, including a set of refined SZTV plans, which reflected the parameters considered at the time: 132kV and 400kV substations at 10m and 15m in height respectively, Energy Storage System at 6m height, and solar modules of up to 4.5m in height. The SZTV figures also accounted for smaller groups of trees and taller hedgerows, mapped as part of the National Tree Map, with the dataset including vegetation over 3m in height.

6.3.20 The viewpoint selection, considered at the PEIR stage, included views located some 3.5km away from the Energy Park and represented the maximum extent of the study area based on the consultation responses specifically requesting views from around South Kyme and Heckington. The visual assessment presented in PEIR Chapter 6 was focused on the close to medium range receptors as it was deemed that beyond the distance of approximately 1.5km any visual effects would not be significant (Note: PEIR Viewpoint 8 at approximately 1.6km was the most distant viewpoint assessed as subject to significant adverse effects).

6.3.21 The updated SZTV plans, prepared for this **Chapter 6** (document reference 6.1.6), are broadly similar to the PEIR stage SZTVs. There are minor localised variations in the SZTV pattern and this reflects the latest design changes to the layout. Following the design changes, it is considered that the visual envelope of the Proposed Development at which it may bring about potential significant effects would be lower. Thus the 1.5km radii from the Energy Park is considered to be the core study area and focus of the subsequent assessment. For completeness, however, the previously proposed viewpoints have been included in this **Chapter 6** (document reference 6.1.6) to address the consultation comments and provide continuation and clarity in the assessment.

6.3.22 Further site work, carried out as part of this **Chapter 6** (document reference 6.1.6), did not reveal any further viewpoints that would be informative, over those already selected at the PEIR stage and agreed with LCC's landscape advisor – as discussed in the preceding paragraphs.

Methodology

Guidance

6.3.23 This assessment has been undertaken with regard to the current best practice, as outlined within the following publications:

- *Guidelines for Landscape and Visual Impact Assessment* (3rd Edition, 2013) - Landscape Institute / Institute of Environmental Management and Assessment (hereafter referred to as *GLVIA3*).
- *An Approach to Landscape Character Assessment* (2014) - Natural England.
- *An Approach to Landscape Sensitivity Assessment - To Inform Spatial Planning and Land Management* (2019) - Natural England.
- *Technical Guidance Note (TGN) 06/19 Visual Representation of Development Proposals*, 17 September 2019 by the Landscape Institute.
- *Technical Guidance Note (TGN) 1/20 Reviewing Landscape and Visual Impact Assessments (LVIAs) and Landscape and Visual Appraisals (LVAs)*, 10th January 2020 by the Landscape Institute.
- *Technical Guidance Note (TGN) 2/21 Assessing landscape value outside national designations*, May 2021 by the Landscape Institute.

6.3.24 In addition, this **Chapter 6** (document reference 6.1.6) has been written with reference to Advice Note 7¹, Advice Note 9², and Advice Note 17³ published by the Planning Inspectorate.

6.3.25 The full list of guideline documents is included in Pegasus' methodology (see **Appendix 6.1**) (document reference 6.3.6.1) and has been developed through the dialogue with the consultees during the Scoping Stage. Additional comments have been received from LCC's landscape consultant with regard to the detailed methodology and approach in terms of the LVIA study area, landscape value, duration and extent of effects, definition of landscape and visual effects, and significant effects. The comments have also highlighted lack of cumulative assessment methodology in PEIR Chapter 6. These comments and omissions have been addressed or clarified in this **Chapter 6** of the ES (document reference 6.2.6).

Assessment of Effects

6.3.26 Landscape and visual effects are assessed through professional judgements on the sensitivity of landscape elements, landscape character, visual receptors and representative viewpoints combined with the predicted magnitude of change arising from the proposals.

6.3.27 The effects on landscape elements are limited to the area which would be occupied by the Proposed Development and include the direct physical change to the fabric of the landscape within the Order limits, such as the addition or removal of buildings, machinery and lighting.

6.3.28 In general terms, the presence or lack of landscape designations is relevant to the assessment as they provide an indication of recognised value and help to inform the identification of landscape and visual receptors or representative viewpoints.

6.3.29 Landscape character is defined as the **"...distinct, recognisable and consistent pattern of elements in the landscape that makes one landscape different from another, rather than better or worse."** Effects on landscape character arise either through the introduction of new elements that physically alter the existing pattern, or through the visibility of the Proposed Development that changes the way in which landscape character is perceived. The published assessments by Natural England and the North Kesteven Landscape Character Assessment, prepared by David Tyldesley and Associates for North Kesteven District Council (dated September 2007) constitute the baseline landscape character within the local area and the basis for the landscape character assessment. The various character areas identified in the above mentioned publications are illustrated on **Figure 6.3** (document reference 6.2.6).

6.3.30 The assessment of the effects on views considers the indirect effects of the Proposed Development on the appreciation of the local landscape as experienced by key visual receptors associated with settlements, transport routes and PRoWs. **Figure 6.1a** and **Figure 6.1b** (document reference 6.2.6) illustrate the location and alignment of the various public highways, settlements, and PRoWs present in the local landscape. For clarity, those PRoWs and minor roads that were judged to be relevant or specifically mentioned in this **Chapter 6** (document reference 6.1.6) are specifically annotated on **Figure 6.4** (document reference 6.2.6) with the remaining PRoWs and public highways evident on the OS base map thus not specifically annotated.

¹ (Planning Inspectorate, 2020) Advice Note Seven: Environmental Impact Assessment: Preliminary Environmental Information

² (Planning Inspectorate, 2018) Advice Note Nine: Using the Rochdale Envelope

³ (Planning Inspectorate, 2019) Advice Note Seventeen: Cumulative Effects Assessment

6.3.31 Various factors in relation to the value and susceptibility of landscape elements, landscape character, visual receptors or representative viewpoints are described in the Methodology (see **Appendix 6.1**) (document reference 6.3.6.1) and are cross referenced to determine the overall sensitivity as shown in **Table 6.2**.

Table 6.2 Overall sensitivity of landscape and visual receptors

Susceptibility of Receptor	Value of Receptor			
		High	Medium	Low
High	High	High	High	Medium
Medium	High	High	Medium	Medium
Low	Medium	Medium	Medium	Low

Magnitude of Change– General Comments

6.3.32 Magnitude of change is defined in GLVIA3 as

“a term that combines judgements about the size and scale of the effect, the extent over which it occurs, whether it is reversible or irreversible and whether it is short or long term in duration.”⁴

6.3.33 Various factors contribute to the magnitude of change on landscape elements, landscape character, visual receptors and representative viewpoints as set out in **Appendix 6.1** (document reference 6.3.6.1).

Nature of Effects – General Comments

6.3.34 The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 requires that an application for an order granting development consent for EIA development must be accompanied by an environmental statement, and such environmental statement shall include description of the likely significant effects of the development on the receiving environment and description of any features of the development, or measures envisaged in order to avoid, prevent or reduce and, if possible, offset likely significant adverse effects on the environment.

6.3.35 GLVIA3 includes an entry that states **“effects can be described as positive or negative (or in some cases neutral) in their consequences for views and visual amenity.”** GLVIA3 does not, however, state how negative or positive effects should be assessed, and this therefore becomes a matter of subjective judgement rather than reasoned criteria. Due to inconsistencies with the assessment of negative or positive effects a precautionary approach is applied to this **Chapter 6** (document reference 6.1.6) that assumes all landscape and visual effects are considered to be negative or adverse unless otherwise stated.

6.3.36 The approach to this (and the interpretation of positive, negative, or neutral effects) in the context of GLVIA3 and this **Chapter 6** (document reference 6.1.6) is set out in detail in **Appendix 6.1** (document reference 6.3.6.1).

Duration of Effects

6.3.37 The duration of the effects of the Proposed Development would vary. The construction phase of the Proposed Development would last up to 2.5 years from commencement with the construction activities expected to be limited to typical working

⁴ Glossary, Page 158, GLVIA, 3rd Edition

hours, and likely to include Saturdays. The Indicative Phasing Plan, **Figure 4.3** illustrates the anticipated construction stages with Phase 1 of the works including the new access road from the A17. Phase 2 would include the installation of solar modules in the north western quadrant of the Energy Park, with Phase 3 covering its north eastern quadrant. Phase 4 would include the south western quadrant, from the Labour in Vain Drain to Elm Grange and southern edge of the Energy Park. Phase 5 would cover the south eastern quadrant dissected by Six Hundreds Drove and extending towards Rakes Farm to the south east. The Onsite Substation and Energy Storage System installation would take place across all phases.

6.3.38 The operational phase of the Proposed Development would be 40 years. The Proposed Development would be continuously operational throughout its lifecycle except for planned maintenance. The Proposed Development is proposed to be decommissioned at the end of its operational life and the indicative decommissioning period is likely to commence in 2067.

6.3.39 During the operational stage, the built elements of the Proposed Development including the solar modules, Onsite Substation and Energy Storage System, extension to the existing National Grid Bicker Fen Substation at Bicker Fen, and ancillary features such as inverters / transformer stations would be visible in the long term. The Cable Route Corridor and Off-site Cable Route Corridor running south from the Energy Park to the existing National Grid Bicker Fen Substation would be underground and would not be visible during the operational stage. For that reason, this particular component is excluded from the assessment of the operational phase of the Proposed Development.

6.3.40 Other activities and movement including construction traffic including mobile cranes and excavators, and compound areas, would only be visible in the construction and decommissioning stages and are considered to be short term temporary effects. It is predicted that no more than two or three mobile cranes would be present at any given time within the Energy Park.

6.3.41 The lighting associated with the construction and decommissioning phases would be limited where practical, subject to the timing of the construction activities and time of the year, and is considered to be short term effect. There is no permanent lighting proposed as part of the Proposed Development except for the localised emergency security lighting in proximity to the substation, energy storage and control buildings. Such lighting would be triggered by movement only or manually turned on, and so would not be active for all hours of darkness. CCTV to be installed along the security fencing associated with the Onsite Substation and Energy Storage System would utilise infrared technology.

Assessment of Significance

6.3.42 The purpose of an LVIA when produced in the context of an EIA is to identify any significant effects on landscape and visual amenity arising from the Proposed Development. The likely significance of effects is dependent on all of the factors considered in the sensitivity and the magnitude of change, upon the relevant landscape and visual receptors. These factors are assimilated to assess whether or not the Proposed Development will have a likely significant or not significant effect. The variables considered in the evaluation of the sensitivity and the magnitude of change are reviewed holistically to inform the professional judgement of significance.

6.3.43 The sensitivity of the landscape and visual receptor and the magnitude of change arising from the Proposed Development are cross referenced in **Table 6.3** to determine the overall degree and significance of landscape and visual effects. This deviates from **Table 2.5** in **Chapter 2**.

Table 6.3: Degrees of Significance Matrix

Magnitude of Change	Sensitivity of Receptor				
		High	Medium	Low	Negligible
High		Major	Major	Moderate	Negligible
Medium		Major	Moderate	Minor to Moderate	Negligible
Low		Moderate	Minor to Moderate	Minor	Negligible
Negligible		Negligible	Negligible	Negligible	Negligible

6.3.44 It is important to note that the matrix above is intended to act as a guide to the assessment rather than a formulaic approach. The level (relative significance) of the landscape and visual effects is determined by combining judgements regarding the sensitivity of the landscape or view, the magnitude of change, the duration of effect, and the reversibility of the effect. In LVIA, any judgement about what constitutes a significant effect is ostensibly a subjective opinion expressed as in this case by a competent and appropriately qualified professional assessor.

6.3.45 The level (relative significance) of effect is described as **Major, Moderate, Minor, or Negligible**. No Effect may also be recorded as appropriate where there are no effects.

6.3.46 In the LVIA, those effects described as **Major** may be regarded as material in the decision making process as required by the EIA Regulations It should be noted that whilst an individual effect may be significant, it does not necessarily follow that the Proposed Development would be unacceptable in the planning balance.

6.3.47 It is understood that certain landscape assessors, and as raised by LCC’s landscape advisor, may consider ‘moderate’ effects to be also significant or material to the decision making process. Pegasus’ methodology (**Appendix 6.1**) (document reference 6.3.6.1) is clear on this matter and recognises that major adverse effects are a high bar and relate to the change in landscape character or view that would cause a variation in the landscape character, or its value, change in the sense of place, or degrade or diminish the integrity of a range of characteristic features and elements, or cause a major deterioration in the view.

6.3.48 In determining the level of residual effects, all mitigation measures are taken into account. The assessment considered residual effects at Year 5, on the basis that the proposed planting has been successfully established and the vegetation reached the desired height. Where relevant, the assessment includes a brief commentary on the predicted visual effects at Year 10.

Cumulative effects

6.3.49 Cumulative effects arise where the study areas for two or more solar farms or other infrastructure, considered relevant to the assessment, overlap so that the cumulative schemes are experienced at proximity where they may have a greater incremental effect. This means that the addition of the Proposed Development to a situation where other solar developments, or other infrastructure, are apparent may result in a greater effect than where the Proposed Development is seen by itself. The cumulative assessment includes existing identified schemes, those that are consented, and those for which planning applications have been submitted. The list of relevant cumulative schemes has been devised through the discussion with LCC, North Kesteven District Council, and Boston Borough Council, with a cut-off date of 31st December 2022. The location of the identified cumulative schemes and their geographical relationship to the Proposed Development is

illustrated on **Figure 2.2a Cumulative Sites - Shortlisted (Regional Context)** (document reference 6.2.2) and **Figure 2.2b Cumulative Sites - Shortlisted (Local Context)** (document reference 6.2.2).

6.3.50 The cumulative assessment covers the potential cumulative effects on landscape character receptors and views. Cumulative effects on the landscape elements will be generally avoided, given that the extent of the Order limits does not overlap with any of the identified cumulative schemes, except for the Vicarage Drove Solar Farm (application reference B/21/0443), as illustrated on **Figure 2.2b Cumulative Sites - Shortlisted (Local Context)** (document reference 6.2.2).

6.3.51 As with the assessment of effects of the Proposed Development, the significance of cumulative effects is determined through a combination of the sensitivity of the landscape receptor or view and the magnitude of change upon it. The sensitivity of landscape receptors and views is the same in the cumulative assessment as in the assessment of the Proposed Development itself. However, the definition of a significant cumulative effect is different from a significant effect in the assessment of the Proposed Development itself, and this means that the magnitude of change is also assessed in a different way.

6.3.52 Further details are provided in **Appendix 6.1** (document reference 6.3.6.1).

Graphic Techniques

6.3.53 Computer modelling is used to assist in the assessment process and to illustrate the effects of the Proposed Development through the production of SZTV plans. The SZTV plans illustrate the theoretical extent of where the proposed solar modules, Onsite Substation and Energy Storage System, and extension to the existing National Grid Bicker Fen Substation may be visible from, assuming 100% atmospheric visibility. As explained in the preceding paragraphs, the updated SZTV plans include the screening provided by various vegetation and built form, based on the following assumptions:

- Indicative woodland and building heights are modelled at 15m and 8m respectively.
- National Tree data: vegetation height based on the survey data.
- The viewer height is set at 1.7m.
- Calculations include earth curvature and light refraction.

6.3.54 The SZTV plans have been generated using a Digital Terrain Model of OS Terrain 5 combined with OS Open Map Local data for woodland and buildings, and National Tree data to create a Digital Surface Model (DSM).

6.3.55 Weather conditions and visibility were considered important aspects of the site visits for the photography. Where possible, visits were planned around clear sunny days with good visibility. Viewpoint locations were then, where possible, visited according to the time of day and the orientation of the sun to avoid front lit scenes. Photographs facing into the sun were avoided where possible to prevent the silhouette effect. Adjustments to lighting were made in the rendering software, when preparing photomontages, to allow the Proposed Development to appear realistic in the view under the particular lighting and atmospheric conditions present at that time.

6.3.56 A number of guidance documents have been published that deal with site photography and photomontage techniques in general, with the Landscape Institute's *Technical Guidance Note 06/19 Visual Representation of Development Proposals* (2019), being the most recent one. Specific guidance in relation to wind farms has been available from the Scottish Natural Heritage since the early 2000s, but there is a lack of similar

guidance for solar energy developments. In the absence of such guidance Pegasus has developed its own guidance with regard to the published documents.

6.3.57 The Context Baseline Views (**Figure 6.6**) (document reference 6.2.6) (stitched panoramas), Photoviews (**Figure 6.7**) (document reference 6.2.6) (single frame photograph), and Photomontages were produced in the following way:

- The photograph locations were GPS recorded. These single photographs were then stitched together using *PTGui* to create a panoramic image of 75 degrees in planar projection.
- The details of the development were modelled in *3d Studio Max* from elevation and site layout plans provided by the client.
- The stitched photograph was then used as a backdrop within *3d Studio Max* at full resolution. Using the known photograph location and then picking out features on the photograph these were cross-referenced with the same points taken from a number of sources including aerial imagery, Mastermap base mapping and survey points to accurately create a camera with *3d Studio Max* and *Vray* to match the camera height, location and image field of view and resolution, a process known as camera matching. These 'survey' points are taken across the image both foreground and distant in order to allow for increased accuracy. Where necessary additional features were created as 3d models within *3d Studio Max* to allow for better alignment.
- Once the alignment was correct the completed 3d model was then rendered onto the photography to complete a seamless image.
- For the images produced as photomontages these were taken into *Photoshop* in order to apply the masking. Masking is where the foreground objects and features or features which may 'mask' the development within the original photography are redrawn in front of the rendered image in order to simulate how the development will look within the existing landscape.
- Once all the masking has been applied the image is then placed into the template within *InDesign* and the final pdf output is produced.

6.3.58 The precise location of each photograph is recorded using a hand-held GPS device and bearings from this location to prominent vertical features within the view (such as transmission masts) are also recorded using Google Earth software.

6.3.59 Whilst every effort has been made to ensure the accuracy of the photomontages, it must be appreciated that no photomontage could ever claim to be 100% accurate as there are a number of technical limitations in the model relating to the accuracy of the information available from Ordnance Survey and from the GPS. For a detailed discussion regarding the limitations of photomontages, please refer to *Visual Representation of Wind farms – Good Practice Guidance* (SNH commissioned report FO3 AA 308/2).

6.3.60 The photographs and photomontages used in this assessment are for illustrative purposes only and, whilst useful tools in the assessment, are not considered to be completely representative of what will be apparent to the human eye. The assessments are carried out from observations in the field rather than from photographs.

Limitations to the Assessment

6.3.61 In undertaking the landscape and visual assessment in relation to the Proposed Development, there are limitations and constraints affecting the outputs from this work. These include:

- Photography for the selected viewpoints was taken from publicly accessible places and not private land.

- The baseline assessment has been based on the information readily available at the time of undertaking the assessment.
- The SZTV plans have been used to understand the potential visibility of the Proposed Development and help identify relevant receptors. The SZTV plans do not demonstrate absolute visibility and are therefore refined through field work.
- During the site visits, weather condition, the time of day, and seasonal factors have influenced the assessment and photographic record of the landscape associated with the Order limits and its surroundings.
- Baseline views were taken in April with some of the broadleaved structural vegetation coming into leaf with further viewpoints recorded in May. Further site photography was carried out in mid-December to capture so called 'winter' views and indicate the worst case scenario of visibility.
- Access to private properties has been sought and as a result a separate Residential Visual Amenity Assessment **Chapter 7** (document reference 6.1.7) has been prepared as part of this ES.
- The assessment of the Proposed Development is based on the parameters outlined in paragraph 6.2.8 and application drawings that accompany this ES, and is assessed on the assumption that the Proposed Development is delivered in line with these drawings and associated timescales.
- Where distances and measurements are given, these are approximate and generally calculated from the nearest point of the Order limits or Energy Park (or as otherwise stated) to the receptor in question.
- Night-time effects are not assessed as no lighting is proposed apart from motion activated security lighting around the Onsite Substation and Energy Storage System. It is considered that the principal visual receptors would experience the local landscape in the daytime.
- All effects are assumed to be temporary unless otherwise stated.

Vegetation Growth Rates

6.3.62 The residual effects, assessed in this **Chapter 6** (document reference 6.1.6) are based on the assumption that the proposed mitigation planting has been implemented in accordance with the proposed Landscape Strategy Plan **Figure 6.2** (document reference 6.1.6), current best practice, and has been subject to active and appropriate management regime, and that the vegetation has established successfully and developed into strong positive landscape features.

6.3.63 The precise growth rate is difficult to establish as it depends on the species, soil type, nutrients and water availability, ongoing management, and competition for other planting, and indeed the effects of climate change. For the purpose of this **Chapter 6** (document reference 6.1.6), the growth of the proposed hedgerows is assumed to be approximately 0.5m per annum.

