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# FENWICK SOLAR FARM

**Fenwick Solar Farm**  
**EN010152**

## **Environmental Statement**

**Volume III Appendix 10-2: Landscape and Visual Impact Assessment Methodology**

**Document Reference: EN010152/APP/6.3**

Regulation 5(2)(a)

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

~~October 2024~~  
~~May 2025~~

Revision Number: ~~0001~~

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## Revision History

Revision Number	Date	Details
00	October 2024	DCO application
<u>01</u>	<u>May 2025</u>	<u>Deadline 2</u>

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# 1. Introduction

- 1.1.1 This appendix sets out the methodology applied in the Landscape and Visual Impact Assessment (LVIA). The LVIA is reported in **Environmental Statement (ES) Volume I Chapter 10: Landscape and Visual Impact Assessment [EN010152/APP/6.1]**.
- 1.1.2 Landscape and visual effects are interrelated but are assessed separately:
- a. Landscape effects relate to changes to the landscape as a resource, including physical changes to the fabric or individual elements of the landscape, its aesthetic or perceptual qualities and its overall landscape character; and
  - b. Visual effects relate to changes to receptor's (people's) visual amenity and views from the loss or addition of features within their view(s) due to the Scheme.
- 1.1.3 The LVIA methodology involves the following stages:
- a. A baseline review of published landscape assessments, studies, relevant supporting evidence base documents, aerial photography, mapping, and field work to identify the landscape and visual baseline and receptors;
  - b. Consideration of the sensitivity of landscape and visual receptors, based on an assessment of their respective value and susceptibility to change;
  - c. Consideration of the magnitude of effect resulting from the Scheme during construction, Year 1 and Year 15 of operation and maintenance, and decommissioning. The consideration of magnitude of effect is based on the scale, duration, and reversibility of the effect. Short term durations are considered to be two years or less; medium term durations are considered to be between two and five years; and long-term durations are considered to be more than five years;
  - d. Combination of the receptor's sensitivity and the magnitude of effect experienced to determine the resultant level of effect; and
  - e. An assessment of the significance of the effect to the landscape and visual receptors for the above phases of the Scheme.
- 1.1.4 The assessment of the Scheme has been undertaken for:
- a. Peak construction activity in winter;
  - b. Year 1 of operation, assuming the Scheme is built out and in winter;
  - c. Year 15 of the operation, assuming the proposed planting has established, in both winter and summer conditions; and
  - d. Decommissioning in winter.

## 2. Assessment Methodology

### 2.1 Applicable Guidance

- 2.1.1 The following guidance has been used to inform the scope and approach of the LVIA, and to assist in the identification and mitigation of likely significant effects. This builds upon the overarching EIA methodology.
- Guidelines for LVIA, 3rd Edition (GLVIA3) (Ref. 1) is the primary source of guidance for the assessment of landscape and visual effects as referenced in National Policy Statement EN-1 (November 2023), footnote 244 (Ref. 2).
  - Advice contained within the Natural England publication 'An Approach to Landscape Character' (Ref. 3) was used to supplement the guidance and approaches to undertaking landscape character assessment contained GLVIA3.
  - The Landscape Institute's technical note regarding the assessment of landscapes outside national designations (Ref. 4) has also informed the approach to the definition of landscape character areas and judgements of their respective value.
  - The design approach and landscape strategy for the Scheme was further supported by guidance set out in the Landscape Institute's Infrastructure Technical Guidance Note 04/2020 (Ref. 5).
  - The Landscape Institute's Tranquillity Technical Guidance Note 2017 (Ref. 6) was referred to in developing the approach to describing and assessing impacts on tranquillity of the Scheme.
  - Information contained within the Landscape Institute's Technical Guidance Note 06/19: Visual Representation of Development Proposals, 2019 (Ref. 7) was used to aid the selection and preparation of viewpoint photography to support the LVIA.
  - Landscape Institute's Technical Guidance Note 2/19: 'Residential Visual Amenity Assessment' (2019) (Ref. 8).

### 2.2 Establishment of the Study Area

- 2.2.1 With reference to **ES Volume II Figure 10-1: Landscape and Visual Amenity Study Area and Relevant Designations [EN010152/APP/6.2]**, the LVIA Study Area extends approximately 2 kilometres (km) from the Solar PV Site and 500 m from the Grid Connection Corridor.
- 2.2.2 The initial area of search extended 5 km from the Solar PV Site. This area was subject to a desk-based review of aerial photography, analysis of a computer generated Zone of Theoretical Visibility (ZTV) and Ordnance Survey (OS) mapping and included consideration of potential effects arising from the proposed Solar PV Panels, Battery Energy Storage System (BESS) Area, Field Stations, the On-Site Substation, and construction plant. The review found that there was no potential for significant landscape or visual effects beyond 2 km due to intervening surface features, in particular field boundary vegetation, hedgerows lining local roads and infrastructure such as the dismantled railway with associated vegetation and the East Coast

Mainline which is elevated on an embankment running east and west of the Solar PV Site respectively. However, the elevated perspective of Askern Hill, located approximately 4.8 km southwest of the Solar PV Site affords potential for people to experience change to their visual amenity. Residents of and people visiting Askern Hill have therefore been included within the visual assessment as a single receptor beyond the LVIA Study Area.

