

Bypass Farm proposed solar energy production site

Landscape and Visual Impact Assessment

Prepared for Bypass Farm Solar Ltd

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NOTE:

This report to be read in conjunction with the accompanying reports:

LVIA Plans and Representative Views

Landscape and Ecology Management Plan (LEMP)

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2. INTRODUCTION

2.1. BACKGROUND AND SCOPE OF THE STUDY

Richard Sneesby Landscape Architects were approached by Savills to complete Landscape and Visual Impact Assessment (LVIA) documentation in support of a solar energy production site at Bypass Farm, Foston, Lincolnshire.

2.2. THE SITE

This LVIA Report assesses the landscape and visual effects of developing a 49.9MW solar energy production site upon surrounding receptors. The site is situated at central Grid Reference SK85057 42391 E485057 N342391 (nearest postcode NG32 2LD). The Site abuts the southern edge of the A1 Foston Bypass Trunk Road (dual carriageway) which links Grantham and Newark-on-Trent forming the Great North Road. The A1 Foston Bypass separates the Site from Foston village to the north and northeast, and Long Bennington to the northwest. The village of Allington lies to the south.

The Site is bounded to the east (in part) by Allington Road/Foston Road which includes a cluster of houses and commercial units including a roadside service area with petrol filling station and telecommunications tower. Arable agricultural land lies to the south and west, with a house and isolated agricultural buildings lying off a small lane to the south of Bell's Plantation adjacent to the northern part of the western boundary.

The Site encompasses a number of rectilinear fields historically severed by the A1 Foston Bypass, extending to approximately 85 Ha (210 acres). The fields are separated by established native hedgerows with occasional trees. This pattern is typical of the surrounding landscape.

2.3. THE STUDY AREA

The study area is taken as a 5Km radius from the development site. Further site work extends this, from key viewpoint directions, to include other areas from where there is visibility of the site from the surrounding area.

3. METHODOLOGY

This section briefly describes the methodology and sequence of stages in the assessment process. Details of judgement criteria are included in Appendix 1.

3.1. BEST PRACTICE GUIDANCE

A full desk-survey was carried out to review policies and guidance available from Lincolnshire LPA, South Kesteven District Council and Foston Parish Council, relating to proposed developments.

Designated landscapes were identified and recorded to establish the sensitivity of the site to change.

The Visual Impact Assessment was carried out in accordance with the guidance set out in the Landscape Institute publication: Guidelines for Landscape and Visual Impact Assessment (2013).

A site visit was carried out in July 2020 to assess the likely impacts within the study area. The weather was dry with full sun in the morning turning overcast in the afternoon. Trees were in full leaf, with less visibility to and from the site compared to mid-winter.

3.2. LANDSCAPE AND VISUAL IMPACT ASSESSMENT

Landscape and Visual Impact Assessment (LVIA) is a well-established tool to identify the effects of change resulting from development and the significance of those effects. It distinguishes between:

- Effects on landscape as a resource in its own right; and
- Effects on specific views and general visual amenity experienced by people.

The LVIA should be proportional to the scale and nature of the development proposal. For this proposal, the scale and nature of the development is described in the scoping process which describes what has been assessed and details those aspects which are considered most relevant to the proposal.

3.2.1. LANDSCAPE EFFECTS

The European Landscape Convention 2000 defines landscape as:

“An area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors”.

This covers not only landscapes that are recognised as being special or valuable, but also landscapes which can be considered ordinary or every day. These are landscapes where people live, work, and spend leisure time – a setting for their day-to-day lives, and for aesthetic enjoyment. Furthermore, landscapes are considered as environment – for biodiversity, flora, and fauna.

LVIA requires that the landscape is assessed by recording and recognising:

- Protected landscapes and townscapes.
- The contribution the landscape character has on sense of place and quality of life; and the way change may affect:
- Individual components of the landscape
- Aesthetic and perceptual qualities
- The character of the landscape in different areas

3.2.2. VISUAL EFFECTS

Assessment of the visual effects of the proposed development focuses on the following principles:

- How the surroundings of individuals/groups of people may be affected by changes to the landscape
- How people will be affected by changes in views and/or visual amenity at different places
- To identify impacts various visual effects are assessed:
- The areas from which the development may be visible
- Different groups who may experience views of the development
- The places where they will be affected
- The nature of the views and visual amenity at those points
- Changes in specific views.

3.3. ASSESSMENT OF SIGNIFICANCE

The significance of the proposal is assessed against two key criteria:

- i. The significance of the receptor. This involves making judgements about the susceptibility of the receptor to the type of change arising from the proposal; and the value attached to the receptor.
- ii. The magnitude of change. Judgements are based upon the size and scale of the effect (for example, is there a complete loss of a particular element or a minor change); the geographical extent of the areas that will be affected; and the duration of the effect and its reversibility.

These assessments lead to judgements on the individual criteria and how these, in combination, provide a means of describing the significance of the proposal. This involves combining judgements of both the significance of the receptor and magnitude of change in order to demonstrate:

How the value of the receptor and its susceptibility of change contribute to its sensitivity to the effects.

How judgements about the scale of the proposal, its geographical extent and duration of the effect contribute to judgements about the magnitude of the effects; and

How the resulting judgements about sensitivity and magnitude are combined to inform judgements about the overall significance of the effects.

The assessments describe effects which can be significant and non-significant.

3.4. METHODOLOGIES USED IN THE ASSESSMENT PROCESS

3.4.1. DESK STUDY

- Receiving information from the developer and other consultants
- Identifying the site location and its surroundings using Ordnance Survey maps, aerial photographs, and development site plans
- Familiarisation with the details of the proposals.
- Use of LPA and District Council planning portals to acquire information on landscape designations, Rights of Way, landscape character assessments, areas for Conservation Action, local topography and patterns of vegetation and any other information which may be relevant.

3.4.2. FIELD SURVEY

- Visits to the site to confirm, or otherwise, the understanding of the site and proposals gained through the desk study.
- Production of a photographic record of site features, landscape elements and details not revealed by maps or aerial photographs.
- Checks to confirm visibility, key viewpoints, and visual receptors.
- Professional judgements which could be made about possible alterations to the design of the proposal and/or mitigation measures to address any possible negative judgements about the significance of the proposal.

3.4.3. ASSESSMENT

- Assessment of the significance of landscape and visual receptors, the susceptibility of the receptor to the type of change arising from the proposal; and the value attached to the receptors.
- Assessment of the magnitude of change based upon the size and scale of the effect; the geographical extent of the areas that will be affected; and the duration of the effect and its reversibility
- Assessment of the sensitivity to the effects and the magnitude of the effects
- Assessment of the overall significance of the effects
- Summary statements describing both significant and non-significant effects
- Assessment, where appropriate, of cumulative effects based upon available information.

3.4.4. INFLUENCES ON DESIGN

- Assessment of changes to the proposal to minimise negative impacts and recommendations for mitigation measures.
- Presentation of findings
- Production of this written report, supporting plans, maps, photographs, and mitigation measures.

3.4.5. PRODUCTION OF ZONES OF THEORETICAL VISIBILITY (ZTV)

Purpose and Limitations

A Zone of Theoretical Visibility (ZTV) is a computer-based modelling exercise, undertaken to assist the landscape professional in carrying out a Landscape and Visual Assessment (LVA) of a development. The ZTV provides a guide as to the potential location of possible viewpoints, for further evaluation. As a ZTV is theoretical, it should not be used in isolation and, as part of the assessment process, requires on-site verification.

A ZTV is subject to a number of limitations, in particular:

- the terrain data may be of limited resolution and, therefore, may not fully represent all local variations in topography, including features such as banks, roadside cuttings etcetera.
- other screening features, such as buildings, fences, trees, and hedges are not routinely incorporated into ZTVs, due to the complexity and detail of such objects.

Tests have been carried out to compare the accuracy of a GIS-based ZTV mapping programme and Google Earth's terrain-based Viewshed software. The results are remarkably similar and, given the limitations of a bare-earth ZTV, are considered appropriate to establish a visual baseline which is then tested at the site survey.

