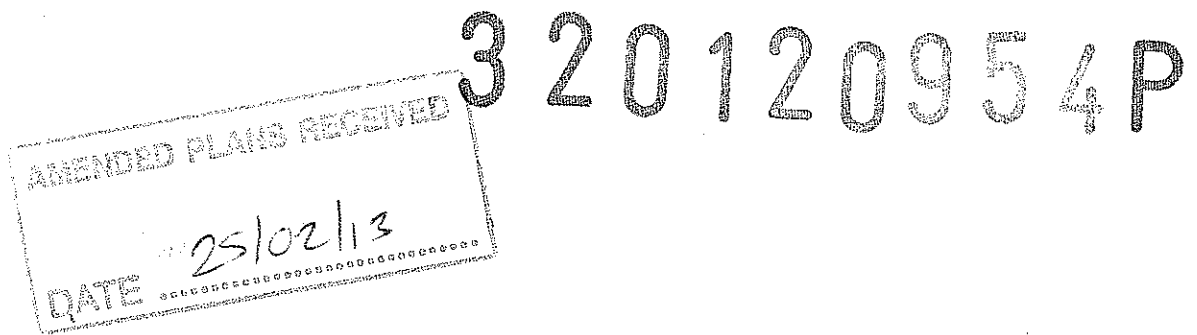


Lower Gazegill Farm

1 No. 20kW Wind Turbines

Landscape and Visual Impact Assessment

January 2013



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1. Introduction

This Landscape and Visual Impact Assessment (LVIA) accompanies a planning application for 1 no. 20kW wind turbine at Lower Gazegill Farm, Rimmington.

The scope of work included in this assessment is as a result of consultations with the representatives from the landscape section and planning officer within the council. The following Landscape and Visual Impact Assessment has been prepared in response to a number of points raised by the landscape section of the Council and should allow officers to make a more informed decision on the planning application.

The planning application is a proposal for 1 no. 20kW wind turbine with maximum hub height of up to 20.5m, rotor diameter of up to a maximum of 13.1m and maximum upright vertical tip height of up to 27.2m. The previously submitted location plans identify the proposed locations and the Design and Access Statement outlines the justification for their design and layout. This document should therefore be read in conjunction with the Design and Access Statement.

This Landscape and Visual Impact Assessment (LVIA) aims to satisfy the requirements of the Local Planning Authority, and wider community with a tool to help assess the impact of the proposed development.

The content of this document, and the consideration of particular viewpoints has been prepared in accordance with the Guidelines for Landscape and Visual Impact Assessment (2nd Edition), 2002.

1.1 The Scale of the Development

Fundamental to the understanding of this document is the distinction between the proposed development of a single wind turbine development and that of turbines which are of a significantly greater scale associated with wind farms. Variations in the definition of scale occur between numerous policy documents, guidance, and recommendations from objectors and protest groups. To remove any ambiguity the development is assessed in relation to other features in the considered viewpoints rather than depending on definitions of scale which vary between councils.

This document assesses the landscape and visual impacts for the proposed development which is:

1 no. 20kW wind turbine with maximum hub height of up to 20.5m, rotor diameter of up to a maximum of 13.1m and maximum upright vertical tip height of up to 27.2m.

The Landscape and Visual Impact Assessment is produced in line with Guidelines for Landscape and Visual Impact Assessment, 2nd Edition (2002), produced by The Landscape Institute (GLVIA).

2. Methodology

The methodology employed for this assessment aims to quantify the effects of the proposed development and then, according to Landscape and Visual Impact Assessment Guidelines (2002), interprets the results in order to comment on the overall significance of the proposed development. Essentially Landscape and Visual Impact welcomes objectivity in this process, and tends to dismiss subjective inputs such as public preference or conducting an assessment of scenic beauty.

'It is necessary to differentiate between judgements that involve a degree of subjectivity opinion (as in the assessment of landscape value) from those that are normally more objective and quantifiable (as in the determination of magnitude of change).' (Guidelines for Landscape and Visual Impact Assessment, 2002).

Working under this principle, the following assessment considers that landscape and visual effects are assessed separately.

Landscape and visual assessment are separate, although linked procedures. The landscape baseline, its analysis and the assessment of landscape effects all contribute to the baseline for visual assessment studies. The assessment of the potential effect on the landscape is carried out as an effect on an environmental resource, i.e. the landscape. Visual effects are assessed as one of the interrelated effects on population.

Landscape effects derive from changes in the physical landscape, which may give rise to changes in its character and how this is experienced. This may in turn affect the perceived value ascribed to the landscape. The description and analysis of

effects on a landscape resource relies on the adoption of certain basic principles about the positive (beneficial) and negative (adverse) effects of change in the landscape. Due to the inherently dynamic nature of landscape, change arising from a development may not necessarily be significant. (GLVIA, 2002, p.12).

Methodology considerations for Landscape Effects:

- the existing view
- the predicted view
- the landscape sensitivity
- magnitude of change
- effect on landscape character

Methodology considerations for Visual effects:

- Receptor sensitivity
- Magnitude of change
- Effects on visual amenity

2.1 Baseline Methodology

The existing landscape conditions have been informed by an initial study of the **LCC Study Landscape Sensitivity to Wind Energy Development in Lancashire (2005)** and the **Forest of Bowland AONB Landscape Character Assessment**. The landscape baseline explores the following:

- The existing situation – including a factual description, of the existing landscape (topography, built form, patterns, scale, transport routes)
- The value and sensitivity of the existing landscape, including reference to relevant statutory and non-statutory designations etc., and an assessment of the sensitivity of the landscape to change.

Table 1: Landscape Quality/Value

Quality/Value	Sensitivity of Landscape
High	Areas that exhibit a very strong, positive character and which are in excellent or very good condition with valued features that combine to give an experience of unity, richness and harmony. As a result, these landscapes may also demonstrate a high scenic quality also. These are landscape that may be considered to be of particularly sensitive to change if inappropriately dealt with. 'Exceptional' may be used to describe smaller areas of especially high quality/value or landscapes which, by virtue of the extent of their positive attributes, may also be described as exceptional. This is likely to apply to National Parks/Areas of outstanding natural Beauty/National Scenic Areas.
Medium	Areas that exhibit positive character and are considered to be in good condition with some valued features but which may have evidence of alteration to degradation/erosion of features resulting in areas of more mixed character. Scenic quality and attractiveness may not be as high as for 'High' quality landscape. Change may not necessarily be detrimental nor require special attention to detail. These areas may be valued at more than simply the local i.e community scale, for example Areas of Great landscape Value, Special landscape Areas.
Low	Areas generally negative in character, in poor condition with a weak landscape structure with few, if any, valued features. Scope for positive enhancement frequently occurs. This classification may be subdivided into poor and very poor.

The magnitude of change arising from the proposed development at any particular location, landscape character area, and landscape character type or aspect area is described as Large, Medium, Small, Negligible based on the interpretation of a combination of largely quantifiable parameters, as follows:

- Degree of loss or alteration to key landscape features/elements or characteristics;
- Distance from the development;
- Duration of effect;
- Landscape backdrop to the development;
- Landscape context of other built development, particularly vertical elements.

In order to differentiate between different levels of magnitude the following definitions are provided:

Table 2: Magnitude of Change

Large	Total loss or major alteration to key landscape elements/features/characteristics such that post development the landscape character area would be fundamentally changed.
Medium	Partial loss or alteration to one or more key landscape elements/features/characteristics such that post development the landscape character area would be partially changed
Small	Minor loss or alteration to one or more key landscape elements/features/characteristics such that post development the change/loss would be discernible but the landscape character would be similar to the baseline.
Negligible	Very minor loss of alteration to one or more key landscape elements/features/characteristics of the baseline conditions. Change would be barely distinguishable approximating to no change.

2.2 Visual Assessment Methodology

2.2.1 Sensitivity, Magnitude and Significance

The assessment of visual effects considers the potential impact of the proposed development on the visual amenity within the study area, with particular reference to groups of defined receptors and identified viewpoints. Visual effects relate to the changes that arise in the composition of available views as a result of changes to the landscape, the responses of people to the changes and to the overall effects with respect to visual amenity. Effects on visual amenity are assessed through representative viewpoints in order that general conclusions may be drawn regarding the overall visual effects of the proposed development.

• Sensitivity of visual receptors

The assessment of the sensitivity of the potential visual receptors represented by the key viewpoints is informed by the following:

- The location of the viewpoint
- The importance of the view (popularity, cultural associations);

- The public accessibility of the viewpoint location;
- The occupation and expectations of the receptor (e.g. resident/users of recreational facilities/shoppers/works in their work place/motorists passing through);
- The type of view, i.e. wide panorama, frames, glimpsed or sequential view;
- The extent of screening or filtering of the view (e.g. by buildings/vegetation); and
- The scope for effective mitigation in character with the existing landscape.

Table 3 sets out the criteria which have been used to inform the assessment of visual sensitivity.

Table 3: Visual sensitivity

Sensitivity	Typical descriptors
High	Receptors with proprietary interest in the view such as residential properties, and receptors undertaking recreating where the view is a key reason for the activity, e.g. user of public footpaths and bridleways and open access land.
Medium	Receptors with moderate interest in their environment, e.g. workers, pedestrian cyclists and other non motorised users of major movement corridors and people taking part in outdoor sports
Low	Receptors with passing of momentary interest in their environment, e.g. motorists.

- Magnitude of visual impacts

The magnitude or scale of potential visual change on views and on visual amenity of the identified receptors has been described with reference to the:

- Scale of change in the view with respect to the loss or addition of features and changes in the visual composition;
- Degree of contrast or integration of any changes with the existing or remaining landscape components – form, mass, height, colour and texture;
- Duration of the effect
- Angle of the view in relation to the main activity of the receptor;
- Distance from the viewpoint to the proposed development;

- Number of receptors affected; and
- Effectiveness of the mitigation proposed

Table 4 sets out the criteria which guide the assessment of the magnitude of change that would be experienced by visual receptors as a result of the proposed development.

Table 4: Criteria for the assessment of visual magnitude

Magnitude of Impact	Typical descriptors
Large	Large scale change that would alter the overall perception and key perception and key characteristics of the view
Medium	Changes to a view that would be readily noticeable but not change the overall perception or key characteristics of the view.
Small	Some measurable, small scale visual changes to the overall perception and key characteristics of the views.
Negligible	Very minor changes to the overall perception and key characteristics of the view that would be barely noticeable with the naked eye
No Change	No loss of alteration to the overall perception or key characteristics of the view

- Significance of landscape and visual effects

The significance of any identified landscape or visual effect has been assessed in terms of Large, Medium, Small, Negligible, or none. These categories are based on the juxtaposition of viewpoint or landscape sensitivity with the predicted magnitude of change. This matrix should not be used as a prescriptive tool but must allow for the exercise of professional judgement. These categories have been based on combining viewpoint or landscape sensitivity and predicted magnitude of change to determine significance of effects.

Table 5: Significance of Landscape and Visual Impact

Landscape and Visual Sensitivity	Magnitude of Change				
	Large	Medium	Small	Negligible	
	High	Major	Major/ Moderate	Moderate	Moderate/Minor
	Medium	Major/ Moderate	Moderate	Moderate/ Minor	Minor
	Low	Moderate	Moderate/ Minor	Minor	Minor/negligible

Where the landscape or visual effect has been classified as Major, Major/Moderate or Moderate, this is considered to be equivalent to likely significant effects referred to in the Town and Country Planning (Environmental Impact Assessment) Regulations 1999. Effects identified as less than moderate are not considered to be significant. As with many aspects of landscape and visual assessment, significance of effect also needs to be quantified with respect to the scale over which it is felt. An effect may be locally significant, or significant with respect to a small number of receptors, but not significant when judged in a wider context.

2.3 Nature of Effects

Any effect may be described as temporary or permanent, direct or indirect, positive or negative and cumulative and these various types of effect described below have a bearing on the acceptability or otherwise of any impact.