Legislative and Policy Framework

6.3.64 This **Chapter 6** (document reference 6.1.6) has been undertaken with regard to the following policy documents:

- National Planning Policy Statements:
 - i. Overarching National Policy Statement for Energy (EN-1) (2011).
 - ii. Draft Overarching National Policy Statement for Energy (EN-1) (2023).

- iii. National Policy Statement for Renewable Energy Infrastructure (EN-3) (2011).
- iv. Draft National Policy Statement for Renewable Energy Infrastructure (EN-3) (2023).
- v. National Policy Statement for Electricity Networks Infrastructure (EN-5) (2011).
- vi. Draft National Policy Statement for Electricity Networks Infrastructure (EN-5) (2023).
- National Planning Policy:
 - vii. National Planning Policy Framework (NPPF) (2021).
- Planning Practice Guidance:
 - viii. Design: process and tools (01st October 2019).
 - ix. Natural environment (21st July 2019).
 - x. Renewable and low carbon energy (18th June 2015).
- Local Planning Policy:
 - xi. Central Lincolnshire Local Plan 2012 – 2036 (April 2017)
 - xii. South East Lincolnshire Local Plan 2011-2036 (March 2019)

6.3.65 The review of the legislative and policy framework, and a tabular summary of all relevant policies and their requirements, and how these have been addressed in this **Chapter 6** (document reference 6.1.6) are included in **Appendix 6.11- Legislative and Policy Framework** (document reference 6.3.6.11).

6.4 BASELINE CONDITIONS

6.4.1 This section of the LVIA identifies and describes the existing landscape features, and landscape and visual resource found within and around the area falling within the Order limits. This study helps to gain an understanding of what makes the landscape distinctive, what its important components or characteristics are, and how it is changing prior to the introduction of the Proposed Development. The baseline study is instrumental in the identification of the landscape receptors and visual receptors/views to be assessed. This chapter should be read in conjunction with the site description and context as set out in **Chapter 3** of the ES.

6.4.2 The character of the local landscape is discussed in the context of the published landscape character assessments. With regard to the visual receptors, these have been identified based on the Policies Map – discussed earlier in this LVIA, during the site surveys and work carried out during the PEIR stage and for this Chapter 6 (document reference 6.1.6), and through the consultation during the Scoping and PEIR stage.

Baseline Landscape Designations

6.4.3 The Proposed Development is not located within any national statutory protected landscape designations. It does not lie within any regional or local non-statutory landscape designations, either.

Baseline Landscape Character

6.4.4 The character of the landscape within the study area has been analysed and described on two levels:

- National level assessment provided by Natural England – the Proposed Development.

- Local level based on the assessment published by North Kesteven District Council – Energy Park and Cable Route Corridor.
- Local level based on the assessment published by and Boston Borough Council – Off-site Cable Route Corridor and National Grid Bicker Fen Substation Extension Works.

6.4.5 The geographical extent of the identified landscapes in relation to the Order limits is shown on **Figure 6.3 Landscape Character Plan** (document reference 6.2.6). These are considered to be the relevant landscape character receptors for the purpose of this **Chapter 6** (document reference 6.1.6). A preliminary review of the landscape receptors within the wider 5km study area is carried out in **Appendix 6.8** (document reference 6.3.6.8) in order to determine whether significant effects are likely to occur, and to inform the subsequent cumulative landscape character assessment – Section 6.7 of this LVIA.

National Landscape Character Areas

6.4.6 On the national level, the landscape associated with the Order limits falls within the National Character Area 46 The Fens. The Key characteristics of relevance are quoted as follows:

- **“Expansive, flat, open, low-lying wetland landscape influenced by the Wash estuary, and offering extensive vistas to level horizons and huge skies throughout, provides a sense of rural remoteness and tranquillity...**
- **Overall, woodland cover is sparse, notably a few small woodland blocks, occasional avenues alongside roads, isolated field trees and shelterbelts of poplar, willow and occasionally leylandii hedges around farmsteads, and numerous orchards around Wisbech. Various alders, notably grey alder, are also used in shelterbelts and roadside avenues.**
- **The predominant land use is arable – wheat, root crops, bulbs, vegetables and market gardening made possible by actively draining reclaimed land areas. Associated horticultural glasshouses are a significant feature. Beef cattle graze narrow enclosures along the banks of rivers and dykes and on parts of the salt marsh and sea banks.**
- **Open fields, bounded by a network of drains and the distinctive hierarchy of rivers (some embanked), have a strong influence on the geometric/rectilinear landscape pattern. The structures create local enclosure and a slightly raised landform, which is mirrored in the road network that largely follows the edges of the system of large fields. The drains and ditches are also an important ecological network important for invertebrates, fish including spined loach, and macrophytes...**
- **Settlements and isolated farmsteads are mostly located on the modestly elevated ‘geological islands’ and the low, sinuous roddon banks (infilled ancient watercourses within fens). Elsewhere, villages tend to be dispersed ribbon settlements along the main arterial routes through the settled fens, and scattered farms remain as relics of**

earlier agricultural settlements. Domestic architecture mostly dates from after 1750 and comprises a mix of late Georgian-style brick houses and 20th-century bungalows.”

6.4.7 The landscape character assessments carried out at a national level represent a broad brush approach and are often too coarse to be informative to the LVIA process. The description of the NCA 46 The Fens has been reviewed and used to inform this **Chapter 6** (document reference 6.1.6).

6.4.8 The Statements of Environmental Opportunities (SEO's) for the NCA 46 The Fens have been used to guide the proposed mitigation and enhancement measures.

North Kesteven Landscape Character Assessment

6.4.9 The published assessment identifies three broad landscape character types within the district running north-south. The Energy Park falls within The Fens Regional Landscape Character Type in the east of the district, and the associated Fenland Landscape Character Sub-Area. The Fenland Landscape Character Sub-Area is geographical quite extensive and covers much of the 5km study area.

6.4.10 The Key Characteristics (identified at paragraph 9.1 of the published assessment) are:

- **“The Fenland landscape sub-area occupies the whole of the eastern part of the District from the Lincoln gap to the boundary with south Kesteven near Swanton.**
- **Low lying very flat relief.**
- **Occasional small islands of slightly higher land.**
- **Very large, rich arable fields divided up by drainage channels.**
- **A hierarchy of rivers and drains and ditches creating linear patterns across the landscape.**
- **The geometric road pattern follows the drainage pattern with small roads raised above the level of the fields, running from east to west.**
- **Generally extensive vistas to level horizons and huge skies, apart from the north easterly direction where the Lincolnshire Wolds provide a marked “Upland” horizon.**
- **Sparse woodland cover though some occasional trees surrounding farmsteads and some shelter belts, particularly poplars.**
- **Intensively farmed and managed it is almost entirely a man-made landscape.**
- **Except for scattered farmsteads and farm buildings the sub-area is unsettled.**
- **Prominent power lines and large-scale agricultural buildings”**

Landscape Character Assessment of Boston 2009

6.4.11 The Off-site Cable Route Corridor and National Grid Bicker Fen Substation Extension Works fall within Boston Borough Council's administrative boundaries and this landscape is described in their own *Landscape Character Assessment of Boston* (2009). This published assessment identifies that the Off-site Cable Route Corridor and National Grid Bicker Fen Substation Extension Works fall entirely within the Landscape Type (LT) A Reclaimed Fen and more specifically its Landscape Character Area (LCA) A1 Holland Reclaimed Fen.

6.4.12 The Key Characteristics of the LCA A1 Holland Reclaimed Fen, as identified in the published assessment are:

- **"Flat and low-lying reclaimed fenland.**
- **Open and expansive views with big skies and dark night skies with some views semi-enclosed at ground level by large embankments.**
- **More distant views to Boston Stump and to the Lincolnshire Wolds in East Lindsey District to the north.**
- **A man-made intensive arable landscape laid out in a regular, geometric pattern with narrow roads and trackways alongside drains, dykes and ditches.**
- **The large North Forty Foot Drain and South Forty Foot Drain are key dominating features of the area.**
- **Field boundaries are typically open with wet ditches, dykes and drains and the occasional hedgerow.**
- **Occasional large scale horticultural glasshouses, and packing or processing plants occur near the southern boundary of the area.**
- **Sparsely populated with occasional small hamlets, scattered farmsteads, and occasional rows of former workers' cottages.**
- **Occasional derelict farm cottages and field buildings.**
- **Sparse tree cover confined to shelterbelts, with occasional hedgerows and small blocks of mixed woodland with shrubby edges.**
- **Bicker windfarm and large scale pylons on the south western tip are modern landmark features.**
- **A semi-remote, tranquil and intact working agricultural landscape."**

Description of the Site, Associated Features, and Immediate Context

6.4.13 The Energy Park is bound by Head Dike to the north, Holland Dike to the north east, Skerth Drain to the east, the A17 Sleaford to Holbeach road to the south and B1395 Sidebar Lane/agricultural land to the west. Land within the Energy Park is in arable use

and is subdivided into rectilinear parcels by long linear drainage ditches that lie principally north-south, connected east-west by shorter ditches including Labour in Vain Drain. The ditches have an engineered profile, colonised in part by emerging aquatic plant species and riparian vegetation. Topographically, the Proposed Development is level and low-lying at between 1m and 3m above Ordnance Datum (AOD) and is predominantly within Flood Zone 3.

6.4.14 According to the North Kesteven District Council's online mapping and the *Landscape Character Assessment of Boston* the vegetation within the Order limits boundary is not subject to any Tree Preservation Orders (TPO).

6.4.15 Six Hundreds Farm lies in the eastern part of the Energy Park, with access gained from Six Hundreds Drove. The Drove lies within the Energy Park, and connects to the south with the A17. Two further access tracks lie off the A17 adjacent to Rectory Farm and at Elm Grange in the southwest corner, these in turn connect to Crab Lane toward the north western corner of the Energy Park, and then to Sidebar Lane. The access tracks follow ditch alignments.

6.4.16 One PRoW Public Footpath Heck/15/1 runs along the northern boundary, crossing a small part (approximately 280m) of the Energy Park. The PRoW, however, terminates at the first small scale drain that marks the western edge of the Energy Park and does not reach Head Dike with no continuation further east, despite the OS Explorer map 1:25,000 indicating otherwise. This lack of continuity was confirmed on site. It is the Applicant's intention to reinstate the connectivity and provide further permissive access through the Energy Park. There are no other PRoWs present within or that abut the Energy Park. Further crossings are also not in place, including another across a minor ditch, which would be reinstated as part of the Proposed Development, and a bridge which crossed onto the Head Dike over an IDB drain. This crossing is not proposed to be reinstated.

6.4.17 With regard the southern part of the Order limits, that associated with the Off-site Cable Route Corridor and National Grid Bicker Fen Substation Extension Works, there are a number of PRoWs that cross the Off-site Cable Route Corridor: Public Footpath Swhd/14/1 leading from Swineshead Bridge along the railway line and then the South Forty Foot Drain; Public Bridleways: Swhd/13/1, Bick/1/1, and Doni/16/2 that follow the South Forty Foot Drain; and Public Footpaths Bick/2/1 and Doni/20/2 along Hammond Beck.

6.4.18 The landscape associated with the **Proposed Development** is large scale and is geographically extensive, thus any features within it tend to appear isolated and small, and their function is somewhat diminished. There are, however, a number of features within and around the **Proposed Development** that are worth noting as they assist in the discussion of the potential visual effects and are referenced throughout this LVIA. These are, with reference to **Appendix 6.3- Arboricultural Survey, Impact Assessment and Protection Plan** (document reference 6.3.6.3):

- A rectangular block of planting and farm buildings at Mill Green Farm to the north of Head Dike (refer to **Chapter 7- RVAA**) (document reference 6.1.7).
- A small scale triangular block of woodland to the north west of the Energy Park, between the Energy Park, Glebe Farm, and Head Dike.
- Tree planting around Glebe Farm.
- A relatively tall hedgerow and trees along Crab Lane with tree group G46 at the north eastern corner of the Energy Park.
- Farm buildings near Elm Grange, near the south western corner of the Energy Park.
- An isolated 'L' shape block of woodland, W4, in the central part of the Energy Park, immediately west of the proposed Onsite Substation and Energy Storage System.

- A large scale shed / grain dryer (approximately 7.5m to eaves), lower brick farm buildings, neglected two storey dwelling, associated with Six Hundreds Farm, in the eastern part of the Energy Park, immediately south of the proposed Onsite Substation and Energy Storage System.
- A line of trees, Tree Group G15, extending west from the grain dryer and a cluster of trees around the neglected two storey dwelling, Tree Group G6.
- A small scale block of woodland, W1, in the south eastern part of the Energy Park, north of Six Hundreds Farm House.
- Hedgerow and hedgerow trees along Six Hundreds Drove, most notably: H1, T3 – T7, H2 and H3 with a number of isolated trees T8 – T14 and tree groups G3 – G5.

6.4.19 Overhead lines supported on wooden poles criss-cross the site, running parallel to Six Hundreds Drove and the A17. An underground gas pipeline bisects the Energy Park, extending south-north to the east of Rectory Farm. The locations of these assets can be seen on **Figure 4.1a** Current Assets on Energy Park Site. Intermittent shrubs/hedgerows occur within or along the boundary of the Energy Park, with tree cover limited to the aforementioned small woodland blocks and tree lines in the eastern third of the Energy Park.

6.4.20 With regard to the Off-site Cable Route Corridor and National Grid Bicker Fen Substation Extension Works the landscape contains isolated blocks of trees, hedgerows, and vegetation around the dispersed farmsteads and dwellings. The most notable features, however, are:

- The Triton Knoll Substation at Doubletwelves Drove / Bicker Drove.
- The Bicker Fen Wind Farm.
- The existing National Grid Bicker Fen Substation.
- The existing and maturing mitigation tree planting enclosing and screening the existing National Grid Bicker Fen Substation to the north, east, and south: hedgerows H18 – H22 (between 1.5m to 8m tall), individual trees T50 – T61, groups of trees G36 – G45 (on average approximately 10m and taller), and woodlands W5-W7 (between 13m to 9m respectively).
- Two very large scale sheds (a converter station) associated with the Viking Link (high-voltage direct-current link with Denmark), located to the south west of the existing National Grid Bicker Fen Substation.
- Woodland W7 located in the area immediately south of the existing National Grid Bicker Fen Substation and existing mature Oak trees G42 – G45 present along Vicarage Drove (**Appendix 6.3** Arboricultural Impact Assessment, Tree Survey and Tree Protection Plan (document reference 6.3.6.3)).

Surrounding landscape

6.4.21 It is accepted that the character of the local landscape may vary where the change from one landscape type or area to another occurs. Inevitably there may be some localised variations and a transitional zone where characteristics of one LCT/ LT/ or LCA are evident in the neighbouring areas and vice versa. The information presented in the preceding paragraphs provides the most relevant information as evidenced in the published landscape character assessments. The following paragraphs analyse the landscape character of the Order limits and that of the surrounding wider landscape, based on on-site assessment, and aims to verify it against the published reports mentioned in the previous paragraphs, and aim to establish whether there are any localised variations in the local area that are not reflected in the above quoted published landscape character assessment or should be specifically acknowledged in this LVIA. By doing so this LVIA aims to identify the landscape value and landscape susceptibility to the Proposed Development

(the associated typologies: solar modules, energy storage, substation, and ancillary infrastructure).

Landscape Value

6.4.22 The landscape associated with the Order limits represents a typical example of a managed fenland agricultural landscape. The Order limits and indeed the surrounding landscape within the defined study area are not subject to any statutory landscape designations (such as National Park or Area of Outstanding Natural Beauty). This is confirmed by the *North Kesteven Landscape Character Assessment* (its paragraph 1.6): **“There are no nationally designated landscape areas within North Kesteven.”** The landscape is not subject to any non-statutory landscape designations either as confirmed by the *Central Lincolnshire Local Plan 2012 – 2036* interactive Policies Map and Policies Map for the *South East Lincolnshire Local Plan 2011-2036*. The local area is therefore not of high value landscape in the context of paragraph 174(a) of the NPPF.

6.4.23 Being undesignated farmland, the value of the local landscape has been assessed in line with the GLVIA3 and the Landscape Institute’s Technical Guidance Note 02/21: Assessing landscape value outside national designations (TGN 02/21). This assessment is set out in **Table 6.4** below.

Table 6.4: Assessment of Landscape Value (after GLVIA3 Box 5.1 and TGN 02/21)

Asset	Pegasus’ Analysis
Natural Heritage	The local area comprises actively managed pastoral and arable farmland and is not covered by any statutory or non-statutory nature conservation designations. The pastoral and arable fields, largely separated by drains / ditches with seldom growing hedgerows and trees are characteristic of the local landscape. Tree vegetation is sparse, present in the form of small blocks of woodland, clumps of trees, isolated tree shelterbelts, and occasional hedgerow trees. Trees are frequent around farmstead and settlements. None of the trees within the Order limits are protected by any Tree Preservation Order (TPO) or are part of a designed or designated landscape. No clearly identified landscape-related or geological interests.
Cultural Heritage	No specific cultural or heritage connections, beyond the ordinary, managed agricultural landscape or that associated with cultural heritage (refer to Chapter 10 for details).
Landscape Condition	The local landscape is considered to be generally in good condition; albeit altered by the negative influence of the A17, the Triton Knoll Substation, the National Grid Bicker Fen Substation, the Bicker Fen Wind Farm, and the converter station for Viking Link project. Absence of boundary hedgerows is characteristic of this fenland landscape, and is not considered to indicate its poor condition. The analysis of various historic maps (for example Lincolnshire Sheet CVII.NE and CVII.SE, surveyed: 1887, published: 1888) revealed the presence of field boundary trees and rectangular blocks of woodland across the site of the Energy Park.
Associations	No well-known specific associations with notable people, events or the arts.
Distinctiveness	The local landscape is not noted for being distinctive, and the site is not considered to be atypical of the local area. It forms part of a large

Asset	Pegasus' Analysis
	scale and geographically extensive NCA 46 The Fens and geographically extensive Fenland Landscape Character Sub-Area.
Recreational	The local PRoW network is relatively sparse with the PRoW along the northern edge of the Energy Park disconnected due to lack of footbridge. Certain PRoWs appear to be dead end and lack connectivity with other lanes/ tracks, or public highways. There are no national Trails or long-distance promoted paths marked on the OS Explorer map 1:25,000, or cycle routes in the immediate vicinity.
Perceptual - Scenic	The site and its environs are of moderate scenic quality being a pleasant working countryside. The landscape around the Energy Park, Off-site Cable Route Corridor and National Grid Bicker Fen Substation Extension Works somewhat lacks any positive eye catching features, due to the emptiness and expanse of the fens, and distance between the settlements. Church spires / towers are perceptible but their function and contribution to the local landscape is greatly diminished due to the distances between receptors and settlements, or limited visibility. The existing and under construction energy related infrastructure and large scale high voltage pylons do exert a strongly negative influence across large parts of the study area.
Perceptual - Wildness and Tranquillity	The local landscape is settled, quiet and managed for agriculture. There are areas of heightened sense of remoteness and relative tranquillity experienced across less populated fens, but this diminished around the A17 and railway line, and across parts of Bicker Fen – due to the presence of the Triton Knoll Substation, the National Grid Bicker Fen Substation, the Bicker Fen Wind Farm, and the converter station for Viking Link project. This is confirmed in the description of the NCA 46 The Fens – Appendix 6.4 (document reference 6.3.6.4) and described in paragraph 6.4.29 below.
Functional	The local landscape does not provide a particular function in relation to the nearby settlements, beyond the ordinary agricultural landscape, and does not provide the setting for any statutory/national or non-statutory/ local landscape designations.

6.4.24 On the basis of this analysis, the Proposed Development and its environs are considered to be of medium value; not exhibiting any special functional or visual relationship with any statutory landscape designations or exhibiting demonstrable physical attributes that would elevate it from the ordinary countryside.

Landscape Susceptibility

6.4.25 The landscape associated with the Order limits and surrounding fenland comprises a number of large scale fields and is best described as a large scale open landscape dominated by big skies. This is confirmed in the description of the host NCA 46 The Fens: **“The area is notable for its large-scale, flat, open landscape with extensive vistas to level horizons. The level, open topography shapes the impression of huge skies which convey a strong sense of place, tranquillity and inspiration.”** The level landform and expanse of the fenland diminishes the scale and massing of built infrastructure present in the local area, with man-made banks associated with various drains foreshortening views. Such characteristics suggest a lower susceptibility to change, when compared to a more intimate and fine grain landscape of hedgerow enclosures or undulating and rolling landform.