Accordingly, an indicative ZTV was generated using Google Earth's Viewshed software. The height was set at 4m above existing ground level to illustrate the visibility of roof ridgelines.

3.4.6. PHOTOGRAPHIC SURVEY AND PHOTOGRAPHS FROM REPRESENTATIVE VIEWPOINTS

Site photographs were taken using a Canon 750D digital SLR cropped frame camera. Site photographs used to illustrate representative views were taken using a focal length of around 35mm - equivalent to a 50mm focal length lens on a full frame camera. This is the closest equivalent to human eye views.

Photographs were printed and tested against the human eye equivalent from the viewpoint.

Many of the views are wide and panoramic. Panorama views were taken using a tripod mounted camera.

To help illustrate the wider contextual view, some photographs were stitched together using Microsoft Image Composite Editor software without loss of resolution.

3.4.7. ILLUSTRATION OF THE EFFECT OF THE DEVELOPMENT UPON REPRESENTATIVE VIEWPOINTS

Photomontage 'before and after' images have not been produced at this stage.

4. POTENTIAL LANDSCAPE EFFECTS OF FREE-STANDING SOLAR PV DEVELOPMENTS

People's response to landscapes (both rural and urban) and the forces that act on them are personal and may change over time according to their cultural values. For example, there are varying attitudes to wind energy development depending on individual attitudes to the principle and presence of wind energy generation.

In order to minimise effects on the landscape through siting and design, it is important to first understand the characteristics of free-standing solar PV development and how they may affect the landscape (and in turn economic, social and community values).

Free standing solar PV developments, although not particularly prominent in height, can occupy substantial areas of ground which may be visible, particularly if located on slopes. Landscape effects may include the following:

- i. Single panels or small rows of panels on farms will have less of an impact than 'field-scale' developments that may be accompanied by buildings/ cabinets, tracks, and security fencing.
- ii. As extensive developments, field-scale solar PV developments may be particularly visible in open landscapes or on upper slopes of hillsides, especially where covering significant areas. Undulating land can exacerbate the effect.
- iii. Solar panels, en-masse, tend to reflect the sky - for example, on a sunny day they can appear blue while on a cloudy day they can appear a metallic grey - this can make them stand out from their landscape context.
- iv. The perceived urban/industrial character of large areas of free-standing solar PV panels and associated infrastructure means they can increase the perceived human influence on the landscape and erode sites with an intrinsically rural character, including landscapes that form a setting to heritage assets.
- v. Solar PV developments will change the land use and appearance of a field or fields, affecting land cover patterns and the character of landscapes.
- vi. The regular edges of solar PV developments may be conspicuous in more irregular landscapes (particularly where they do not follow contours or where field boundaries are irregular in form).
- vii. The height of racks (up to 3m) means that they may overtop typical hedgerow/ hedgebank field boundaries.
- viii. Screen planting around solar PV development, or management changes such as allowing hedges to grow higher, can change the sense of enclosure of a landscape.
- ix. Construction of the solar PV development may result in damage to landscape features such as hedgerow/ hedgebank field boundaries.

- x. Structures, including free-standing panels, security fencing, and other hard, built elements, can appear out of place in landscapes that are perceived as wild, natural, or remote from development, and that are valued for these qualities.
- xi. Ancillary buildings and security requirements (such as fencing and/or CCTV) may introduce new and unfamiliar features into a rural landscape.
- xii. Access tracks will be necessary on field scale schemes with central inverters (central inverters cannot be delivered and maintained using temporary tracks).

Photovoltaic technology requires absorption of sunlight to allow for the conversion of energy to take place and therefore very little light energy is lost through reflection. Glare is further minimised through the use of translucent coating materials to improve light transmittance through the glass³⁸. Nevertheless panels do change under different atmospheric conditions, tending to reflect the light and colour of the sky, and the appearance of the panels under different atmospheric conditions is an important consideration in terms of the visual effects of schemes.

5. BASELINE CONDITIONS

Baseline conditions are described for both landscape and visual receptors within the study area. The landscape character baseline is set by the areas which directly effect, and are affected by, the development proposal. In the main this means the landscape within which the proposal will have visual and perceptual influence. For the visual baseline, the study has focused upon those areas which have been revealed as having potential impacts through the site visit and analysis of site plans, area maps and aerial photographs.

5.1. LANDSCAPE CHARACTER BASELINE

5.1.1. NATIONAL CHARACTER AREAS

The site lies within Natural England's National Character Assessment Area NCA Profile 48: Trent & Belvoir Vales.

The key characteristics of NCA Profile 48 are:

- A gently undulating and low-lying landform in the main, with low ridges dividing shallow, broad river valleys, vales, and flood plains. The mature, powerful River Trent flows north through the full length of the area, meandering across its broad flood plain and continuing to influence the physical and human geography of the area as it has done for thousands of years.
- The bedrock geology of Triassic and Jurassic mudstones has given rise to fertile clayey soils across much of the area, while extensive deposits of alluvium and sand and gravel have given rise to a wider variety of soils, especially in the flood plains and over much of the eastern part of the NCA.
- Agriculture is the dominant land use, with most farmland being used for growing cereals, oilseeds, and other arable crops. While much pasture has been converted to arable use over the years, grazing is still significant in places, such as along the Trent and around settlements.
- A regular pattern of medium to large fields enclosed by hawthorn hedgerows, and ditches in low-lying areas, dominates the landscape.
- Very little semi-natural habitat remains across the area; however, areas of flood plain grazing marsh are still found in places along the Trent.
- Extraction of sand and gravel deposits continues within the Trent flood plain and the area to the west of Lincoln. Many former sites of extraction have been flooded, introducing new waterbodies and new wetland habitats to the landscape.

- Extensive use of red bricks and pantiles in the 19th century has contributed to the consistent character of traditional architecture within villages and farmsteads across the area. Stone hewn from harder courses within the mudstones, along with stone from neighbouring areas, also feature as building materials, especially in the churches.
- A predominantly rural and sparsely settled area with small villages and dispersed farms linked by quiet lanes, contrasting with the busy market towns of Newark and Grantham, the cities of Nottingham and Lincoln, the major roads connecting them and the cross-country dual carriageways of the A1 and A46.
- Immense coal-fired power stations in the north exert a visual influence over a wide area, not just because of their structures but also the plumes that rise from them and the pylons and power lines that are linked to them. The same applies to the gas-fired power station and sugar beet factory near Newark, albeit on a slightly smaller scale.

5.1.2. SOUTH KESTEVAN DISTRICT COUNCIL LANDSCAPE CHARACTER TYPE: TRENT AND BELVOIR VALE. THE EFFECT OF THE DEVELOPMENT UPON THIS DESCRIPTION IS COVERED IN SECTION 6.3.1

The site lies within South Kesteven District Council's Trent and Belvoir Vale Character Area.

Key characteristics include:

- A relatively simple, medium to large-scale, open arable or mixed farming landscape.
- Flat or very gently undulating topography.
- Simple regular fields enclosed by hawthorn hedges.
- Relatively few hedgerow trees and virtually no woodland.
- Small villages typically located on slightly rising land.
- Church towers and spires visible across the landscape.
- Buildings styles vary, but a high proportion of brick with dark red pantiles.

The South Kesteven Landscape Character Assessment [DATE] describes the Landscape Character of this area as follows:

"The gentle landform, and open or arable or mixed farmland, creates a strongly rural feel. The landscape is medium to large in scale, with relatively simple regular fields, frequently enclosed by hawthorn hedgerows. The hedgerows are in places fragmented. There are relatively few hedgerow trees and virtually no woodlands. Tree cover is most noticeable around the villages, which are typically situated on slightly rising ground.

The villages with their church towers and spires are noticeable in the views across the landscape and provide character. The villages include a range of traditional brick buildings and some more modern housing. Most, however, are small in scale and are in keeping with the traditional form of the settlements.

