

*Proposed Development of a Solar Photovoltaic (PV) Farm with Associated Infrastructure, Including  
Battery Storage*

# *Environmental Statement*

**Land at Blunts Drove, Walton Highway, Norfolk**

On Behalf of Downing LLP

*In partnership with*



**Bright ideas. Sustainable change.**



RAMBOLL

# Meerdyke Solar Farm

## Environmental Statement

### Volume 2: Main Report

October 2022



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# 1. INTRODUCTION

## 1.1 Introduction

This Environmental Statement (ES) has been prepared by Ramboll UK Limited (Ramboll) in partnership with JLL, on behalf of the Downing LLP (the Applicant) in accordance with the statutory procedures set out in The Town and Country Planning (Environmental Impact Assessment) Regulations 2017<sup>1</sup> (the 'EIA Regulations').

The ES has been prepared in support of an application for consent<sup>2</sup> to construct and operate a solar photo voltaic (PV) farm with associated infrastructure, including battery storage (the Proposed Development). The Proposed Development would have a generation capacity up to 49.9 megawatts (MW) and would comprise solar panels and associated infrastructure on a site located 1.3 km east of Wisbech and 500 m to the east of the A47 trunk road, on land at Blunts Drove, Walton Highway, Norfolk (the Site). Further details are provided within **Chapter 2: Development Description**, and the Site location and context with surrounding developments is shown in **Figures 1.1 and 1.2 (Volume 3)**.

This ES will comprise of four volumes:

- Volume 1: Non-Technical Summary (NTS);
- Volume 2: Main Report;
  1. Introduction
  2. Development Description
  3. Alternatives and Design Evolution
  4. Planning Policy
  5. Landscape and Visual
  6. Traffic and Transport and
- Volume 3: Figures.

## 1.2 Purpose of the ES

The EIA Regulations require that certain types of development must be subject to EIA. The types of development listed in Schedule 1 of the Regulations must be subject to EIA, whilst those in Schedule 2 will only require EIA if they are likely to give rise to significant environmental effects. The Proposed Development falls under Schedule 2, Part 3 (a) of the EIA Regulations: *Industrial installations for the production of electricity, steam and hot water (unless included in Schedule 1)* and exceeds the applicable threshold for such developments, that being: *The area of the development exceeds 0.5 hectare*. Accordingly, the Proposed Development has the potential for significant environmental effects to arise.

EIA is a formal process in which the likely significant effects of certain types of development projects on the environment are identified, assessed and reported upon. For certain types of development, the process must be followed in order for such effects to be taken into account before a decision is made on whether planning permission should be granted.

This ES presents the results of the EIA that has been undertaken of the Proposed Development. In accordance with the EIA Regulations, the ES reports on the likely significant environmental effects

<sup>1</sup> Secretary of State, 2017. Town and Country Planning (Environmental Impact Assessment) Regulations 2017, London, HMSO.

<sup>2</sup> An application for consent for the proposed Development will be made to the Borough Council of King's Lynn and West Norfolk under the Town and Country Planning (Environmental Impact Assessment (EIA)) Regulations 2017.

of the Proposed Development during the construction stage, as well as during the subsequent completed development stage.

The ES has taken into account the mitigation measures that are being proposed by the Applicant, including those measures that have been integrated into the planning and design of the Proposed Development to avoid and, where avoidance is not possible, to off-set and/or reduce likely significant adverse effects. It then evaluates the significance of the residual effects.

The Proposed Development for which the Applicant seeks consent is as follows:

*"the installation, operation and decommissioning of a solar photovoltaic (PV) farm with associated infrastructure, including battery storage for a period of 30 years."*

The electricity would be exported to the electricity network. The proposed point of connection is at Walsoken Substation. The grid connection would be the responsibility of the Transmission System Operator (TSO) UK Power Networks. The connection would be subject to a separate consenting process under Schedule 2 of the Town and Country Planning (Environmental Impact Assessment) Regulations. As such, the grid connection is not included within the scope of this ES.

The scope of this application is limited to the construction and operation of the Solar PV farm, associated infrastructure and potential battery storage. The Proposed Development would have a fixed operational life of 30 years. The effects associated with the construction phase can be considered to be representative of the worst-case decommissioning effects, and therefore no separate assessment is proposed as part of the ES.

As part of the planning application this ES is accompanied by a Planning Statement.

### **1.3 Site Location and Context**

The Site is located on land at Blunts Drove in Norfolk, 1.3 km east of Wisbech and 500 m to the east of the A47 trunk road.

The Site lies within a rural area east of Wisbech which is characterised by agricultural land, a mixed road infrastructure, including the A47, surrounding local roads and residential settlements. The Site is bound by arable fields with a mixture of hedgerow, dykes, open sided fields, woodland, tracks, residential properties, and farm buildings. The landscape topography is relatively flat with wide panoramic views of the surrounding area, except around Wisbech, the A47 and surrounding settlements, where hedgerows, woodland, orchards and trees obscure long distant views.

The statutory development plan for the Site comprises the King's Lynn and West Norfolk Local Plan and Norfolk County Council's Environmental Policy.

The Application Site covers an area of 87.53 hectares (ha) and forms two parcels of land (East and West Arrays) and is currently used for agricultural purposes. The land falls within Agricultural Land Classification 3a and 3b with small pockets of grade 2 and has a very flat topography, consistently lying below 10m above ordinance datum (AOD). An overhead powerline intersects the eastern corner of the East Array. The Site has existing access from Harps Hall Road off the A47 trunk road.

#### **1.3.1 The Applicant**

Downing Renewable Development LLP ("Downing") was established in 1986 and are an experienced investment company and renewable energy operator who generates over 259,000MWh of renewable energy each year with an installed capacity of over 400MW. In 2021 Downing Renewable Developments ("DRD"), part of Downing LLP, was established in order to develop and deliver a pipeline of utility scale renewable energy projects which will then be operated by the inhouse Downing asset management team.

Over the last decade, Downing have invested in over 140 energy infrastructure projects both in the UK and overseas and have significant growth plans for development of further projects including onshore wind, solar PV and battery storage.

**1.4 EIA Process**

EIA is a process that identifies the potential environmental effects (both beneficial and adverse) of a Proposed Development and proposes mitigation to avoid, reduce and offset any adverse environmental effects. The key stages in the EIA process adopted for the Proposed Development are summarised below.

**1.4.1 EIA Screening and Scoping**

The Applicant made a request to the Council for a screening opinion under Regulation 8 of the Town and Country Planning Environmental Impact Assessment) Regulations 2017 on 28th April 2022, with a screening opinion provided to the Applicant on 26th May 2022. The Council adopted an opinion that an ES is required in relation to the Proposed Development due to the potential for significant effects to occur in relation to the following topics:

- Traffic and transport, and
- Landscape and visual impacts.

Accordingly, the scope of the ES has been limited to the aforementioned topics. A formal scoping exercise was undertaken with a Scoping Report submitted to the Local Authority in July 2022. The Scoping Response was received on 3rd October 2022. Applicable consultation responses are provided in each technical ES technical chapter.

The ES is however also supported by the following technical assessments that are to be submitted separately to the ES:

- Preliminary Ecological Appraisal
- Ecological Impact Assessment
- Flood Risk/ Drainage Assessment
- Heritage Impact Assessment
- Geophysical Survey Assessment
- Glint and Glare Assessment
- Agricultural Land Classification Report

Table 1.1 below shows the topics scoped out of the ES and rational as to why they were scoped out.

<b>Table 1.1: Topics to be Scoped Out of the ES</b>	
<b>Environmental Consideration</b>	<b>Topics Scoped Out</b>
Population and Human Health (including residential amenity)	The Proposed Development is located at sufficient distance from residential receptors and other noise sensitive receptors and will be subject to good practice noise controls during construction (in line with British Standard 4142:2014 - Methods for rating and assessing industrial and commercial sound) to avoid noise impacts. The substation and battery storage infrastructure will be situated approximately 270m from the nearest residential property. Noise output from the inverters would be less than 75db at 3 m distance. Additionally, the inverters would be situated within a housing unit as shown in Figure 2.5

<b>Table 1.1: Topics to be Scoped Out of the ES</b>	
<b>Environmental Consideration</b>	<b>Topics Scoped Out</b>
	<p>(Volume 3) which would further reduce noise levels, as such no noise impacts are anticipated at the nearest properties.</p> <p>Visual impacts are assessed within the Landscape and Visual chapter of the ES and no significant effects are identified.</p> <p>In light of the above, there are unlikely to be significant effects relating to population and human health during either the construction or operational phase of the Proposed Development.</p>
Biodiversity	<p>A Preliminary Ecological Appraisal has been carried out which concludes that the Application Site is of nature conservation importance up to the Local Level and potentially contains protected species including reptiles, badger, water vole and nesting birds. Potential impacts to badger and water vole can be avoided through design by avoiding badger and water vole habitat by instating suitable buffers.</p> <p>A standalone Ecological Impact Assessment (EcIA), Habitat Management Plan and Bird Surveys have been carried out and are submitted as part of the planning application.</p> <p>Additionally, a Landscape Mitigation Plan and Biodiversity Net Gain Assessment will also be submitted as part of the planning application.</p> <p>Accordingly, no significant environment effects relating to biodiversity are predicted.</p>
Trees	<p>The principles of British Standard 5827:2012 'Trees in relation to design, demolition and construction' will be applied where applicable. Noted that trees are present adjacent to the Site boundary namely at the orchard located adjacent to the western array, adjacent to site access points off Harp's Hall Road. In both locations the nature of the Proposed Development is not considered to impact the protection of trees.</p>
Land and Soil	<p>An Agricultural Land Classification Report has been carried out and concludes that the Application Site is comprised of a complex mix of ALC types which are moderately good – very good for agricultural planting. Whilst the land will be taken out of agricultural productivity for the duration of renewable electricity generation, the Application Site will be developed so that the construction, operation and decommissioning of the solar panels represents reversible development in agricultural land quality/soil resource terms.</p> <p>Accordingly, no significant environment effects are predicted.</p>
Water (Hydrology, Flood Risk and Drainage)	<p>A combined Flood Risk Assessment and Drainage Impact Assessment has been undertaken. Mitigation relating to flood risk and drainage will be incorporated into design. It is anticipated that this could include flood resilience measures were necessary, and greenfield runoff rates will be maintained.</p> <p>During the operational phase of the Proposed Development stabilisation of soils through the establishment of a suitable grass seed vegetation community shall reduce the potential for the release of sediment, compared to the current agricultural use. The reduced application of fertilizers and pesticides shall also reduce the potential for pollution or eutrophication of watercourses and shall represent an improvement from baseline conditions. Therefore, any potential increase in risk of release of pollution or sediments to the surrounding watercourses / drains shall be limited to the construction phase of the project.</p>



<b>Table 1.1: Topics to be Scoped Out of the ES</b>	
<b>Environmental Consideration</b>	<b>Topics Scoped Out</b>
	<p>Risk to surface and shallow groundwaters shall be mitigated through the implementation of standard mitigation measures related to pollution prevention measures to be laid out in a CEMP, that shall be prepared by the appointed contractor. The CEMP would be prepared in line with CIRIA guidance C352: Control of Water Pollution from Construction Sites. Measures shall include but not be limited to the following measures:</p> <p><b>Sediment Control</b></p> <p>A suitable buffer shall be maintained from watercourses during construction activity (at least 9m from Internal Drainage Board (IDB) managed ordinary watercourses);</p> <p>The area of soils disturbed or excavated shall be minimised and where disturbance is necessary materials shall be reinstated at the shortest possible delay and stabilised (e.g. through physical consolidation or use of geotextiles);</p> <p>Clean runoff (i.e. non-silty surface water flow, including that which has not passed over any disturbed construction areas) would be kept separate from construction areas as far as possible, and subsequently distributed to suitable downslope vegetated areas;</p> <p>Sediment laden runoff shall be directed to settlement ponds suitable for the containment of volumes of water and sediment as appropriate to the area of disturbed or excavated ground; and</p> <p>Following construction activity any disturbed land and vegetation shall be reinstated and planted with a suitable grass seed mix, in line with the rest of the Site.</p> <p><b>Pollution Control</b></p> <p>Any refuelling would be carried out in designated locations, 30 m away from water courses. Irrespective of the buffer distance and location of refuelling, drip trays and spill kits will be available in accordance with standard best practice;</p> <p>Fuel, oils and chemicals will be stored on an impervious base within a suitably drained bund able to contain at least 110 % of the volume stored;</p> <p>Plant parking areas would be situated at least 30 m from watercourses and plant nappies placed under plant onsite when parked up for extended durations;</p> <p>A personnel Site Induction will make specific reference to required pollution prevention measures; and</p> <p>In the event of a pollutant spillage on site, the material will be contained (using an absorbent material such as sand or soil or commercially available booms) and were an event to occur affecting a watercourse, the EA would be notified immediately.</p> <p>Additionally, works shall be carried out in line with Byelaw 10 of the King’s Lynn Internal Drainage Board Development Control Byelaws, so that a buffer of 9m shall be provided to IDB watercourses to allow continued upkeep and maintenance works and no impediment or increase in discharge of watercourses shall result from the Proposed Development.</p> <p>Based on the implementation of standard construction best practice measures, no significant effects to the water environment are predicted and we propose to scope out from the ES.</p>

<b>Table 1.1: Topics to be Scoped Out of the ES</b>	
<b>Environmental Consideration</b>	<b>Topics Scoped Out</b>
Air Quality	Based on the nature of the development no emissions will be produced during operation. Emissions during construction will be limited to vehicle exhausts. There is no local Air Quality Management Area within or in the immediate surrounds of the Application Site, therefore emissions wouldn't result in the failure of air quality objectives. The CEMP will include mitigation in accordance with guidance from the Institute of Air Quality Management.
Climate Change	The flood risk assessment as discussed under the Water section considers the increased flood risk due to climate change and incorporates that risk into the mitigation measures. Once mitigation measure have been implemented no predicted significant effects on the environment in relation to climate change remain.  It should be noted however, that the Proposed Development will have an overall positive effect on climate change through the production and distribution of clean energy.
Material Assets (Socioeconomics)	No significant environmental effects predicted. An Agricultural Land Classification Report has been carried out.  PV panels can be removed therefore the land can revert back to its previous use.
Material Assets (Gas and Electricity)	Underground utility survey on and adjacent to the Site has been carried out. Third party utility assets have been identified and consultation with the utility providers will be carried out prior to construction activities commencing.
Cultural Heritage & Archaeology	No predicted significant effects on the setting are anticipated due to lack of intervisibility between the Site and the nearest heritage assets from natural screening. Impacts on unknown remains can be mitigated against via design and construction measures.  A standalone Archaeological and Heritage Assessment and Geophysical Survey accompanies the planning application.  No known archaeology has been identified at this time however following the Geophysical Survey the potential exists for currently unknown archaeology. The Applicant is committed to completing further pre-construction investigation to confirm or rule out the presence of archaeological features. If archaeological features are confirmed, then these areas will either be avoided through design, or a no dig solution using weighted mounting structures rather than piles will be implemented. As such no significant effects are anticipated.
Major Accidents and Hazards	The EIA regulations require the consideration of the potential risks to human health, cultural heritage or the environment associated with the vulnerability of the Proposed Development to accidents and disasters. This requirement is interpreted as requiring the consideration of high consequence events (even if of low likelihood) which would result in serious harm or damage to environmental receptors.  Given the nature of the Proposed Development, the potential for effects related to the vulnerability to accidents and disasters is likely to be limited to those effects associated with extreme weather, mechanical failure or structural damage. Relevant types of accident/disaster, given the predominantly rural context of the Proposed Development, include: <ul style="list-style-type: none"> <li>• severe weather events, including high winds, high rainfall leading to flooding;</li> </ul>

<b>Environmental Consideration</b>	<b>Topics Scoped Out</b>
	<ul style="list-style-type: none"> <li>• fire, and</li> <li>• traffic related accidents.</li> </ul> <p>Severe weather resilience will be a core component of the solar farm design and includes consideration of flooding resilience and the ability to manage the Site remotely in the event that it is inaccessible due to hazardous weather conditions. The solar farm design includes consideration of designing out health and safety risks associated with construction and operation (including accidents and disasters associated with fire and traffic movements) in accordance with the duties under The Construction (Design and Management) Regulations 2015. An emergency response plan to minimise the impact of an incident during construction, operation and decommissioning of a facility will be developed. In addition, a risk reduction strategy will be developed in line with the Regulatory Reform (Fire Safety) Order 2005. Consultation with Norfolk Fire and Rescue Service will be undertaken to inform the emergency response plan and fire risk reduction strategy.</p> <p>No other potential significant effects on human health, cultural heritage or the environment associated with the vulnerability of the Proposed Development to accidents and disasters have been identified and therefore no specific Major Accidents and Disasters assessment has been included in the ES.</p>
Decommissioning	Effects during decommissioning are anticipated to be similar in manner to those effects experienced during construction, however to a lesser degree. As such decommissioning has been scoped out of the ES as effects will be less than those construction affects assessed.
Cumulative Impact	<p>The inter-cumulative effects associated with the Proposed Development in combination with other consented developments in the local area are assessed in Chapter 5: Landscape and Visual.</p> <p>With regards to effects from cumulative construction traffic the construction programmes of the Proposed Development and the Medworth Energy from Waste Combined Heat and Power Facility may align. Continued engagement with the Local Authority will be pursued regarding the Medworth development and other regionally important developments coming forward to ensure any further mitigation necessary can be implemented. This would be managed and controlled through the Construction Stage Traffic Management Plan. It is not considered likely that there would be any cumulative effects with respect to any other environmental topic.</p> <p>With regard to intra-cumulative effects, i.e. the combined effect of different environmental impacts associated with the Proposed Development on a single receptor or receptor group, there is potential for cumulative impacts to arise during the construction phase on nearby residential receptors from dust, noise, construction traffic and visual impacts associated with construction activities. However it is considered that these impacts can be effectively managed through implementation of the CEMP and best practice measures such that there are unlikely to be any significant adverse effects.</p>

#### **1.4.2 Baseline Characterisation**

Baseline characterisation is the process by which the environmental conditions now and in the future assuming no development on the Site are established. The process has included a combination of desk research, site survey and empirical study and projection.

The environmental baseline adopted for the purposes of the ES is stated in each of the technical assessment chapters provided in the ES. The baseline is normally taken as the current character and condition of the Site and surrounds, and the likely significant environmental effects of the development are then assessed in the context of the current conditions. However, potential future baseline scenarios are included within the assessments, where applicable.

#### **1.4.3 Mitigation by design and consideration of alternatives**

Following the baseline characterisation, the information collected on environmental constraints was used to inform the consideration of design alternatives. An iterative process was followed, whereby the Applicant considered a range of solar array layouts, battery and substation layout, cable routes, and access proposals for the Proposed Development. The aim of the design element of the EIA process was to develop an optimal solution which seeks to maximise potential electricity capacity, within technical and environmental constraints. The main aim has been to avoid likely significant environmental effects through the design. Further details on the design process adopted for the Proposed Development are set out within **Chapter 3: Design Evolution and Alternatives**.

#### **1.4.4 Impact Assessment**

The next stage in the EIA process was to complete an impact assessment to address the likely significant effects remaining following the implementation of mitigation by design. An assessment chapter has been provided for each issue where it is considered that there are likely significant effects associated with the construction, operation, decommissioning or restoration phases of the Proposed Development. Each assessment chapter considers primary, secondary, direct, indirect and cumulative effects and defines the assessment methodology used and the criteria by which a significant effect is defined.

#### **1.4.5 Additional Mitigation**

The impact assessment is used to identify where additional mitigation is required to address likely significant effects, where it has not been possible to avoid the effect through design of the turbine or infrastructure layout. Mitigation has been considered following a hierarchy of first seeking to avoid effects, followed by seeking a reduction in effects to level not considered significant, and finally where necessary and possible, offsetting or compensatory measures are considered.

### **1.5 Statement of Competence**

As with EIA, good practice in the preparation of the ES is defined in a number of sources, with more specific issues covered by ES review checklists. Many of these checklists are very detailed and go to some length. In terms of widely applicable and practical guidance, the Institute of Environmental Management and Assessment (IEMA) Quality Mark indicator check has been referenced in undertaking the ES and in producing this ES.

Ramboll is a Registrant on the IEMA Quality Mark. Accordingly, as part of Ramboll's Quality Assurance procedures and Quality Mark Commitments, the ES has been undertaken to meet the Quality Mark Commitments.

As required by Regulation 18(5)(b) of the EIA Regulations, the Applicant will present a statement outlining the relevant expertise or qualifications of the competent experts that have undertaken the ES and prepared this ES. The project team comprises the companies presented in Table 1.2 below.

<b>Team Member</b>	<b>Roles &amp; Responsibility</b>
Downing Renewable Developments	Project Developer
Ramboll UK Limited	EIA Project Management Design Landscape and Visual Ecology Water Biodiversity Net Gain Glint and Glare
RSK Biocensus	Ornithology
AOC Archaeology	Cultural Heritage & Archaeology
Askew Land and Soil	Agriculture
SYSTRA	Traffic & Transport

**1.5.1 ES Production**

The process and outcomes of the assessment, as described in the preceding sections, are presented in a single document, the ES. The ES is prepared to provide clear and concise information on the likely significant environmental effects associated with the Proposed Development. The ES is focussed on the residual effects that remain following the implementation of mitigation. The aim is to provide proportionate environmental information, as required in accordance with EIA regulations, to support the determination of the planning application.

Each of the technical chapters provides the specific criteria, including sources and justifications, for quantifying the different levels of effect. Where possible, this has been based upon quantitative and accepted criteria together with the use of value judgements and expert interpretations to establish to what extent an effect is environmentally significant. The threshold at which effects are likely to be "significant" is defined in each of the technical chapters.

**1.6 Content of the ES**

The required content of the ES is set out in Schedule 4 of the EIA Regulations. Table 1.1 presents the requirements of the EIA Regulations and indicates where in this ES the requirements have been met.

<b>Required Information</b>		<b>Chapter/Section of ES</b>
1	A description of the development, including in particular: <ul style="list-style-type: none"> <li>• a description of the location of the Proposed Development;</li> <li>• a description of the physical characteristics of the Proposed Development, including, where relevant, requisite demolition works, and the land-use requirements during the operation stage;</li> <li>• a description of the main characteristics of the operational phase of the Proposed Development (in particular any production process), for instance, energy demand and energy used, nature</li> </ul>	ES Chapter 1: Introduction, Volume 1  ES Chapter 2: Development Description, Volume 1

<b>Table 1.3: Information Required in an Environmental Statement (Schedule 4 of EIA Regulations)</b>		
<b>Required Information</b>		<b>Chapter/Section of ES</b>
	<p>and quantity of the materials and natural resources (including water, land, soil and biodiversity) used;</p> <ul style="list-style-type: none"> <li>an estimate, by type and quantity, of expected residues and emissions (such as water, air, soil and subsoil pollution, noise, vibration, light, heat, radiation and quantities and types of waste produced during the operation stage.</li> </ul>	
2	A description of the reasonable alternatives (for example in terms of development design, technology, location, size and scale) studied by the Applicant, which are relevant to the Proposed Development and its specific characteristics, and an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects.	ES Chapter 3: Alternatives and Design Evolution, Volume 1
3	A description of the relevant aspects of the current state of the environment (baseline scenario) and an outline of the likely evolution thereof without implementation of the Proposed Development as far as natural changes from the baseline scenario can be assessed with reasonable effort on the basis of the availability of environmental information and scientific knowledge.	ES Chapter 3: Alternatives and Design Evolution, Volume 1
4	A description of the factors specified in Regulation 4(2) likely to be significantly affected by the Proposed Development: population, human health, biodiversity (for example fauna and flora), land (for example land take), soil (for example organic matter, erosion, compaction, sealing), water (for example hydromorphological changes, quantity and quality), air, climate (for example greenhouse gas emissions, impacts relevant to adaptation), material assets, cultural heritage, including architectural and archaeological aspects, and landscape.	ES Chapters 5-6, Volume 1, ES Volumes 2 and 3
5	<p>A description of the likely significant effects of the Proposed Development on the environment resulting from, <i>inter alia</i>:</p> <ol style="list-style-type: none"> <li>the construction and existence of the development including, where relevant, demolition works;</li> <li>the use of natural resources, in particular land, soil, water and biodiversity, considering as far as possible the sustainable availability of these resources;</li> <li>the emission of pollutants, noise, vibration, light, heat and radiation, the creation of nuisances, and the disposal and recovery of waste;</li> <li>the risks to human health, cultural heritage or the environment (for example due to accidents or disasters);</li> <li>the cumulation of effects with other existing and/or approved projects, taking into account any existing environmental problems relating to areas of particular environmental importance likely to be affected or the use of natural resources;</li> <li>the impact of the project on climate (for example the nature and magnitude of greenhouse gas emissions) and the vulnerability of the project to climate change; and</li> </ol>	ES Chapters 5-6, Volume 1, Volumes 2 and 3

<b>Table 1.3: Information Required in an Environmental Statement (Schedule 4 of EIA Regulations)</b>		
<b>Required Information</b>		<b>Chapter/Section of ES</b>
	<p>g) the technologies and the substances used.</p> <p>The description of the likely significant effects on the factors specified in Regulation 4(2) should cover the direct effects and any indirect, secondary, cumulative, transboundary, short-term, medium-term and long-term, permanent and temporary, positive and negative effects of the development.</p> <p>The description should take into account the environmental protection objectives established at Union or Member State level which are relevant to the Proposed Development, including in particular those established under Council Directive 92/43/EEC and Directive 2009/147/EC.</p>	
6	A description of the forecasting methods or evidence, used to identify and assess the significant effects on the environment, including details of difficulties (for example technical deficiencies or lack of knowledge) encountered compiling the required information and the main uncertainties involved.	ES Chapters 4-6, Volume 1 ES Volumes 2 and 3
7	<p>A description of the measures envisaged to avoid, prevent, reduce or, if possible, offset any identified significant adverse effects on the environment and, where appropriate, of any proposed monitoring arrangements (for example the preparation of a post-project analysis).</p> <p>The description should explain the extent to which significant adverse effects on the environment are avoided, prevented, reduced or offset, and should cover both the construction and operational phases.</p>	ES Chapters 4-6, Volume 1 and ES Volumes 2 and 3
8	A description of the expected significant adverse effects of the development on the environment deriving from the vulnerability of the development to risks of major accidents and/or disasters which are relevant to the project concerned. Relevant information available and obtained through risk assessments pursuant to EU legislation such as Directive 2012/18/EU of the European Parliament and of the Council or Council Directive 2009/71/Euratom or UK environmental assessments may be used for this purpose provided that the requirements of this Directive are met. Where appropriate, this description should include measures envisaged to prevent or mitigate the significant adverse effects of such events on the environment and details of the preparedness for and proposed response to such emergencies.	ES Chapters 4-6, ES Volume 1, ES Volumes 2 and 3
9	A non-technical summary of the information provided under 1 to 8 above.	Non-Technical Summary
10	A reference list detailing the sources used for the descriptions and assessments included in the ES.	ES Chapters 1-6, ES Volume 1, ES Volumes 2 and 3

## 1.7 ES Availability

An electronic version of the reports supporting the application, including the ES, will be available to download from the Downing website: <https://www.downing.co.uk/case-studies/meerdyke-solar->

[farm](#) additionally copies of the ES and other documentation can be viewed at the following location:  
<http://eplanning.norfolk.gov.uk/>.



