

LANDSCAPE AND VISUAL IMPACT APPRAISAL

LVIA for the proposed development of three wind turbines 24.6m to hub, 19.2m blade diameter on land at the Carr Hall Home and Garden Centre, Wilpshire, Ribble Valley, Lancashire, BB1 9PH

Grid Reference: SD 370042 432872

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Consulting With Purpose Ltd
45 New Laithe Hill
Huddersfield
West Yorkshire
HD4 6RF

Tel: +44(0) 1484 514761
Email: info@cwpltd.com
www.cwpltd.com

1. INTRODUCTION

This Landscape and Visual Impact Appraisal is intended to support the planning application for three wind turbines on land at the Carr Hall Home and Garden Centre. The location of the turbines is illustrated in Figure 1.

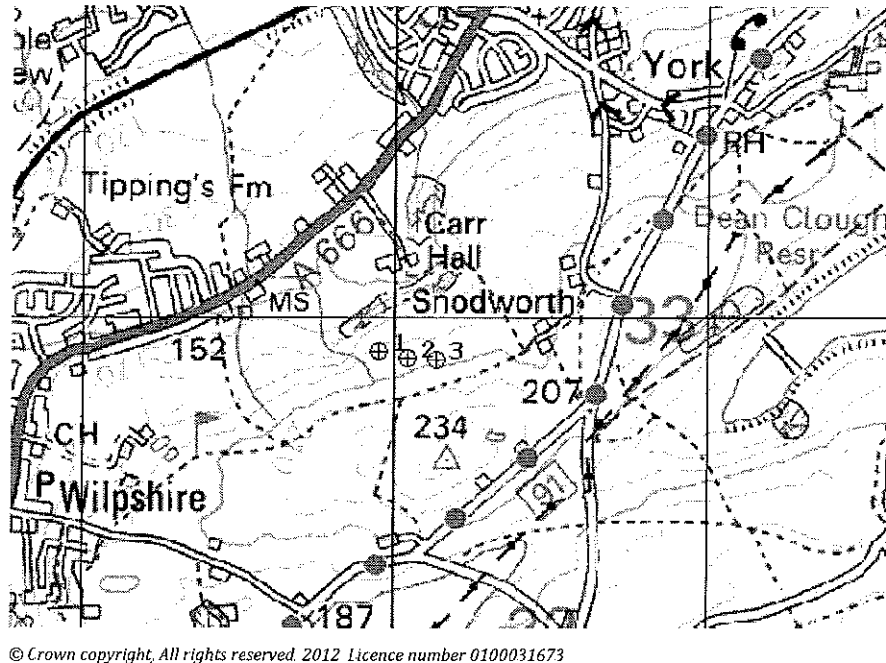


Figure 1: Location of Proposed Wind Turbine marked as 1, 2, and 3

2. PROPOSED DEVELOPMENT

The proposed development would consist of:

- Three, 3 bladed wind turbines classed as small/medium scale and of narrow construction; 36.4m to hub height, 46m to blade tip and with 19.2 blade diameters.
- The wind turbine would be white in colour. The coatings of the turbine blades, hub, nacelle and tower have been carried out to industry standards in order to minimise reflected light.
- A small control cabinet would be installed at the base of the turbine tower to house the turbine control system; this cabinet would be green in colour.
- All cables linking the proposed turbine to the National Grid would be buried.
- Temporary tracks would be created to support traffic access over the brief construction phase. These would then be removed with no resultant loss of or damage to land.
- The proposal would have a lifespan of 30 years after which the turbine can be removed, the foundations grubbed up and the land returned to its former use.

3. SITING OF THE TURBINE

- The turbine will be over 250m from the garden centre and sited on land currently used for grazing, which can continue after the installation.
- The precise siting of the proposed turbine has been carefully selected, balancing considerations such as visual impact, optimum exploitation of the wind resource, ease of grid connection and ease of access.

4. LVIA SCOPE

This document:

- Identifies and describes the character of the receiving landscape.
- Identifies and describes a series of visual amenity receptors within the receiving landscape from which the visual impact of the turbine will be assessed.
- Describes the magnitude of impact and significance of effects on the existing landscape character and visual amenity receptors
- Uses ZTV, photomontages and wire frame drawings to illustrate the potential impacts.
- Provides conclusions on the overall landscape and visual effects of the proposed development

5. METHODOLOGY

This LVIA has been prepared in accordance with good practice guidance as set out within:

- *'Guidelines for Landscape and Visual Impact Assessment'* (Second Edition), 2002, Landscape Institute and Institute for Environmental Management and Assessment
- *Visual Representation of Wind Farms: Good Practice Guidance*, 2006, Horner+ Maclellan and Envision for Scottish National Heritage
- *Landscape Capacity Study for Wind Energy Developments in the South Pennines Final Report*, January 2010, Julie Martin Associates

5.1 Baseline Conditions Assessment Methodology

Desk top and site surveys have been undertaken in order to assess the existing condition of landscape character and of the visual amenity receptors to be assessed. A range of reference material has been reviewed in the process of preparing this LVIA including:

- The ZTV prepared for the site
- Ordnance Survey map data
- DEFRA's Magic Tool
- Lancashire County Council's, Landscape Strategy for Lancashire: Landscape Character Assessment, December 2009
- Hyndburn Borough Council's Local Plan Proposal Map
- The National Heritage List for England

5.2 Determination of Sensitivity, Magnitude and Significance of Effect on Landscape Character and Visual Amenity Receptors

The significance of the impact of the proposed development upon landscape and visual amenity receptors has been made via a process of systematic classification based on the matrices set out in the following tables. Significance of impact is determined by reference to the sensitivity of the landscape and the magnitude of change that is expected to occur as a result of the proposed development.