2.3.1 Temporary/Permanent

The application is for a 20-25 year operational period and while this is not permanent it can properly be described as long term. Landscape and visual effects can be reversed and following decommissioning there would typically be no significant residual landscape and visual effects. A wind energy development should therefore be regarded as a long term reversible addition to the landscape preserving the choice for future generation whether or not to retain what might be regarded as the landscape fabric of today.

2.3.2 Direct/Indirect

Direct and indirect landscape and visual effects are defined in GLVIA (2002). Direct effects may be defined 'as an effect that is directly attributable to a defined element or characteristics of the proposed development, for example the loss or removal of an element or feature such as a hedgerow or a prominent group of trees'. 'An indirect (or secondary) effect is an effect that is not a direct result of the proposed development but is often produced away from the site of the proposed development or as a result of a complex pathway or secondary association.' The direct or physical effects of a wind energy development are generally limited to an area around the base of each turbine, access roads and other development infrastructure such as cable trenches, control building and grid connection. The main effects are often concerned with the visual effects (occasionally referred to as indirect effects) and relate to effects associated with introduction of the wind energy development seen in the context of the existing landscape and visual character of the view.

2.3.3 Positive/Negative (Beneficial/Adverse)

Individuals and organisations responses to proposed wind turbine developments can differ widely, ranging from strongly adverse to strongly positive. Professionals increasingly recognise that for wind turbines these judgements are highly subjective. It is important to emphasize the polarity of views revealed by the extensive available research and to take account of the fact that for the same development, some may view the impact as adverse, some as positive and yet others as neutral.

The reasoning behind not taking a simplistic approach to positive/adverse judgements for the effects of wind turbines acknowledges that public attitudes towards wind turbines are very variable. Notwithstanding this, making positive or adverse judgements on the effect of wind turbines on landscape character would be of questionable value, particularly if using the accepted interpretation of the guidance that any out of character developments should automatically be considered adverse. This is not particularly instructive in this case and it is more useful to consider sensitivity, capacity and scale which is done in this assessment.

2.4 Visuals

2.4.1 Zone of Theoretical Visibility and Cumulative Zone of Theoretical Visibility

In order to inform the identification of key visual receptors and viewpoints, a Zone of Theoretical Visibility (ZTV) map has been prepared for the maximum blade tip height of the proposed turbine.

Information on ZTV Production

- The ZTV has been generated using digital terrain modelling data (OS Landform Profile DTM) and illustrates the extents to which the turbine would theoretically be visible from within the defined area of the study.
- The ZTV is based on a bare ground survey with all trees, foliage, buildings and other structures stripped out.
- The viewing height of the ZTV is 1.5m.
- Earth curvature and light reflection has been included in the calculation.
- The extent of the ZTV study is for a radius of 10km surrounding the proposed site.
- In the Cumulative ZTV calculation there are four different colours used representing the proposed development and three other developments, whose details can be found in the table below.

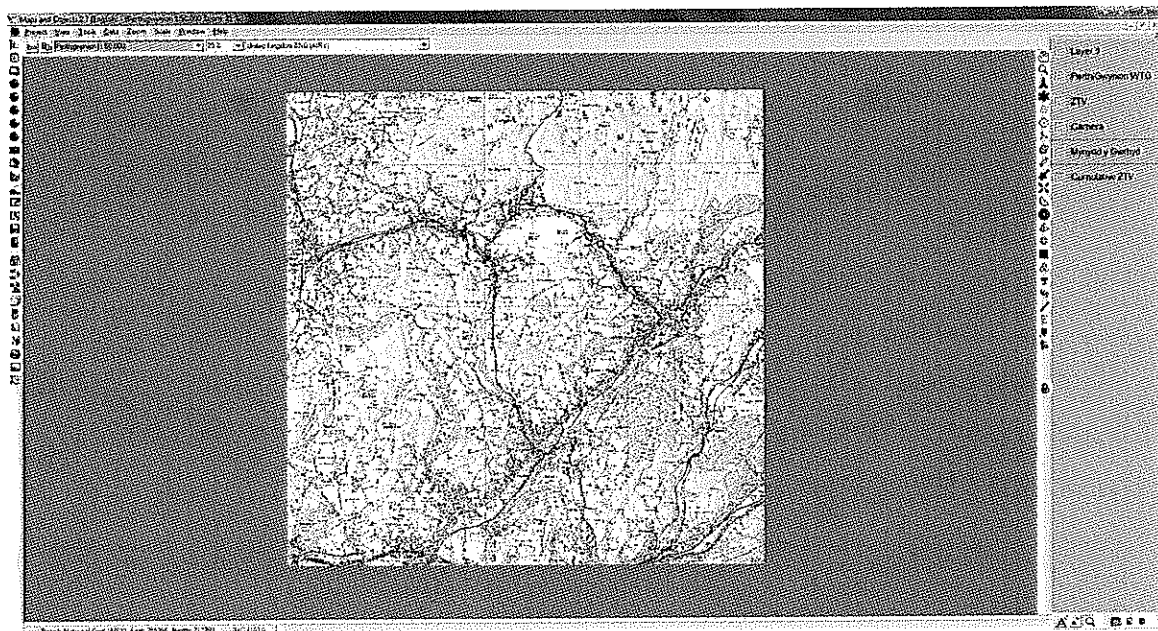
Development Name	Number/Model	Hub	Easting	Northing
Lower Gazegill (Application Site)	1no. 20kW (CF20)	20m	382266	446480
Other Developments				
Paradise Farm	1no. 20kw (CF20)	20m	386251	451127
Pasture House Farm	1no. 50kW (CF50)	25m	387169	450916
Throstles Nest	1no. 15kW (CF15e)	20m	378114	454733
Philip S Ryley	2no. 20kW (Westwind)	18m	384652	451389

- The height of the proposed turbine upon which both the ZTV and Cumulative ZTV calculations are based on is the tip height of 27.1m.
- The WindPro software that calculated the ZTV and CZTV does not use mathematically approximate methods.

2.4.2 Generation of wirelines and photomontages

Baselines photography for each viewpoint was undertaken in September 2012 in dry weather conditions with some clouds and good visibility. For the production of photomontages Entrust currently use Windpro software. (<http://www.emd.dk/WindPRO/Frontpage>)

In the Windpro software, an OS Data Raster 1:50000 map is used as the base map. Sourced from the OS, this map is geo referenced within the software. The remainder of the process is conducted by adding layers on top of the map.



Firstly, open OS data is placed on a separate layer on top of the map, and again geo referenced to align with contours of the base map.



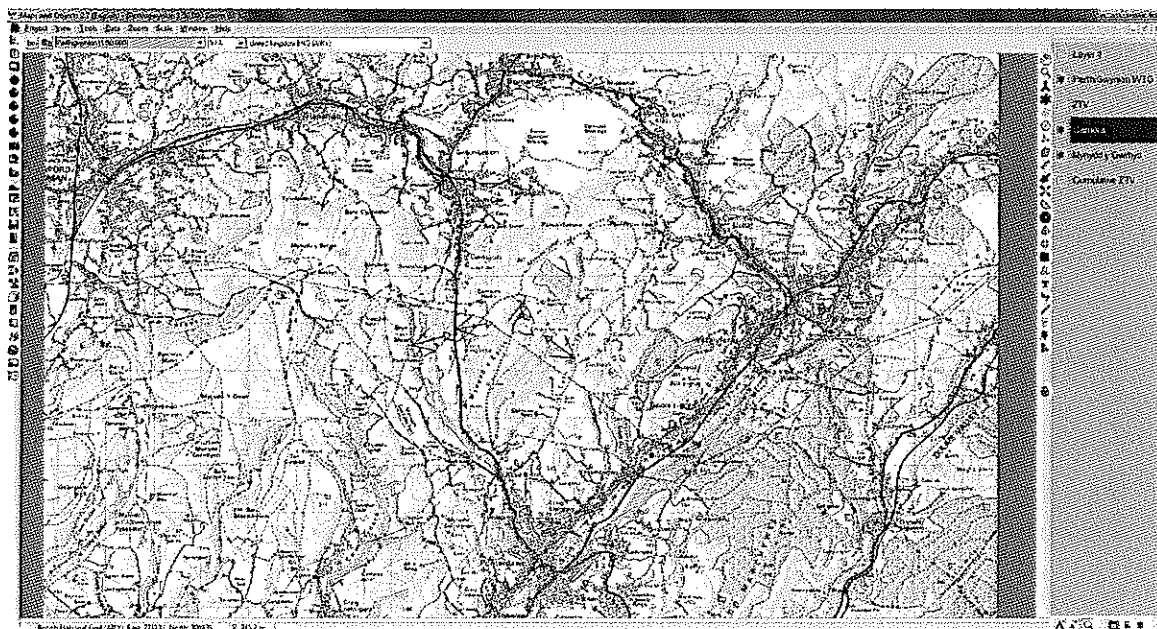
The wind turbine(s) are then added in an additional layer and input from a wind turbine catalogue. The catalogue has details of each turbine stored. This includes all the required information about the turbine including no. of blades, tower height, blade swept diameter, noise data and power output. Some of these details have other applications other than for the production of visuals.

WTG data (C&F CF20 20 13.1 IO! hub: 20.5 m (1))

Position	Layers	WTG(s)	Visual	Miscellaneous	Description
WTG type: C&F CF20 20 13.1 IO!					
Hub height [m]: C&F CF20 20 13.1 IO!					
Proven WT6000 6 5.5 IO! ENERCON E-48 800 48.0 IO! MICON M1800 600-150 48.0 IO! MICON M1500 750-175 44.0 IO! MICON M2300 1000-250 54.0 IO! C&F CF15 15 11.1 IO! C&F CF50 50 20.0 IO! ENDURANCE E-3120 55 19.2 IO! LAGERWEY 80 18.0 IO! < More WTGs >					
Displacement height: 0 m (Will be subtracted from hub height in PARK calculations)					
Number in row: 1					
Symbol color:					

Ok
Cancel
Prev
Next

A camera object is added to an additional layer and pointed in the direction of the proposed wind turbine. In the camera object, the position is input manually using the coordinates captured by the photographer on site. For this a GPS device is used which is accurate to 4m. The camera object interprets the size of the turbine by reading the digital print of a captured photograph (focal length and panoramic ability), and calculating this in conjunction with the turbine details and the distance between the camera object and the wind turbine of concern.



Camera data (North of Site)

Position | Layers | **Camera** | Photo/Background | Render Settings | WTG | Use Objects | Artificial

☒ Normal ☐ Panorama (e.g. stitched photo)

Focal length, lens: 27.9 Field of view: 63.6

☒ Automatic calculate film format based on picture size
Film format: User Defined

Camera Position

X (East): 271759	Pan Angle: -176.56
Y (North): 209475	Tilt Angle: -11.31
Z (Offset): 1.5	Rotation Angle: 0
Automatically from TIN (315.2 m) ☒	Arrow length: 257.13

Symbol color: ☒ Use as default color for new camera objects

☒ Open photomontage when click Ok

The produced image is output as a wireline image, which has no details other than topography, the type and digital print of the camera, and the distance to the proposed turbine. This is then superimposed onto a photograph taken at that location within the software. To clarify, the software considers the distance, time, the camera used, and height contours of the land in order to determine the outcome for the photomontage.



The submitted information for the proposal at Lower Gazegill Farm is correct and true to the best of our knowledge and ability. The software used to produce the photomontages is acceptable to all other local authorities. The users of the software hold valid licences and have undertaken appropriate training in order to be able to adequately use the software. The information presented is sufficient evidence in order for the planning application to be assessed in terms of its impact on the landscape can be assessed.

2.5 Limitations

The ZTV assumes that climatic visibility is 100%. In reality, climatic conditions can reduce the extent of visibility. The ZTV therefore represents the maximum potential, theoretical visibility i.e. the worst-case scenario.

In the wirelines and photomontages the proposed wind turbine is shown in a straight-on view to illustrate the maximum extent of visibility of the proposed turbine. This does not necessarily match the prevailing wind direction at the time the photographs were taken.