## 2. DEVELOPMENT DESCRIPTION

### 2.1 Introduction

This chapter provides a description of the physical characteristics and main operational activities associated with the Proposed Development for the purpose of identifying and assessing potential environmental effects. Information is provided on:

- The location of the Proposed Development;
- The physical characteristics of the Proposed Development;
- Typical activities associated with the construction and commissioning of the Proposed Development;
- Typical activities associated with the operation of the Proposed Development; and
- Typical activities associated with the decommissioning of the Proposed Development.

Figures 2.1-2.6 are presented in Volume 3: Figures and are referred to in the text as appropriate. The figures are as follows:

- Figure 2.1: Existing Site Plan
- Figure 2.2: Proposed Site Plan
- Figure 2.3: Typical Array Details
- Figure 2.4: Typical Substation and Battery Storage Details
- Figure 2.5: Typical Switchgear and Transformer Housing
- Figure 2.6: Typical Fence and CCTV Details

### 2.2 Site Location and Context

The Application Site covers an area of 87.53 hectares (ha) and is located 1.3 km east of Wisbech and 500 metres (m) to the east of the A47 trunk road, as illustrated in **Figure 1.1 (Volume 3)**.

The Application Site forms two parcels of land (East and West Arrays) and is currently used for agricultural purposes. The East and West parcels of land are separated by Harp's Hall Road which runs in a northeast- southwest direction. Farms and residential properties line both sides of Harp's Hall Road. The land falls within Agricultural Land Classification grade 3a, 3b and small pockets of grade 2 and has a very flat topography, consistently lying below 10 m above ordinance datum (AOD). An overhead 11kV powerline intersects the eastern corner of the East Array site.

The surrounding area is predominantly rural in character, mainly comprising arable fields interspersed with drainage dykes, residential and farm related properties, clusters of trees and woodland, and roads and tracks.

There are no environmental designations covering or within 10 km of the Application Site. The Natural Nature Reserve (NNR), Special Protection Area (SPA), Site of Special Scientific Interest (SSSI) associated with 'The Wash' lie approximately 20km to the north of the site. There are no ecological or heritage designations within the Application Site boundary. The site is not located within any landscape designations nor is it within proximity to an Area of Outstanding Natural Beauty (AONB) or a Special Landscape Area (SLA).

## 2.3 Project Description

For the purposes of this ES, the Proposed Development would comprise approximately 125,000 solar panels with a maximum height of 3.1 m, along with associated infrastructure, including battery storage, as illustrated on **Figure 2.1: Proposed Site Plan**. The Proposed Development would include the following key components:

- ground mounted solar panels (ES Volume 3: Figures 2.3: Typical Array Details);
- a substation container (ES Volume 3: Figures 2.4: Typical Substation and Battery Storage Details);
- 10x battery energy storage containers (ES Volume 3: Figures 2.4: Typical Substation and Battery Storage Details);
- a transformer including housing (ES Volume 3: Figure 2.5: Typical Switchgear and Transformer Housing);
- a switchgear including housing (ES Volume 3: Figure 2.5: Typical Switchgear and Transformer Housing);
- perimeter fencing, security fencing and CCTV (ES Volume 3: Figures 2.6: Typical Fence and CCTV Details);
- Lighting;
- access Tracks 5 m wide (ES Volume 3: Figure 2.2 Proposed Site Plan), and
- two temporary Site construction compounds (ES Volume 3: Figure 2.2 Proposed Site Plan).

### 2.3.1 Solar PV Array

The solar PV array would consist of approximately 125,000 solar panels laid out in approximately 30 m long rows, known as strings, with a spacing of approximately 3.5 m between each row. Each string of panels would be mounted on a rack comprising metal poles anchored to the ground via concrete footings or shallow piles.

The panels would be mounted at approximately 0.6 m from the ground rising to 3.1 m and be tilted approximately 20 degrees from horizontal in a south facing direction.

### 2.3.2 On-site Substation and Battery Storage Infrastructure

The total area set aside for the substation and battery storage infrastructure is approximately 390msq, located at the north western boundary of the West Array. The substation container and ten battery storage containers would measure approximately 12 x 2 m. The Switchgear and Transformer would be located in two separate building units adjacent to the substation measuring approximately 5m x 5m as shown on **Figure 2.1: Proposed Site Plan**.

### 2.3.3 Temporary Construction Compound

Two temporary construction compounds would be required to enable construction of the Proposed Development. The two compounds would be located towards the centre of the site adjacent to Harp's Hall Road, with a larger compound located in the West Array and a smaller compound within the East Array as shown on **Figure 2.1: Site Layout**. The compounds would include:

- access tracks and internal circulation routes for vehicles and pedestrians;
- lighting for security and safety during hours of darkness;
- surface water management measures;

- temporary office accommodation and welfare buildings (toilets, kitchen/ canteen, drying rooms);
- equipment storage;
- a receiving area for incoming vehicles;
- maintenance and refuelling facilities;
- waste, recycling and materials management facilities; and
- parking.

The approximate dimensions of the western compound are 100 x 50 m while the eastern compound would be approximately 50 x 30 m in size.

#### **2.3.4 Access**

Access to the Proposed Development during construction and operation for road vehicles would be via the A47, St Paul's Road South and Harp's Hall Road entering the site via the existing access. Please refer to Chapter 6: Traffic and Transport and the Transport Statement for further details on vehicle movements and road upgrades.

Approximately 9km of new on-site access tracks would be required to provide access across the Site including access to the substation and battery storage containers as shown in **Figure 2.2 Proposed Site Plan**. On-site access track exact positions would be refined during detailed design. Typical on-site access tracks would have a running width of approximately 5 m with 0.5 m wide shoulders at each side of the track.

The majority of the on-site access tracks are located on bear soil due to the agrarian nature of the Site however where vegetation is present soil would typically be stripped to a suitable subsoil layer and the track (approximately 300 mm to 500 mm thick) and on-site tracks would be constructed on the subsoil.

On-site access tracks shall be constructed of a suitable permeable granular material (e.g. gravel medium) to match existing conditions (such as Type 3 aggregate). Therefore, proposed access tracks would not increase runoff rates when compared to pre-development conditions.

#### **2.3.5 Connection to the Electricity Grid**

The electricity produced by the Proposed Development would be exported to the electricity network. The proposed point of connection to the wider electricity network is at Walsoken approximately 2 km southwest of the Site. The grid connection would be the responsibility of the TSO UK Power Networks and would be subject to a separate consenting process under Schedule 2 of the TCPA (EIA) Regulations. As such the details of the grid connection route are unknown at this stage and not included within the assessment in this ES.

### **2.4 Construction Activities**

#### **2.4.1 Construction Programme**

The estimated construction period of the Proposed Development is approximately 34 weeks and is expected to commence early 2024. This period is indicative only and may be subject to variation as a result of factors which include, but are not limited to, weather restrictions, ground conditions encountered through detailed investigation, material delivery, timing of grid connection works and public highway constraints. However, this is considered to represent a realistic case for the purposes of assessment.

Construction by the appointed main contractor would begin following agreement of the detailed design and approval of any pre-commencement conditions with the appropriate consenting authority.

#### 2.4.2 Hours of Work

In agreement with the local authority, construction activities, including deliveries to and from the site, are proposed within the hours 07:00 to 20:00 Monday to Friday and 07:00 to 16:00 on Saturdays during the months of April to September, and 07:00 to 17:00 Monday to Friday and 07:00 to 13:00 on Saturdays during the months of October to March (inclusive). No work will be undertaken on Sundays without prior agreement with the Local Authority.

#### 2.4.3 Construction Traffic

Vehicle movements associated with construction works would include:

- Cars and minibuses for transporting construction personnel to the Site;
- HGVs for pre-construction delivery of Site offices, construction equipment and materials;
- HGV abnormal load vehicles for delivery of solar panels and associated infrastructure; and
- Small/ medium delivery vans (LGV)

There are expected to be a total of approximately 100 HGV deliveries over the course of the 34-week construction period, at an average of three per week. No abnormal loads will be required.

A Traffic Management Plan would be agreed in consultation with the Council and Highways England. This would address the scheduling, routeing and overall management of abnormal load movements along with the programming and management of all other HGV movements.

#### 2.4.4 Construction Environmental Management

The principal contractor would be responsible for implementing site-specific environmental management procedures included in a Construction Environmental Management Plan (CEMP). A detailed CEMP would be agreed with the Local Authority and relevant statutory consultees prior to construction commencing. The typical structure of the CEMP is shown in Table 2.1.

The CEMP would provide details of the construction programme and key activities within each phase and outline the mitigation measures that would be employed during the construction period to avoid or reduce potential environmental impacts.

1.	Introduction
2.	Schedule of Environmental Commitments from Environmental Statement (ES)
3.	Communication Protocol
4.	Typical Construction Stage Environmental Management Measure
5.	Construction Method Statements
6.	Decommissioning and Restoration Plan

### 2.5 Operational Characteristics

The EIA regulations require that ES provides "*a description of the main characteristics of the operational phase of the development (in particular any production process), for instance, energy*

*demand and energy used, nature and quantity of the materials and natural resources (including water, land, soil and biodiversity) used".*

The purpose and nature of the Proposed Development is that it would harness solar energy for the generation of electricity. The Proposed Development includes for a battery storage facility to store energy produced on-site. There would be no other production process associated with the Proposed Development. There would be no significant energy demand, use, material or natural resource used by the Proposed Development.

Solar farms are designed to operate largely unattended however maintenance may be required on a six-monthly basis.

## **2.6 Residues and Emissions during Construction and Operation**

The EIA Regulations require that an ES provides an estimate, by type and quantity, of expected residues and emissions (such as water, air and soil and subsoil pollution, noise, vibration, heat, light, radiation and quantities and types of waste produced) resulting from the construction and operation of the Proposed Development. In most cases, the effects during decommissioning would be similar to those during construction.

### **2.6.1 Emissions to Air/ Water/ Land**

#### Air

The construction phase would require the transport of people and materials by road, with associated emissions to the atmosphere. There is no local Air Quality Management Area within or in the immediate surrounds of the Application Site, therefore emissions wouldn't result in the failure of air quality objectives. Overall, the quantity of air emissions is expected to be low relative to the general background air emissions from road traffic. No significant air emissions are anticipated.

Due to the nature of the Proposed Development no significant point source or diffuse air emissions would be produced during its operation. The Proposed Development would contribute to providing renewable electricity, in turn displacing emissions associated with fossil fuel-based electricity generation elsewhere.

#### Water

Emissions to water would be limited to rainwater runoff which would be managed in accordance with the drainage management system as stated in Technical Report: Flood Risk Assessment and Drainage Strategy.

#### Land

Soil and subsoil excavation, handling and storage would be required during construction. The applicant would make every endeavour to reuse 100% of excavated material where feasible and if not, it would be reused off site.

No requirement for soil or subsoil excavation or handling during the operation phase has been identified. No pollution sources have been identified for the operational phase.

### **2.6.2 Operational Noise**

Noise emissions generated by the Proposed Development would originate primarily from transformers at a range of 60-80dB at 1m distance. A buffer distance of approximately 270m has been applied between the transformers and nearest residential property. Operational traffic

associated with the Proposed Development is expected to be minimal and accordingly any noise associated with this would be limited.

### 2.6.3 Lighting

During construction temporary lighting would be required at the temporary construction compounds for security purposes and to ensure that a safe working environment is provided to construction staff. In addition, temporary lighting could be required to ensure safe working conditions at infrastructure locations during construction. All temporary lighting installations would be downward facing and directed away from the nearest residential receptors which are located approximately 170 m to the south. All lights would be switched off during daylight hours and outside of working hours.

During operation no lighting will be required around the perimeter of the Site or within the solar array. Passive Infrared Sensor (PIR) LED lighting will be required in the areas of major components such as the substation and the batteries. The lighting in these areas would be required to have a low angle of view. Exact number and position of lighting will be determined in the detailed design phase.

### 2.6.4 Heat and Radiation

No significant sources of heat and radiation have been identified during either the construction or operation phase of the Proposed Development.

### 2.6.5 Waste

Details on pollution prevention control and site waste management that would be implemented during construction will be provided in the CEMP. A Site Waste Management Plan would be designed to follow the principles of the Waste Hierarchy: Avoidance; Minimisation; Re-Use; Recycle; and Disposal as a last resort.

The power generation aspect of the Proposed Development would not produce any waste emissions or pollutants. The general operation and maintenance of the Proposed Development has the potential to produce a small amount of waste. This is likely to be restricted to waste associated with

## 2.7 Decommissioning

At the end of the Proposed Development's operational life, a decision would be made as to whether to refurbish, remove, or replace the solar panels. If refurbishment or replacement were to be chosen, relevant consent applications would be made. If a decision were to be taken to decommission the Proposed Development, this would entail the removal of all the solar panels and associated infrastructure. The land can then be returned to agricultural use post decommissioning.

A Decommissioning Plan would set out environmental protection measures and restoration principles which would be implemented. This plan would be agreed with the Planning Authority and currently these plans do not form part of this proposal. It is anticipated this would be secured by an appropriately worded planning application.

Decommissioning has been scoped out of the EIA as discussed **Chapter 1: Introduction**

## 3. DESIGN EVOLUTION AND ALTERNATIVES

### 3.1 Introduction

This chapter outlines the reasonable alternatives studied by the Applicant, which are relevant to the Proposed Development and its specific characteristics in accordance with Schedule 4, Part 2 of the EIA regulations which require an ES to include:

*“ A description of the reasonable alternatives (for example in terms of development design, technology, location, size and scale) studied by the developer, which are relevant to the proposed project and its specific characteristics, and an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects.”*

The purpose of this chapter is to describe the design evolution of the Proposed Development, and the main alternatives considered in respect of site selection, design and layout, highlighting how the environmental constraints at the site and its surroundings have informed the design process.

The chapter also describes the main reasons for the option chosen, taking into account the effects of the Proposed Development on the environment.

This chapter makes reference to the following figures:

- Figure 1.1: Site Location;
- Figure 2.1: Existing Site Plan, and
- Figure 2.2: Proposed Site Plan

Chapter 4: Planning Legislation and Policy of this ES describes the legislative and policy background relevant to the Proposed Development. Where specific aspects of the legislative or policy context are relevant to the consideration of Site selection, alternatives and the main reasons for selecting the chosen option, they have been referenced in this chapter.

This chapter is structured to provide the following:

- A review of the Site selection considerations, including a review of the planning history of the Site, Site context, policy relevant to the Site selection and the Site feasibility assessment;
- An overview of the design objectives for this Site;
- A description of the reasonable alternatives studied (noting that this is limited to those which are considered relevant to the Proposed Development); and
- A description of the main reasons for selecting the final Proposed Development.

It should be noted that with regards to the consideration of alternatives for energy projects, these have not been considered in this chapter, in line with the National Planning Policy Framework 2021 (NPPF)<sup>1</sup>. Paragraph 158 of the NPPF states that: *“When determining planning applications for renewable and low carbon development, local planning authorities should: not require applicants to demonstrate the overall need for renewable or low carbon energy, and recognise that even small-scale projects provide a valuable contribution to cutting greenhouse gas emissions...”*

### 3.2 Do Nothing Scenario

The “do nothing” scenario is a hypothetical alternative conventionally considered, albeit briefly, in EIA as a basis of comparing the development proposal under consideration. This scenario is

<sup>1</sup> <https://www.gov.uk/government/publications/national-planning-policy-framework--2>

considered to represent the current and future baseline situation as described in the individual technical chapters of this ES.

In the absence of the Proposed Development, it is anticipated that the Site would most likely continue to be managed primarily for agricultural use. Given the Sites potential for solar farm development it is not unreasonable to assume another developer may bring a solar farm project forward in the future.

It is recognised that the baseline would not remain static for the for the lifetime of the Proposed Development. In particular, and apart from any changes arising from economic and agricultural policies and economic market considerations, it is predicted that biodiversity and landscape would undergo some level of changes as a result of climate change. Due to the complexities and uncertainties inherent in attempting to predict the nature and extent of such changes to landscape and biodiversity during the lifetime of the Proposed Development, it has been assumed that the current baseline would subsist. It is an appropriate approach for ES preparation purposes.

### **3.3 Alternative Sites**

#### **3.3.1 Current Land Use and Site Context**

The Site lies within a rural area east of Wisbech which is characterised by agricultural land, a mixed road infrastructure, including the A47, surrounding local roads and residential settlements. The Site is bound by arable fields with a mixture of hedgerow, dykes, open sided fields, woodland, tracks, residential properties, and farm buildings. The landscape topography is relatively flat with wide panoramic views of the surrounding area, except around Wisbech, the A47 and surrounding settlements, where hedgerows, woodland, orchards and trees obscure long distant views.

The Application Site is formed of two parcels of land (East and West Arrays) and is currently used for agricultural purposes. The land falls within Agricultural Land Classification Grade 3a and 3b with small pockets of Grade 2 and has a very flat topography, consistently lying below 10 m above ordinance datum (AOD). An overhead powerline intersects the eastern corner of the East Array while an 11kV overhead line traverses the western array from east to west. The Site has existing access form Harps Hall Road off the A47 trunk road.

#### **3.3.2 Planning and Policy Context**

No significant or relevant planning history or existing consents have been identified across the Site. The Site is located within the jurisdiction of King's Lynn and West Norfolk Borough Council. The Local Development Plan consists of:

- The King's Lynn & West Norfolk Borough Council Local Development Framework - Core Strategy (adopted July 2011); and,
- The King's Lynn & West Norfolk Borough Council Site Allocations and Development Management Policies Plan (adopted September 2016).

The policies contained within the adopted Norfolk Minerals and Waste Development Framework are not considered to be relevant to the Proposed Development. The site does not lie within any Neighbourhood Plan area. The site lies outside but adjacent to the Marshland St James Neighbourhood Plan Area which is currently under preparation. Further details on the merging local plan are provided In **Chapter 4: Legislative and Policy Context**.



### 3.3.3 Site Selection Criteria

The 'Site', as defined by the red line boundary in **Figure 1.1: Site Location (ES Volume 3)**, is located on land at Blunts Drove in Norfolk, 1.3 km east of Wisbech and 500m to the east of the A47 trunk road. The site occupies an area of 87.53 hectares (ha).

A feasibility study was conducted to find land capable of supporting a solar farm with a generation capacity of up to 49.9 MW. A range of technical, environmental and economic factors were considered when investigating and assessing potential sites for the Proposed Development. The key criteria which led to the Site being selected for solar development are detailed in Table 3.1 below.

<b>Criteria</b>	<b>Site Advantages</b>	<b>Risk</b>
Proximity to an Existing Grid Connection	An existing grid connection to the wider electricity network is available at Walsoken approximately 2km southwest of the Site.	Low
Agricultural Land Classification	The Site is within Agricultural Land Classifications Grade 3a (41.2%), 3b (45.2%) and small pockets of Grade 2 (13.6%). Grade 2 land can pose issues for the planning process as land of this quality is highly productive for agriculture. However, based on the availability of better-quality land (Grade 1) in the surrounding area and due to the development being temporary and reversible the Site was deemed suitable for further consideration. Furthermore, as the Local Planning Authority has a large area of Grade 1 and 2 land it is likely that some renewable generation will need to be developed on these grades to aid in meeting climate targets.	Low
Ecology	There are no ecological designations within the Site. The key environmental and ecological considerations with this Site comprise those designations associated with The Wash located approximately 20 km to the north of the Site. There are some small pockets of ancient woodland located 13km east of the site. The Site was not considered to be ecologically sensitive to development of this nature.	Low
Transport Access	The access into site for transporting equipment was deemed to be appropriate for the Proposed Development. The primary route to the Site would be the A47 heading northeast bound from Wisbech. The A47 runs alongside the search area to the west and from there, access into the Site is feasible by using existing country roads and farming access tracks.	Low
Landscape and Visual	The search area is not located within any landscape designations. Nor is it within proximity to either an Area of Natural Beauty or Scenic Landscape Area. The key issues in terms of landscape and visual impact for this proposed development will be a result of the very flat topography and surrounding residential properties.  The topography of the site is very flat staying consistently below 10 m AOD. Due to this the proposed development could be visible and impactful to the local amenity. However, due to the topography these	Low

<b>Table 3.1: Site Selection Considerations</b>		
<b>Criteria</b>	<b>Site Advantages</b>	<b>Risk</b>
	considerations could be overcome via implementation of natural screening by vegetation and careful design and placement of panels which could significantly reduce the visibility of the development.	
Archaeology and Heritage	No heritage designations within the Site were noted. A number of heritage designations associated with the town of Wisbech which lies approximately 1km west of the Site were noted. Within Wisbech there are designated parks and gardens along with buildings deemed as heritage at risk. Grade II listed buildings within 1km of the Site were also noted however given that solar arrays will be placed in areas of flat/low gradient it was deemed likely that visibility to the assets could be well screened during site design to protect local visual amenity.  The Site is currently used mostly for agricultural purposes; therefore, it was considered there would be little potential for undiscovered and undisturbed archaeological remains to survive.	Low
Potential Development Area	The topography and available land taking into account likely constraints faced on the Site present a good site for Solar PV with it possible to comfortably fit 49.9MW of ground mounted Solar PV within the bounds of the land with a comfortable degree of conservatism employed.	Low
Planning and Consenting	The proposed development is in an area which appeared to have reasonable precedence for constructing solar farms. It is worth noting that there have not been any refused applications for solar farms in the area. Furthermore, as there is not an abundance of solar farms within the area and that there is reasonable distancing between these existing solar farms the cumulative impact of this development would be deemed to be minimal.	Low
National and Local Development Plans	The Borough Council of Kings Lynn and West Norfolk have a local development plan which recognises that renewable development is necessary and will be integral to the council's development to meet national/governmental climate targets.	Low

Following the Site Feasibility Report as summarised above the Site was considered preferable to take forward for solar development when considering the potential environmental effects and commercial viability. Additionally, after the Applicants internal risk review the Site came out favourably when compared to other Sites undergoing the Site Feasibility process.

### **3.4 Design and Site Layout Alternatives**

#### **3.4.1 Overview of Design Objectives**

The design of the proposed development has been informed by the following guidance:

- Planning Guidance for the development of large-scale ground mounted solar PV systems (Building Research Establishment (BRE), 2014);
- Agricultural Good Practice Guidance for Solar Farms (BRE, 2014);

- National Solar Centre Biodiversity Guidance for Solar Developments (BRE, 2014); and
- Natural England Technical Information Note 101: Solar parks: Maximising environmental benefits

In addition to the above, and the environmental considerations set out in the previous section, the design of the proposed development has been guided by the following overarching objectives:

- Maximise the generating capacity and efficiency of the solar resource;
- Achieve acceptable noise levels at nearby residential properties;
- Reduce adverse landscape and visual effects on nearby sensitive receptors;
- Ensure that sensitive habitats, species and sites designated for conservation or historic interest are avoided and impacts minimised where possible;
- Protect existing trees and hedgerows where feasible; and
- Avoid areas of flood risk and minimise likely flooding elsewhere by achieving greenfield surface water run-off rates.

### 3.4.2 Design Evolution

The identification of environmental effects is an iterative process which runs alongside the design process. As environmental effects and sensitivities have been identified, the layout of the Proposed Development has gone through a number of modifications to avoid or minimise the potential environmental effects through careful design.

Following the completion of desk-based research and technical site surveys the key environmental issues for consideration in the design process were identified. Issues were considered through design with the aim of 'designing out' significant effects. Where it has not been possible to entirely mitigate by design, the issues have been considered further as part of the EIA.