- 2.2.3 Whilst the Scheme includes part of Station Road / Moss Road in Askern, the works in that location are not likely to give rise to significant landscape or visual effects given their short duration and small scale. As such, this area was not considered further within the LVIA.

## 2.3 Establishment of the Baseline

### Desk Study

- 2.3.1 The landscape and visual baseline has been informed by relevant policy and guidance, as set out in **ES Volume III Appendix 10-1: Legislation, Policy and Guidance (Landscape and Visual Amenity) [EN010152/APP/6.3]**. The desk study has also included review of OS mapping, aerial photography, topographical data and site photography.

### Field Survey

- 2.3.2 Field surveys have been undertaken by Chartered Members of the Landscape Institute to review and record baseline landscape character and visual amenity across the Solar PV Site Study Area and Grid Connection Corridor Study Area. Fieldwork was undertaken in winter and summer conditions between April 2023 and February 2024. The fieldwork informed the identification of landscape receptors, including analysis of key characteristics of Local Landscape Character Areas, and recorded the extent and distribution of:
- a. Landcover, pattern and texture;
  - b. Scale and appearance;
  - c. Tranquillity;
  - d. Cultural associations; and
  - e. Land use.

- 2.3.3 Field surveys also identified visual receptors with potential to be affected by the Scheme.

### Landscape Baseline and Receptors

- 2.3.4 Landscape is defined by the European Landscape Convention as *“an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors”* (Ref. 9).
- 2.3.5 GLVIA3 defines landscape receptors as *“aspects of the landscape resource that have the potential to be affected by a proposal”* (Ref. 1).
- 2.3.6 Landscape receptors have been identified via a review of published landscape character assessments, maps and aerial photography, relevant planning policy and fieldwork surveys.



- 2.3.7 Landscape character is defined by GLVIA3 as *“a distinct, recognisable and consistent pattern of elements in the landscape that makes one landscape different from another, rather than better or worse”* (Ref. 1).
- 2.3.8 Published landscape character assessments at the national, regional and district level have been reviewed to identify Landscape Character Types (LCT) and Landscape Character Areas (LCA). The geographical extent of LCAs in published assessments are generally large and may extend beyond the Study Area. To enable a more detailed assessment of the existing landscape character at a scale more relevant to the Scheme, Local Landscape Character Areas (LLCA) have been identified via desk study and fieldwork surveys in line with Natural England's An Approach to Landscape Character Assessment. These LLCA form the basis of the assessment of landscape effects and inform the development of the masterplan and landscape design. They are generally sub-divisions of existing LCAs identified in published landscape character assessments and are shown on **ES Volume II Figure 10-3: Local Landscape Character Areas [EN010152/APP/6.2]**.

## Visual Baseline

- 2.3.9 Visual receptors are defined in GLVIA3 as *“individuals and/or defined groups of people who have the potential to be affected by a proposal”* (Ref. 1). This includes residents, users of public rights of way (PRoW) and motorists. A computer-generated ~~zone of theoretical visibility (ZTV)~~ was prepared based on 3-dimensional models of existing terrain and the Scheme. GLVIA3 defines the ZTV as *“a map, usually digitally produced, showing areas of land within which a development is theoretically visible.”* The ZTV will be updated as the design of the Scheme progresses.
- 2.3.10 The purpose of the ZTV is to:
- Identify the theoretical extents of the Scheme visibility i.e. the locations from which it could potentially appear in existing views;
  - Assist in the identification of the Study Area;
  - Identify visual receptors likely to be affected by the Scheme;
  - Identify locations that are representative of the views experienced by visual receptors at different locations within the Study Area (representative viewpoints); and
  - Inform the design, including the extent and type of proposed mitigation.

## Visual Receptors

- 2.3.11 Visual receptors likely to experience change to their visual amenity due to construction, operation and maintenance or decommissioning of the Scheme have been identified through analysis of the ZTV and through field surveys. Visual receptors identified are categorised into the following categories:
- Residents;
  - Recreational users of the PRoW network, promoted walking routes and cycle routes;
  - Users of the road network; and



- d. Users of the rail network.
- 2.3.12 Visual receptors who are likely to experience similar views have been grouped as a single receptor group.