Table 1: Criteria for Determination of Sensitivity

LANDSCAPE CHARACTER DESCRIPTION	VISUAL AMENITY RECEPTOR DESCRIPTION	SENSITIVITY
Landscapes of high value and distinctive character. No/few detractors present. No/limited potential for change. Landscape of national or local value with corresponding designation ie AONB, National Park, AGLV	Residential properties and settlements within 1km of the proposed development. Users of national trails and named recreational routes/national cycle routes. Users of footpaths in designated landscapes. Users of recreational areas with high level of focus on surrounding landscape ie country parks. Environmentally sensitive features within 1km.	HIGH
Landscape of moderate value. Non-designated landscape but having some locally valued elements. Some detractors present. Reasonably tolerant of change.	Residential properties and settlements over 1km from the proposed development. Users of footpaths/open access land in non-designated landscapes. Users of outdoor sporting facilities. Environmentally sensitive features over 1km. Users of 'B' roads or unclassified roads.	MODERATE
Landscape with few features of value or interest. Generally developed landscape. Tolerate of substantial change. No landscape designations apply.	Workers in offices, commercial and industrial developments. Users of 'A' roads, trunk roads, motorways and railways.	LOW

Table 2: Criteria for Determination of Magnitude of Change for Landscape Character and Visual Amenity Receptors.

LANDSCAPE CHARACTER DESCRIPTION	MAGNITUDE OF IMPACT
Total loss of or major alteration to key elements/features/characteristics of the baseline/pre-development landscape or field of view and/or introduction of elements considered to be totally uncharacteristic when set within the attributes of the receiving landscape.	SUBSTANTIAL
Partial loss of or alteration to one or more key elements/features/ characteristics of the baseline/pre-development landscape or field of view and/or the introduction of elements that may be prominent but may not necessarily be considered to be substantially uncharacteristic when set within the attributes of the receiving landscape.	MODERATE
Minor loss of or alteration to one or more key elements/features/characteristics of the baseline landscape or field of view and/or the introduction of elements that are visible but not uncharacteristic when set within the receiving landscape.	SLIGHT
Very minor loss of or alteration to one or more key elements/features/ characteristics of the baseline landscape or field of view and/or the introduction of elements that are visible but not uncharacteristic within the surrounding landscape.	NEGLECTIBLE
No loss or alteration to any key elements/features/ characteristics of the landscape or field of view.	ZERO

Table 3: Determination of Significance of Effect on Landscape Character and Visual Amenity Receptors

	LOW SENSITIVITY	MODERATE SENSITIVITY	HIGH SENSITIVITY
SUBSTANTIAL MAGNITUDE	MODERATE IMPACT	SUBSTANTIAL IMPACT	SUBSTANTIAL IMPACT
MODERATE MAGNITUDE	SLIGHT IMPACT	MODERATE IMPACT	SUBSTANTIAL IMPACT
SLIGHT MAGNITUDE	SLIGHT IMPACT	SLIGHT IMPACT	SLIGHT IMPACT
NEGLECTIBLE MAGNITUDE	NEUTRAL IMPACT	NEUTRAL IMPACT	SLIGHT IMPACT
ZERO MAGNITUDE	ZERO IMPACT	ZERO IMPACT	ZERO IMPACT

6. VISUALISATION METHODOLOGY

- A number of viewpoints from which the proposed turbines would be visible have been selected. Wireframe visualisations and/or photomontages have been generated from these viewpoints
- All computer generated wireframe drawings have been produced using ReSoft Ltd's WindFarm software. This software uses a 3D DTM model of the existing landscape derived from OS Landform Panorama data based on a 50m grid and 10m contour intervals. The software was used to create a 3D model of the proposed wind turbine using turbine grid coordinates and specified turbine geometry. Specified viewpoint coordinates, direction of view and horizontal field of view data were used to generate wireframe views of the proposed turbine within the existing landform.
- Photomontage material was produced using ReSoft WindFarm software. Single images¹ on a flat plane projection were imported into the software and aligned to the corresponding wireframe drawing. To aid alignment, geographic features in the image were matched with the corresponding coordinates of those features on the base map.
- For all photomontages there is an element of judgement, the finished image is only intended as a representation of the likely appearance of the proposed development.
- Viewpoint photographs were taken in fine weather with good visibility in October 2012.
- A tripod mounted Nikon D700 Full Frame camera with a 50mm f/1.4 G lens is used for all field photography.
- Viewpoint coordinates and view direction have been fixed through reference to Google Earth.