Within South Kesteven the vale contains no power stations or major areas of mineral extraction, helping to maintain a rural feel compared with the wider Trent Valley to the north. The Trent Valley power stations are visible at a distance in clear conditions".

The Character Assessment includes a description of Landscape Sensitivity:

"The landscape of the Trent and Belvoir Vale is medium to large in scale, with a simple and sometimes weak landscape pattern. There are few woodlands, which ensures open views are possible. Powerlines and the A1 ensure human influences. There are few landscape features of intrinsic sensitivity.

Landscape sensitivity to new employment and residential proposals is likely to be. Whilst the landscape itself contains relatively few sensitive features, there is little structure to help assimilate new development. Woodlands and trees in the landscape are typically associated with the settlement, so new development assimilated within existing settlement edges, could be mitigated by appropriate landscape proposals in keeping with the established character.

Whilst there are few features of intrinsic landscape sensitivity the open visual character of the landscape would ensure extensive visibility. Locations away from sensitive settlements, and close to existing human influences such as the A1 and power lines are likely to offer the more appropriate locations. The open nature of the landscape would mean that the cumulative impact of any proposals should be considered so that the character of the landscape does not become dominated by any wind energy proposals.”

Guidelines

- Maintain and improve field boundary condition.
- Retain ditch patterns.
- Maintain wet grassland areas.
- Protect any woodland cover.
- Maintain existing hedgerow trees and plant new hedgerow trees.
- Provide new woodland planting with any new largescale agricultural buildings.
- Maintain views to elevated villages and churches

5.2. LANDSCAPE DESIGNATIONS

The site has no national or local landscape designations.

5.3. VISUAL BASELINE

To identify and assess the visual impact of development on the surrounding area the capacity of the site to accommodate change has been reviewed through a site visit, the collection of photographic data which illustrates the key visual receptors which are affected by possible development and using a computer-generated model and photomontage images.

Bare earth ZTV maps have been generated and cover the 5Km study area:

The bare earth ZTV model shows the theoretical visibility towards the site from the surrounding area based upon topography alone. It is useful inasmuch that it reveals widespread theoretical visibility from much of the study surrounding the site, especially from the hills to the east, as well as potential viewpoints to the north and north-west.

However, this form of modelling is increasingly unhelpful where the landscape contains many buildings or large trees as is the case within the site itself and the countryside surrounding Foston.

To test this, the areas which are shown within the model as having theoretical visibility have been visited to assess the actual visibility of the site and recorded through the selection of a number of representative viewpoints which were recorded photographically.

5.3.1. VISUAL ENVELOPE

The site lies on flat land south of Foston village and the A1 Foston bypass.

The ZTV reveals that the majority of theoretical views are within an arc extending from the north, through west, to south. Views from the east are limited by topography with the only views into the site from the road which runs close to the eastern boundary between Foston and Allington.

From the north

Northerly viewpoints are the least sensitive to solar energy production sites as views will be towards the rear of the panels where they can appear as a succession of dark shadow lines in the landscape.

The ZTV reveals many potential visual receptors in locations north of the site. In reality, no viewpoints were found with direct views towards the site north of the A1 dual carriageway. The theoretical viewpoints within the ZTV are screened from the site by buildings or vegetation. Viewpoints 2-7 are all from the north and are representative of the screening effect afforded by buildings and vegetation.

From the A1 road, which sits slightly elevated above the site, the host fields are visible when travelling in both westerly and easterly directions. The views are short duration from vehicles traveling at speed. The hedgerow which runs parallel to the A1 adjacent to the southern verge is gappy and, in some places, missing altogether.

From the south

Southerly viewpoints are the most sensitive to solar energy production sites as views will be directly towards the front of the panels where they can appear as a continuous sheet of PV material.

The ZTV reveals very few potential visual receptors in locations south of the site. From Lowfields Lane (Viewpoint 8), approximately 920m south of the site, the site appears as a narrow line below Foston village which sits on the ridgeline. Views of the host fields are indistinct, being screened by a succession of field boundary hedgelines. It may be possible to see glimpse views of the solar arrays through hedgerow gaps. A similar view will be experienced by residents at The Orchard at the end of Lowfields Lane.

No visual receptors were found in Allington village. It is possible that some private properties may have views, through trees, from upper storey windows.

The site is not visible from the footpaths west of Allington village, being screened by landform (Viewpoint 9).

The site is not visible from the southern end of the Viking Way which runs along Sewestern Lane (Viewpoints 10 & 11) being screened by landform.

From the west

South-westerly viewpoints have a comparatively high sensitivity to solar energy production sites as oblique views will be towards the side and front of the panels where they can appear as a broken sheet (parallel lines) of PV material. Views directly from the west and north-west are less sensitive as they will be of side elevations with parallel lines of angled panels, but less obvious views of the front sheets.

Viewpoints were assessed within the ZTV area. From the roads and footpaths between Normanton, Staunton in the Vale and Long Bennington (Viewpoint 1) the site is not visible being hidden by landform or successional hedgerows and tree planting. Any potential glimpse views in winter will be at a distance where the change to the view is unlikely to be register or be significant. Views from this direction will be towards the side elevations of the solar arrays where visibility is less obvious.

Closer to the site, it is visible from sections along the Viking Way which runs along Sewestern Lane. From Viewpoint 12 the site is visible as a thin strip below Foston Village.

A sequence of viewpoints along Sewestern Lane reveal that the site becomes more visible when travelling north. In particular the residential properties of Thackston's Well Farm (Viewpoint 13 & 14) and Beck Farm (Viewpoint 15) will have glimpse views of the solar arrays, separated by a succession of field boundary hedgelines.

From the east

South-easterly viewpoints have a comparatively high sensitivity to solar energy production sites as oblique views will be towards the side and front of the panels where they can appear as a broken sheet (parallel lines) of PV material. Views directly from the east and north-east are less sensitive as they will be of side elevations with parallel lines of angled panels, but less obvious views of the front sheets.

The main visual receptor to the east is Hyde-a-Way dwelling north-east of the site. This property has some boundary vegetation which will afford some screening between the house and the solar arrays. However, the change to the view will be significant.

From the minor road which runs between Foston and Allington the site appears open with long distant views to the west.

The proposal is set back from the road, but with no hedgeline forming the site boundary, the sides of panels will be visible.

No other visual receptors were found east of the site.

5.4. VISUAL RECEPTORS

The following visual receptors were assessed:

- Settlements
- Residential properties
- Public Rights of Way and transport links

5.4.1. SETTLEMENTS

Only those settlements which have a visual or perceived connection to the site are included. The site is only visible from the east. The main settlements, marked on the OS 1:25,000 maps are:

- Foston
- Long Bennington
- Allington

The site is not visible from any other settlements.

5.4.2. RESIDENTIAL PROPERTIES

In accordance with the GLVIA guidelines residential receptors have not been assessed on an individual basis. The viewpoints have been selected to illustrate visibility from representative viewpoints and, where possible, these have been taken as close to those residential receptors which are likely to be most affected as possible.

There are a small number of residential properties with views to the site:

- Hyde-a-Way
- The Orchard, Lowfields Lane
- Thackston's Well Farm
- Beck Farm

It is possible that additional residential properties may have visibility of the proposed development, especially in winter.

5.4.3. PUBLIC RIGHTS OF WAY AND TRANSPORT LINKS

The Public Rights of Way and transport links from which the site can be seen are listed below:

Roads

The proposed development will be visible from the following public roads to varying degrees as these routes undulate across local topography and move in and out of built-up areas, past scattered buildings, and along sections in cuttings, with high hedgerows and tree cover. Some views will be open and uninterrupted whilst others may occur as glimpses.

- A1 Dual Carriageway
- Minor road between Foston and Allington

Footpaths

The following lists footpaths which fall within the ZTV and which were surveyed.

The Viking Way; Long distance national walking trail running 147 miles (237 km) distance from the south side of The Humber Bridge south to Oakham, in Rutland. This path runs in a north-south orientation some 8-900 metres to the west of the proposed development and, other than the A1 running adjacent to part of the northern boundary, is the closest PROW.