## Representative Viewpoints

- 2.3.13 In line with GLVIA3, viewpoints were selected for illustration of the visual effects likely to be experienced by visual receptors. 37 representative viewpoints have been selected to inform and illustrate the visual assessment, capturing views experienced by visual receptors and demonstrating the difference in visibility across different viewing distances, elevation and orientations from across the Solar PV Site Study Area and Grid Connection Corridor Study Area. All representative viewpoints have been captured from publicly accessible locations. The location of the viewpoints is shown on **ES Volume II Figure 10-9: Representative Viewpoint Locations [EN010152/APP/6.2]**.
- 2.3.14 Photographs have been captured from each representative viewpoint in line with the requirements for 'Type 1s' as set out in the Landscape Institute's Technical Guidance Note 06/19: Visual Representation of Development Proposals, 2019 (Ref. 7). The fieldwork undertaken, and photographs captured, have been used to:
- a. Assist in the identification of the Study Area;
  - b. Identify visual receptors likely to be affected by the Scheme; and
  - c. Identify locations that are representative of the views experienced by visual receptors at different locations within the Study Area (representative viewpoints).
- 2.3.15 Photomontages, which are presented as 'Type 3s' and prepared in accordance with good practice guidance published by the Landscape Institute (Ref. 10-13), have been produced for ten representative viewpoints across the Solar PV Site Study Area. These are shown in **ES Volume II Figure 10-10: Viewpoint Photography [EN010152/APP/6.2]**. A range of representative viewpoints have been selected for photomontages to demonstrate a variety of views and receptors, including short, middle and longer views, as well as residential, road and recreational receptors. Where applicable, photomontages have been chosen to demonstrate the worst-case scenario for visual receptors. Type 3 photomontages have been produced at both Year 1 and Year 15 to demonstrate the effects of mitigation planting.

## 2.4 Sensitivity of Receptors

### Landscape Sensitivity

- 2.4.1 Paragraph 5.39 of GLVIA3 states that *"landscape receptors need to be assessed firstly in terms of their sensitivity, combining judgements of their susceptibility to the type of change or development proposed and the value attached to the landscape"* (Ref. 1).

## Landscape Value

- 2.4.2 Landscape value refers to the relative value that is attached to different landscapes by society. The assessment of the value of each landscape receptor has been informed by the information set out in the baseline, including any relevant landscape designations, geographic criteria and valued features as set out in GLVIA3 (Ref. 1) Box 5.1, e.g. aesthetic, perceptual, or experiential value and in the Landscape Institute's technical note regarding the assessment of landscapes outside national designations (Ref. 4).
- 2.4.3 Table 1 sets out the criteria for the assessment of landscape value.

**Table 1: Criteria for the Assessment of Landscape Value**

Classification	Value Criteria
High	<p>High quality landscapes which are likely to be protected by a landscape-specific designation, or landscapes with abundant evidence of natural, cultural, perceptual, or recreational capital. These are likely to include, but are not limited to:</p> <ul style="list-style-type: none"> <li>a. Designated landscapes, such as Registered Parks and Gardens, Conservation Areas, or local authority landscape designations;</li> <li>b. Landscapes adjacent to designated landscapes which exhibit elements that underpin the designation;</li> <li>c. Landscapes which are highly representative of the key characteristics of the relevant LCAs within published Landscape Character Assessments;</li> <li>d. Landscapes which are consistently in good condition;</li> <li>e. Landscapes exhibiting distinctive features that may be referenced in art or literature and/or a high scenic and perceptual quality; and</li> <li>f. Landscapes with a high degree of widespread tranquillity.</li> </ul>
Medium	<p>'Everyday' landscapes which may include elements of community importance or aspects of natural, cultural, perceptual or recreational capital. These are likely to include, but are not limited to:</p> <ul style="list-style-type: none"> <li>a. Landscapes which are partially representative of the key characteristics of the relevant LCAs within published Landscape Character Assessments;</li> <li>b. Landscapes which are mostly in moderate condition;</li> <li>c. Landscapes that have some scenic or perceptual qualities that may have some cultural association;</li> <li>d. Landscapes with some areas of tranquillity; and</li> <li>e. Landscapes with few detracting elements.</li> </ul>
Low	<p>Landscapes with weak or discordant elements and characteristics which detract from the quality of the area. These are likely to include, but are not limited to:</p>

Classification	Value Criteria
	<ul style="list-style-type: none"> <li>a. Landscapes which exhibit few of the key characteristics of the relevant LCA within published Landscape Character Assessments;</li> <li>b. Landscapes in poor condition;</li> <li>c. Landscapes with limited scenic or perceptual qualities with limited or no cultural association;</li> <li>d. Landscapes which have a limited or no sense of tranquillity; and</li> <li>e. Landscapes with multiple detracting elements, or detracting features that affect a large extent of the area.</li> </ul>

