Visual Impact Assessment.

1. Introduction

3DVS have undertaken this Visual Impact Assessment study on behalf of *Mr J Key*, which is intended to form part of an application for the determination of the erection of a 15m wind turbine at Garfield House Farm, Midhopestones, Stocksbridge. The report identifies the visual impact of this turbine through photography.

2. Site Context.

Grid Reference	
Lat/Lon:	53 29.835 – 001 38.400
OSGB:	SE23979 - 00122
Landscape Description & Use	Agriculture
Green Belt	Yes & Area of Borough Landscape.
National Park	No
A.O.N.B	No
Planning Authority	Barnsley
Distance from site to nearest residential property owned by customer.	159m
Distance to nearest property not owned by customer.	366m
Distance from nearest commercial property.	609m
Centres of residence	Midhopestones
Public Highways	A616
Public Footpaths/Bridleways etc.	Barnsley Boundary Walk. North-South path to the west of the site.

3. Existing Environment.

A desktop study was undertaken to gather information on the existing baseline landscape conditions, location of visual receptors and geographical context to establish the area over which the wind turbine development may have a visual impact. In addition to the desktop study, site survey work was undertaken to verify the findings of the data collection, to identify specific landscape features and to undertake a detailed visual analysis. Photographs were taken from viewpoints from potential visual receptors.

4. Terrain/Landscape/Site Context.

The proposed site is situated on a steep south facing hillside, with a patch work of fields separated by dry stone walls in Green Belt. The area contains a number of reservoirs and the valley bottom is heavily wooded. To the south of the site is the Barnsley Boundary Walk. The main A616 runs along the valley bottom below the site.

The area is cut by a line of high voltage pylons at an AOD of approx 250m. The proposed turbine is sited below one of these pylons at an AOD of 240m. Maximum height of the terrain above the turbine is 322m. The proposed turbine is not on the skyline.

3DVS notes that there is a 25m Endurance Wind Turbine installed by Earth Mill at approx OSGB Ref: SE25982 – 00287 with an AOD of 300m. This turbine is seen over a wide area and clearly breaks the skyline.

The boundary line of the Peak District is 1.75km to the south of the site.

There is one residential area nearby; Midhopestones.

5. Methodology for Assessment of Landscape Resource and Visual Impacts.

The assessment of the visual impacts were conducted in accordance
with current guidance or adapted, namely The Landscape Institute and Institute of Environmental
Management and Assessment *Guidelines for Landscape and Visual Impact Assessment*, (Second Edition) 2002, as described below.

In defining the landscape visual impact Tables 1, 2 & 3 below have been used as guides.

Table 1. Sensitivity Classification

Sensitivity of Landscape Resource	
Landscape of particularly distinctive, character susceptible to relatively Small changes e.g. National Park	**High**
Landscape with relatively ordinary characteristics reasonably tolerant of changes	**Medium**
Landscape with few features of value or interest, potentially tolerant of Significant change.	**Low**

Note on Table 1, specifically A.O.N.B, National Parks, SSSI and World Heritage sites etc.

This report addresses the visual impact of the proposed site from the viewpoint of an individual or individuals looking towards the site from various viewpoints or 'visual receptors', it does NOT assess the 'physical' impact on the Land e.g. Flora/Fauna, Geology, terrain and land use, therefore the objective terminology used in this report is of a different meaning, and RELATES to visual impact.

For example:

The proposed site may be in a National Park, by definition a high sensitivity landscape. However the site from a particular viewpoint, say a road or footpath may be masked or hidden by trees, from a 'visual' reception point of view this would be classed as 'slight' as the turbine is not in full view to the 'visual' receptor. The same criteria are applied to any properties that may have visual reception to the site.

Issues on the physical change to the landscape (as above) should be addressed by other reports.

Table 2. Magnitude Classification.

Magnitude of Change	
Substantial change in landscape characteristics over an extensive area, ranging to very intensive change over a limited area. Permanent, long term.	**High**
Moderate change in landscape component over a wide area and/or moderate change in localised area.	**Moderate**
Discernable but slight change in any landscape component. Short term, temporary	**Slight**
Virtually imperceptible change. Insignificant scale to affect the integrity of the landscape component	**Negligible**

Table 3. Impact Significance.

	Low Sensitivity	**Medium 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	Moderate Impact
Negligible Magnitude	Negligible Impact	Slight Impact	Slight Impact

Table 4 provides a summary of predicted visual impact upon completion of installation and construction

Table 4. Predicted Visual Impact over the next 5 years.

Activity	**Effect upon landscape resource**	**Sensitivity**	**Magnitude**	**Significance of visual impact.**
Increase in traffic due to construction works and erection of plant	Loss of a small area of grassland	LOW	LOW	SLIGHT
Initial Operation Stage	Continuation of existing conditions – Loss of small area of grassland	LOW	LOW	SLIGHT
Continued full time operation	Continuation of existing conditions – Loss of small area of grassland.	LOW	LOW	SLIGHT

Table 5. Predicted Visual Impacts Upon Completion of Construction.