All viewpoints used for the assessment of visual effect are in publicly accessible locations.

3. Landscape Character Assessment

3.1 Baseline and assessment of Landscape Character

At Regional level the various landscape character types are identified by the Lancashire County Council and the Forest of Bowland AONB Landscape Character Assessments. The Landscape areas that fall within the study area are shown on in Appendix A, along with the relevant Sensitivity to Wind Energy Development assessments. Only those which fall within a 3km radius of the site are included as the effects of a turbine of the scale proposed outside this radius are considered to be negligible. Areas to the south-west of the site are not included as they are shielded by Pendle Hill. The site sits within the Undulating Lowland Farmland landscape character type and is bordered by the Drumlin Field landscape character type to the east.

The Undulating Lowland Farmland sits generally below 150m and lies between the major valleys and the moorland fringes. The underlying geology is generally masked by heavy boulder clays and hedgerows predominate over stone walls. The lowland landscape is traversed by deeply incised, wooded cloughs and gorges. There are also many mixed farm woodlands, copses and hedgerow trees, creating an impression of well wooded landscape from ground level and patchwork of wood and pasture from raised viewpoints on the fells.

Some of the most picturesque stone villages of the county occur within this well settled landscape type. The towns of Longridge and Clitheroe also occur within this type, but are not typical of the settlement pattern. The area also has many country houses whose boundary walls and designed landscapes add to the species diversity and visual appeal. There is a high density of farms and scattered cottages outside the clustered settlements, linked by a network of minor roads.

LCA 5e - Lower Ribblesdale (Clitheroe to Gisburn) (proposed site)

The proposed turbine would be located within landscape character area 5e - Lower Ribblesdale (Clitheroe to Gisburn), an area of moderate to high sensitivity to Wind Energy Development.

This is a small scale area forming the broad valley of the Ribble penetrating the high ground level of the Forest of Bowland and its outlier. There is a mature and established character to the landscape comprising strands of mature deciduous woodland, picturesque built developments and other attributes which elevates its sensitivity. There is however more contemporary development and proximity to urban areas which reduces the sensitivity of the area.

The sensitivity to wind energy development is classed as moderate-high by the assessment in the "Landscape Sensitivity to Wind Energy Development in Lancashire (2005)". As this study was aimed at turbines of a larger scale than the one proposed in this application it would be logical to reduce this sensitivity to moderate-low.

Viewpoint 7 of the viewpoint analysis can be used to demonstrate a view 685m from the site for the proposed turbine. The landscape in this particular area is punctuated with trees and some farm buildings and not bare in character. The effectiveness of the landscape as a backdrop to the proposed turbine is clearly evident and if finished externally in an appropriate colour, the turbine would be visually well absorbed without any harm to the landscape character. Therefore magnitude of change of the proposed development would be small. The topography of the land and numerous tree lines result in a reduced magnitude of change as the landscape is only significantly impacted when viewed from locations close to the proposed site.

The significance of impact of the proposed turbine on this landscape character area (5e) is therefore deemed as moderate-minor.

LCA 5f - Lower Ribblesdale (Clitheroe to Hellifield)

The proposed turbine would also be located adjacent to landscape character area 5f - Lower Ribblesdale (Clitheroe to Hellifield). This is an area classed as high sensitivity to wind energy development. This is a small scale landscape fringing the adjacent higher ground of the Forest of Bowland and its outliers. There is a mature and established character to the landscape comprising strands of mature

deciduous woodland, picturesque built elements and other attributes which elevate its sensitivity.

Although the proposed turbine would be located within area 5e, that area is quite small and it is considered appropriate to consider the effect of the proposal on the character of that area of adjacent landscape classified as 5f. Landscape area 5f is assessed on the map of Landscape Strategy for Lancashire - Landscape Character Assessment as being appropriate for small scale wind turbine developments. This area is described as having strands of mature woodland and a picturesque built environment.

The sensitivity to wind energy development is classed as high by the assessment in "Landscape Sensitivity to Wind Energy Development in Lancashire (2005)". As this study was aimed at turbines of a larger scale than the one proposed in this application it would be logical to reduce this sensitivity to moderate.

The proposed turbine would be a small scale proposal and as such it would be considered appropriate development for area 5e (subject to its precise location being acceptable). The character of this area with its mature wooded areas and landscape features, would because of these features, help to absorb the proposed development without harm to the landscape itself. This landscape is partially contained within the AONB in reflection of its visual quality and is largely away from urban influences.

Viewpoint 9 of the viewpoint analysis can be used to demonstrate a view 2.78km from the site for the proposed turbine. The landscape in this particular area is punctuated with trees and there is considerable visual interference between this viewpoint and the proposed site. The separation distance of the site and scale of the proposed turbine result in the magnitude of change to the landscape by the proposed development being negligible.

The significance of impact of the proposed turbine on this landscape character area (5f) is therefore deemed as minor.

LCA 13a - Gargrave

The proposed turbine would also be located adjacent to landscape character area 13a - Gargrave. This is an area classed as moderate-high sensitivity to wind energy development. This is a large scale landscape of regular hillocks with its uniform grain and predominance of pasture with small areas of woodland indicating a modest sensitivity. The farmed nature of this landscape, the pattern of built development, the enclosure provided by topography and, particularly, the historic and designed elements of this area suggest an elevated sensitivity.

Similar to the previous LCA 5f, it is important to consider the effect of the proposal on the character of this LCA 13a too, due to its close proximity to the proposed turbine.

The sensitivity to wind energy development is classed as moderate-high by the assessment in "Landscape Sensitivity to Wind Energy Development in Lancashire (2005)". As this study was aimed at turbines of a larger scale than the one proposed in this application it would be logical to reduce this sensitivity to moderate-low.

Viewpoint 8 of the viewpoint analysis can be used to demonstrate a view 900m from the site for the proposed turbine. The landscape in this particular area is punctuated with trees, gently undulating and there is considerable visual interference between this viewpoint and the proposed site. The proximity of the site and scale of the proposed turbine result in the magnitude of change to the landscape by the proposed development being small.

The significance of impact of the proposed turbine on this landscape character area (5f) is therefore deemed as moderate-minor.

3.2 Summary of Landscape Impact Assessment

Table 6 below is a summary of the previous Landscape Impact Assessment and shows the significance of the landscape impact of the proposed turbine upon each Landscape Character Area.

Regional Character	Landscape	Landscape Sensitivity	Magnitude of Change of Landscape	Significance of Impact
LCA 5e, Lower Ribblesdale (Clitheroe to Gisburn) (proposed site)		Moderate-Low	Small	Moderate-Minor
LCA 5f, Lower Ribblesdale (Clitheroe to Hellifield)		Moderate	Negligible	Minor
LCA 13a, Gargrave		Moderate-Low	Small	Moderate-Minor
Table 6 - Summary of Significance of Landscape Impact				

The summary of the results shown in Table 6 above demonstrate that the significance of impact would be no worse than moderate-minor. Similarly the Landscape Character Area in which the proposed turbine is sited would be only moderately-minorly impacted by the proposal.

4. Visual Assessment

The following visual assessment can be used in order to help the planning department and the community understand the nature and scale of the proposed development. The inclusion of the visual information is also useful in order to determine the significance of the impact on the surrounding landscape. In some cases the turbine may be difficult to see, in order to remedy this; the visuals have been presented in A3 Landscape Format and are available as a separate attachment upon request if necessary. The wirelines show the impact of the proposed turbine should no vegetation or manmade features exist, and in turn help to inform the produced photomontages. The photomontages are a more realistic representation of the potential impacts and as such are carried forward into the final quantified assessment.

4.1 Zone of Theoretical Visibility (ZTV) and Cumulative Zone of Theoretical Visibility (CZTV)

The result of the ZTV exercise reveals a 16.1% maximum visibility in the surrounding area. It is possible to identify a number of sensitive receptors within the study area, which should then be further investigated through field visits and the production of wirelines and photomontages. The most important viewpoints (VP's) are identified as being points whereby the development is likely to show the greatest amount of visibility or impact on the largest number of users, and as such these warranted further investigation. These viewpoints have also been discussed with the landscape officer and planning officer prior to the commencement of this study. Namely they are:

- VP1: Rimington Caravan Park and Public Right of Way
- VP2: Higher Gazegill Farmhouse and adjoining barn to west (grade II Listed)
- VP3: Salem Congregational Chapel and attached Manse (grade II Listed)
- VP4: Edge of Forest of Bowland AONB, A59 Road and Railway Line
- VP5: Rimington bridge on Rimington Lane and Public Right of Way
- VP6: Newby Hall and Public Right of Way
- VP7: Rimington Lane by Mylah and Thistleber dwelling
- VP8: Todber Caravan Park on A682 at entrance to Public Right of Way
- VP9: Ribble Way Path within Forest of Bowland AONB
- VP10: Public Right of Way within Forest of Bowland AONB at Lower Gate dwelling.

The below visuals highlight in shaded colour where the proposed turbine would theoretically be visible from surrounding areas. This in turn, has informed the locations of the considered viewpoints. The viewpoints were selected where theoretical points of visibility intersected settlements, public footpaths and the AONB.