7. LANDSCAPE AND VISUAL IMPACT ASSESSMENT

7.1 Landscape Character Impact Assessment

The proposed development sits within a large scale landscape characterised by extensive rolling upland farmlands. Large scale landscapes such as this tend to be less sensitive to wind energy development as wind turbines can be absorbed into their expanse without dominating any prominent land cover or landform elements. The proposed wind turbines are considered to be small in scale. The definition of Small and Medium scale development is defined within the report as follows:

- SMALL - Small scale clusters (2-5 1.3MW+ turbines)
- MEDIUM - Medium scale clusters (6-10 1.3MW+ turbines)

Looking at the above, it is clear that the report is focussed on the development of utility scale wind farms with turbines over 100m to blade tip. The proposal is for three 50kW (0.05MW) wind turbines of 34.2m to blade tip, a group of minor structures designed primarily for direct on-site generation. The turbines are intended to be large enough to meet the electricity demand of a farm but small enough to minimise noise and visual amenity impacts. If the local landscape character area has been recognised as capable of accommodating utility scale wind energy developments then it follows that much smaller wind turbines could be accommodated.

The nature of the agricultural built environment helps to make the landscape less sensitive to the proposed development whilst the absence of telecoms masts or power lines means that the proposed turbine will not conflict with any such existing structures or contribute to cumulative impact.

The landscape around the proposed development has clearly been shaped by human activity, in particular farming. Small farm-based wind energy systems are increasingly seen in this type of landscape and it is clear

¹ Multiple images stitched together to create a panoramic view have not been used.

to the observer that these machines perform a function. The proposal would have clear visual links to the built-form of Carr Hall Garden Centre as such would be perceived as part of the working agricultural landscape in the same way as other farming technology and agricultural built-forms. In this context the proposed development would not be perceived as an uncharacteristic feature within the landscape.

The proposed turbine location is within the green belt area, however wind turbines are not inappropriate provided the openness of the Green Belt is not adversely affected.

There are already a number of tall radio structures nearby that are of a similar scale to the wind turbine. The turbine is slim-line in construction and would not adversely impact the openness of the Green Belt.

Taking all of the above into account:

- The overall sensitivity of the landscape is determined as being **Moderate**.
- The magnitude of impact on landscape character caused by the proposed development is determined as being **Slight**.
- The overall significance of effect is determined as being **Slight**.

7.2 Visual Receptor Impact Assessment

Guidance provided by Ribble Valley Borough Council² states that all wind turbine proposals require an LVIA and that this should include both Zones of Theoretical Visibility (ZTV) drawings and photomontages material. The Council request that photomontages material should cover both short and long distance views from roads, settlements and footpaths.

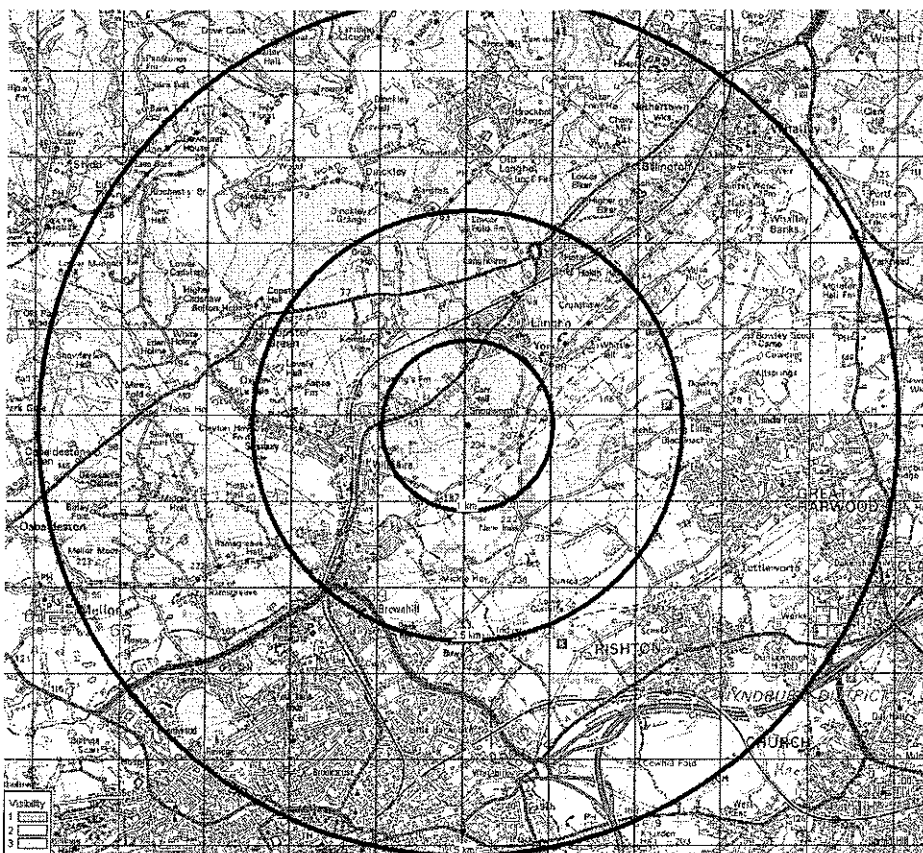
In light of this, the visual receptor impact assessment for this proposed development has been based upon a 5km radius³ ZTV study area. A copy of the ZTV study area drawing is included within this report along with wire frame and photomontages material for a selection of short and long distance views within 5km study area.