6.4.26 Distant views do exist across large areas, as confirmed in the published *North Kesteven Landscape Character Assessment* for the host Landscape Character Sub-Area Fenland: **"Generally extensive vistas to level horizons and huge skies..."** The visual relationship between different landscapes and discrete parts of the Fens, however, is substantially diminished due to the level landform with the eye travelling across the foreground towards the distant horizons, and features on the skyline.

6.4.27 The level landform and big skies are recognised in the published landscape character assessments, both at the national and district level, as key features influencing the perception of remoteness and tranquillity, and the **"...absence of variation might be considered to present a sense of drama and melancholy."** (*North Kesteven Landscape Character Assessment*). These perceptual and sensory qualities largely relate to the sense of openness and big skies rather than absence of built form.

6.4.28 There are no prominent landmarks or other features in the local area except for distant views towards church towers and Kyme Tower to the west of South Kyme village. These are often obscured by the vegetation around the settlements or are seen at such distance that their contribution to the character of the local landscape is somewhat diminished. Views are also often foreshortened by the embankments associated with various drains: **"There are expansive and peaceful panoramas across seas of cereal crops, and big skies. These views are sometimes foreshortened by large drain embankments"** reducing the visual relationship between various parts of the Fens. In addition, the sparse network of PRoWs reduces the opportunities to see such features. This suggests a lower susceptibility of the landscape.

6.4.29 The landscape appears settled and quiet, and remote in places. The area near the Energy Park, however, exhibits a reduced sense of tranquillity and increased intrusion from noise and built form, as acknowledged in the description of the NCA 46 The Fens:

"Based on the CPRE map of tranquillity (2006) the lowest score is to the northwest of Boston."

"The 2007 Intrusion Map (CPRE) shows the extent to which rural landscapes are 'intruded on' from urban development, noise (primarily traffic noise), and other sources of visual and auditory intrusion. This shows that areas of disturbed land are associated with the major settlements of (...) Boston ... Disturbance is also associated with the main link roads between these centres of population including the (...) A17..."

6.4.30 Whilst the published *North Kesteven Landscape Character Assessment* states that industry and commercial use is largely absent it does acknowledge that: **"Like other areas of the district the impact of electricity infrastructure is also significant with rows of pylons very dominant in the open landscape and presenting a powerful man-made statement across the horizon in the south of the sub-area."** South of the A17 there are a number of strong vertical features and large scale and large mass built form such as the Bicker Fen Wind Farm visible across the study area and from within the Energy Park, the aforementioned pylons, and various substations identified in **Table 6.4** above. These features can be described as exerting negative influence over the local landscape. Their presence, whilst evident and prominent in certain views, however, is somewhat diminished by the scale and openness of the landscape, giving evidence of its capacity to accommodate large scale infrastructure.

6.4.31 The *Landscape Character Assessment of Boston* states that the local landscape: **"... has a fairly remote feel in parts due to the partial enclosure and separation from the surrounding more settled areas by the large straight embankments, the sparse settlement pattern and the lack of through traffic."** Whilst this may be true

for some parts of the LCA A1 Holland Reclaimed Fen, its south western most part, that associated with Bicker Fen, differs due to the presence of detracting features in the form of large scale infrastructure (see **Table 6.4** above).

6.4.32 The landscape condition varies, with the aforementioned substation and electricity pylons affecting the predominantly agricultural landscape introducing complexity and influencing the landscape pattern, thus reducing its susceptibility to change. The landscape to the north of the A17, that associated with the proposed Energy Park is strongly rural.

6.4.33 The sparsely populated character of this part of the landscape, also acknowledged in the published *Landscape Character Assessment of Boston* suggest a lower susceptibility to change: **“The area is sparsely populated with widely dispersed farmsteads, occasional rows of former workers’ cottages, hamlets and a few roadside dwellings scattered throughout alongside a grid of roads and tracks.”**

6.4.34 It is evident that the landscape within and around the Order limits does vary. The landscape north of the A17 and in the south western quadrant of the study area, has a highted sense of ruralness and tranquillity but nevertheless is affected by the visibility of the large scale energy infrastructure such as Bicker Fen Wind Farm and large scale pylons. The landscape in the south eastern quadrant of the study area exhibits characteristics that suggest a lower susceptibility, due to the increasing negative influence of the aforementioned existing and under construction large scale energy infrastructure.

6.4.35 On balance and for simplicity, and acknowledging the scale of the Energy Park, the susceptibility of the local landscape to this type of development is assessed as **medium**.

Landscape sensitivity

6.4.36 Based on the above analysis it transpires that the local landscape is of **medium** sensitivity to the Proposed Development, and this would apply to the host landscapes identified on the local level:

- The regional LCT The Fens and the associated Fenland Landscape Character Sub-Area – *North Kesteven Landscape Character Assessment*.
- The LT A Reclaimed Fen and more specifically its LCA A1 Holland Reclaimed Fen – *Landscape Character Assessment of Boston*.

6.4.37 With regard to the NCA 46 The Fens, due to its geographical scale and varied character, its sensitivity is considered to be low.

Visual Baseline Survey Information

6.4.38 A preliminary visual appraisal was conducted in early 2022 to determine the relationship of the landscape associated with the Order limits with its surroundings and the approximate extent of its visibility within the wider landscape from publicly accessible locations. The landscape and visual surveys were undertaken in April and May 2022 and informed the extent of the study area, as discussed in the preceding section of this LVIA – section Study Area. Thus, the following paragraphs focus on those visual receptors that have been considered the most relevant and informative to the LVIA process.

6.4.39 As part of the desk-top study three separate detailed SZTV plans were prepared for the PEIR Chapter 6, and these have been updated to reflect the current layout of the Proposed Development (**Figure 6.5a – Figure 6.5c**) (document reference 6.2.6). It is worth reiterating that small building groups or isolated buildings, or small areas of vegetation below 3m in height are not accounted for and therefore such SZTVs still represent a theoretical visibility, as unmapped features can control or prevent views locally. The extent of the SZTVs is reflective of the level landform of the local Fenland

landscape. The actual extent of the visibility of the Energy Park, however, is likely to be smaller than this shaded area.

6.4.40 With regard to the Energy Park, as evident on **Figure 6.1a** (document reference 6.2.6), the closest visual receptors include the residential properties and farmhouses along the A17 and Sidebar Lane, farmhouses to the north of Head Dike and to the north east and east of Holland Dike and Mown Rakes; recreational users of Public Footpath Heck/15/1; and road users travelling along the A17 and Sidebar Lane. South Kyme is located some 3.4km away to the north west, with Heckington located some 4km to the west. Swineshead Bridge lies some 1km away to the south east.

6.4.41 With regard to the Off-site Cable Route Corridor and National Grid Bicker Fen Substation Extension Works, as illustrated by **Figure 6.1b** (document reference 6.2.6), the closest visual receptors are those associated with the minor public highways and residential dwellings scattered across West Low Grounds and towards East Low Grounds, for example along Timm's Drove, Tilebarn Lane, North Drove, Cowbridge Road, and recreational users travelling along the nearby PRoWs.

6.4.42 The following paragraphs provide a detailed analysis of the inter-visibility and further justify the extent of the study area.

Visual Context and Reciprocal Views from Within the Order limits

6.4.43 The site visits carried out during the PEIR stage, and subsequent field work carried out in inform this **Chapter 6** of the ES (document reference 6.2.6), confirmed that views from within the site of the Energy Park are medium to long range but, in places, are interrupted and terminate on tree belts and other features present in the local landscape including built form, particularly to the south. The southern edge of the Energy Park is segregated from the surrounding landscape by the built form and vegetation that line the A17, including Elm Grange near the south western corner of the Energy Park, Home Farm and Rectory Farm and petrol station along the A17, a group of semi-detached houses in East Heckington (identified as No. 1 – 12 Council Houses), and Rakes Farm near the south eastern corner of the Energy Park. Therefore, reciprocal views from the landscape to the south of the A17 do not extent across the Energy Park. Views from the Great Hale Fen, for example from Carterplot Road, along Great Hale Drove and on the approach to Last Farm and White House Farm, terminate on the tree canopies and built form that marks the A17 corridor (**Appendix 6.2** Omitted Viewpoints – Site Photography) (document reference 6.3.6.2). Views east and south east are interrupted by the man-made banks associated with the South Forty Foot Drain that cuts across this fenland landscape. For that reason, this LVIA does not include any static views in this quadrant of the study area with other visual receptors present in this area also excluded from the assessment.

6.4.44 With regard to the south eastern quadrant of the study area, tree vegetation along the A17 and South Forty Foot Drain, coupled with the bank associated with the Drain, screen views towards the Energy Park. Whilst the SZTV plans **Figures 6.5a – 6.5b** (document reference 6.2.6) indicate some theoretical visibility, in reality views are screened and there is evident lack of any visual relationship with the landscape north of the A17. This part of the study area is only relevant in terms of the potential effects of the proposed Off-site Cable Route Corridor and National Grid Bicker Fen Substation Extension Works.

6.4.45 The theoretical visibility of the Energy Park extends north, north-east, and east across parts of South Kyme Fen, Mary Land, Holland Fen, Amber Hill, and Algarkirk Fen, and further beyond the River Witham. This is reflective of the level landform of the fenland landscape and lack of any substantial areas of woodland. In reality, however, views are interrupted by roadside vegetation, as illustrated by the updated SZTVs **Figure 6.5a – 6.5b** (document reference 6.2.6). Reciprocal views from these areas were investigated

during the PEIR stage and have been subsequently included in this **Chapter 6** (document reference 6.1.6): medium to long range viewpoints along Claydike Bank and Sutterton Drove. Views from PRoWs and roads further north and east have been investigated at the PEIR stage, but discounted due to the distance and lack of any evident visual relationship with the site or any of its features.

6.4.46 When discussing the inter-visibility and potential visual receptors, it is important to acknowledge that the Energy Park is enclosed by an embankment associated with Head Dike, Holland Dike, and Skerth Drain. The embankments bound the Energy Park to the north, north east, and east respectively, and interrupt the inter-visibility with the wider countryside. The spot heights, based on the Environment Agency's 2019 LiDAR dataset, indicate that the top of embankment reaches between approximately 2.7m Above Ordnance Datum (AOD) to 3.9m AOD. In comparison, the levels across the northern part of the Energy Park read approximately 1m AOD, albeit the levels gently rise to approximately 2m – 2.5m AOD along its more distant southern edge. In other words, the embankment along Head Dike, Holland Dike, and Skerth Drain has the ability to interrupt the views and to screen parts of the proposed Energy Park. Thus, the more distant visual receptors would have a reduced ability to appreciate the Energy Park or experience any adverse effects brought about the Proposed Development. This part of the landscape, between the Energy Park and the River Witham, is crossed by a number of parallel roads, largely orientated north west to south east, with Amber Hill being the only settlement in the local area, located some 2km away. Holland Fen is located some 4km to the north east. Views from the nearby Kirton Drove (at the junction with Parson's Drove and on the approach to Reed Point) were investigated during the PEIR stage but judged to be too distant and restricted to be informative to the decision making process.

6.4.47 With regard to the north and north western quadrant of the study area, the theoretical visibility extends across South Kyme Fen, Ewerby Fen, and Howell Fen, stretching beyond the 5km radius. Views north and north west, however, are interrupted by small scale blocks of woodland around Mill Green Farm, Paddington Cottage, and Sycamore House dotted across South Kyme Fen. Radiating bands of theoretical visibility extend up to the River Sleas and settlement of South Kyme, located approximately 3.4km away to the north west. Apart from the B1395 / Sidebar Lane and Cow Drove / Public Footpath SKym/1/1, there are no publicly accessible location in this part of South Kyme Fen. Views from around the southern edge of South Kyme and around Whitehouse Farm at Cow Drove have been investigated, but the aforementioned intervening blocks of woodland, considerably interrupt views towards the Energy Park with the level landform considerably reducing the appreciation of the medium to long range landscape and associated features. Certain features along Sidebar Lane, however, are identifiable thus it was considered prudent to include static views in this area in order to prove the inconsequential visual effects (Viewpoint 18 and Viewpoint 19).

6.4.48 Views from the more distant north western fenland landscape, beyond Cow Drove have been investigated at PEIR stage and the anticipated scale of effects was judged to be very limited and inconsequential, i.e., negligible, given the presence of isolated yet effective blocks of woodland, the increasing distance, and scale of the landscape. Whilst no static viewpoints have been selected in this quadrant of the study area, a single static view located at Head Dike and junction of Public Footpaths SKym/1/1, Heck/13/1, SKym/2/1, and Heck/12/1 was added on the request of LCC's landscape advisor and included in this **Chapter 6** (document reference 6.1.6). This particular viewpoint can serve as a proxy view for more distant locations, and justifies why the distant north western quadrant of the study area is irrelevant to this LVIA. It is considered that beyond this distance there is on potential for any significant visual effects to occur.

6.4.49 In terms of the western part of the study area, the STZV plans are helpful and indicate that the theoretical visibility of the Energy Park is largely contained by the vegetation along Star Fen East road and Star Fen End road (at Fenside) and the field

boundary vegetation between Kyme Road / Littleworth Drove and the A17 (including that around Holme House and Sandless Lane). View further west, from around Courtrow Farm and Hall Farm, and on the edge of Heckington were investigated to inform the PEIR Chapter 6, but judged not to offer any views of the Energy Park or the then proposed grid connection route. In other words, the actual visual envelope of the Energy Park extends up to approximately 2km distance from the Energy Park site, terminating on various belts of trees that characterise the long range landscape to the west. Views from within the Energy Park include the nearby Sidebar Lane and associated dwellings, and these receptors were judged to be the most informative in terms of this **Chapter 6** (document reference 6.1.6) of the ES. Views from around Holme House near Kyme Road / Littleworth Drove and on the eastern edge of Heckington were included in the PEIR Chapter 6, as requested by the consultees, and for completeness are also included in this **Chapter 6** (document reference 6.1.6), **Appendix 6.9 Scoping Out - Visual Assessment** (document reference 6.3.6.9).

6.4.50 On that basis, it has been determined that the primary focus of the landscape character and visual assessment should be on the study area of up to 1.5km radii, acknowledging that some of the selected viewpoints may lie beyond this distance. The study area is not intended to provide a boundary beyond which the Proposed Development will not be seen, but rather to define the area within which to assess its potential significant landscape and visual effects. Significant landscape and visual effects are more likely to include effects on close to medium proximity views, the change in character of the landscape associated with the Energy Park and the area in close proximity to it, as a result of a change in the landscape pattern or the perception of the Energy Park. With the increasing distance the perception of the Proposed Development would diminish and the same would be true for the visual effects and the perception of the surrounding countryside.

6.4.51 With regard to the National Grid Bicker Fen Substation Extension Works, the existing 400kV Bicker Fen Substation is not evident in views from the medium or long range landscape of West Low Grounds or East Low Grounds. Views from the north and east are screened by the mitigation planting that enclosed the Substation. With regard to the route corridor considered during the PEIR stage, it was considerably larger but coincided, in parts, with the currently proposed Off-site Cable Route Corridor. Therefore, the viewpoints and study area discussed in PEIR Chapter 6 are still considered relevant to the Off-site Cable Route Corridor and National Grid Bicker Fen Substation Extension Works and are included in this **Chapter 6** (document reference 6.1.6). With reference to the Additional Works, the southern part of the study area is largely devoid of any receptors. Vicarage Drove is a dead-end lane that does not serve any settlements or dwellings and does not connect to any other public highway. It serves as an access road to the existing Bicker Fen Wind Farm. In addition, a PRow along Hammond Brook leading across North Fen (Public Footpaths Bick/2/1 & Doni/19/1 & Doni/19/2 & Doni/20/2) and the promoted long distance path Cross Britain Way that leads along North Ing Drove, are located in this part of the study area and are considered to be the only relevant receptors. Views from this part of the study area are illustrated by Viewpoints 24 – 26 (**Figure 6.6** Context Baseline Views and Photoviews and **Figure 6.7** Photomontages (document reference 6.2.6)).

Representative and Illustrative Viewpoints

6.4.52 A series of representative and illustrative views surrounding the area of the Order limits have been identified through the desktop studies at the Scoping stage and field studies at the PEIR stage. Following the consultation with LCC's landscape advisor additional viewpoints have been appraised and a selection of them included in this **Chapter 6** (document reference 6.1.6).

6.4.53 It is worth noting that no specific or designated viewpoints have been identified within the 1.5km study area. The OS Explorer map 1:25,000 (see **Figure 6.1a** and **Figure 6.1b**) (document reference 6.1.6) does not identify any such features. The area of the Order limits is not in close proximity to any publicly accessible heritage assets such as Registered Parks and Gardens or scheduled monuments that could be regarded as visual receptors, or similar assets, that would enable public vantage points. Heritage assets and effects upon them are discussed in **Chapter 10** Cultural Heritage **Chapter 6** (document reference 6.1.10).

6.4.54 The selected viewpoints are not intended to cover every possible view of the Proposed Development, but rather they are representative of a range of receptor types. Due to the extent of the SZTVs and availability of public vantage points their distribution is concentrated in certain parts of the local landscape to capture more than just one type of receptor. Following the consultation in September 2022 the number of viewpoints has increased to 23. The viewpoints represent views experienced by a range of receptor groups, in line with the GLVIA3, such as:

- Residents/local community.
- PRow users.
- Road users.

6.4.55 In response to the Additional Works, three additional viewpoints have been selected in the landscape south of the existing National Grid Bicker Fen Substation: Viewpoints 24 – 26 (**Figure 6.6** Context Baseline Views and Photoviews and **Figure 6.7** Photomontages (document reference 6.2.6)).

6.4.56 The selected viewpoints are highly localised and generally close to medium range. Long range viewpoints are included in this **Chapter 6** (document reference 6.1.6), in response to the feedback provided by the statutory consultees and to inform the Planning Inspectorate of the limited to very limited inter-visibility and inconsequential visual effects upon the distant receptors.

6.4.57 It is expected that not all of those viewpoints and associated receptors would experience significant visual effects. In order to focus on those viewpoints and visual receptors that have the potential to be significantly affected, a scoping out process has been applied and this is presented in **Appendix 6.8** (document reference 6.3.6.8). The scoping out process provides a preliminary assessment of the potential visual effects and helps shortlist those viewpoints and receptors that may be subject to potentially significant effects and should be assessed in detail. It also helps guide the selection of other visual receptors and whether those visual receptors should be assessed in detail. The selected viewpoints that have been shortlisted for detailed assessment are included in **Table 6.5** below.

Table 6.5 Shortlisted viewpoints

No.	Viewpoint name	Relevant part of the Proposed Development	Rationale
1.	Public Footpath SKym/2/1 and Sidebar Lane overbridge at Head Dike	Energy Park	Close range views. PRow receptor with the Public Footpath leading west along Head Dike, road receptors.
2.	Public Footpath Heck/15/1, near the north eastern edge of the Energy Park	Energy Park	Very close range views. PRow receptor with the Public Footpath following the edge of the Energy Park.

No.	Viewpoint name	Relevant part of the Proposed Development	Rationale
3.	Littleworth Drove, near White House Farm and The Barns.	Energy Park	Close range views from the west.
4.	Sidebar Lane, near a telecommunication mast	Energy Park	Close range view from the open section of Sidebar Lane.
5.	Lay by along the A17, near Garwick Cottage.	Not taken for detailed assessment. Refer to Appendix 6.8 (document reference 6.3.6.8).	
6.	Footway in East Heckington, near Six Hundred Farm House.	Energy Park	Close range view from the open section of the A17, illustrative for views from the settlement.
7.	Lay by along the A1121 near Skerth Bridge.	Not taken for detailed assessment. Appendix 6.8 (document reference 6.3.6.8).	
8.	Claydike Bank, Amber Hill	Energy Park	Medium range view from the east, residential receptors, and nearby PRowS.
9.	Bicker Drove at Bicker Fen	Not taken for detailed assessment. Appendix 6.8 (document reference 6.3.6.8).	
10.	Sutterton Drove near Sheperds Farm	Not taken for detailed assessment. Appendix 6.8 (document reference 6.3.6.8).	
11.	Public Footpath Ambe/5/1 near Chestnut House Farm	Not taken for detailed assessment. Appendix 6.8 (document reference 6.3.6.8).	
12.	Sutterton Drove near Sutterton Bridge	Not taken for detailed assessment. Appendix 6.8 (document reference 6.3.6.8).	
13.	Harrison's Drove, Other Route with Public Access	Not taken for detailed assessment. Appendix 6.8 (document reference 6.3.6.8).	
14.	Junction of Timm's Drove and Tilebarn Lane, West Low Grounds	Grid Connection	Medium to very close range views, road users.
15.	Junction of Bicker Drove and Vicarage Drove along Mill Drain	Grid Connection	Medium to very close range views, road users.
16.	Public Footpath Heck/2/2, east of Heckington	Not taken for detailed assessment. Appendix 6.8 (document reference 6.3.6.8).	
17.	Public Footpath Heck/3/1 near Littleworth Drove and Holme House	Not taken for detailed assessment. Appendix 6.8 (document reference 6.3.6.8).	
18.	Public Footpath SKym/1/1 and Cow Drove near Whitehouse Farm	Not taken for detailed assessment. Appendix 6.8 (document reference 6.3.6.8).	
19.	Public Footpath SKym/8/1, south western edge of South Kyme near Kyme Tower.	Not taken for detailed assessment. Appendix 6.8 (document reference 6.3.6.8).	
20.	Sidebar Lane, near Pattingden House, South Kyme Fen.	Energy Park	Medium range view from the north west, road users, residential receptors.