Figure 1: Zone of Theoretical Visibility Results

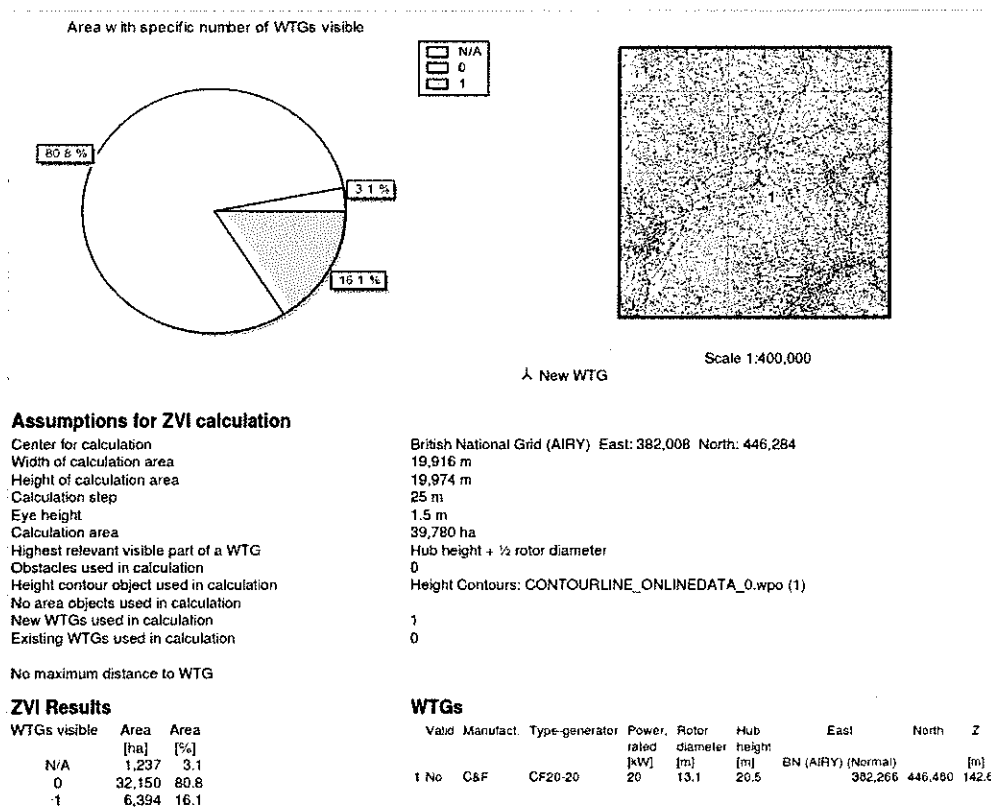


Figure 2: Map showing Zone of Theoretical Visibility for 10km Radius

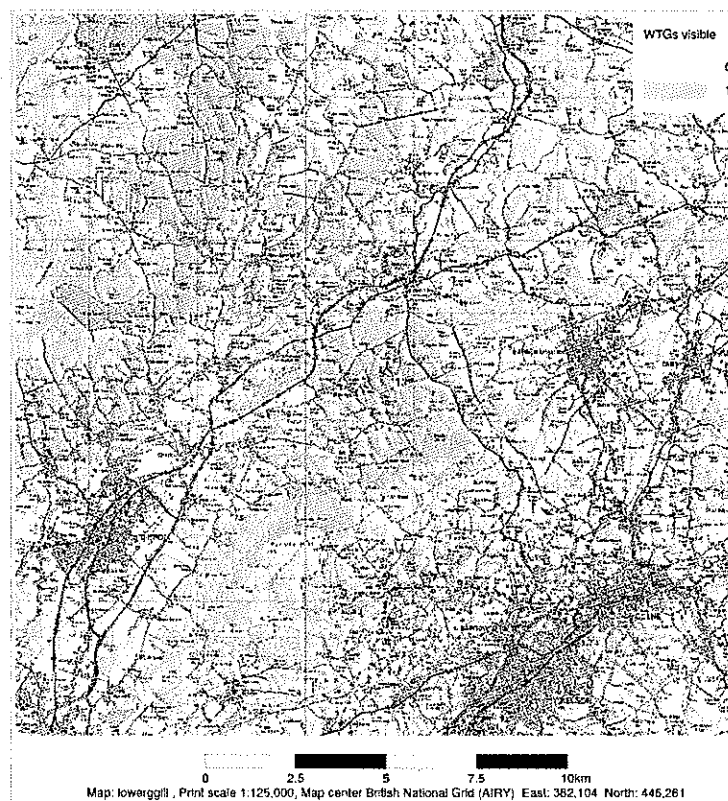
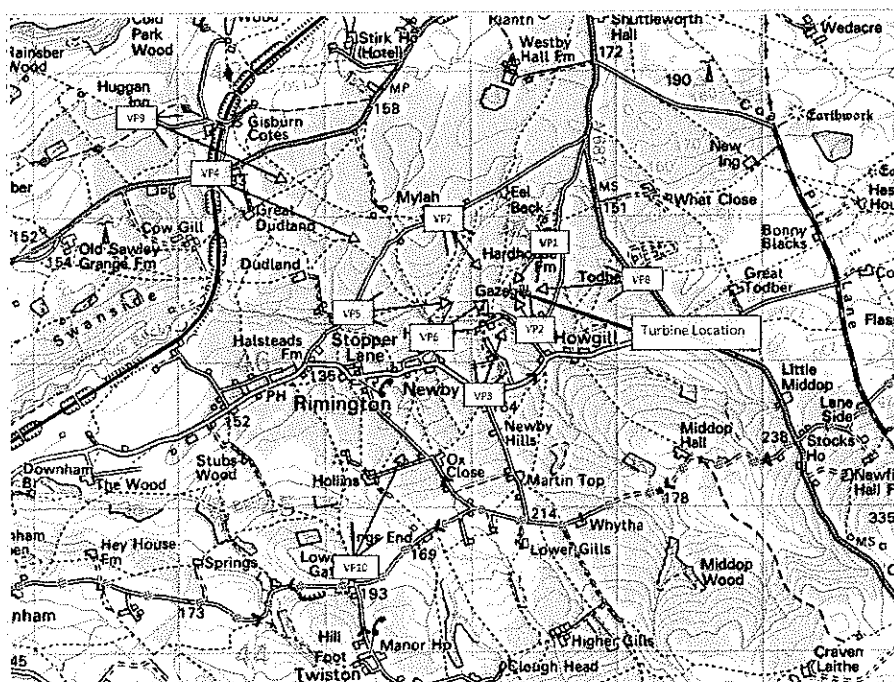


Figure 3: Considered Viewpoints



The above viewpoints when fully considered would provide a thorough level of landscape and visual impact assessment in relation to the proposed development. It is ascertained however that the considered viewpoints identify the proposal from locations which are publicly accessible and expose the development in its fullest form in order to assess the highest possible impact of the proposal. The remainder of this section now takes each of these viewpoints in turn and discusses the potential impact of the development, and comments on its potential significance.



The result of the Cumulative ITV exercise reveals that the proposed turbine will only increase the visibility of a turbine development within the 10km radius study area by 4.2%. The proposed development will be seen in conjunction with the other turbine developments in 15.4% of the entire study area. As it stands other turbine developments can be seen from 30.3% of the study area and as a result the proposed turbine will not lead to a significant cumulative impact on the landscape.

Figure 3: Cumulative Zone of Theoretical Visibility Results

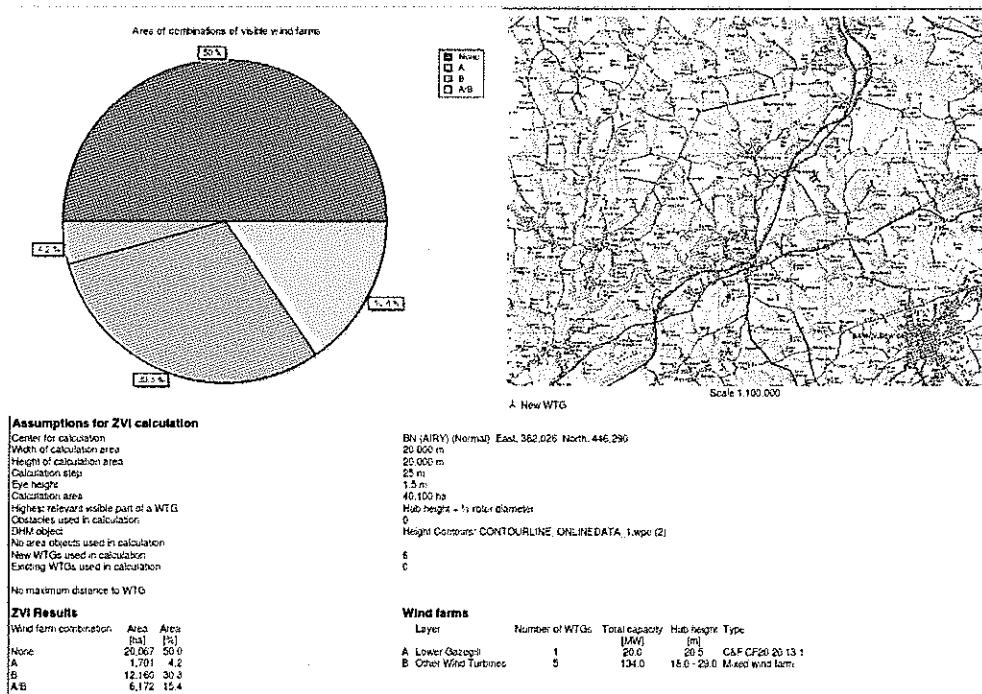
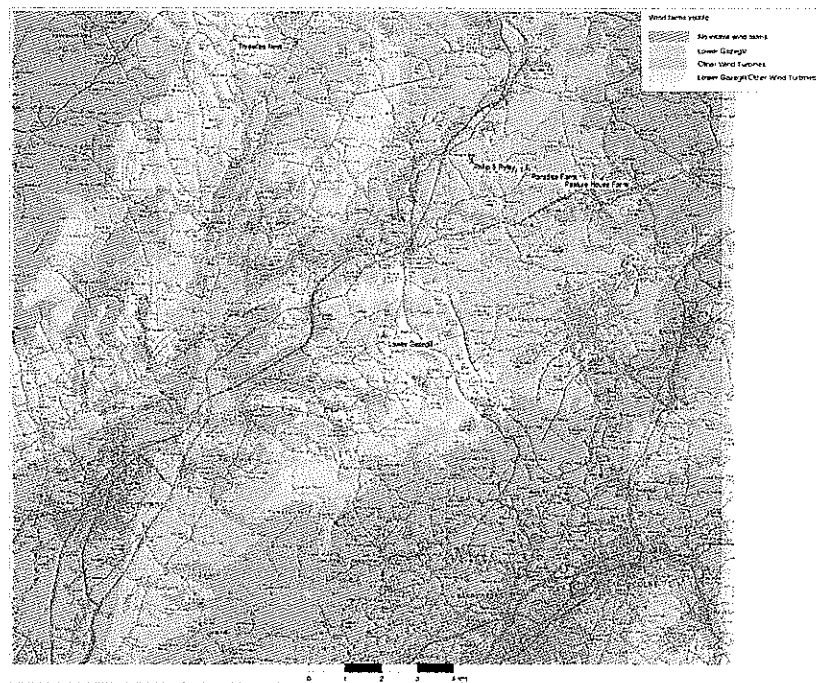


Figure 4: Map showing Cumulative Zone of Theoretical Visibility for 10km Radius



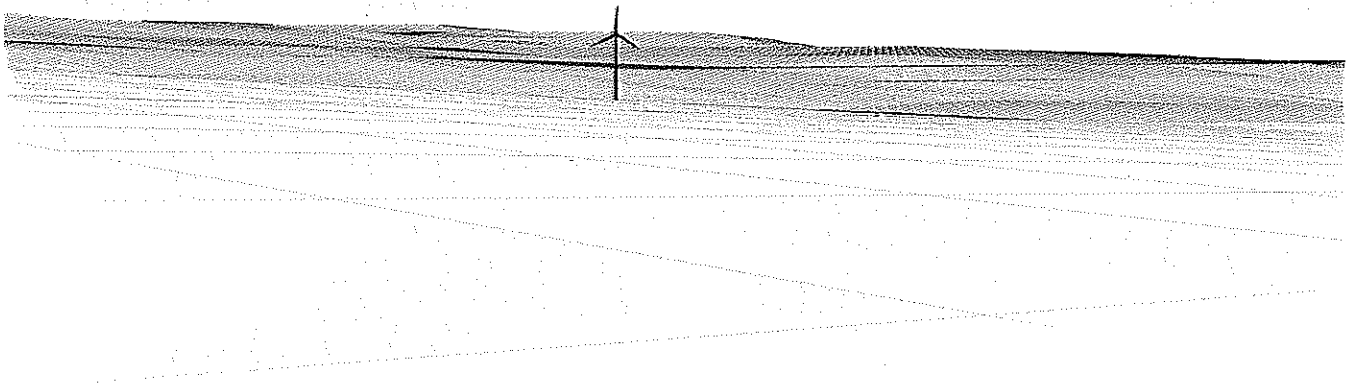
4.2 Viewpoints and Visuals

Viewpoint 1 Existing



Photomontage Specification	
Focal Length: 75mm	
Range: 390m	Direction: SW
Height Above Ground: 1.5m	
Date Taken: 04 th Jan. 2012	
Camera: Canon EOS1100d	
Lens: Digital 5mm-75mm	
Viewing Distance on A3: 400mm	

Viewpoint 1 Proposed Wireline



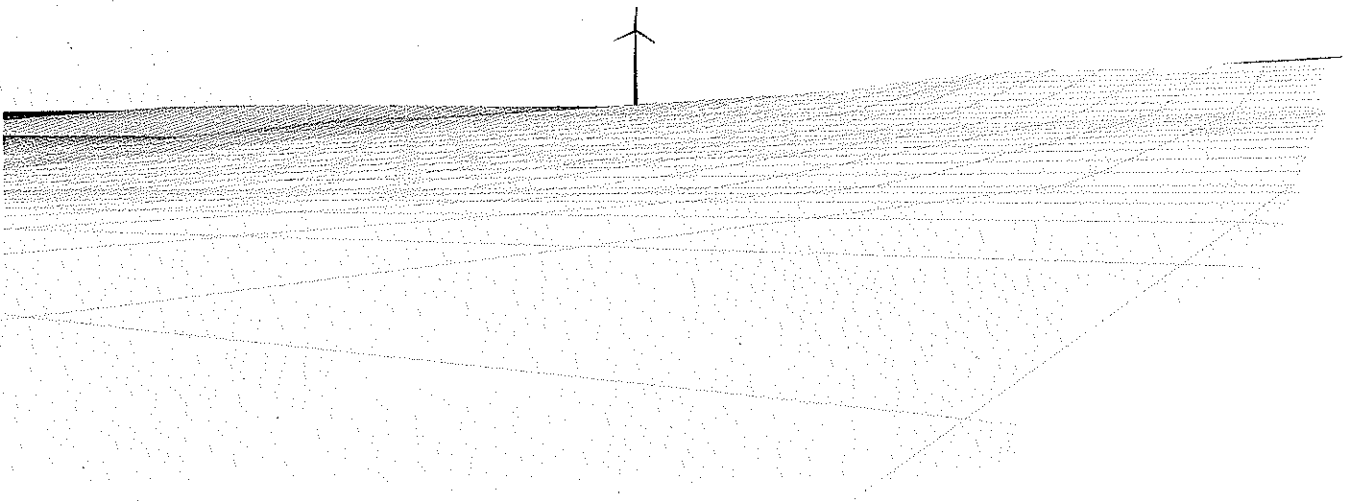
Viewpoint 1 Proposed Photomontage (75mm lens)