Six visual receptors have been identified within the 5km study area. Viewpoints along these receptors have been selected and the corresponding views towards the proposal modelled in the WindFarm software. The software has been used to create a wire frame image of the view which was then superimposed over a photograph taken in the field to create a photomontage of the view.

² 'Pre-application Advice Note for Wind Turbine Proposals' (August 2012)

³ 5km radius from the proposed turbine location

5KM STUDY AREA/ZTV DRAWING FOR CARR HALL HOME AND GARDEN CENTRE WIND ENERGY PROJECT



LEGEND

ZTV

This image represents the Zone of Theoretical Visibility (ZTV) for 3 no Endurance E-3120 Wind Turbine 36 4m to hub height and with a blade diameter of 19 2m

The target height for the ZTV is the turbine nacelle (hub)

Data is presented on OS1:50 000 scale map data and uses OS Panorama DTM at the supplied 50m grid size

This ZTV calculation is centred on the turbine position and extends out over a radius of 5km It presents a 'bare earth' scenario which takes into account topography but does include the screening effect of structures or vegetation

The Earth's curvature and light refraction have been included in the calculation and a viewer height of 2m has been assumed

Visual Receptors/Viewpoints (VP)

- VP1: A666 Langho Roadside (667m)
- VP2: Snodworth Junction (722km)
- VP3: Golf Course footpath (382km)
- VP4: A59 Longsight Road (2.4km)
- VP5: New Inn Harwood (1.3km)
- VP6: Ribchester/Kenyon Lane (2.9km)

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VP1 A666 Langho Roadside

- 667m from proposal
- See photomontage VP1

This roadside viewpoint offers a short distance view from the A666 leaving Langho towards Wilpshire. This view looks ahead with the three proposed turbine positions sited in the distance behind the existing Carr Hall Garden centre. This visual receptor of the proposed turbines is a similar view to some of the neighbouring properties. In this context, the proposal would appear modest in scale compared to the Garden Centre itself. The overall significance of effect on this visual receptor is therefore likely to be SLIGHT.

VP2 Snodworth Junction

- 722m from proposal
- See photomontage VP2

This viewpoint is located on the junction between Snodworth Road/York Road/Old Whalley Road around 700m from the proposed site. The viewpoint looks over footpaths and is taken from a named cycle route. The neutral colour of the turbine means that its visual impact even over a short distance is minimal. The photomontage image for this viewpoint illustrates this very well. From this viewpoint the tops of the turbines almost blend into the sky. There are other tall objects such as telephone masts in this viewpoint. The significance of effect on this visual receptor is therefore likely to be slight.

VP3 Golf Course Footpath

- 382km from proposal
- See photomontages VP3

This viewpoint is located along a public footpath along the edge of Wilpshire Golf course. The turbine will be clearly visible from the footpath and golf course. In the context of this wind farm and other local built forms the turbine would not appear incongruous or uncharacteristic from this visual receptor. Given this and the separation distance involved, the overall significance of effect on this visual receptor is likely to be NEUTRAL.

VP4 A59 Longsight Roadside

- 2.4km from proposal
- See photomontage VP4

This is a roadside viewpoint on the roadside of the A59 heading out east of Copster Green towards Langho. This viewpoint offers a far distance view from one of the nearest A roads. In the context the proposal would appear modest; it would also not be an unusual or incongruous feature in the field of view. Given this context the significance of effect on this visual receptor is likely to be SLIGHT.

VP5 New Inn Harwood Road

- 1.3km from proposal
- See photomontage VP5

This middle distance viewpoint is located on the Harwood road across Parsonage Reservoir. The turbines are hidden in this view from the small forest situated in the middle of this viewpoint only the blades and one hub will be visible. In this context, the proposal would appear modest in scale compared to the size and nature of the trees and neither incongruous nor uncharacteristic in its setting. The overall significance of effect on this visual receptor is therefore likely to be NEUTRAL.

VP6 Ribchester/Kenyon

- 2.9km from proposal
- See Wire Frame VP6

The viewpoint is located on the junction of the Ribchester Road and Kenyon Lane. This far distance view can only vaguely make out the turbines on the horizon line. The significant distance between the turbine and this visual receptor further minimises visual impact. The overall significance of effect on this receptor is likely to be SLIGHT.