No.	Viewpoint name	Relevant part of the Proposed Development	Rationale
21.	Public Footpath Skym/2/1 footbridge at Head Dike, Fenside.	Energy Park	Medium range view from the west, various PRowWs.
22.	Claydike Bank, near Mob's Eye, Sutterton Fen.	Energy Park	Medium range view from the east, residential receptors, and nearby PRowWs.
23.	Brown's Drove, near No.14.	Energy Park	Medium range view from the south east, residential receptors.
24.	View from Vicarage Drove looking east	National Grid Bicker Fen Substation Extension Works and the Additional Works areas	Very close range views from a dead end minor lane.
25.	View from North Ing Drove looking north	National Grid Bicker Fen Substation Extension Works and the Additional Works areas	Distant view, road and residential receptors, and nearby PRowWs. Informative to the decision making process.
26.	View from Northorpe Road looking north	National Grid Bicker Fen Substation Extension Works and the Additional Works areas	Distant view, road and residential receptors, and nearby PRowWs. Informative to the decision making process.

Settlements

6.4.58 Based on the site survey work and conclusion of the PEIR Chapter 6 and subsequent additional site visit to inform this **Chapter 6** (document reference 6.1.6) it is considered that East Heckington is the only settlement relevant for the purpose of this LVIA.

6.4.59 Whilst the SZTV extends to the southern edge of South Kyme and north western edge of Swineshead Bridge, the site visits confirmed that views of the Energy Park, from within the settlements, are not gained. Views from the nearby PRowWs are distant and restricted with the selected viewpoints not considered to be significantly affected – see Viewpoint 19 (South Kyme), and Viewpoint 23 and Viewpoint 7 (Swineshead Bridge).

Transport Routes

6.4.60 The A17 and Sidebar Lane / the B1395 are the only two transport corridors offering close range views of the Energy Park. In addition, a number of viewpoints offering views of the Energy Park have been selected along Claydike Bank and Sutterton Drove at the PEIR stage, and for completeness are also included in this LVIA, along with the additional viewpoint requested by LCC's landscape advisor.

6.4.61 With regard to the Off-site Cable Route Corridor and National Grid Bicker Fen Substation Extension Works it is predicted that Timms Drove, Tilebarn Lane, North Drove, and Bicker Drove are the only public highways serving domestic properties, relevant to the assessment, and North Ing Drove / Northorpe Road of the construction phase – see Viewpoint 14, Viewpoint 15, and Viewpoint 9, and Viewpoint 25 and Viewpoint 26 respectively.

6.4.62 Other public highways are more distant, and views screened or considerably restricted by the vegetation along Longhedge Drove, Vicarage Drove and around the National Grid Bicker Fen Substation. As discussed before, views from the public highways located to the west of South Forty Foot Drain do not offer any views of the site land associated with this part of the Order limits, thus have been excluded for further assessment.

Railways

6.4.63 The railway line between Heckington to the west and Boston to the east is the only railway line in the local area. The proposed cable route crosses the railway corridor, and it is prudent to consider the potential visual effects brought about by the construction stage of the Off-site Cable Route Corridor.

SUSTRANS Cycle Network

6.4.64 SUSTRANS Cycle Route No. 1 is located to the north-east of the Energy Park, approximately 3.9km away at its closest point. It coincides with North Forty Foot Bank and is identified on the Policies Map of the *South East Lincolnshire Local Plan 2011-2036*. Views from North Forty Foot Bank were investigated in April and May to inform the PEIR Chapter 6 but judged to be too distant and restricted to offer any clear direct or prolonged views of the Energy Park. At the distance of approximately 3.8km at its closest point any views are unlikely to be significant.

Long Distance Trails & Promoted Walking Routes

6.4.65 The review of OS Explorer map 1:25,000 (**Figure 6.1a** and **Figure 6.1b**) (document reference 6.2.6) did not reveal any promoted long distance walking routes or National Trails in the study area around the Energy Park. During the site visit, however, it was noted that certain PRoWs in the western part of the study area are marked as the Heckington Fen Walk – see Viewpoint 17 and Viewpoint 21. This route is included in the Visual Receptors Plan **Figure 6.4** (document reference 6.2.6). With regard to the proposed Additional Works, the southern part of the study area is crossed by the promoted long distance path Cross Britain Way that leads along North Ing Drove. These routes are included in the Visual Receptors Plan **Figure 6.4** (document reference 6.2.6).

Public Rights of Way

6.4.66 As described in the preceding paragraphs there are a number of PRoWs in the vicinity of the Order limits. These have been analysed during the site surveys to establish the level of inter-visibility between these linear receptors and the land within the Order limits.

6.4.67 With regard to the Energy Park, Public Footpath Heck/15/1 is the most relevant albeit it is a relatively short dead end route, which terminates on the north western corner of the Energy Park with the remaining section of this PRoW disconnected by the intervening drains.

6.4.68 With regard to the southern part of the Order limits, south of the A17, there are a number of PRoWs that cross the grid connection area or abut its boundaries, or are

located in proximity to the National Grid Bicker Fen Substation Extension Works and "Additional Works": Public Footpath Swhd/14/1 leading from Swineshead Bridge along the railway line and then the South Forty Foot Drain; Public Bridleways: Swhd/13/1, Bick/1/1, and Doni/16/2 that follow the South Forty Foot Drain; and Public Footpaths Bick/2/1, Doni/19/1, and Doni/20/2 along Hammond Beck, and the promoted long distance path Cross Britain Way that leads along North Ing Drove.

6.4.69 Further away there are a number of PRowS in the western, northern, and eastern part of the study area. Views from these PRowS are illustrated by the selected viewpoints, as assessed in the following section of this LVIA.

6.4.70 Based on the site surveys and preliminary work carried out at the PEIR stage, and the scoping out process presented in **Appendix 6.9** (document reference 6.3.6.9), it has been considered that the following PRowS are relevant or informative to this LVIA:

- Public Footpath SKym/2/1 along the western section of Head Dike – see Viewpoint 1 and more distant Viewpoint 21.
- Public Footpath Heck/15/1 between Sidebar Lane and the Energy Park– see Viewpoint 2. The route partially coincides with Crab Lane but there is no continuation along the eastern section of Head Dike and along the northern edge of the Energy Park due to lack of access.
- Public Footpath Swhd/14/1 leading from Swineshead Bridge along the railway line.
- Public Footpath Ambe/4/1, at Claydike Bank, near Amber Hill, Sutterton Fen– see Viewpoint 22.

6.4.71 The following PRowS have been excluded from further assessment due to the very limited inter-visibility and/ or distance, as discussed in **Appendix 6.9** (document reference 6.3.6.9):

- Public Footpath SKym/8/1 on the southern edge of South Kyme – see Viewpoint 19.
- Public Footpath SKym/1/1 leading north from Head Dike to Whitehouse Farm – see Viewpoint 18 and Viewpoint 21.
- Public Footpaths Heck/3/1 and Heck/2/4 near Holme House and Hall Farm, leading from Littleworth Drove / Kyme Road to Heckington, and forming part of the promoted Heckington Fen Walk – see Viewpoint 17
- Public Footpath Heck/13/1, which leads south from Head Dike to Star Fen Drove across Fenside – Viewpoint 21.
- Public Footpaths Heck/1/1, Heck/2/1, Heck/2/2, and Heck/1033/1 on the eastern edge of Heckington, and forming part of the promoted Heckington Fen Walk – see Viewpoint 16.
- Public Bridleways: Swhd/13/1, Bick/1/1, and Doni/16/2 that follow the South Forty Foot Drain – see Viewpoint 9.
- Other Route with Public Access, which coincides with Harrison's Drove, Algarkirk Fen – see Viewpoint 13.
- Public Footpath Ambe/5/1 near Chestnut House Farm, see Viewpoint 11
- Public Footpaths Bick/2/1, along Hammond Beck, and the promoted long distance path that leads along North Ing Drove.

6.4.72 With regard to Public Footpath Bick/2/1, Doni/19/1, and Doni/20/2 along Hammond Beck, and the Cross Britain Way along North Ing Drove / Northorpe Road, views from these routes have been investigated on site. The screening provided by the mitigation planting that surrounds the National Grid Bicker Fen Substation to the east and south east and the vegetation along Vicarage Drove and Bicker Drove provide sufficient visual segregation; views are deflected to the north east and east, or south (when travelling

southbound). The tree vegetation along Vicarage Drove and context act to considerably mitigate any adverse effects. For that reason, the receptors associated with these particular PRowS are not expected to be subject to any significant visual effects during the construction / decommissioning and operational phases of the Proposed Development. This is confirmed by the detailed assessment of Viewpoint 25 and Viewpoint 26 presented in **Appendix 6.9** Detailed Visual Assessment (document reference 6.3.6.9).

6.4.73 The above listed PRowS excluded from the assessment include the aforementioned promoted Heckington Fen Walk. Based on the site visit and supported by the photographic evidence **Figure 6.6** (document reference 6.2.6) and assessment in **Appendix 6.9** (document reference 6.3.6.9), it transpires that views from this promoted route would be obscured and /or distant, and the majority of the route would not be affected by any visibility of the Proposed Development.

6.4.74 It is acknowledged that the remaining PRowS in the wider landscape may offer views towards the Energy Park or the Off-site Cable Route Corridor and National Grid Bicker Fen Substation Extension Works. Such views, however, would be distant and considerably restricted or screened. For that reason, it is considered that significant visual effects are unlikely to occur. This conclusion is supported by the assessment of the selected viewpoints included in **Appendix 6.9** (document reference 6.3.6.9).

Implications of Climate Change

6.4.75 The description of the NCA 46 The Fens provides the following advice with regard to climate change:

“Climate change and associated isostatic adjustment are causing sea levels to rise and are likely to result in increased storminess, sea level rise and increased threat of drought or floods. The challenges within the Fens include how the current system of drainage will be maintained, and dealing with the consequences of rising sea levels. Defra predictions indicate that by 2105 sea level will increase by 1.1m.

Fen soils and peats are already under threat through the desiccation and erosion of exposed soils. The increased incidence of droughts may mean soils become more vulnerable to damage through prolonged periods of exposure and loss and increased erosion through wind-blow and runoff; increased storminess may well lead to a reduction in soil fertility and thickness.”

6.4.76 The Proposed Development would bring about a net gain in the hedgerow resource within the Energy Park thus, would respond positively to the advice given in the ‘Landscape opportunities’ section of the NCA 46 The Fens, which recognises that habitat connectivity is one way of creating a resilient environment: **“Expand the total area of semi-natural habitat and increase connectivity to allow adaptation to climate change.”** This would also provide suitable habitats for pollinators, directly addressing the comments provided in the description of the NCA 46 The Fens: **“There has been a severe and corresponding decline in wild and managed pollinator numbers over the last 30 years. This trend is likely to continue. The problem is caused by loss of semi-natural habitat, the introduction of pathogens, the inappropriate use of agrochemicals and by climate change.”**

6.4.77 The Proposed Development has been designed to be resilient to a 1 in 1000-year plus climate change fluvial flood event with the hydraulic modelling enabling the reduction in panel heights from 4.5m (assessed at the PEIR stage) to a maximum of 3.5m

agl in the current design. Consequently, the lower edge of the solar modules would be at approximately 1-1.5m agl.

6.4.78 The ground beneath the solar modules would be sown with a suitable grass mix to suit the ground condition and local climate. It is envisaged that the grassland mix would be able to sustain any prolonged period of wetness or other changes in the local climate and would continue to characterise the land within the Order limits and local landscape. In addition, the proposed hedgerow planting would act as carbon sinks, assisting in sequestering more carbon than the structural vegetation currently present within the land associated with the Order limits.

6.4.79 The change from arable to permanent pastures, within the operational phase of the proposed Energy Park, would also assist in regulating soil erosion by limiting the potential for the soil to be compacted through machinery and reducing chemical run-off. Grazing will be introduced across the Energy Park. This would respond positively to the ecosystem services identified for the NCA 46 The Fens. As recognised in the description of the NCA 46 The Fens: **“In the future wind erosion of remaining dried peat soils will become increasingly significant.”** The proposed permanent pastures within the Energy Park are expected to reduce this risk.

6.4.80 A rise in temperatures may have an effect on the growth rates of vegetation. Slight increase in temperature would typically stimulate growth but prolonged periods of drought are likely to stump the vegetation. It is not possible, however, to predict to any degree of accuracy the future scenario as there are many variables that may affect the future baseline: water availability, temperature, resilience, or vulnerability to pathogens as their habitat suitability shifts or expands. In other words, the future growth of the existing and proposed vegetation is difficult to predict, but it is envisaged that it will continue to provide screening.

6.4.81 Whilst the proposed grassland mix and hedgerow planting may be sensitive to the increased frequency of extreme weather events, the selected species would be native and of local provenance / or a suitable substitution. These are considered to be better suited to the local soil and climate and are likely to adapt and be more resilient to the climate change. Any non-native species may be regarded as incongruous to the local landscape character, with the risk of becoming invasive due to the unknown aspects and effects of climate change.

6.5 ASSESSMENT OF LIKELY SIGNIFICANT EFFECTS

6.5.1 **Table 6.10**, included at the end of this **Chapter 6** (document reference 6.1.6), summarises the significant landscape and visual effects identified in this assessment.

Construction Phase

6.5.2 A description of the construction programme and construction activities is provided in **Chapter 4** of this ES (document reference 6.1.4). Construction activities with the potential to affect the landscape and visual amenity include site clearance and preparation including the construction of access tracks, movement of vehicles, the tall plant used for driving the supports for the solar arrays/tables, cranes used for lifting the substations/components into position and high-level activities when connecting to the existing National Grid Bicker Fen Substation. Construction would last 30 months from commencement and potentially would be carried out in phases, as illustrated on the Indicative Phasing Plan **Figure 4.3** (document reference 6.2.4).

6.5.3 Construction activity potentially evident on the land within the Order limits would include:

- Temporary construction compound, site office, cabins, and lighting.

- Removal of non-retained crop (if present at the time) and grassland, and protective fencing to retained structural vegetation: trees and hedgerows.
- Excavation, groundworks, and cable runs (including access tracks).
- Temporary storage of materials, vehicles, and machinery.
- Vehicle and plant movements.
- Construction of solar arrays, Onsite Substation and Energy Storage System, and extension to the National Grid Bicker Fen Substation and the Additional Works, etc.
- Reinstatement of areas following completion of the construction phase.

6.5.4 It is proposed to have a number of smaller temporary construction compounds dispersed across the Energy Park in order to facilitate movement and phasing construction (refer to **Figure 2.1** Indicative Site Layout). By doing so, the temporary construction compounds would be smaller and located at varying distances from the high sensitivity receptors, which would help reduce the potential adverse visual effects.

Landscape Elements within the Order limits

6.5.5 This part of the LVIA analyses the effect of the Proposed Development on those landscape elements and features including topography, vegetation, and other features that help characterise the land of the Order limits, and provide the structural integrity of its environment.

6.5.6 The existing landscape features and elements within and immediately surrounding the Order limits are identified on the Tree Survey (**Appendix 6.3**) (document reference 6.3.6.3) and are shown on **Figure 6.2 Landscape Strategy Plan** (document reference 6.2.6) along with the proposed planting. At this stage, it is envisaged that there would be no need to remove any existing vegetation along the delivery route or construction access that would fall outside of the boundary of the Order limits.

Effect upon the ground cover

6.5.7 The Proposed Development would introduce a new type of development into what is largely arable land. The areas of grassland within the Energy Park Site are generally limited to field margins and two fields within Mid-Tier Stewardship Scheme. According to **Chapter 8- Ecology and Ornithology** (document reference 6.1.8) these areas are currently dominated by coarse grass species of low conservation value although some of the drainage ditch banks grassland are a greater species diversity. There are very limited areas of grassland with the Cable Route Corridor, with the exception of one improved pasture field close to Bicker Fen Substation. There are a number of narrow strips of semi-improved grasslands bordering the network of drains around the arable fields. There is an area of semi-improved grassland on the Cable Route Corridor on the banks of the South Forty Foot Drain. The proposed location of the new substation at Bicker Fen Substation and the Additional Works area west of the Substation - AW2, are characterised by semi-improved grassland.

6.5.8 The existing ephemeral arable ground cover and grass margins are considered to be of medium value and low susceptibility, with arable crop being a managed vegetation replaced annually and the grassland easily reinstated. In terms of its sensitivity to the Proposed Development, it is considered to be low.

6.5.9 The existing ephemeral arable crop and that characterise the landscape of the Order limits would be removed. Following the completion of the construction stage, the area beneath and between the panels, along the perimeter fencing etc, and along the Cable Route Corridor within the Energy Park, would be sown with a suitable grassland mix suitable for grazing and to benefit biodiversity. The grassland mix is detailed in the oLEMP

and discussed in **Chapter 8-** Ecology and Ornithology (document reference 6.1.8). The proposed grassland within the Energy Park would be managed as permanent pasture. The existing grassland margins along ditches and dikes are expected to be retained and any disturbance would be temporary with the vegetation able to re-colonise the disturbed land. New grass margins would be sown with a species rich grassland mix (refer to **Figure 6.2** Landscape Strategy Plan for details) (document reference 6.2.6). With regard to the Off-site Cable Route Corridor, it is envisaged that post construction the land would be reinstated to its current condition and land use. Similarly, the decommissioning phase would seek to remove the infrastructure associated with the Energy Park, including the vehicular access off the A17, and reinstate the ground to its current agricultural land use. The underground cables associated with the Cable Route Corridor and the Off-site Cable Route Corridor are envisaged to remain in situ with the extension to the existing National Grid Bicker Fen Substation also retained.

6.5.10 Overall, the Proposed Development would replace the ephemeral vegetation with permanent grassland, resulting in a high beneficial magnitude of change. The effects are therefore considered to be **moderate beneficial**. The proposed Onsite Substation and Energy Storage System compound and the National Grid Bicker Fen Substation Extension Works would introduce areas of hardstanding, but these would be as small as practical and are dictated by technical requirements. Given the overall extent of the Proposed Development, this would represent a very small land intake.

Effect upon the topography

6.5.11 The level landform of the Order limits is considered to be uncomplicated, and forms part of the wider simple and level Fenland landscape. Its value is considered to be low, being widespread in this part of Lincolnshire, and not exhibiting any special visual relationship with any elevated landscape, as none are present in the locale. With limited changes in levels and simple landform, its susceptibility is also assessed as low, overall giving it a low sensitivity.

6.5.12 Due to the light footprint of the proposed solar panels and their character, the prevailing ground levels and indeed the perception of the landform would continue as currently experienced. The arrangement of the solar panels would reflect the level topography of the Order limits. Some ground disturbance would occur during the construction of the access track and foundations for the ancillary elements including the fencing, with the panels pile driven into the ground and not requiring any footings or foundations. The construction of the Cable Route Corridor and the Off-site Cable Route Corridor and the extension to the existing National Grid Bicker Fen Substation and the Additional Works areas would result in some disturbance, but the ground levels would be reinstated and these components of the Proposed Development would not require any engineering embankments or retaining walls. Minor embankment may be necessary to bound the proposed lagoon within the Onsite Substation and Energy Storage System compound, but these are expected to be up to 1m in height and temporary, albeit long term, and fully reversible.

6.5.13 In summary, any changes would be minimal and limited, with the area reinstated to the existing ground levels. The magnitude of change is therefore assessed as negligible resulting in **negligible neutral effects** across the landscape associated with the Order limits.