### Landscape Susceptibility

- 2.4.4 GLVIA3 (Ref. 1) Paragraph 5.40 defines landscape susceptibility as:  
*“the ability of the landscape receptor (whether it be overall character of condition of a particular landscape type or area, or an individual element and/or features, or a particular aesthetic and perceptual aspect) to accommodate the proposed development without undue consequences for the maintenance of the baseline situation and/or the achievement of landscape planning policies and strategies”* (Ref. 1).
- 2.4.5 The following aspects of the landscape are considered to be particularly susceptible to the change proposed:
- a. Overall agricultural character of the landscape;
  - b. Sense of remoteness from development;
  - c. Vegetation pattern formed by the network of hedgerows that form field boundaries; and
  - d. The agricultural setting of existing settlements.
- 2.4.6 Landscape susceptibility is assessed with reference to the criteria set out in Table 2.

**Table 2: Landscape Susceptibility Criteria**

Classification	Susceptibility Criteria
High	<p>The landscape is less able to accommodate change associated with the Scheme without excessive changes to existing landscape features or the landscape character. Landscape features, such as landform and vegetation, and overall character offer limited potential for change without being fundamentally altered to accommodate the Scheme. These are likely to include, but are not limited to:</p> <ul style="list-style-type: none"> <li>a. Landscapes which are smaller or more intimate in scale;</li> <li>b. Landscapes with little or no existing infrastructure;</li> </ul>

Classification	Susceptibility Criteria
	<ul style="list-style-type: none"> <li>c. Landscapes which are open and therefore afford a wider intervisibility with the surrounding landscape; and</li> <li>d. Landscapes with a notable vegetation structure which can't easily be replaced if removed.</li> </ul>
<b>Medium</b>	<p>The landscape is able to accommodate change associated with the Scheme to some extent without excessive changes to existing landscape features or the landscape character. This may include, but is not limited to:</p> <ul style="list-style-type: none"> <li>a. Medium-scale landscapes;</li> <li>b. Landscapes with some infrastructure present;</li> <li>c. Partially enclosed landscapes, by nature of topography or vegetation; and</li> <li>d. Landscapes with a common or easily replaceable vegetation structure.</li> </ul>
<b>Low</b>	<p>The landscape is able to accommodate change associated with the Scheme without excessive changes to existing landscape features or the landscape character. These are likely to include, but are not limited to:</p> <ul style="list-style-type: none"> <li>a. Large-scale landscapes;</li> <li>b. Landscapes influenced by infrastructure; and</li> <li>c. Enclosed landscapes, for example those with flat and low lying topography with existing screening features.</li> </ul>

### Landscape Sensitivity

- 2.4.7 Landscape value and landscape susceptibility are assessed separately and then combined to define the sensitivity of the landscape receptor, with reference to the criteria set out in Table 3. Generally, value and susceptibility are given even weightings when combined, however, every situation is different and professional judgement will be applied to determine if the weighting deviates from this. Landscape sensitivity can also be expressed as the intermediate levels of 'low-medium' and 'medium-high'.

**Table 3: Landscape Sensitivity Definitions**

Classification	Sensitivity Definition
High	Typically landscapes of high value which have little opportunity to accommodate the Scheme. This is likely to include designated landscapes which are of high quality. The landscape is likely to comprise rare or important elements that combine to create a strong sense of place.
Medium	Typically landscapes of medium value with some opportunity to accommodate the type of development which is proposed. The change experienced would not lead to a major change to the landscape elements or character.

Classification	Sensitivity Definition
Low	Typically landscapes of low value or quality, comprising features and elements that combine to create an indistinct and / or discordant character. These landscapes generally have opportunity to accommodate the type of development which is proposed without major loss of key or important elements.

## Visual Sensitivity

- 2.4.8 Paragraph 6.31 of GLVIA3 states that *“each visual receptor, meaning the particular person or group of people likely to be affected at a specific viewpoint should be assessed in terms of both their susceptibility to change in views and visual amenity and also the value attached to particular views.”*

## Visual Value

- 2.4.9 The value attached to views experienced has been considered in line with GLVIA3, Paragraph 6.37, which identifies the following indicators of value:
- Views associated with heritage assets or planning designations;
  - Appearances in guidebooks or tourist maps or proximity to facilities such as parking or interpretive materials; and
  - References to views in literature or art.
- 2.4.10 Visual value has been assessed in line with the criteria set out in Table 4.

**Table 4: Visual Value Criteria**

Classification	Visual Value Criteria
High	Views of high quality or distinctive elements or viewing places which are within landscape designations. These are likely to include, but are not limited to: <ol style="list-style-type: none"> <li>Viewpoints specified within guidebooks, OS maps or Landscape Character Assessments;</li> <li>Views from historic landscapes, such as Registered Parks and Gardens and/or designated heritage assets; and</li> <li>High quality views noted within Local Plans and Neighbourhood Plans.</li> </ol>
Medium	Views of moderate quality elements but unlikely to be designated or promoted. Views may include local landmarks which are valued by local communities.
Low	Views that include poor quality elements and/or detracting features, or a featureless view e.g. a featureless agricultural landscape or poor quality urban fringe.