8. CONCLUSION

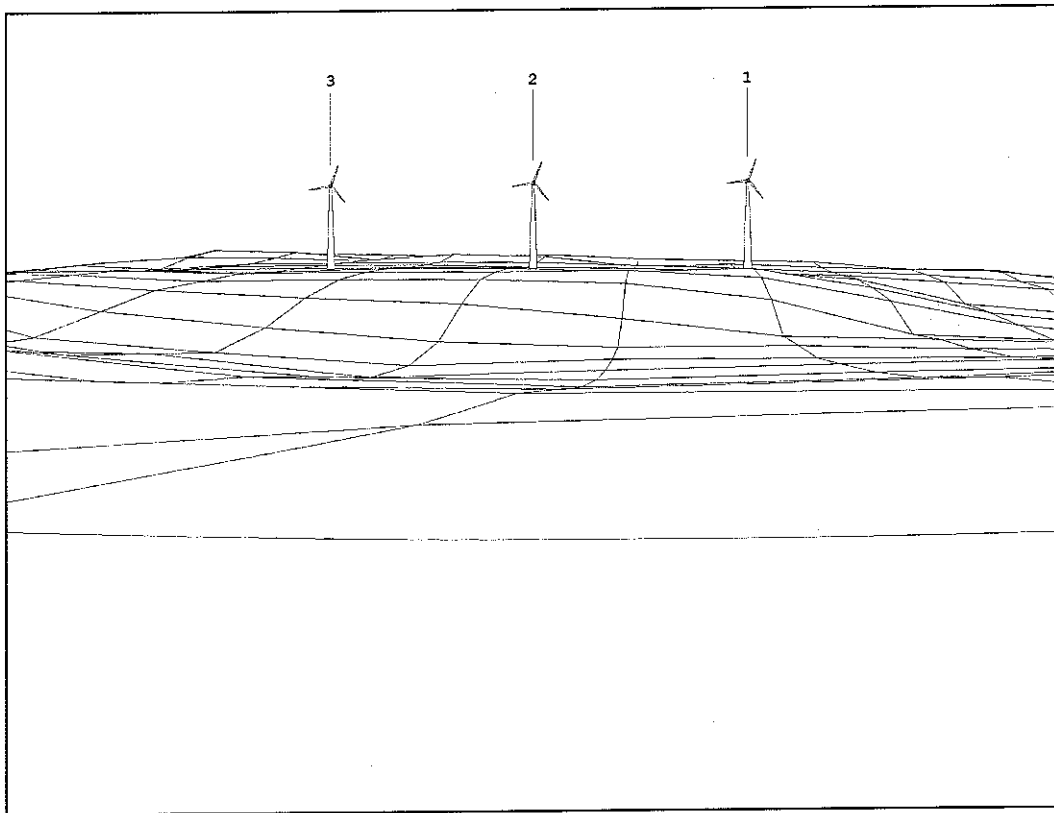
- The proposed development would add a new vertical structure to the existing landscape.
- This structure would be of narrow construction and is classed as being small/medium scale⁴
- The modest scale of the structure would result in minimal loss of openness in the Green Belt and minimal loss of land - existing land use would be unaltered
- The baseline landscape is strongly defined by land use which is predominantly agricultural/grazing. The proposed structure would be viewed in the context of this land use and viewed as part of the working agricultural landscape.
- The proposed development would result in a SLIGHT impact on overall landscape character
- The proposed development would result in a SLIGHT or NEUTRAL impact on visual amenity receptors

⁴ Landscape Capacity Study for Wind Energy Developments in the South Pennines Final Report, January 2010, Julie Martin Associates

9 PHOTOMONTAGES



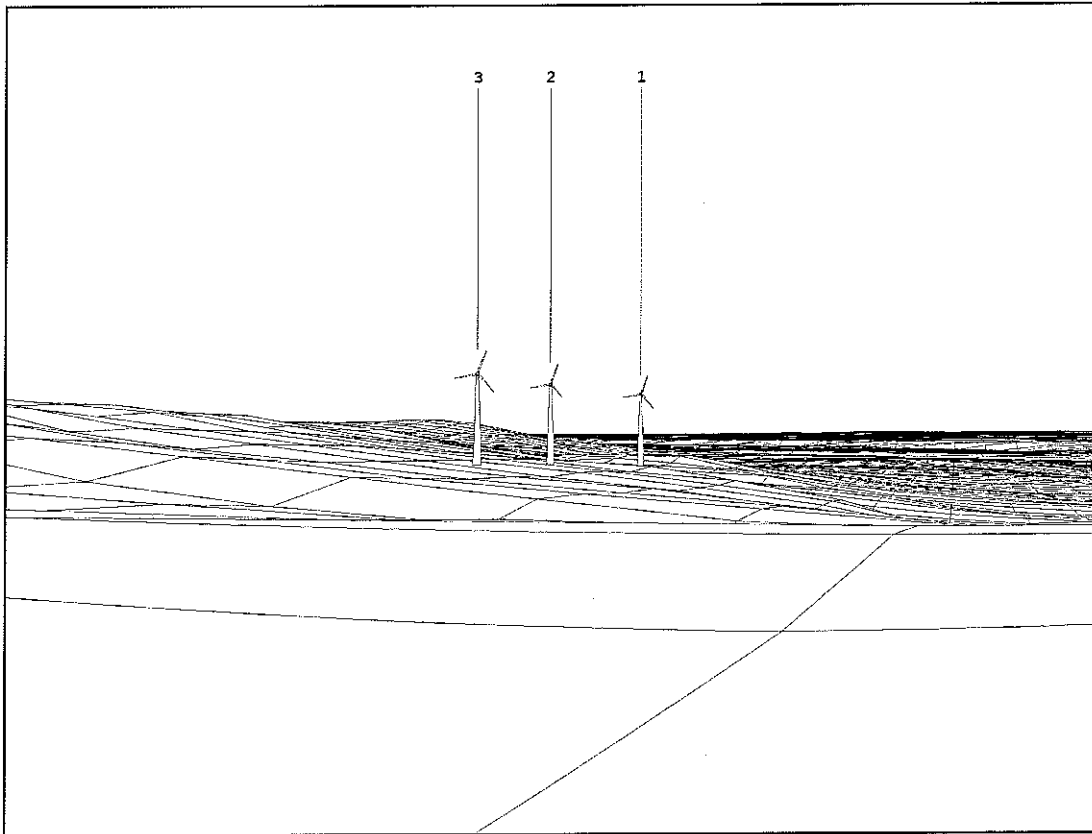
VP1	Viewpoint Title:	A566 Langho Roadside		
	Viewpoint Coordinates:	X369989/Y433519	Direction of View	172°
	Horizontal Field of View:	46.5°	Viewing Height:	2m