There have been three principal iterations in the evolution of the proposed solar panel array and infrastructure layout, which have been developed at different stages in the project design process.

- Layout 1: Pre-Screening Layout
- Layout 2: Post-Survey Layout
- Layout 3: Final Layout

Table 3.2 explains the changes made through the three key iterations and how environmental constraints were accounted for.

<b>Table 3.2: Main Design Iterations</b>	
<b>Iteration</b>	<b>Comment</b>
Layout 1: Pre-Screening Layout	A desk-based exercise was undertaken as part of the Site Feasibility Study by the Applicant to determine the suitability of the Site. This process determined the Pre-Screening Layout as shown on <b>Figure 2.1: Existing Site Plan (ES, Volume 3)</b> . The Pre-Screening Layout was then refined in response to a number of technical constraints including a 11kv overhead line running east to west across the western array and a steel lattice overhead line running north to south across the southeast corner of the site. Buffers were put in place to avoid development under or around these areas.
Layout 2: Post-Survey Layout	Following the completion of the Site Feasibility Study technical environmental surveys were undertaken to determine site constraints in more detail. The results of the environmental surveys informed the design

<b>Table 3.2: Main Design Iterations</b>	
<b>Iteration</b>	<b>Comment</b>
	<p>process. The following environmental constraints were noted on and around the site:</p> <ul style="list-style-type: none"> <li>• Watercourses</li> <li>• Protected Species</li> <li>• Habitats</li> <li>• Heritage Assets</li> <li>• Landscape and Visual Receptors</li> <li>• Agricultural Land Classification</li> </ul> <p>Following the surveys, the environmental constraints reduced the developable area as shown in <b>Figure 2.2: Proposed Site Plan (ES, Volume 3)</b>. The design changed in response to the following:</p> <p>Landscape/ Property: Buffers were added to both the west and east parcels of land adjacent to Harp’s Hall Road. This was in response to potential impacts on residential visual amenity. As such a property buffer zone of at least 100 m has been applied to both the west and east arrays.</p> <p>Watercourses: A 10 m buffer was applied to all watercourses around the perimeter of the Site. 5 m buffers were applied to existing field drains within the Site.</p> <p>Protected Species/ Habitats: A number of protected species were recorded on the Site. The design was modified to avoid impacting these areas. These areas have been afforded buffer zones in line with regulatory requirements. Further detail on buffer distances are provided in the Technical Report Ecological Impact Assessment and corresponding Appendix. Similarly, the design has avoided priority habitat such as hedgerow. Given the agricultural nature of the site all non-agricultural habitats including non-priority habitat have been avoided where possible.</p>
Layout 3: Final Layout	<p>Following further detailed environmental assessment, the substation and BESS containers were relocated from the corner adjacent to Meer Dyke Lane and Cow Lake Drove due to concerns of landscape impacts and potential noise impacts upon residential receptors. Accordingly, the substation container and BESS are now located approximately 270 m to the north to reduce potential visual and noise impacts upon residential properties.</p> <p>The solar arrays were originally raised by 1m from the ground as a flood risk precaution. Following the completion of the Flood Risk Assessment which concluded maximum flood risk for the Site was approximately 0.3 m the solar arrays were lowered from 1m ground clearance to 0.6m ground clearance. This reduced the maximum height of the solar arrays from 3.45 m to 3.1 m. This change was done to reduce impacts on residential visual amenity.</p>

**3.4.3 Summary of the Preferred Site Layout**

The preferred layout taken forward for assessment in the ES is Layout 3 (Final Layout) as described in Chapter 2: Development Description (ES Volume 2) and shown in **Figure 2.2: Proposed Site Plan (ES Volume 3)**.

This preferred site layout includes:

- A reduction of in solar array height from 3.45 m to 3.1 m to reduce visual impacts;
- Incorporation of landscape/ property buffers adjacent to Harp’s Hall Road;

- Incorporation of landscape/ property buffers on the corner of Meer Dyke Lane and Cow Lake Drove;
- Re-siting of the substation and BESS containers to reduce / remove landscape and noise impacts;
- Avoidance of impacts on Protected Species;
- Avoidance of watercourse and drains;
- Avoidance of impacts on priority habitat, and
- Avoidance of technical constraints (overhead lines).

## 4. LEGISLATIVE AND POLICY CONTEXT

### 4.1 Introduction

This chapter provides the legislative and policy context relevant to the Proposed Development. The approach focuses on key climate change and renewable energy policies and legislation, as well as national and local planning policy.

A detailed examination of how the Proposed Development responds to legislation and policy is provided in the Planning Statement which is submitted separately as part of the application package.

### 4.2 Legislative Context

#### 4.2.1 The Town and Country Planning Act 1990

The Proposed Development will be submitted for consent through a planning application, under the provisions of the Town and Country Planning Act 1990 (as amended).

The Town and Country Planning Act 1990 (Section 70(2)) states in relation to the consideration of a planning application that, *"in dealing with such an application the authority shall have regard to the provisions of the Development Plan, so far as material to the application, and to any other material considerations."*

The Planning and Compulsory Purchase Act 2004 provides an amendment to the Town and Country Planning Act 1990. Section 38(6) of the Planning and Compulsory Purchase Act 2004 states that: *"If regard is to be had to the Development Plan for the purpose of any determination to be made under the Planning Acts the determination must be made in accordance with the plan unless material considerations indicate otherwise."*

The statutory development plan relevant to the proposed development comprises the King's Lynn & West Norfolk Borough Council Local Plan. This plan includes two policies: the Core Strategy (July 2011), and the Site Allocations and Development Management Policies Plan (September 2016).

Note, there are no completed Neighbourhood Plans covering the Parish area and the Norfolk County Council Mineral and Waste Plan is not considered relevant to this type of development.

#### 4.2.2 The Climate Change Act 2008

The Climate Change Act 2008 introduced legally binding targets to reduce the UK's greenhouse gas emissions. This represented the first global legally binding climate change mitigation target set by a country. The Act committed the UK to reducing its greenhouse gas emissions by 80% by 2050, compared with 1990 levels.

The Climate Change Act was amended in 2019 to commit the UK to 'net zero' by 2050. In 2019, the Climate Change Act 2008 (2050 Target Amendment) Order 2019 was passed which increased the UK's commitment to a 100% reduction in emissions by 2050.

#### 4.2.3 Climate Change Strategy and Action Plan

In September 2021, King's Lynn & West Norfolk Borough Council announced a 'climate change emergency' and adopted their Climate Change Strategy and Action Plan (2021-2024). The Council also adopted a corporate climate change policy in October 2020 which guides climate

change work and provides a framework for the wider Council operation. The policy works alongside the council's corporate priority of '*protecting and enhancing the environment including tackling climate change.*'

The Council have also brought their net zero target forward to 2035 from 2050 and have committed to reviewing the possibility of bringing this forward further to 2030.

The Climate Change strategy and action plan highlights the Council's approach to reducing emissions and tackling climate change. Phase 1 of the plan focuses on reducing corporate emissions to meet the 2035 net zero target. Phase 2 focuses on the Council's role and scope of influence in helping to reduce emissions across the district.

### **4.3 Energy and Climate Change Policy**

#### **4.3.1 Relevant International Agreements and Obligations**

##### European Parliament Directive (2009, 2018 & 2021)

The European Parliament Directive 2009/28/EC legally introduced the importance of increasing the use of energy from renewable sources in addition to obligating member states to commit to renewable energy targets. Paragraph (1) states: "*The control of European energy consumption and the increased use of energy from renewable sources, together with energy savings and increased energy efficiency, constitute important parts of the package of measures needed to reduce greenhouse gas emissions and comply with the Kyoto Protocol to the United Nations Framework Convention on Climate Change, and with further Community and international greenhouse gas emission reduction commitments beyond 2012*"

Under the Directive, the UK was committed to sourcing 15% of energy consumption from renewable energy resources by 2020. This is outlined in the UK Renewable Energy Strategy (2009) discussed below.

In December 2018, the EU Renewable Energy Directive 2018/2001/EU updated emissions reduction commitments under the Paris Agreement. This established a new binding renewable energy target for the EU for 2030 of at least 32%, with a clause for a possible upwards revision by 2023.

The Commission proposed another revision in 2021 to better align with the EU's increased climate ambitions. The revision introduces an increased 40% target as part of the package to deliver on the European Green Deal. The revised Directive also seeks to introduce new measures to complement the existing building blocks established through the 2009 and 2018 Directives, to ensure that potential for the development of renewable energy is optimally exploited. This is a necessary condition to achieve the EU's objective of climate neutrality by 2050.

##### The European Council 2030 Climate and Energy Framework (2014)

The European Council 2030 Climate and Energy Framework has set a further target of at least a 40% reduction in greenhouse gas emissions by 2030. The target is binding, and all Member States are required to participate in this effort to further combat climate change.

The As part of the European Green Deal, the Commission proposed in September 2020 to raise the 2030 greenhouse gas emission reduction target to at least 55% compared to 1990.

#### Intergovernmental Panel on Climate Change (IPCC) (2016)

In April 2016, the Intergovernmental Panel on Climate Change (IPCC) published a 'Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways' (SR1.5) in response to an invitation contained in the UN Paris Agreement.

The report concludes that human-induced warming reached approximately 1°C above pre-industrial levels in 2017 and at the present rate, global temperatures would reach 1.5°C around 2040. Actions recommended to reduce emissions are referenced throughout the SR1.5 Report and these include, for example, phasing out coal in the energy sector and increasing the amount of energy produced from renewable sources.

#### The Conference of Parties (COP) 21 UN Paris Agreement (2015)

The Paris Agreement (12 December 2015) sets out (page 2) "*with serious concern*" the need to hold the increase in global average temperature to "*well below 2°C*" above pre-industrial levels and to pursue "*efforts to limit the temperature increase to 1.5°C*". In order to achieve this long-term temperature target, the Agreement states "*parties aim to reach global peaking of greenhouse gas emissions as soon as possible*". The document also includes a ratcheting mechanism on climate action, with countries having to communicate nationally determined contributions to reducing global emissions. The first global 'stocktake' is to take place in 2023 and will follow every five years thereafter.

#### Clean energy for all Europeans package (2019)

In 2019 the EU overhauled its energy policy framework to move away from fossil fuels towards cleaner energy and to deliver on the EU's Paris Agreement commitments for reducing greenhouse gas emissions.

The "Clean Energy for All Europeans" package (2019) sets out the strengths and challenges facing the EU as it seeks to reach its renewable energy targets and highlights the importance of solar energy in putting Europe at the forefront of renewable energy production globally.

#### The Conference of Parties (COP) 26 Glasgow (2021)

The Conference of Parties held in Glasgow in October and November 2021 resulted in nations adopting the "Glasgow Climate Pact" which aims to turn the 2020s into a decade of climate action and support. The package of decisions consisted of a range of agreements including strengthened efforts to build resilience to climate change, curbing greenhouse gas emissions and providing the necessary finance for both. Nations reaffirmed their duty to fulfil the pledge of providing 100 billion dollars annually from developed to developing countries. Nations also collectively agreed to work to reduce the gap between existing emission reduction plans and what is required to reduce emissions, so that the rise in the global average temperature can be limited to 1.5 degrees. Moreover, the Glasgow Climate Pact, calls for the phasing down of unabated coal power and inefficient subsidies for fossil fuels.

### **4.3.2 Relevant United Kingdom Policies and Strategies**

The following UK-wide energy strategy and policy driver documents are of relevance:



### The UK Renewable Energy Strategy (UKRES) (2009)

This Strategy originally set out the means by which the UK could meet the legally binding target of 15% of energy consumption from renewable sources by 2020<sup>1</sup>. This reflected targets established in the Renewable Energy Directive 2009/28/EC.

The Renewable Energy Strategy presented a 'lead scenario' that more than 30 % of electricity should be generated from renewables by 2020<sup>2</sup>.

### The UK Renewables Energy Roadmap Updates (2012 and 2013)

The UK Renewable Energy Roadmap Update of 2012 emphasised that there was an urgent need for new large-scale renewable energy projects to ensure that 2020 targets were met. It also made it clear that the central ranges of renewable deployment as set out in the Roadmap of 2011 "*did not represent technology specific targets or the level of our ambition*". The Roadmap Update 2012 includes solar PV as one of the key renewable energy technologies that can help to create a balanced UK energy mix (Page 44).

On 6 November 2013 the former Coalition Government published an update to the UK Renewable Energy Roadmap. Solar energy is referred to on Page 59 and paragraph 179 states that, "*There are significant advantages with solar PV; it is versatile and scalable, with deployment possible in a wide range of locations...solar projects can be developed and installed very quickly; and the fuel, solar radiation is free.*" Paragraph 182 states that the level of support for solar energy across the UK needs to be maintained.

### The UK Clean Growth Strategy (2017)

The UK Government published the Clean Growth Strategy 'Leading the Way to a Low Carbon Future' in October 2017. The Clean Growth Strategy (CGS) defines 'clean growth' as "*growing our national income while cutting greenhouse gas emissions. Achieving clean growth, while ensuring an affordable energy supply for businesses and consumers, is at the heart of the UK's Industrial Strategy*". The introduction refers to the 2015 Paris Agreement and states that the actions and investments that will be needed to meet the Paris commitments will ensure the shift to clean growth will be at the forefront of policy decisions made by Government in coming decades.

### Committee on Climate Change (CCC) Report (2019) and Associate Progress Reporting (2020)

The Committee on Climate Change (CCC) published its landmark report entitled 'Net Zero – UK's Contribution to Stopping Global Warming' in May 2019. The report responds to requests from the Governments of the UK, Wales and Scotland, asking the CCC to reassess the UK's long-term carbon emissions targets.

The CCC's Progress Report to the UK Parliament of June 2020 assesses progress in reducing UK emissions over the past year. The Report states that "*progress remains significantly off track in adaptation to build climate resilience*" and "*overall the Government has only fully achieved two milestones out of 31 set out in 2019 Progress Report*". The Report also refers to new challenges set by COVID-19 and states "*our recovery from it will reshape how we tackle the climate crisis. Choices in the coming months must steer a recovery that drives vital new economic activity,*

<sup>1</sup> Renewable energy accounted for 11% of UK energy consumption in 2018 (Source: DECC, Digest of UK Energy Statistics (DUKES) July 2019).

<sup>2</sup> The contribution of all renewables to UK electricity generation was 33% in 2018, (Ibid). In 2000 renewable generation was 2.6%.

*accelerates our transition to Net Zero and strengthens our resilience to the impacts of climate change”.*

#### The UK Government’s Energy White Paper: Powering our Net Zero Future (2020)

In November 2020, the UK Government published its ‘Ten Point Plan for a Green Industrial Revolution’, which the Government confirm will allow the UK to forge ahead with eradicating its contribution to climate change by 2050.

The publication of the 10 Point Plan was followed by the ‘Energy White Paper: Powering our net zero future’ in December 2020. In it, the UK Government highlights the intention to continue to hold regular Contracts for Difference (CfD) auction rounds every two years to bring forward a range of low-cost renewable technologies. While a key focus on investment for the UK Government is in offshore wind it states at page 45 that solar development will be a “*key building block of the future generation mix...We will need sustained growth in the capacity of these sectors in the next decade to ensure that we are on a pathway that allows us to meet net zero emissions in all demand scenarios.*”

#### The British Energy Security Strategy (2022)

The UK Government published its ‘British Energy Security Strategy’ in April 2022. The Strategy seeks to accelerate the UK’s energy transition to improve energy security and independence in the long term. To this end, large capacity increases are targeted in nuclear, renewables and hydrogen along with supporting domestic production of natural gas.

With regards to solar energy, a key objective of the strategy is to ramp up solar energy deployment on both roof spaces and on the ground. Page 19 highlights that solar is a globally abundant resource which has reduced significantly in cost over the past decade. As such the UK Government expect a five-fold increase in solar deployment by 2035, and the Government will continue to support well-designed large scale solar projects on suitable sites.

## **4.4 National Planning Policy**

### **4.4.1 National Planning Policy Framework**

A revised National Planning Policy Framework (NPPF) was published in July 2021. The NPPF sets out the Government’s planning policies for England and how these should be applied. It provides a framework within which locally prepared plans for development can be produced.

The NPPF reiterates that applications for planning permission be determined in accordance with the development plan unless material considerations indicate otherwise. The NPPF must be taken into account in preparing the development plan and is a material consideration in planning decisions. Planning policies and decisions must also reflect relevant international obligations and statutory requirements.

#### Presumption in Favour of Sustainable Development

The NPPF outlines the key economic, social and environmental policies for development in England. The focus of the NPPF is a presumption in favour of sustainable development. NPPF states that, “*The purpose of the planning system is to contribute to the achievement of sustainable development...the objective of sustainable development can be summarised as meeting the needs of the present without compromising the ability of future generations to meet their own needs*” (Paragraph 7).

Paragraph 11 states that, *"Plans and decisions should apply a presumption in favour of sustainable development." For decision taking this means, "c) approving development proposals that accord with an up-to-date development plan without delay; or d) where there are no relevant development plan policies, or the policies which are most important for determining the application are out-of-date, granting permission unless: i. the application of policies in this Framework that protect areas or assets of particular importance provides a clear reason for refusing the development proposed; or ii. any adverse impacts of doing so would significantly and demonstrably outweigh the benefits, when assessed against the policies in this Framework taken as a whole."*

In achieving sustainable development, three overarching objectives are identified for the planning system; economic, social and environmental. The objectives include (page 5, para 8) *"a) an economic objective – to help build a strong, responsive and competitive economy, by ensuring that sufficient land of the right types is available in the right places and at the right time to support growth, innovation and improved productivity; and by identifying and coordinating the provision of infrastructure; b) a social objective – to support strong, vibrant and healthy communities, by ensuring that a sufficient number and range of homes can be provided to meet the needs of present and future generations; and by fostering well-designed, beautiful and safe places, with accessible services and open spaces that reflect current and future needs and support communities' health, social and cultural well-being; and c) an environmental objective – to protect and enhance our natural, built and historic environment; including making effective use of land, improving biodiversity, using natural resources prudently, minimising waste and pollution, and mitigating and adapting to climate change, including moving to a low carbon economy."*

### Renewable Energy

The NPPF highlights that planning has a key role to play in supporting renewable energy and associated infrastructure. Paragraph 152 states that *"The planning system should support the transition to a low carbon future in a changing climate...It should help to: shape places in ways that contribute to radical reductions in greenhouse gas emissions, minimise vulnerability and improve resilience; encourage the reuse of existing resources, including the conversion of existing buildings; and support renewable and low carbon energy and associated infrastructure."*

### Planning Practice Guidance

The National Planning Practice Guidance is an extensive online resource of detailed policy guidance provided by the Ministry of Housing, Communities and Local Government. The relevant guidance themes are set out below:

#### Climate Change (March 2019)

The climate change guidance advises how to identify suitable mitigation and adaptation measures in the planning process to address the impacts of climate change.

The guidance states that effective spatial planning is an important part of a successful response to climate change. Addressing climate change is one of the core land use planning principles which the National Planning Policy Framework expects to underpin in both plan-making and decision-taking. Local planning authorities should ensure that protecting the local environment is properly considered alongside the broader issues of protecting the global environment.

#### Environmental Impact Assessment (May 2020)

This guidance explains requirements of the Town and Country Planning (Environmental Impact Assessment) (EIA) Regulations 2017, which governs the process of EIA in England.

#### Renewable and Low Carbon Energy (June 2015)

This Guidance to help local councils in developing policies for renewable and low carbon energy and identifies the planning considerations.

The guidance highlights that planning has an important role in the delivery of new renewable and low carbon energy infrastructure in locations where the local environmental impact is acceptable. Increasing the amount of energy from renewable and low carbon technologies is considered important to make sure the UK has a secure energy supply, to reduce greenhouse gas emissions, to slow down climate change and to stimulate investment in new jobs and businesses.

### **4.4.2 Planning Circulars**

Planning circulars provide non-statutory advice and guidance on particular issues to expand on subjects referred to in legislation. The Circular of most relevance to this EIA process includes the "Biodiversity and geological conservation: circular 06/2005" which provides administrative guidance on the application of the law relating to planning and nature conservation as it applies in England.

### **4.4.3 Overarching National Policy Statement for Energy (EN-1)**

The "Overarching National Policy Statement for Energy (EN-1)" was published in July 2011 and sets out the Government's policy for the delivery of major energy infrastructure. This document is used alongside other specific National Policy Statements (NPS) by the Infrastructure Planning Commission when it makes decisions on applications for development consent for nationally significant energy infrastructure including the National Policy Statement for Renewable Energy Infrastructure (EN-3) (July 2011).

Although the proposed development does not fall within the definition of major energy infrastructure, it is important to note that the Renewable Energy NPS states, "*Electricity generation from renewable sources of energy is an important element in the Government's development of a low-carbon economy.*"

## **4.5 Local Planning Policy**

### **4.5.1 Local Development Plan**

The Site is located within the jurisdiction of King's Lynn and West Norfolk Borough Council. The Local Development Plan consists of:

- The King's Lynn & West Norfolk Borough Council Local Development Framework - Core Strategy (adopted July 2011); and,
- The King's Lynn & West Norfolk Borough Council Site Allocations and Development Management Policies Plan (adopted September 2016).

The policies contained within the adopted Norfolk Minerals and Waste Development Framework are not considered to be relevant to the Proposed Development.

The site does not lie within any Neighborhood Plan area. The site lies outside but directly adjacent to the Marshland St James Neighbourhood Plan Area which is currently under preparation.

With regards to the emerging local plan, the King's Lynn and West Norfolk Borough Council Local Plan Review (2016-2036) was submitted to the Secretary of State for Levelling Up, Housing and Communities on 29 March 2022 for examination. The examination is expected to finish by the end of 2022. Given the advanced progress of the Local Plan Review, it is considered material to the EIA and planning decision-making process. This is considered further below.

### Core Strategy

The Core Strategy was adopted in 2011 and guides development and use of land up to 2026. It sets out the long-term plans for the Borough and contains a number of policies to help shape new development and guide the strategic direction of growth.

The Core Strategy outlines the Vision for the area based on the three pillars of economy, society and environment. Spatial objectives are given as indicators of the success or otherwise in achieving the Vision. Notably, objective 13 (page 12) seeks to ensure *"West Norfolk is meeting the challenges of climate change and reducing or mitigating carbon emissions."*

The policies of the Core Strategy most relevant to the Proposed Development and the associated environmental assessment process are as follows:

### Policy CS01 - Spatial Strategy

*"Development priorities for the borough will be to: facilitate and support the regeneration and development aspirations identified in the Regional Spatial Strategy; encourage economic growth and inward investment; improve accessibility for all to services; education; employment; health; leisure and housing; protect and enhance the heritage, cultural and environmental assets and seek to avoid areas at risk of flooding; faster sustainable communities with an appropriate range of facilities.*

#### *Sustainable development locations*

*In accommodating these priorities our approach will utilise a settlement hierarchy (set out in Policy CS02) to ensure that: new investment is directed to the most sustainable places; significant emphasis is placed on brownfield redevelopment within the towns and villages, the development of sustainable urban extensions to the main towns; locally appropriate levels of growth take place in selected Key Rural Service Centres and Rural Villages; new development is guided away from areas at risk of flooding now or in the future, however recognising development may be required within flood risk areas to deliver regeneration objectives within King's Lynn and maintain the sustainability of local communities in rural areas; approximately 90% of new residential development will take place in areas identified within the settlement hierarchy to ensure reasonable access to services satisfying basic day to day needs; 75% of employment land will be allocated in King's Lynn.*

#### *Rural and coastal areas*

*The strategy for the rural areas will: promote sustainable communities and sustainable patterns of development; ensure strong, diverse, economic activity, whilst maintaining local character and a high quality environment, focus must new development and at least 2, 880 new homes within or adjacent to these selected Key Rural Service Centres (to be defined in the Site Specific Allocations DPD); protect the countryside beyond the villages for its intrinsic character and beauty, the*

*diversity of its historic environment; landscapes; geodiversity and biodiversity through a Green Infrastructure Management Plan, and Biodiversity Action Plans.”*

#### Policy CS06 – Development in Rural Areas

*“The strategy for rural areas is to: promote sustainable communities and sustainable patterns of development to ensure strong, diverse, economic activity; maintain local character and a high quality environment; focus most new development in key rural service centres selected from the Settlement Hierarchy Policy CS02; ensure employment, housing (including affordable housing), services and other facilities are provided in close proximity.*

*Beyond the villages and in the countryside, the strategy will be to protect the countryside for its intrinsic character and beauty, the diversity of its landscapes, heritage and wildlife, and its natural resources to be enjoyed by all. The development of greenfield sites will be resisted unless essential for agricultural or forestry needs.”*

#### Policy CS08 Sustainable Development - Renewable Energy (pg. 33)

*“The Council and its partners will support and encourage the generation of energy from renewable sources. These will be permitted unless there are unacceptable locational or other impacts that could not be outweighed by wider environmental, social, economic and other benefits. Renewable projects should be assessed accordingly (where necessary by project level Habitat Regulation Assessment) to ensure minimal ecological impact and should undergo a detailed cumulative impact assessment.”*

#### Policy CS10 – The Economy (pg. 44)

*“The local economy will be developed sustainably: to facilitate job growth in the local economy, delivering the RSS target of 5,000 additional jobs by 2021. Job growth will be achieved through the provision of employment land as well as policies for tourism, leisure, retail and the rural economy; to increase the proportion of higher skilled jobs while ensuring that opportunities are available for the development of all sectors of the economy and workforce.*

*Infrastructure networks in some areas will need to be expanded and improved to facilitate the growth planned. The Implementation Chapter addresses the way in which we intend to facilitate these improvements.”*

#### Policy CS11 – Transport (pg. 49)

*“Dealing with transport issues in new development - Development proposals should demonstrate that they have been designed to: Reduce the need to travel. Promote sustainable forms of transport appropriate to their particular location and related to the uses and users of the development... Provide for safe and convenient access for all modes...The Council will seek appropriate contributions to necessary transport improvements”*

#### Policy CS12 - Environmental Assets (pg. 53)

*“Green Infrastructure, Historic Environment, Landscape Character, Biodiversity and Geodiversity Proposals to protect and enhance our historic environment and landscape character, biodiversity and geodiversity will be encouraged and supported. The Borough Council will work with partners to ensure an integrated network of green infrastructure throughout the urban and rural areas (identified through the Green Infrastructure Management Plan and Econet map) is successfully created and managed to:*

- meet the environmental, social and economic needs of local communities and the wider borough;
- create a high quality environment for biodiversity and geodiversity to flourish;
- provide opportunities for species to adapt to the impacts of climate change;
- contribute to an improved quality of life for current and future residents and visitors;
- areas identified as being deficient in multi-functional green space will be targeted;
- the incorporation of Sustainable Drainage Systems with new development will also be promoted to encourage new habitats.