## Visual Susceptibility

- 2.4.11 The susceptibility of visual receptors results from parameters, such as:

- a. The occupation or activity of people experiencing the view at particular locations; and
- b. The extent to which their attention or interest may therefore be focussed on the views and the visual amenity they experience at particular locations.

2.4.12 GLVIA3 notes that visual receptors “*most susceptible to change*” include residents at home and visitors engaged in outdoor recreation whose attention is likely to be focused on the landscape and particular views. Visitors to heritage assets where the view is important, and communities where views contribute to the landscape setting are also noted as indicators of susceptibility.

2.4.13 The criteria used to assess susceptibility is listed in Table 5.

**Table 5: Visual Susceptibility Criteria**

Classification	Visual Susceptibility Criteria
High	<p>People whose attention or interest is focused on their view, and it forms an important part of their experience. These are likely to include, but are not limited to:</p> <ol style="list-style-type: none"> <li>a. Residents at home;</li> <li>b. Communities where views contribute to the landscape setting enjoyed by residents;</li> <li>c. People engaged in outdoor recreation where their interest is likely to be focussed on the landscape, for example promoted walking routes; and</li> <li>d. Visitors to heritage assets, or other attractions, where views are an important contributor to the experience.</li> </ol>
Medium	<p>People whose attention is less focused on their view or are travelling through the area where views are relevant to the experience of the journey but are not specific reasons for visiting. These are likely to include, but are not limited to:</p> <ol style="list-style-type: none"> <li>a. People walking on Public Rights of Way;</li> <li>b. Users of the local road network where views are transitory but the surrounding landscape forms part of the experience;</li> <li>c. Users of the rail network where views are transitory but the surrounding landscape forms part of the experience; and</li> <li>d. People at their place of work where views contribute to the quality of working life.</li> </ol>
Low	<p>People passing through the area at higher speeds or where their attention is not focused on their surroundings. These are likely to include, but are not limited to:</p> <ol style="list-style-type: none"> <li>a. People travelling at higher speeds on the major road network;</li> </ol>

Classification	Visual Susceptibility Criteria
	<ul style="list-style-type: none"> <li>b. People engaged in outdoor sport or recreation which does not depend on an appreciation of views of the landscape; and</li> <li>c. People at their place of work where the setting is not important to the quality of working life / focus is on work and not their surroundings.</li> </ul>

### Visual Sensitivity

2.4.14 The sensitivity of a visual receptor is derived from a combination of value and susceptibility. A description of sensitivity is provided in Table 6. Generally, value and susceptibility are given even weightings when combined, however, every situation is different and professional judgment will be applied to determine if the weighting deviates from this. Visual sensitivity can also be expressed as the intermediate levels of 'low-medium' and 'medium-high'.

**Table 6: Visual Sensitivity Description**

Classification	Visual Sensitivity Description
High	People with a particular interest or appreciation of a high quality view, for example people visiting promoted viewpoints or designated landscapes, residents with high quality views, or people visiting heritage assets or other attractions where the view is an important contributor to the experience.
Medium	People with a general interest or appreciation of the view and/or a view of moderate quality elements that may be important to the local community value.
Low	People whose interest or appreciation of the view is secondary to the activity or short in duration, for example motorists travelling at high speeds along the major road network, or a view of limited value.

## 2.5 Magnitude of Effect

2.5.1 GLVIA3 notes that magnitude is informed by combining considerations of the scale, extent, ~~and~~ duration and reversibility of an effect (Ref. 1 Paragraph 3.28).

### Duration and Reversibility of Landscape and Visual Effects

~~2.5.1~~ 2.5.2 This assessment considers the duration of effects as:

- a. Short term: 0–2 years;
- b. Medium term: 2–5 years; and
- c. Long term: over 5 years.

2.5.3 The reversibility of a change is considered to be either reversible, partially reversible or permanent.



## Magnitude of Landscape Effects

2.5.4 Magnitude of landscape effects would be drawn from a combined assessment of duration and reversibility, the parameters of which are noted above, as well as an assessment of size/scale and geographical extent.