Viewpoint 2: Existing



Viewpoint 2 Proposed Wireline



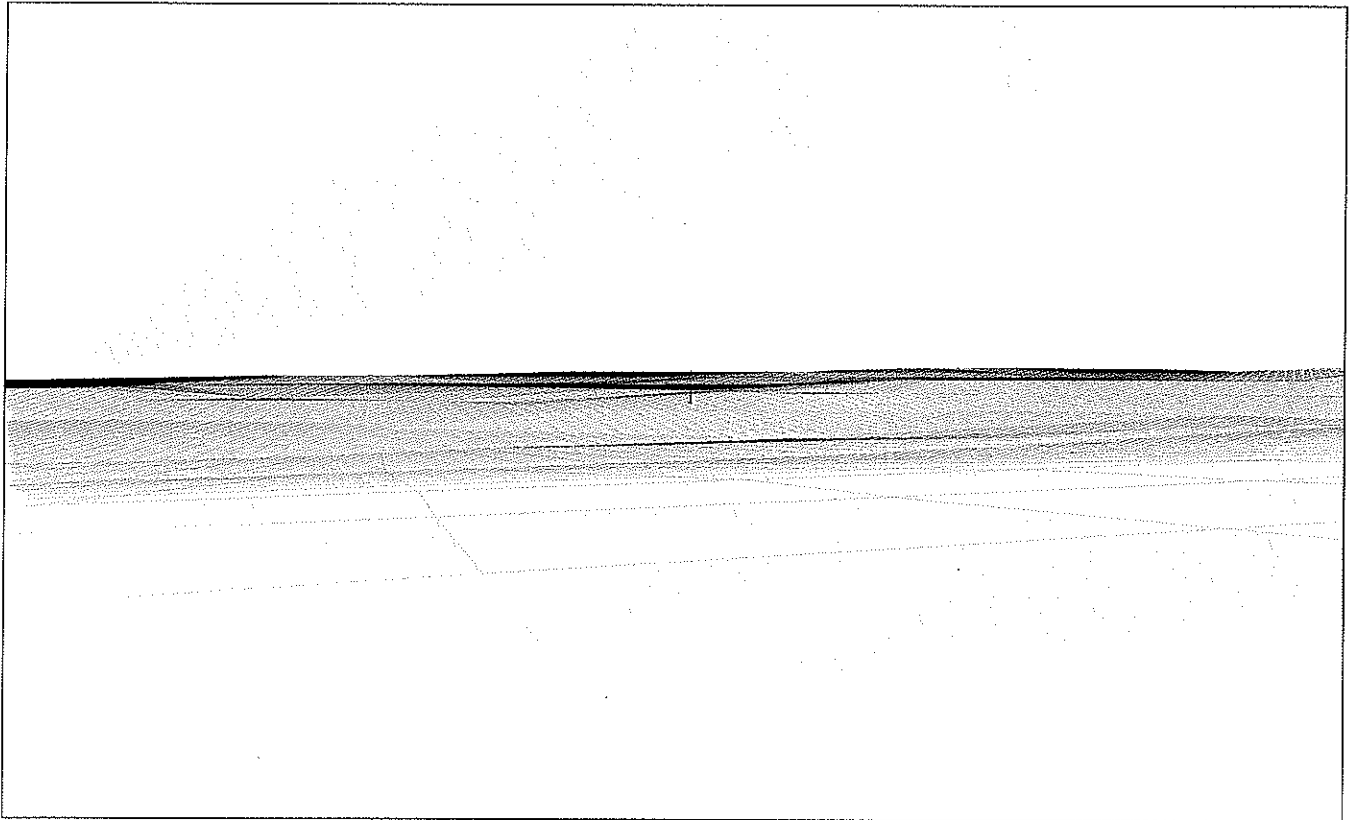
Viewpoint 2 Proposed Photomontage



Viewpoint 3: Existing



Viewpoint 3: Proposed Wireline



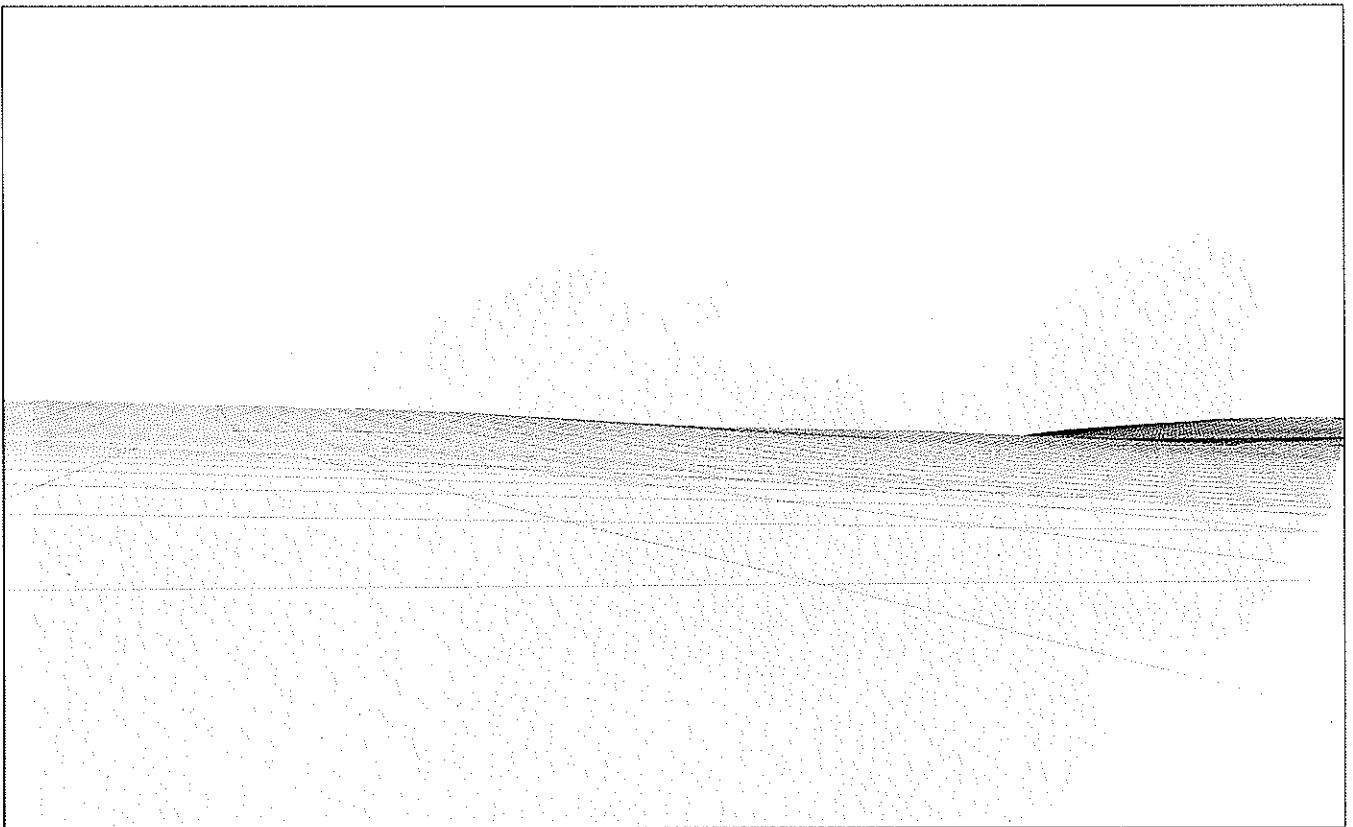
Viewpoint 3: Proposed Photomontage



Viewpoint 4 Existing



Viewpoint 4 Proposed Wireline



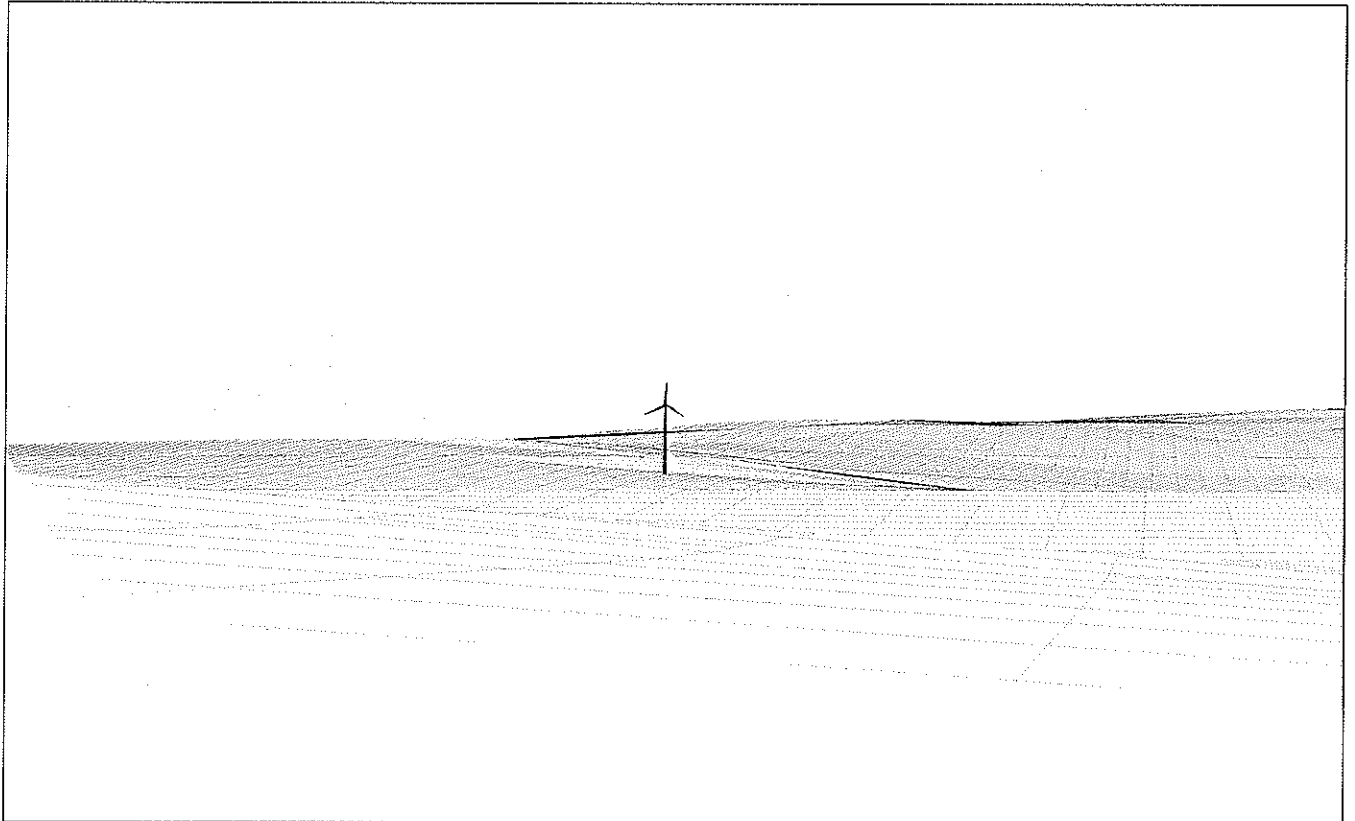
Viewpoint 4 Proposed Photomontage



Viewpoint 5 Existing



Viewpoint 5 Proposed Wireline



Viewpoint 5 Proposed Photomontage

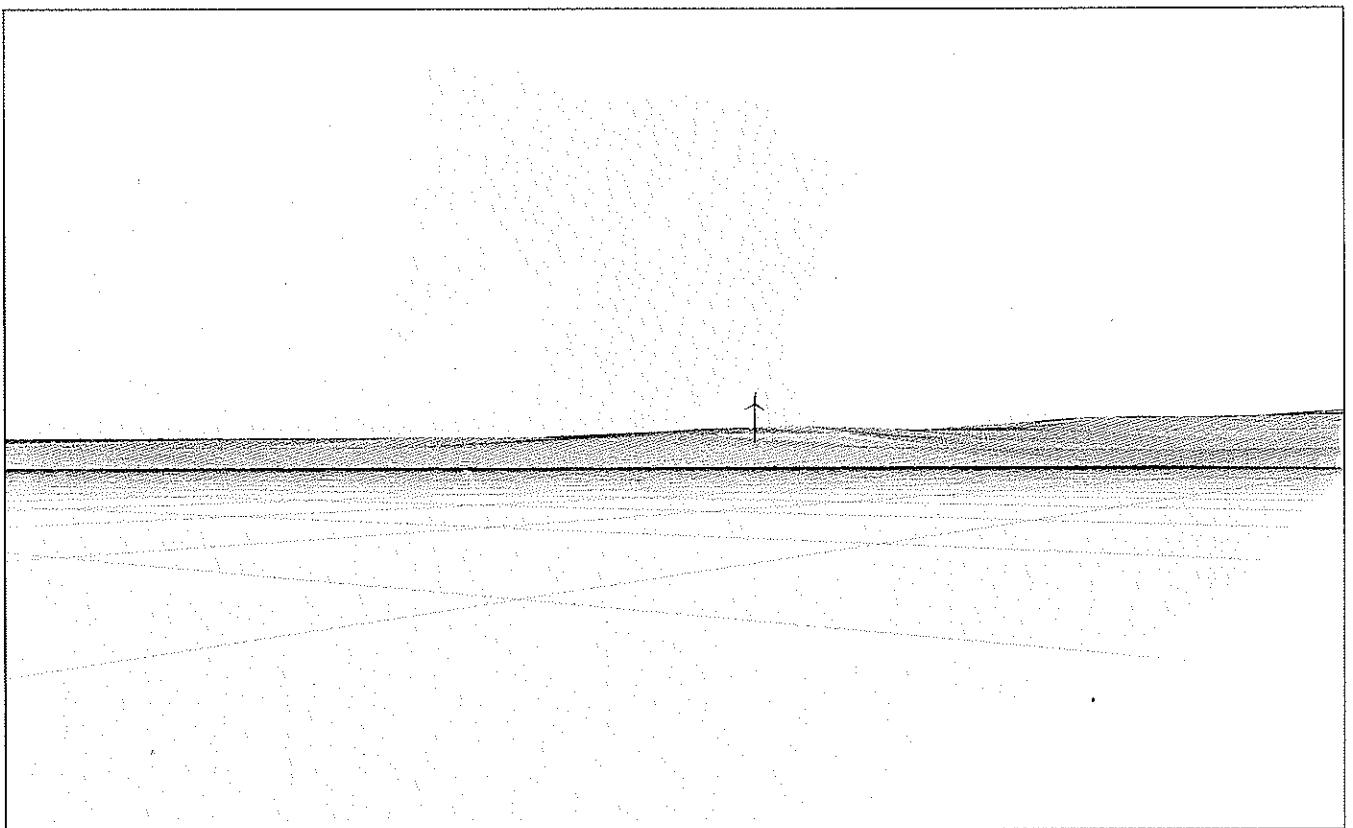


Photomontage Specification	
Focal Length: 35mm	
Range: 1.09km	Direction: E
Height Above Ground: 1.6m	
Date Taken: 20 Sept 2012	
Camera: Fujifilm Finepix S1730	
Lens: Digital 5mm-75mm	
Viewing Distance on A3: 400mm	