Activity	**Effect upon Visual Impact**	**Sensitivity**	**Magnitude**	**Significance of visual impact.**

Increased visibility of the site due to the operation of the single wind turbine	Near distance views. Location 1	Medium	Medium	Moderate
	Middle Distance Views. Location 2	Low	Low	Slight
	Location 3	Low	Low	Slight
	Location 4	Low	Low	Slight
	Far distant views. (Where identified).	Slight/Zero	Slight/Zero	Slight/Zero

6. Methodology for Assessment of Visual Impact.

Visual impact is the result of a change in view from receptors such as residential property, public rights of way, land with public access and roads. Residential properties are considered the most sensitive receptors to changes in view whereas road users are the least sensitive as their experience is transient. The magnitude of impact is assessed according to the scale of the effect, which will depend largely upon the size and type of the development and the distance of the receptor/s from the site. The significance of visual impact depends upon the sensitivity of the receptor and the magnitude and duration of the effect

Technical Processes Used in Producing this Report.

1. All location photographs and the Turbine position were logged on site using a GARMIN GPS. The accuracy of positions is +/- 1m.
2. Locations were logged on site as OSGB 10 figure co-ordinates. These were then converted back to Latitude – Longitude bearings so that the positions could be accurately marked on the Google Earth Aerial view and the relevant OS Maps.
3. Original Marker Distances on the GPS were cross referenced with the distances from Google Earth and OS Maps for accuracy. Both, co-ordinate sets, elevation and distance from the Turbine position are clearly marked on the images. Terrain Cross Profiles were produced from OS digital maps 1:50.000/1:25000 vertical exaggeration is approximately x 2.
4. The visualisations were produced using 3D STUDIO MAX and Photoshop. This was done by placing the photographs into 3DS Max, placing a ‘virtual camera’ in the scene at the correct distance from the turbine and then superimposing the turbine into the scene. Scale height calculations were done to ensure total accuracy of turbine height against distance.
5. Final images were then rendered out, saved as .jpg files and then post processed in Photoshop, re-sizing of image for printing purposes.

Note: Consideration is given to all possible visual receptors within the range 0 to 5000m during the desktop study. However, it would be impractical to examine all visual vantage points for a project of this size and we accept that the turbine could be seen from other locations.

Table 6. Sensitivity of Visual Receptors.

Sensitivity of Visual Receptor.	
Residential properties less than 1 km from the development with direct views from ground floor and first floor windows towards the development. Public Rights of Way less than 1 km from the development with direct views.	**HIGH**
Residential properties over 1 km from the development or with more restricted views towards the development. Public Rights of Way more than 1 km from the development, or with restricted views. Local side roads and lanes. Sporting and recreational facilities, allotments.	**Medium**
Offices, commercial developments and industrial sites. Main roads and rail routes.	**Low**

Table 7. Classification of Magnitude of Visual Receptors.

Magnitude of Impact (Scale).	
The majority of viewers affected/major changes over a large proportion	**Substantial**

of the view.	
Many of the potential viewers affected/ major changes over a smaller proportion of the view/moderate change in view/partial view.	**Moderate**
Few viewers affected / minor change in view/glimpsed view.	**Slight**
Indiscernible change in the view.	**Negligible**

Table 8. Significance of Impact (Relationship Between Sensitivity and Magnitude).

	Low Sensitivity	**Medium Sensitivity**	**High Sensitivity**
Substantial Magnitude	Moderate	Substantial	Substantial
Moderate Magnitude	Slight	Moderate	Substantial
Slight Magnitude	Slight	Slight	Slight
Negligible Magnitude	Neutral	Neutral	Slight

The photomontage images have been produced to predict the proposed views of the site post construction. Photograph Locations 1 to 4 were taken using a Fuji SD2950 digital camera with an equivalent 50mm lens. The images are comparable to those observed by the human eye. Images should be held between 300 to 500mm from the eye. The photomontages were produced using 3d Studio Max an industry standard visualisation package, part of the Autodesk AutoCAD group and PhotoShop. Photographs 1 to 4 were taken from publicly accessible viewpoints, to illustrate the site on completion.

7. Visual Baseline Conditions.

A visual analysis was undertaken in July when weather conditions and visibility were considered to be acceptable.

The Zone of Theoretical Visibility (ZTV) is defined as the area from within which the

proposed development would be visible (assuming an eye level of 1.6 m above Ground level). The ZTV and potential visual receptors are shown in Part 2 of this report.

For a project of this size 3DVS do not employ DTM's (Digital Terrain Models) or DEM's (Digital Elevation Models). This practice is the domain of Utility Scale Windfarms.

8. Visual Receptors.

The local authority has not asked for any specific locations to be considered.

Midhopestones
Mortimer Lane (boundary of Peak District National Park)
Area around Langsett Reservoir
Stocksbridge

All of the above sites were visited on the day.

A total of 4 visual receptors were identified and photographs taken looking towards the site of the Turbine for assessment on how they might be visually affected by the erection of the proposed turbines.

The receptors are situated between 676m and 2242m away from the site.