2.5.5 Indicators of a lower or higher size/scale of landscape change are shown below:

<u>Lower Size / Scale of Effect</u>		<u>Higher Size / Scale of Effect</u>
<u>Subtle or very slight alteration to the aesthetic or perceptual aspects of the landscape receptor. Could be through the addition or removal of features. Likely to cause limited impact on key characteristics.</u>	←→	<u>Partial or substantial alteration to the aesthetic or perceptual aspects of a landscape receptor through the addition or removal of features. Likely to affect key characteristics.</u>

2.5.6 Indicators of a lower or higher geographical extent over which landscape effects will be felt are shown below:

<u>Smaller Geographical Extent</u>		<u>Larger Geographical Extent</u>
<u>Likely to affect a small or limited area of a landscape receptor.</u>	←→	<u>Likely to affect a large proportion of the landscape receptor.</u>

2.5.2 Table 7 sets out the criteria used to determine the magnitude of landscape effects.

This is reached via a combination of size/scale of effect, geographical extent, and duration and reversibility, with size/scale of effect being the most important factor. **Table 7: Landscape Magnitude of Effect Criteria**

<b>Classification</b>	<b>Landscape Magnitude of Effect Criteria</b>
High	Substantial alteration to the aesthetic or perceptual aspects of the landscape receptor through the addition or removal of features. Likely to affect a large proportion of the receptor. Likely long term but may be reversible.
Medium	Partial alteration to the aesthetic or perceptual aspects of the landscape receptor through the addition or removal of features. Likely to affect a moderate extent of the receptor. Likely medium or long term but may be reversible.
Low	Subtle alteration to the aesthetic or perceptual aspects of the landscape receptor through the addition or removal of features. Likely to affect a small proportion of the receptor. Likely short or medium term but may be reversible.
Very Low	Very slight alteration to the landscape receptor which may impact a limited area or no key characteristics. Likely short or medium term but may be reversible.

Classification	Landscape Magnitude of Effect Criteria
None	No change to the physical or perceptual qualities of the landscape receptor.

## Magnitude of Visual Effects

2.5.7 Magnitude of visual effects would be drawn from a combined assessment of duration and reversibility, the parameters of which are noted above, as well as an assessment of size/scale and geographical extent.

2.5.8 Indicators of lower or higher size/scale of visual change are shown below:

<u>Lower Size / Scale of Effect</u>	<u>Higher Size / Scale of Effect</u>
<u>Barely perceptible or subtle change to the existing view due to the limited loss of characteristic features or the addition of new features. Change may occupy a small portion of the available view, for example at an oblique angle, or views which are screened, glimpsed or seen at a distance.</u>	<u>Substantial alteration to the composition of the existing view through the loss of characteristic features or introduction of new features. Change may occupy a large portion of the available view, for example direct views, or views which are open and close.</u>

2.5.9 Indicators of a lower or higher geographical extent over which visual effects will be felt are shown below:

<u>Smaller Geographical Extent</u>	<u>Larger Geographical Extent</u>
<u>A smaller extent of the visual receptor is affected, for example from limited windows of a house or from part of a footpath or road.</u>	<u>A larger extent of the visual receptor is affected, for example from a large number of windows from a house, including ground floor windows, and from long lengths of footpaths or roads.</u>

2.5.32.5.10 Table 8 sets out the criteria used to determine the magnitude of visual effects. This is reached via a combination of size/scale of effect, geographical extent, and duration and reversibility, with size/scale of effect being the most important factor.

**Table 8: Visual Magnitude of Effect Criteria**

Classification	Visual Magnitude of Effect Criteria
High	Substantial alteration to the composition of the existing view (e.g. widespread loss of characteristic features or the addition of new features within the view) and/or high degree of exposure to view (e.g. long-term, close, direct, or open views). Likely long term but may be reversible.
Medium	Partial change to the composition of the existing view (e.g. noticeable loss of some characteristic features or the

<b>Classification</b>	<b>Visual Magnitude of Effect Criteria</b>
	addition of new features within the view) and/or medium degree of exposure to view (e.g. medium-term, middle-distance or partially screened views). Likely medium or long term but may be reversible.
<b>Low</b>	Subtle change to existing view (e.g. limited loss of characteristic features or the addition of new features within the view) and/or low degree of exposure to view (e.g. medium term, long-distance, substantially screened or glimpsed views). Likely short or medium term but may be reversible.
<b>Very Low</b>	Barely perceptible change to the existing view and/or very brief exposure to view.
<b>None</b>	No change to visual amenity/views.

## 2.6 Significance of Effect

2.6.1 The significance of landscape and visual effects has been determined by considering the relationship between the sensitivity of the receptor and the magnitude of effect. Table 9 provides a guide showing how these two elements are combined. However, this conclusion is principally made on professional judgement. Where this differs from the guide provided a reasoned explanation is provided within the assessment.