Drainage

6.5.14 The requirement for drainage works would be limited to the construction of a swale system at field edges to slow run-off and improve water quality) as set out in **Appendix 9.1 – Flood Risk Assessment** (document reference 6.3.9.1) that is submitted in support of the planning application. The swales would provide temporary

storage/attenuation and/or intercept potential surface water run-off and would be grass-seeded and maintained by mowing or grazing. The swales would be established at the beginning of construction works. There would be no change to existing drainage features, which would be protected during construction works.

Effect upon tree and hedge resource

6.5.15 None of the trees within the Order limits are protected by any Tree Preservation Order (TPO) or are part of a designed or designated landscape, as confirmed in **Appendix 6.3- Arboricultural Survey, Impact Assessment and Protection Plan** (document reference 6.3.6.3). Hedgerows and hedgerow trees/trees are present in the local landscape but are infrequent and field boundary vegetation is, generally speaking, not characteristic of the majority of the Fen landscape. For this reason, the value of tree and shrub vegetation is considered to be medium. In terms of susceptibility of hedgerow vegetation, this is considered to be medium to the proposals with this type of vegetation requiring some time to mature and establish as a landscape element. Trees, as a landscape feature, are generally more difficult to replace and require a longer time to establish, thus are judged to be of high susceptibility. Overall, the sensitivity of hedgerow vegetation is medium and tree vegetation is high.

6.5.16 With reference to **Appendix 6.3- Arboricultural Survey, Impact Assessment and Protection Plan** (document reference 6.3.6.3) none of the mature tree and hedgerow vegetation within the Energy Park would have to be removed. With regard the Off-site Cable Route Corridor & National Grid Bicker Fen Substation Extension Works there is potential that some tree and hedgerow vegetation (H11 and G32) may need to be removed at the point where the cable intersects with the railway line and the 'South Forty Foot Drain'. This, however, can be effectively avoided by directionally drilling beneath the area. In addition, the southern section of the Off-site Cable Route Corridor crosses hedgerow H22, and may require partial removal. This is considered to represent a fraction of the overall tree and hedgerow resource within the Order limit. Any risk from the construction work can be mitigated against through appropriate management strategy and protective fencing.

6.5.17 It is acknowledged that the final grid connection route is not determined, and a wider corridor is included. Any subsequent tree or hedgerow removal, however, is not considered to materially or significantly affect the overall tree and hedgerow resource within the Order limit.

6.5.18 In addition, as a direct consequence of the Additional Works areas south of the Substation – AW1, the western part of the plantation woodland W7 would be removed to accommodate the proposed AIS system. The proposed GIS system would also require partial removal of woodland W7, albeit to a lesser extent. The removed tree vegetation comprises a relatively recent man-made plantation associated with the planning permission for the Bicker Fen Substation which was approved in 2005 (under Boston Borough Council reference B/05/0046). Therefore, it is considered to be of low value, with its function as a landscape element somewhat reduced acting as a mitigation planting and not associated with the traditional field pattern. With high susceptibility of tree vegetation, its sensitivity is considered to be medium, rather than high as assessed in **Chapter 6** of the ES (document reference 6.1.6, APP-059) paragraph 6.5.15. It adds to the amount of tree cover in the landscape, helps interrupt and screen views, but is a recent man-made feature and only appreciated from a very limited number of public vantage points.

6.5.19 Given the proposed mitigation planting **Figure 6.2 Landscape Strategy Plan** (document reference 6.2.6), the Proposed Development would bring about a net gain in the hedgerow resource with the magnitude of change assessed as high and bringing about **major significant beneficial effects**. With regard to the tree resource, the currently proposed additional hedgerow trees (55 no.) and new woodland tree planting (4,200 sq

m) – on the northern edge of the Energy Park, would offset the tree removal (approx. 4,000 sq m) within woodland W7 and bring about a low beneficial degree of change, with effects moderate beneficial.

6.5.20 In addition, the Proposed Development would introduce a sizable orchard planting in the Energy Park – this is considered to be an enhancement wholly in keeping with the landscape character (paragraphs 6.6.10 – 6.6.12 of **Chapter 6** of the ES (document reference 6.1.6)).

Public Rights of Way (PRoWs)

6.5.21 PRoWs are considered to be high sensitivity receptors given their function as a recreational asset. Public Footpath Heck/15/1 that abuts the Energy Park to the north would be retained and not affected. This section of Public Footpath Heck/15/1, however, is inaccessible. Travelling north east from Sidebar Lane, Public Footpath Heck/15/1 ends near the north western corner of the Energy Park, at the closest drain with no footbridge present, and the remaining section of the PRoW is not accessible. The pedestrian connectivity between Sidebar Lane / western most section of Public Footpath Heck/15/1 and the remaining section of Public Footpath Heck/15/1 that skirts the northern edge of the Energy Park, would be reinstated to link the currently inaccessible eastern section of the PRoW. As part of the enhancement strategy a permissive path is being proposed across the western part of the Energy Park. Collectively, this is considered to be a considerable enhancement to the recreational resource that would bring a high magnitude of change resulting in **major significant beneficial effects**.

Effect upon water features

6.5.22 The Proposed Development has been designed to allow a separation buffer between the existing drains and ditches, and the proposed infrastructure. The proposed culverts would not affect the physical alignment of the retained features albeit they will obscure their presence locally. In short, the existing water features would be retained and not physically affected, and thus **no significant effects** are predicted.

Landscape Character Effects

National Character Area 46 The Fens

6.5.23 With reference to **Appendix 6.7- Scoping Out – Landscape Character Receptors** (document reference 6.3.6.7), it is predicted that the construction stage would cause some limited adverse effects, but such effects would **not be significant** given the geographical extent of this NCA 46 The Fens, its characteristics, and temporary nature of the construction phase.

North Kesteven Landscape Character Assessment and Landscape Character Assessment of Boston

6.5.24 The published assessment identifies that the Energy Park falls within The Fens Regional Landscape Character Type and the Fenland Landscape Character Sub-Area. The Off-site Cable Route Corridor, and National Grid Bicker Fen fall within the LT A Reclaimed Fen and more specifically its LCA A1 Holland Reclaimed Fen. The construction phase will cause some limited and temporary, and geographically localised effects upon the host landscapes.

6.5.25 Within the boundaries of the Order limit the landscape would be subject to a high degree of change and **major significant short-term temporary effects** during the construction stage.

6.5.26 With reference to the more distant parts of the host landscapes, the degree of direct and indirect change arising from the construction work within the Order limit would be reduced, but would influence the perception of the ruralness to a degree. The landform, landscape structure and scale of field patterns, and distant open views are unlikely to be affected to any noticeable degree given the nucleated form of the Energy Park, the relatively narrow and linear corridor of the Off-site Cable Route Corridor, and the extent of the construction areas associated with the National Grid Bicker Fen Substation Extension Works and Additional Works areas.

6.5.27 Temporary, short-term construction activities would locally affect the tranquillity, but this would be very localised and would diminish beyond the immediate area around the Order limit. It is predicted that a medium degree of change and **moderate not significant landscape character effects** would be experienced within the landscape located approximately 500m away from the boundary of the Order limit. Beyond this distance, the degree of change is expected to diminish to low resulting in **minor, thus not significant, effects**.

Visual Receptors

6.5.28 The assessment of temporary effects brought about by the construction phase is based on the assessment carried out *in situ* and assessment of the selected viewpoints.

Representative and Illustrative Viewpoints

6.5.29 The following **Table 6.6** provides a summary of the predicted effects experienced by static visual receptors at Viewpoints 1 –26. Detailed assessment is included in **Appendix 6.9** (document reference 6.3.6.9).

Table 6.6 Summary of assessment of the selected viewpoints – construction phase

No.	Viewpoint name	Relevant part of the Proposed Development	Predicted effects
1.	Public Footpath SKym/2/1 and Sidebar Lane overbridge at Head Dike	Energy Park	Yes, major significant short-term and temporary.
2.	Public Footpath Heck/15/1, near the north eastern edge of the Energy Park	Energy Park	Yes, major significant short-term and temporary.
3.	Littleworth Drove, near White House Farm and The Barns.	Energy Park	No significant effects.
4.	Sidebar Lane, near a telecommunication mast	Energy Park	Yes, major significant short-term and temporary.
5.	Lay by along the A17, near Garwick Cottage.	Not taken for detailed assessment. No significant effects.	
6.	Footway in East Heckington, near Six Hundred Farm House.	Energy Park	No significant effects.
7.	Lay by along the A1121 near Skerth Bridge.	Not taken for detailed assessment. No significant effects.	
8.	Claydike Bank, Amber Hill	Energy Park	No significant effects.

No.	Viewpoint name	Relevant part of the Proposed Development	Predicted effects
9.	Bicker Drove at Bicker Fen		Not taken for detailed assessment. No significant effects.
10.	Sutterton Drove near Sheperds Farm		Not taken for detailed assessment. No significant effects.
11.	Public Footpath Ambe/5/1 near Chestnut House Farm		Not taken for detailed assessment. No significant effects.
12.	Sutterton Drove near Sutterton Bridge		Not taken for detailed assessment. No significant effects.
13.	Harrison's Drove, Other Route with Public Access		Not taken for detailed assessment. No significant effects.
14.	Junction of Timm's Drove and Tilebarn Lane, West Low Grounds	Grid Connection	Yes, major significant short-term and temporary.
15.	Junction of Bicker Drove and Vicarage Drove along Mill Drain	Grid Connection	Yes, major significant short-term and temporary.
16.	Public Footpath Heck/2/2, east of Heckington		Not taken for detailed assessment. No significant effects.
17.	Public Footpath Heck/3/1 near Littleworth Drove and Holme House		Not taken for detailed assessment. No significant effects.
18.	Public Footpath SKym/1/1 and Cow Drove near Whitehouse Farm		Not taken for detailed assessment. No significant effects.
19.	Public Footpath SKym/8/1, south western edge of South Kyme near Kyme Tower.		Not taken for detailed assessment. No significant effects.
20.	Sidebar Lane, near Pattingden House, South Kyme Fen.	Energy Park	No significant effects.
21.	Public Footpath Skym/2/1 footbridge at Head Dike, Fenside.	Energy Park	No significant effects.
22.	Claydike Bank, near Mob's Eye, Sutterton Fen.	Energy Park	No significant effects.
23.	Brown's Drove, near No.14.	Energy Park	No significant effects.
24.	View from Vicarage Drove looking east	National Grid Bicker Fen Substation Extension Works and the Additional Works areas	No significant effects.
25.	View from North Ing Drove looking north	National Grid Bicker Fen	No significant effects.

No.	Viewpoint name	Relevant part of the Proposed Development	Predicted effects
		Substation Extension Works and the Additional Works areas	
26.	View from Northorpe Road looking north	National Grid Bicker Fen Substation Extension Works and the Additional Works areas	No significant effects.

Settlements

6.5.30 Views of the construction activities will be gained in close to medium range from within East Heckington, with the proposed access track leading from the A17 and with the construction Phase 4 and Phase 5 coinciding with the southern part of the Energy Park. Views of the construction activities within Phase 2 and Phase 3 would be distant and of very limited visual influence. Given the proximity, the construction works would bring about a high degree of change and **major adverse significant visual effects.**

6.5.31 It is important to recognise that the phasing of the construction works allows the construction traffic and movement to move across the proposed Energy Park thus limiting its visual envelope and influence over the residential receptors. The construction work associated with Phase 1, which includes the access from the A17, is expected to be of relatively short duration.

Transport Routes

6.5.32 Based on the assessment of static viewpoints the construction work would be perceptible to a varying degree by the nearby road receptors. Views from the A17 would be largely fleeting and channeled by the built form in East Heckington and roadside vegetation. Where the road is more open, views north towards the Energy Park would be oblique to very oblique and fleeting. It is predicted that on the approach from the west, broadly speaking between Viewpoint 5 and Elm Grange, the construction work would be perceptible but inconsequential in visual terms due to the speed of travel, distance, movement along the A17, and screening. Further east, views become temporarily open between Rose Cottage / Rainbow Cottage and Home Farm. This section is approximately 100m long and views are increasingly oblique to right angle, regardless of the direction of travel. Views are expected to be inconsequential and negligible as the south western corner of the Energy Park would be located some 400m away.

6.5.33 Further south east, the vegetation around Home Park, Blacksmiths Cottage, and Rectory Farm House screens views out and the receptors would be unaware of the construction phase. Past Rectory Farm House, views open up again until one reaches No. 1 and No. 2 Rectory Cottage. This section of the road, approximately 250m, would be affected by the construction work associated with Phase 1: construction of the access road. Therefore, the magnitude of change is expected to be high. This, coupled with the low sensitivity of the A class road receptor, would result in temporary and geographically highly **localised moderate and not significant effects.**

6.5.34 It is expected that as receptors travel between Park View Cottage (eastern end of East Heckington) and the vegetated entrance to Rakes Farm, their views would be influenced by the construction work in the south eastern part of the Energy Park – Phase 5. The magnitude of change is considered to be medium and **effects minor**, as the construction zone would not be located immediately near the traveling receptor and seen in oblique to right angle views, regardless of the direction of travel.

6.5.35 Further south east, the Off-site Cable Route Corridor crosses the A17, but this section of the road benefits from a vegetative cover around Rakes Farm and Swineshead House, which would screen the majority of the construction works. Any breaks in this vegetation, created to accommodate the Off-site Cable Route, are expected to be relatively limited. By comparison, the cable corridor for the Viking Link project, currently evident in the landscape to the north east of the Energy Park, is approximately 35m wide. It is expected that the proposed Off-site Cable Route Corridor would be of similar width, if not narrower. On that basis, it is predicted that the fleeting views would capture some activities within this part of the Order limit, but they would be inconsequential and negligible, resulting in negligible effects. Similarly, any views of the construction stage associated with the National Grid Bicker Fen Substation Extension Works and the Additional Works areas, as gained from public highways in the southern part of the study area are judged to be negligible at most.

6.5.36 With regard to the views gained along Sidebar Lane, these would be largely limited to its southern most and central section, as one travels north from the A17 with the intervening dwellings and garden vegetation interrupting the inter-visibility. Views would be largely open, slight oblique to right angle and would continue to be theoretically gained until one reaches the edge of South Kyme. In reality, however, views from the norther section of Sidebar Lane would be distant and heavily interrupted by the intervening blocks of woodland. It is predicted that the travelling receptors would first gain clear and evident views of the construction work as they drive past No. 91 – No. 94 Clay Bank / the B1395 (northern extension to Sidebar Lane) and the track leading to Mill Green Farm. Such views would be gained approximately 1km away. Whilst the views would be open, they would be gained in transition with the large scale and open landscape reducing the perception of the construction works. It is predicted that as one approaches Head Dike views become increasingly influenced and the effects may become high resulting in **major significant effects**.

6.5.37 In other words, it is predicted that the significant visual effects are likely to be experienced along Sidebar Lane between the A17 and Head Dike only. Views from the more distant sections of this road would be gained, but they would not be significant.

6.5.38 With regard to the minor lanes located to the north, north east, and east of the Energy Park, it is predicted that the construction stage would not bring about any significant visual effects. Whilst views would be gained, the intervening hedgerows and trees prevent from gaining any prolonged or clear views, and with the distance the visibility of the construction stage would be considerably reduced. Most importantly, Claydike Bank, is partially enclosed by a mature hedgerow that screens views towards the Energy Park. This is the closest road to the north east of the Energy Park, with Viewpoint 8 and Viewpoint 22 located along the less enclosed sections of this road, and at the closest possible locations that offer views towards the Energy Park. At both locations the effects associated with the construction phase have been judged to be **minor (Appendix 6.9)** (document reference 6.3.6.9). Views from the more distant sections of Claydike Bank, and indeed other roads located further to the north, north east, and east would be affected to a lesser degree. In summary, none of the roads located in the north eastern quadrant of the study area have been assessed as experiencing any significant effects.

6.5.39 Roads in the western and south western part of the study area, beyond Sidebar Lane and the A17 have been scoped out from the detailed assessment, due to lack of inter-visibility with the area defined by the Order limit.

Railways

6.5.40 The site surveys revealed that the northern part of the Proposed Development: the Energy Park, is not perceptible in views from the landscape to the south of the A17. Therefore, it is predicted that the construction stage of the Energy Park and northern section of the Off-site Cable Route Corridor would cause **no significant effects** upon the rail users.

6.5.41 Since the PEIR stage, the Off-site Cable Route Corridor has been refined to a relatively narrow corridor. Close range views of the construction works are expected to be gained from the railway line between Swineshead Bridge to the east and across the eastern part of Great Hale Fen, south of Hall Farm / Abbey parks, where Great Hale Fen joins the South Forty Foot Drain. This would represent an approximately 2km long section of the railway line with approximately 1km of the railway line passing directly through the Off-site Cable Route Corridor. Beyond that distance it is predicted that any visual effects would not be significant.

Public Rights of Way

6.5.42 As described in paragraph 6.4.69 a number of PRowS have been identified as being informative to this **Chapter 6** (document reference 6.1.6). Based on the preliminary and detailed assessment of the selected viewpoints (**Appendix 6.8** (document reference 6.3.6.8) and **Appendix 6.9** (document reference 6.3.6.9)) it is concluded that the majority of receptors associated with these PRowS would not be subject to any significant visual effects. The following **Table 6.7** provides a succinct summary of the predicted effects.

Table 6.7 Summary of assessment of PRowS users – construction phase

PRow	Corresponding Viewpoint	Are the predicted effects significant?
Public Footpath SKym/2/1 along the western section of Head Dike	Viewpoint 1	Yes, major significant short-term and temporary.
Public Footpath Heck/15/1, northern edge of the Energy Park (including the eastern section of this PRow, assuming reinstated connectivity)	Viewpoint 2	Yes, major significant short-term and temporary.
Public Footpath Swhd/14/1, Swineshead Bridge along the railway line and the South Forty Foot Drain	~	Yes, major significant short-term and temporary. Only experienced along the approximately 1.2km long section where the Off-site Cable Route Corridor crosses Gibbet Hills near Swineshead Bridge and the PRow. Significant visual effects are predicted to occur along this particular section of the PRow due to the very close range views. Beyond this distance the intervening features: Swineshead

PRoW	Corresponding Viewpoint	Are the predicted effects significant?
		Bridge to the east and embankment associated with the South Forty Foot Drain would screen or heavily restrict views of any construction works.
Public Footpath Ambe/4/1, at Claydike Bank, near Amber Hill, Sutterton Fen	Viewpoint 22	No significant effects , due to the distance and screening.

6.5.43 With regard to the currently inaccessible eastern section of Public Footpath Heck/15/1, the above assessment assumes that the PRoW would be reopened, and connectivity reinstated, before the start of the construction work – as a worst case scenario.

6.5.44 It transpires that the construction stage of the Proposed Development would result in some **major significant adverse visual effects**. Such effects, however, would be highly localised and limited to certain static viewpoints and section of the identified PRoWs and largely experienced in very close to close range views, of up to 500m away. Viewpoint 14 is an exception as it offers wide panoramic views across the large proportion of the proposed Off-site Cable Route Corridor. The significant visual effects are assessed on the basis that the construction stage may be carried out simultaneously for the whole of the grid connection route, thus would be visible across much of the available panorama.

Operation

Landscape Elements

6.5.45 The operational stage of the Proposed Development is not expected to bring about any additional effects beyond those already assessed during the constructions phase, and therefore **no significant effects**.

Landscape Character Effects

National Character Area 46 The Fens

6.5.46 The Proposed Development would influence the character of the NCA 46 The Fens to a degree. Whilst being long term the temporary nature of the Proposed Development is unlikely to alter the pattern, scale, and its other characteristics to any significant degree.

North Kesteven Landscape Character Assessment and Landscape Character Assessment of Boston

6.5.47 The Proposed Development is likely to cause geographically limited yet significant effects upon the character of The Fens Regional Landscape Character Type and the associated Fenland Landscape Character Sub-Area, and the LT A Reclaimed Fen and more specifically its LCA A1 Holland Reclaimed Fen. The effects on the landscape character would include the physical and visual effects of the Energy Park. To a lesser degree the Proposed Development would also affect those landscapes that are located beyond the boundary of the Order limit and study area depending on the degree of intervisibility, and the surrounding context. Such effects are not considered to be significant.

6.5.48 The local landscape is considered to have a degree of capacity to accommodate the Proposed Development without any effects upon its large scale character. The Energy

Park would change the perception of the primary land use from arable farmland to a large scale solar energy scheme, thus influencing locally the character of Heckington Fen. The agricultural land use and ruralness of the landscape, however, would be retained in parts through the grassland grazing and additional hedgerow planting. The sense of openness would decrease locally, but this would be limited to the Energy Park itself.