*The historic and built environment play a crucial role in delivering environmental quality and well-being. Therefore the Council will preserve and where appropriate enhance its qualities and characteristics. The Council and its partners will support a range of initiatives, including Biodiversity Action Plans and proposals that will improve areas of poor quality lacking in biodiversity and geodiversity as well as maintaining, enhancing and linking areas of good quality. The Council will protect and enhance County Wildlife Sites, ancient woodlands, Biodiversity Action Plan Species and Habitats, Regionally Important Geological Sites and designated sites of historical value from development which damages their interest or significance unless the need for, and public benefits of the development outweigh the loss of interest or significance. Development should seek to avoid, mitigate or compensate for any adverse impacts on biodiversity, geodiversity and heritage as well as seeking to enhance sites through the creation of features of new biodiversity, geodiversity and heritage interest. The design of new development should be sensitive to the surrounding area, and not detract from the inherent quality of the environment.*

*The Council will require development proposals to be accompanied by an ecological impact study and assessment proportionate to the degree of the impact and importance of the species affected. It may be necessary to secure biodiversity, geodiversity and heritage needs through planning conditions and/or obligations. This can include timing of work, Section 106 Agreements, pre-application negotiations, conditions, mitigation and compensation measures. New built development will be restricted within 1,500m of the Breckland SPA. Development will be restricted to the re-use of existing buildings or where existing development completely masks the new proposal from the Breckland SPA. Beyond the SPA, a 1,500m buffer will also be applied to areas where the qualifying features are known to exist, or where nesting attempts have been made. In this area, development may be acceptable where suitable alternative habitat (outside the SPA) can be secured. Character Assessment Proposals for development will be informed by, and seek opportunities to reinforce the distinctive character areas and potential habitat creation areas identified in the King's Lynn and West Norfolk Landscape Character Assessment, the West Norfolk Econet Map and other character assessments. Development proposals should demonstrate that their location, scale, design and materials will protect, conserve and, where possible, enhance the special qualities and local distinctiveness of the area (including its historical, biodiversity and cultural character), gaps between settlements, landscape setting, distinctive settlement character, landscape features and ecological networks.*

#### Site Allocations and Development Management Policies Plan (SADMP)

The Site Allocations and Development Management Policies Plan (SADMP) was adopted in 2016. This plan sets out land allocations and development management policies. It complements and assists the Core Strategy in achieving its vision, aims and objectives.

The site is currently allocated in the SADMP as 'Countryside'. Renewable energy is a use which is identified as suitable in rural areas subject to compliance with Policy DM20 - Renewable Energy.

The policies of the SAMDP most relevant to the Proposed Development are as follows:

Policy DM1 – Presumption in favour of sustainable development

*"When considering development proposals the Council will take a positive approach that reflects the presumption in favour of sustainable development contained in the National Planning Policy Framework. It will always work proactively and jointly with applicants to find solutions that allow proposals to be approved wherever possible, and to secure development that improves the economic, social and environmental conditions in the area. Planning applications that accord with the policies in this Local Plan (and, where relevant, with policies in neighbourhood plans) will be approved without delay, unless material considerations indicate otherwise. Where there are no policies relevant to the application or relevant policies are out of date at the time of making the decision, the Council will grant permission unless material considerations indicate otherwise – taking into account whether: Any adverse impacts of granting permission would significantly and demonstrably outweigh the benefits, when assessed against the policies in the National Planning Policy Framework taken as a whole; or Specific policies in that Framework indicate that development should be restricted."*

DM2 – Development Boundaries

*"Development will be permitted within the development boundaries of settlements shown on the Policies Map provided it is in accordance with the other policies in the Local Plan. The areas outside development boundaries (excepting specific allocations for development) will be treated as countryside where new development will be more restricted and will be limited to that identified as suitable in rural areas by other policies of the local plan, including*

- farm diversification (under Core Strategy Policy CS06);
- small scale employment (under Core Strategy Policy CS10);
- tourism facilities (under Core Strategy Policy CS10);
- community facilities, development in support (under Core Strategy Policy CS13);
- renewable energy generation (under Policy DM20 of the rural economy or to this Plan);
- rural workers' housing (under Policy DM6 of this Plan); and
- affordable housing (under Core Strategy Policy CS09) In Smaller Villages and Hamlets, infilling in accordance with Policy DM3 will also be permitted in addition to those categories identified in the previous paragraph."

DM15 – Environment, Design and Amenity

*"Development must protect and enhance the amenity of the wider environment including its heritage and cultural value. Proposals will be assessed against their impact on neighbouring uses and their occupants as well as the amenity of any future occupiers of the proposed development. Proposals will be assessed against a number of factors including: Heritage impact; Overlooking, overbearing, overshadowing; Noise; Odour; Air quality; Light pollution; Contamination; Water quality and Visual impact. The scale, height, massing, materials and layout of a development should respond sensitively and sympathetically to the local setting and pattern of adjacent streets including spaces between buildings through high quality design and use of materials. Development that has a significant adverse impact on the amenity of others or which is of a poor*



*design will be refused. Development proposals should demonstrate that safe access can be provided and adequate parking facilities are available."*

#### DM19 – Green Infrastructure/Habitats Monitoring and Mitigation

*"Opportunities will be taken to link to wider networks, working with partners both within and beyond the Borough...The Council will identify, and coordinate strategic delivery, with relevant stakeholders, of an appropriate range of proportionate green infrastructure enhancements to support new housing and other development and mitigate any potential adverse effects on designated sites of nature conservation interest as a result of increased recreational disturbance arising from new development. All new development must ensure there is no adverse effect on a European Protected Site through the provision of appropriate measures. These enhancements will be set out in a Green Infrastructure Delivery Plan. Major development will contribute to the delivery of green infrastructure, except: Where it can be demonstrated the development will not materially add to the demand or need for green infrastructure. Where such a contribution would make the development unviable, the development will not be permitted unless: It helps deliver the Core Strategy; and the relevant contribution to that Strategy could not be achieved by alternative development, including in alternative locations or in the same location at a later time; or unless the wider benefits of the proposed development would offset the need to deliver green infrastructure enhancements.*

*In relation to Habitats Regulations Assessment monitoring and mitigation the Council has endorsed a Monitoring and Mitigation Strategy including: Project level HRA to establish affected areas (SPA, SAC, RAMSAR) and a suite of measures including all/some of: Provision of an agreed package of habitat protection measures, to monitor recreational pressure resulting from the new allocations and, if necessary, mitigate adverse impacts before they reach a significant threshold, in order to avoid an adverse effect on the European sites identified in the HRA. This package of measures will require specialist design and assessment, but is anticipated to include provision of:*

- I. A monitoring programme, which will incorporate new and recommended further actions from the Norfolk visitor pressure study (anticipated to be completed in Spring 2016) as well as undertaking any other monitoring not covered by the County-wide study.
- II. Enhanced informal recreational provision on (or in close proximity to) the allocated site [Sustainable Accessible Natural Greenspace], to limit the likelihood of additional recreational pressure (particularly in relation to exercising dogs) on nearby relevant nature conservation sites. This provision will be likely to consist of an integrated combination of: 1. Informal open space (over and above the Council's normal standards for play space); 2. Landscaping, including landscape planting and maintenance; 3. A network of attractive pedestrian routes, and car access to these, which provide a variety of terrain, routes and links to the wider public footpath network.
- III. Contribution to enhanced management of nearby designated nature conservation sites and/or alternative green space;
- IV. A programme of publicity to raise awareness of relevant environmental sensitivities and of alternative recreational opportunities ."

#### DM20 – Renewable Energy

*"Proposals for renewable energy (other than proposals for wind energy development) and associated infrastructure, including the landward infrastructure for offshore renewable schemes, will be assessed to determine whether or not the benefits they bring in terms of the energy generated are outweighed by the impacts, either individually or cumulatively, upon:*

- Sites of international, national or local nature or landscape conservation importance, whether directly or indirectly, such as the Norfolk Coast Area of Outstanding Natural Beauty (AONB), Sites of Special Scientific Interest (SSSIs) and Ramsar Sites;
- The surrounding landscape and townscape;
- Designated and un-designated heritage assets, including the setting of assets;
- Ecological interests (species and habitats);
- Amenity (in terms of noise, overbearing relationship, air quality and light pollution);
- Contaminated land;
- Water courses (in terms of pollution);
- Public safety (including footpaths, bridleways and other non-vehicular rights of way in addition to vehicular highways as well as local, informal pathway networks); and
- Tourism and other economic activity.

*In addition to the consideration of the above factors, the Borough Council will seek to resist proposals where:*

*a) There is a significant loss of agricultural land; or*

*b) Where land in the best and most versatile grades of agricultural land are proposed to be used.*

*Development may be permitted where any adverse impacts can be satisfactorily mitigated against and such mitigation can be secured either by planning condition or by legal agreement."*

Other relevant SADMP policies which need to be taken into consideration include the following:

- Policy DM 21 - Sites in Areas of Flood Risk.

#### **4.5.2 Local Plan Review**

The King's Lynn and West Norfolk Borough Council Local Plan Review (2016-2036) was submitted to the Secretary of State for Levelling Up, Housing and Communities on 29 March 2022 for examination. The examination is expected to finish by the end of 2022. Given the advanced progress of the Local Plan Review, it is considered material to the planning and EIA process.

Strategic Policy LP16 Sustainable Development of the Local Plan Review outlines that the generation of energy from renewable sources will be supported, stating:

*"The Council and its partners will support and encourage the generation of energy from renewable sources. These will be permitted unless there are unacceptable locational or other impacts that could not be outweighed by wider environmental, social, economic and other benefits. Commercial and agricultural buildings with a significant area of flat/low pitch roofs (over 250m<sup>2</sup>) should make provision for solar panels within their detailed design to maximise the use of the roof area. (See also Policy LP24)."*

'Policy LP24 – Renewable Energy' of the Local Plan Review states:

*"The Proposals will be supported and considered in the context of contributing to the achievement of sustainable development and adapting to climate change. Proposals made by a local community and through neighbourhood plans for the development of renewable and low-carbon sources of energy, in scale with their community's requirements, including supporting infrastructure for renewable energy projects will be supported."*

*Proposals for renewable energy (other than proposals for wind energy development) and associated infrastructure, including the landward infrastructure for offshore renewable schemes, will be assessed to determine whether or not the benefits they bring in terms of the energy generated are outweighed by the impacts, either individually or cumulatively, upon:*

- sites of national or local nature or landscape conservation importance, whether directly or indirectly, such as the Norfolk Coast Area of Outstanding Natural Beauty (AONB),
- the surrounding landscape and townscape;
- designated and un-designated heritage assets, including the setting of assets;
- ecological interests (species and habitats);
- amenity (in terms of noise, overbearing relationship, air quality and light pollution);
- contaminated land;
- water courses (in terms of pollution);
- public safety (including footpaths, bridleways and other non-vehicular rights of way in addition to vehicular highways as well as local, informal pathway networks); and
- tourism and other economic activity.

*In addition to the above factors, the Borough Council will seek to protect productive agricultural land and best and most versatile land(22) Applications for other uses which would adversely affect these are likely to be refused, unless the material benefits associated with its approval outweigh its loss.*

*Development may be permitted where any adverse impacts can be satisfactorily mitigated against and such mitigation can be secured either by planning condition or by legal agreement.*

*In line with Policy LP27 proposals that would lead to adverse impacts on international nature conservation sites will not be permitted."*

The site has no site-specific allocation, and as such retains its allocation as 'Countryside' in the Local Plan Review.

#### **4.5.3 Other Local Strategies and Plans**

Other relevant local strategies and plans which have been considered through the environmental assessment process include:

- Norfolk Biodiversity Action Plan (1999);
- Greater Norfolk Green infrastructure Strategy;
- King's Lynn & West Norfolk Borough Council Landscape Character Assessment;
- Norfolk Local Transport Plan; and,
- Draft Kings Lynn Area Transport Strategy.

These strategies and plans are discussed in further detail in the relevant technical chapters of the EIA, or in associated technical reports which have been submitted in support of the planning application. Each technical EIA chapter/report also considers further topic-specific guidance relevant to that particular assessment which has been informed by feedback received through the EIA scoping process.

## 4.6 Summary

This chapter sets out the legislative context relevant to solar development in the Borough Council of King's Lynn and West Norfolk, identifies international and national energy and climate change policies and strategies, and highlights the relevant national and local planning policies relevant to the EIA process. It provides an objective summary of the policy considerations that have been taken into account in the preparation of the EIA.

As previously noted, the policy appraisal for the Proposed Development is contained in a separate Planning Statement submitted with the application for consent.

## 4.7 References

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## 5. LANDSCAPE AND VISUAL

### 5.1 Introduction

#### 5.1.1 Overview

This assessment has been prepared to accompany a planning application for the development of the Site. The development is a Solar Farm development (the 'Proposed Development') as detailed in Chapter 2: Development Description (Volume 2). For the purposes of the Landscape and Visual Impact Assessment (LVIA) the following elements were assessed:

- approximately 125,000 ground mounted solar power modules;
- a substation container<sup>1</sup>;
- 10 x battery energy storage containers;
- security fencing 3 m high around substation and battery area;
- perimeter fencing, 2.5 m high deer fence to the perimeter of the Site;
- Passive Infrared Sensor (PIR) LED Lighting mounted to fence or structures of the substation and batteries. There will be no lighting around the perimeter of the Site; and
- access tracks, surfaced with crushed aggregate

The Site is located within the administrative boundary of King's Lynn and West Norfolk Borough Council.

#### 5.1.2 Scope and Objective

This LVIA is intended to identify and assess the significance of and the effects resulting from the Proposed Development on both the landscape as an environmental resource and on people's views and visual amenity. The rural nature of the surrounding land requires only landscape elements to be included in the Assessment.

The assessment has been prepared considering relevant local and national guidance, policy and legislation, and the 2013 Guidelines for Landscape and Visual Impact Assessment<sup>2</sup> (GLVIA) provides definitions that have been used within this LVIA, as below.

Landscape is an area, as perceived by people, the character of which is the result of the action and interaction of natural and/or human factors. Townscape refers to areas where the built environment is dominant. Villages, towns and cities often make important contributions as elements in wider open landscapes, but townscape means the landscape within the built-up area, the character and composition of the built environment including the buildings, the relationships between them, the different types of urban open spaces, including green spaces, and the relationship between buildings and open spaces. The way that villages, towns and cities change and develop over time contributes to their current form and character.

Visual amenity is the overall pleasantness of the views people enjoy of their surroundings, which provides an attractive visual backdrop for the enjoyment of activities of the people living, working, recreating, visiting, or travelling through an area.

<sup>1</sup> It should be noted that the substation container elevation was assessed to 8m as a worst-case scenario. Following further design, the substation container worst-case elevation will be 5m. This change does not result in a material difference to the conclusion of the assessment.

<sup>2</sup> Routledge, 2013. Guidelines for Landscape and Visual Impact Assessment (GLVIA3). Third Edition.

### 5.1.3 Consultation

Consultation reviews are in the Table 5.1 below and provides information on how and where they have been addressed.

<b>Table 5.1 Consultation Responses</b>			
<b>Consultee and Date</b>	<b>Scoping /Other Consultation</b>	<b>Issues Raised</b>	<b>Response/Action</b>
Natural England 12/08/2022	Scoping	<ol style="list-style-type: none"> <li>1. Refer to the relevant National Character Areas.</li> <li>2. Include a full assessment of the potential impacts of the development on local landscape character using landscape assessment methodologies.</li> <li>3. The assessment should also include the cumulative effect of the development with other relevant existing or proposed developments in the area.</li> <li>4. Design of the Proposed Development should reflect local characteristics.</li> </ol>	<ol style="list-style-type: none"> <li>1. National character area is referred to in the Baseline, with a full description and environmental opportunities.</li> <li>2. Assessment guide for use included in the methodology with a full assessment through the baseline, assessment chapter and summary.</li> <li>3. Cumulative Impacts includes one development adjacent to the site. Majority of cumulative sites scoped out due to being outside of the baseline area or too far from site.</li> <li>4. Landscape mitigation responds to the local character area.</li> </ol>
West Walton Parish Council 15/08/2022	Scoping	No issues Raised "West Walton Parish Council has no objection or comments in respect of Planning Application Consultation 22/01258/EIASC - EIA SCOPING OPINION REQUEST at Land At Blunts Drove Walton Highway Norfolk".	N/A



<b>Table 5.1 Consultation Responses</b>			
<b>Consultee and Date</b>	<b>Scoping /Other Consultation</b>	<b>Issues Raised</b>	<b>Response/Action</b>
Kings Lynn and West Norfolk Council 03/10/2022	Scoping	<ol style="list-style-type: none"> <li>1. Include photomontages from key views.</li> <li>2. Include additional viewpoints.</li> <li>3. Include additional Cumulative Impact Sites.</li> </ol>	<ol style="list-style-type: none"> <li>1. Included in Figure 5.4 Labelled Photograph sheets.</li> <li>2. Current viewpoints considered representative of study area.</li> <li>3. The cumulative impact assessment includes consideration of Mill Road because it is immediately adjacent to the Site. Other sites beyond 2km and/or not subject of a valid application or consent are not included in the cumulative assessment.</li> </ol>

## 5.2 Site Description

### 5.2.1 Site Location

As shown in Figure 5.1, the Site is located at Meerdyke, Wisbech, PE14 7DL, located 1.3 kilometres (km) east of Wisbech and 500 metres (m) to the east of the A47 trunk road.

The Site lies within a rural area east of Wisbech which is characterised by agricultural land, a mixed road infrastructure, including the A47, surrounding local roads and residential settlements. The Site is bound by arable fields with a mixture of hedgerow, dykes, open sided fields, woodland, tracks, properties and farm buildings. The landscape topography is relatively flat with wide panoramic views of the surrounding area, except around Wisbech, the A47 and surrounding settlements, where hedgerows, woodland, orchards and trees obscure long distant views.

The Site falls within the King's Lynn and West Norfolk Local Plan and Norfolk County Council's Environmental Policy. The Site and surrounding 2 km study area do not hold any landscape designations or protections.

### 5.2.2 Site Description

The Site consists of multiple parcels of agricultural land. These parcels of land are separated by Harp's Hall Road and the residential properties connected to farmsteads, covering a total of 87.53 hectares (ha), to the east and west of Harp's Hall Road.

The area to the west of Harp's Hall Road is made up of four arable agricultural fields. It is bordered by woodland, arable barns and agricultural fields to the north, connected via an existing grassed culvert over a dyke. Properties and pasture field border the east, with an existing entrance through existing access roads from Harp's Hall Road. Dyke systems and Cow Lake Drove, border from the south of the Site and a dyke and Meerdyke Lane border the west of the Site, with an existing farm access track. There are no hedgerows within the Site, except on the north-east border of the southern field. An 11kV electrical line runs through the Site North to South. The properties and Farms on Harp's Hall Road are enclosed by evergreen Leylandii hedging that screen views to the Site on the north, south and west. No specimen trees present in this parcel of land.

The area to the east of Harp's Hall Road consists of two arable agricultural fields. To the north, the Site is bordered by agricultural fields with occasional remnants of hedge. Overhead lines on steel lattice towers for power transmission cross the Site from the north-east on a diagonal, cutting over the south-eastern corner of the Site. The east of the Site is bordered by Smeeth Lode Drain, a large drain/canal system, moving water east towards the sea. To the South there is a hedgerow which opens to a grass track along the embankment of a dyke. The view is the closed at the bottom corner of the southern field by the vegetation screening the base of the two 70 m high wind turbines beyond the southern boundary, including trees and shrubby growth to the north, with a reed and grass mix around the base of wind turbines towards the dyke at the south. The east of the Site is bordered by a farm building along Harp's Hall Road, the exiting entrance can be found south of the farm.

## 5.3 Proposed Development

### 5.3.1 Overview

The Proposed Development as shown on Figure 2.2: Proposed Site Plan (Volume 3) would alter the existing agricultural land use and implement a Solar Farm development including ground mounted Solar PV, Substation and Battery Storage Container Blocks along with security fencing and associated track infrastructure. Refer to Figure 5.5 for landscape mitigation.

The assessment considers the physical characteristics of the Proposed Development based on the information set out in Chapter 2: Description of the Development (Volume 1).

In the design, a setback with no development has been implemented between residential and farm properties and the proposed solar development infrastructure, these will consist of areas of managed grass with hedgerow. This is to provide a suitable distance between sensitive receptors and any proposed development. The setbacks range from 100-167 m. An approximate 10 m gap has been left around the perimeter of the Site, between the proposed solar panels and the security fencing. This is to allow for Site maintenance.

Solar panels are spread across both parcels of land, in a southwestern direction and consist of up to 49.9MW ground mounted Solar PV, typically black with white metal bars between, placed in a pyramidal shape. The maximum height will be 3.1 m.

Perimeter fencing and hedgerow mitigation planting will border the perimeter of the Site. Perimeter fencing will consist of 2.5 m high timber and wire deer fencing. Hedgerows will be to the external edge of this, screening the fencing and providing green connectivity around the Site.

The Proposed Development has two access points, both located on the existing farm access points. The access points to the Proposed Development are located within the buffer along Harp's Hall Road.

All main access points and routes through the Proposed Development will be constructed with crushed stone. The remaining areas, between the proposed structures will be treated with a wildflower meadow except where existing vegetation and dykes are being retained.

There are three main landscape elements being retained on the Site. These include:

- A dyke cutting through the centre of the western section of the Site. This dyke feeds into to the location identified as having water vole activity along the northern border;
- A hedgerow running vertically along the eastern central section of the western area of Site; and
- A bramble scrub area along the existing field boundary on the eastern section of the Site. A culvert will be placed through the bramble scrub to access the bottom field.

## 5.4 Legislation, Planning Policy and Guidance

National, regional and local policy and guidance have been considered throughout the preparation of the LVIA, aspects of these relevant to the LVIA are summarised below.

## 5.4.1 National

### 5.4.1.1 National Planning Policy Framework

The revised National Planning Policy Framework (NPPF)<sup>3</sup> sets out the Government's planning policies for England and how they are expected to be applied. This highlights a range of policies and considerations pertinent to the landscape and visual impact of the Site and its context.

