

# **Landscape Visual Impact Assessment**

Land West of The Energy Coast  
Business Park – Wind Turbine  
Repowering

Windlend (Cumbria) Limited



<b>Document Information</b>		
Document title:	<i>Landscape Visual Impact Assessment: Land West of the Energy Coast Business Park</i>	
Date of issue:	<i>17/11/2023</i>	
Status:	Approved	
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<b>Version</b>	<b>Date</b>	<b>Purpose of amendment</b>
01	<i>17/11/2023</i>	Original document for Client Review
02	<i>30/11/2023</i>	Amended Client comments
03	<i>09/01/2024</i>	Amended LVA Visualisation

## Summary

The Proposed Development consists of repowering an existing wind turbine to generate green renewable energy. The Proposed Turbine will have a tip height increase of 30.5m when compared with the tip height of the existing wind turbine.

The pre-existing wind turbine is currently sited adjacent to an industrial estate for 'The Energy Coast Business Park', which consists of several large structures and areas of extracted material. The views from Haile and Bleas Road to the National Park all include the wind turbine and the industrial estate, as well as three smaller existing turbines, located to the north-west of Yeorton Hall farm. Within the long-distance views the industrial zone of Sellafield is incredibly prominent, with tall structures (in process of being decommissioned) and large fences. The main A595 Road is part of the industrial haulage route network, and while utilised by tourists, tourism in Cumbria and the Western Lake District is primarily seasonal.

The most substantial receptors are the local residents of Haile, Oaklands, The Old Reservoir and Beckermeth, due to the elevated size of the turbine. However on the site visit from all viewpoints, the larger industrial features, such as the Energy Coast Business Park and Sellafield, as well as the main A595 road are visible to varying degrees, reducing the overall sensitivity.

There is likely to be short term effects as a result of the construction and decommissioning phases, most likely to be that of the transport routes and the erection of the wind turbine, with limited effects during the operational phase, associated with occasional maintenance.

The landscape as such can therefore accommodate the Proposed Wind Turbine.

# Table of contents

Summary .....	3
Table of contents.....	4
1. Introduction.....	6
2. Aims and Methodology .....	7
2.1. Guidance.....	8
2.2. Key Stages of the LVA .....	8
2.3. Duration and Reversibility .....	9
2.4. Zone of Theoretical Visibility.....	10
2.5. Photography and Visualisations.....	10
3. Identification of Landscape Effects .....	11
3.1. Sensitivity of Landscape Receptors .....	11
3.2. Landscape Value .....	11
3.3. Landscape Susceptibility .....	11
3.4. Landscape Magnitude of Change .....	11
4. Identification of Visual Effects .....	14
4.1. Sensitivity of Visual Receptors .....	14
4.2. Value of View.....	14
4.3. Susceptibility of View.....	14
4.4. Visual Magnitude of Change.....	14
5. Cumulative Effects.....	16
5.1. Judging the Levels of Effect .....	16
6. Baseline Conditions .....	18
6.1. Landscape Baseline .....	18
6.2. Landscape Character Types .....	18
6.3. Historic Landscape Characterisation.....	19
6.4. Residential .....	20
6.5. Infrastructure .....	21
6.6. Industrial and Cumulative .....	22
7. Visual Baseline.....	24
7.1 Landscape Receptors.....	26
7.2 Residential Receptors .....	26
7.3 Route Receptors .....	30

7.4	Future Baseline .....	32
8	Potential Effects .....	33
9	Assessment of Effects .....	34
9.1	Landscape .....	34
9.2	Residential Properties .....	35
9.3	Route Receptors .....	36
10	Summary and Conclusion .....	38
11	Bibliography .....	39
Appendix A.	Council Viewpoints Photographs .....	40
Appendix B.	Viewpoint 7 Visualisation .....	44
Appendix C.	Additional Figure .....	45

# 1. Introduction

Locogen have been commissioned by Windlend (Cumbria) Limited ('The Client') to produce a Landscape and Visual Impact Assessment (LVA) to support a planning application for the repowering of a single Wind Turbine and associated infrastructure Land West of the Energy Coast Business Park Copeland Council ('The Proposed Development').

The Proposed Development is not considered to be an Environmental Impact Assessment (EIA) development as agreed through consultation with Cumberland Council. Therefore, this report has been prepared in accordance with the principles set out in the Guidelines for Landscape and Visual Impact Assessment, Third Edition (GLVIA3) (Landscape Institute, Institute of Environmental Management and Assessment (IEMA), 2013), and professional judgement is applied to the assessment of effects and a reasoned justification presented in respect of the findings.

Photography for Viewpoints 1 - 5 was supplied by Locogen to NatureScot and Landscape Institute photography standards for Landscape and Visual Impact Assessments (LVIAs) as set out in the GLVIA3.

Visualisations and Zone of Theoretical Visibility (ZTV) mapping have been produced by the Locogen GIS team, experienced in the provision of GIS mapping, visualisations, and analytical services to all stages of the renewable energy project life cycle.

The aim of the development of is to maximise the generation of renewably sourced electricity from the Site through re-powering the asset at the Site by installing a larger dimensioned replacement wind turbine.

The Proposed Development Site is located National Grid Reference (NGR) NY 02329 08344 with the initial expectation being that any new turbine would be located within c.20m from the existing turbine to allow for construction to take place alongside operation of the existing turbine to minimise operational downtime. It is sited adjacent a pre-existing industrial park associated with the West Cumbria Energy Coast.

The project will comprise the re-powering of an existing 46.5m high (blade to tip) wind turbine which has been in operation since 2015. This will involve replacing it with a taller 3 blade wind turbine measuring 77m high (base to tip) along with associated infrastructure for a further period of 30 years.

## 2. Aims and Methodology

The aim of the LVA is to identify, predict and evaluate potential effects arising from the addition of the Proposed Development on landscape and visual amenity.

This report is accompanied by the following figures produced by Locogen graphics and GIS:

- (Figure 1) 8382-DRW-PLN-0001-Location Plan-v1
- (Figure 2) 8382-DRW-PLN-0002-Proposed Site ZTV-v1
- (Figure 3) 8382-DRW-PLN-0003-Comparative ZTV-v1
- (Figure 4) 8382-DRW-PLN-0004-Cumulative ZTV-v1
- (Figure 5) 8382-DRW-PLN-0005-Sensitive Receptors-v1
- (Figure 6) 8382-DRW-PLN-0006-Viewpoint Locations-v1
- (Figure 7) 8382-Yeorton WindFarm Visualisations-V1

There is an additional figure attached in Appendix C:

- Figure a: Landscape Character Types (Cumbria County Council 2023).

The following wirelines (Figure 7) were created from five viewpoints as identified in consultation with Cumberland Council:

- **Viewpoint 1:** Views across towards the site from Haile Park (residential estate within the village);
  - WFPM-0001a- Viewpoint 01: Facing west from Residential Estate towards pre-existing and Proposed Turbine;
  - WFPM-0001b- Viewpoint 01: Cumulative Visualisation of pre-existing turbine, Proposed Turbine and the Yeorton Hall turbines;
  - WFPM-0001c- Viewpoint 01: Visualisation of Proposed Turbine from the residential estate;
- **Viewpoint 2:** Approach road to Haile village from Blackbeck Roundabout;
  - WFPM-0002a- Viewpoint 02: Facing NW from Blackbeck Roundabout towards pre-existing Turbine and cumulative turbines.
  - WFPM-0002b- Viewpoint 02: Cumulative Visualisation of pre-existing turbine, Proposed Turbine and the Yeorton Hall turbines;
  - WFPM-0002c- Viewpoint 02: Visualisation of Proposed Turbine from Blackbeck Roundabout;
- **Viewpoint 3:** Views from the Old Reservoir, (residential conversion);
  - WFPM-0003a- Viewpoint 03: Facing south from Old Reservoir with pre-existing turbine and cumulative turbines;
  - WFPM-0003b- Viewpoint 03: Cumulative Visualisation of pre-existing turbine, Proposed Turbine and the Drigg Moorside and Petersburg farmstead turbines;
  - WFPM-0003c- Viewpoint 03: Visualisation of Proposed Turbine from Old Reservoir
- **Viewpoint 4:** Approach to the Energy Coast Business Park industrial estate;
  - WFPM-0004a- Viewpoint 04: Facing NW from entrance to Energy Coast Business Park with pre-existing turbine and cumulative turbines;
  - WFPM-0004b- Viewpoint 04: Cumulative Visualisation of pre-existing turbine, Proposed Turbine and the Yeorton Hall turbines;
  - WFPM-0004c- Viewpoint 04: Visualisation of Proposed Turbine from entrance to the Energy Coast Business Park;
- **Viewpoint 5:** Oaklands Residential Estate.
  - WFPM-0005a- Viewpoint 05: Facing north from the A595 entrance to Oaklands/ B5345 Thornhill Cemetery with pre-existing turbine and cumulative turbines;
  - WFPM-0005b- Viewpoint 05: Cumulative Visualisation of pre-existing turbine and Proposed Turbine;
  - WFPM-0005c- Viewpoint 05: Visualisation of Proposed Turbine from the A595 entrance to Oaklands/ B5345 Thornhill Cemetery.

An additional visualisation was taken (VP6, Figure 6) from Braystones Tower, however no wirelines were produced, and it was determined that due to distance and surrounding infill of the Tower, including Sellafield to not be a sensitive receptor. It is discussed below in Section 7.2.

A visualisation was requested by Cumberland Council in December 2023 from Sheepfields Farm, located at NGR: NY 03717 07843. This is Viewpoint 7 which is considered within Section 7.2 with the viewpoint included at Appendix A and a visualisation within Appendix B. As with Viewpoint 6 no wirelines were produced for this view as it was determined that due to the distance from the proposed repowered wind turbine this is not a sensitive receptor.