6.5.49 The proposed solar panels would be of low profile, being up to 3.5m in height, and would echo the level landform across the Energy Park site. This in turn would respond to the topography of the surrounding area and allow this characteristic of the local landscape to prevail. Due to this low lying profile of the solar modules, and sensitive location of the proposed Onsite Substation and Energy Storage System, the Proposed Development would not affect views of any features or elements that may be regarded as eye catching or familiar to local residents such as vegetation along the southern edge of South Kyme and Kyme Tower, and indeed views of more distant church spires. The small scale woodland blocks, dispersed across Heckington Fen and surrounding fenland landscape would continue to perform their function as attractive landscape elements and skyline features. The addition of small scale hedgerow trees and a small scale woodland on the northern edge of the Energy Park would echo this pattern, and are considered in keeping with the character of the local landscape. By avoiding development close to the A17 and Sidebar Lane, and the settlement of East Heckington, the undeveloped fields would continue to provide rural context experienced by a variety of receptors.

6.5.50 The very limited inter-visibility with the landscape to the west of Sidebar Lane and lack of any evident inter-visibility with the landscape south of the A17 would help preserve the character, appreciation, and ruralness of the fenland landscape associated with Ewerby Fen, Howell Fen, Fenside, Star Fen, Great Hale Fen, and Little Hale Fen. The sense of openness and remoteness would not be redefined or affected to any noticeable degree.

6.5.51 Similarly, the landscape to the north, north east, and east would be primarily affected by the change to its perceptual and experiential qualities. Whilst the SZTV plans indicate large patches of theoretical visibility, in reality the perception of the Energy Park would be surprisingly limited. The sense of openness and ruralness, and big skies, coupled with the level landform would considerably diminish the scale and mass of the proposed Energy Park or any perceived contrast with the grain and scale of the landscape.

6.5.52 The published Historic Character of The County of Lincolnshire identifies the area within the Order limits as falling within the Regional Character Area 9 The Fens. The time depth of the landscape is evident through its field pattern defined by drains/ ditches and large scale arable fields: **“These fields are typically rectilinear, with boundaries formed from drains rather than hedges. The drains form a network of channels, from individual field drains, to large, navigable artificial channels such as the Forty-Foot Drain. The flat landscape is relieved by occasional small blocks of woodland, raised roads and tracks, and the occasional isolated farmstead. (...) The few trees to be found in the area are also found near and around the farmsteads and there are no hedges in evidence as field boundaries. The overall effect of the flatness of the landscape, and the lack of tall objects therein, is to emphasise the impact of the sky. This is above all a lonely landscape, with wide unrelieved areas of flat farmland standing in stark contrast to magnificent cloudscapes and dark night skies.”**

6.5.53 The proposed Energy Park is respectful of the existing field pattern and its defining features – field drains and ditches. The layout of the Energy Park utilises the existing field subdivision, would not require their consolidation, and the legibility of the historic landscape and its evolution: **“The hierarchy of drainage channels in the area remains largely unchanged from its nineteenth-century form, although individual field drains are much reduced in number”** would remain legible with the Energy Park

in place. The planned enclosure of the Fenland and the associated Historic Landscape Character Zone Witham Fens would be retained and would continue to characterise the landscape.

6.5.54 Whilst energy infrastructure, in general, is identified as a 'driver for change' there would be no need for any overhead cables or pylons, with the proposed grid connection being underground. The previously considered overhead cables and poles, discussed at the PEIR stage, have been omitted due to their potential significant visual and landscape effects. The National Grid Bicker Fen Substation Extension Works and the infrastructure in the Additional Works areas, if an AIS system is pursued, would read as being part of the existing substation facilities and are considered to be inconsequential in landscape character terms.

6.5.55 If a GIS system is pursued, this would be housed within a building – a single large scale shed of industrial design approximately 15m high to ridge and would occupy a smaller footprint than the AIS design option. Large to medium scale industrial design sheds are already present in this local area – for example at the Triton Knoll Substation (Viewpoint 9B, **Figure 6.6**, document reference 6.2.6) and the Viking Link development (Viewpoint 14A, **Figure 6.6**, document reference 6.2.6, visible behind the existing Substation). In character terms, the proposed infrastructure would 'fit' into the overall pattern of development in this area, would form a logical and justifiable extension, and would not alter the existing character of the landscape.

6.5.56 Interestingly, the published Historic Character of The County of Lincolnshire is somewhat supportive of the energy infrastructure and states that: **"The threat of climate change has also led to the construction of wind farms across the area, with notable examples at Gedney Marsh and Bicker Fen. These can have a significant visual impact within the landscape, but do not typically damage historic landscape elements, such as field boundaries or standing archaeology"**.

6.5.57 Other elements associated with the historic landscape characterization, such as the settlement pattern and inter-visibility between isolated farmsteads, identified in the published Historic Character of The County of Lincolnshire would be preserved.

6.5.58 On balance, the operational stage of the Proposed Development would bring about highly localised significant landscape character effects within the Energy Park itself.

6.5.59 Beyond the immediate context and close range visibility, approximately up to 500m away from the Energy Park, the degree of change upon the character of the local landscape and its understanding would quickly diminish to a low magnitude of change resulting in **minor, thus not significant, effects**.

6.5.60 This would translate to **minor and not significant effects** upon the host landscape:

- The regional LCT The Fens and the associated Fenland Landscape Character Sub-Area – *North Kesteven Landscape Character Assessment*.

6.5.61 Once the proposed mitigation planting has established it is predicted that the proposed Energy Park would not manifest itself visually in the landscape, being largely screened and compartmentalised. Therefore, the perception of the ruralness, remoteness and tranquillity would be restored. In terms of landscape pattern, the Energy Park would be still present. Although hedgerows and tree planting across Heckington Fen are currently limited, as discussed before and suggested by LCC's landscape advisor, historically this area included a higher proportion of structural planting, including vegetation along field ditches. Therefore, it is considered that such mitigation planting would be in keeping with the local landscape. With the reduction in the visibility of the Energy Park, the magnitude of change is considered to be low with **effects minor** at Year 5.

Visual Receptors

Representative and Illustrative Viewpoints

6.5.62 The below **Table 6.8** provides a summary assessment of the predicted effects experienced by static receptors during the operational phase of the Proposed Development at Year 1. Further details can be found in **Appendix 6.8** (document reference 6.3.6.8) and **Appendix 6.9** (document reference 6.3.6.9).

Table 6.8 Summary assessment of the selected viewpoints – operational phase

No.	Viewpoint name	Relevant part of the Proposed Development	Rationale
1.	Public Footpath SKym/2/1 and Sidebar Lane overbridge at Head Dike	Energy Park	Yes, major significant long-term and reversible.
2.	Public Footpath Heck/15/1, near the north eastern edge of the Energy Park	Energy Park	Yes, major significant long-term and reversible.
3.	Littleworth Drove, near White House Farm and The Barns.	Energy Park	No significant effects.
4.	Sidebar Lane, near a telecommunication mast	Energy Park	Yes, major significant long-term and reversible.
5.	Lay by along the A17, near Garwick Cottage.	Not taken for detailed assessment. No significant effects.	
6.	Footway in East Heckington, near Six Hundred Farm House.	Energy Park	Yes, major significant long-term and reversible.
7.	Lay by along the A1121 near Skerth Bridge.	Not taken for detailed assessment. No significant effects.	
8.	Claydike Bank, Amber Hill	Energy Park	No significant effects.
9.	Bicker Drove at Bicker Fen	Not taken for detailed assessment. No significant effects.	
10.	Sutterton Drove near Sheperds Farm	Not taken for detailed assessment. No significant effects.	
11.	Public Footpath Ambe/5/1 near Chestnut House Farm	Not taken for detailed assessment. No significant effects.	
12.	Sutterton Drove near Sutterton Bridge	Not taken for detailed assessment. No significant effects.	
13.	Harrison’s Drove, Other Route with Public Access	Not taken for detailed assessment. No significant effects.	
14.	Junction of Timm’s Drove and Tilebarn Lane, West Low Grounds	Grid Connection	No significant effects as the Off-site Cable Route Corridor would be underground.
15.	Junction of Bicker Drove and Vicarage Drove along Mill Drain	Grid Connection	No significant effects as the Off-site Cable Route Corridor would be underground.

No.	Viewpoint name	Relevant part of the Proposed Development	Rationale
16.	Public Footpath Heck/2/2, east of Heckington		Not taken for detailed assessment. No significant effects.
17.	Public Footpath Heck/3/1 near Littleworth Drove and Holme House		Not taken for detailed assessment. No significant effects.
18.	Public Footpath SKym/1/1 and Cow Drove near Whitehouse Farm		Not taken for detailed assessment. No significant effects.
19.	Public Footpath SKym/8/1, south western edge of South Kyme near Kyme Tower.		Not taken for detailed assessment. No significant effects.
20.	Sidebar Lane, near Pattingden House, South Kyme Fen.	Energy Park	No significant effects.
21.	Public Footpath Skym/2/1 footbridge at Head Dike, Fenside.	Energy Park	No significant effects.
22.	Claydike Bank, near Mob's Eye, Sutterton Fen.	Energy Park	No significant effects.
23.	Brown's Drove, near No.14.	Energy Park	No significant effects.
24.	View from Vicarage Drove looking east	National Grid Bicker Fen Substation Extension Works and the Additional Works areas	No significant effects.
25.	View from North Ing Drove looking north	National Grid Bicker Fen Substation Extension Works and the Additional Works areas	No significant effects.
26.	View from Northorpe Road looking north	National Grid Bicker Fen Substation Extension Works and the Additional Works areas	No significant effects.

Settlements

6.5.63 It is predicted that receptors within East Heckington, including the nearby residents along Sidebar Lane, will be subject to significant visual effects at Year 1 – refer to the viewpoint assessment for Viewpoint 4 and Viewpoint 6 (**Appendix 6.9**) (document reference 6.3.6.9).

Transport Routes

6.5.64 With regard to the users of the A17, it is predicted that the operational stage of the Energy Park will bring about a low degree of change (magnitude), with the area associated with the Energy Park being static, and would result in **minor thus not significant visual effects**. This is on the basis that views would be gained at speed, with movement and noise being characteristic features of the experience, with a variety of views gained along the road.

6.5.65 In comparison, and consistent with the effects identified during the construction phase, the users of Sidebar Lane would be subject to significant visual effects. This would be limited to its central and southern section, broadly speaking between the A17 and Head Dike only.

6.5.66 Receptors travelling along the minor roads that traverse the medium to long range landscape around the Proposed Development are unlikely to experience any significant visual effects, and thus **no significant effects** are expected.

Railways

6.5.67 The operational stage of the Proposed Development is unlikely to cause any significant visual effects, and thus **no significant effects** are expected.

Public Rights of Way

6.5.68 The below **Table 6.9** provides a summary of the predicted effects experienced by PRow users during the operation phase of the Proposed Development. Further details can be found in **Appendix 6.8** (document reference 6.3.6.8) and **Appendix 6.9** (document reference 6.3.6.9).

Table 6.9 Summary assessment of PRow users – operational phase

PRow	Corresponding Viewpoint	Are the predicted effects significant?
Public Footpath SKym/2/1 along the western section of Head Dike	Viewpoint 1	Yes, major significant long-term and reversible .
Public Footpath Heck/15/1, northern edge of the Energy Park (including the eastern section of this PRow, assuming reinstated connectivity)	Viewpoint 2	Yes, major significant long-term and reversible .
Public Footpath Swhd/14/1, Swineshead Bridge along the railway line and the South Forty Foot Drain	~	No significant effects as the Off-site Cable Route Corridor would be underground.
Public Footpath Ambe/4/1, at Claydike Bank, near Amber Hill, Sutterton Fen	Viewpoint 22	No significant effects , due to the distance and screening.

6.5.69 With regard to the currently inaccessible eastern section of Public Footpath Heck/15/1, the above assessment assumes that the PRow would be reopened, and connectivity reinstated, before the start of the operational phase of the Energy Park.

6.5.70 With regard to the permissive path, proposed in the western part of the Energy Park, it is acknowledged that the degree of change would be high and effects **major adverse significant**, due to proximity, nature of view, and extent of the Energy Park visible in the views gained along this route. With time, views from the western section of the permissive path, as it skirts the western edge of the Energy Park, would be interrupted, and eventually screened by the maturing perimeter hedgerows. Where the perimeter hedgerows terminate at the internal ditches, views into the interior of the Energy Park would be gained with the infrastructure easily appreciated. Such views would be highly localised and limited to two locations along the northern section of the perimeter route.

6.5.71 Notwithstanding the above, it is also possible that Public Footpath Heck/15/1 may be re-opened by LLC, at some point in the future, and during the operational phase of the Energy Park. It is worth mentioning that the proposed mitigation planting with the addition of hedgerow trees and a small scale block of woodland would, with time, reduce the degree of change and visual effects. The precise degree of change and scale of effects is difficult to predict, given the lack of detail, but may vary from moderate adverse to negligible depending on the effectiveness of the maturing hedgerow and trees. Highly localised views into the interior of the Energy Park would continue to be gained where the perimeter hedgerows terminate at the internal ditches. Such views would be restricted, glimpsed and the overall user experience associated with Public Footpath Heck/15/1 would not be significantly affected.

Decommissioning

6.5.72 It is predicted that the decommissioning stage of the Proposed Development is likely to bring about similar and comparable effects to those assessed at the construction stage, with regard to movement, activities within the Order limits, and human presence in the landscape, albeit these would be more restricted given the presence of the mature perimeter hedgerow. It is important to note, however, that at its completion the decommissioning phase would reverse the identified adverse visual effects. Most importantly, the identified adverse effects upon the local landscape would also be reversed.

6.5.73 The predicted effects of the decommissioning stage upon the identified viewpoints are described in **Appendix 6.9**- Detailed Visual Assessment (document reference 6.3.6.9). It is important to note that the proposed 'barn' associated with the GIS system within the Additional Works area south of the Substation would not be decommissioned, and would be retained by NGET. Based on the assumption that the residual adverse effects identified during the operational phase form the future baseline, the decommissioning work would generally bring about a beneficial change to the views, removing the visible parts of the Proposed Development, with the retained vegetation continuing to exert positive influence over the landscape character and visual amenity – refer to the assessment of Viewpoint 2, 4, and 6.

6.5.74 With regard to the PRoWs assessed as subject to major adverse and significant effects during the operational phase: Public Footpath SKym/2/1 along the western section of Head Dike and Public Footpath Heck/15/1, northern edge of the Energy Park (including the eastern section of this PRoW, assuming reinstated connectivity), the user experience of the associated receptors would be improved. The decommissioning works would remove the fencing, CCTV, solar modules, and the more distant Onsite Substation and Energy Storage System from the views. Given the presence of the mature perimeter hedgerows along the north western and northern edge of the Energy Park, the degree of change is likely to be low beneficial with effects moderate beneficial, and not significant. With regard to the permissive path, this route would be closed to the public once the Energy Park is decommissioned.

6.5.75 Most importantly, the adverse significant effects upon the landscape character within the Energy Park and its immediate environs would be reversed with the land restored to agricultural use. The retained mature hedgerows within the Energy Park would exert positive influence over the local landscape. Overall, the decommissioning stage would bring about a high beneficial degree of change and major beneficial significant effects upon the Fens Regional Landscape Character Type and the associated Fenland Landscape Character Sub-Area (limited to the Energy Park and its immediate context of approx. 500m only).

6.6 MITIGATION AND ENHANCEMENT

Mitigation by Design

6.6.1 The proposed layout incorporates a number of built-in mitigation measures such as reduction in the extent of the proposed solar modules and refinements to the layout to provide physical separation from the nearby residential and commercial properties, and public highways.

6.6.2 The hydraulic modelling carried out post PEIR stage resulted in height of the solar modules to be reduced from 4.5m to 3.5m. This is considered to be an improvement and considerably reduces the degree of change and visual effects, when compared with the PEIR Chapter 6. In addition, the proposed Onsite Substation and Energy Storage System are now located centrally within the Energy Park, increasing the distance to nearest residential receptors and the settlement of East Heckington. The built form and tree vegetation associated with Six Hundreds Farm provide context and screening, helping to assimilate this part of the Proposed Development.

6.6.3 Offsets from internal and boundary watercourses and vegetation are proposed to safeguard these features and to ensure continued maintenance access. Existing trees are relatively sparse within the Order limits, but these would be protected throughout construction and operation of the Proposed Development (**Appendix 6.3 Arboricultural Survey, Impact Assessment and Protection Plan**) (document reference 6.3.6.3).

6.6.4 The proposed National Grid Bicker Fen Substation Extension Works are proposed to be located toward the south western corner of the existing National Grid Bicker Fen Substation. The context and surrounding tree vegetation to the east and south east greatly reduce the anticipated landscape character and visual effects.

6.6.5 The following embedded mitigation measures are incorporated into the layout of the Proposed Development:

- Offsets from internal and boundary watercourses and vegetation are proposed to safeguard these features and to ensure continued maintenance access.
- Increased offset from properties No. 1 – No. 12 Council House in East Heckington, by approximately 250m, reducing the visual effects.
- Decrease in height of the solar modules from 4.5m to 3.5m in the northern and eastern parts and 3m in the western and southern parts of the Energy Park i.e., that closest to the residential receptors. Thus, reducing the visibility of the proposed solar modules.
- The proposed 132kV substations have been removed from the design of the Energy Park.
- Change to a single centralised Onsite Substation and Energy Storage System, increasing the distance to nearest residential receptors and the settlement of East Heckington.

- The indicative 132kV overhead cable route has been removed from the design of the Energy Park to reduce the degree of change and avoid potentially significant effects upon the higher number of receptors.
- Utilising the existing built form and tree vegetation associated with Six Hundreds Farm to provide context and screening, thus helping to assimilate this part of the Proposed Development into the landscape and views.
- The National Grid Bicker Fen Substation Extension Works are proposed to be located towards the south western corner of the existing National Grid Bicker Fen Substation. The context and surrounding tree vegetation greatly reduce the anticipated landscape character and visual effects.
- Use of metal mesh perimeter fencing (so-called '358' welded mesh panels to BS 1722-14 Fences) instead of palisade fencing. Optional, the use of deer style fencing could be considered, but given the distance from the closest residential receptors it is unlikely that such design change would reduce the anticipated scale of effects.
- Should a GIS system be used within the Additional Works area south of the Substation, then it is recommended that the barn is painted muted matt and recessive green colour, based on the palette of greens prevailing in the local landscape, such as RAL6002 Leaf Green, or similar. It is recommended that the roof of the barn is painted in light grey / goose grey as in medium to long range views it would largely be visible against the sky.

Additional Mitigation

6.6.6 Most importantly, based on the preliminary findings of this **Chapter 6** (document reference 6.1.6) a new hedgerow of varied height would be proposed along the perimeter of the Energy Park, including Public Footpath Heck/15/1, as illustrated by **Figure 6.2 Landscape Strategy Plan** (document reference 6.2.6). The strategy for the proposed hedgerows is to generally maintain them at approximately 3m – 3.5m height, depending on the location in order to break the line of sight between the nearby visual receptors and the interior of the proposed Energy Park. In addition, certain sections of the new perimeter hedgerow would be allowed to grow taller, to approximately 5m in height to resemble overgrown hedgerows, and echo the character and screening potential of the existing hedgerows present along Six Hundreds Drove, as evidenced in **Appendix 6.3- Arboricultural Survey, Impact Assessment and Protection Plan** (document reference 6.3.6.3).

6.6.7 As mentioned before, additional hedgerow trees and an area of woodland tree planting is also being proposed along the northern edge of the Energy Park to offset any tree removal within woodland W7 and to provide a modest yet invaluable net gain to the tree resource.

6.6.8 Whilst some views over the maturing hedgerows may still exist, at year 5, the developing hedgerow line would help to visually disintegrate the proposed Energy Park, substantially diminishing its scale and horizontal extent. The proposed Energy Park would be highly compartmentalised into smaller parcels. Whilst this would impede the distant views currently gained across Heckington Fen, when observed from close range, it is envisaged that with distance the proposed planting would read as being part of the overall vegetated horizon. In addition to the embedded mitigation, the following additional embedded mitigation measures are proposed to avoid and/or limit effects on the visual resource:

- An outline Construction Environmental Management Plan (oCEMP) (document reference 7.7).
- An outline Landscape and Ecology Management Plan (oLEMP) (document reference 7.8).

- An outline Decommissioning and Restoration Plan (oDRP) (document reference 7.9).