Other nearby PROWs include:

LL7842. A footpath connecting The Viking Way with the vehicle access to The Orchard and Low Field Farm off the minor road connecting the settlements of Foston and Allington.

LL67. A restricted byway between the north-east edge of Allington to the A1 Great North Road approximately 1800 metres west of the proposed development.

LL2035. A footpath running broadly north-south, just to the east of Foston and approximately 500 metres from the north-east edge of the proposed development.

6. ASSESSMENT OF EFFECTS AND SIGNIFICANCE

6.1. LANDSCAPE EFFECTS - GENERALLY

6.1.1. ASSESSMENT OF SENSITIVITY OF THE LANDSCAPE TO CHANGE

The criteria used for assessing site sensitivity to both landscape and visual receptors are summarised in the table in Appendix 1.

The sensitivity of the site to accommodate changes to the landscape is assessed in the range:

Very High - High - Medium - Low - Negligible

6.1.2. ASSESSMENT OF THE MAGNITUDE OF EFFECT UPON THE LANDSCAPE

The criteria used for assessing the magnitude of impact is summarised in the table in Appendix 1

The magnitude of change to the landscape is assessed in the range:

Major - Moderate - Minor - Negligible - No Change

6.1.3. ASSESSMENT OF SENSITIVITY AND MAGNITUDE COMBINED - SIGNIFICANCE OF EFFECT

To report on the overall significance of the proposal on both landscape and visual receptors the sensitivity of the site and the magnitude of change are assessed in combination. The outcomes are reported using descriptive terms rather than numerical scores and the terms used are summarised in Appendix 1.

The significance of the effect of the proposal upon the landscape is assessed in the range:

Very Large - Large - Moderate - Slight - Neutral

6.1.4. VALENCY

The outcome can be both positive - i.e. the proposal makes a beneficial change to the landscape; and negative - the proposal will result in an adverse change to landscape character and visual character. Effects are defined as adverse, neutral, or beneficial. Descriptions of these are shown in the table in Appendix 1.

6.2. EFFECT OF THE PROPOSAL UPON CHANGES TO THE LANDSCAPE CHARACTER

6.2.1. ENVIRONMENTAL CHANGE WITHOUT THE WORKS

In the event of the proposed development not being implemented, the site would remain as described in the baseline assessment.

6.2.2. INTRODUCTION TO THE DEVELOPMENT AND ITS POTENTIAL TO GENERATE LANDSCAPE AND VISUAL EFFECTS

6.2.3. LANDSCAPE EFFECTS - GENERALLY

Landscape effects can be both direct and indirect. Direct effects include permanent or temporary changes to townscape features such as buildings, vegetation (especially large mature trees or woodland), streetscape (roads, boundary treatments), marine infrastructure (sea walls, jetties, etc.). Indirect effects include those on the character of adjacent landscapes where temporary or permanent effects may occur through visual intrusion from, for example, lighting effects.

These effects may be positive (beneficial) or negative (adverse) or involve no change to the baseline (neutral). Most usually, adverse effects are on sensitive natural landscapes and sensitive, usually historic, townscapes. Where developments result in enhancement to damaged or degraded landscape of townscapes they are generally considered to result in positive (beneficial) changes.

Townscapes which are more sensitive to development include Conservation Areas, presence of listed buildings and protected trees, areas recognised for their historic integrity, and places cited in art and literature.

6.2.4. VISUAL EFFECTS - GENERALLY

Direct visual effects include temporary or permanent changes to views brought about by loss of existing, or introduction of new elements into the landscape. These changes can bring about indirect visual effects by blocking previously available views.

These effects can also be beneficial, adverse, or neutral. Sensitivity to adverse effects relates to the receptor (person or group of people affected by the change to the view). People, usually residents, with permanent and uninterrupted views towards the development are the most sensitive. Visitors and tourists who come to the area for its scenic value are also sensitive receptors. People passing through the area have lower sensitivity.

6.3. OPERATIONAL PHASE ASSESSMENT

6.3.1. LANDSCAPE EFFECTS: RESPONSE TO EFFECTS UPON LANDSCAPE CHARACTER GUIDANCE.

This section responds to the characteristics identified in Section 3.1.

Key characteristics include:

- A relatively simple, medium to large-scale, open arable or mixed farming landscape.
- Flat or very gently undulating topography.
- Simple regular fields enclosed by hawthorn hedges.
- Relatively few hedgerow trees and virtually no woodland.
- Small villages typically located on slightly rising land.
- Church towers and spires visible across the landscape.
- Buildings styles vary, but a high proportion of brick with dark red pantiles.

Response to described Key Characteristics

The proposal for a solar PV energy production site will not damage any of the described key characteristics.

The described characteristic most susceptible to harm is the visibility of church towers and spires across the landscape. The nature of solar PV development, as low-level infrastructure, will not interfere with the prominence of these features, especially Foston Church.

There is an opportunity to enhance other described key characteristics by implementing new planting following the guidelines listed below. These are described in more detail within the accompanying Landscape and Ecology Management Plan (LEMP)

Management Guidelines

- Maintain and improve field boundary condition.
- Retain ditch patterns.
- Maintain wet grassland areas.
- Protect any woodland cover.
- Maintain existing hedgerow trees and plant new hedgerow trees.
- Provide new woodland planting with any new largescale agricultural buildings.
- Maintain views to elevated villages and churches

Response to Management Guidelines

Solar PV sites involve comparatively light-touch management regimes. No changes are proposed to any of the landscape features listed above.

Hedgerows and trees will be retained and protected, with existing hedgerows allowed to grow more naturally - enhancing biodiversity and offering improved visual screening from the surrounding area.

New hedgerows are proposed along the eastern and northern boundaries, again enhancing biodiversity, and offering improved visual screening from the surrounding area.

Woodland is not characteristic of the area and no woodland screening belts are proposed.

6.4. ASSESSING SIGNIFICANCE OF EFFECTS ON LANDSCAPE CHARACTER

6.4.1. ASSESSMENT OF SENSITIVITY OF THE LANDSCAPE TO CHANGE

The criteria used for assessing site sensitivity to both landscape and visual receptors are summarised in the table in Appendix 1.

The sensitivity of the site to accommodate changes to the landscape is assessed in the range:

Very High - High - Medium - Low - Negligible

6.4.2. ASSESSMENT OF THE MAGNITUDE OF EFFECT UPON THE LANDSCAPE

The criteria used for assessing the magnitude of impact is summarised in the table in Appendix 1

The magnitude of change to the landscape is assessed in the range:

Major - Moderate - Minor - Negligible - No Change

6.4.3. ASSESSMENT OF SENSITIVITY AND MAGNITUDE COMBINED - SIGNIFICANCE OF EFFECT

In order to report on the overall significance of the proposal on both landscape and visual receptors the sensitivity of the site and the magnitude of change are assessed in combination. The outcomes are reported using descriptive terms rather than numerical scores and the terms used are summarised in Appendix 1.

The significance of the effect of the proposal upon the landscape is assessed in the range:

Very Large - Large - Moderate - Slight - Neutral

6.4.4. VALENCY

The outcome can be both positive - i.e. the proposal makes a beneficial change to the landscape; and negative - the proposal will result in an adverse change to landscape character and visual character. Effects are defined as adverse, neutral, or beneficial. Descriptions of these are shown in the table in Appendix 1.

6.5. SENSITIVITY OF THE SITE TO ACCOMMODATE CHANGES TO THE LANDSCAPE

6.5.1. SENSITIVITY OF EFFECTS UPON LANDFORM AND SCALE

Assessment is **Low Sensitivity**: "Low or medium importance and rarity, local scale". "An extensive lowland flat landscape, often a larger scale landform".

6.5.2. LANDFORM COVER PATTERN AND PRESENCE OF HUMAN SCALE FEATURES

Assessment is **Lower Sensitivity**: "Low or medium importance and rarity, local scale". "A landscape with large-scale fields, little variety in land cover and occasional human scale features such as trees and domestic buildings".