## 2.1. Guidance

In addition to GLVIA3, this LVIA takes account of the following guidance documents:

- Cumbria Wind Energy Supplementary Planning Document (2007);
- Copeland Wind Energy Technical Document (2022);
- Copeland Local Plan 2021-2038 Appendix D: Suitable Areas for Wind Energy Development (2022);
- GLVIA3 Statement of Clarification 1/13 10-06-13 (Landscape Institute, 2013);
- Landscape Character Assessment, Guidance for England, and Scotland, (The Countryside Agency and Scottish Natural Heritage (SNH) 2002 Edition);
- Technical Guidance Note 02/21, Assessing landscape value outside national designations (Landscape Institute, 2021)
- Visual Representation of Wind Farms, Version 2.2, (SNH, 2017);
- Technical Guidance Note 06/19, Visual Representation of Development Proposals (Landscape Institute, 2019)

The Cumbria Wind Energy Supplementary Planning Document (SPD) was adopted in in 2007, and is still an active document for the guidance of wind energy design, siting, cumulative and landscape effects. The Copeland Wind Energy Technical Document (ETD) was produced by Copeland Borough Council to support policy CC2PU of the Copeland Borough Local Plan (2021-2038). The SPD (Part 1 and Part 2) and ETD are referenced through the text, and should be used alongside the project Planning Statement.

## 2.2. Key Stages of the LVA

Assessing the potential effects of the Proposed Development on landscape and visual amenity requires a number of stages. These are broadly summarised as follows:

- Establish a suitable study area for undertaking the assessment of the Proposed Development;
- Identify the landscape and visual receptors affected by the Proposed Development;
- Determine the sensitivity of each receptor or group by evaluating the value and susceptibility of the receptor to the Proposed Development;
- Establish the magnitude of change that would result from the Proposed Development considering factors such as the size and scale of the proposed change, the geographical extent, duration, and reversibility of the change; and
- Determine and evaluate the nature of the effect

### 2.2.1. Study Area

The study area for the Proposed Development has been set at 15 km radius around the proposed site boundary. This is based on a combination of analysis of ZTV mapping (see Figures 2-4), which identified areas where the Proposed Development would theoretically be visible, combined with a site visit which confirmed the proposed site lies in an area of relatively higher ground with key views to the south, and east, adjacent to a pre-existing industrial park which includes comparatively high buildings for the surrounding area.



This process also identified those areas where no visibility occurred, which allowed some landscape and visual receptors to be scoped out of the various selected receptor lists, to be no longer considered for further assessment.

A full Cultural Heritage setting assessment of Designated (statutory) assets was undertaken in the accompanying Cultural Heritage and Archaeology desk-based assessment (Talbot 2023) and as such has not been replicated here. Reference has been made where there is receptor overlap.

### **2.2.2. Identification of Landscape and Visual Receptors**

Once the study area has been defined, the next step is to establish how the Proposed Development may give rise to landscape and visual effects. This is established through an understanding of the following:

- Project Development components in respect of potential effects on landscape and visual amenity;
- ZTV mapping: to establish the extent of theoretical visibility (see Figures 2-4);
- Desk-based Study: A desk-based study has been undertaken to identify landscape and visual receptors; and
- Field work: to verify landscape and visual receptors identified in the desk-based study.

This forms the basis of the assessment and aids the identification of the landscape (Landscape Character Types (LCTs), and designated landscapes), and visual baseline likely to be affected, referred to as landscape and visual receptors.

### **2.2.3. Field Survey**

Site visits were undertaken periodically between July 2023 and October 2023 during periods of good visibility and included visits to the following locations:

- Proposed site to verify landscape features within the application boundary;
- Publicly accessible locations within the wider 15 km study area;
- Viewpoint locations to micro-site for photography, undertake baseline photography, record baseline views,
- Residential properties from publicly accessible locations;
- Settlements identified by the ZTV as potentially receiving theoretical visibility; and
- Route receptors including driving on roads and walking on Core Paths.

## **2.3. Duration and Reversibility**

The duration and reversibility of landscape and visual effects is based on the period over which the Proposed Development is likely to exist (during construction and operation), and the extent to which it would be removed (during decommissioning) and the effects reversed at the end of that period as follows:

- Permanent: The introduction of project components that will not be decommissioned, removed, or reinstated;
- Temporary: The introduction of project components that will be time limited such as during construction or decommissioning works as follows:
  - Long-term: more than 10 years;
  - Medium-term: six to 10 years; and
  - Short-term: one to five years.

Reversibility is related to whether the change can be reversed at the end of the development's lifecycle (including the end of construction or decommissioning which would be short term reversible). For example, operational effects related to the presence of wind turbines are considered to be reversible as they will be removed during decommissioning at the end of the operational lifespan.

## 2.4. Zone of Theoretical Visibility

ZTVs have been generated to aid the understanding of the extent of theoretical visibility of the Proposed Development and have informed the extent of the study area and identification of landscape and visual receptors that are likely to be affected.

ZTVs have been produced to predict where the Proposed Development will be visible within the study area based on the wind turbine tip height and hub height and the current height of the pre-existing turbine in the landscape. The following ZTVs have been produced:

- (Figure 2) 8382-DRW-PLN-0002-Proposed Site ZTV-v1. This depicts the Proposed Turbine which has an expected tip height of 76m and hub height of 46m with no sensitive receptors;
- (Figure 3) 8382-DRW-PLN-0003-Comparative ZTV-v1. This depicts the proposed visibility from the pre-existing turbine with a tip height of 47.5m and hub height of 27.3m, alongside the Proposed Turbine.
- (Figure 4) 8382-DRW-PLN-0004-Cumulative ZTV-v1. This depicts existing wind turbines within the surrounding 5km and 10km landscapes that are within visibility of the Proposed Turbine.
- (Figure 5) 8382-DRW-PLN-0005-Sensitive Receptors-v1. This ZTV noted the following sensitive receptors with presumed visibility from the Proposed Turbine:
  - Assumed Residential Properties;
  - Public Rights of Way (ProW);
  - Listed Buildings;
  - Conservation Areas; and
  - Scheduled Monuments.

These represent the worst-case scenario and over represents the extent of visibility of the Proposed Development. It is important to note, ZTVs indicate areas from where the Proposed Development is theoretically visible within the study area and does not indicate the nature or magnitude of change to landscape or visual amenity.

## 2.5. Photography and Visualisations

Baseline photography has been undertaken by Loco2gen. The following viewpoints requested by Cumberland Council were utilised for visualisations:

- Views across towards the site from Haile Park (residential estate within the village);
- Approach road to Haile village from Blackbeck Roundabout, various locations looking across towards the site;
- Views from the Old Reservoir (residential conversion) and nearby properties at Winscales;
- Approach to the Energy Coast Business Park industrial estate;
- Oaklands, adjacent to A595. Beckermest;
- Sheepfields, located 1.4km south-east of the Proposed Development Site.

### **3. Identification of Landscape Effects**

Assessing the effects of the Proposed Development on the landscape requires a number of steps broadly summarised as identifying sensitivity of the landscape receptors, establishing the magnitude or scale of the change likely as a result of the Proposed Development. Combining these judgements together forms an overall evaluation of the effect.

#### **3.1. Sensitivity of Landscape Receptors**

The sensitivity or nature of landscape receptors is defined by the professional judgement of the interaction between the value of the landscape and its susceptibility to the form of change likely to result from the Proposed Development. Definitions of Very High, High, Medium, and Low and two intermediates of High-medium and Medium-low are used in this LVIA to evaluate sensitivity

#### **3.2. Landscape Value**

Landscape value can be indicated by designation with reference to their importance (international, national, regional, and local level), or with reference to a specific feature or element of the landscape. Landscape value may also be expressed by other factors described in Box 5.1 (GLVIA3, page 84) which can aid the identification of valued landscapes.

Landscape receptors may be valued at an international, national, local and community level. Evaluating landscape value can be very subjective but landscape designations including the designation of landscape elements such as Ancient Woodland for example provide a useful starting point to this process.

Other areas of landscape or landscape elements may not be formally recognised by designation but may still have value, particularly in the local context by most sectors of the community. Landscape planning policy including landscape character assessments and landscape capacity studies can also give an indication of value.

#### **3.3. Landscape Susceptibility**

Susceptibility is defined in paragraph 5.41 of GLVIA3 by the ability of a landscape receptor to accommodate the Proposed Development without undue consequences to the following:

- Overall character or quality/condition of a landscape type/area;
- An individual element and/or feature; and
- A particular aesthetic/perceptual aspect.

#### **3.4. Landscape Magnitude of Change**

GLVIA3 advises that judgements of magnitude of change are assessed in terms of the size and scale, geographical extent, duration, and reversibility of the change likely to result from the Proposed Development. However, the process of combining all three considerations can lead to a distortion of significant effects. For example, a significant effect may be downgraded if a higher rating of magnitude of change based on size and scale is applied, combined with a small geographical area being affected across a short duration. Therefore, for the purposes of this LVA, the magnitude of change will focus on the size and scale of the change occurring and geographical extent over which the change occurs. The duration and reversibility will be stated separately when reporting effects.

The worst-case scenario is considered for the assessment of magnitude of change of all landscape effects. All changes to visibility are considered as they would occur in winter conditions with minimal screening by vegetation and deciduous trees.

The size and scale of the proposed change can refer to individual elements and features (including aesthetic and perceptual elements) that will be lost or changed and the proportion

this represents of the total extent within the landscape, and the contribution that the feature or element makes to the character of the landscape. At a broader scale, the size and scale of the change to landscape character is dependent on the degree to which the character of the landscape is changed or alteration to the key characteristics and is subject to the distance from the Proposed Development.

This refers to the geographical extent over which the landscape change will occur. It is described as being limited at site level, to the immediate site setting (or local area) and to the wider area, across some or all of the Proposed Development area, landscape character or protected and designated landscape affected.