**Table 9: Level of effect guide**

<b>Sensitivity</b>	<b>Magnitude of Effect</b>				
	<b>High</b>	<b>Medium</b>	<b>Low</b>	<b>Very Low</b>	<b>None</b>
<b>High</b>	Major	Major or Moderate	Moderate or Minor	Moderate or Minor	Neutral
<b>Medium-High</b>	Major or Moderate	Major or Moderate	Moderate or Minor	Minor or Negligible	Neutral
<b>Medium</b>	Major or Moderate	Moderate	Moderate or Minor	Minor or Negligible	Neutral
<b>Low-Medium</b>	Moderate or Minor	Moderate or Minor	Minor	Negligible	Neutral
<b>Low</b>	Moderate or Minor	Moderate or Minor	Minor or Negligible	Negligible	Neutral

2.6.2 Following identification of the level of effect, an assessment of significance is provided. Major and moderate effects (adverse or beneficial) are typically considered to be significant. Minor, negligible, and neutral effects are considered not significant.

### 3. Cumulative Landscape and Visual Assessment

- 3.1.1 The methodology for the cumulative assessment follows that contained within GLVIA3. The landscape and visual baseline for the LVIA considers existing development, whereas the cumulative assessment considers the potential baseline of consented and proposed developments.
- 3.1.2 The cumulative assessment is a high-level exercise. GLVIA3 (Ref. 1) (Paragraph 7.13) acknowledges that *“assessing combined effects involving a range of different proposals at different stages in the planning process can be very complex”*. It also acknowledges that there is a high degree of uncertainty regarding when undertaking a combined approach as it is not the role of this LVIA to assess the effects of other projects. Paragraph 7.13 goes on to note that *“the assessor will not have assessed the other schemes and cannot therefore make a fully informed judgement”*. As such, this cumulative assessment takes an additional approach whereby the additional effects of the Scheme are judged against a baseline containing the cumulative developments.
- 3.1.3 An assessment of the additional cumulative landscape and visual effects of the Scheme alongside other cumulative developments within the Solar PV Site Study Area and Grid Connection Corridor Study Area has been undertaken for each of the landscape and visual receptors identified within the LVIA.

#### Identification of Cumulative Developments

- 3.1.4 The cumulative developments to be considered in combination with the Scheme was prepared and shared with City of Doncaster Council, North Yorkshire Council and East Riding of Yorkshire Council and are listed in **ES Volume I Chapter 15: Cumulative Effects and Interactions [EN010152/APP/6.1]** and presented in **ES Volume II Figure 15-3: Location of Short List Schemes [EN010152/APP/6.2]**. The assessment has been made with reference to the methodology and guidance set out in **ES Volume I Chapter 5: Environmental Impact Assessment Methodology [EN010152/APP/6.1]**.
- 3.1.5 GLVIA (Ref. 10-12) Paragraph 7.10 states that *“In most cases the focus of the cumulative assessment will be on the additional effect of the project in conjunction with other developments of the same type”* whilst also noting that *“In some cases, development of another type or types will be relevant”*. Since the Scheme comprises elements that are sector specific in their design and spatial parameters (for example Solar PV Panels and BESS Area), they are distinct from the scale, materiality and activity typically involved in wider development typologies. As such the potential impact on landscape character and visual amenity will vary. As such, this cumulative assessment adopts the guidance provided for the majority of cases and therefore considers effects that may arise from other solar, battery and energy developments, as shown on **ES Volume II Figure 15-3: Location of Short List Schemes [EN010152/APP/6.2]**.
- 3.1.6 The cumulative assessment identified the areas where the predicted landscape and visual effects of the Scheme could interact with effects arising

from other cumulative developments on the same landscape or visual receptor on a spatial and/or temporal basis.

- 3.1.7 Where the Scheme has been found to result in a negligible effect on landscape character or visual amenity, the associated receptor is not considered further as part of the cumulative assessment.

### **Magnitude of Cumulative Effects**

- 3.1.8 The cumulative assessment for each landscape and visual receptor considers the additional effects of the Scheme when judged against a baseline containing the cumulative developments.
- 3.1.9 The sensitivity of each receptors remains the same as was reported in the LVIA. The magnitude of cumulative effect is judged against the same criteria defined in Table 7 and Table 8.
- 3.1.10 Given the uncertainty associated with the programme of cumulative developments, it has been assumed that construction of cumulative developments would be concurrent with the construction of the Scheme. This would represent an unlikely worst-case scenario. If construction were to not occur simultaneously, then the reported cumulative effect would be reduced.

### **Significance of Cumulative Effects**

- 3.1.11 As with the LVIA, the assessment of cumulative effects results from a combination of sensitivity and magnitude. Where a cumulative landscape and visual effect is identified over and above those set out in the LVIA, this will be identified and described as major, moderate, minor, negligible or neutral. In the context of the EIA Regulations, major and moderate are considered to be significant.