WF1	Viewpoint Title:	A666 Langho Roadside		
	Viewpoint Coordinates:	X3699889/Y433519	Direction of View	
	Horizontal Field of View:	46.5°	Viewing Height:	
			172°	2m



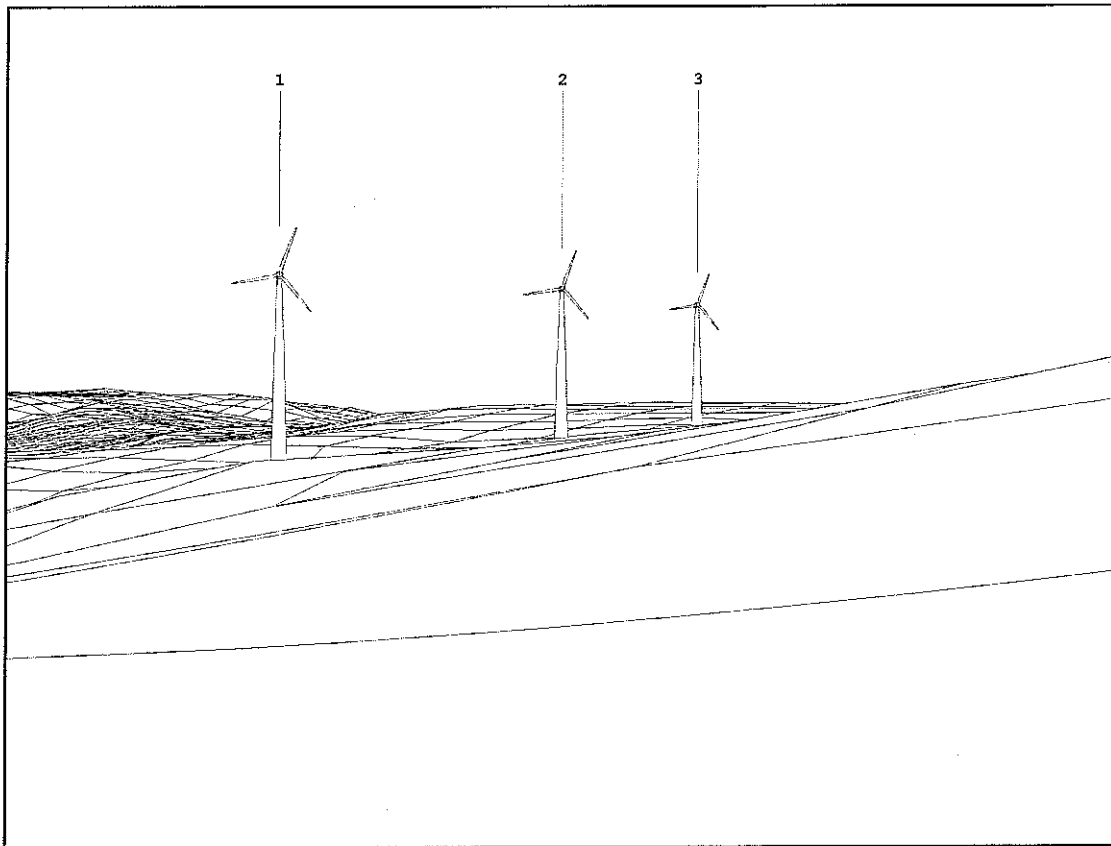
VP2	Viewpoint Title:	Snodworth Junction		
	Viewpoint Coordinates:	X370727/Y433053	Direction of View	
	Horizontal Field of View:	46.5°	Viewing Height:	



WF2	Viewpoint Title:	Snodworth Junction		
	Viewpoint Coordinates:	X370727/Y433053	Direction of View	253°
	Horizontal Field of View:	46.5°	Viewing Height:	2m