### 3.4.1. Determination of Magnitude of Landscape Change

The relationship between the size, scale and geographical extent are assessed to determine the overall nature of the change resulting from the introduction of the Proposed Development. The duration and reversibility of the change are stated separately. There are six levels of magnitude. High, High-medium, Medium, Medium-low, Low and Negligible/No Change which are outlined in Table 1.

The determination of the magnitude of change additionally considers the distance from the site at its closest point, potential changes to principal views from within and towards the LCT and designated landscape, and potential effects on the integrity of the landscape, including the extent to which it could affect the key characteristics of the LCT or special qualities/attributes of the designation.

**Table 1: Levels of Landscape Magnitude of Change**

Level of Magnitude	Definition of Magnitude
High	The introduction of the Proposed Development would lead to large-scale changes and/or major losses of key landscape features / characteristics, or the addition of large scale or new uncharacteristic features or elements that would alter the character of the landscape or affect the special qualities of a designated landscape.  A large geographical extent or area close to the Proposed Development would be affected.
High-Medium	An intermediate rating where both the High and Medium magnitude of change criteria apply.
Medium	The introduction of the Proposed Development would lead to a medium scale change or loss of some key landscape features / characteristics, or the addition of some new medium scale uncharacteristic features or elements that would partially alter the character of the landscape or affect the special landscape qualities of a designated landscape.  A localised geographical extent at an intermediate distance from the Proposed Development would be affected.
Medium- Low	An intermediate rating where both the Medium and Low magnitude of change criteria apply
Low	The introduction of the Proposed Development would lead to a small-scale change and minor loss of a few landscape features / non key characteristics, or the addition of some new small-scale uncharacteristic features or elements of limited characterising influence on the character of the landscape or special qualities of a designated landscape.  A small partial change to a localised geographical extent at some distance from the Proposed Development.

<p>Negligible-No Change</p>	<p>The introduction of the Proposed Development would result in a very small-scale change that may include the loss or addition of some landscape features of limited characterising influence. The landscape characteristics and character would be unaffected.</p> <p>A very small geographical extent at greater distances from the Proposed Development would be affected</p>
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## **4. Identification of Visual Effects**

Assessing the visual effects of the Proposed Development requires several steps including identifying the sensitivity of the visual receptor, identifying the magnitude or scale of the change to the receptors view, prior to forming a judgement. Combining these judgements together forms an overall evaluation of the effect.

### **4.1. Sensitivity of Visual Receptors**

The sensitivity of visual receptors is defined by the relationship between the value of views and the susceptibility of different types of viewer to the proposed change. This is not formulaic and can be a complex relationship with different combinations possible. Professional judgement is used to evaluate this complex relationship between value and susceptibility to determine the overall sensitivity of the visual receptor to the Proposed Development. Definitions of Very High, High, Medium, and Low and two intermediates of High-medium and Medium-low are used in this LVA to evaluate sensitivity.

### **4.2. Value of View**

Different groups of people attach different levels of value to particular views. Determining the value of a view therefore takes account of the following factors:

- Formal recognition of the view through the presence of planning designations;
- Importance in relation to heritage assets (such as designed views);
- Popularity of the viewpoint; and
- Indicators of the value attached to views by visitors through appearances in promotional tourist literature and the provision of tourist facilities.

Value can also be attributed to the numbers of people using a route receptor or visiting an attraction. For example, a popular attraction is often considered more sensitive than a less visited attraction. However, there are exceptions to this such as motorways and some railway lines which have a higher number of people but are considered to be of lower value; or more remote locations with fewer people visiting but are considered to be of higher sensitivity.

### **4.3. Susceptibility of View**

This aspect of the nature of the receptor refers to the susceptibility of the viewer to the proposed change, not the view. The susceptibility of visual receptors to changes in views is a function of the occupation or activity of people experiencing the view and the extent to which their attention is focused on views.

Viewers of higher susceptibility to changes in views are generally those whose attention or interest is focused on their surroundings, such as residents, walkers, and visitors to attractions.

Viewers of lower susceptibility to changes in views include people travelling on non-scenic routes and people at their place of work whose attention is not on their surroundings and where setting is not important to their quality of working life.

### **4.4. Visual Magnitude of Change**

In accordance with the principles set out in GLVIA3, the nature or magnitude of the change on visual receptors considers the size and scale, geographical extent, duration, and reversibility of the change likely to result from the Proposed Development.

Similar to the landscape assessment of magnitude of change, the visual assessment focusses on the size and scale of the change occurring within the view and the geographical extent over which the change occurs. Duration and reversibility are stated separately in significance of effects.

A worst-case scenario is considered for the assessment of magnitude of visual change. All changes to views are considered as they would occur in winter conditions with minimal screening by vegetation and deciduous trees. ZTVs and wireframes are similarly displayed on the basis of bare ground and therefore demonstrate the maximum extent of visibility possible, in the absence of buildings or vegetation.

The relationship between all of the above factors is assessed to determine the overall nature of the visual change resulting from the introduction of the Proposed Development. This results in six levels of magnitude: High, High-medium, Medium, Medium-low, Low and Negligible/No Change as follows in Table 2.

**Table 2: Levels of Visual Magnitude of Change**

Level of Magnitude	Determination of Magnitude
High	Major visual change which causes a complete or substantial change in the view as a result of loss of important features or the addition of significant new ones, to the extent that the composition of the view is substantially altered. The change is experienced from many locations across the study area, from the majority of a linear route or from most areas within a specific location and/or by a large number of viewers.
High-Medium	An intermediate rating where both the High and Medium magnitude of change criteria apply
Medium	Moderate visual change which causes a noticeable change in the view as a result of the loss of features or the addition of new ones, to the extent that the composition of the view is altered to a moderate degree. The change is experienced from a moderate number of locations across the study area, from a moderate part of a linear route or proportion of an area within a specific location and/or by a moderate number of viewers.
Medium-Low	An intermediate rating where both the Medium and Low magnitude of change criteria apply
Low	Minor visual change which causes a perceptible change in the view as a result of the loss of features or the addition of new ones, to the extent that this partially alters the composition of the view. The change is experienced from a small number of locations across the study area, from only limited sections of a linear route or from a small proportion of an area within a specific location and/or by a small number of viewers
Negligible- No Change	Negligible visual change which causes a barely perceptible change or no change in the view as a result of the loss of features or the addition of new ones, to the extent that this barely alters the composition of the view. The change is either not visible or seen by viewers from only one or two locations across the study area, from very limited sections of a linear route or from hardly any locations within a specific area and/or by only a very small number of viewers.

## 5. Cumulative Effects

The aim of the LVA and cumulative assessment is to identify, predict and evaluate potential key effects arising from the addition of the Proposed Development on landscape character and visual amenity. It must be remembered that there are differences in the baseline against which the assessments are carried out. For the LVIA, the baseline includes operational wind turbines, overhead transmission lines and the Sellafield Nuclear Power Plant (in processes of decommissioning which are present in the landscape at the time of undertaking the assessment).

At the time of assessment, no consented or application developments at the preconstruction phase were identified within the 15 km study area. The addition of the Proposed Development to the existing baseline has however been assessed in the LVIA alongside pre-existing wind turbines within the West Cumbrian Landscape outwith 15km from the Proposed Development Site.

The SPD raises the following regarding Cumulative Effects within the Solway Basin and West Cumbria (2007, Part 1: 30):

- *The experience of tourists in terms of both sequential views from routes such as Cumbria Coastal Way as well as static viewpoints from resorts, holiday parks and viewpoints need consideration.*
- *Prospects from popular open or elevated routes and viewpoints are particularly sensitive such as Hadrian's Wall Trail and outer fell tops within the Lake District National Park.*

Cumulative issues that will need careful consideration by developers include (2007, Part 1: 31):

- *capacity for character change;*
- *effects on international and national designations including landscape, nature and historic environment;*
- *settings of international and national designations;*
- *whether developments are overbearing/dominant;*
- *effects on residents and visitors;*
- *compatibility of small and larger newer turbines; and*
- *seascape character effects.*

### **SPD Guidance 13 (G13, 2007, Part 1: 33)**

*The limiting threshold for cumulative effects and wind energy developments should be based on a well-considered judgement informed by analysis of:*

- *Degree or magnitude of change to an area, feature or species and the nature of the potential change reflecting the inherent sensitivity of the effected area, feature or species.*

### **5.1. Judging the Levels of Effect**

An overall judgement is made on the nature of the receptor and the likely change resulting from the Proposed Development. This judgement is based on evaluations of the individual aspects of value, susceptibility (sensitivity), size and scale, geographical extent, (magnitude). Table 3 below illustrates the main levels of effect that are used in this LVIA; Major, Moderate, Minor and Negligible / No change. Two intermediate combinations are also used for determining effects; Major-moderate and Moderate-minor.

The table is not a prescriptive tool, and the evaluation of potential effects makes allowance for the use of professional judgement and experience. The matrix below is considered as a guide only, and any deviation is clearly explained in the assessment.

As a precautionary approach, all effects on landscape character and visual amenity are considered in this LVIA to be adverse, as a starting point. It should be noted that not all people would experience effects on landscape character, views, and visual amenity of a wind farm as adverse. People's perception of wind turbines vary between negative and positive attitudes.



**Table 3: Determination of Overall Effect Matrix**

Sensitivity to Change	Magnitude of Change					
	High	High-medium	Medium	Medium-Low	Low	No Change-Negligible
Very high	Major	Major	Major-Moderate	Moderate	Moderate-Minor	Minor
High	Major	Major-Moderate	Moderate	Moderate	Moderate-Minor	Minor
Medium	Major-Moderate	Moderate	Moderate	Moderate-Minor	Minor	Minor
Low	Moderate	Moderate	Moderate-Minor	Minor	Minor	No Change/ Negligible

## 6. Baseline Conditions

### 6.1. Landscape Baseline

The assessment of landscape effects of the Proposed Development considers the effect on the landscape as a resource or a group of identifiable receptors. This is undertaken by the establishment of the landscape baseline defined in GLVIA3 as follows:

*'For the landscape baseline the aim is to provide an understanding of the landscape in the area that may be affected – its constituent elements, its character and the way this varies spatially, its geographic extent, its history (which may require its own specialist study), its condition, the way the landscape is experienced, and the value attached to it.'* (Paragraph 3.15, GLVIA3).