### 5.4.1.2 Achieving Sustainable Development

Paragraph 8 states "*Achieving sustainable development means that the planning system has three overarching objectives, which are interdependent and need to be pursued in mutually supportive ways (so that opportunities can be taken to secure net gains across each of the different objectives):*

- a) *an economic objective – to help build a strong, responsive and competitive economy, by ensuring that sufficient land of the right types is available in the right places and at the right time to support growth, innovation and improved productivity; and by identifying and coordinating the provision of infrastructure;*
- b) *a social objective – to support strong, vibrant and healthy communities, by ensuring that a sufficient number and range of homes can be provided to meet the needs of present and future generations; and by fostering well-designed, beautiful and safe places, with accessible services and open spaces that reflect current and future needs and support communities' health, social and cultural well-being; and*
- c) *an environmental objective – to protect and enhance our natural, built and historic environment; including making effective use of land, improving biodiversity, using natural resources prudently, minimising waste and pollution, and mitigating and adapting to climate change, including moving to a low carbon economy."*

### 5.4.1.3 Making Effective Use of Land

In paragraph 122 it states "*Planning policies and decisions need to reflect changes in the demand for land. They should be informed by regular reviews of both the land allocated for development in plans, and of land availability. Where the local planning authority considers there to be no reasonable prospect of an application coming forward for the use allocated in a plan:*

- a) *it should, as part of plan updates, reallocate the land for a more deliverable use that can help to address identified needs (or, if appropriate, deallocate a Site which is undeveloped); and*
- b) *in the interim, prior to updating the plan, applications for alternative uses on the land should be supported, where the proposed use would contribute to meeting an unmet need for development in the area".*

### 5.4.1.4 Design Quality and Sensitivity to Context

On the importance of good design, paragraph 126 states "*Good design is a key aspect of sustainable development, creates better places in which to live and work and helps make development acceptable to communities".* Paragraph 130 states that "*decisions should ensure that developments:*

- *are visually attractive as a result of good architecture, layout and appropriate and effective landscaping;*

<sup>3</sup>National Planning Policy Framework, V3.0 (2021) Ministry of Housing, Communities & Local Government, [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/1005759/NPPF\\_July\\_2021.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1005759/NPPF_July_2021.pdf)

- *are sympathetic to local character and history, including the surrounding built environment and landscape setting, while not preventing or discouraging appropriate innovation or change (such as increased densities); and*
- *establish or maintain a strong sense of place, using the arrangement of streets, spaces, building types and materials to create attractive, welcoming and distinctive places to live, work and visit”.*

#### 5.4.1.5 Planning for Climate

Paragraph 155: *“To help increase the use and supply of renewable and low carbon energy and heat, plans should:*

- a) provide a positive strategy for energy from these sources, that maximises the potential for suitable development, while ensuring that adverse impacts are addressed satisfactorily (including cumulative landscape and visual impacts);*
- b) consider identifying suitable areas for renewable and low carbon energy sources, and supporting infrastructure, where this would help secure their development; and*
- c) identify opportunities for development to draw its energy supply from decentralised, renewable, or low carbon energy supply systems and for collocating potential heat customers and suppliers.”*

#### 5.4.1.6 Natural Environment

Relevant to this study, paragraph 174 states: *“Planning policies and decisions should contribute to and enhance the natural and local environment by:*

- a) protecting and enhancing valued landscapes, Sites of biodiversity or geological value and soils...*
- b) recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services...*
- c) minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures...*
- d) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability...*
- e) remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate.”*

#### 5.4.1.7 National Policy Statement: Overarching National Policy Statement for Energy (EN-1) <sup>4</sup>

Paragraph 4.5.3 *“needs to be satisfied that energy infrastructure developments are sustainable and, having regard to regulatory and other constraints, are as attractive, durable and adaptable (including taking account of natural hazards such as flooding) as they can be.”*

Paragraph 5.3.15 *“Development proposals provide many opportunities for building-in beneficial biodiversity or geological features as part of good design. When considering proposals, the IPC should maximise such opportunities in and around developments, using requirements or planning obligations where appropriate.”*

<sup>4</sup> Overarching National Policy Statement for Energy (EN-1) (2011), Department of Energy and Climate Change, ISBN: 9780108510779, [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/37046/1938-overarching-nps-for-energy-en1.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/37046/1938-overarching-nps-for-energy-en1.pdf)

Paragraph 5.9.5 *"The applicant should carry out a landscape and visual assessment and report it in the ES. A number of guides have been produced to assist in addressing landscape issues. The landscape and visual assessment should include reference to any landscape character assessment and associated studies as a means of assessing landscape impacts relevant to the proposed project. The applicant's assessment should also take account of any relevant policies based on these assessments in local development documents in England and local development plans in Wales."*

Paragraph 5.9.6 *"The applicant's assessment should include the effects during construction of the project and the effects of the completed development and its operation on landscape components and landscape character."*

Paragraph 5.9.7 *"The assessment should include the visibility and conspicuousness of the project during construction and of the presence and operation of the project and potential impacts on views and visual amenity. This should include light pollution effects, including on local amenity, and nature conservation."*

Paragraph 5.9.6 *"Landscape effects depend on the existing character of the local landscape, its current quality, how highly it is valued and its capacity to accommodate change. All of these factors need to be considered in judging the impact of a project on landscape. Virtually all nationally significant energy infrastructure projects will have effects on the landscape. Projects need to be designed carefully, taking account of the potential impact on the landscape. Having regard to siting, operational and other relevant constraints the aim should be to minimise harm to the landscape, providing reasonable mitigation where possible and appropriate."*

## 5.4.2 Planning Practice Guidance

### 5.4.2.1 Renewable and low carbon energy<sup>5</sup>

Paragraph: 005 Reference ID: 5-005-20150618: *"There are no hard and fast rules about how suitable areas for renewable energy should be identified, but in considering locations, local planning authorities will need to ensure they take into account the requirements of the technology and, critically, the potential impacts on the local environment, including from cumulative impacts. The views of local communities likely to be affected should be listened to."*

*"Identifying areas suitable for renewable energy in plans gives greater certainty as to where such development will be permitted. For example, where councils have identified suitable areas for large scale solar farms, they should not have to give permission outside those areas for speculative applications involving the same type of development when they judge the impact to be unacceptable."*

Paragraph: 007 Reference ID: 5-007-20140306: *"cumulative impacts require particular attention, especially the increasing impact that wind turbines and large scale solar farms can have on landscape and local amenity as the number of turbines and solar arrays in an area increases."*

Paragraph: 010 Reference ID: 5-010-20140306: *"Renewable energy developments should be acceptable for their proposed location. In addition to the factors that should be considered regarding the acceptability of a location for any form of renewable energy development there are particular considerations for the following technologies: hydropower, active solar technology (photovoltaics and solar water heating), solar farms and wind turbines. Also, local planning*

<sup>5</sup> Renewable and low carbon energy Guidance (2015), Department for Levelling Up, Housing and Communities and Ministry of Housing, Communities & Local Government, <https://www.gov.uk/guidance/renewable-and-low-carbon-energy>

*authorities may wish to consider how planning conditions or planning obligations can mitigate the impacts described."*

Paragraph: 012 Reference ID: 5-012-20140306: *"Active solar technology, (photovoltaic and solar water heating) on or related to a particular building is often permitted development (which does not require a planning application) provided the installation is not of an unusual design, or does not involve a listed building, and is not in a designated area. Where a planning application is required, factors to bear in mind include:*

- *the importance of siting systems in situations where they can collect the most energy from the sun;*
- *need for sufficient area of solar modules to produce the required energy output from the system;*
- *the effect on a protected area such as an Area of Outstanding Natural Beauty or other designated areas;*
- *the colour and appearance of the modules, particularly if not a standard design.*

Paragraph: 013 Reference ID: 5-013-20150327: *The deployment of large-scale solar farms can have a negative impact on the rural environment, particularly in undulating landscapes. However, the visual impact of a well-planned and well-screened solar farm can be properly addressed within the landscape if planned sensitively.*

*Particular factors a local planning authority will need to consider include:*

- *encouraging the effective use of land by focussing large scale solar farms on previously developed and non agricultural land, provided that it is not of high environmental value;*
- *where a proposal involves greenfield land, whether (i) the proposed use of any agricultural land has been shown to be necessary and poorer quality land has been used in preference to higher quality land; and (ii) the proposal allows for continued agricultural use where applicable and/or encourages biodiversity improvements around arrays. See also a speech by the Minister for Energy and Climate Change, the Rt Hon Gregory Barker MP, to the solar PV industry on 25 April 2013 and written ministerial statement on solar energy: protecting the local and global environment made on 25 March 2015.*
- *that solar farms are normally temporary structures and planning conditions can be used to ensure that the installations are removed when no longer in use and the land is restored to its previous use;*
- *the proposal's visual impact, the effect on landscape of glint and glare (see guidance on landscape assessment) and on neighbouring uses and aircraft safety;*
- *the extent to which there may be additional impacts if solar arrays follow the daily movement of the sun;*
- *the need for, and impact of, security measures such as lights and fencing;*
- *great care should be taken to ensure heritage assets are conserved in a manner appropriate to their significance, including the impact of proposals on views important to their setting. As the significance of a heritage asset derives not only from its physical presence, but also from its setting, careful consideration should be given to the impact of large scale solar farms on such assets. Depending on their scale, design and prominence, a large scale solar farm within the setting of a heritage asset may cause substantial harm to the significance of the asset;*

- *the potential to mitigate landscape and visual impacts through, for example, screening with native hedges;*
- *the energy generating potential, which can vary for a number of reasons including, latitude and aspect.*

*The approach to assessing cumulative landscape and visual impact of large scale solar farms is likely to be the same as assessing the impact of wind turbines. However, in the case of ground-mounted solar panels it should be noted that with effective screening and appropriate land topography the area of a zone of visual influence could be zero."*

#### 5.4.2.2 Natural Environment<sup>6</sup>

Paragraph: 001 Reference ID: 8-001-20190721: *"There are five grades of agricultural land, with Grade 3 subdivided into 3a and 3b. The best and most versatile land is defined as Grades 1, 2 and 3a. Planning policies and decisions should take account of the economic and other benefits of the best and most versatile agricultural land."*

Paragraph: 002 Reference ID: 8-002-20190721: *"Soil is an essential natural capital asset that provides important ecosystem services – for instance, as a growing medium for food, timber and other crops, as a store for carbon and water, as a reservoir of biodiversity and as a buffer against pollution.*

*Defra has published a Code of practice for the sustainable use of soils on construction Sites which may be helpful when setting planning conditions for development Sites. It provides advice on the use and protection of soil in construction projects, including the movement and management of soil resources."*

Paragraph: 037 Reference ID: 8-037-20190721: *"To demonstrate the likely effects of a Proposed Development on the landscape, a Landscape and Visual Impact Assessment can be used."*

### 5.4.3 Local Planning Policy

#### 5.4.3.1 King's Lynn and West Norfolk Local Plan<sup>7</sup>

##### CS12 Environmental Assets

*"Development should seek to avoid, mitigate or compensate for any adverse impacts on biodiversity, geodiversity and heritage as well as seeking to enhance Sites through the creation of features of new biodiversity, geodiversity and heritage interest. The design of new development should be sensitive to the surrounding area, and not detract from the inherent quality of the environment.*

*Proposals for development will be informed by, and seek opportunities to reinforce the distinctive character areas and potential habitat creation areas identified in the King's Lynn and West Norfolk Landscape Character Assessment, the West Norfolk Econet Map and other character assessments.*

*Development proposals should demonstrate that their location, scale, design and materials will protect, conserve and, where possible, enhance the special qualities and local distinctiveness of*

<sup>6</sup> Natural Environment Guidance, V2.0 (2019), Department for Levelling Up, Housing and Communities and Ministry of Housing, Communities & Local Government, <https://www.gov.uk/guidance/natural-environment>

<sup>7</sup> King's Lynn & West Norfolk Borough Council, Local Development Framework - Core Strategy (2011) [https://www.west-norfolk.gov.uk/homepage/61/core\\_strategy](https://www.west-norfolk.gov.uk/homepage/61/core_strategy)



*the area (including its historical, biodiversity and cultural character), gaps between settlements, landscape setting, distinctive settlement character, landscape features and ecological networks.”*

## **5.5 Methodology**

### **5.5.1 Approach**

The GLVIA states the need for an approach that is proportionate to the scale of the project being assessed and the nature of its likely effects. In accordance with the GLVIA, within this LVIA, 'impact' is defined as the action being taken, and the 'effect' is defined as the change resulting from that action. In accordance with the GLVIA guidance, this LVIA specifies the nature of the proposed development, describes the existing landscape and visual amenity in the area that may be affected, predicts the effects, and considers how those effects might be mitigated.

This LVIA has been prepared by a Chartered Member of the Landscape Institute. In carrying out this LVIA, an independent stance has been taken. As appropriate, the LVIA addresses both the beneficial and adverse impacts of the Proposed Development in a way that can be relied upon by all parties concerned.

The assessment has been informed by a combination of desk-top research, digital analysis, and Site visits.

### **5.5.2 Viewpoints and Photography**

Representative viewpoint locations have been agreed through desktop research followed by Site visits to the surrounding area that clarified actual visibility and context. A visit of the Site itself was undertaken to identify any reference points in the surrounding landscape and to identify key views out of the Site that could result in views back in.

Photography for all viewpoints was taken using a Nikon D3200 Camera, using a Nikon DX AF-S NIKKOR 18-55mm 1:3.5-56G VR lens (manually set to 35mm), to provide consistency between all viewpoints. An image captured in this way is representative to that seen by the human eye when viewed at a width of 39 cm from a distance of 55 cm. Single frame photographs were taken with the levelled camera on a fixed tripod from each viewpoint.

### **5.5.3 Assessment criteria**

For each landscape character area (LCA) and representative viewpoint, the following has been determined:

- Nature of the receptor (sensitivity): The value, importance, and susceptibility of the receptor in relation to proposed development;
- Nature of impact (magnitude): The impact on the receptor arising because of the Proposed Development regarding probability, reversibility, spatial extent, and temporal aspects; and
- Level of effect (magnitude-sensitivity): The magnitude of impact considered against the sensitivity of the receptor, and whether this effect is negative (adverse) or positive (beneficial).

The criteria used for determining the sensitivity of landscape and visual receptors is described in Table 5.2. The descriptions are not intended to be exhaustive but provide a definition of the nature of the receptor for each level of sensitivity. Professional judgment is applied when determining the appropriate level of sensitivity for each receptor.

<b>Table 5.2: Sensitivity of Receptor</b>		
<b>Sensitivity</b>	<b>Receptor</b>	
	<b>Landscape</b>	<b>Visual</b>
<b>Low</b>	<p>High capacity to accommodate development of the same type, scale, and appearance as the proposed development.</p> <p>An area of poor quality or condition.</p> <p>Is locally abundant and has few or no distinguishing or designated features.</p>	<p>A view that is characterised by features of the same type, scale, and appearance as the proposed development.</p> <p>A view that has little visual amenity or interest, or of a townscape with poor condition.</p> <p>A view that is incidental or experienced at speed.</p>
<b>Medium</b>	<p>Locally valued for its character, features, and sense of place.</p> <p>High quality or condition, potentially including some designated features such as Tree Preservation Orders or Listed Buildings.</p> <p>Strong cultural associations.</p>	<p>A positive view experienced by people during leisure activities such as sports, walking, cycling.</p> <p>A view that has specific local value but is not recognised by designation in local planning or guidance.</p> <p>A positive view experienced in passing by large numbers of people in passing from transport corridors.</p>
<b>High</b>	<p>Value or character is recognised through national or local designation (within, or predominantly within a Conservation Area or Registered Park and Garden, or a high proportion of Listed Buildings, Ancient Woodland).</p> <p>Consistently of high quality and condition, offers strong scenic value.</p> <p>A rare example of a specific style of landscape or townscape character.</p> <p>Little capacity to accommodate development of the same type, scale, and appearance as the proposed development.</p>	<p>A view recognised by designation in local planning policy or guidance.</p> <p>A positive/valued view experienced by residents, or large number of visitors/recreational users.</p> <p>Static views towards important local features, landmarks, or buildings.</p> <p>Views that are very susceptible to changes of the type, scale, and appearance as the proposed development.</p>

Table 5.3 provides a definition of the magnitude of impacts on landscape and visual receptors resulting from the proposed development. The definitions are not intended to be exhaustive and professional judgment is needed when determining the appropriate magnitude of impact, which may be neutral (a change may be apparent but has no overall positive or negative impact), positive (beneficial) or negative (adverse).

<b>Magnitude</b>	<b>Receptor</b>	
	<b>Landscape</b>	<b>Visual</b>
<b>No Change/Negligible</b>	No perceptible change to the landscape character.	No perceptible change to the overall view.
<b>Low</b>	A small change resulting from the proposed development, that may be incongruous, whilst retaining the overall character and quality of the wider townscape area.  A notable change to the landscape area resulting from the Proposed Development that is in-keeping with the surrounding character.	A change that is visible but would not be immediately apparent to the visual receptor or in key views.  A change that is visible but is consistent with the nature and amenity of the existing view.  A notable change within a small proportion of overall view, or for limited durations.
<b>Moderate</b>	A notable change resulting from the Proposed Development that is incongruous with the surrounding character.  The Proposed Development will result in the loss/addition of a valuable component of the landscape.	A notable change within a view.  The addition or removal of a key component of the view.
<b>High</b>	The Proposed Development will result in a large-scale change to the character of the area.  The Proposed Development will conflict with the character of the wider area and exert a large influence upon it.	A complete change to the nature of the view.  Addition of a feature within part of the view that influences the perception and amenity of the wider view.

The level of effect of the Proposed Development on each receptor, resulting from a combination of the sensitivity of the receptor and the magnitude of impact, is determined using the matrix in Table 5.4. Effects, other than Neutral, can be Adverse or Beneficial.

		<b>Sensitivity</b>		
		<b>Low</b>	<b>Medium</b>	<b>High</b>
<b>Magnitude</b>	<b>No change</b>	Neutral	Neutral	Neutral
	<b>Negligible</b>	Minor/Neutral	Minor	<b>Moderate/Minor</b>
	<b>Low</b>	Minor	<b>Moderate/Minor</b>	<b>Moderate</b>
	<b>Moderate</b>	<b>Moderate/Minor</b>	<b>Moderate</b>	<b>Major/Moderate</b>
	<b>High</b>	<b>Moderate</b>	<b>Major/Moderate</b>	<b>Major</b>

Effects that are neutral or minor in scale are considered 'not significant'. Effects that are moderate or major in scale are judged to be 'significant' for the purposes of the EIA regulations.

Professional judgment is taken on defining whether a site is Minor, Moderate or major, for effects which fall into multiple categories e.g. **Moderate**/Minor.

#### 5.5.4 Assumptions and limitations

Site visits were undertaken in May 2022 by a Chartered Member of the Landscape Institute with most of the deciduous vegetation in leaf. The LVIA has taken this into account using professional judgement and experience from other projects to determine the extent of visibility and the impact on views during winter months.

### 5.6 Baseline

#### 5.6.1 Landscape

A description of the relevant LCAs and features of the Site are summarised below. Where the Proposed Development may be visible within specific views from those LCAs, the visual baseline and description of visual impact is provided in the visual section of this LVIA.

Informed by baseline analysis, the nature of the Proposed Development and landscape context, the study area for this LVIA extends approximately 2km from the outermost solar panel. Within the study area there are several scattered settlements within a flat landscape with scattered vegetation, leading to open and exposed views. Significant impacts to landscape and visual amenity are unlikely to occur beyond 2km. This is due to the low sensitivity of the landscape character and low-lying landscape with vegetation blocks, hedgerows around villages and tons and other screening vegetation blocking views beyond this point.

Existing landscape character assessments are in place for the whole study area. These studies and the character areas defined within them form the basis of the landscape baseline, have been supplemented by Site visits by a Chartered Member of the Landscape Institute in May 2022. The studies used include the following:

- National Character Area Profile: 46. The Fens; and
- King's Lynn and West Norfolk Borough Landscape Character Area.

The landscape baseline is supplemented by the following figures:

- Figure 5.1 Viewpoint locations;
- Figure 5.2 Zone of Theoretical Visibility;
- Figure 5.3 Landscape Context; and
- Figure 5.4 Labelled Photograph Sheets.

The LCAs relevant to the proposed development, are shown in Figure 5.3 and are described below.

The Site, or the wider 2km study area, is not subject to any landscape designations or protections.

#### 5.6.2 National Character Area 46: The Fens

The Site falls within the eastern area of NCA 46: The Fens. Key characteristics applicable to the immediate surrounding area include:

- *"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."*
- *"land is below sea level, relying on pumped drainage and the control of sluices at high and low tides to maintain its agricultural viability"*
- *"The Fens are the bread basket of Britain. The drainage of this area from the 17th century onwards presented valuable soils which provide excellent conditions for large-scale cultivation of arable and horticultural crops; holdings of more than 100 ha make up 77 per cent of farmed land."*
- *"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."*

*"Four main rivers, the Witham, Welland, Nene and Great Ouse, drain much of the surface water from the East Midlands across the Fens. The rivers often flow in canalised channels before discharging into the large Wash estuary. The rivers and their associated networks of dykes and dykes provide ecological networks and functional links to other NCAs."*

*"Fenland farming is nationally important with, for example, a quarter of England's potatoes grown here and over one-third of English vegetables. Agriculture is the major source of employment, with approximately 27,000 people employed either permanently or seasonally/temporarily throughout the year. Nearly 90 per cent of the Fens were classified as either Grade 1 or Grade 2 agricultural land under the Provisional Agricultural Land Classification (ALC) survey of the late 1960s and early 1970s. Peat wastage will have reduced this since then."*

*"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 20<sup>th</sup> century bungalows."*

### **5.6.3 Local Landscape Character**

The King's Lynn and West Norfolk Borough Landscape Character Assessment 2007, carried out on behalf of King's Lynn and West Norfolk Borough Council in March 2007, is used for the purposes of the assessment, for the interpretation of the local landscape and will inform the document.

There is one Landscape Character Area identified within the King's Lynn and West Norfolk Borough Landscape Character Assessment directly relevant to the Site setting and study area:

- D4 The Fens - Settled Inland Marshes, Emneth, West Walton and Walsoken.

#### **5.6.3.1 LCA D4 The Fens - Settled Inland Marshes, Emneth, West Walton and Walsoken**

The Site lies in the centre of the of the character area.

LCA D4 The Fens - Settled Inland Marshes, Emneth, West Walton and Walsoken is summarised in the following way:

*"This character area, situated to the east of Wisbech is bordered by the Open Inland Fens to the east and encompasses a rich mix of arable fields, fruit orchards, plantations and pasture. Intensively managed agricultural fields dominate this remarkably flat, low-lying landscape with agricultural vehicles a recurring feature. Dykes and dykes, frequently lined with reeds, rushes and occasionally shrubs (including ash, willow and hawthorn) divide the generally large fields and bring topographical change. The patchwork of arable fields, orchards, plantation woodlands, together with a variety of vertical elements including large-scale farms, glasshouses, lattice towers, frequent rows of poplars and other tall vegetation, give the landscape a cluttered appearance with few points of focus. Orchards are particularly abundant directly east of Wisbech and give a sense of enclosure (with the neat rows of low trees channelling views) contrasting greatly with the expansiveness in the rest of the area. Settlement pattern consists of farms, which are generally dotted along the rural roads, and several mainly linear villages including Tilney St. Lawrence, Emneth and Marshland St. James, which has a distinctive character. Walsoken once had a tramway and canal. Small bridges crossing the dykes lining the roads and giving access to houses and farms, are typical throughout the area. Built character varies between old farmhouses and more modern suburban red or buff brick buildings. Sense of tranquillity varies in the area depending on proximity to the busy transport corridor of the A47 (with its visual, noise and movement intrusion) and the urban fringe around Wisbech. A pattern of several, more or less parallel, fairly busy, urban roads (frequently lined with tall species-rich vegetation, including mature trees such as oak and ash) covers the area and connects the villages."*

Key characteristics exhibited:

- *"A large-scale, low-lying landscape offering distant, panoramic views that evoke a sense of openness. This open character is less evident where settlements, shelterbelts and orchards occur."*
- *"Simplistic terrain characterised by a distinctly flat landform providing wide horizons. Earthworks in the form of rivers and creek embankments bring topographic change and strong, straight lines of contrast."*
- *"An intensively farmed arable landscape comprising predominantly geometric fields divided by straight drainage channels and dykes and underlain predominantly by silts. Field size is variable in places with small units defining settlement edges."*
- *"Fruit orchards are a relatively common (yet declining) feature with rectangular plots ordered into rows. These rows often channel views and where orchards occur alongside roads, views across the landscape are more restricted. Conifer planting is also a relatively common feature."*
- *"Buildings and storage associated with horticulture and food production industries, as well as power stations, pumping stations and sluices, provide visible human built elements."*
- *"Well served by a network of rural roads that follow an irregular path."*
- *"The landscape appears well settled – with villages, town edges, large houses, individual farms and properties generally in view. Settlement is predominantly found aligning secondary roads and has a linear arrangement with villages often merging through ribbon development."*
- *"The skyline appears cluttered in places due to the varied heights, forms and textures of vertical elements including trees, lattice towers and buildings."*
- *"Lines of lattice towers are dominant features slicing diagonally across the field system. The lattice towers and posts carrying overhead wires are frequently in view."*
- *"Views can be gained to the edge of King's Lynn and Wisbech."*

Key landscape and visual sensitivities present include:

- *"Intact mature landscape structure including the rows of poplars and large concentration of fruit orchards."*
- *"Panoramic views across the area, frequently framed by orchards."*
- *"Historic drainage network."*
- *"Strong sense of tranquillity throughout the area."*

Planning guidance supporting the LCA includes:

- *"Seek to conserve the mostly rural character of the area."*
- *"Ensure that any new small-scale or incremental development responds to historic settlement pattern and is well integrated into the surrounding landscape."*
- *"Seek to conserve and enhance the landscape setting of the existing villages such as Emneth and West Walton."*
- *"Seek to conserve and enhance the landscape setting of Wisbech and seek to screen (where possible) harsh urban edges."*
- *"Seek to conserve pockets of tranquillity where apparent."*
- *"Seek to ensure that new drainage or culverting responds to existing landscape pattern."*

#### Relevance to Site context

The Site falls within the LCA area, as are all the representative viewpoints identified in Figure 5.1 Viewpoint Location. The area is generally flat with large open skies. Earthworks within the area consist of dyke and river embankments, leaving views principally open between agricultural fields. Several of these dykes line the Site.

The area is predominately agricultural, with storage buildings rising to split the views. Most of the storage buildings appear to be semi-screened or exposed. Other features which intrude upon the open arable landscape includes lattice towers, cutting diagonally through agricultural fields. The arable fields the Site consist of, has both lattice towers and telegraph poles, running through it.

Landscape is intensely farmed with very limited number of hedgerows demarcating field boundaries, particularly within the Site. Shelterbelts and vegetation appear around settlements in the form of orchards, tree belts and a mix of leylandii and deciduous hedgerows. Additional planting around wind turbines consists of deciduous trees, reeds and grasses.

The sensitivity of receptors represented by this viewpoint LCA will be judged as **Low**, the area is lacking few or little distinguishing features within the landscape and an abundance of agricultural fields throughout the area.

