GILLESPIES

VISUAL APPRAISAL

DUGGLEBY WIND TURBINE

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Contents

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1 INTRODUCTION

1.1 Purpose of the Assessment

Gillespies has been instructed by Brackendale Limited to undertake a visual appraisal of a proposed replacement wind turbine ('the project') at Duggleby Wold Farm, Weaverthorpe, North Yorkshire, in support of a planning application. The appraisal is accompanied by a series of visualisations and photomontages of the project from six viewpoints.

The existing two bladed wind turbine is a Vergnet GEV MPR with a 32 m hub height, 16 m rotor radius, and a height to blade tip of 48 m. The OS grid location of the existing turbine is E 496080, N 473340.

The existing turbine is proposed to be replaced by a three bladed Vestas V47 wind turbine with a 40.7 m hub height, 23.5 m rotor radius and a height to blade tip of 64.2 m. The proposed replacement turbine location is close to the existing turbine at OS grid location E 496099, N 473355. It is within the swept path of the existing turbine, and will utilise the existing grid connection, crane pad and access track.

2 METHOD

2.1 Introduction

A high-level visual appraisal has been undertaken taking into cognisance industry recognised guidelines as set out in the Guideline for Landscape and Visual Impact Assessment, third edition[1] (GLVIA3) (Landscape Institute and IEMA, 2013) and GLVA3 Statement of Clarification 1/133[2] (Landscape Institute, 2013).

This appraisal describes the current or baseline visual amenity in the vicinity of the project and considers how it is anticipated to change as a result of the project. The appraisal is supported by the following Appendices:

- Appendix A: Figures
  - Figure 1 – Site Context
  - Figure 2 – Viewpoint Locations
  - Figure 3 – Zone of Theoretical Visibility
- Appendix B: Viewpoint Photography and Wirelines
- Appendix C: Photomontages

2.2 Zone of Theoretical Visibility and Viewpoint Selection

A visual appraisal of the existing wind turbine was undertaken back in 2010. This comprised the production of Zone of Theoretical Visibility (ZTV) mapping, viewpoint identification and photomontages. Although the previous appraisal considered two wind turbines, just one was constructed. The proposed project is in a similar location and varies in height by 16.2 m to the existing turbine. The work undertaken in 2010 has been reviewed together with consideration of the current day site context (refer to Figure 1). It is considered appropriate that similar viewpoint locations are presented (refer to Figure 2) to illustrate the current baseline and how this would change. New ZTV mapping has been generated (refer to Figure 3) to backcheck the selection of viewpoints.

Although parts of the North York Moors National Park and very small parts of the Yorkshire Wolds Way National Trail fall within the ZTV for the replacement turbine, they are approximately 10km away at the closest points. At this distance the proposed replacement turbine would appear[3] approximately 0.39 cm tall at arm's length and as such would likely not be perceptible in views and therefore viewpoints were not considered necessary.

The ZTV mapping has been produced in QGIS using a combination of OS Terrain 50 Digital Terrain Model (DTM) and OS Terrain 5 DTM together with the dimensions of the hub height, rotor diameter and height to blade tip,

[1] Landscape Institute and IEMA (2013). Guideline for Landscape and Visual Impact Assessment. 3rd edn. Routledge.
[2] Landscape Institute (2013). GLVA3 Statement of Clarification 1/133.
[3] The apparent height or angular size of an object is defined as the height that an object would appear at arm's length (61 cm) from the viewer and is calculated by considering the known height of an object and distance from that object. Gillespies (2014), Wind Turbines and Pylons, Guidance on the Application of Separation Distances from Residential Properties

proposed location and based on an observer height of 2m. The ZTV represents the worst case 'bare earth' scenario as it does not take into account screening elements such as vegetation or built form. The ZTV mapping illustrates where all of the mast and rotor diameter would be theoretically visible, where the rotor diameter would be theoretically visible and where the hub height to the tip would be theoretically visible.