For the purposes of this assessment, the landscape baseline will comprise the following:

- Copeland Local Plan 2021-2038 Appendix D: Suitable Areas for Wind Energy Development (2022);
- Cumbria Wind Energy Supplementary Planning Document (SPD 2007);
- Copeland Wind Energy Technical Document (ETD 2022);
- Cumbria Landscape Character Guidance and Toolkit (2011); and
- The Cumbria Historic Landscape Characterisation Database (downloaded from Cumbria HER June 2023), the relevant landscape features of which are detailed below.

The current Site is within an enclosed grassy field, enclosed by hedgerows. There is grassy farmland to the north and south of the Proposed Development Site, with the Cumbrian Energy Coast Business Park located to the east. This is a substantial park, which includes areas of quarrying and extractive industry as well as large buildings, associated with the nuclear development industries. These structures are visible within the local landscape.

The pre-existing turbine at the Proposed Development Site is a Turbowind machine with a hub height of 27.3m and a distance from ground to blade tip of 46.5m.

### 6.2. Landscape Character Types

The Proposed Development Site is within LCT sub-type 5B 'Low Farmland', which borders sub-type 11a 'Foothills', which covers the village of Haile. Both of these LCTS are sensitive to change in the landscape (Figure a).

The key characteristics of LCT sub-type 5B 'Low Farmland' consist of (Wain 2011: 71):

- *Undulating and rolling topography;*
- *Intensely farmed agricultural pasture dominates;*
- *Patchy areas of woodland provide contrast to the pasture;*
- *Woodland is uncommon west towards the coast;*
- *Fields are large and rectangular; and*
- *Hedges, hedgerow trees and fences bound fields and criss-cross up and over the rolling landscape.*

Within the Guidelines section of this character type, *'Energy infrastructure including nuclear and large scale wind energy generation, pylons and substations should be carefully sited and designed to prevent this sub type becoming an energy landscape. Prominent locations should be avoided and appropriate mitigation should be included to minimise adverse affects'* (Wain 2011: 74).

The SPD (2007, Part 2: 4) notes that the *'appropriate scale of development'* within this sub-type is that small-groupings of turbines are acceptable. The ECD (2022: 8) confirms that there is a *'moderate capacity'* within this LCT. The proposed turbine is located within an area designated an *'Overall Suitable Location'* (ECT 2022: 14 and Copeland Local Plan Appendix D 2022: 2).

The bordering LCT sub-type 11a 'Foothills' to the east is the North Pennine scarps, to the south, east and west of the Lake District fells. Its key characteristics are (Wain 2011: 135):

- *Rolling, hilly or plateau farmland and moorland;*
- *Occasional rocky outcrops;*
- *Hills are dissected by numerous streams and minor river valleys;*
- *Areas of improved grassland, unimproved heathland and extensive conifer plantations;*
- *Semi natural woodland in the small valleys; and*
- *Large areas of farmland are bounded by stone walls and hedges.*

The SPD (2007, Part 2: 4) notes that the '*appropriate scale of development*' within this sub-type is that small groupings are acceptable, with large groups being the exception on topographic sweeps.

The village of Haile is sited within LCT sub-type 11a and as such the LCT guidance notes (Wain 2011: 138):

- *Protect village fringes from unsympathetic development;*
- *Protect uncluttered skylines and key views to and from the area from large-scale energy infrastructure developments such as large scale wind turbines, pylons and expansive areas of biomass planting that may erode the character of the area; and*
- *Conserve the rural character of the existing small road network.*

Within this context, the pre-existing turbine is located within the Energy Coast Business Park ('industrial estate') and as such is surrounded to the north-east by several upstanding industrial buildings and material heaps, which are visible in the landscape with the turbine. There are also three smaller wind turbines located to the south of the pre-existing turbine which are clearly defined in the landscape.

The Sellafield nuclear plant is also clearly visible across the wider landscape, including the Lake District National Park World Heritage Site. As such with siting the proposed repowering turbine, Sellafield and the associated industrial park will remain key focal points. As noted in Section 6.6, there are also 27 cumulative wind developments within the 15km.

As such in accordance with the SPD and the ECD, the siting of the proposed turbine is suitable for the landscape character.

### **6.3. Historic Landscape Characterisation**

The Proposed Development Site broadly falls within the type 49 'Western Lake District fell Edge' of the Cumbria Historic Landscape Characterisation project (HLC).

Its key characteristics consist of:

- Low rolling hills;
- Loose settlement nucleation's, such as the medieval settlement of Haile;
- Ancient land enclosures, depicted by stone walls for ancient intake land and Hedgerow field boundaries; and
- Coniferous woodland.

The settlement pattern is dispersed with Haile named as a '*larger regular planned nucleation of medieval origin*' (Newman 2009: 109). The HLC noted that while there are no defined characteristics for the Proposed Development Site, the adjacent environment is formed of 'Extractive' and 'Railway' categorisations (Talbot 2023). These stem from the 19<sup>th</sup> and 20<sup>th</sup> century works at the pre-existing quarrying site, which was the former Beckermeth Iron Ore Mine and associated transportation railway. The surrounding environment is predominantly described as 'Former common arable' (Newman 2009). This type is defined as being *former cultivated common fields* which are recognised by *their slightly curving boundaries and regular, or semi-regular shapes* (Newman 2009: 9). They broadly date from the late medieval or post-medieval

periods with the curving field boundaries formed by the pattern of ploughing for animal-drawn ploughs.

According to the Atlas of Rural Settlement in England the Proposed Development Site is within a lowland terrain zone, within the Cumbria and Solway lowlands and is located within the Cumbrian coalfield.

As such the historic landscape is predominantly agricultural, with areas of 19<sup>th</sup> and 20<sup>th</sup> century mineral and transportation industry. Based on the late-medieval to post-medieval dating of the 'former common arable' there is a moderate potential for the landscape, including that the area around the Proposed Development Site has been farmed since the early-medieval period and earlier.

## **6.4. Residential**

### **6.4.1. Designated Assets**

The closest settlement to the Proposed Development Site is the village of Haile, located 1km north-east which includes eight Listed Buildings. Haile broadly dates from the medieval period as partially evidenced through the Grade II\* Haile Hall.

- NHLE 1084317 Haile Hall Grade II\*;
- NHLE 1086615 Gatehouse Range To South Of Haile Hall Grade II\*;
- NHLE 1063738 Milestone At Ny 033084 Grade II;
- NHLE 1086614 Haile Church (No Dedication) Grade II;
- NHLE 1086616 Orchard Brow Grade II;
- NHLE 1336075 Milestone At Ny 033087 Grade II;
- NHLE 1336076 Woodlands Cottage Grade II; and
- NHLE 1359643 Barn Immediately To South Of Orchard Brow Grade II.

Within 1km of the Proposed Development Site there are 26 residential amenities, outwith the village of Haile. The closest residence to the Proposed Development Site is the Yeorton Hall farmstead which consists of the following Listed Buildings and is located 565m south-east.

- NHLE 1086591 Gatepiers And Wall To South West Of Yeorton Farm Grade II; and
- NHLE 1336062 Yeorton Farmhouse Grade II.

The village of Haile and Yeorton Hall Farmstead have been included as receptors.

The following Designated Assets (statutory) have been included as receptors:

- The Beckermets Conservation Area which includes five Listed Buildings located 1.4km south;
- NHLE 1457600 Beckermets War Memorial located 771m south-west;
- NHLE 1145927 Grade II Braystones Tower located 2.7km south.

The Egremont Conservation Area which includes 14 Listed Buildings and one Scheduled Monument (NHLE 1020455 Egremont Castle), located 2.4km north-west, has been scoped out of the receptor list. On the site visit it was determined that there was no visibility to or from the Proposed Development Site, due to industrial areas to the south-east of Egremont and interruption from the undulating landscape.

The Proposed Development Site is located 2.7km west of the UNESCO Lake District World Heritage Site and National Park. This has been scoped out of being a receptor, due to the western fells themselves forming a visual separation in the landscape between the National Park and the Site. There are also several industrial assets which are also visible from within the National Park boundary, including the pre-existing turbine. As such there will be no substantial change or effect upon the National Park by a singular turbine within a cumulative landscape.

The closest Designated Park and Garden is NHLE 1000669 Grade II\* Muncaster Castle, located 13km south-east of the Proposed Development Site. While within the 15km Study Area, this

asset has also been scoped out of being a receptor, due to the industrial complex of Sellafield, features including the A595 main road, and other singular wind turbines, and the dense coniferous vegetation to the south, forming a cumulative separation between the Proposed Development Site and the Park and Garden.

There are no Designated Battlefields within the 15km radius.

There are a further six Conservation Areas with associated Listed Buildings and Scheduled Monuments within the 15km radius. These have been scoped out of the receptor list, due to no views or direct landscape connection of the Proposed Development Site.

No Scheduled Monuments have been included as receptors, based on the Cultural Heritage setting assessment and site visits from surrounding Scheduled Monuments within 15km. Where there was potential for views, as this Proposed Development is a singular wind turbine within a cumulative landscape, these Scheduled Monuments were scoped out, based on pre-existing views of industrial assets across the landscape.

There are several isolated Listed Buildings within the 15km study area that outlie other Conservation Areas and Scheduled Monuments. Where these have been scoped out in the Cultural Heritage setting assessment, they will not be replicated as receptors.

#### **6.4.2. Residential Receptors**

On the site visits, the village of Braystones, located 2.9km south was noted to have direct visibility of the Proposed Development and as such has been included as a receptor.

There is some potential for the settlement of Blackbeck located 1.3km south-east of the Proposed Development to have visibility, depending on the surrounding vegetation.