## 4. Relationship to Glint and Glare Assessment

- 4.1.1 Glint and glare resulting from the Scheme has potential to contribute to landscape and visual effects. Consideration of glint and glare has therefore been incorporated into the assessment of magnitude of effect and, where applicable, referenced within the assessment tables in **ES Volume III Appendix 10-5: Landscape Assessment [EN010152/APP/6.2]** and **ES Volume III Appendix 10-6: Visual Assessment [EN010152/APP/6.2]**.

## 5. Relationship to Residential Visual Amenity

- 5.1.1 The LVIA has assessed the potential visual effects to different types of visual receptor, including residents, i.e. private views. With reference to the Landscape Institute's Technical Guidance Note 2/19: 'Residential Visual Amenity Assessment' (Ref. 9), the Residential Visual Amenity Threshold is considered as to whether: *"the effect of the development on Residential Visual Amenity of such nature and / or magnitude that it potentially affects 'living conditions' or Residential Amenity."*
- 5.1.2 The guidance is based upon a 'four' stage approach. Stages 1 to 3 accord with the above LVIA methodology, whereby, in line with GLVIA3, visual receptors are identified, along with the magnitude of impact and the significance of effect.
- 5.1.3 The fourth step is a more detailed examination of views from residential properties, where appropriate, when the highest 'significance of effect' levels are identified via stages 1 to 3. Although, as stated by the guidance, there are no 'hard and fast rules' as to making a judgement on the Residential Visual Amenity Threshold. Therefore, if at Year 15 of operation and maintenance, i.e. post the establishment of the proposed mitigation there are residential receptors predicted to experience the highest level of significant adverse effects (i.e. major adverse), a Residential Visual Amenity Assessment (RVAA) would be undertaken. As major adverse visual effects are unlikely for residential receptors as a result of the Scheme, an RVAA has not been undertaken.



## 6. Zone of Theoretical Visibility Methodology

- 6.1.1 ZTVs have been modelled using the 'Viewshed' tool in ESRI ArcMap GIS Software. ~~A bare earth ZTV was prepared using Environment Agency Lidar digital terrain model (DTM) data of 1 m resolution. ZTVs were generated using Environment Agency 1 m Lidar Digital Terrain Model (DTM). The DTM was resampled to a cell size of 2 m. These models do not take into account the screening effect of vegetation, buildings and other structures. Existing buildings have been incorporated into the DTM from OS MasterMap and OS VectorMap Local, both with an assumed height of 7.5 m. Woodland has been incorporated into the DTM from the National Forest Inventory (NFI) with an assumed height of 12 m alongside trees / hedgerows with trees / lines of trees from the National Tree Map (NTM) with an assumed height of 4m. The ZTV is based upon a grid of points at 50m intervals within the Solar PV Area, On-Site Substation, and BESS Area, with assumed maximum heights of 3.5 m, 13 m, and 3.5 m respectively. The assumed observer eye height is 1.6 m. All heights mentioned are above ground level (AGL) unless otherwise specified.~~
- 6.1.2 ~~The ZTV that accounts for surface features, such as existing buildings and woodland, was prepared using Environment Agency digital terrain model (DTM) of 2 m resolution. Features that provide screening were then added using National Forest inventory data and Ordnance Survey Mastermap building data with assumed heights of 12 m and 7.5 m respectively. For all the ZTVs, an assumed viewing height of 1.6 m above ground level has been used to simulate the eye level of a person of average height.~~
- 6.1.2 The use of vegetation as a screening feature within ZTVs has some limitations. Screening by vegetation does not take into account seasonal variations as it is represented on a ZTV as a solid screen. This would be more representative of a Summer scenario when vegetation is in leaf and creates a more solid screening effect. Furthermore, a blanket assumption of 4m has been applied to all vegetation outside of woodland blocks, including trees and hedgerows. This will create an under-representation in some instances where vegetation is higher, and an over-representation in some instances where vegetation is lower. In some cases, where vegetation is limited to just an individual or row of trees, the ZTV does not take account of the ability to see through bare trunks below the canopy level.
- 6.1.3 The ZTV is intended to be a starting point for the identification of visual receptors and representative viewpoints. This was followed up by fieldwork during winter conditions to confirm actual visibility.
- 6.1.36.1.4 The proposed Solar PV Panels, Field Stations, BESS Area, On-Site Substation and permanent plant buildings have been modelled as part of the ZTV. The outputs of the ZTV analysis are presented in **ES Volume II Figure 10-6: Screened Zone of Theoretical Visibility – Solar PV Panels [EN010152/APP/6.2]**, **ES Volume II Figure 10-7: Screened Zone of Theoretical Visibility – On-Site Substation and BESS Area [EN010152/APP/6.2]** and **ES Volume II Figure 10-8: Screened Zone of Theoretical Visibility – Solar PV Site (All Features) [EN010152/APP/6.2]**.

## 7. References

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- Ref. 9 Council of Europe Landscape Convention (n.d.). Definition and Legal Recognition of Landscapes. Available at:  
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