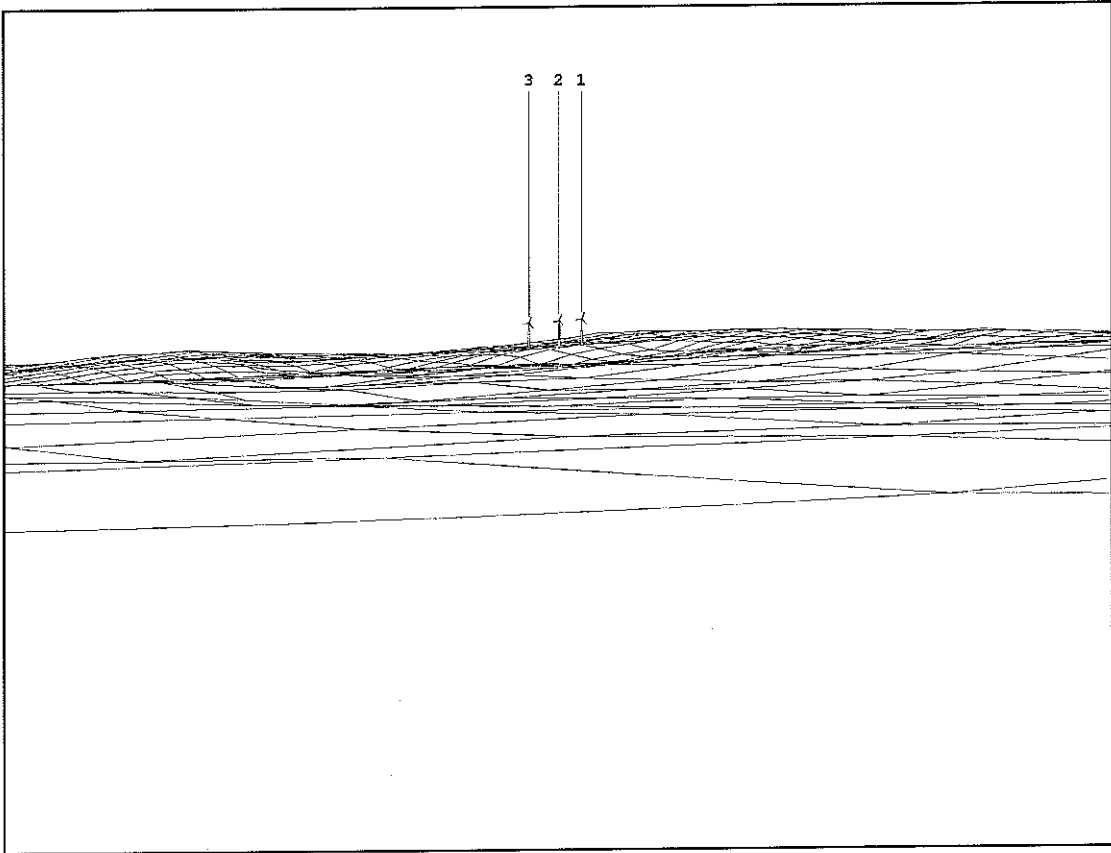
VP3	Viewpoint Title:	View from Golf Course Footpath			
	Viewpoint Coordinates:	X369688/Y432728		Direction of View:	68°
	Horizontal Field of View:	46.5°		Viewing Height:	2m



WF3	Viewpoint Title:	View from Golf Course Footpath		
	Viewpoint Coordinates:	X369683/Y432728	Direction of View	68°
	Horizontal Field of View:	46.5°	Viewing Height:	2m



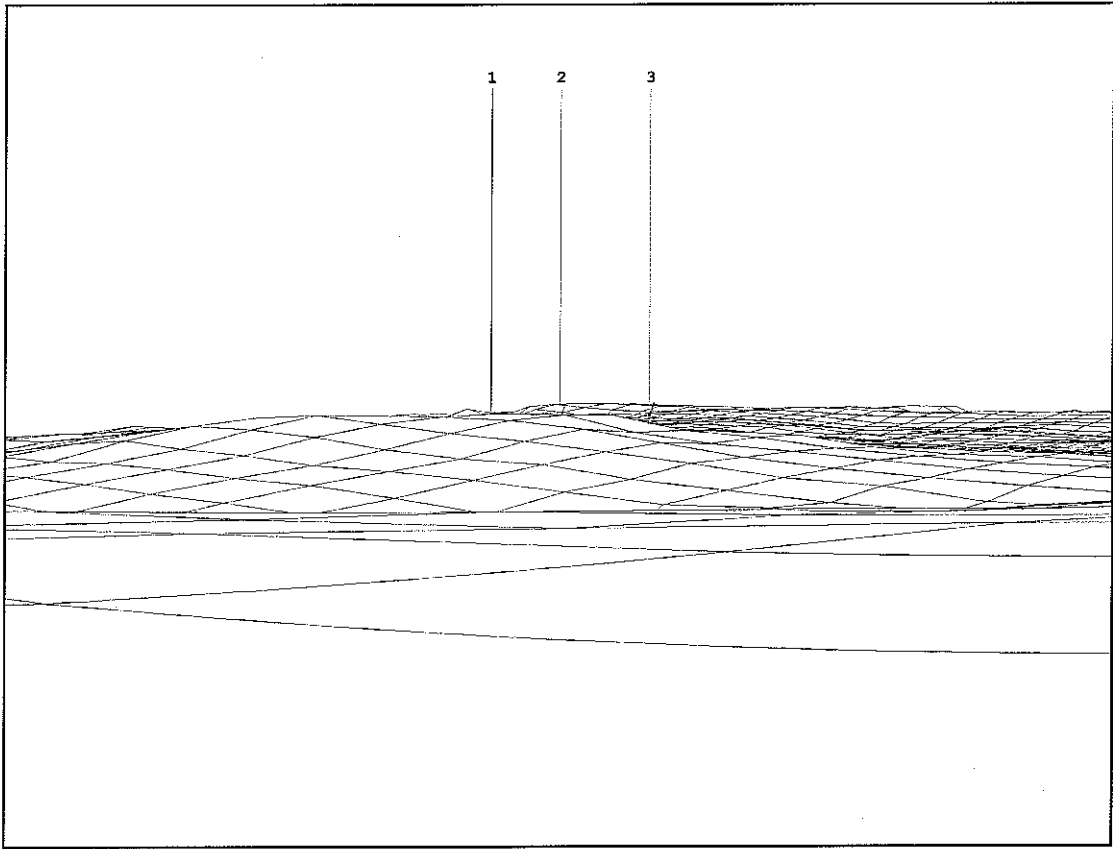
VP4	Viewpoint Title:	A59 Longsight Roadside			
	Viewpoint Coordinates:	X368105/Y434201	Direction of View	124°	
	Horizontal Field of View:	46.5°	Viewing Height:	2m	