The villages of Thornhill, Carleton and Wilton, despite their proximity to the Proposed Development Site had no direct visibility of the Proposed Development due to the localised rising topography causing visual separation.

As well as the residences at Yeorton Hall Farm and the village of Haile the following residential receptors have been examined:

- Oaklands, on the A595; and
- The Old Reservoir Conversion, and associated properties at Winscales.

An additional viewpoint from Sheepfields Farm, located 1.4km south-east of the Proposed Development Site. This has been included as a receptor due to defined views across to the Proposed Development Site.

### **6.5. Infrastructure**

#### **6.5.1. Railways**

There is one active railway within the 15km study area which is the Cumbrian Coast Line, operated by Northern Rail, which runs from Carlise to Barrow in Furness and has stations within the 15km Study Area at Whitehaven, St Bees, Braystones, Sellafield, Seascale, Drigg and Ravenglass. The closest station to the Proposed Development Site is Braystones 2.9km south.

This route has been scoped out from being a receptor, due to the primary views being the coastline, which features the Sellafield industrial zone, rather than inland views towards the Proposed Development.

#### **6.5.2. Roads**

The major road which is included as a receptor is the A595 that starts in Carlise and follows the route of the industrial towns of Workington and Whitehaven, before passing through Egremont, connecting to Sellafield and onwards to Dalton-in-Furness. It is the primary route to the Sellafield

industrial zone from the A66 and the M6 Motorway as well as the main tourist travelled route to the Western Lake District. As such this route is considered a receptor.

### **6.5.3. Cycle Network**

National Cycle Network Route 72 is located 792m west. It forms part of the Hadrian's Cycleway from Ravenglass, around the Western Lake District to Carlisle and onwards to South Shields in Tyne and Wear. The part of this network that lies closest to the Proposed Development Site is the Ravenglass to Whitehaven section. Due to the value of the attractions along this route, focusing on the Roman history of the Region and the potential for visibility from this section of the route, this Network Route is considered a receptor.

### **6.5.4. Public Rights of Way**

There is one Public Rights of Way (ProW's) within 1km of the Proposed Development Site. The main route goes from the A595 and the Energy Coast Business Park, through the Kirk Beck between the Proposed Development Site and Haile and connects to the north of Haile for Carleton and Egremont. There are offshoots of this ProW within the village of Haile towards Blackbeck.

This ProW is primarily used as a footpath for the local community. On the Site Visits there was no indication of tourist use, or any connection to the Coast to Coast walk which begins at St Bees. Based on the dense vegetation surrounding Kirk Beck which provided screening of the ProW, there was no visibility from the footpaths to the Proposed Development Site.

### **6.5.5. Leisure and Recreation**

There are six Caravan Sites within 15km of the Proposed Development, with four within 5km of the Proposed Development at Braystones, Nethertown and Egremont. There is one Caravan Site to the north-west of St Bees, and one at Dockray Meadow, to the south of the villages of Crossgates and Lamplugh. There are three Golf Courses within 15km of the Proposed Development, located at Whitehaven, St Bees and Seascale. There are five Playing Fields and five Sports Grounds within 15km of the Proposed Development, located at Egremont, St Bees, Wath Brow, Whitehaven and Seascale.

There is potential for an effect on the leisure and recreation facilities at Braystones to have visibility of the Proposed Development Site, with the pre-existing turbine visible in the landscape. The sites that may undergo an effect is the Tarnside Park and the Lantern Moss Caravan parks. They are located on the Cumbria coast with key views across the coast. There is relatively little infill between the caravan parks and the Proposed Development Site, however these are not considered to be receptors.

Tarnside Park is located to the south-west of the village of Braystones, with partial view obstruction from Braystones Tarn, as well as glimpsed visibility of Beckermest to the north-east. The Energy Coast Business Park where the pre-existing turbine is located is also visible in the landscape. As such while the pre-existing turbine is visible, the Proposed Development will have a reduced effect, based on existing features in the landscape.

Lantern Moss caravan park is located on the coast to the south of Braystones, and while again has visibility of the pre-existing turbine, has primary views towards the coast, as well as landscape features including the River Ehen, Sellafield industrial Zone and a water treatment site. As such while the pre-existing turbine is visible, the Proposed Development will have a reduced effect, based on existing features in the landscape.

## **6.6. Industrial and Cumulative**

### **6.6.1. Sellafield**

The Sellafield industrial zone ('Sellafield Ltd') is a Nuclear Power Plant undergoing decommissioning and repacking processes of nuclear fuel. It was the largest active Nuclear Power Plant in Europe since its construction in 1947 and is a primary employer in Cumbria and

the North West of England. It covers a footprint of 2 square miles and contains hundreds of buildings, both industrial and domestic. The site was initially chosen as a TNT production facility during World War II prior to its Nuclear industry.

As a result of the size and purpose-built structures and buildings, Sellafield dominates the visual sightlines from the Western Lake District fells in the National Park as well as the surrounding landscape. As a result of the operations at Sellafield, satellite sites have been developed including The Energy Coast Business Park, at which the pre-existing turbine and the Proposed Development Site are located.

As such where receptor viewpoints have included Sellafield and its associated industrial parks, the effect upon the landscape of the singular wind turbine repowering has been diminished. Sellafield itself is not classed as a receptor in this instance. The development of green energy solutions such as wind has the potential to work in tandem with the existing Energy Coast.

### **6.6.2. Extraction Industries**

There is one quarry potentially in-use within 5km of the Proposed Development Site, and two quarries potentially in-use within 10km of the Proposed Development Site, which were associated with the limestone extractive industry. None of these assets are receptors, however the pre-existing industrial nature of the landscape diminishes the effect of a singular wind turbine repowering.

### **6.6.3. Renewable Technologies**

There are 27 additional wind turbines within the 15km study area. These include the Fairfield and Lowca major wind farms, as well as isolated wind turbines. These wind turbines are primarily located on independent farmsteads or to assist in the powering of localised industrial estates. As depicted on Figure 4 there is wide visibility across the 15km landscape of the individual wind turbines and as such the cumulative visibility, reduces the overall impact of the repowering Proposed Turbine on the local landscape.

## 7. Visual Baseline

The assessment of visual effects of the Proposed Development considers the effect on visual amenity throughout the 15 km study area. Visual receptors are people who will be affected by changes in views or visual amenity at different places. They are usually grouped by what they are doing at these places and include:

- people living and working in the area, such as residents and farm workers;
- people who view the Proposed Development sequentially such as those travelling through the area on road, or on Core Paths;
- people visiting promoted tourist attractions and landscapes; and
- people pursuing other recreational activities.

The assessment of visual effects is supported by a series of viewpoint locations which have been chosen to reflect the views of the Proposed Development from different types of receptors including residential properties, roads, and Core Paths.

Viewpoints were identified through consultation with Cumberland Council and following a review of ZTV mapping, site visits and selected where open views of the Proposed Development were available as noted in Table 4. The finalised list of selected viewpoints includes a variety of different types of view to represent the worst-case scenario of views of the Proposed Development. Viewpoints are selected to take account of the viewing experience (such as static views from settlements and sequential views from routes) and as far as possible are representative of the range of key visual receptors and view types (including panoramas, vistas, glimpsed views), as well as being located at varying distances, elevations, and orientations from the Proposed Development.

The Lake District UNESCO World Heritage Site and National Park, while located approximately 2.7km east of the Proposed Development Site has been scoped out of visual effects. This is due to the scale of a singular turbine undergoing re-powering, against the larger landscape features of the Sellafield industrial zone and the visibility from the National Park of other isolated wind turbines within the landscape. As such the long-distance views to the west and south-west towards the Proposed Development encompass larger landscape features, as well as industrial zones, townships and cumulative developments.

Table 4 provides details regarding the viewpoint locations from consultation with Cumberland Council. Viewpoint 6 'Braystones Tower' was included to assist with this report and was not a requested viewpoint.

Viewpoint 7 'Sheepfields' has been requested on further consultation with Cumberland Council.

**Table 4: Selected Viewpoints from Cumberland Council**

VP No.	Viewpoint Name	Easting/ Northing	Distance and Direction (facing)	Receptor
1	Views across towards the site from Haile Park (residential estate within the village)	Location 1- 303314.58/ 508627.50	Location 1- 1.05km SW	Residential, road users
		Location 2- 303321.74/ 508683.53	Location 2- 1.052km SW	



2	Approach road to Haile village from Blackbeck Roundabout,	Location 1- 302463.94/ 507122.38	Location 1-1.28km NW	Road users, tourists, residents
		Location 2- 302558.03/507093.73	Location 2- 1.28km NW	
3	Views from the Old Reservoir, (residential conversion)	302073.72/ 508896.85	637m SE	Residents
4	Approach to the Energy Coast Business Park industrial estate.	302187.82/ 507553.55	790m S	Industrial estate users, Residents of Yeorton Hall Farm
5	Oaklands Residential Estate	301770.93/ 507899.58	718m SW	Residents of Oaklands Estate
6	Braystones Tower	300778.92/ 506009.69	2.8km SW	Grade II Listed Building
7	Sheepfields	3.3684/ 507881	1.4km SE	Residents of Sheepfields

## 7.1 Landscape Receptors

There are two landscape character types (LCT) that may potentially undergo change to their properties as a result of the Proposed Development (Table 5).