Viewpoint 6 Existing



Viewpoint 6 Proposed Wireline



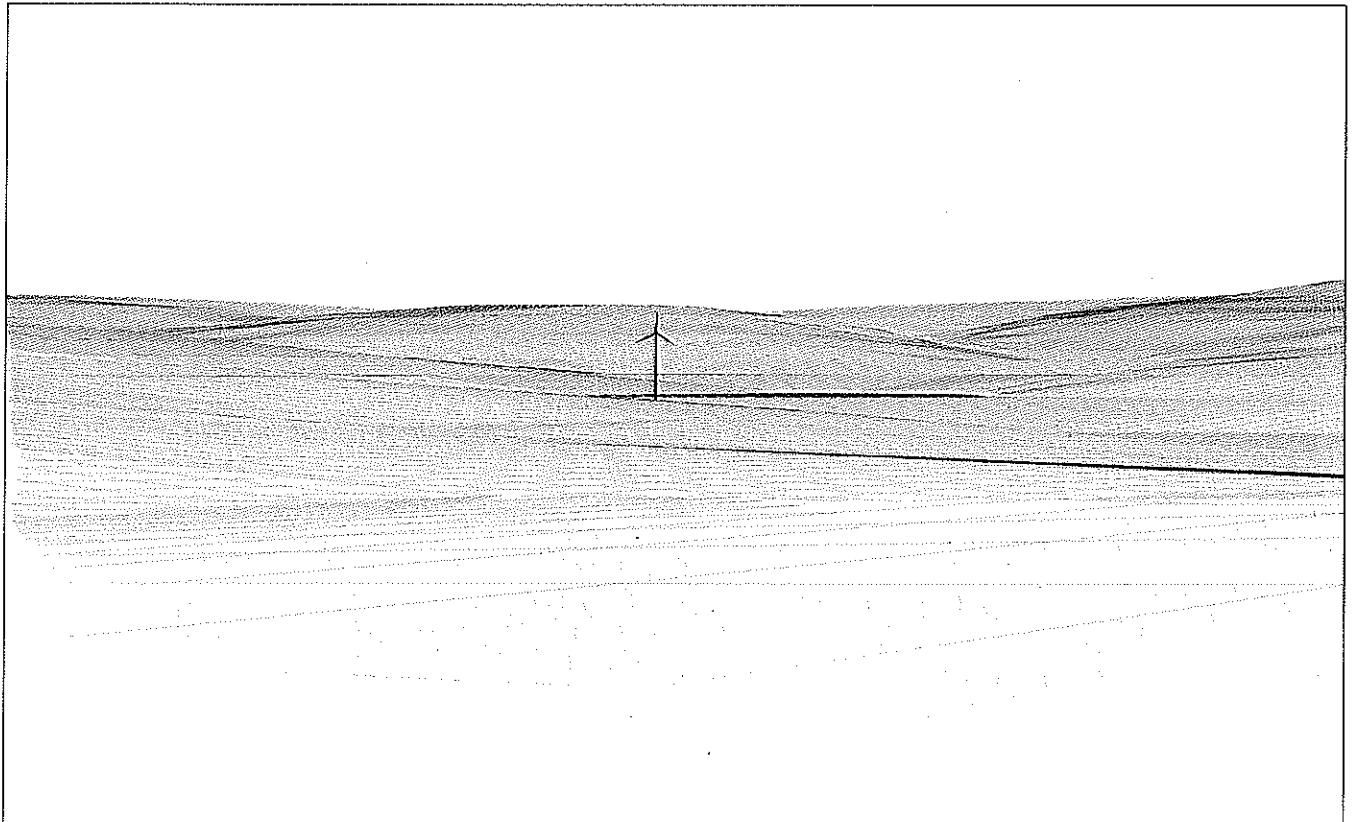
Viewpoint 6 Proposed Photomontage



Viewpoint 7 Existing



Viewpoint 7 Proposed Wireline



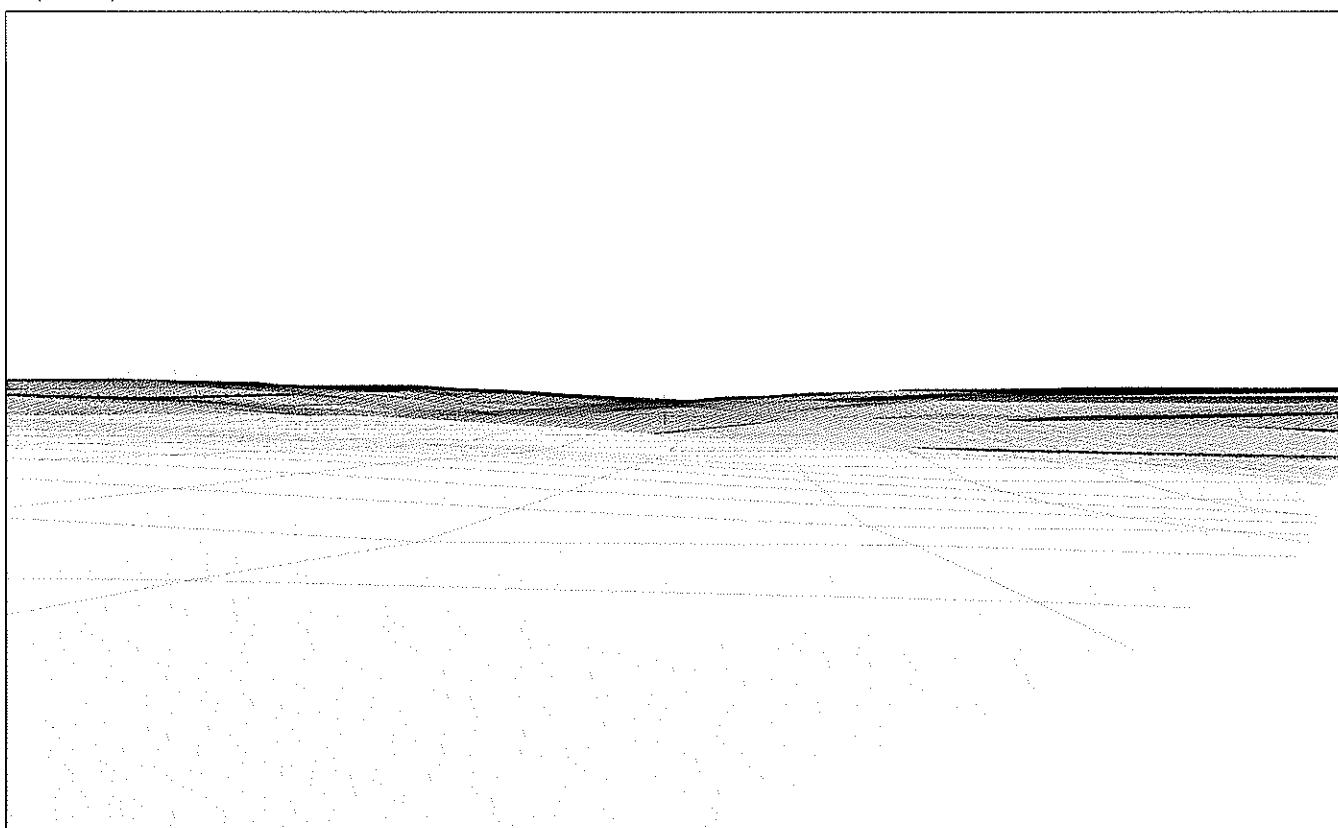
Viewpoint 7 Proposed Photomontage



Viewpoint 8 Existing



Viewpoint 8 Proposed Wireline



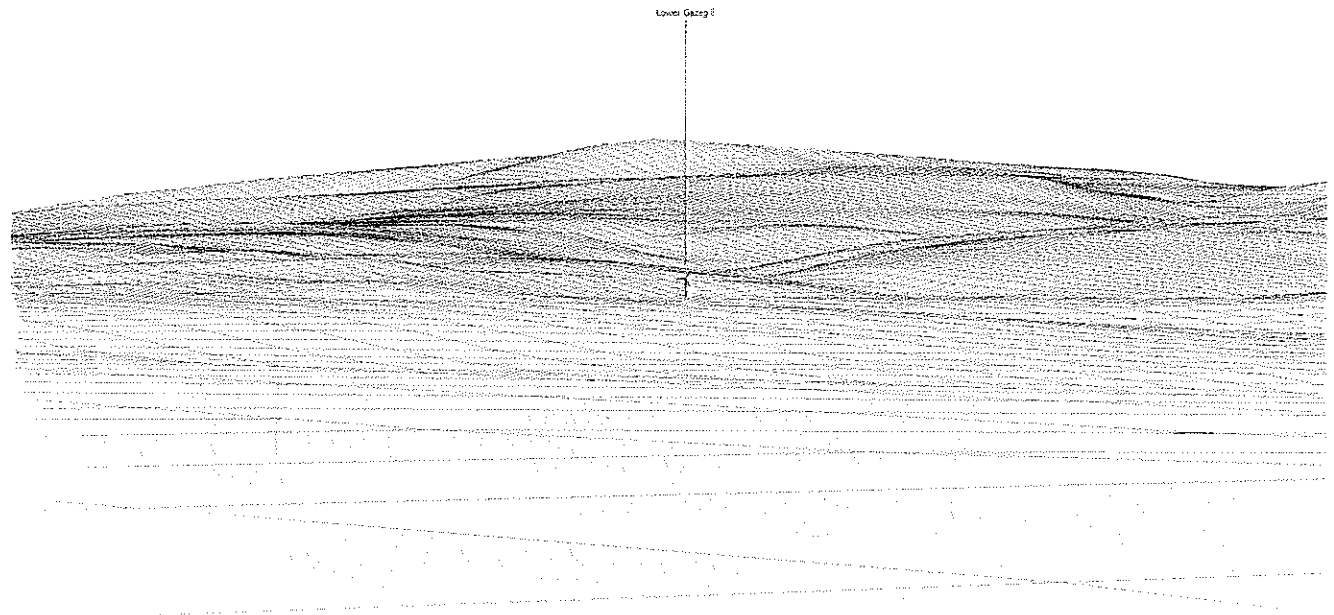
Viewpoint 8 Proposed Photomontage



Viewpoint 9 Existing



Viewpoint 9 Proposed Wireline



Wireline Specification Viewing Height: 2m

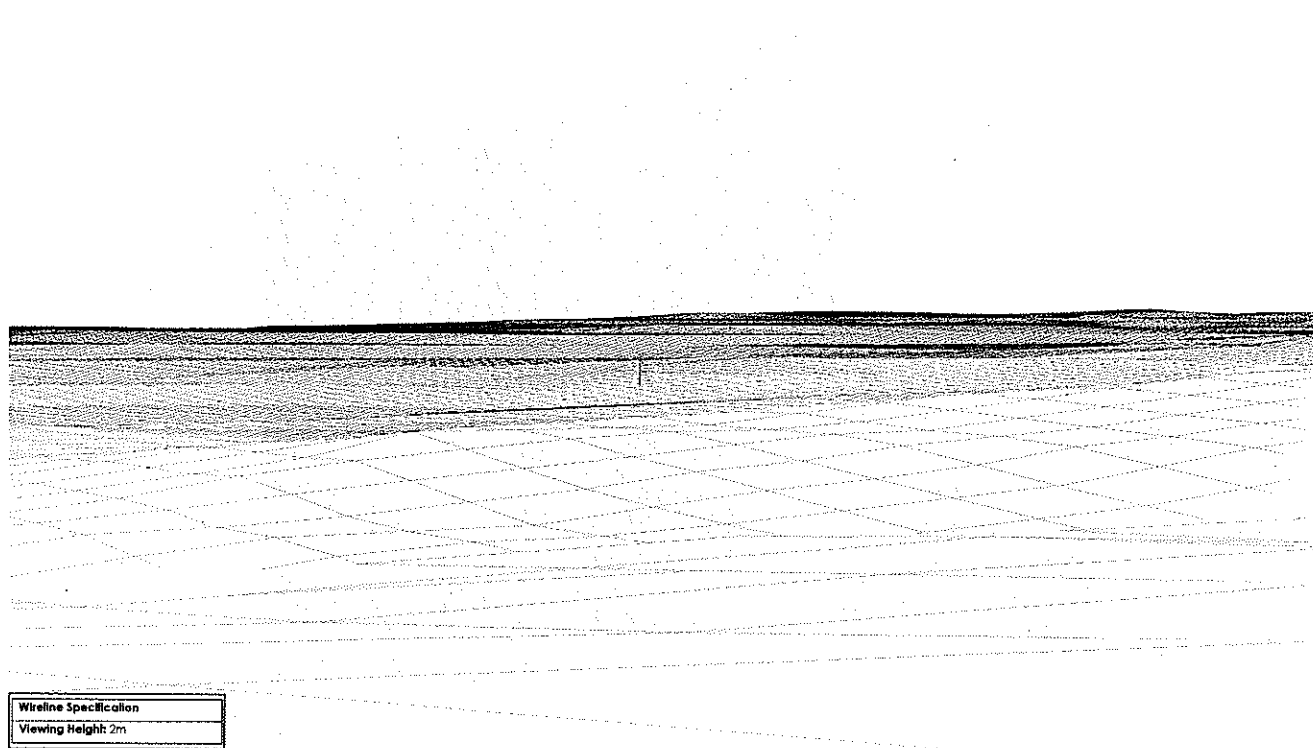
Viewpoint 9 Proposed Photomontage



Viewpoint 10 Existing



Viewpoint 10 Proposed Wireline



Viewpoint 10 Proposed Photomontage



4.3 Commentary

VP	NGR	Distance from Proposal	Comment
1	382497, 446796	390m	The photo location provides an opportune view to demonstrate the impact of the proposed turbine on views from Rimington Caravan Park and a nearby public footpath. The single turbine would be partially visible to public footpath and caravan park users above the tree line. The hub of the turbine will be largely hidden with only the blades visible above the tree line. The existing natural backdrop will allow the turbine to be integrated into the landscape more easily.
2	382430, 446232	295m	The turbine will be fully visible on the brow of the hill from this viewpoint at Higher Gazegill Farm. The farmhouse and barn at Higher Gazegill are Grade II Listed; however their principal elevations do not face directly onto the proposed turbine site. Due to the large number of dotted mature trees it will be difficult to see the proposed development in conjunction with the Grade II Listed buildings, limiting the overall impact on the character and setting of the heritage assets.
3	382057, 445756	750m	Similar to the previous viewpoint, the potential impact on Grade II Listed Buildings, Salem Congregational Chapel and attached Manse / PROW is measured here. Theoretically the turbine is fully visible; however the photomontage demonstrates that only parts of the turbine blades will be visible just above the tree line. The turbine will not appear as prominent feature in the landscape due to the natural screening available.
4	380226, 447275	2.18km	Taken from the A59 road by the railway line on the boundary of the AONB, this viewpoint demonstrates that the turbine will not be visible from here. This is mainly due to the undulating topography of the land in between the proposed site and the visual receptor.
5	381184, 446337	1.09km	Taken from Rimington Bridge/Lane on a PROW the wireline demonstrates that the turbine will be theoretically fully visible, however taking a closer look at the photomontage it is clear that only partial views of the turbine blades are afforded due to the natural screening available. The turbine will appear as approximately the same height as trees in this viewpoint and therefore will not appear disproportionate in scale to other features in the

			landscape.
6	381759, 446190	580m	This viewpoint was taken from the boundary of Newby Hall Dwelling on a PROW. Similar to other viewpoints the turbine is theoretically visible according to the wireline, however in reality the turbine will benefit from significant amounts of natural screening limiting its overall visibility considerably.
7	381798, 446979		This viewpoint was taken in between Mylah and Thistlebar dwellings on Rimington Lane and therefore the turbine has the potential to impact on residential amenity. Once again the turbine is theoretically fully visible; however in reality only intermittent views of the turbine blades will be afforded limiting the overall magnitude of change significantly.
8	383162, 446545		Taken from Todber Caravan Park on the A682 at a PROW entrance this viewpoint demonstrates the potential impact of the turbine on local tourism and recreational users. The wireline shows that the turbine will theoretically be visible as a slim and slender feature in the landscape; however the photomontage demonstrates that the turbine will be fully screened by natural foliage. As a result no changes will occur.