6.5.3. SENSITIVITY OF EFFECTS UPON TRACKS AND TRANSPORT PATTERNS

Assessment is **Low Sensitivity**: "Low or medium importance and rarity, local scale". "A landscape containing some existing roads and vehicular tracks, and few restrictions in terms of narrow hedged lanes".

6.5.4. SENSITIVITY OF EFFECTS UPON SKYLINES

Assessment is **Medium to Higher Sensitivity**: “High or medium importance and rarity, regional scale, limited potential for substitution”. “A landscape with prominent skylines that may form an important backdrop to views from settlements or important viewpoints and/or with important landscape features”.

6.5.5. SENSITIVITY OF EFFECTS UPON PERCEPTUAL QUALITIES

Assessment is **Lower Sensitivity**: “Low or medium importance and rarity, local scale”. “a rural landscape with much human activity and dispersed modern development”.

6.5.6. SENSITIVITY OF EFFECTS UPON HISTORIC LANDSCAPE CHARACTER

Assessment is **Lower Sensitivity**: “Low or medium importance and rarity, local scale”. “The majority of the landscape covered by lower sensitivity historic landscape types but may include some small areas of higher sensitivity”.

6.5.7. SENSITIVITY OF EFFECTS UPON SCENIC AND SPECIAL LANDSCAPE QUALITIES

Assessment is **Lower Sensitivity**: “Low or medium importance and rarity, local scale”. “a landscape which has a low-medium scenic quality, or special qualities unlikely to be affected by energy development”.

6.5.8. SUMMARY OF LANDSCAPE SENSITIVITY RATINGS

The sensitivity of the landscape to accommodate change is summarised below:

<i>Landscape characteristic</i>	<i>Sensitivity</i>	<i>Magnitude of effect</i>	Significance of effect	<i>Comments</i>
Landform and scale	Low	Moderate	Slight	Effect very localised
Landform cover pattern and presence of human scale features	Lower	Moderate	Slight	Effect very localised
Tracks/transport patterns	Low	Minor	Slight	Minimal additions compared with baseline
Skylines	Medium to higher	Moderate	Moderate	Effect very localised
Perceptual Qualities	Lower	Moderate	Slight	Effect very localised
Historic landscape character	Lower	Minor	Slight or neutral	No adverse effects assessed
Scenic and special qualities	Lower	Moderate	Slight	Effect very localised

6.6. SIGNIFICANCE OF EFFECTS UPON CHANGES TO THE LANDSCAPE

The effect of solar energy production upon the range of landscape characteristics described in Section 6.5 are summarised as **Slight: "These beneficial or adverse effects may be raised as local factors. They are unlikely to be critical in the decision-making process but are important in enhancing the subsequent design of the project"**.

The outcome of this assessment will inform site mitigation measures which are covered in Section ***.

6.7. VISUAL EFFECTS

6.7.1. ASSESSMENT OF VISUAL SENSITIVITY AND MAGNITUDE

This section describes the effect of the proposal upon selected viewpoints. Priority is given to viewpoints with public access such as public rights of way, roads and residential dwellings which would be unacceptably harmed by views of the proposed development.

Representative viewpoints for the assessment of visual effects have been identified in the baseline assessment. These are at publicly accessible locations such as roads and public rights of way and public open space. The sensitivity of receptor, magnitude of change to the view, and the significance of the impact on the receptor are assessed for each representative viewpoint.

For private dwellings assessment is made a ground level. In reality, views may be apparent from first floor windows or further upper floors. These have not been assessed.

6.7.2. VISIBILITY GENERALLY

The visual envelope is described in Section 5.3.1.

6.7.3. SELECTION OF REPRESENTATIVE VIEWPOINTS

To test the ZTV model and to identify individual viewpoints not immediately apparent for the computer model, a visual tour within the area was carried out. The selection of viewpoints favoured visual receptors with higher sensitivity to the development. In particular residential properties, designated public footpaths, popular tourist areas and areas noted for their quietness and remoteness.

It was not possible to assess the effect of the proposal from individual properties. This especially applies to immediately neighbouring properties at Castle Avenue.

6.8. MAGNITUDE AND SIGNIFICANCE FROM VISUAL RECEPTORS

The significance of effect is a combination of receptor sensitivity and magnitude of the visual effect. For example, a view experienced by residents (high sensitivity) with a minor magnitude of effect gives rise to a slight or moderate effect. The same view experienced by the travelling public (low sensitivity) produces a slight or neutral effect. The greatest effects are experienced by residents observing a major magnitude of change to the view.

The effect of the construction phase (CP in the table) will give rise to more adverse assessments than the operational phase. This is because of the presence of an unsightly construction infrastructure. The duration of the construction phase is assumed to be between 1-2 years and these adverse effects will be

temporary. After the construction is complete, the significance of the visual effect reduces as the project enters the operational phase.

6.8.1. SIGNIFICANCE OF RESIDUAL VISUAL EFFECTS OF THE DEVELOPMENT PROPOSAL UPON VISUAL RECEPTORS

Reference should be made to the assessment tables in the Appendices for detailed descriptions of the range of visual effects.

Very Large

There are no visual receptors which will experience a very large effect upon views.

Large

There are no visual receptors which will experience a large effect upon views.

Moderate

Two visual receptors are assessed as experiencing a moderate and adverse effect upon views. Both will be adverse during the construction phase, reducing to a residual effect of slightly adverse post mitigation establishment.

Viewpoint 7 shows a similar to view to that experienced by residents at Hyde-a-Way who have a high sensitivity to development. From here the view will be across a field to the side elevations of the solar arrays. During the construction phase, and prior to any mitigation measures, the effect is assessed as moderate and adverse. There is no existing boundary hedge along this eastern boundary. A new hedge will be planted as part of the proposal and, within 5 years, the effect will reduce to slightly adverse.

A direct view from Beck Farm was not assessed. However, the close proximity to the solar arrays is assessed as having a moderate and adverse effect upon views. Existing hedges should be allowed to grow to screen the solar panels from this viewpoint. This will reduce the effect to moderate and slightly adverse.

Viewpoints 15 and 16 are representative of views from road users travelling along the A1 dual carriageway. From here there will be wide open views towards the rear elevations of the solar arrays.

Slight

Six viewpoints were assessed as experiencing a slight and slightly adverse effect upon views.

Viewpoint 8 shows a representative view from Lowfields Lane and The Orchard dwelling. The site is close to 1Km distance from the viewpoint with glimpse views towards the south facing elevations of the panels. The existing hedgerows should be allowed to grow. **Mitigation will quickly reduce the effect to not adverse.**

Viewpoints 12, 13 & 14 are from the Viking Way and properties along the route. The existing hedgerows should be allowed to grow. **Mitigation will quickly reduce the effect to not adverse.**

Viewpoints 15 and 16 are representative of views from road users travelling along the A1 dual carriageway. From here there will be wide open views towards the rear elevations of the solar arrays. Once established, **the effect will reduce, by mitigation, to 'not adverse'.**

Neutral

All of the remaining viewpoints are assessed as experiencing a neutral effect. This either means no change to the view, or a negligible effect which, because of distance from the site, will be barely perceptible.

6.8.2. VISUAL EFFECTS OF THE DEVELOPMENT PROPOSAL UPON VISUAL RECEPTORS DURING THE CONSTRUCTION PHASE

Those receptors experiencing an adverse effect upon views will experience a moderately adverse effect during the construction phase. Adverse effects are the result of construction site traffic and infrastructure, including noise. Solar energy sites are short duration installations and the adoption of considerate construction methods and protocols can reduce any temporary adverse effects.

Post construction phase, there will be a period of moderate and adverse effects while mitigation planting establishes. The screening effect should develop within 5 years and the landscape proposals show some larger advanced nursery stock plants to speed establishment and screening within this 5-year period.

6.9. VISUAL IMPACT SCHEDULE - REPRESENTATIVE VIEWPOINTS

The assessment of individual viewpoints is produced in tabulated form and accompanies each Representative View in the supporting illustrated report.