**Table 5: Landscape Receptors**

ID	Context	Existing View	Sensitivity
LCT sub-type 5B 'Low Farmland'	This landscape is intensively farmed agricultural land, with pasture being the primary cover, with an 'interlocking matrix' of tree and hedgerows (Wain 2011: 71). The experience of the landscape is influenced by the seasons (Wain 2011). The Proposed Development Site is located on the western boundary of this LCT.	The views from the pre-existing wind turbine take note of the rising Fells to the north-east, with interrupted views to the coastline to the south-east. The village of Haile to the north-east is partially obscured by the existing industrial estate the turbine is sited on. There are limited views to the west and south-west based on the rising pastoral landscape.	This LCT is sensitive to tall infrastructural development, which likely refers to Wind Turbine structures, based on the uninterrupted views to the Western Lake District fells. However on the site visit it was noted that the industrial estate, the Proposed Development is sited on, interrupts the views across to the Fells, with the views to the coastline from the Site are dominated by Sellafield.  As such based on the pre-existing uses and industrial estate of the Site, the sensitivity of this character to accommodating a repowered wind turbine is <b>medium to low</b> .
LCT sub-type 11a 'Foothills'	This character type is defined by its merging landscape from pasture, meadow and enclosed agriculture, to rising moorland and steep slopes, alongside rivers and streams. There are long-ranging views from the higher slopes.	This LCT covers the village of Haile. The key views are to the north-east, towards the park and the south-west towards the coast. From Bleas Road, the LCT 5B 'interlocking matrix' of hedgerows is clearly defined.	This LCT is sensitive to changes in land management and biodiversity, as well as large-scale infrastructure development. In this instance the turbine and associated industrial estate already exists in the landscape, with the views from Bleas Road towards the site, encompassing several other wind turbines in the landscape associated with other farmsteads. Sellafield is also a key landscape feature which further reduces the sensitivity. As such, this LCT has a <b>medium to low sensitivity</b> .

## 7.2 Residential Receptors

Residential receptors are divided into individual residential properties and groups and whole settlements within the study area.

A review of Ordnance Survey and ZTV mapping identified a total of 12 properties/property groups as potentially receiving theoretical visibility of the Proposed Development. All properties are assessed as having a High sensitivity to change as it is considered that people value the view from residential properties and their attention is likely to be on the surrounding landscape. Table 6 lists the properties assessed.

The ZTV has been reviewed to identify properties and property groups that would receive theoretical visibility of the Proposed Development. The table below provides an analysis of each property in relation to the Proposed Development.

**Table 6: Properties Potentially Receiving a View**

ID	Property Group	Context	Existing View	Sensitivity
1	Residents on Hardgates Road	There are six residential properties located along Hardgates Road between Blackbeck Roundabout and Haile. These properties are set back from the road and surrounded by Kirk Beck vegetation to the west. This group includes one farmstead on an elevated section of the road which has clear views of the turbine. Hardgates Road is located 925m east and south.	The pre-existing turbine is clearly visible in the landscape from Hardgates Road as well as the industrial estate it is located on. The key views of the road are to the north and north-west across to Haile and the rural landscape.	The road is primarily used by local residents of Haile and the surrounding villages. Due to the Kirk Beck vegetation to the west, there is partial screening. While the pre-existing turbine is visible, it is closely sited in the existing industrial estate associated with Sellafield, as such the sensitivity of the views has been diminished. <b>The overall sensitivity is low.</b>
2	Yeorton Hall Farmstead	These buildings consist of two Grade II Listed Buildings:  NHLE 1086591 Gatepiers And Wall To South West Of Yeorton Farm Grade II; and  NHLE 1336062 Yeorton Farmhouse Grade II.  They are located on Yeorton Hall farmstead, which is a low lying farmstead, adjacent to the west of Kirk Beck of potentially medieval origin located 597m SE.	There is no view towards the pre-existing turbine from the farmstead due to its low lying location. There are a further three smaller turbines located to the north-west of the farmstead which provide a visual interruption to the north-west. However the principal elevation of the Listed Farmhouse is to the south.	There is potential for the Proposed Turbine to be visible due to its elevated height from the farmstead. As this is a Grade II Listed Farmstead there is a medium-high degree of sensitivity, however based on the site visit, the farmstead is low-lying in the landscape, with no direct visibility to or from the pre-existing, and Proposed Turbine. <b>As such the overall sensitivity is low.</b>
3	Haile Village	Haile Village is a medieval village, located 1km east, with 43 presumed residences, not including Haile Hall on Bleas Road. The buildings are centred around the Main Road on a north-south alignment through the village. The village is inherently rural in character with rustic buildings, and a church set outside the village to the west.	Only the residences on the western boundary of the village have views of the pre-existing turbine and industrial estate. These residences appear to be later in date to the residences in the village. The views to the west are partial due to vegetation surrounding the south-west and west of the village	This is a sensitive receptor as the village is comprised of local residents, many of whom have long term ties to the village and the local environment. However there is unlikely to be further impact to the visual landscape from the proposed turbine, as the pre-existing turbine is already visible, along with the industrial estate it is sited on. As such based on the pre-existing view and partial vegetation screening, the <b>overall sensitivity is medium-high.</b>

4	Old Reservoir and Winscales	The Old Reservoir is a modern conversion of a former reservoir, located on the former site of Winscales Mine. There are no remnants of this in the landscape. There are a further six residences, primarily farmsteads located at Winscales. It is located 652m north-west.	<p>The key view from the Old Reservoir is to the south, towards the coast. The pre-existing turbine is clearly visible from the property, however the industrial estate is not. Sellafield is clearly visible to the south-east, alongside other individual turbines across the landscape to the south-west.</p> <p>There are no views of the pre-existing turbine or industrial estate from the properties at Winscales.</p>	Due to proximity and the potential for view obstruction from the grounds of the Old Reservoir, this is a sensitive receptor. However the view also includes the Sellafield complex. As such the overall sensitivity is <b>medium to high</b> .
5	Residents on Bleas Road	There are 17 properties on Bleas Road that may undergo a change to the view as a result of the Proposed development. The properties at Haile Mill and located in set-back farmsteads have been scoped out on the site visit, due to covering vegetation and low-lying farmsteads. Bleas Road is located circa 1km to 3km north-east.	From Bleas Road, due to its incline from Haile to the National Park there are long distance views to the south, south-west and south-east across to the coast. The pre-existing turbine and industrial estate is clearly visible in the landscape, however other isolated turbines on other farmsteads are also defined, alongside the Sellafield site.	This is a receptor of medium-high sensitivity due to it being a historically rural route, primarily accessed by local residents and agricultural machinery, as well as tourists on route to and from the National Park. However the <b>sensitivity can be reduced to medium</b> based on its wide ranging views which not only encompass the pre-existing turbine with the industrial estate but also other turbines on farmsteads and the Sellafield industrial coast.
6	Residents on Unnamed Road Haile to Calder Bridge	There are approximately 20 properties on this road that may undergo a change to their views as a result of the Proposed Development. Properties set back in isolated farmsteads with surrounding vegetation have been scoped out on the site visits. It is located 1km to 3km south-east.	The existing views from residents on this road are primarily facing the road itself. The majority of residences appear to be farmsteads and associated with agriculture. The pre-existing turbine is visible to the west of the properties from the road, however the industrial estate is also clearly defined. Other isolated wind turbines on other farmsteads are also clearly visible, as is the Sellafield site.	This road is primarily used by local residents of Haile and Calder Bridge, and while has long ranging views, including of the pre-existing turbine, the industrial estate features in the views, alongside other individual turbines on farmsteads and the Sellafield industrial zone. As such this is a <b>medium-low receptor group</b> .
7	Residents on Oaklands residential estate	There are nine properties on the Oaklands residential estate, a group of timber-clad houses with principal elevations to the south, with dense vegetation to the north. They face onto the A595 major road located 709m south-west.	The views are onto the A595 road and the Beckermat cemetery. There are no views of the pre-existing turbine from the A595 or to the north from Beckermat cemetery.	These residences are close to the turbine, however there are currently no views to or from the Proposed Development. There is potential for glimpsed visibility with the increased tip height, however due to current vegetation screening to the north, surrounding the properties, this is likely to be a receptor of <b>low overall sensitivity</b> .

8	Beckermet Village	<p>There are approximately 297 residences in Beckermet Village. The key views in the village are insular, towards the main roads (Cyle Route 72) and Nursery Lane. The properties most likely to be affected are the Mill Fields development, off Mill Lane.</p>	<p>The properties on the Mill Fields residential development are located off Mill Lane, outwith the Conservation Area. Their key views are towards the village of Beckermet and the surrounding countryside, with no current views of the Proposed Turbine.</p> <p>There are no views of the Proposed Turbine from Mill Lane, within the Conservation Area looking north-east.</p> <p>The primary screening to the north-east is the rise of 'Caernarven Castle' (HER 1249, Talbot 2023).</p>	<p>Beckermet Conservation Area is a sensitive receptor, with residences, tourists, and users of Cyle Route 72. However there is a low potential for there to be an effect as a result of the Proposed Turbine due to the rise of the potentially medieval castle ('Caernarven' Talbot 2023) which substantially screens the views to the north east. This screening also entails the properties outwith the Conservation Area, at Mill Fields to not potentially undergo change to their setting as a result of the Proposed Turbine.</p> <p>The A595 Road and Blackbeck Roundabout are also key features in the landscape, along with some views to the south-east of the village of other wind turbines located in the region, with Sellafield industrial zone also noted.</p> <p>As such even with the elevated tip height, the overall sensitivity is reduced to <b>medium-low</b>.</p>
9	Braystones Village and Leisure Parks	<p>There are approximately 35 residences in Braystones, not including the total number of temporary residences at Tarnside and Lantern Moss Leisure Parks. For the village of Braystones, the key views are towards the north-east to Beckermet. The leisure park residences are temporary accommodation that primarily face the coast line. Beckermet is located 1.55km south.</p>	<p>The existing views from the village of Braystones are primarily towards the north-east with the with the pre-existing turbine clearly visible in the landscape. The Grade II (NHLE 1145927) Braystones Tower dates from the 14<sup>th</sup> century, with views to and from the pre-existing turbine.</p> <p>However Braystones also has clear views to the south-east of Sellafield industrial zone, with other pre-existing turbines visible in the landscape on individual farmsteads. There are no views to or from the pre-existing turbine to the leisure parks.</p>	<p>The primary receptors are the residences, which are primarily agricultural, and seasonal tourists who make use of the remote coastal facilities and accessed by the Cumbrian Coast Railway. There is also scope of Anglers to use the River Ehen, which courses alongside Braystones Tower. While there are to and from views of the pre-existing turbine, with Braystones Tower also being a visible structure in the landscape, the views also encompass the Sellafield industrial zone, which reduces the overall sensitivity of the receptor. As such this is a <b>medium-low receptor</b>.</p>
10	Blackbeck Bridge Residences	<p>There are potentially 13 residences within Blackbeck Bridge. This is a small hamlet, which formerly featured an inn. The residences appeared to be long-term with little tourist use. Key views are towards the north and the Cumbrian Fells and the west towards the pre-existing turbine. Blackbeck is located 1.4km south-east.</p>	<p>The pre-existing turbine is clearly visible in the landscape from the former Inn carpark. From the Blackbeck Bridge there is substantial vegetation screening to the west and north-west.</p>	<p>There is likely to be an effect upon Blackbeck Bridge. The key receptors are primarily residences and agricultural workers, with few tourists. The settlement is relatively screened by vegetation from surrounding landscape features, such as Sellafield and other local wind turbines on farmsteads. As such the extended tip height of the pre-existing turbine will be clearly visible, making this a <b>medium-high</b> receptor.</p>