All photographs were taken from publicly accessible viewpoints. Legally 3DVS is not allowed to access private land or the curtalige of domestic properties.

Near Distant Views (inside 1000m)

Location 1

Middle Distance Views (Between 1000m & 2500m).

Location 2
Location 3
Location 4

Distant Views (Between 2500m & => 5000m.)

Open views to the site from the south. The proposed turbine will not be dominant in the landscape from the distances within the above range.

9. Predicted Visual Impacts.

A summary of the visual impacts from the above receptors, using the methodology described in Section 6 is summarised in Section 11. The receptor locations are shown in Part 2 of this report. (GIS Image & Shaded relief OS Map). Terrain Cross Profiles with a vertical exaggeration of approx X2 are also supplied in Part 2 of this report.

The description of the views and the potential impact on individual receptors is summarised as follows below:

Location 1

Chapel Lane, Midhopestones. The turbine is small and narrow in construction (15m High). The proposed turbine as been placed in a position near to a pylon, so that it's form blends visually into the structure of the much larger pylon. The turbine is not on the skyline but against the hillside. Views to the turbine from lower levels are blocked by the wooded areas below. The same situation occurs with views from above.

Visual impact from this point is of medium sensitivity and moderate impact. This is due to some (not all) of the properties in the village having views to the site.

Cumulative Impact is classed as combined.

Location 2

Chapel Lane, looking northeast to the proposed site. The turbine is seen as a thin structure below the more dominant high voltage pylon. Visual impact is seen as low sensitivity and slight in impact, there is no significant impact in harm to the area around the site.

There are 2 other vertical structures in the landscape, cumulative impact is again classed as combined.

Location 3

Midhope Cliff Lane looking 2242m (2.24km) east to the site. From this viewpoint the turbine is seen as a small low feature on the landscape. At this distance several

tall and dominant features appear in the landscape, approx 15 in number, including the 25m Endurance turbine which sits clearly on the skyline – and is marked on the photomontage. Visual impact is slight. Cumulative impact is combined due to the number of more dominant vertical structures.

Location 4

Mortimer Road looking north. The proposed site is 1995m (2km) away.

Mortimer road forms part of the boundary for the Peak District National Park. The proposed turbine is seen as a small thin vertical structure slightly below a much taller and more dominant pylon. The turbine is against the background hillside. Examination of the photomontage clearly shows the turbine in scale and symmetry against other buildings in this view.

Visual impact is slight. Cumulative Impact is in combination with other elements and there is no increase in visual harm.

Stocksbridge

Potential views from Stocksbridge are limited to Smithy Moor Lane. Local conditions e.g. trees; mask any views to the site.

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No other points could be identified in this area.

10. Summary of Predicted Visual Impact.

Fundamental change at the site will result from the erection of the turbine as a new vertical structure in the landscape.

The site occupies a position that attracts elevated open views in particular from the south. However near distant views are limited due to woodland and rapid changes in topography. A desktop examination of properties in Midhopestones which may have direct views to the site indicate that less that a dozen properties will have direct views and these views will be limited to upper floors.

The proposed turbine has been sensitively place in the local landscape against the background of a much taller high voltage pylon. The positioning of the turbine is in such a way as to be seen to be part of the much larger pylons structure limiting any visual harm.

There is an existing Westwind Turbine in the area. This turbine is seen on the skyline and along with other dominant structures in the area causes the eye to be drawn away from the proposed turbine.

Views from the Barnsley Boundary Walk to the site are very limited, the footpath for its greater length is in woodland.

Due to a complete lack of footpaths in the Peak District Areas of Upper Commons & Midhope Moors including Pike Lowe visual impact is assessed as slight, with no cumulative impact and no impact on the visual or sensory enjoyment of the area.

11. Conclusion.

1. This is an application for 1 Turbine.
2. The proposed site is on a south facing hillside below the skyline.
3. Visual impact varies depending on distance.
4. There are no perceived views from the Barnsley Boundary Walk
5. Views from the Peak District National Park are not identified due to lack of footpaths in the area.
6. There is an existing Endurance turbine east/northeast of the site at an elevation of 300m which cuts above the skyline.
7. There are no views to be determined from Stocksbridge
8. There are no views from the A616. Any views that may be identified are transient.
9. There is no significant increase in harm to the green belt.


Location 1. OSGB: SK23644 - 99536 Lat/Lon: 53 29.520 - 001 38.706. Distance to Turbine = 676m. 197m AOD (GPS). View looking northeast.


Location 2. OSGB: SK23113 - 99528. Lat/Lon: 53 29.517 - 001 39.186 Distance to Turbine = 1054m (1.05km). 224m AOD (GPS)
View looking northeast.


Location 3. OSGB: SK21740 - 99850 Lat/Lon: 53 29.694 - 001 40.426 Distance to site = 2242m (2.24km) 265m AOD (GPS)
View looking east.


Location 4. OSGB: SK23578 - 98256. Lat/Lon: 53 28.830 - 001 38.771 Distance to Turbine = 1911m (1.91km) 298m AOD (GPS)
View looking northeast