WF4	Viewpoint Title:	A59 Longsight Roadside				
	Viewpoint Coordinates:	X368105/Y434201				
	Horizontal Field of View:	46.5°				
		Direction of View:	124°			
		Viewing Height:	2m			



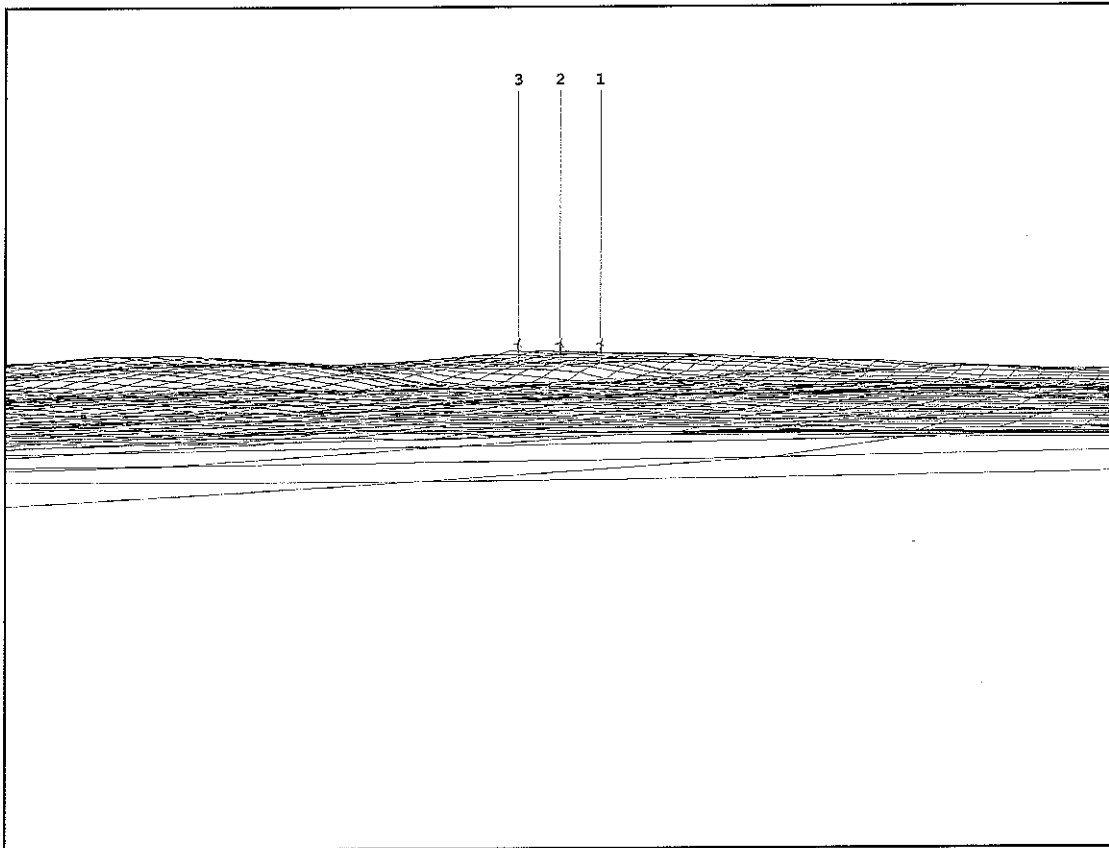
VP5	Viewpoint Title:	New Inn Harwood Road			
	Viewpoint Coordinates:	X370801/Y431865	Direction of View	322°	
	Horizontal Field of View:	45.5°	Viewing Height:	2m	



WF5	Viewpoint Title:	New Inn Harwood Road		
	Viewpoint Coordinates:	X370801/Y431865	Direction of View	
	Horizontal Field of View:	46.5°	Viewing Height:	
			322°	2m



VP6	Viewpoint Title:	Ribchester/Kenyon		
	Viewpoint Coordinates:	X368871/Y435604	Direction of View	
	Horizontal Field of View:	46.5°	Viewing Height:	
			156°	2m



WF6	Viewpoint Title:	Ribchester/Kenyon	Direction of View:	156°
	Viewpoint Coordinates:	X368871/Y435604	Viewing Height:	2m
	Horizontal Field of View:	46.5°		