6.6.9 Collectively, the above listed documents incorporate measures to ensure that any disturbance or effects upon the visual receptors during the construction, operation and decommissioning of the Proposed Development are avoided and / or reduced as far as is practically possible.

Enhancements

6.6.10 A small area of land between Head Dike and Public Footpath Heck/15/1 would be retained as open and utilised for habitat enhancements. This modest offset would increase the separation distance between the northern edge of the Energy Park and visual receptors to the north and north west, further reinforced by the hedgerow planting. This area would be partially planted with new woodland tree species.

6.6.11 As part of the Proposed Development a new community orchard (2.15ha) is being proposed in the south western corner of the Energy Park, see **Figure 2.1** and **Figure 6.2** (document reference 6.2.6). This would be located immediately to the north of Elm Grange School. It is envisaged that the community orchard would not offer any additional areas of car parking in order to limit vehicular movement, disturbance to the adjacent school and residents at Elm Grange, and avoid any additional congestion along the A17. It is envisaged that the existing PRowS in the local area that lead towards the Energy Park, and permissive path in the western part of the Energy Park, would provide sufficient incentive and pedestrian connectivity.

6.6.12 Traditional orchards form one of the key features of the NCA 46 The Fens: **"... numerous orchards around Wisbech..."** with the description of the NCA 46 stating: **"Extensive orchards and associated windbreaks are located in the Wisbech area to create a distinctive though dwindling landscape cover."** The main function of the proposed orchard would be to create a new amenity space for the local community. There are, however, opportunities to incorporate orchard varieties that include heritage species or are of local provenance to this part of Lincolnshire, and to preserve the gene pool, particularly in the context of climate change. The description of NCA 46 The Fens is clear on this matter and states within its 'Ecosystem services' section that: **"Genetic diversity: There are opportunities to preserve old varieties of fruit from traditional orchards for their taste, their genetic information and possible future crop breeding for resistance to diseases, for instance."**

6.6.13 The proposed orchard also directly addresses the Statement of Environmental Opportunity SEO1 'Manage the agricultural landscape and soils which allow the Fens to be a major provider of food and horticultural produce, while seeking to enhance opportunities for biodiversity', associated with the NCA 46 The Fens, which states: **"... promoting the planting of new orchards of mixed fruit trees to encourage bees where they are absent, and promoting the expansion of traditional shelterbelts around orchards."**

6.6.14 In addition, Public Footpath Heck/15/1 would remain open and useable throughout construction, operation and decommissioning of the Proposed Development. As explained in the previous paragraphs of this LVIA, the currently inaccessible eastern section of the PRow would be re-linked with Crab Lane reinstating access to the countryside. Public access would be further enhanced with a permissive path from Heck/15/1 providing a circular route across the western part of the Energy Park and towards the Elm Grange School and new community orchard. The new permissive path would result in a 4km route around the Energy Park, looping back to join Crab Lane.

6.7 CUMULATIVE AND IN-COMBINATION EFFECTS

6.7.1 This section of the LVIA presents an assessment of the potential cumulative landscape and visual effects of the Proposed Development when considered in the context of other solar developments, and other infrastructure identified as relevant and informative to the decision making process.

6.7.2 Cumulative effects arise as a result of more than one development being present, under construction or operation, giving rise to combined effects, so that the cumulative developments influence the landscape character and/ or are experienced at proximity where they may have a greater incremental effect.

6.7.3 With respect to cumulative effects on landscape resources the GLVIA3 states in its paragraph 7.19:

“Cumulative landscape effects may result from adding new types of change or from increasing or extending the effects of the main project when it is considered in isolation. For example, the landscape effects of the main project may be judged of relatively low significance when taken on their own, but when taken together with the effects of other schemes, usually of the same type, the cumulative landscape effects may become more significant.”

6.7.4 With respect to visual matters, cumulative effects arise where the visibility of other proposals overlaps with that of the Proposed Development to incur an incremental effect. Cumulative effects relate to landscape character and visual amenity. Within cumulative assessment, the proposals may be viewed in combination, in succession, or sequentially. The methodology and policy background are presented in the aforementioned **Chapter 2** and not repeated here. Further details are provided in **Appendix 6.1 LVIA Methodology** (document reference 6.3.6.1).

6.7.5 With reference to **Chapter 2**, the intra-project effects are excluded from this LVIA, as none are predicted.

6.7.6 The first step in the cumulative assessment is an initial assessment to ascertain which of the landscape character receptors, representative viewpoints and principal visual receptors have the potential to undergo significant cumulative effects as result of the addition of the Proposed Development. It should be noted that even if the Proposed Development is assessed to have a significant effect on a landscape character receptor or view, when judged in isolation, it does not necessarily follow that the cumulative effect will also be significant.

6.7.7 A significant cumulative effect will occur where the addition of the Proposed Development to other existing and proposed solar developments or other energy related infrastructure would result in a landscape character or view that is defined by the presence of more than one solar farm and/or energy related infrastructure, and is characterised primarily by such typology so that other patterns and components are no longer definitive.

6.7.8 As with the assessment of effects of the Proposed Development in isolation, the significance of cumulative effects is determined through a combination of the sensitivity of the landscape receptor or view and the magnitude of change upon it. The sensitivity of landscape receptors and views is the same in the cumulative assessment as in the assessment of the Proposed Development, when judged in isolation. However, the cumulative magnitude of change is assessed in a different way, as described in the methodology sub-section and **Appendix 6.1** (document reference 6.3.6.1).

6.7.9 To avoid unnecessary repetition, the landscape character and visual receptors that were found to undergo no effect or minor adverse effects as a result of the Proposed

Development by itself have not been included in the cumulative assessment. In other words, where the Proposed Development would have no effect or a limited effect on these receptors, there is no potential for it to lead to a significant cumulative effect, in combination with other development, regardless of the typology.

6.7.10 **Appendix 2.3- Cumulative Sites Long List and Shortlist** (document reference 6.3.2.3) presents the identified long list of existing and/or approved developments within the search area and sets out the threshold criteria applied to identify the preliminary shortlist of existing and/or approved developments for each environmental topic. **Table 2.8 Details of Shortlist Cumulative Schemes** lists the shortlisted cumulative schemes, but these need to be judged against the criteria set in **Table 2.7: Zone of Influence Identified for the Cumulative Effects Assessment**, which identifies a 3km radii study area from Order limits.

6.7.11 With regard to the identified solar energy developments, **Figure 2.2a Cumulative Sites - Shortlisted (Regional Context)** is helpful and illustrates the location and relationship between the Order limits and other schemes in the wider regional context. Due to the distance, the following cumulative schemes are excluded from this LVIA, all falling outside of the 3km study area:

- Located near Gainsborough:
 - West Burton Solar Project (Sites 1,2,3 & 4).
 - Gate Burton Energy Park.
 - Cottam Solar Project (Cottam 1,2 & 3).
 - Tillbridge Solar Project - EN010142.
- Located near Stamford:
 - Mallard Pass Solar Farm
- Located near Grantham:
 - Temple Oaks - EN010126.
- Located near Sleaford:
 - Land at Ewerby Thorpe – Screening 14/1034/EIASCR.
 - Land to the North of White Cross Lane – Approved 19/0863/FUL.
 - Land South Of Gorse Lane Silk Willoughby Approved - 19/0060/FUL.
 - Land at Ewerby Thorpe – Screening 14/1034/EIASCR.
- Located near Boston:
 - Boston Alternative Energy Facility - EN010095.
 - Onshore scoping boundary of indicative grid connection search area for Outer Drowsing Offshore Wind Generating Station [EN010130].

6.7.12 The majority of the above listed cumulative schemes are not located within the NCA 46 The Fens, thus there is no potential for any significant cumulative landscape character effects on the national level, or indeed local level. The cumulative schemes around Gainsborough are located within the NCA 45 Northern Lincolnshire Edge with Coversand or the NCA 48 Trent and Belvoir Vales. The schemes around Stamford and Grantham fall within the NCA 75 Kestevens Uplands.

6.7.13 It is acknowledged that the Land at Ewerby Thorpe – Screening 14/1034/EIASCR and scoping boundary of the indicative onshore grid connection search area for Outer Drowsing Offshore Wind Generating Station [EN010130] fall on the edge of the preliminary 5km study area defined during the PEIR stage, and fall within the NCA 46 The Fens. The assessment carried out in Section 6.5 of this LVIA concluded that there is no potential for the Proposed Development to bring about any significant landscape character effects beyond the Order limits, when judged in isolation. It is considered that the two aforementioned cumulative schemes are located sufficiently distant with no inter-visibility

between the schemes, for the intervening landscape to be significantly affected. The location of these two schemes in relation to the Order limits and identified landscape character areas is illustrated on **Figure 6.3 Landscape Character Plan** (document reference 6.2.6).

6.7.14 With regard to the local landscape, there are a number of solar energy schemes that are located within the 3km study area. These are shown on **Figure 2.2b Cumulative Sites - Shortlisted (Local Context)** and **Figure 6.3 Landscape Character Plan** (document reference 6.2.6), with the following three cumulative schemes considered to be relevant for the purpose of this cumulative assessment:

- Land at Little Hale Fen – Screening 21/1337/EIASCR.
- Vicarage Drove [B/21/0443].
- Land West of Cowbridge Road, Bicker Fen, Boston- Full Planning Application awaiting decision [H04-0849-22 – South Holland District Council] [B/22/0356 – Boston Borough Council].

Land at Little Hale Fen 21/1337/EIASCR

6.7.15 With regard to Land at Little Hale Fen 21/1337/EIASCR, this scheme is located in the south western quadrant of the study area, south of the A17 and west of the South Forty Foot Drain. As evidenced in the previous section of this LVIA, this particular landscape is characterised by lack of any inter-visibility with the Energy Park to the north east, or the Off-site Cable Route Corridor and National Grid Bicker Fen Substation Extension Works located to the east of the South Forty Foot Drain.

6.7.16 The scheme at Land at Little Hale Fen 21/1337/EIASCR does fall within the same host landscape as the proposed Energy Park, the regional LCT The Fens and the associated Fenland Landscape Character Sub-Area, as identified in the *North Kesteven Landscape Character Assessment*. Therefore, in character terms the landscape would experience an intensification of energy related infrastructure which would alter its landscape pattern to a degree and increase its complexity. It is important to note, however, that the remaining landscape factors that collectivity help define the character of the Fenland would not be redefined to any noticeable degree or would not be changed at all. The perception of skyline, inter-visibility, and landform would remain unchanged. The large scale of the landscape would also prevail with the Proposed Development in place. The relatively isolated location of the Land at Little Hale Fen 21/1337/EIASCR serves to reduce any adverse landscape character effects upon the wider environs.

Vicarage Drove [B/21/0443] and Land West of Cowbridge Road, Bicker Fen, Boston [B/22/0356]

6.7.17 These two cumulative schemes are located in very close proximity to the existing National Grid Bicker Fen Substation and Bicker Fen Wind Farm. Once constructed this part of the LT A Reclaimed Fen and more specifically its LCA A1 Holland Reclaimed Fen – *Landscape Character Assessment of Boston*, would see an intensification of energy related infrastructure. As recognised in Section 6.4 and Section 6.5 of this LVIA, this part of the local landscape is visually and physically segregated from the proposed Energy Park with the underground Off-site Cable Route Corridor and National Grid Bicker Fen Substation Extension Works being the only relevant components of the Proposed Development.

Construction Phase

Landscape Character Effects

6.7.18 The exact timing of the construction stage of the shortlisted cumulative schemes is not known. Assuming that the construction stage of these schemes overlaps with the

construction of the proposed development, there would be highly localised high degree of change resulting in **major significant effects** across parts of West Low Grounds and Bicker Fen. For this to happen, however, the construction work on the Vicarage Drove scheme [B/21/0443] and scheme at Land West of Cowbridge Road, Bicker Fen, Boston [B/22/0356] would have to coincide with the construction of the Off-site Cable Route Corridor and National Grid Bicker Fen Substation Extension Works.

6.7.19 The significant effects would diminish as the construction work on the Off-site Cable Route Corridor progresses south, as the activities would be increasingly seen and associated with the construction of the two aforementioned schemes. In other words, the construction phase would be read as being part of the cumulative schemes and landscape associated with the existing National Grid Bicker Fen Substation and Bicker Fen, rather than the more rural fenland landscape of West Low Grounds.

6.7.20 The construction activities associated with the Energy Park, if occurring simultaneously with the two cumulative schemes located to the south, is expected to bring about a low degree of change and **minor cumulative effects**.

6.7.21 The construction activities associated with the Land at Little Hale Fen 21/1337/EIASCR would be inconsequential in character terms.

Visual Effects

6.7.22 With regard to the potential cumulative visual effects, it is predicted that some of the receptors located in the south eastern quadrant of the study area may experience some change to their views. This would apply to the receptors located across West Low Grounds and Bicker Fen, but not necessarily those in East Low Grounds or Gibbet Hills near Swineshead Bridge due to the separation provided by the intervening field boundary vegetation and embankment along South Forty Foot Drain.

6.7.23 It is noted that this part of the study area is characterised by a very sparse network of PROWs and a very limited number of road and residential receptors. Views from Public Bridleway Bick/1/1 and Public Footpath Swhd/14/1 are screened by the previously mentioned embankment at South Forty Foot Drain. Therefore, these receptors would not experience any inter-visibility along this route, apart from the occasional and glimpsed views where the PROW joins local tracks, such as near Viewpoint 9. Such visibility is considered to be inconsequential with the degree of change negligible and effects negligible neutral, thus not significant (**Appendix 6.9 Detailed Visual Assessment**) (document reference 6.3.6.9).

6.7.24 Similarly, views from Public Footpath Bick/2/1 would be filtered and interrupted and any construction work and movement associated with the proposed Off-site Cable Route Corridor and National Grid Bicker Fen Substation Extension Works would read as being part of the construction phase of either the Vicarage Drove scheme [B/21/0443] or scheme at Land West of Cowbridge Road, Bicker Fen, Boston [B/22/0356]. The magnitude of change is considered to be negligible with effects negligible neutral, thus not significant.

6.7.25 The same would apply to the nearby road and residential receptors, particularly as their visual amenity is already affected by the existing large scale energy infrastructure and properties tend to be heavily enclosed by tree vegetation. It is expected that any potential magnitude of change would be negligible with negligible effects.

6.7.26 The assessment provided at **Appendix 6.9 Detailed Visual Assessment** (document reference 6.3.6.9), predicted that the receptors present at Viewpoint 14 would potentially experience **major significant visual effects** due to the proximity and extent of the works. It does not follow, however, that in cumulative terms such effects would be significant. The construction work on the Vicarage Drove scheme [B/21/0443] and scheme

at Land West of Cowbridge Road, Bicker Fen, Boston [B/22/0356] would be located further away and partly behind the Off-site Cable Route Corridor. Any change experienced at this location would relate to the Proposed Development, seen in isolation rather than as part of a cumulative situation. With regard to Viewpoint 15, it is predicted that the degree of change would be high and effects **major and significant**.

Operational Phase

Landscape Character Effects

6.7.27 The addition of the Proposed Development into the landscape, which is already influenced by the large scale infrastructure, and assuming that the identified cumulative schemes are present, would locally reinforce the presence of energy related infrastructure. This co-location has a number of advantages in landscape character terms: it utilises parts of the local landscape that have already been altered and influenced by these man-made features, the landscape scale is large and has already been augmented, the landscape pattern has also been already changed to a degree, with the perception of the countryside and ruralness, and its openness already decreased, particularly across Bicker Fen.

6.7.28 The remaining parts of the local landscape, i.e., outside of the cumulative sites and their immediate environs upon which they exert significant effects, would not be affected and would retain its predominantly agricultural character.

6.7.29 With regard to the perceptual and experiential qualities of the host landscape, there is no inter-visibility between the Proposed Development and the two cumulative schemes located to the north. Therefore, the Proposed Development would be seen in isolation and not as part of the cumulative situation. The Proposed Development would bring about landscape character effects by virtue of being present in the local area rather than its visibility or effects upon the perceptual and experiential qualities of the host landscape.

6.7.30 When discussing the degree of change it is important to reiterate that the Off-site Cable Route Corridor would not have any landscape character effects during its operational stage, with the National Grid Bicker Fen Substation Extension Works largely screened and forming part of the existing facilities. It would not be seen in isolation and would fall within the same visual envelope and parcel of land.

6.7.31 Therefore, the landscape between the Energy Park and the identified cumulative sites located across Bicker Fen would retain its agricultural character and would serve as a physical and visual buffer. In line with the assessment carried out in Section 6.5, there would be some localised significant effects, but these would relate to the Energy Park itself. The landscape of the LT A Reclaimed Fen and more specifically its LCA A1 Holland Reclaimed Fen (within the *Landscape Character Assessment of Boston*) would be subject to a low degree of change and **minor not significant effects**.

Visual Effects

6.7.32 Given the lack of inter-visibility with the Energy Park it is evident that, in cumulative terms, the National Grid Bicker Fen Substation Extension Works would be the only relevant component of the Proposed Development. However, based on the very limited visibility of this particular part of the Order limits, context, and the existing vegetative screening it is predicted that any change to the views gained from the nearby minor roads would be negligible with negligible effects. To reiterate, views from the north, east, and south of the substation are expected to be either completely screened or also inconsequential and negligible, thus not significant.

6.7.33 No other visual receptors, public highways, static viewpoints, or PRoWs, including those located in close proximity to the Energy Park, have been considered relevant due to the distance or screening.

6.8 SUMMARY

Introduction

6.8.1 This **Chapter 6** (document reference 6.1.6) has sought to determine the effects upon the identified landscape character and visual receptors, and determine whether such effects would be significant. In line with best practice and requirements of the *EN-1* and *EN-3* it considers the effects during the construction, operation, and decommissioning stages.

6.8.2 The Proposed Development encompasses the Energy Park, including the Onsite Substation and Energy Storage System and Cable Route Corridor, Off-site Cable Route Corridor, and National Grid Bicker Fen Substation Extension Works, and the Additional Works areas south and west of the Substation – AW and AW2. The Energy Park comprises solar modules infrastructure, onsite cabling, ancillary infrastructure, and the Onsite Substation and Energy Storage System, and is located to the north of the A17 across Heckington Fen. The Off-site Cable Route Corridor and National Grid Bicker Fen Substation Extension Works are located south of the A17 and within Bicker Fen.

6.8.3 This **Chapter 6** (document reference 6.1.6) has considered the Proposed Development in terms of its maximum parameters: the extent and height of the solar modules, substation elements, and fencing, as described within **Chapter 4**. This **Chapter 6** (document reference 6.1.6) has also sets out the main policies and guidance relevant to landscape and visual matters based on the *Overarching National Policy Statement for Energy (EN-1)* and *National Policy Statement for Renewable Energy Infrastructure (EN-3)* and their current drafts. In addition, policies provided in the *National Planning Policy Framework (NPPF)* and *Planning Practice Guidance (PPG)* have also been reviewed to inform the approach and assessment work. The provided assessment is based on established best practice methodologies.

6.8.4 The following **Table 6.10** Table of Summary Effects, Mitigation and Residual Effects identifies only those receptors that have been assessed as subject to significant effects and takes into account the proposed mitigation measures.

Baseline Conditions

6.8.1 The Proposed Development is not located within any national statutory protected landscape designations. It does not lie within any regional or local non-statutory landscape designations, either. It is not considered to be of high value in the context of the NPPF.

6.8.2 The landscape associated with the Order limits falls within National Character Area 46 The Fens.

6.8.3 The *North Kesteven Landscape Character Assessment*, prepared by David Tyldesley and Associates for North Kesteven District Council, has been reviewed. The Energy Park has been identified as falling within the medium sensitivity The Fens Regional Landscape Character Type in the east of the district, and the Fenland Landscape Character Sub-Area.

6.8.4 The Off-site Cable Route Corridor, and National Grid Bicker Fen Substation Extension Works has been identified as being located within the medium sensitivity Landscape Type (LT) A Reclaimed Fen and more specifically its Landscape Character Area

(LCA) A1 Holland Reclaimed Fen, as identified within the *Landscape Character Assessment of Boston* (2009) published by Boston Borough Council.

6.8.5 With regard to the visual receptors, receptors in East Heckington, road users associated with Sidebar Lane and the A17, the railway line between Heckington to the west and Boston to the east, and nearest PRoWs have been considered relevant, based on the preliminary assessment carried out at the PEIR stage and as confirmed in this **Chapter 6** (document reference 6.1.6).