#### **5.6.4 Visual Amenity**

The study area primarily consists of transport and amenity receptors. The topography is relatively flat, with mature vegetation, surrounding nearby settlements and the south of the Site. There are field boundaries mainly consisting of dykes, with limited hedgerow boundaries, leaving a number of long-distance views towards the Site.

To the north of the Site, the area is relatively open with tree belts around houses, farms, and settlements. There are very few hedgerows, leaving the area relatively open. To the south, most central views are contained by vegetation surrounding the wind turbines, however both the south-east and south-west areas between the central vegetation belt are open, leaving the Site

boundaries and content visually exposed. East of the Site is relatively well screened by woodland and orchards along the boundary of Marshland St James, however, some distant views are possible along country roads and footpaths where there are no hedgerows or they have gaps where the hedgerow has failed. To the west lies the A47, screening views from the properties at Wisbech. Gaps within the hedge may create open views for vehicles along the A47.

Visual detractors in the area include overhead lines for power transmission and distribution, and existing wind turbines, two of which are located on the south the Site. The overhead lines cut across fields at a diagonal and intrude upon the open skies in an otherwise agricultural setting.

The locations for the viewpoint photography have been selected to provide representative and/or worst-case illustration of the views towards the proposed development. A total of 14 viewpoints are described below. They cover:

- Views experienced by people from Public Right of Ways (PRoWs), bridleways, restricted byways and open spaces;
- Views experienced by people within residential properties, open spaces and road corridors within and surrounding the Site; and
- Views from transport routes including A47.

A description of the baseline view from each representative viewpoint location is provided below. A viewpoint location plan is provided in Figure 5.1.

#### 5.6.4.1 VP-01: View South from Walton Highway PRoW

This view is representative of views south towards the Site for users of the PRoW at Walton Highway.

The view consists of an arable field in the foreground, with mid distance views of shrubby hedges and residential properties. Trees surround the residential properties and telegraph pole along Common Road North.

Given the vegetation and properties containing the view, the Site is not visible from this location.

The sensitivity of the receptors represented by this viewpoint is judged as **Medium**.

#### 5.6.4.2 VP-02: View South from residential properties and Farms south of Walton Highway

Viewpoint 2 was discounted during the Site investigation. This is due the area been well screened by private properties and caravans with no safe access to publicly accessible locations around the boundary during Site investigation.

#### 5.6.4.3 VP-03: View south from National Cycle Network between Walton Highway and Marshland St James

This view is representative for users of the National Cycle Network looking south towards the Site between Walton Highway and Marshland St James.

A dirt and grass track passes between two dyke embankments and arable fields either side, which stretch from the foreground into the midground.

Several lattice towers vertically pass along the distant arable field with a belt of hedgerow and woodland vegetation. A house and a bungalow are visible along St. Pauls Road South in front of the vegetation.



The tips of the wind turbine located near the Site are visible behind mature vegetation, however the rest of Site is screened by a belt of hedgerow vegetation and is not visible from this viewpoint location.

The sensitivity of the receptors represented by this viewpoint is judged as **Medium**.

#### 5.6.4.4 VP-04A: View south-east from Harps Hall Road

This view is representative of views for residents of properties on Harps Hall Road, looking south-east towards the Site.

In the foreground, there is an open arable field with an electric lattice towers surrounded by shrubby vegetation. A dyke separates further arable fields within the midground. The lattice towers and vegetation in the foreground screen a mobile home in the following arable field. Within the centre of the view, there is a vegetation pile and trailers at the edges of the arable field. Lattice towers continue across the fields in the mid distance, one of which is within the Site boundary. Wind turbines located near the Site visible are behind one of the lattice towers.

The whole eastern section of the Site will be visible from this location, across the open expanse of arable fields bordered by dykes with limited vegetation to screen the Site.

The sensitivity of the receptors represented by this viewpoint is judged as **Medium**.

#### 5.6.4.5 VP-04B: View south-west of the Site from Harps Hall Road

This view is representative of views for residents of properties on Harps Hall Road, looking south-west towards the Site.

In the foreground is a large wildflower grass verge. In the midground there are open arable fields with telegraph poles running through the centre. Longer grass buffers around field boundaries are visible in the distance.

There are distant views of trees, hedges and woodland around farmsteads. Some of the vegetation offers glimpses towards the A47, lattice towers running above vegetation and All Saints' Church, Walsoken.

Currently the Site is not clearly discernible from this location, given its flat nature and limited identifying vegetation or Site elements.

The sensitivity of the receptors represented by this viewpoint is judged as **Medium**.

#### 5.6.4.6 VP-05: View south-west from Trinity Road National Cycle Network near Marshland St James

The viewpoint is representative of users of the National Cycle Network along Trinity Road, Marshland St James looking south-west towards the Site.

In the immediate foreground, the banking of a dyke leads into an open arable field with low lying crops. Towards the middle of the view there is a cluster of mature trees, surrounded by a hedgerow. Walton Road borders the south of the arable field, with occasional small trees running along it.

Properties along Harps Hall Road are visible through intermittent vegetation with sections of the road appearing from views across open arable fields. In the distance the wind turbines near the

Site can be seen to the left of the view, yet any boundaries or ground level features of the Site are not discernible at this distance.

The sensitivity of the receptors represented by this viewpoint is judged as **Medium**.

#### 5.6.4.7 VP-06: View south-west from St Pauls Road, Marshland St James

The viewpoint is representative of residential properties along St Pauls Road, Marshland St James, looking south-west towards the Site.

The foreground view contains a large, arable field, which is flat, with a large agricultural barn associated with Trafford House Farm along St Pauls Road.

The electricity lattice towers located just in front of the Site can be seen, visible to its base. To the right of the view in the middle distance between the lattice towers and the edge of the agricultural barn an area of arable field (the Site) is visible. Hedgerows with gaps due to failure and clusters of trees line the mid ground of the view, screening most of the views to the Site to the left of the view with only small hedgerow gaps leaving the Site open.

The sensitivity of the receptors represented by this viewpoint is judged as **Medium**.

#### 5.6.4.8 VP-07: View north-west from Goose Lane, Marshland St James

The viewpoint is representative of residents along Goose Lane, Marshland St James, looking north-west towards the Site.

The foreground contains a tilled arable field with hedgerows along properties to the left and right of the image. Within the midground there is a continuation of the tilled arable field with two electricity lattice towers visible down to the ground level. Both wind turbines near the Site are visible from this viewpoint, surrounded by scrubby vegetation.

The Site field boundary lacks any vegetated or screened edge, leaving views open into the western land parcel of the Site.

The sensitivity of the receptors represented by this viewpoint is judged as **Medium**.

#### 5.6.4.9 VP-08: View north-east into the Site from Long Lots Drove Track

This view is representative of users of the PRow along Long Lots Drove track that runs along the southern boundary of the Site. The viewpoint is looking north-east into the Site.

Foreground view opens straight onto a flat, ploughed field.

Within the midground and distance views, there are patches of tufty grass lining existing dykes between arable fields with very occasional hedgerow remnants. Two electricity lattice towers dissect the middle distance of the view. In the distance, hedgerow trees and woodland surround Marshland St James.

The viewpoint looks straight onto the Site, with no screening, leaving the Site fully visible from this location.

The sensitivity of the receptors represented by this viewpoint is judged as **Medium**.

#### 5.6.4.10 VP-09: View north-west from Cow Lake Drove

This viewpoint is representative of residences along Harps Hall Road, along with road users and PRoW users along Cow Lake Drove.

Within the foreground, a road, verge and dyke are visible, which stretch into the mid and distant views. To the right lies two paddocks lined with stock fencing.

Within the midground lies an arable field (the Site) with several telegraph poles cutting through the centre of it.

In the distance lie mature hedgerows and woodland with glimpses towards the A47. The tops of electricity lattice towers in the distance are visible above. Unique Landscapes & Property Maintenance, landscape gardening company and Barwell A & Sons Farm, are visible to the left of the view.

The eastern parcel of the Site is visible from this location.

The sensitivity of the receptors represented by this viewpoint is judged as **Medium**.

#### 5.6.4.11 VP-10: View north-east from Station Road

View north-east from Station Road, representative of residents and road users along Station Road. Viewpoint representative of Station Farm and Popenhoe House.

Within the immediate foreground lies a grass verge, with a flat, open, arable field for most of the view. A small woodland copse is visible to the left-hand side of the view, bordering Station Road and the arable field.

In the distance three electricity lattice towers cut across the view from left to right, with varying heights of woodland and individual trees running underneath and behind. Distant glimpses of buildings along Smeeth Road in Marshland St James are visible through the vegetation.

Given the base of the electric lattice towers within the Site boundary can be seen, the Site is visible from this viewpoint.

The sensitivity of the receptors represented by this viewpoint is judged as **Medium**.

#### 5.6.4.12 VP-11: View North from Public Right of Way (PRoW) near Station Road

The viewpoint location is representative of the view experienced by people using the PRoW near Station Road.

In the foreground, past a small wire agricultural fence an arable field is visible in front of a medium sized hedgerow. Farmhouse and associated buildings with roof mounted solar panels are visible just beyond the hedgerow, taller specimen trees are visible above the buildings in the distance.

Wooden telegraph poles dissect the middle of the view. One distant metal lattice towers visible between vegetation in the distance.

There are no views of the Site from this viewpoint location.

The sensitivity of the receptors represented by this viewpoint is judged as **Low**.

#### 5.6.4.13 VP-12: View north-east from Mill Road Restricted Byway

This viewpoint is representative of residents and users of Mill Road restricted byway.

The view mostly contains an arable field separated from Wilkens Road by dyke in the foreground. Mature vegetation contains any long distance views to the left of the view.

In the midground the arable field and dyke continue down the length of the road, with telegraph poles running through the field and along the length of the field. A sign is present on the bend of the road. Along the opposite side of the road there are glimpses into agricultural fields beyond, occasional trees forming part of a hedge within the centre.

Farmhouse and building visible to the right with vegetation surrounding the house to the north. Agricultural fields continue to the left, with distant hedgerows, trees, and other vegetation screening views. Distant lattice towers can be seen over the top of vegetation.

The Site is not visible from this viewpoint.

The sensitivity of the receptors represented by this viewpoint is judged as **Low**.

#### 5.6.4.14 VP-13: View east from Sparrowgate Road, Walsoken, Wisbech

This viewpoint is representative view of residents and road users of Sparrowgate Road, Walsoken, Wisbech.

In the foreground there is an arable field with sparse hedgerow remnants with wooden telegraph poles running through the centre. Vehicles along the A47 are visible through gaps in the hedgerow, with glimpses of agricultural buildings roofs in the mid distance. There are two electricity lattice towers in the distance, visible above wooded vegetation.

The Site is not visible from this location given mature vegetation obscuring the distant views.

The sensitivity of the receptors represented by this viewpoint is judged as **Medium**.

#### 5.6.4.15 VP14: View east from Fengate Road Bridleway

This viewpoint is representative view for users of Fengate Road Bridleway.

An overgrown tarmac track runs from the foreground to the mid distance to the left of the view, lined either side by grass verge and bracken. The bracken is growing above a dyke separating the bridleway from the arable field to the right.

In the midground the arable field with a lattice towers and telegraph poles running through the centre. Properties and farmstead along Meer Dyke Lane and Biggs Road, are visible, with vegetation growing around them and gaps in the hedgerow due to failure separating the arable fields beyond.

Distant views show the continuation of arable fields seen through the vegetation in the midground. Telegraph poles and lattice towers are visible dominating the landscape, with views of the wind turbines above existing hedgerows.

Glimpses of the Site and associated planting can be seen through the gaps in the hedgerow central to the image.

The sensitivity of the receptors represented by this viewpoint is judged as **Low**.

## 5.7 Assessment

### 5.7.1 Nature of the change

This LVIA assesses the impacts arising as a result of the Proposed Development on the landscape and visual resource.

The key aspects of the Proposed Development that are of relevance to this LVIA are:

- Field boundary treatments including dykes and hedgerows
- Openness of low-lying topography
- Height/ scale/ massing and location of proposed solar buildings and infrastructure

The detailed design rationale, evolution, and details of the layout, access, scale, appearance, and landscaping of the Proposed Development (upon which this LVIA is based) is provided within Chapter 3: Design Evolution and Alternatives (Volume 1). Elements of the Proposed Development, where relevant to a specific LCA or viewpoint, are described within the assessment.

Relevant aspects of the Proposed Development design for the LVIA include, but are not limited to:

- maximum development heights of solar buildings, fencing and panels,
- positioning of the substation and Battery Storage Container Blocks along western boundary to maximise opportunities for landscape areas;
- creation and size of buffer zones to prevent visual intrusion towards Site;
- closing existing open views towards the Site;
- maintenance and enhancement of boundary vegetation throughout Site boundary; and
- implementation of a planting palette informed by Local and National character area species and native woodland species.

### 5.7.2 Landscape

#### 5.7.2.1 National Character Area 46: The Fens

Due to the breadth of the National Character Area, the impact assessment of the Proposed Development has been based upon local character areas only.

#### 5.7.2.2 Local Character Areas

LCA D4 The Fens - Settled Inland Marshes, Emneth, West Walton and Walsoken

The Proposed Development is located within the centre of the LCA character area. The changes arising within the LCA as a result of the Proposed Development are described below:

- Construction of expansive, linear, solar panel structures throughout the design;
- Construction of large, linear tall buildings, primarily the Substation and battery storage units to the northwest boundary of the Site;
- Changes to land use, removing agricultural uses within the Site and replacing with a solar energy farm;
- Changes to existing vegetation:
  - Removal of small section of the bramble scrub, to provide access to a lower field, using a culvert; and

- Implementation of vegetation throughout design:
  - Implementing hedgerow painting and hedgerow improvements;
  - Implementation of wildflower planting;
  - Implementation of historic orchard planting; and
  - Implementation of trees along roads.

The proposed structures will be apparent on the landscape from certain locations, breaking up the open sky by introducing a new vertical built element. Due to the height of some of these structures it will not be possible to fully screen them. The containers are proposed to be grey, to aid in blending with surrounding landscape. The surrounding landscape is typified by farmsteads, villages and associated planting, green houses and agricultural buildings, along with electricity lattice towers and telegraph poles, so the addition of new structures, if mitigated appropriately will not necessarily be completely out of character.

Certain features in the existing landscape including lattice towers, create a cluttered appearance. The additional height of some of the structures may add to this cluttered appearance. The lattice towers will remain a dominant feature in the landscape with the solar panels maintaining a minimum distance of 40 m away from the lattice towers to allow for access and maintenance. The areas under the solar panels have provided opportunity to enhance the ecological proposals of the Site with wildflower planting (shown on Figure 5.5 Landscape Mitigation), whilst strengthening a landscape type found within this character area.

The existing field pattern and drainage elements are being maintained throughout the design aiding water voles, surface water runoff and maintain part of the existing character of the area, which responds to the historic rural nature and field pattern found throughout this part of the LCA.

Dykes within the Site are to be maintained for ecological purposes. The retention of these features helps to maintain existing landscape pattern and character, and allows water runoff from the fields and maintaining the strong connecting line in which they form across the landscape. A surfaced crossing will be created across the dyke.

The hedgerow landscape buffer provided to screen the Site will reduce the open landscape and expanse of large open sky by breaking up distant views and reducing visible skyline. Neither is characteristic of the area unless for screening farm building. However, the landscape buffer will aid in screening the A47. Gaps in the existing A47 vegetation means sections of the Site may be visible to users of the road. Hawthorn is characteristic to the area, therefore it will be used in the native hawthorn mix, alongside implementing hedgerow trees such as Willow along areas of where there are roads.

The Proposed Development will not affect existing settlement patterns, working around the existing settlements.

There are opportunities to implement a variety of planting characteristic within the local area. These include:

- Native orchard planting, currently in decline, but is a typical trait of the local character area;
- Enhance reed planting around the landscape, replicating planting in dykes;
- Tree planting in hedgerows, common along roadsides; and

- Conifer planting, reduce visual impact of structures such as the battery storage units.

Further increase of vegetation will act a green corridor in an area otherwise devoid of planting, due to the open nature of the environment. The proposal will connect areas otherwise unconnected, improving the local green infrastructure network. The proposed hedgerow boundaries are proposed upon the existing field pattern, ensuring new patterns are not introduced to the field boundaries.

Overall, it is judged that the Proposed Development will alter the landscape with the addition of hedgerows, closing in the open landscape character. The Proposed Development will also alter the current land use and the addition of new building structures up to 8m high will be visible within the landscape. The existing land pattern and historic field pattern will however remain the same, along with the retention of dykes that are important and typically characteristic of this landscape character area.

Overall, the Proposed Development is anticipated to diminish the landscape character and aesthetics and amenity of the Site within the context of the LCA, increasing vegetation in character area which is largely open.

This is judged to result in an overall **moderate** magnitude of change and a **minor adverse** level of effect. As such, the Proposed Development is not considered to have a significant effect on Local Character Area D4 The Fens - Settled Inland Marshes, Emneth, West Walton and Walsoken.

### 5.7.3 Visual

#### 5.7.3.1 VP-01: View South from Walton Highway PRoW

This view is representative of views south towards the Site for users of the PRoW at Walton Highway.

None of the existing Site features and wind turbines are visible from this location. This is because it is screened by existing mature vegetation to the midground of this view. It is anticipated that the Proposed Development would not be apparent to the visual receptors at this location.

This is judged to result in a **No Change** magnitude of impact and a **Neutral** level of effect. Accordingly, the Proposed Development is not anticipated to have a significant effect on VP-01.

#### 5.7.3.2 VP-02: View South from residential properties and Farms south of Walton Highway

Viewpoint 2 was discounted during the Site investigation. This is due the area been well screened by private properties and caravans with no safe access to publicly accessible locations around the boundary during the Site investigation.

This is judged to result in a **No Change** magnitude of impact and a **Neutral** level of effect. Accordingly, the Proposed Development is not anticipated to have a significant effect on VP-02.

#### 5.7.3.3 VP-03: View south from National Cycle Network between Walton Highway and Marshland St James

This view is representative view for users of the National Cycle Network looking south towards the Site between Walton Highway and Marshland St James.

Given that only the tips of the existing wind turbines located near the Site are visible from this location and that the proposed structures would not be as tall as these features, it is anticipated that the Proposed Development would not be apparent to the visual receptors at this location.

This is judged to result in a **No Change** magnitude of impact and a **Neutral** level of effect. Accordingly, the Proposed Development is not anticipated to have a significant effect on VP-03.

#### 5.7.3.4 VP-04A: View south-east from Harps Hall Road

This view is representative of views for residents of properties on Harps Hall Road, looking south-east towards the Site.

The foreground and midground are unaffected by the Site, remaining the existing agricultural fields with lattice towers cutting through. The Site and its associated features will be visible in the distance however.

There are open distant views towards the Site, causing short term visibility of construction machinery. The solar panels and the security fence along the outskirts of the Site, will be visible during their construction period, from the east of Harp's Hall Road. Until the native species hedgerows reach maturity, the security fencing and solar panels behind will be visible. Visibility onto the Site will be greatly reduced by the Year 15 when the vegetation buffer surrounding the Site will reach maturity, screening views of the eastern section of the Site.

Change to this viewpoint is judged to result in a **Low** magnitude of Impact and a **Minor adverse** level of effect. Accordingly, the Proposed Development is not anticipated to have a significant effect on VP-04A.

#### 5.7.3.5 VP-04B: View south-west of the Site from Harps Hall Road

This view is representative of views for residents of properties on Harps Hall Road, looking south-west towards the Site.

The foreground and midground are unaffected by the Site, remaining the existing agricultural fields with telegraph poles cutting through. The Proposed Development and its associated features will be visible in the distance, above the wildflower planting in the foreground.

In the distance the Site sits in front of vegetation with some gaps. During construction and incrementally until mitigation planting reaches maturity in year 15, the Sites security fencing and Solar panels behind will be visible. Once the evergreen and native species hedgerow is established and has reached maturity, the hedgerow boundary will integrate with the patches of vegetation otherwise apparent in the baseline view. The proposed structures on the Site are likely to be visible in the view permanently, as the vegetated buffer will not screen the Substation. The colour of the structures has been proposed as grey, in order to be less visually detractive in the view. The addition of the cluster of new Site structures will be visible, but not necessarily atypical of this view, which is characterised by farm building infrastructure partially screened by vegetation.

Change to this viewpoint is judged to result in a **Low** magnitude of Impact and a **Moderate adverse** level of effect. Accordingly, the Proposed Development is anticipated to have a significant effect on VP-04B.

#### 5.7.3.6 VP-05: View south-west from Trinity Road National Cycle Network near Marshland St James

The viewpoint is representative of users of the National Cycle Network along Trinity Road, Marshland St James looking south-west towards the Site.



The foreground and midground are unaffected by the Site, remaining the existing agricultural fields with electricity lattice towers visible in the distance. The Proposed Development and its associated features will be visible in the distance, however through gaps in vegetation.

In the distance the Site is screened by vegetation with some gaps. During construction and until mitigation native species hedgerow planting reaches maturity in year 15, the Sites security fencing and Solar panels behind will be visible. Once the native species hedgerow has reached maturity, the hedgerow boundary will integrate with the patches of vegetation otherwise apparent in the view now.

Change to this viewpoint is judged to result in a **Low** magnitude of Impact and a **Minor adverse** level of effect. Accordingly, the Proposed Development is not anticipated to have a significant effect on VP-05.

#### 5.7.3.7 VP-06: View south-west from St Pauls Road, Marshland St James

The viewpoint is representative of residential properties along St Pauls Road, Marshland St James, looking south-west towards the Site.

The foreground of the view will remain unchanged, however the Proposed Development will be clearly visible in the midground and distance. During construction and until the native species hedgerow planting reaches maturity in year 15, the Site security fencing and Solar panels behind will be visible. Once the native species hedgerow has reached maturity, the hedgerow boundary will integrate with the patches of vegetation otherwise apparent in the view now. It will also block out views of the base of the existing lattice towers.

The upper extent of proposed structures on the Site would be visible on the horizon line, and the proposed vegetated buffer will not screen this. The colour of the structures has been proposed as grey, in order to be less visually detractive in the view. The substation will be visible, but not necessarily atypical of this view, which is characterised by farm building infrastructure partially screened by vegetation.

Change to this viewpoint is judged to result in a **Moderate** magnitude of Impact and a **Moderate adverse** level of effect. Accordingly, the Proposed Development is anticipated to have a significant effect on VP-06.

#### 5.7.3.8 VP-07: View north-west from Goose Lane, Marshland St James

The viewpoint is representative of residents along Goose Lane, Marshland St James, looking north-west towards the Site.

Arable field in the foreground will offer views on to east section of the Site. The western section of the Site in the distance is screened by the distant vegetation and wind turbines. The lattice towers within the Site boundary will remain unchanged only screened by a security fence and subsequently a vegetated hedgerow buffer.

There are open distant views towards the Site, causing short term visibility of construction machinery. The solar panels and the security fence along the outskirts of the Site, will be visible during their construction period, from Goose Lane and top floors of properties. Upon completion the lack of vegetation in the foreground and midground mean that the security fencing and solar panels will still be visible, while the native species hedgerow establishes. The security fence will be in front of the lattice towers, restricting views of the base. Visibility will be greatly reduced by Year 15 when the native species hedgerow directly in the foreground and along the Site boundary

reaches maturity, screening views of Site, this will however detract from the open character of this area.

Change to this viewpoint is judged to result in a **Moderate** magnitude of Impact and a **Moderate adverse** level of effect. Accordingly, the Proposed Development is anticipated to have a significant effect on VP-07.

#### 5.7.3.9 VP-08: View north-east into the Site from Long Lots Drove Track

This view is representative of users of the PRoW along Long Lots Drove track that runs along the southern boundary of the Site. The viewpoint is looking north-east into the Site.

The Proposed Development will be directly visible in the midground of the view, altering the existing open landscape character. However, the current view isn't completely rural, with the midground being dominated by electricity lattice towers.

Construction machinery and activity within the Site will be visible, alongside the solar panels and security fence, not typical of the area.

Year 1 the native species hedgerow will not yet be established providing views towards the security fencing and the solar panels. These views will be distinct as they will be directly in the foreground and midground. By year 15 the landscape buffer will have established, screening direct views on to the Site, however it will bring forward the vegetated horizon.

Change to this viewpoint is judged to result in a **Moderate** magnitude of Impact and a **Moderate adverse** level of effect. Accordingly, the Proposed Development is anticipated to have a significant effect on VP-08.

#### 5.7.3.10 VP-09: View north-west from Cow Lake Drove

This viewpoint is representative of residences along Harps Hall Road, along with road users and PRoW users along Cow Lake Drove.

The existing foreground and will remain pastoral fields, however the Proposed Development will alter the arable fields in the midground and distance view to the solar development and associated infrastructure.

This will mean during construction, there will be short term visibility of construction machinery. During construction and until native species hedgerow and native species hedgerow with trees reaches maturity in year 15, the Sites security fencing and Solar panels behind will be visible. Once the hedgerows reached maturity, the hedgerow boundary will integrate with the patches of vegetation otherwise apparent in the view now. The top sections of the substation, and associated fencing will be visible permanently from this location, as mitigation planting is unable to screen to this height.

Change to this viewpoint is judged to result in a **High** magnitude of Impact and a **Moderate adverse** level of effect. Accordingly, the Proposed Development is anticipated to have a significant effect on VP-09.