Each table assesses:

- Distance to the development
- Type of receptors
- Sensitivity of the receptor
- Duration of the view
- Significance of the effect
- A description of the view and the extent of representation
- The magnitude of the effect on the view and its valency (Adverse, Beneficial, Neutral)
- The significance of the effect on the view and its valency (Adverse, Beneficial, Neutral)
- Action required to mitigate against adverse effects, including design development.
- The significance of the effect on the view and its valency (Adverse, Beneficial, Neutral) - post design development/successful mitigation.

6.10. OUTCOMES OF LANDSCAPE AND VISUAL IMPACT ASSESSMENT INFLUENCING DESIGN DEVELOPMENT AND MITIGATION

6.10.1. RESPONSE TO LANDSCAPE AND VISUAL CHARACTER ASSESSMENT AND APPLICATION OF GOOD PRACTICE GUIDANCE ON SITING SOLAR PV DEVELOPMENTS TO THIS SITE

The following provides a response to the landscape character assessment by reference to national guidance on siting solar PV development - focussing on minimising landscape and visual effects. It is recognised that technologies need to be sited and designed to ensure a reasonable output.

- i. The site is located on flat land, rather than undulating land or on upper slopes. This minimises potential effects upon landscape character.
- ii. The site is located within a landscape with some sense of enclosure rather than in open and unenclosed landscapes. However, the hedges are currently low and should be allowed to grow to enhance biodiversity and improve visual screening from the surrounding area.
- iii. Views from local viewpoints, popular routes, recognised /iconic views, and designated landscapes are extremely limited and restricted to views from The Viking Way. From here, the panels will be sited in areas where they can be well concealed or integrated into sensitive views.
- iv. Viewpoint assessment has considered the appearance of the development as viewed from the 'backs' and 'sides' (where frames will be more visible) as well as from the 'front'.
- v. There are no views from high ground. From higher ground to the south and west the design of the site and presence of existing, as well as proposed, hedgerows allow the site to integrate with the landscape.
- vi. The site does not span across marked changes in character on the ground.
- vii. The site is not located in an area valued for its remoteness, or in an area free from human influence and perceived as 'untamed' naturalness.
- viii. The site contains existing hard surfacing and built elements (large-scale agriculture and is adjacent to the A1 dual carriageway and associated infrastructure). This type of site is less sensitive to solar PV development, but will benefit from some mitigation measures and changes to hedgerow management practice
- ix. The proposal provides enhanced management of landscape features, and habitats as part of the development. This includes contributing to wider landscape scale targets and projects in LPA's Biodiversity Action Plans, guidelines in Landscape Character Assessments, and landscape management objectives set out in local landscape character assessments.

6.10.2. RECOMMENDED MITIGATION MEASURES TO REDUCE ASSESSED ADVERSE EFFECTS

Six viewpoints were assessed with mitigation requirements. Of these, two require mitigation to reduce moderate and adverse effects. The remaining 4 were assessed as receiving a slight and slightly adverse effect. The effect upon all receptors will reduce to slightly adverse, or not adverse, post mitigation establishment.

The two viewpoints which require new planting, in the form of hedge and tree planting, to reduce moderate and adverse effects are:

- Views from the east, especially from Hyde-a-Way dwelling.
- Views from Beck Farm

The remaining adverse effects can be significantly reduced, in a comparatively short timescale, by allowing existing field boundary hedgerows to grow to a height which screens the solar arrays without interfering with the effectiveness of energy production.

These mitigation measures as described, in detail, in the accompanying Landscape and Ecological Management Plan (LEMP).

7. CONCLUSIONS

The assessment has revealed the following conclusions and includes recommendations to reduce adverse effects described in this report:

7.1. EFFECTS UPON LANDSCAPE CHARACTER

The site has a low sensitivity to solar energy production. This is a low-lying, flat site containing few special landscape features.

A key characteristic of the area is the visibility of church towers and spires within hilltop villages in the area. This characteristic will not be damaged by the proposal.

Many other described landscape characteristics, especially those listed in landscape management guidelines, will be enhanced by changing intense agricultural practice into a less-intense, nature-led, approach to landscape management. This will have benefits upon local biodiversity, as well as, reducing any residual visual effects.

7.2. EFFECTS UPON VISUAL RECEPTORS

The effect upon visual receptors is assessed in the range moderate to negligible. No assessments of very large or large effects were recorded.

Despite the site lying in a comparatively wide-open landscape, views towards the site are hard to find. The A1 Foston by-pass visually separates the site from the village. Landform to the south and east restricts views to a small number of visual receptors. Furthermore, the site contains a series of boundary hedgerows which currently screen most of the fields from the surrounding area and, if allowed to grow, will provide almost complete screening within 2-3 years.

The two receptors, with the highest sensitivity of solar PV development, and which will receive the most adverse effects, are two properties - one within the site perimeter (Beck Farm), and the second (Hyde-a-Way) close to the site boundary close to the north-east corner of the site. Both will require mitigation measures to reduce adverse effects.

The site will also be highly visible from the A1 road along its length parallel to the site. While the sensitivity of visual receptors is low, mitigation planting is recommended adjacent to the road to reduce adverse visual effects.

7.3. SUMMARY CONCLUSION

This is a good site for solar energy production.

The site has a low sensitivity to solar energy production and there are no assessed adverse effects upon landscape character. The proposal provides an opportunity to improve the described landscape character, in the medium and long-term, through changing landscape management regimes which will increase biodiversity as well as enhancing the tree and hedgerow cover in this flat and relatively intensively farmed landscape.

The number of viewpoints with adverse views towards the site is unusually low (<5). Two properties have direct views towards the site and will experience moderate and adverse effects prior to mitigation. In both cases the views can be mitigated, but not screened completely. Once mitigation planting has established, within 5 years the residual effect is likely to be moderate and slightly adverse. Beyond 10 years, the effect will become slight and not adverse.

From public footpaths, roads, and properties within the ZTV, the visual effect is slight or negligible. Those visual receptors experiencing slight and slightly adverse effects during the construction phase, will experience a reduced residual effect quickly as hedgerows are allowed to establish.

8. APPENDIX 1 - ASSESSMENT CRITERIA TABLES

8.1. SENSITIVITY VALUES

Measures of sensitivity are described more fully in this report, but follow the general principles outlined in the table below:

Value/Sensitivity	
Value (Sensitivity)	Typical Descriptors
Very High	Very high importance and rarity, international scale, and limited potential for substitution
High	High importance and rarity, national scale, and limited potential for substitution
Medium	High or medium importance and rarity, regional scale, limited potential for substitution
Low (or Lower)	Low or medium importance and rarity, local scale
Negligible	Very low importance and rarity, local scale

8.2. ASSESSMENT OF MAGNITUDE EFFECT ON LANDSCAPE CHARACTER

The criteria used for assessing the magnitude of impact is summarised in the table below:

Magnitude of effect upon Landscape Character	
Magnitude of impact	Typical Criteria Descriptors
Major	<p>Loss of resource and/or quality and integrity: severe damage to key characteristics, features, or elements (Adverse)</p> <p>Large scale or major improvement of resource quality: extensive restoration or enhancement: major improvement of attribute quality (Beneficial)</p>
Moderate	<p>Loss of resource, but not adversely affecting integrity: Partial loss of/damage to key characteristics, features, or elements (Adverse)</p> <p>Benefit to, or addition of, key characteristics, features, or elements: improvement of attribute quality (Beneficial)</p>

Minor	Some measurable change in attribute's quality or vulnerability: minor loss of, or alteration to, one (or maybe more) key characteristics, features, or elements (Adverse) Minor benefit to, or addition of, on (or maybe more) key characteristics, features, or elements: some beneficial impact on attribute or a reduced risk of negative impact occurring (Beneficial)
Negligible	Very minor loss or detrimental alteration to one or more characteristics, features, or elements (Adverse) Very minor benefit to or positive addition of one or more characteristics, features, or elements (Beneficial)
No change	No loss or alteration to characteristics, features, or elements: no observable impact in either direction