6.8.6 The assessment has reviewed the local PRoWs, located at varying distances and offering a variety of views. Those that have been judged to be relevant to this process have been listed below:

- Public Footpath SKym/2/1 along the western section of Head Dike.
- Public Footpath Heck/15/1 between Sidebar Lane and the Energy Park.
- Public Footpath Swhd/14/1 leading from Swineshead Bridge along the railway line.
- Public Footpath Ambe/4/1, at Claydike Bank, near Amber Hill, Sutterton Fen.

6.8.7 Based on the preliminary works, further desktop and field work, and consultation, a total of 23 no. of viewpoints have been selected. They include locations discussed with North Kesteven District Council, Boston Borough Council, and Lincolnshire County Council during the consultation process through the Scoping Report, and PEIR stage. The identified viewpoints are not intended to cover every possible view of the Proposed Development, but rather they have been selected to be representative of a range of receptor types.

Likely Significant Effects

Construction Phase

6.8.8 This **Chapter 6** (document reference 6.1.6) has concluded that the construction of the proposed Energy Park would bring about **major beneficial significant effects** upon the PRoW resource and hedgerow vegetation. No other landscape elements or features associated with the Order limits would be significantly affected by the Proposed Development during its construction phase.

6.8.9 In terms of landscape character, it has been assessed that the construction stage would result in temporary short term **significant adverse effects** upon the landscape associated with the Order limits and its immediate context up to approximately 500m away. Beyond this distance, the effects have been assessed as diminishing to **minor, thus not significant, effects**. Therefore, the wider surrounding landscape of The Fens Regional Landscape Character Type and the Fenland Landscape Character Sub-Area and the LT A Reclaimed Fen and more specifically its LCA A1 Holland Reclaimed Fen, would be subject to **minor not significant effects**.

6.8.10 The assessment has concluded that the construction stage of the Proposed Development would bring about **major and significant effects** upon the receptors at East Heckington, road users present along the highly localised sections of Sidebar Lane, those traveling along the railway line west from Swineshead Bridge as they cross the Off-site Cable Route Corridor and its immediate area, and users of Public Footpath SKym/2/1, Public Footpath Heck/15/1 (including its reconnected eastern section), and Public Footpath Swhd/14/1.

6.8.11 The identified effects have been considered to be highly localised and limited to certain static viewpoints and sections of the identified PRoWs and largely experienced in very close to close range views, of up to 500m away.

Operational Phase

6.8.12 The Energy Park of the Proposed Development has been assessed as potentially causing geographically highly limited yet **significant adverse effects** upon the character of The Fens Regional Landscape Character Type and the associated Fenland Landscape Character Sub-Area (identified in the published *North Kesteven Landscape Character Assessment*), within the Energy Park itself and its immediate landscape context of up to approximately 500m.

6.8.13 Beyond the immediate context, the approximate 500m distance from the Energy Park, the effects upon the character of the local landscape: the regional LCT The Fens and the associated Fenland Landscape Character Sub-Area, have been assessed **minor, thus not significant**.

6.8.14 No other landscape character receptors have been assessed as subject to significant adverse effects during the operational phase of the Proposed Development.

6.8.15 With regard to the visual receptors, the operational stage of the Proposed Development has been considered to bring about significant adverse effects upon the receptors within East Heckington, road users travelling along the central and southern section of Sidebar Lane and the following PROWs:

- Public Footpath SKym/2/1.
- Public Footpath Heck/15/1 (including its reconnected eastern section).
- Permissive path within the Energy Park.

6.8.16 In terms of static receptors, the following viewpoints have been assessed as potentially experiencing significant adverse effects during the operational phase of the Energy Park:

- Viewpoint 1.
- Viewpoint 2.
- Viewpoint 4.
- Viewpoint 6.

6.8.17 No other visual receptors have been assessed as experiencing significant adverse effects during the operational phase of the Proposed Development.

Mitigation and Enhancement

6.8.18 The Proposed Development has incorporated a number of built-in mitigation measures developed through the iterative design process and additional mitigation measure addressing the assessment of potential significant effects carried out in this **Chapter 6** (document reference 6.1.6). From an LVIA point of view the following mitigation measures are considered to be the most relevant:

- Embedded mitigation measures:
 - Offsets from internal and boundary watercourses and vegetation are proposed to safeguard these features and to ensure continued maintenance access.
 - Increased offset from properties No. 1 – No. 12 Council House in East Heckington, by approximately 250m, reducing the visual effects.
 - Decrease in height of the solar modules from 4.5m to 3.5m in the northern and eastern parts and 3m in the western and southern parts of the Energy Park i.e., that closest to the residential receptors. Thus reducing the visibility of the proposed solar modules.

- The proposed 132kV substations have been removed from the design of the Energy Park.
- Change to a single centralised Onsite Substation and Energy Storage System, increasing the distance to nearest residential receptors and the settlement of East Heckington.
- The indicative 132kV overhead cable route has been removed from the design of the Energy Park to reduce the degree of change and avoid potentially significant effects upon the higher number of receptors.
- Utilising the existing built form and tree vegetation associated with Six Hundreds Farm to provide context and screening, thus helping to assimilate this part of the Proposed Development into the landscape and views.
- The National Grid Bicker Fen Substation Extension Works are proposed to be located towards the south western corner of the existing National Grid Bicker Fen Substation. The context and surrounding tree vegetation greatly reduce the anticipated landscape character and visual effects.
- Use of metal mesh perimeter fencing (so-called '358' welded mesh panels to BS 1722-14 Fences) instead of palisade fencing. Optional, the use of deer style fencing could be considered, but given the distance from the closest residential receptors it is unlikely that such design change would reduce the anticipated scale of effects.
- Additional mitigation measure:
 - New hedgerow of varied height proposed along the perimeter of the Energy Park. The majority of the proposed perimeter hedgerows would be generally maintained at approximately 3m – 3.5m height,
 - Taller section of perimeter hedgerow, approximately 5m in height, have been introduced to resemble overgrown hedgerows, and echo the character and screening potential of the existing hedgerows present along Six Hundreds Drove
 - Should a GIS system be used within the Additional Works area south of the Substation – AW1, then it is recommended that the barn is painted muted matt and recessive green colour, based on the palette of greens prevailing in the local landscape, such as RAL6002 Leaf Green, or similar. It is recommended that the roof of the barn is painted in light grey / goose grey as in medium to long range views it would largely be visible against the sky.
 - Additional area of woodland tree planting and new hedgerow trees on the northern edge of the Energy Park to balance out the tree removal in woodland W7.

6.8.19 In addition, the following enhancements have been incorporated into the Proposed Development:

- A small area of habitat enhancements between Head Dike and Public Footpath Heck/15/1. The area would remain open and undeveloped increasing the separation distance between the northern edge of the Energy Park and visual receptors to the north and north west.
- New community orchard (2.15ha) has been proposed in the south western corner of the Energy Park, as a recreational and amenity resource for the local community.
- The currently inaccessible eastern section of Public Footpath Heck/15/1 would be re-linked with Crab Lane reinstating access to the countryside.

- Public access would be further enhanced with an approximately 4km long permissive path from Heck/15/1 providing a circular route across the western part of the Energy Park and towards the Elm Grange School and new community orchard.

Cumulative and In- Combination Effects

Construction Phase

6.8.20 The review of the potential cumulative schemes has included schemes at varying distances and located in varied landscape contexts. Only three cumulative schemes have been considered relevant to this **Chapter 6** (document reference 6.1.6), based on their geographical relationship with the Proposed Development, context, and inter-visibility:

- Land at Little Hale Fen – Screening 21/1337/EIASCR.
- Vicarage Drove [B/21/0443].
- Land West of Cowbridge Road, Bicker Fen, Boston- Full Planning Application awaiting decision [H04-0849-22 – South Holland District Council] [B/22/0356 – Boston Borough Council].

6.8.21 This **Chapter 6** (document reference 6.1.6) has concluded that there is potential for significant cumulative landscape character effects upon the LT A Reclaimed Fen and more specifically its LCA A1 Holland Reclaimed Fen. For such significant effects to occur, however, the construction work on the Vicarage Drove scheme [B/21/0443] and scheme at Land West of Cowbridge Road, Bicker Fen, Boston [B/22/0356] would have to coincide with the construction of the Off-site Cable Route Corridor and National Grid Bicker Fen Substation Extension Works.

6.8.22 With regard to the cumulative visual effects, the assessment has concluded that receptors present at one viewpoint, Viewpoint 15, would be potential subject to significant effects due to the proximity to other cumulative schemes and extent of the proposed Off-site Cable Route Corridor.

Operational Phase

6.8.23 This **Chapter 6** (document reference 6.1.6) has concluded that there is no potential for any significant cumulative landscape character effects upon the LT A Reclaimed Fen and more specifically its LCA A1 Holland Reclaimed Fen, and **no significant effects** upon the Regional LCT The Fens and the associated Fenland Landscape Character Sub-Area, due to the physical and visual segregation, and nature of the proposed Off-site Cable Route Corridor and National Grid Bicker Fen Substation Extension Works. It has been assessed that the landscape between the Energy Park and the identified cumulative sites located across Bicker Fen would retain its agricultural character and would serve as a physical and visual buffer.

6.8.24 No visual receptors have been assessed as experiencing significant visual effects.

Conclusion

It is important to acknowledge that significant effects on landscape character and visual amenity are an inherent consequence of a new development of this type and scale. However, in this case, any potential for adverse effects has been judged to be considerably limited by the existing vegetation that characterises the close to medium range landscape. The proposed mitigation planting has the potential to considerably reduce such significant effects, which would be geographically highly limited, both in character and visual terms. Whilst certain elements of the Proposed Development would, inevitably, be more visible,

for a scheme of its scale the residual landscape and visual effects arising are considered to be highly limited. Those effects which have been identified as being significant should therefore be balanced against the benefits of the Proposed Development.

Table 6.10: Summary of Effects, Mitigation and Residual Effects

Receptor/ Receiving Environment	Description of Effect	Nature of Effect *	Sensitivity Value **	Magnitude of Effect **	Geographical Importance ***	Significance of Effects ****	Mitigation/ Enhancement Measures	Residual Effects ****
Construction								
Hedgerow resource within the Energy Park	Additional hedgerow planting. Increase in quantum.	Long-term Direct	Medium to High	High	Local	Major Beneficial	None required.	Major Beneficial Significant
PRoW	New permissive path, reconnecting the disused Public Footpath Heck/15/1	Long-term Direct	High	High	Local	Major Beneficial	None required.	Major Beneficial Significant
The Fens Regional Landscape Character Type and associated Fenland Landscape Character Sub-Area (limited to the landscape associated with the Order limits and its immediate context of approx. 500m only)	Change to landscape character	Temporary Short Term and Direct	Medium	High	Regional and District	Major Adverse	Mitigation by Design	Major Adverse Significant

Receptor/ Receiving Environment	Description of Effect	Nature of Effect *	Sensitivity Value **	Magnitude of Effect **	Geographical Importance ***	Significance of Effects ****	Mitigation/ Enhancement Measures	Residual Effects ****
East Heckington	Change to views	Temporary Short Term and Indirect	High	High (localised)	Local	Major Adverse	Mitigation by Design	Major Adverse Significant
Sidebar Lane	Change to views	Temporary Short Term and Indirect	Medium	High (localised)	Local	Major Adverse	Mitigation by Design	Major Adverse Significant
Railway line	Change to views	Temporary Short Term and Indirect	Medium	High (localised)	Local	Major Adverse	Mitigation by Design	Major Adverse Significant
Public Footpath SKym/2/1	Change to views	Temporary Short Term and Indirect	High	High	Local	Major Adverse	Mitigation by Design	Major Adverse Significant
Public Footpath Heck/15/1	Change to views	Temporary Short Term and Indirect	High	High	Local	Major Adverse	Mitigation by Design	Major Adverse Significant
Public Footpath Swhd/14/1	Change to views	Temporary Short Term and Indirect	High	High	Local	Major Adverse	Mitigation by Design	Major Adverse Significant
Viewpoint 1 Public Footpath SKym/2/1 and Sidebar Lane overbridge at Head Dike.	Change to views	Temporary Short Term and Indirect	High	High	Local	Major Adverse	Mitigation by Design	Major Adverse Significant
Viewpoint 2 Public Footpath Heck/15/1, near the north eastern edge	Change to views	Temporary Short Term and Indirect	High	High	Local	Major Adverse	Mitigation by Design	Major Adverse Significant

ENVIRONMENTAL STATEMENT

6. Landscape & Visual

Receptor/ Receiving Environment	Description of Effect	Nature of Effect *	Sensitivity Value **	Magnitude of Effect **	Geographical Importance ***	Significance of Effects ****	Mitigation/ Enhancement Measures	Residual Effects ****
of the Energy Park								
Viewpoint 4 Sidebar Lane, near telecommunic ation mast	Change to views	Temporary Short Term and Indirect	Medium	High	Local	Major Adverse	Mitigation by Design	Major Adverse Significant
Viewpoint 14 Junction of Timm’s Drove and Tilebarn Lane, West Low Grounds	Change to views	Temporary Short Term and Indirect	Medium	High	Local	Major Adverse	Mitigation by Design	Major Adverse Significant
Viewpoint 15 Junction of Bicker Drove and Vicarage Drove along Mill Drain	Change to views	Temporary Short Term and Indirect	Medium	High	Local	Major Adverse	Mitigation by Design	Major Adverse Significant
Operation								
The Fens Regional Landscape Character Type and the associated Fenland Landscape Character Sub-Area (limited to the Energy Park	Change to landscape character	Temporary Long Term and Direct	Medium	High	Regional and District	Major Adverse	Hedgerow planting and enhancement	Moderate Not Significant

ENVIRONMENTAL STATEMENT

6. Landscape & Visual

Receptor/ Receiving Environment	Description of Effect	Nature of Effect *	Sensitivity Value **	Magnitude of Effect **	Geographical Importance ***	Significance of Effects ****	Mitigation/ Enhancement Measures	Residual Effects ****
and its immediate context of approx. 500m only)								
East Heckington	Change to views	Temporary Long Term and Indirect	High	Medium to High	Local	Major Adverse	Hedgerow planting and enhancement	Moderate Not Significant
Sidebar Lane	Change to views	Temporary Long Term and Indirect	Medium	Medium to High	Local	Major Adverse	Hedgerow planting and enhancement	Moderate Not Significant
Public Footpath SKym/2/1	Change to views	Temporary Long Term and Indirect	High	High	Local	Major Adverse	Hedgerow planting and enhancement	Moderate Not Significant
Public Footpath Heck/15/1	Change to views	Temporary Long Term and Indirect	High	High	Local	Major Adverse	Hedgerow planting and enhancement	Moderate Not Significant
Permissive path within the Energy Park	Change to views	Temporary Long Term and Indirect	High	High	Local	Major Adverse	Hedgerow planting and enhancement	Moderate Not Significant
Viewpoint 1 Public Footpath SKym/2/1 and Sidebar Lane overbridge at Head Dike.	Change to views	Temporary Long Term and Indirect	High	High	Local	Major Adverse	Hedgerow planting and enhancement	Moderate Not Significant

Receptor/ Receiving Environment	Description of Effect	Nature of Effect *	Sensitivity Value **	Magnitude of Effect **	Geographical Importance ***	Significance of Effects ****	Mitigation/ Enhancement Measures	Residual Effects ****
Viewpoint 2 Public Footpath Heck/15/1, near the north eastern edge of the Energy Park	Change to views	Temporary Long Term and Indirect	High	High	Local	Major Adverse	Hedgerow planting and enhancement	Moderate Not Significant
Viewpoint 4 Sidebar Lane, near telecommunic ation mast	Change to views	Temporary Long Term and Indirect	Medium	High	Local	Major Adverse	Hedgerow planting and enhancement	Minor Not Significant
Viewpoint 6 Footway in East Heckington, near Six Hundred Farm House	Change to views	Temporary Long Term and Indirect	Medium	High	Local	Major Adverse	Hedgerow planting and enhancement	Moderate Not Significant
Cumulative and In-combination (construction stage)								
LT A Reclaimed Fen and more specifically its LCA A1 Holland Reclaimed Fen	Change to landscape character	Temporary Long Term and Direct	Medium	High	District	Major Adverse	Mitigation by Design	Major Adverse Significant
Viewpoint 15 Junction of Bicker Drove and Vicarage	Change to views	Temporary Short Term and Indirect	Medium	High	Local	Major Adverse	Mitigation by Design	Major Adverse Significant

Receptor/ Receiving Environment	Description of Effect	Nature of Effect *	Sensitivity Value **	Magnitude of Effect **	Geographical Importance ***	Significance of Effects ****	Mitigation/ Enhancement Measures	Residual Effects ****
Drove along Mill Drain								
Decommissioning								
For completeness this section includes the re-assessment of receptors considered to experience major adverse and significant effects during the construction and / or operational stage.								
The Fens Regional Landscape Character Type and the associated Fenland Landscape Character Sub-Area (limited to the Energy Park and its immediate context of approx. 500m only)	Reverse of the adverse landscape character effects	Temporary Short Term and Direct – decommissioni ng work and Long Term residual effects once the decommissioni ng phase has been completed	Medium	High	Regional and District	Major Beneficial	Mitigation by Design	Major Beneficial Significant
East Heckington	Change to views, removal of the visible parts of the access road, fencing, CCTV, solar modules.	Temporary Short Term and Indirect – decommissioni ng work and Long Term residual effects once the decommissioni ng phase has	High	Low Beneficial	N/A	Moderate Beneficial	N/A	N/A

ENVIRONMENTAL STATEMENT

6. Landscape & Visual

Receptor/ Receiving Environment	Description of Effect	Nature of Effect *	Sensitivity Value **	Magnitude of Effect **	Geographical Importance ***	Significance of Effects ****	Mitigation/ Enhancement Measures	Residual Effects ****
		been completed						
Sidebar Lane	Change to views, removal of the visible parts of the fencing, CCTV, solar modules.	Temporary Short Term and Indirect – decommissioning work and Long Term residual effects once the decommissioning phase has been completed	Medium	Low Beneficial	N/A	Minor Beneficial	N/A	N/A
Public Footpath SKym/2/1	Change to views, removal of the visible parts of the fencing, CCTV, solar modules.	Temporary Short Term and Indirect – decommissioning work and Long Term residual effects once the decommissioning phase has been completed	High	Low Beneficial	N/A	Moderate Beneficial	N/A	N/A
Public Footpath Heck/15/1	Change to views, removal of the visible parts of the fencing, CCTV, solar modules.	Temporary Short Term and Indirect – decommissioning work and Long Term residual effects once the	High	Low Beneficial	N/A	Moderate Beneficial	N/A	N/A

ENVIRONMENTAL STATEMENT

6. Landscape & Visual

Receptor/ Receiving Environment	Description of Effect	Nature of Effect *	Sensitivity Value **	Magnitude of Effect **	Geographical Importance ***	Significance of Effects ****	Mitigation/ Enhancement Measures	Residual Effects ****
		decommissioning phase has been completed						
Viewpoint 1 Public Footpath SKym/2/1 and Sidebar Lane overbridge at Head Dike.	Change to views, removal of the visible parts of the fencing, CCTV, solar modules.	Temporary Short Term and Indirect – decommissioning work and Long Term residual effects once the decommissioning phase has been completed	High	Negligible	N/A	Negligible	N/A	N/A
Viewpoint 2 Public Footpath Heck/15/1, near the north eastern edge of the Energy Park	Change to views, removal of the visible parts of the fencing, CCTV, solar modules.	Temporary Short Term and Indirect – decommissioning work and Long Term effects once the decommissioning phase has been completed	High	Low Beneficial	N/A	Moderate Beneficial	N/A	N/A
Viewpoint 4 Sidebar Lane, near telecommunic ation mast	Change to views, removal of the visible parts of the fencing, CCTV, solar modules.	Temporary Short Term and Indirect – decommissioning work and Long Term	High	Low Beneficial	N/A	Moderate Beneficial	N/A	N/A

ENVIRONMENTAL STATEMENT

6. Landscape & Visual

Receptor/ Receiving Environment	Description of Effect	Nature of Effect *	Sensitivity Value **	Magnitude of Effect **	Geographical Importance ***	Significance of Effects ****	Mitigation/ Enhancement Measures	Residual Effects ****
		residual effects once the decommissioning phase has been completed						
Viewpoint 6 Footway in East Heckington, near Six Hundred Farm House	Change to views, removal of the visible parts of the fencing, CCTV, solar modules.	Temporary Short Term and Indirect – decommissioning work and Long Term residual effects once the decommissioning phase has been completed	Medium	Low Beneficial	N/A	Moderate Beneficial	N/A	N/A