#### 5.7.3.11 VP-10: View north-east from Station Road

View north-east from Station Road, representative of residents and road users along Station Road. Viewpoint representative of Station Farm and Popenhoe House.

The woodland aids in screening part of the foreground and midground from the Site alongside intermittent trees in the distance, creating filtered views of the Site.

The filtered broad expansive views will mean that there will be short term visibility of construction machinery, solar panels during construction and the security fence along the outskirts of the east section of the Site. During the first year after construction, woodland, and intermittent trees in the midground distant views, will filter views of the security fence and solar panels. By year 15 these will be screened by the native species hedgerow, preventing views of the security fence and solar panels. The creation of a native species hedgerow will integrate into existing vegetated midground.

Change to this viewpoint is judged to result in a **Low** magnitude of Impact and a **Minor adverse** level of effect. Accordingly, the Proposed Development is not anticipated to have a significant effect on VP-10.

#### 5.7.3.12 VP-11: View North from PRow near Station Road

The viewpoint location is representative of the view experienced by people using the PRow near station road.

Given that none of the existing Site features are visible from this location as it is screened by existing mature vegetation to the midground of this view, it is anticipated that the Proposed Development would not be apparent to the visual receptors at this location.

This is judged to result in a **No Change** magnitude of impact and a **Neutral** level of effect. Accordingly, the Proposed Development is not anticipated to have a significant effect on VP-11.

#### 5.7.3.13 VP-12: View north-east from Mill Road Restricted Byway

This viewpoint is representative of residents and users of Mill Road restricted byway.

Given that none of the existing Site features are visible from this location as it is screened by existing mature vegetation to the midground of this view, it is anticipated that the Proposed Development would not be apparent to the visual receptors at this location.

This is judged to result in a **No Change** magnitude of impact and a **Neutral** level of effect. Accordingly, the Proposed Development is not anticipated to have a significant effect on VP-12.

#### 5.7.3.14 VP-13: View east from Sparrowgate Road, Walsoken, Wisbech

This viewpoint is representative view of residents and road users of Sparrowgate Road, Walsoken, Wisbech.

Given that none of the existing Site features are visible from this location as it is screened by existing mature vegetation to the midground of this view, it is anticipated that the Proposed Development would not be apparent to the visual receptors at this location.

This is judged to result in a **No Change** magnitude of impact and a **Neutral** level of effect. Accordingly, the Proposed Development is not anticipated to have a significant effect on VP-13.

#### 5.7.3.15 VP14: View east from Fengate Road Bridleway

This viewpoint is representative view for users of Fengate Road Bridleway.

Views predominately screened to the northeast by trees, hedges and farm building in the midground with filtered views to the east towards the wind turbines. Vegetation and buildings will filter views, except where there are gaps along the hedgerows.

There are filtered views towards the Site, causing short term visibility of construction machinery.

During construction and until the evergreen hedgerow, native species hedgerow and native species hedgerow with trees reaches maturity in year 15, the Sites security fencing and Solar panels behind will be visible. Once the evergreen and native species hedgerow has reached maturity, the hedgerow boundary will integrate with the patches of vegetation otherwise apparent in the view now. The top sections of the substation will be visible permanently from this location, as mitigation planting will not screen the full height of these structures.

Change to this viewpoint is judged to result in a **Low** magnitude of Impact and a **Minor adverse** level of effect. Accordingly, the Proposed Development is not anticipated to have a significant effect on VP-14.

## 5.8 Cumulative Assessment

### 5.8.1 Overview

This LVIA has taken into consideration the cumulative landscape and visual effects associated with other proposed developments within 2km, as agreed in the scoping report. Other similar proposed developments more than 2km away from the Site have been scoped out, due to the distance from the Site and lack of potential intervisibility.

The only similar development within the cumulative assessment study area is the Mill Road Solar Development, which can be found on Figure 5.6.

We understand that the Mill Road development is at the 'Scoping' stage (pre-application). It should be noted that while the site at Mill Road has been considered, this was under advice provided by the Planning Authority and no formal pre-application or EIA screening submission has been made with respect to this proposed development. The cumulative assessment considered as part of the EIA therefore represents an absolutely worst-case scenario with respect to potential effects as the Mill Road development is not committed and may not come forward at all. As a result there is no design or layout available, so a judgement has been taken based upon the level of information provided to date and an assumption on the contents and arrangement of a typical solar farm development. Normal convention in LVIA practice is to consider the potential for cumulative effects (from the addition of the Proposed Development and the overall in combination effects) with other similar developments which are either the subject of a valid planning application or are consented but not yet constructed/operation. In this case, given that the Mill Road site is, in part, immediately adjacent to the proposed development, an assessment has been made. It should be noted that the assessment provided here is subject to uncertainty given that there is no information available on the physical characteristics of the Mill Road development upon which to base the assessment.

### 5.8.2 Mill Road Solar Development

Mill Road Solar development is located adjacent to the Site, approximately 10 m from the Meerdyke Solar Development.

Mill Road Solar Development is made up of five fields (A-E).

Three fields A, B and C are located to the North-West of the Meerdyke Site, outside of Ingleborough village (approximately 3.82km from the Site). This is located next to an existing solar farm, and battery storage facility. It is unlikely that this section of the development will have an effect on any selected receptors given its distance from the Site.

The east sections of the Mill Road Solar Development, is made of up of two fields D and E. These are located directly adjacent to the Meerdyke Site, divided by Meer Dyke Lane.

It is located within LCA D4 The Fens - Settled Inland Marshes, Emneth, West Walton and Walsoken, and will lead to a small change resulting from the proposed development, that may be incongruous, whilst retaining the overall character and quality of the wider landscape area. This will be accessed in Table 5.6 and 5.7.

Table 5.5 assesses from which representative viewpoints the Mill Road Solar Development would potentially be visible. Where it would potentially be visible, the impact is then assessed in Table 5.6 magnitude of impact and scale of effects of adding Mill Road to the current baseline, (sensitivity of representative viewpoints as per the baseline).

<b>Table 5.5: Mill Road Solar Development Viewpoint Receptors</b>		
<b>Representative viewpoint</b>	<b>Visibility of Mill Road Solar Development</b>	<b>Reason</b>
<b>VP-01</b>	Not visible	Evergreen tree and mature hedgerow with trees in the foreground screening Mill Road Solar Development.
<b>VP-02</b>	Not visible	Viewpoint 2 was discounted during the Site investigation. This is due the area been well screened by private properties and caravans with no safe access to publicly accessible locations around the boundary during Site investigation.
<b>VP-03</b>	Not visible	Woodland vegetation screening views towards Mill Road Solar Development.
<b>VP-04A</b>	Not Visible	Viewpoint Camera location does not capture the site due to orientation for the Site photograph. As view has two photographs refer to VP-04B.
<b>VP-04B</b>	Visible	Visible central to the view in the distance, between woodland and hedgerow with trees vegetation screening Barwell A & Sons.
<b>VP-05</b>	Not visible	Screened by the copes of trees and farmstead and properties in the mid/distant view.

<b>Table 5.5: Mill Road Solar Development Viewpoint Receptors</b>		
<b>Representative viewpoint</b>	<b>Visibility of Mill Road Solar Development</b>	<b>Reason</b>
<b>VP-06</b>	Not visible	Views screened by the Woodland and hedgerow vegetation and properties and farmsteads along Harp's Hall Road.
<b>VP-07</b>	Not visible	Views screened by the Woodland and hedgerow vegetation and properties and farmsteads along Harp's Hall Road.
<b>VP-08</b>	Not visible	Viewpoint Camera location does not capture the site due to orientation for the Site photograph. View is screened by woodland, properties along Harp's Hall Road.
<b>VP-09</b>	Visible	Lack vegetation between Meerdyke Solar Development and Mill Road Solar Development, allows views into the Mill Road Development.
<b>VP-10</b>	Not visible	Viewpoint Camera location does not capture the site due to orientation for the Site photograph. View is screened by properties and associate hedgerow planting along Station Road.
<b>VP-11</b>	Not visible	View screened by hedgerow Planting and properties along Station Road.
<b>VP-12</b>	Not Visible	Woodland Block screens any views towards Mill Road Solar Development.
<b>VP-13</b>	Not visible	Viewpoint Camera location does not capture the site due to orientation for the Site photograph. Views towards Mill Road Solar development are screened by orchard and hedgerow planting.
<b>VP-14</b>	Visible	Viewpoint Camera location does not capture the site due to orientation for the Site photograph, however limited vegetation buffer leading to

<b>Table 5.5: Mill Road Solar Development Viewpoint Receptors</b>		
<b>Representative viewpoint</b>	<b>Visibility of Mill Road Solar Development</b>	<b>Reason</b>
		exposed views from this point to Mill Road Solar Development.

<b>Table 5.6: Magnitude of Impact and Scale of Effects of adding Mill Road to the Current Baseline</b>		
<b>Receptors</b>	<b>Magnitude of Impact</b>	<b>Scale of Effect</b>
<b>LCA D4 The Fens - Settled Inland Marshes, Emneth, West Walton and Walsoken</b>	<b>Moderate</b>	Minor Adverse
<b>VP-04B</b>	<b>Moderate</b>	Minor Adverse
<b>VP-09</b>	Low	Minor Adverse
<b>VP-14</b>	<b>Moderate</b>	<b>Moderate Adverse</b>

The table above illustrates the magnitude of impact and scale of effect of adding the Mill Road Development to the current baseline.

The in-addition effects would result in a minor adverse effect on the landscape character area. This assessment conclusion is reached based on the notable but localised extent of effect within a low sensitivity landscape character area, which would result in the study area retaining much of the local character areas features. The receptors are largely anticipated to either have a minor or moderate adverse effect on the landscape and its visual amenity. Viewpoints 04B and 14 are considered to have a significant adverse effect, this is in part due to the proximity to Mill Road and the vertical elements which will obstruct the distant views, screening characteristics such as long-distance views across agricultural fields and the open horizon.

Viewpoint 09 will result in a minor adverse effect as only part of the distant view will be affected, primarily with the addition of hedgerow planting and infrastructure taller than the existing trees and hedgerows.

Table 5.7 assesses the overall combined magnitude and level of effect for the Mill Road Development and the Site when considered together.

<b>Table 5.7 Combined Magnitude and Level of Effect</b>		
<b>Receptors</b>	<b>Magnitude of Impact</b>	<b>Scale of Effect</b>
<b>LCA D4 The Fens - Settled Inland Marshes, Emneth, West Walton and Walsoken</b>	<b>Moderate</b>	Minor Adverse
<b>VP-04B</b>	<b>Moderate</b>	<b>Moderate Adverse</b>
<b>VP-09</b>	<b>Moderate</b>	<b>Moderate Adverse</b>
<b>VP-14</b>	<b>Moderate</b>	<b>Moderate Adverse</b>

The combined effect will result in a Minor adverse effect on the landscape character area. The solar development would introduce a new 'land use' in the landscape. This would not fundamentally change the overall pattern of landscape such as field structure, and residential elements. The landscape would still consist of managed agricultural landscape with elements such as glasshouses, farm buildings and orchards. There would be a Moderate adverse level of effect on three representative viewpoints when considered in combination, this is the same as for the development in isolation for VP-04B and VP-09, but an increase in effect for VP-14 due to the expanse of solar infrastructure and battery storage areas being able to be seen.

The Site and Mill Road will impact a series of routes including, road networks, the national cycle network, bridleway and residential properties. Overall, the west section of the Site and Mill Road Solar Development will be viewed as the same Site to people traveling through the area, due to their proximity. Areas with a greater impact from both developments include the bridleway to the South of Mill Road and residential properties surrounding the developments. This is due to the low speed people travel along the bridleway and the height of properties which look upon both developments.

Primary road networks affected by Mill Road and the Site, include A47 to the west, Harps Hall Road central between two section of the Site and Cow Lake Drove. This is due to the lack of vegetation or gaps in vegetation opening views towards the developments from the A47. Mitigation commitments embedded in the design including hedgerow, and hedgerow with trees, will break up views towards the site, leading to the developments being less noticeable to people traveling along roads. The cycle network to the North will likely see both Mill Road and the Site, until year 15 when the vegetation will have established screening all distant views towards both developments. The bridleway to the south will look directly onto Mill Road development from the north, with glimpses of the west section of the Site to the East. The views in this area will be shortened due to an increase of vegetation used to screen the developments. Residential properties directly adjacent to the developments will have shortened views due to the sites being directly adjacent to them. Large wildflower areas included in the design with hedgerows bordering the developments infrastructure, this would still shorten view and prevent glimpses of the development's infrastructure.

This development is likely to add to the alteration of certain views identified within this LVIA and impact the landscape character along Cow Lake Drove, Biggs Road and Fengate Road, in particular VP 4,9,14. This is due to likely additional building and fencing infrastructure and associated mitigation planting reducing the open and relatively uninterrupted views across the flat agricultural landscape. The landscape currently lacks vegetated or fenced boundary treatments,



so the addition of these with any other developments could have an incremental adverse impact on the landscape character, and appropriate mitigation measures should be considered.

## 5.9 Summary

### 5.9.1 Legislation, Planning policy and Guidance

A review of how the changes arising from the Proposed Development relate to national and local policy and guidance is provided below.

#### 5.9.1.1 National

In relation to NPPF paragraph 126 requiring sensitivity to local character and context, the LVIA has identified that the Proposed Development would result in a Minor adverse effect to the LCA that it is located within. Moderate, and therefore significant adverse visual effects are anticipated from five viewpoint locations, and Minor adverse from a further four. A further five viewpoints have been judged as neutral. Therefore, the LVIA demonstrates that the Proposed Development would on balance be adverse to local character and significantly diminish one view.

In relation to NPPF paragraphs 8, and 122, and 155, and 174 and National Policy Statement: Overarching National Policy Statement for Energy (EN-1), and Renewable and low carbon energy planning policy and Natural Environment Planning Policy, the LVIA has identified at least two external viewpoints which demonstrate that the proposal plans to develop for future sustainable energy. The design itself works against the existing natural character, which is predominantly flat and open. This highlights that the land will be closed off by addition of planting, which is uncommon within the area, however selected planting has been done to align with planning policy and mitigate visual impacts. Proposals seek to adapt and enhance the landscape structure of the Site, by retaining current facets on Site and increasing green corridor and green infrastructure.

#### 5.9.2 Local

The LVIA demonstrates that the Proposed Development would align with King's Lynn and West Norfolk Local Plan aim to "*Development should seek to avoid, mitigate or compensate for any adverse impacts on biodiversity, geodiversity and heritage as well as seeking to enhance Sites through the creation of features of new biodiversity, geodiversity and heritage interest. The design of new development should be sensitive to the surrounding area, and not detract from the inherent quality of the environment.*"

- The strategy outlines that Proposed Development should be informed by its surrounding location and see opportunities to reinforce the character and the potential habitat creation. This has been done through retaining existing features on site, for both cultural, heritage and biodiversity reasons alongside proposed mitigation looking at enhancing habitats and their connectivity alongside screening the development.

#### 5.9.3 Mitigation Commitments

Based upon the assessment findings, mitigation suggestions to minimise negative impacts of the development proposals are as follows and have been incorporated on the landscape mitigation plan (Figure 5.5):

- Native species hedgerow to field boundary edge to provide adequate screening to proposed solar panels and security fencing to the Site perimeter;

- Evergreen hedgerow to field boundaries surrounding containers to provide adequate screening to proposed structures, solar panels and security fencing;
- Native species hedgerow with trees to field boundary's along roads, to provide adequate screening of containers, solar panels, security fencing and Site perimeter;
- Colour of containers to be Grey (RAL REF), to aid with blending into wider landscape for distant views;
- Setback between Solar infrastructure and existing residential and farm buildings;
- Use of existing field entrances, to reduce new openings within existing boundary treatments;
- Sensor operated lighting contained to only the building areas and not the entire Site boundary;
- Wildflower grass mixture underneath and in between panels, buildings and access tracks
- Strips of orchard planting and wildflower mixture within the setbacks between residential and farm properties and the solar development infrastructure, to aid screening.

Inclusion of the recommendations have been incorporated to further strengthen the proposals and mitigate against adverse landscape and visual impacts.

**5.9.4 Summary**

A combination of photography from a range of locations and contexts, alongside desk-top analysis, Site visits, and professional judgement, has enabled a comprehensive understanding of how the Proposed Development would affect the landscape character and impact on local views.

The LVIA has identified the following effects arising from the proposed development:

- Minor adverse for one LCA.
- Neutral from five representative viewpoint locations.
- Minor adverse for four representative viewpoint locations.
- Moderate adverse for five representative viewpoint location.
- One representative viewpoint location discounted.

<b>VP</b>	<b>Sensitivity</b>	<b>Magnitude</b>	<b>Significance</b>
<b>01</b>	Medium	No Change	Neutral
<b>02</b>	N/A	N/A	N/A
<b>03</b>	Medium	No Change	Neutral
<b>04A</b>	Medium	Low	Minor adverse
<b>04B</b>	Medium	Low	Moderate adverse
<b>05</b>	Medium	Low	Minor adverse
<b>06</b>	Medium	Moderate	Moderate adverse
<b>07</b>	Medium	Moderate	Moderate adverse
<b>08</b>	Medium	Moderate	Moderate adverse
<b>09</b>	Medium	High	Moderate adverse
<b>10</b>	Medium	Low	Minor adverse
<b>11</b>	Low	No Change	Neutral
<b>12</b>	Low	No Change	Neutral
<b>13</b>	Medium	No Change	Neutral
<b>14</b>	Low	Low	Minor adverse

The receptors assessed are largely anticipated to either have a neutral or minor adverse effect on the landscape and its visual amenity. However, Viewpoint 04B, 06, 07, 08 and 09 are considered to have a significant adverse effect, this is in part due to the proximity of the receptor location to the Site and the vertical element of the substation. Mitigation efforts will screen the Site partially, but at this location screening would alter the open nature of the Site.

Neutral effects are largely associated with receptors either at a greater distance from the Proposed Development that are predominantly screened by intervening vegetation or built form so either the Site will not be visible, or the changes within are not perceivable at distance.

The viewpoints judged to have Minor Adverse effects tend to be located nearer to Site where existing open views of the Site would be replaced by a different view of solar development or fencing with hedgerow in landscape with little existing hedgerow structure.

The visual openness experienced into the Site and views into the wider landscape will largely decline with the implementation of screening vegetation that may block views, this will be particularly apparent within 1 km of the Site, but less noticeable further away. Due to the openness of the Site boundaries, views in and out of the Site are prominent from certain locations for which visual receptors (VP04A-VP10 and VP14) from which experience Minor and Moderate Adverse effects.

This LVIA concludes that although the development proposal represents a change to use within the Site and a change in character given the addition of a vegetated buffer where there currently isn't one, local topography and vegetation patterns, combined with the Site's hedged boundary ensures that views in and out are largely contained, with some visual impacts being contained. The flat topography characteristic of the Site will remain unaltered. The design and landscaping proposals are considered to alter the landscape character and visual amenity of the area. Whilst this enhances the and green connectivity of the Site, and also screening the Proposed Development from visual receptors, closing in the open Site nature, is not necessarily typical of the landscape character.

## 6. TRAFFIC, TRANSPORT AND ACCESS

### 6.1 Introduction

This chapter considers the likely significant effects on traffic, transport and access associated with the proposed development. The specific objectives of the chapter are to:

- Describe the transport baseline;
- Describe the assessment methodology and significance criteria used in completing the impact assessment;
- Describe the potential effects, including direct, indirect and cumulative effects associated with increased traffic levels as a result of the proposed development;
- Describe the mitigation measures proposed to address likely significant effects; and
- Assess the residual effects remaining following the implementation of mitigation.

The Traffic and Transport Chapter has been undertaken by SYSTRA Ltd (SYSTRA) and led by Alan DeVenny. Alan is a Projects Director and Chartered Engineer with SYSTRA. He has a BEng in Civil and Transportation Engineering as well as a PhD in Civil Engineering. Alan has over 22 years' experience in the traffic and transportation industry and over 14 years' experience in the production of EIA transport chapters (and associated studies) for renewable energy developments throughout the UK, as well as being responsible for assisting both Transport Scotland and National Highways in the preparation of guidelines for assessing the effects of renewable energy developments. Alan is a Chartered Member of the Institution of Civil Engineers (CEng, MICE).

This chapter is supported by the following figures and technical appendices:

Volume 3a: Figures

- Figure 6.1: Study Area and Construction Traffic Route

Figures and technical appendices are referenced in the text where relevant.

### 6.2 Assessment Methodology and Significance Criteria

#### 6.2.1 Scope of Assessment

The assessment is structured around the consideration of potential environmental effects related to traffic and transport as identified by the Institute of Environmental Management and Assessment (IEMA) Guidelines<sup>1</sup>:

- Severance;
- Driver delay;
- Pedestrian delay and amenity;
- Accidents and safety; and
- Dust and dirt.

The IEMA guidelines also refer to visual effects and hazardous loads. Visual effects are addressed in Chapter 5: Landscape and Visual Amenity. No hazardous loads are associated with the Proposed Development therefore this effect has not been assessed.

<sup>1</sup> Institute of Environmental Management and Assessment (1993), 'Guidelines for the Environmental Assessment of Road Traffic' ("the IEMA Guidelines")

Operational, under construction and consented developments are considered as part of the baseline.

The chapter also assesses any cumulative effects as arising from the proposed development in combination with other cumulative developments, which are the subject of a valid planning application.

The assessment is based on the proposed development as described in Chapter 2: Development Description (ES Volume 2).

The scope of the assessment has been informed through consultation with statutory bodies (as discussed below) and the following guidelines/policies:

- The Town and Country Planning (Environmental Impact Assessment) Regulations 2017 (as amended)<sup>2</sup>;
- Institute of Environmental Management and Assessment (IEMA), 'Guidelines for the Environmental Assessment of Road Traffic (1993)' ('the IEMA Guidelines')<sup>1</sup>;
- Institute of Highways and Transportation (IHT), 'Guidelines for Traffic Impact Assessment (1998)<sup>3</sup>; and
- Department for Transport (DfT), 'Design Manual for Roads and Bridges (DMRB)<sup>4</sup>.

### 6.2.2 Consultation

Table 6.1 summarises the consultation responses received regarding traffic, transport and access, and provides information on where and/or how they have been addressed in this assessment.

<b>Table 6.1: Consultation Responses</b>			
<b>Consultee and Date</b>	<b>Scoping / Other Consultation</b>	<b>Issue Raised</b>	<b>Response / Action Taken</b>
Norfolk County Council, January 2022	Scoping	The main impacts on the public highway are expected during the construction stage	Noted. Both the Transport Statement and ES chapter consider the construction stage in detail.
		A draft Construction Management Plan (CMP) should be submitted, setting out traffic profiles, vehicles routes and traffic management measures, and including swept path analysis where appropriate.	Noted, this will be outlined in the draft Construction Traffic Management Plan (CTMP) which will be submitted with the planning application as a chapter within the Transport Statement document. There are no abnormal loads associated with the proposals so swept path analysis is not considered necessary.
		Particular attention should be given to the suitability of local access roads, some of which are single-track	Noted, this is considered in detail in the Transport Statement.

<sup>2</sup> The Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017

<sup>3</sup> Institute of Highways and Transportation (1998), 'Guidelines for Traffic Impact Assessment'

<sup>4</sup> Design Manual for Roads and Bridges (2013) 'Economic Assessment of Roads Schemes in Scotland', Volume 15, Section 1: 'The NESAs Manual'

<b>Consultee and Date</b>	<b>Scoping / Other Consultation</b>	<b>Issue Raised</b>	<b>Response / Action Taken</b>
		roads with limited passing opportunities.	Additional passing places are proposed.
National Highways, August 2022	Scoping	A Technical Appendix (TA) should be prepared as part of the planning application stage, setting out the interaction of the project with the Strategic Road Network	See above.
		A draft Construction Management Plan (CMP) should be submitted, setting out traffic profiles, vehicles routes and traffic management measures, and including swept path analysis where appropriate.	See above.

### 6.2.3 Potential Impacts Scoped Out

The following topic areas have been 'scoped out' of this assessment following an initial appraisal of the proposed development, professional judgement, experience from other relevant projects, and feedback received from consultees:

- The effect of construction traffic on the road network with respect to junction and road capacity, both in isolation and cumulatively. The effects on junction capacity are highly unlikely to be significant in terms of congestion, as movements are not expected to exceed 32 Annual Average Daily Flow (AADF). Accordingly, it is considered that detailed junction capacity assessments are not required and have subsequently not been carried out. Some delays to roads users may occur as a result of HGV movements on the local road network, as other traffic may need to wait for these vehicles to pass. The accompanying Transport Statement proposes the construction of five additional passing places to mitigate this.
- The effects of traffic associated with the operational stage. Once the Proposed Development is operational, the amount of traffic generated will be minimal and will relate to the maintenance of the Solar PV Farm. Vehicles used for maintenance are likely to be utility vehicles (typically 4x4s or light goods vehicles (LGVs)) and movements are not expected to exceed 10 AADF. There may, on rare occasions, be the need for HGVs to access the Site, however overall, there would be no material increase in traffic utilising the local highway network. With respect to traffic and transport, the operational stage of the Proposed Development is therefore not assessed in this chapter.
- The effects of traffic associated with the decommissioning stage. Traffic associated with the decommissioning stage is anticipated to be significantly less than that generated during construction. Due to the timescales involved and the likelihood for changes to the baseline situation during this period, the traffic and transport effects associated with the decommissioning stage are not assessed in this chapter.