11	Beckermat War Memorial	NHLE 1457600 Beckermat War Memorial is located in Thornhill cemetery located 771m south-west. It is sited to the adjacent south of the A595, opposite the Oaklands residences.	The pre-existing turbine has glimpsed visibility from the cemetery to the north, however the view is interrupted by the A595, and the Oaklands residences. There are also farm buildings visible beyond a vegetation line.	While the War Memorial is a Listed structure and as such is high-medium sensitivity. However its location is adjacent to a busy road with interrupted views to the pre-existing wind turbine. As such this is a <b>medium-low</b> receptor.
12	Sheepfields Farm	Sheepfields Farm is located on an unnamed Road connecting Haile to Calderbridge. It is on a prominent ridge.	The principal elevation of the farmhouse is to the north-east, however from the rear of the property there are clear views to the Proposed Development Site.	As the Proposed Development Site is visible from the rear of the farmstead, this receptor has a medium-high sensitivity. However from the rear of the property, the Sellafield nuclear facility is prominent in the landscape. As such this is a <b>medium-low</b> receptor.

### 7.3 Route Receptors

One road, the A595 and one Cycle Route (72) have been identified for assessment as follows (Table 7).

**Table 7: Route Receptors Assessed**

ID	Context	Existing View	Sensitivity
A595 Road	The A595 starts in Carlise and follows the route of the industrial towns of Workington and Whitehaven, before passing through Egremont, connecting to Sellafield and onwards to Dalton-in-Furness. It is the primary route to the Sellafield industrial zone from the A66 and the M6 Motorway as well as the main tourist travelled route to the Western Lake District.	There is one area on this Route where the pre-existing turbine is clearly visible which is located opposite the B5345 Beckermat cemetery, at easting 301653.75/northing 508035.15, travelling south-east towards Oaklands residences.	This is a major route, which transports tourists along the Western Lake District and the Coastal routes, as well as utilised by local residents and industrial workers. There are many lorry loads that utilise this route as well as cyclists. Once leaving Egremont there are few key features noted on this route, with Sellafield being a large asset towards the south-east, before the route enters the southern and western peninsula's and tourist entities such as Muncaster Castle.  As such based on pre-existing industrial features along the route, such as the towns of Whitehaven and Sellafield, <b>this is a low receptor.</b>
Cycle Route 72	Cycle Route 72 traverses the west Cumbrian landscape, following a route of Roman archaeological and architectural sights, such as Ravenglass Roman sites,	There is a potential view from Cycle Route 72 where the route coincides with the B5345 at Beckermat Cemetery, however this is a brief location. The route primarily	While this route is a sensitive receptor, due to being a major tourist walking and cycling route, taking in the Roman heritage of the region, there is only one area where the pre-existing turbine is visible, and is likely to not be noticed while the route is being traversed. As the

	up to Whitehaven and across to Hadrian's Wall at Solway and Carlisle.	travels on an east-west direction, with the pre-existing turbine viewed to the north and north-east.	route also takes in the industrial area of Sellafield, with views across to other individual turbines in the landscape, the <b>overall sensitivity of this receptor is low.</b>
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## 7.4 Future Baseline

It is likely that the landscape within the Proposed Development will remain rural in character, with occasional green energy technologies emerging as the decommissioning of Sellafield takes place and energy demand is required. It is possible energy generation such as wind turbines could continue to be developed in this area due to the proximity to a grid connection. This would reflect also the identification of the local area as falling within an appropriate location for wind energy development as confirmed by Appendix D of the draft Local Plan.



## 8 Potential Effects

Based on the description of the Proposed Development, the likely sources of landscape and visual impacts that will occur during each phase are as follows (Table 8):

**Table 8: Potential sources of landscape and visual impacts during each development phase**

<b>Construction/ Decommissioning</b>	<b>Operational</b>	<b>Potential Receptors</b> <b>Sensitive</b>
Vehicular/personnel movements, including vehicles associated with the construction/decommissioning travelling in both directions along minor roads onto site	Occasional maintenance activity and vehicular/personnel movements around the proposed site and on local roads.	Views from LCTs and visual receptors
The disturbance of areas of land and surface vegetation during the construction and decommissioning of hardstanding and access tracks, and cable laying.	Access tracks and hardstanding areas.	Physical landscape features. Views from LCTs and visual receptor
Reinstatement of temporary compound track sides, cable trenches following construction, and hardstanding and access roads following decommissioning.	Site monitoring of restoration.	Physical landscape features Views from LCTs and visual receptor

Embedded mitigation is mitigation that has been identified and adopted as part of the evolution of the project design and consultation and has included the following:

- The Proposed Turbine has been located 24.3m south-east of the pre-existing turbine to prevent impact on Ecological Receptors;
- The pre-existing hardstanding, access route and infrastructure (cabling) connections will be retained for the Proposed Turbine and substation.
- The views still encompass The Energy Coast Business Park from Haile, reducing the impact.

## 9 Assessment of Effects

### 9.1 Landscape

The aim of the landscape assessment is to identify, predict and evaluate potential key effects arising from the addition of the Proposed Development into the landscape as an environmental resource. Landscape effects may be caused by changes to the constituent features or elements of the landscape, its aesthetic or perceptual qualities and overall character.

Assessing landscape effects requires the identification of the landscape receptors, the consideration of the nature of the landscape receptors (sensitivity) and the nature of the effect (magnitude) which would be experienced by each landscape receptor as a result of the Proposed Development.

Project components would be located in LCT sub-type 5b 'Lowland', within the existing vegetation enclosed field, and will utilise the existing hardstanding and access route of the pre-existing turbine. As such no impact upon the landscape type, resulting in a **No Change/Negligible** impact.

#### ***Construction/ Decommissioning Phases***

The proposed wind turbine components and infrastructure would be entirely located within the existing field pattern comprising improved grassland cover which is largely defined by vegetation

During construction it would be necessary to upgrade existing access tracks and hardstanding which would be required to act as a temporary compound, the latter being removed following the construction and decommissioning phases. These would cover a limited part of the overall proposed site. Upgraded cable trenches would also be required in order to lay connecting electricity cables from the turbine to the substation and the grid which would all be undergrounded.

With regards to physical effects, these would be limited to agricultural land and would have a **low impact**.

#### ***Magnitude of Effect during Construction***

The geographical area in which the changes would occur is small in respect of the proposed site but owing to the low impact of the installation technique, combined with the low profile of the project elements, the overall size and scale of the change would be Low. Therefore, magnitude of change is assessed as **Low** during the construction and decommissioning phases.

#### ***Overall Effect during Construction***

Sensitivity of the site is considered to be Medium, which combined with a Low magnitude of change, results in a Moderate-Low adverse effect during the construction and decommissioning phases. This would be **short-term in duration and completely reversible** following decommissioning and be confined to the proposed site.

#### ***Operational Phase***

During operation, the existing field structure and land use would be retained. Areas disturbed during construction would be allowed to revegetate.

Potential impacts would be similar to that identified for the construction and decommissioning phases, the main difference being that there would be less activity within the Proposed Development and limited to general maintenance of a wind turbine.

#### ***Magnitude of Change during Operation***

The geographical area in which the changes would occur during operation is small in respect of the proposed site but owing to the low profile of the project elements, the overall size and scale

of the change would be Low. Therefore, magnitude of change is assessed as **Low** during the operational phase.

### ***Overall Effect during Operation***

The siting and details of the Proposed Development aligns with the Council's own guidance (SPD, ETD and Local Plan Appendix D) in being a suitable area for Wind Energy development. As such the Sensitivity of the site is considered to be Medium. When combined with a Medium magnitude of change, results in a **Low adverse effect** during the operational phase. This would be long-term in duration and completely reversible following decommissioning.

## **9.2 Residential Properties**

The baseline review identified nine property groups as potentially experiencing adverse effects from the Proposed Development.

### ***Construction/ Decommissioning Phases***

During construction there are likely to be short term visual effects, most notably the use of cranes to erect the wind turbine and transport movements on the A595.

The proposed wind turbine components and infrastructure would be entirely located within the existing field pattern comprising improved grassland cover which is largely defined by vegetation

During construction it would be necessary to upgrade existing access tracks and hardstanding which would be required to act as a temporary compound, the latter being removed following the construction and decommissioning phases. These would cover a limited part of the overall proposed site. Upgraded cable trenches would also be required in order to lay connecting electricity cables from the turbine to the grid which would all be undergrounded.

With regards to physical effects, these would be limited to short term works and would have a **low impact**.

### ***Magnitude of Effect during Construction***

The geographical area in which the changes would occur is small in respect of the proposed site but owing to the low impact of the installation technique, combined with the low profile of the project elements, the overall size and scale of the change would be low. Therefore, magnitude of change is assessed as **Low** during the construction and decommissioning phases.