9	379836, 447668		This viewpoint is the first of two viewpoints taken within the AONB in order to measure the potential landscape and visual impact of the proposed turbine on the AONB. This viewpoint is taken from the Ribble Way path within the AONB. As the wireline demonstrates the turbine is theoretically visible but extremely small and difficult to make out due to the separation distance. The photomontage demonstrates that the turbine blade tip will be just about visible to the naked eye.
10	381154, 444533		This is the 2 nd of two viewpoints within the AONB. This particular view is from a PROW Public Right of Way at Lower Gate dwelling. The wireline demonstrates that it would be extremely difficult to theoretically see the turbine, whilst the photomontage demonstrates that in reality the turbine will not be visible due to the natural screening available and separation distances involved. As a result to significant impact will occur on the AONB from this viewpoint.

5.0 Heritage Assets Assessment

There will be no physical impacts on heritage assets as a result of the proposed turbine, due to the separation distances between the proposed turbine and heritage assets. There is limited opportunity for the character and setting of heritage assets to be affected, as one would have to align themselves at a viewpoint whereby the turbine would be seen to conflict visually with the assets.

The assets are located within a local area characterised by trees, hedges, walls and fences making it difficult to view the proposed turbine in conjunction with local heritage assets. This coupled with the undulating topography of the landscape will ensure that no significant impacts will occur on the cultural heritage of the area.

A comprehensive landscape and visual impact assessment of all local heritage assets has been carried out as part of this report, which has established that no significant impacts will occur on local heritage assets, with the exception of Viewpoint 2 – Higher Gazegill Farm. The predicted impact at Higher Gazegill Farm is Major/Moderate; however the property is largely surrounded by mature trees, making it extremely difficult to view the turbine in conjunction with the heritage asset. In addition the principal elevation of the property does not face directly towards the proposed turbine site.

6.0 Conclusions

The landscape and visual appraisal assesses the proposal to construct 1 no. 20kW wind turbine with a maximum hub height of up to 20.5m, rotor diameter of up to a maximum of 13.1m and a maximum upright vertical tip height of up to 27.2m

The method of landscape and visual assessment complies with published best practice guidance and has been prepared by Entrust who have suitable qualifications and experience in landscape issues particularly for wind energy developments.

The regional and local landscape context of the site is described with reference to published assessment and it is noted that no landscape designations affect the site

or local area. No Significant landscape or visual effects are predicted from these designations as a result of the proposals.

The viewpoint analysis supported by wireframe and photomontage visualisations examines the landscape and visual effects that would be experienced at 10 short-medium range viewpoints within 4km of the turbine.

Review of the ZTV and field analysis indicates that visibility of the turbine generally reduces with increasing distance from the turbine due to the screening effects of landform and intervening vegetation. A review of the Cumulative ZTV indicates that a negligible cumulative impact will occur on the landscape as a result of the proposed development.

No significant effects upon the landscape fabric are predicted and only very localised effects upon landscape character within 200m of the turbine are predicted as a result of the proposed development. Significant visual effects would be restricted to high sensitivity receptors within 1km of the proposals where open views of the turbine would be available. It is important to note that in the majority of cases, visibility from settlement is fully or partially restricted by tree cover and intervening buildings limiting the potential for significant effects. The effect on residential amenity would not be considered significant given the separation distance from the proposal to the nearest settlements and is further explored within the Design and Access Statement.