- It is anticipated that the volume of traffic associated with the construction of the Proposed Development will not have a discernible effect on roads and sensitive receptors outside the Study Area as the effects of traffic are reduced with increasing distance from the point of origin.
- No hazardous loads are associated with the Proposed Development therefore an assessment of this has been scoped out.
- Potential Cumulative Effects during Construction have been scoped out. A search of consented and pending planning applications in the West Walton Ward has been undertaken on the Norfolk County Council Planning website (26.09.22). This identified:
- Two pending small-scale planning applications (a change of use of land and stables to a commercial livery, and a change of use from a former house to a single-space caravan site); and
- One consented Planning Application at West Walton Fire Station, which is on the west side of the A47, some distance from the Proposed Development.

It is concluded that none of the identified developments has the potential to generate cumulative construction impacts with the Proposed Development.

#### 6.2.4 Study Area

The study area for the assessment of traffic and transport is indicated in Figure 6.1 (ES Volume 3), and comprises the full extent of the route to be used by construction traffic between the A47 and the two site access points on Harp's Hall Road. This includes the following sections of public road:

- The A47 in the immediate vicinity of the A47 / St Paul's Road South / Lynn Road roundabout;
- St Paul's Road South between the A47 and Harp's Hall Road; and
- Harp's Hall Road between St Paul's Road South and the site entrances.

It is anticipated that all construction traffic will use this route to travel to and from the site. It is considered highly unlikely that there will be any significant effects on the public road network outside of the study area identified above as traffic will be reduced and dispersed across the road network beyond these points.

#### 6.2.5 Baseline Characterisation

A comprehensive desk-based study has been undertaken to fully understand the surrounding public road network. Traffic data for the A47 has been obtained from Highway England's online database of traffic counts<sup>5</sup>, and used to establish the annual average daily traffic flow (AADF) levels.

The latest traffic figures available in 2020 show an AADF of 14,796 vehicles, which is much lower than the 2019 (pre-Covid) recorded AADF of 18,238. It is considered that the 2019 flows represent more typical conditions, and this data has been used as the Baseline in the assessment.

The following data sources have informed the assessment:

- Traffic data from TMU Site 6348/1 and 6348/2 on A47 between A1101 and B198 near Wisbech (east) between 1st Jan 2019 and 1st Jan 2020.

<sup>5</sup> <https://webtris.highwaysengland.co.uk/> (Accessed 13.09.22)

- [www.crashmap.co.uk](http://www.crashmap.co.uk) (accessed 6 August 2022).
- [www.osm.mathmos.net](http://www.osm.mathmos.net) (accessed 26 September 2022) to assess Public Rights of Way in West Walton Parish.

## 6.2.6 Criteria for the Assessment of Effects

### *Screening*

The methodology used in this assessment adheres to that set out in the IEMA Guidelines<sup>1</sup>. The guidelines suggest that to determine the scale and extent of the assessment and the level of effect a development will have on the surrounding road network, the following two 'rules' should be followed:

- Rule 1 - include road links where total traffic flows are predicted to increase by more than 30% or where the number of HGVs is predicted to increase by more than 30%; and
- Rule 2 - include any other specifically sensitive areas where total traffic flows are predicted to increase by 10% or more.

Rules 1 and 2 are used as a screening tool to determine whether or not a full assessment of effects on routes within the study area is required as a result of intensification of road traffic. Therefore, it should be noted that an increase in total traffic or HGV levels of more than 30% (or 10% depending on the sensitivity of the area) does not necessarily equate to a significant effect. The process for determining significance where Rules 1 or 2 are triggered is undertaken on a site-specific basis. The methodology for assessing the significance of effects is described below.

### *Criteria for Assessing the Sensitivity of Receptors*

Paragraph 2.5 of the IEMA Guidelines<sup>1</sup> identifies groups, locations and special interests which may be sensitive to changes in traffic conditions. These are:

- People at home;
- People in workplaces;
- Sensitive groups including children, elderly and disabled;
- Sensitive locations, e.g. hospitals, churches, schools, historic buildings;
- People walking or cycling;
- Open spaces, recreational sites, shopping areas; and
- Sites of ecological / nature conservation value and tourist attractions.

The sensitivity of a given road link to changes in traffic levels is generally assessed by considering the residual capacity of the network under the existing conditions. Where there is a high degree of residual capacity, the network may readily accept and absorb an increase in traffic and therefore the sensitivity may be said to be low. Conversely, where the existing traffic levels are high compared to the road capacity, there is little spare capacity, and the sensitivity to any change in traffic levels will be considered to be high.

The criteria used to make judgements on the importance / sensitivity of the receptor(s) and the magnitude of change are presented in Table 6.2.



<b>Receptor Sensitivity</b>	<b>Description</b>
High	The receptor/resource has little ability to absorb change without fundamentally altering its present character, or is of international or national importance. Local residents whose daily activities depend upon unrestricted movement within their environment. Receptors such as schools, colleges, hospitals and accident hotspots.
Medium	The receptor/resource has moderate capacity to absorb change without significantly altering its present character, or is of high importance.
Low	The receptor/resource has high capacity to absorb change without significantly altering its present character, or is of low importance.
Negligible	Users not sensitive to transport effects. Includes very small settlements and roads with no significant settlements including new strategic trunk roads or motorways.

*Criteria for Assessing the Magnitude of Change*

The magnitude of traffic impacts is determined by assessing the predicted traffic flows from the Proposed Development against the existing 2019 baseline.

The magnitude of impact is a function of the existing traffic volumes and the percentage increase and change due to a development, as well as changes in the type of traffic and the temporal distribution of traffic (day of week, time of day). The determination of magnitude has been undertaken by reviewing the Proposed Development, establishing the parameters of the receptors that may be affected and quantifying these effects utilising IEMA Guidelines<sup>1</sup> and professional judgement.

Consideration is also given to the composition of the traffic on the road network, under both existing conditions and with Proposed Development traffic. For example, LGVs have less effect on traffic and the road system than HGVs.

The criteria that have been used to determine the magnitude of change on the receptor(s) are presented in Table 6.3.

<b>Magnitude</b>	<b>Description</b>
Substantial	The proposals could result in a significant change in terms of length and / or duration to the present traffic routes or schedules or activities, which may result in hardship. Generally a rule of >90% (or >70% at sensitive receptors) change in traffic is considered to be a large magnitude.
Moderate	The proposals could result in changes to the existing traffic routes or activities such that some delays or rescheduling could be required, which cause inconvenience. Generally a rule of 60% - 90% (or 40%-70% at sensitive receptors) change in traffic is considered to be a medium magnitude.
Slight	The proposals could occasionally cause a minor modification to routes, or a very slight delay in present schedules, or on activities in the short term.

<b>Magnitude</b>	<b>Description</b>
	Generally a rule of 30 – 60% (or 10%-40% at sensitive receptors) change in traffic is considered to be a small magnitude.
Negligible	No effect on movement of road traffic above normal level. Generally a rule of <30% (or <10% at sensitive receptors) change in traffic is considered to be a negligible magnitude.

**6.2.7 Criteria for Assessing Significance**

Table 6.4 illustrates how significance of effects is determined by comparison of the sensitivity of receptors with the magnitude of predicted change.

<b>Sensitivity</b>	<b>Magnitude of Change</b>				
	<b>Substantial</b>	<b>Moderate</b>	<b>Slight</b>	<b>Negligible</b>	<b>None</b>
High	Major	Major/moderate	Moderate	Moderate/minor	None
Medium	Major/moderate	Moderate	Moderate/minor	Minor	None
Low	Moderate	Moderate/ minor	Minor	Minor/none	None
Negligible	Minor	Negligible	Negligible	Negligible	Minor

Effects are categorised as major, moderate, minor or negligible. Major or moderate effects are considered to be significant in the context of the EIA Regulations. Minor or negligible effects are considered not significant. Where significant effects are identified, appropriate mitigation measures will be put in place to reduce the scale of the effects or where this is not feasible, offset any significant effects.

*Limitations and Assumptions*

No traffic data is available on St Paul’s Road South or Harp’s Hall Road. In the absence of this information, it has conservatively been assumed that construction traffic from the proposed development will exceed the Screening thresholds set out by IEMA Rules 1 or 2, and a detailed assessment has been carried out.

It is considered that there is sufficient information to enable an informed decision to be taken in relation to the identification and assessment of likely significant environmental impacts on traffic, transport and access.

The following assumptions have been applied to ensure a robust assessment:

- Construction will commence in 2024 and will take 34 weeks;
- Construction activities shall only take place between the hours of 07:00 – 20:00 on Monday to Friday and 07:00 – 16:00 on a Saturday; and
- All construction HGVs and staff vehicles will route to the Applicant Site via the A47, St Paul’s Road South and Harp’s Hall Road.

## 6.3 Baseline Conditions

### 6.3.1 Current Baseline

There are no footways, cycle facilities or pedestrian crossing facilities on the A47, St Paul's Road South of Harp's Hall Road in the study area. There are no Public Rights of Way that will be affected by the development, the closest being on St Paul's Road North to the west of the A47. There are also no public transport services that could be used to access the site. The description of the Baseline therefore focuses on the road network within the study area.

#### A47

The A47 provides the main strategic route through the area and connects to King's Lynn and the A17 to the north-east, and to Peterborough and the A1(M) to the south-west. The A47 is a trunk road, and is managed by National Highways. It is a busy road that caters for high levels of traffic, and is considered to be of low sensitivity.

In the vicinity of the site, the A47 is a wide single carriageway road and is subject to the national speed limit. The road provides a regional distributor road function and carries high volumes of traffic and HGVs.

#### St Paul's Road South

St Paul's Road South connects into the A47 at the A47 / Lynn Road / St Paul's Road South four-arm roundabout, running in a south-west direction towards the village of Marshland St James. It is a two-way road, with a typical width of between 5m and 5.5m, and has a speed limit of 60mph.

On the section between the A47 and Harp's Hall Road, the following receptors are present:

- The St Paul's Road South Service Area, which comprises a petrol station and drive-thru restaurant. The Services are remote from the St Paul's Road South, and is accessed from a priority junction 90 m to the east of the A47.
- Approximately 16 properties are adjacent to, or accessed from and close to the road, comprising a mixture of farms and private properties.

**There are no footways, cycle facilities or pedestrian crossing facilities on the St Paul's Road South in the study area.**

#### Harp's Hall Road

Harp's Hall Road joins St Paul's Road South at a simple priority junction, and from there runs south to the site access junctions.

Harp's Hall Road is a narrow, two-way road. Between St Paul's Road South and the site, it is typically around 4.5m in width, but there are certain sections where the width reduces to around 4m.

Cars are able to pass each other (with care) on most sections of the road. There are no formal passing places, but there are five informal passing places at the junctions of the private accesses on this section of the road. Cars would need to pass larger vehicles, such as tractors or HGVs, at these informal locations. There are no locations where HGVs can comfortably pass if they meet.

On the section of Harp's Hall Road between St Paul's Road South and the site access junctions, the following receptors are present:

- Approximately 9 properties comprising a mixture of farmhouses and smallholdings, and a number of smaller residential properties.

**There are no footways, cycle facilities or pedestrian crossing facilities on Harp's Hall Road in the study area.**

#### Baseline Traffic Flows

Table 6.5 indicates the baseline two-way AADF for the A47 within the study area, and the percentage of traffic which is classified as HGVs. Table 6.5 also indicates the theoretical category and capacity of each road link as per guidance contained within the DMRB.

Location	DMRB Road Capacity	DMRB Capacity (two-way AADF)	Baseline AADF	Baseline HGV Levels	% of total traffic which are HGVs
A47	D2 All Purpose	39,000	18,122	2,236	12%

The Crashmap website<sup>6</sup> has been utilised to determine the number of accidents that have occurred in the previous five years (2017-2021) within the study area. The results are provided in Table 6.6. Two slight and two serious accidents occurred in the last five years within the study area. It is noted that there do not appear to be any particular 'hotspots' for accidents within the study area, therefore, the accidents identified are considered to be isolated incidents and not considered further. There are no identified issues that would require any special consideration as part of the planning application for the proposed development.

Location	Slight	Serious	Fatal
A47	2	-	-
St Paul's Road South	-	1	-
Harp's Hall Road	-	1	-

### 6.3.2 Future Baseline

The Department for Transport's Road Traffic Forecasts 2018 predict that road traffic will grow by between 17% and 51% by 2050, compared to recorded 2015 levels. Based upon the Reference Scenario, this equates to a growth of 3% between the 2019 Baseline and 2024, when construction of the Proposed Development is forecast to commence.

Table 6.7 indicates the Future Baseline two-way AADF for the A47 within the study area, and the percentage of traffic which is classified as HGVs. Table 6.7 also indicates the theoretical category and capacity of each road link as per guidance contained within the DMRB.

Location	DMRB Road Capacity	DMRB Capacity (two-way AADF)	Baseline AADF	Baseline HGV Levels	% of total traffic which are HGVs
A47	D2 All Purpose	39,000	18,676	2,304	12%

<sup>6</sup> [www.crashmap.co.uk](http://www.crashmap.co.uk) [accessed 6 April 2022]

### 6.3.3 Summary of Sensitive Receptors

Table 6.8 presents the road links assessed and assigns each an overall level of sensitivity in accordance with criteria set out in Table 6.2. Specific sensitivities to each potential environmental effect are considered in Section 5.4 'Assessment of Likely Effects'.

<b>Table 6.8: Summary of Receptor Sensitivity</b>		
<b>Road Link</b>	<b>Sensitivity</b>	<b>Justification</b>
A47	Low	The A47 is a trunk road and carries high volumes of traffic, including HGVs. The road has a moderate capacity to absorb change without significantly altering its present character.
St Paul's Road South	Medium	The road provides direct access for local residents and businesses, whose daily activities depend on maintenance of access, alternative routes are available for some traffic.
Harp's Hall Road	Medium	The road provides direct access for local residents and businesses, whose daily activities depend on maintenance of access, with no alternative routes available.

### 6.4 Assessment of Likely Effects

The potential impacts of the Proposed Development during the construction relate to increases in the levels of car, LGV and HGV traffic on national and local roads. These could negatively affect the following, each of which are assessed further in the subsequent sections:

- Severance;
- Driver delay;
- Pedestrian delay and amenity;
- accidents and safety; and
- dust and dirt.

All effects described in this section are temporary and adverse, unless stated otherwise.

As discussed above, an assessment of impacts associated with operational traffic has been scoped out.

#### Construction Programme

Estimates of traffic generation associated with the construction phase of the Proposed Development assume that construction will take place over a 34-week period. Working hours are expected to be between 07:00 – 20:00 on Monday to Friday and 07:00 – 16:00 on a Saturday. There will be no Sunday working, unless authorised by the local authority.

All deliveries to and from site will take place within the standard working hours.

#### Construction Traffic

Given that there are no public transport services that could be used to access the site, and that there are no footways or cycle facilities which service the site, it has been assumed that all construction traffic associated with the Proposed Development will comprise of cars / vans carrying construction workers and HGVs / LGVs carrying construction materials and plant.

Other vehicles will also be delivered to site early in the construction period. These will include excavators, tractors and trailers, telehandlers and Mobile Elevating Work Platforms (MEWP). Once delivered, most of the on-site vehicles are expected to remain in place until each construction stage is complete. No abnormal loads will be required.

The number of personnel on-site would vary during the construction process. There are typically expected to be between 10 and 15 personnel working on-site at any one time, with a peak of around 20 workers during the busiest construction period. Peak staff vehicle movements are based on expected construction employment figures provided by the applicant.

Staff will be expected to arrive on site by 7am and will typically depart between 15:00 and 18:00. This means that staff will generally arrive and depart outside the peak hours associated with the surrounding road network (typically 08:00 to 09:00 and 17:00 to 18:00).

Peak staff vehicle movements (assuming an average car occupancy of 2) are therefore expected to be in the region of 10 inbound trips in the AM period, and 10 outbound trips in the PM period.

There are expected to be a total of 100 HGV deliveries over the course of the 34-week construction period, at a typical rate of around 3 per week.

The combined impact of staff and HGV movements during the **peak construction period** will therefore be:

- 20 car / van movements per day (two-way total)
- 6 HGV movements per day (two-way total, robustly assuming 3 deliveries on one day)
- Total of 26 vehicle movements per day (Two-way)

The predicted changes in traffic flow on the A47 are set out in Table 6.9.

<b>Table 6.9 Construction Traffic Impacts on A47</b>	
<b>Scenario</b>	<b>A47</b>
2024 Future Baseline AADF	18,676
2024 Future Baseline HGV Count	2,304
Development Worst-case Daily Total Traffic Flow	26
Development Worst-case Daily HGV Movements	6
Future Baseline AADF + Development Total Traffic	18,702
Future Baseline HGV Count + Development HGVs	2,310
Percentage increase in total traffic due to the Proposed Development	0.14%
Percentage increase in HGVs due to the Proposed Development	0.26%

This impact on the A47 is considered to be a negligible impact and Not Significant. As the predicted traffic impacts are below the IEMA thresholds, no further assessment of the A47 is required in accordance with the IEMA Guidelines.

Given the assumed low baseline traffic flows on St Paul's Road South and Harp's Hall Road, it has been assumed that the increases in traffic levels as a result of the Proposed Development will be above the 30% threshold stipulated by the IEMA Guidelines<sup>1</sup>, and therefore a detailed

assessment of potential environmental effects has been undertaken for these two road links, as presented below.

#### 6.4.1.1 Severance

The IEMA Guidelines<sup>1</sup> state that severance is the perceived division that can occur within a community when it becomes separated by a major traffic artery. Increased severance can result in the isolation of areas of a settlement or individual properties. Severance may result from the difficulty of crossing a heavily trafficked road or a physical barrier created by the road itself. Severance effects could equally be applied to residents, motorists or pedestrians.

The potential for development traffic to cause severance is assessed on a case-by-case basis using professional judgement where traffic increases are predicted on roads through residential settlements.

The magnitude of change along both the St Paul's Road South and Harp's Hall Road is considered to be Slight, as peak construction period traffic flows are predicted to increase by 26 vehicle movements per day. Assuming a robust scenario, in which half of these movements occur in a single hour, would equate to an increase of one vehicle movement approximately every 5 minutes. As there are no receptors along the route which might be expected to generate any more than occasional pedestrian demand across the road, the sensitivity of the road link to a severance effect is considered to be negligible.

Combining a slight magnitude of change with a negligible sensitivity equates to a negligible effect, as per the matrix in Table 5.4. This effect is assessed as **Not Significant** and does not require mitigation in accordance with the EIA Regulations.

#### 6.4.1.2 Driver Delay

The IEMA Guidelines<sup>1</sup> advise that delays are only likely to be significant when the traffic on the network surrounding the Proposed Development is already at, or close to, the capacity of the system.

Traffic delay to non-development traffic could occur at several points on the network surrounding the Proposed Development, including:

- At the two site access junctions on Harp's Hall Road where there will be additional turning movements;
- At the three junctions along the local road network which might be affected by increased traffic (the A47 / St Paul's Road South roundabout, and two priority junctions on the access route); and
- On the sections of Harp's Hall Road and St Paul's Road where cars cannot pass HGVs, and must wait at appropriate passing places until the HGV passes. This is likely to be the biggest effect in terms of driver delay.

Both St Paul's Road South and Harp's Hall Road are lightly trafficked at present, and not considered to be close to capacity.

The magnitude of change along both the St Paul's Road South and Harp's Hall Road is considered to be Slight, as peak traffic flows are predicted to increase by 26 vehicle movements per day. Some delays will be experienced as local traffic gives way to occasional HGV deliveries.

The sensitivity of the two roads to an increased driver delay effect is considered to be low.

Combining a slight magnitude of change with a low sensitivity equates to a minor effect, as per the matrix in Table 6.4. This effect is assessed as **Not Significant** and does not require mitigation in accordance with the EIA Regulations.

#### 6.4.1.3 Pedestrian Delay & Amenity

Traffic volume, composition, speed, pedestrian footways and crossings all contribute to the level of general pleasantness or fear, intimidation and delay experienced by pedestrians and other vulnerable road users. Changes in the volume, composition or speed of traffic may affect the ability of people to cross roads.

Pedestrian amenity is generally defined as the relative pleasantness of a journey affected by traffic flow, traffic composition and pavement width/separation from traffic. In terms of pedestrian amenity, the IEMA Guidelines<sup>1</sup> suggest that a tentative threshold for judging the significance of changes in pedestrian amenity would be where the traffic flow (or its HGV component) is halved or doubled.

There are no footways along St Paul's Road South or on Harp's Hall Road between the A47 and the site access points, nor is there a concentration of properties or amenities that would generate pedestrian movements. Pedestrian activity within the study area is considered to be minimal. The sensitivity of the road links to a pedestrian delay and reduced amenity effect is considered to be negligible. Combining a (worst case) substantial magnitude of change with a negligible sensitivity equates to a Minor significance of effect, as per the matrix in Table 6.3. This effect is assessed as **Not Significant** and does not require mitigation in accordance with the EIA Regulations.

#### 6.4.1.4 Accidents and Safety

An approximate calculation has been undertaken to quantify the increased number of accidents expected due to an increase in traffic associated with the Proposed Development.

Accidents that are appraised in relation to transport are predominantly those in which personal injury is sustained by those involved (Personal Injury Accidents (PIAs)).

The likelihood of an accident occurring is commonly expressed in accidents per million vehicle-km.

The route along St Paul's Road and Harp's Hall Road between the A47 and the site access points is approximately 3.1 km in length and can be classified as 'rural poor single carriageway – 4.0 m' in accordance with the criteria set out within DMRB. Accident rates from the DMRB for this standard of road are 0.404 PIA per million vehicle-km.

Assuming the following results in a total of 5,304 vehicle movements:

- A 34-week construction period;
- A 6-day week;
- An average of 26 two-way vehicle trips per day; and

The vast majority of these vehicle movements are a result of staff travel to and from the site. The above is a very robust estimate, as it assumes that the 'peak' number of workers is on-site six days a week over the full construction period.



A two-way trip on the 3.1 km route for each of the 5,304 vehicles during the construction period, equates to a total distance travelled of 32,884 km. Based on the accident rate above, this suggests a potential increase of 0.0153PIA during the construction period.

It is considered that the magnitude of this effect is negligible. Receptor sensitivity to this effect is always considered as high. When combined, the effect can be classified as minor and **Not Significant** for the sections of St Paul's Road South and Harp's Hall Road within the study area.

#### 6.4.1.5 Dust and Dirt

IEMA Guidelines<sup>1</sup> acknowledge that it is not practical to quantify the level of dust and dirt that can be anticipated from construction traffic. Therefore, a qualitative approach has been taken.

It is acknowledged that HGVs would have the potential to collect debris on their tyres when accessing the Proposed Development. This could be transferred to the road surface when vehicles travel away from the Proposed Development and can be deposited on the road in the form of either dust or mud depending on weather conditions.

It is noted that dust management measures on-site are embedded into the pre-assessment mitigation of the Proposed Development as 'good practice' and will be implemented through the Construction Traffic Management Plan. Therefore, the sensitivity of the receptors to this effect is low and the magnitude of the impact is considered to be small. The overall significance of the environmental effect of dust and dirt is assessed as negligible and **Not Significant**.

### 6.5 Mitigation

While not strictly necessary to address the environmental effects associated with the increase in traffic within the study area (in terms of EIA Regulations), a Construction Traffic Management Plan (CTMP) will be implemented as a 'good practice' measure. This normally forms part of the wider Construction Environmental Management Plan (CEMP).

A Framework CTMP is provided within the Transport Statement that accompanies the application. This will be finalised by the contractor, once appointed.

The Framework CTMP identifies mitigation measures that will be implemented. These include:

- Five proposed passing places on the construction delivery route, three on St Paul's Road and two on Harp's Hall Road.
- A 10mph speed limit for construction traffic on Harp's Hall Road.
- Temporary signage on St Paul's Road and Harp's Hall Road, to warn other vehicles, pedestrians and cyclists of the presence of construction traffic; and
- Numerous good practice measures to manage deliveries to the site, and to minimise the impact upon local residents and other road users.

The Framework CTMP will be managed and monitored by an appointed Site Liaison Officer, who will be responsible for the co-ordination of all elements of traffic and transport during the construction process.

No mitigation is proposed for the operational or decommissioning phases.

### 6.6 Assessment of Residual Effects

Given that a CTMP would be implemented and that effects prior to this are deemed Minor at worse, it is considered that any residual effects associated with the construction phase would be

Negligible. As a result, the residual effects after implementation of a CTMP are concluded as **Not Significant**.

## 6.7 Monitoring

No further monitoring beyond what is proposed in the CTMP is required in relation to the Proposed Development.

## 6.8 Summary

This chapter considers the likely significant effects on traffic, transport and access associated with the construction phase of the proposed development. Potential effects during the operational and decommissioning stages have been scoped out.

No significant effects were identified in the assessment. While not necessary to address the environmental effects associated with the increase in traffic within the study area (in terms of EIA Regulations), a Construction Traffic Management Plan (CTMP) will be implemented as a 'good practice' measure. This normally forms part of the wider Construction Environmental Management Plan (CEMP).

## 6.9 Glossary and Abbreviations

Abbreviation	Expanded Term
AADF	Annual Average Daily (Traffic) Flow
ATC	Automatic Traffic Counter
IEMA	Institute of Environmental Management and Assessment
CEMP	Construction Environmental Management Plan
CTMP	Construction Traffic Management Plan
TA	Technical Appendix





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