8.3. SENSITIVITY AND MAGNITUDE COMBINED - SIGNIFICANCE OF EFFECT

In order to report on the overall significance of the proposal on both landscape and visual receptors the sensitivity of the site and the magnitude of change are assessed in combination. The outcome can be both positive - i.e. the proposal makes a positive change to the landscape; and negative - the proposal will result in a negative change to landscape character and visual character. The outcomes are reported using descriptive terms rather than numerical scores and the terms used are summarised below:

Significance of Effect	
Significance of Category	Typical descriptors of Effect
Very Large	Only adverse effects are normally assigned this level of significance. They represent key factors in the decision-making process. These effects are generally, but not exclusively, associated with sites or features of international, national, or regional importance that are likely to suffer a most damaging impact and loss of resource integrity. However, a major change in a site or feature of local importance may also enter this category
Large	These beneficial or adverse effects are considered to be very important considerations and are likely to be material in the decision-making process
Moderate	These beneficial or adverse effects may be important but are not likely to be key decision-making factors. The cumulative effects of such issues may become a decision-making issue if leading to an increase in the overall adverse effect on a particular resource or receptor

Slight	These beneficial or adverse effects may be raised as local factors. They are unlikely to be critical in the decision-making process, but are important in enhancing the subsequent design of the project
Neutral	No effects or those that are beneath levels of perception, within normal bounds of variation or within the margin of forecasting error

8.4. VALENCY OF EFFECT - LANDSCAPE AND VISUAL ASSESSMENT

Effects are defined as adverse, neutral, or beneficial.

Valency of Effect	
Nature of Effect	Definition
Adverse	Effect that would result in damage to the condition, integrity or key characteristics of the landscape or visual resource
Neutral/ Not adverse	Effect that would maintain, on balance, the existing level of condition, integrity or key characteristics of the landscape or visual resource. Whilst the nature of the change may be significant, the proposal does not compromise the inherent qualities of the resource and can incorporate a combination of positive and negative effects.
Beneficial	Effect that would result in improvement to the condition, integrity or key characteristics of the landscape or visual resource

8.5. LANDSCAPE CHARACTER SENSITIVITY

Landform and scale				
A smooth, convex or flat landform is likely to be less sensitive to development than a landscape with a dramatic rugged landform, distinct landform features (including prominent headlands and cliffs) or pronounced undulations; and larger scale landforms are likely to be less sensitive than smaller scale landforms - because solar farms may appear out of scale, detract from visually important landforms or appear confusing in the latter types of landscapes.				
Examples of sensitivity ratings				
Lower sensitivity		Higher sensitivity		
e.g. an extensive lowland flat landscape or elevated plateau, often a larger scale landform	e.g. a simple gently rolling landscape, likely to be a medium-large scale landform	e.g. an undulating landscape, perhaps also incised by valleys, likely to be a medium scale landform	e.g. a landscape with distinct landform features, and/or irregular in topographic appearance (which may be large in scale), or a smaller scale landform	e.g. a landscape with a rugged landform or dramatic landform features (which may be large in scale), or a small scale landform

Landform cover pattern and presence of human scale features				
Simple, regular landscapes with extensive areas of consistent ground cover are likely to be less sensitive to development than landscapes with more complex or irregular land cover patterns, smaller and/ or irregular field sizes and landscapes with frequent human scale features that are traditional of the landscape, such as stone farmsteads and small farm woodlands 18. This is because large features may dominate smaller scale traditional features within the landscape.				
Examples of sensitivity ratings				
Lower sensitivity		←————→	Higher sensitivity	
e.g. a very large-scale landscape with uniform groundcover and lacking in human scale features	e.g. a landscape with large-scale fields, little variety in land cover and occasional human scale features such as trees and domestic buildings	e.g. a landscape with medium sized fields, some variations in land cover and presence of human scale features such as trees, domestic buildings	e.g. a landscape with irregular small-scale fields, variety in land cover and presence of human scale features such as trees, domestic buildings	e.g. a landscape with a strong variety in land cover and small scale/irregular in appearance containing numerous human scale features

Tracks/transport pattern				
Landscapes that are devoid of tracks will be particularly sensitive to development because it will be more difficult to absorb permanent new tracks into the landscape without change to character in these areas. In addition, if an LCA has a rural road network which contributes to landscape character (e.g. winding narrow lanes bounded by high hedge banks or sunken lanes), this aspect of character may be affected by access works to enable HGVs carrying development materials to a site. This characteristic therefore also influences sensitivity.				
Examples of sensitivity ratings				
Lower sensitivity		←————→	Higher sensitivity	
e.g. a landscape containing existing roads and vehicular tracks, and no restrictions in terms of narrow hedged lanes	e.g. a landscape containing existing roads and vehicular tracks, and few restrictions in terms of narrow hedged lanes	e.g. a landscape containing some existing roads and vehicular tracks, including some restrictions in terms of narrow hedged lanes	e.g. a landscape containing few lanes or vehicular tracks, and these are predominantly narrow lanes bounded by high hedge banks	e.g. a landscape devoid of roads or vehicular tracks

Skylines				
Prominent and distinctive and/or undeveloped skylines, or skylines with important landmark features, are likely to be more sensitive to development because development may detract from these skylines as features in the landscape or draw attention away from existing landform or landmark features on skylines. These include the skylines of elevated coastlines and coastal headlands. Important landmark features on the skyline might include historic features or monuments.				
Examples of sensitivity ratings				
Lower sensitivity		←————→	Higher sensitivity	
e.g. a large scale flat or plateau landscape where skylines are not prominent and/or there are no important landmark features on the skyline	e.g. a large scale landscape where skylines are not prominent and/or there are very few landmark features on the skyline - other skylines in adjacent LCAs are more prominent	e.g. a landscape with some prominent skylines, but these are not particularly distinctive. There may be some landmark features on the skyline.	e.g. a landscape with prominent skylines that may form an important backdrop to views from settlements or important viewpoints, and/or with important landmark features	e.g. a landscape comprising prominent or distinctive undeveloped skylines or skylines with particularly important landmark features

Perceptual qualities				
Landscapes that are relatively remote or tranquil (due to freedom from human activity and disturbance and having a perceived naturalness or a strong feel of traditional rurality with few modern human influences) tend to increase levels of sensitivity to development compared to landscapes that contain signs of modern development (as the development will introduce new and uncharacteristic features which may detract from a sense of tranquillity and or remoteness/naturalness).				
Examples of sensitivity ratings				
Lower sensitivity		←————→	Higher sensitivity	
e.g. a landscape with much human activity and development such as industrial areas or a port	e.g. a rural landscape with much human activity and dispersed modern development	e.g. a rural landscape with some modern development and human activity	e.g. a more naturalistic landscape and / or one with little modern human influence and development	e.g. a remote or 'wild' landscape with little or no signs of current human activity and development

Historic Landscape Character

Landscapes comprising prehistoric and medieval enclosures (including strip fields) are considered to have a higher sensitivity to development than landscapes comprising modern enclosures or industrial/military Historic Landscape Types (HLTs) due to the potential effects of development on the coherence of these landscapes (including effects of access tracks on field boundaries) and the ability to appreciate them. Historic landscape types such as rough ground, ancient woodland, other woodland, marsh, dunes, mud, sand, outcrop/ scree/ cliffs, water meadows, and orchards also have a higher sensitivity to energy development as a result of potential change to the coherence of these historic landscape types.