All on-shore wind turbine developments lead to some significant landscape and visual effects and these effects are not necessarily unacceptable. These changes arising from a proposed development may engender positive or negative responses depending on individual perceptions regarding the merits of wind energy development. The same project may be seen by some as attractive, acceptable and contributing to the well being of the natural environment, while other may take a negative stance regarding the wind turbines as unattractive. Independent attitude surveys have consistently concluded that more people view wind turbines positively than negatively and all the levels of support seems to increase when surveys are carried out pre and post construction.

The most notable effects are reversible; if the decision is taken to decommission the wind turbine at the end of the anticipated operational life of 20 to 25 years.

The proposed wind turbine would respect the scale and composition of the surrounding landscape. There would be very localised effects upon landscape character and visual effects would be limited to a radius of approximately 1km from the site, primarily as a result of the modest scale of the proposal with visibility reduced in places by the screening effects of landform, local vegetation and built form. No significant cumulative effect is predicted due the limited number of similar developments in the local area and small scale nature of the development itself. In conclusion this report has demonstrated that in landscape and visual terms the site has the potential to accommodate the scale of the development proposed.

Table 7: Viewpoint Analysis: Summary of Landscape and Visual Effects

Existing View	Predicted View	Landscape Effects			Visual Effects		
		Landscape Sensitivity	Magnitude of change	Effect on landscape Character	Receptor sensitivity	Magnitude of change	Effects on visual amenity
Viewpoint 1: Rimington Caravan Park and Public Right of Way							
Gently rising landscape with natural backdrop. Linear patterns of mature trees present.	The single turbine would be partially visible to public footpath and caravan park users above the tree line. The hub of the turbine will be largely hidden with only the blades visible above the tree line. The existing natural backdrop will allow the turbine to be integrated into the landscape more easily.	Moderate-Low (LCA 5e)	Small	Moderate/Minor Not Significant	High	Small	Moderate
Viewpoint 2: Higher Gaze Hill Farmhouse and adjoining barn to west (grade II Listed)							
Gently rising gradient with dotted mature trees below small ridge. Rugged unkempt vegetation in foreground.	Turbine would be fully visible on the brow of the hill.	Moderate-Low (LCA 5e)	Small	Moderate/Minor Not Significant	High	Medium	Major/Moderate
Viewpoint 3: Salem Congregational Chapel and attached Manse (grade II Listed)							
Relatively flat landscape with fields enclosed by linear patterns of mature trees. Dwelling visible in centre in middle ground.	Turbine will be partially visible above tree line to rear of dwelling. Turbine will not be a prominent feature within the landscape.	Moderate-Low (LCA 5e)	Small	Moderate/Minor Not Significant	High	Small	Moderate
Viewpoint 4: Edge of Forest of Bowland AONB, A59 Road and Railway Line							
Thick hedgerows and other vegetation present in the foreground and background	The turbine will not be visible due to the topographical changes of the landscape between the turbine and this visual receptor	Moderate-Low (LCA 5e)	Small	Moderate/Minor Not Significant	High	Negligible	Moderate/Minor
Viewpoint 5: Rimington bridge on Rimington Lane and Public Right of Way							
Steeply rising gradient with small fields heavily populated with mature trees. Power lines traverse the view.	The turbine enjoys partial screening from the ridge line and mature vegetation. Likely Blades only will be visible.	Moderate-Low (LCA 5e)	Small	Moderate/Minor Not Significant	Medium	Small	Moderate/Minor
Viewpoint 6: Newby Hall and Public Right of Way							
Largely flat landscape with significant amounts of mature trees/vegetation limiting views. Dwelling visible in foreground right.	The majority of the turbine will not be visible due to natural screening from this viewpoint.	Moderate-Low (LCA 5e)	Small	Moderate/Minor Not Significant	High	Negligible	Moderate/Minor
Viewpoint 7: Rimington Lane by Mylah and Thistleber dwelling							
Long distant views rising up to mountain top. Dwelling in	Intermittent views of the top of the turbine will be visible in the middle-	Moderate-Low (LCA 5e)	Small	Moderate/Minor	High	Negligible	Moderate/Minor

foreground largely surrounded by mature trees.	background. Turbine benefits from natural backdrop and natural screening.			Not Significant			
Viewpoint 8: Tadber Caravan Park on A682 at entrance to Public Right of Way							
Landscape dips into bowl like feature. Pocket woodlands and vegetation throughout the landscape interrupting views towards turbine.	Turbine will be fully out of site due to natural screening available.	Moderate-Low (LCA 13a)	Small	Moderate/Minor Not Significant	High	Negligible	Moderate/Minor
Viewpoint 9: Ribble Way Path within Forest of Bowland AONB							
Large cleared field in foreground with landscape steeply rising up beyond this. Dotted mature trees present throughout landscape.	Turbine tip will be marginally visible above tree line.	Moderate (LCA 5f)	Negligible	Minor Not Significant	High	Negligible	Moderate/Minor
Viewpoint 10: Public Right of Way within Forest of Bowland AONB at Lower Gate dwelling							
Ground rises immediately with small trees dotted in foreground	Turbine will not be visible due to natural screening available and separation distance.	Moderate-Low (LCA 5e)	Small	Moderate/Minor Not Significant	High	Negligible	Moderate/Minor

Appendix A - Landscape Character Area Plans

A Landscape Strategy for Lancashire Landscape Character Assessment

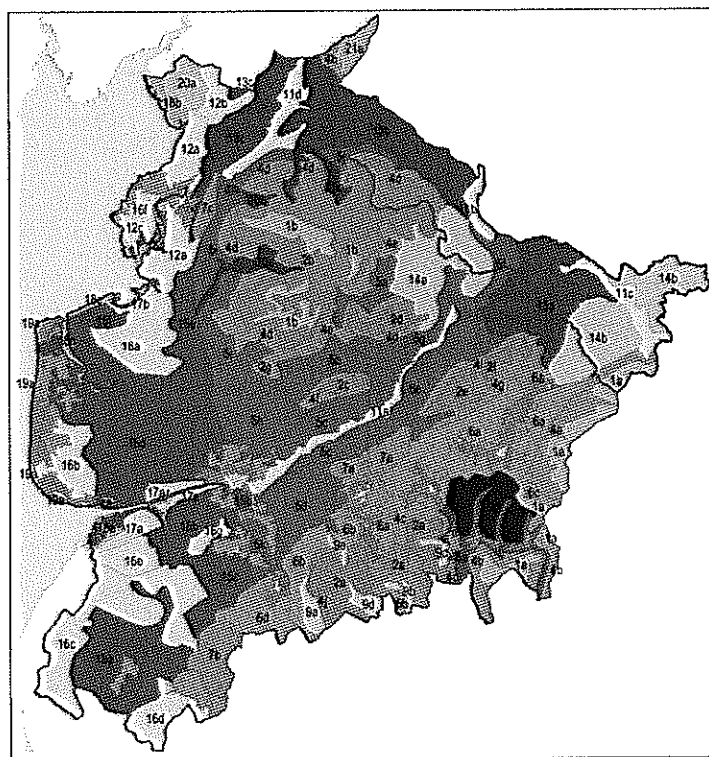


**Figure 8: Landscape Character Types
& Landscape Character Areas**

- [illegible]

Scale approx 1:325,000 at A3 page size

Landscape Character Type: **Undulating Lowland Farmland**
Landscape Character Area: **5a Lower Ribblesdale (Clitheroe to Gisburn)**

Refer to Appendix 2: Key for source of information in left hand column

Key Characteristics	Sensitivity to Wind Energy Development
PHYSICAL	Moderate-High
Scale: Small	This is a small scale area forming the broad valley of the Ribble penetrating the high ground of the Forest of Bowland and its outlier. There is a mature and established character to the landscape comprising stands of mature deciduous woodland, picturesque built elements and other attributes which elevate its sensitivity.
Openness: <i>Transitional between the low-lying plains and the high fells of Bowland.</i>	
Landform: <i>Lowland landscape traversed by deeply incised, wooded cloughs and gorges. Gentle topography.</i>	
Landcover: <i>Many mixed farm woodlands, copses and hedgerow trees. Woodlands on the deep cloughs and valley sides.</i>	
Complexity/Pattern: <i>Patchwork of wood and pasture.</i>	
Built Environment: <i>Well settled area and communication corridor. Built development and industry.</i>	There is however more contemporary development and proximity to urban areas which reduces the sensitivity of the area.
PERCEPTUAL	The area is locally included within the AONB centred on Pendle Hill and this reflects its particular visual attributes.
Sense of remoteness:	
Perception of change: <i>Country houses and estates.</i>	
VISUAL	
Settings: <i>Large cement works at Clitheroe is a prominent visual landmark for miles around. Limestone 'Reef Knolls' evident.</i>	
Views:	
VALUE	
Rarity:	
Designated scenic quality: <i>Limited part in AONB</i>	
Cultural associations: <i>Long history of settlement.</i>	
Amenity and recreation:	

Scale: Small scale.

Landscape Character Type: **Undulating Lowland Farmland**
Landscape Character Area: **5f Lower Ribblesdale (Gisburn to Hellifield)**

Refer to Appendix 2: Key for source of information in left hand column

Key Characteristics	Sensitivity to Wind Energy Development
PHYSICAL	High
Scale: Small	This is a small scale landscape fringing the adjacent higher ground of the Forest of Bowland and its outliers. There is a mature and established character to the landscape comprising stands of mature deciduous woodland, picturesque built elements and other attributes which elevate its sensitivity.
Openness: Transitional between the low lying plains and the high fells of Bowland	
Landform: Lowland landscape traversed by deeply incised, wooded cloughs and gorges. Gentle topography.	
Landcover: Lush green pastures divided by hedgerows and many hedgerow trees. Wooded character.	
Complexity/ Pattern: Patchwork of wood and pasture.	
Built Environment: Highly rural area.	Largely away from urban influences, the area has a sense of being rural.
PERCEPTUAL	The area is partially contained within the AONB in reflection of its visual quality.
Sense of remoteness:	
Perception of change: Country houses and estates.	
VISUAL	
Settings:	
Views:	
VALUE	
Rarity:	
Designated scenic quality: Most in AONB	
Cultural associations: Long history of settlement.	
Amenity and recreation:	

Scale: Where site specific sensitivities do not prelude development, scale will be determined by the extent of the appropriate location and the scale of the landscape.

Landscape Character Type: **Drumlin Field**
Landscape Character Area: **13a Gargrave**

Refer to Appendix 2: Key for source of information in left hand column

Key Characteristics	Sensitivity to Wind Energy Development
PHYSICAL	Moderate-High
Scale: Large scale, regular hillocks.	This large scale landscape of regular hillocks with its uniform grain and predominance of pasture with small areas of woodland indicate a modest sensitivity.
Openness:	
Landform: Distinctive 'field' of rolling drumlins. Consistent orientation gives a uniform grain. Solid rock outcrops present. Becks and immature rivers wind through the hills.	The farmed nature of this landscape, the pattern of built development, the enclosure provided by the topography and, particularly, the historic and designed elements of this area suggest an elevated sensitivity.
Landcover: Pasture predominates. Small mixed woodlands.	
Complexity/ Pattern: Strong field patterns.	This area, whilst not forming a prominent landscape backdrop, does provide a setting for the adjacent areas, and particularly for the adjacent lower landscape.
Built Environment: Farms, hamlets and villages plus small towns on edge of the area. Major communication routes cut across the grain of the drumlins.	
PERCEPTUAL	
Sense of remoteness:	
Perception of change: Designed parkland.	
VISUAL	
Settings: Drumlin Field	
Views: Long distance views from highest hills.	
VALUE	
Rarity:	
Designated scenic quality:	
Cultural associations: Roman remains. Large number of designed landscapes.	
Amenity and recreation:	

Scale: Small and possibly medium scale.