### ***Overall Effect during Construction***

Sensitivity of the site is considered to be Low, which combined with a Low magnitude of change, results in a Low adverse effect during the construction and decommissioning phases. This would be **short-term in duration and completely reversible** following decommissioning and be confined to the proposed site

### ***Operational Phase***

During operation, the existing field structure and land use would be retained. Areas disturbed during construction would be allowed to revegetate.

Potential impacts would be similar to that identified for the construction and decommissioning phases, the main difference being that there would be less activity within the Proposed Development and limited to general maintenance of a wind turbine.

### ***Magnitude of Change during Operation***

The geographical area in which the changes would occur during operation is small in respect of the proposed site but owing to the low profile of the project elements, the overall size and scale of the change would be Low. Therefore, magnitude of change is assessed as **Low** during the operational phase.

### ***Overall Effect during Operation***

Sensitivity of the receptor sites is considered to be Low, which combined with a Medium magnitude of change, results in a **Low adverse effect** during the operational phase. This would be long-term in duration and completely reversible following decommissioning.

## **9.3 Route Receptors**

The baseline review identified two route receptors as potentially experiencing adverse effects from the Proposed Development.

### ***Construction/ Decommissioning Phases***

During construction there are likely to be short term visual effects, most notably the use of cranes to erect the wind turbine and transport movements along the A595 into the Energy Coast Business Park industrial estate.

The proposed wind turbine components and infrastructure would be entirely located within the existing field pattern comprising improved grassland cover which is largely defined by vegetation

During construction it would be necessary to upgrade existing access tracks and hardstanding which would be required to act as a temporary compound, the latter being removed following the construction and decommissioning phases. These would cover a limited part of the overall proposed site. Upgraded cable trenches would also be required in order to lay connecting electricity cables from the turbine to the grid which would all be undergrounded.

With regards to physical effects, these would be limited to short term works and would have a low impact.

### ***Magnitude of Effect during Construction***

The geographical area in which the changes would occur is small in respect of the proposed site but owing to the low impact of the installation technique, combined with the low profile of the project elements, the overall size and scale of the change would be low. Therefore, magnitude of change is assessed as Low during the construction and decommissioning phases.

### ***Overall Effect during Construction***

Sensitivity of the site is considered to be Low, which combined with a Low magnitude of change, results in a Low adverse effect during the construction and decommissioning phases. This would be short-term in duration and completely reversible following decommissioning and be confined to the proposed site

### ***Operational Phase***

During operation, the existing field structure and land use would be retained. Areas disturbed during construction would be allowed to revegetate.

Potential impacts would be similar to that identified for the construction and decommissioning phases, the main difference being that there would be less activity within the Proposed Development and limited to general maintenance of a wind turbine.

### ***Magnitude of Change during Operation***

The geographical area in which the changes would occur during operation is small in respect of the proposed site but owing to the low profile of the project elements, the overall size and scale of the change would be Low. Therefore, magnitude of change is assessed as Low during the operational phase.

### ***Overall Effect during Operation***

Sensitivity of the receptor sites is considered to be Low, which combined with a Medium magnitude of change, results in a Low adverse effect during the operational phase. This would be long-term in duration and completely reversible following decommissioning.

## 10 Summary and Conclusion

The Proposed Development consists of repowering an existing wind turbine to generate additional renewable energy. The Proposed Turbine will have a tip height increase of 30.5m from the existing wind turbine tip height.

The pre-existing wind turbine is currently sited within an industrial estate for 'The Energy Coast Business Park', which consists of several large structures and areas of extracted material. The views from Haile and Bleas Road to the National Park all include the wind turbine and the industrial estate, as well as three smaller turbines, located to the north-west of Yeorton Hall farm. Within the long-distance views the industrial zone of Sellafield is incredibly prominent, with tall structures (in process of being demolished) and with large fences. The main A595 is part of the industrial route network, and while utilised by tourists, tourism in Cumbria and the Western Lake District is primarily seasonal.

The most substantial receptors are the local residents of Haile, Oaklands, The Old Reservoir and Beckermeth, due to the elevated size of the turbine. However on the site visit from all viewpoints, the larger industrial features, such as the Energy Coast Business Park and Sellafield, as well as the main A595 road are visible to varying degrees, reducing the overall sensitivity.

There is likely to be **short term effects as a result of the construction and decommissioning** phases, most likely to be that of the transport routes and the erection of the wind turbine, with limited effects during the operational phase, associated with occasional maintenance.

Based on the Council guidance (SPD, ETD and Local Plan Appendix D), the Proposed Development is sited within an area that can accommodate wind energy development and as such, the landscape as such can therefore accommodate the Proposed wind turbine.

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## Appendix A. Council Viewpoints Photographs

### Viewpoint 1 Haile Residential Park



**Photo 1-** DSC2598 facing west with pre-existing turbine visible with industrial park.



**Photo 2-** DSC2630 facing west with pre-existing turbine visible.



## Viewpoint 2 Blackbeck Roundabout



**Photo 3-** DSC2707 facing north-west with pre-existing turbine visible

## Viewpoint 3 Old Reservoir



**Photo 4-** DSC2909 facing south from Old Reservoir with coastline and Sellafield to background

### **Viewpoint 4 Entrance to the Energy Coast Business Park**



**Photo 5-** DSC2829 facing north from the entrance to the Energy Coast Business Park

### **Viewpoint 5 Oaklands**



**Photo 6-** DSC2749 facing north-west from A595 to Oaklands Residences

### Viewpoint 6 Braystones



**Photo 7-** DSC2877 facing north-east from Braystones Tower to pre-existing Turbine

### Viewpoint 7 Sheepfields



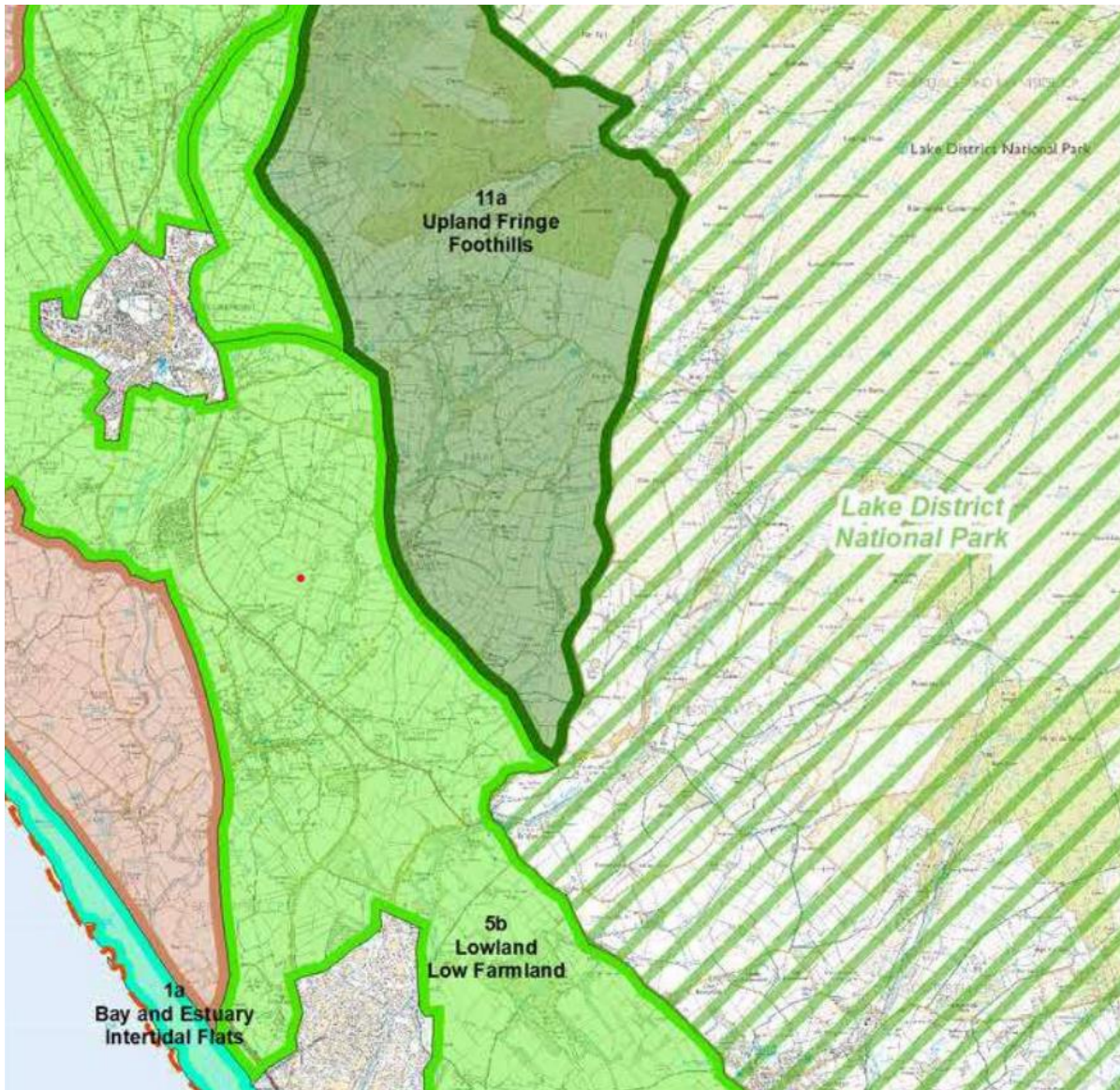
**Photo 8-** DSC4577 facing north-east from Sheepfields to pre-existing Turbine

## Appendix B. Viewpoint 7 Visualisation



**Plate 1.** DSC4577 facing north-east from Sheepfields. Visualisation of Proposed Turbine

## Appendix C. Additional Figure



**Figure a:** Landscape Character Type (CCC 2023) Red Dot indicates Site Location