Examples of sensitivity ratings

Lower sensitivity		Higher sensitivity		
e.g. majority of the landscape covered by least sensitive HLTs	e.g. majority of the landscape covered by lower sensitivity HLTs, but may include some small areas of higher sensitivity	e.g. majority of the landscape covered by medium sensitivity HLTs or a mixture of higher and lower sensitivity HLTs	e.g. majority of the landscape covered by higher sensitivity HLTs, but may include some small areas of lower sensitivity	e.g. the majority of the landscape covered by higher sensitivity HLTs

Scenic and Special Qualities				
Landscapes that have a high natural beauty/ scenic quality (which may be recognised as a National Park, Heritage Coast or AONB) and whose scenic qualities, special qualities (as recorded in the LCA or by AGLV designation) or natural beauty are likely to be affected by development will be more sensitive than landscapes of low scenic quality or whose special scenic qualities or special qualities are not likely to be affected by wind energy development (some areas may include special qualities that might not be affected by development). Scenic and special qualities may relate to landscapes that are not designated as well as landscape designated for their natural beauty.				
Examples of sensitivity ratings				
Lower sensitivity		←————→	Higher sensitivity	
e.g. landscape has low scenic quality such as an industrial area or despoiled land - special qualities will not be affected by energy development	e.g. landscape has low-medium scenic quality, or special qualities are unlikely to be affected by energy development	e.g. landscape has a medium scenic quality and some of the special qualities may be affected by energy development	e.g. landscape has a medium-high scenic quality - most of the special qualities are likely to be affected by energy development	e.g. area has a high scenic quality (likely to be recognised as National Park/AONB/ Heritage Coast) and the scenic qualities will be affected by energy development

8.6. SENSITIVITY OF VISUAL RECEPTORS

8.6.1. THE SENSITIVITY OF VISUAL RECEPTORS - GENERAL PRINCIPLES

- the location i.e. proximity and context of the viewpoint;
- the expectations and occupation or activity of the receptor, including awareness of their surroundings and duration of viewing opportunity, whether prolonged or intermittent;
- the importance of the view, which may be determined with respect to its popularity or numbers of people affected, its appearance in guidebooks, on tourist maps, and in the facilities provided for its enjoyment and references to it in literature or art.

A wide variety of visual receptors can reasonably be anticipated to be affected by a proposed development. The range of visual receptors will include pedestrians, and recreational users of the surrounding landscape such as walkers, cyclists and those otherwise engaged in the pursuit of leisure activities within the visual envelope of the site, local residents, motorists, those working outdoors and other workers. All categories of receptors can potentially be affected to a greater or lesser degree by a development. The four main visual receptor groups are considered in more detail below under the headings of residents, workers, the travelling public, and visitors.

8.6.2. RESIDENTS

Local residents tend to have a higher level of sensitivity to changes in their landscape and visual environment than those passing through. For residents, the most important views are those from their homes, although they will also be sensitive to other views such as those experienced when travelling to work or other local destinations. However, it is these latter views, from public areas nearby houses that are of relevance to the main body of the visual impact assessment (assessment of effects from the representative viewpoints).

9. WORKERS

Workers are generally less sensitive to effects as they are focussed on the tasks they are carrying out. Indoor workers generally have a Low sensitivity, and outdoor workers, such as farmers and those offering outdoor pursuits are considered to have a Low to Medium sensitivity.

9.1.1. THE TRAVELLING PUBLIC

This category of visual receptor group overlaps to a degree with the other categories in that it embraces local residents, workers and those who come to visit the area. This group of visual receptors will include the following:

Motorists - For major trunk routes and motorways, the sensitivity of users will be Low, as they will be travelling at speed and will be primarily focussed on achieving their destination. Users of other A-roads will have a Low to Medium sensitivity, unless these are particularly scenic or slow routes, in which case the sensitivity may be assessed as Medium. The users of local roads will have a Medium sensitivity.

Cyclists and footpath users - These groups are addressed under the heading of visitors as they are generally less concerned with the object of reaching their destination than with the enjoyment of being outside and enjoying the landscape and available views.

9.1.2. VISITORS

This category includes several visual receptor groups, each with different objectives and levels of sensitivity to any change in the fabric or character of the landscape and views arising from the proposed development. This group includes those who are mainly concerned with enjoyment of the outdoor environment but also those who may pursue indoor recreational pursuits and is anticipated to include the following (arranged in decreasing sensitivity):

- Those whose main preoccupation is the enjoyment of scenery (High sensitivity).
- Recreational walkers and equestrians (High sensitivity)
- Those visitors engaged in cultural pursuits (High-Medium sensitivity)
- Cyclists (High-Medium sensitivity)

9.2. MAGNITUDE OF EFFECT ON VIEWS FROM REPRESENTATIVE VIEWPOINTS

Magnitude of effect identifies the degree of change to the character and quality of views experienced by the visual receptor. This will be influenced by:

the distance of the viewpoint from the proposed development and the scale of change in the view with respect to the loss or addition of features in the view and changes in its composition, including the proportion of the view occupied by the proposed development;

the degree of contrast or integration of any new features or changes in the landscape with the existing or remaining landscape elements and characteristics in terms of form, scale and mass, line, height, colour and texture.

Magnitude of Effect on Views	
High	Total or major alteration to key elements, features or characteristics of the view, such that post development the baseline situation will be fundamentally changed.
Medium	Partial alteration to key elements, features or characteristics of the view, such that post development the baseline situation will be noticeably changed.
Low	Minor alteration to key elements, features or characteristics of the view, such that post development the baseline situation will be largely unchanged despite discernible differences.
Negligible	Very minor alteration to key elements, features or characteristics of the view, such that post development the baseline situation will be fundamentally unchanged with barely perceptible differences.

9.3. TABLE SHOWING THE SIGNIFICANCE OF EFFECT AS A COMBINATION OF MAGNITUDE AND RECEPTOR SENSITIVITY

		MAGNITUDE OF CHANGE				
		Major	Moderate	Minor	Negligible	No Change
RECEPTOR SENSITIVITY	Very High	Very Large	Large or Very Large	Moderate or Large	Slight	Neutral
	High	Large or Very Large	Moderate or Large	Slight or Moderate	Slight	Neutral
	Medium	Moderate or Large	Moderate	Slight	Neutral or Slight	Neutral
	Low	Slight or Moderate	Slight	Neutral or Slight	Neutral or Slight	Neutral
	Negligible	Slight	Neutral or Slight	Neutral or Slight	Neutral	Neutral

10. APPENDIX 2 - GLOSSARY

Cumulative effects - The summation of effects that result from changes caused by a development in conjunction with other past, present or reasonably foreseeable actions.

Indirect effects - Effects on the environment, which are not a direct result of the development but are often produced away from it or as a result of a complex pathway. Sometimes referred to as secondary impacts.

Landscape character type - A landscape type will have broadly similar patterns of geology, landform, soils, vegetation, land use, settlement and field pattern discernible in maps and field survey records.

Landscape effects - Change in the elements, characteristics, character and qualities of the landscape as a result of development. These effects can be negative or positive.

Landscape character - means the distinct and recognisable pattern of elements that occur consistently in a particular type of landscape, and how these are perceived by people. It reflects particular combinations of geology, landform, soils, vegetation, land use and human settlement. It creates the particular sense of place of different areas of the landscape.

Landscape quality (or condition) - is based on judgements about the physical state of the landscape, and about its intactness, from visual, functional, and ecological perspectives. It also reflects the state of repair of individual features and elements which make up the character in any one place.

Landscape value - is concerned with the relative value that is attached to different landscapes. In a policy context, the usual basis for recognising certain highly valued landscapes is through the application of a local or national landscape designation. Yet a landscape may be valued by communities for many different reasons without any formal designation.

Landscape sensitivity - The extent to which a landscape can accept change of a particular type and scale without material effects on its character.

Magnitude - A combination of the scale, extent and duration of an effect.

Mitigation. Measures, including any process, activity or design to avoid, reduce, remedy or compensate for adverse landscape and visual effects of a development project.

Receptor - Physical landscape resource, special interest or viewer group that will experience an effect.

Visual amenity - The value of a particular area or view in terms of what is seen.

Visual effect - Change in the appearance of the landscape as a result of development. This can be positive (i.e. beneficial or an improvement) or negative (i.e. adverse or a detraction).

Visual envelope - Extent of potential visibility to or from a specific area or feature.

Zone of visual influence - Area within which a proposed development may have an influence or effect on visual amenity.

11. APPENDIX 3 - REFERENCES

Guidelines for Landscape and Visual Impact assessment, Third Edition, Landscape Institute and Institute of Environmental Management and Assessment, 2013

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