2.3 Viewpoint Photography and Visualisations

Site photography and visualisations have been undertaken and produced based on guidance within Visual Representation of Development Proposals[4] (Landscape Institute, 2019) and Visual Representation of Windfarms Guidance[5] (Scottish Natural Heritage, 2017).

A total of six viewpoints were visited on 11th May 2022 and panoramic photography was taken with a Canon EOS 6D camera with a fixed 50mm lens centrally mounted on a tripod at 1.5 m above ground level. Details of the date, time, location, direction of view and weather conditions were noted. A series of panoramic photographs were taken using panoramic 'clicker' head to ensure a consistent 20 degree overlap between photographs.

True View Visuals[6] has been used to produce 90 degree panoramic baseline photography, Type 2[7] wireline visuals and Type 3, AVR level 2[8] photomontage visualisations. The wireframes were generated using either OS 5m DTM or 50m DTM and the proposed turbine shown front facing at maximum visibility with the blade tip vertical to the top. The photomontages were produced based on the premise of prevailing south west winds with the blade tip vertical to the top to illustrate the maximum height.

Appendix B comprises the baseline 90 degree panoramic photographs and corresponding wirelines.

Appendix C comprises the photomontages which have been produced to a horizontal field of view of 53.5 degrees as recommended in the Visual Representation of Windfarms Guidance[9] (Scottish Natural Heritage, 2017).

3 VISUAL APPRAISAL

3.1 Baseline views

There are frequent views of wind turbines within the local landscape of the proposed project. Many wind turbines are found in pairs or alone and are associated with farmsteads and settlements. There are some larger wind farms on the distant horizon to the south.

3.2 Viewpoint appraisal

Table 1 below presents an appraisal of how views would likely change as a result of the project. This table should be read in conjunction with Appendix B and C and figures 2 and 3.

Viewpoint Reference	Viewpoint Title	Baseline	Magnitude of change
Viewpoint 1 (VP 01)	View from White Gate on approach from Sherburn Brow	View looking south east over a rolling landscape comprising a large arable field in the foreground, with mixed plantations and woodland blocks interspersed with arable fields in the midground to the distance. Agricultural buildings are	At a distance of 2.45 km from the proposed project the proposed replacement wind turbine would appear approximately 1.6 cm tall[10] at arm's length. Although it would appear slightly larger than the existing turbine it would be seen as

[4] Landscape Institute (2019). Technical Guidance Note 06/19. Visual Representation of Development Proposals.
[5] Scottish Natural Heritage (2017). Visual Representation of Windfarms Guidance. Version 2.2.
[6] https://trueviewvisuals.com/
[7] Landscape Institute (2019). Technical Guidance Note 06/19. Visual Representation of Development Proposals.
[8] Landscape Institute (2019). Technical Guidance Note 06/19. Visual Representation of Development Proposals.
[9] Scottish Natural Heritage (2017). Visual Representation of Windfarms Guidance. Version 2.2.
[10] The apparent height or angular size of an object is defined as the height that an object would appear at arm's length (61 cm) from the viewer and is calculated by considering the known height of an object and distance from that object. Gillespies (2014), Wind Turbines and Pylons, Guidance on the Application of Separation Distances from Residential Properties

Viewpoint Reference	Viewpoint Title	Baseline	Magnitude of change
		visible in a local depression in the mid ground and the top of the existing turbine mast and hub are visible against the skyline to the centre of the view (note the blades have been removed). The view is representative of the community travelling along the local road network and the value of the view no greater than local. The sensitivity of visual receptors at this viewpoint is considered medium.	a replacement and not greatly detract from the view. There would be a small scale of visual change over a limited geographical extent of the view resulting in a small magnitude of change in the view overall.
Viewpoint 2 (VP 02)	View from bridleway to the south of Duggleby Wold Farm	View looking north east over rolling arable fields with a mix of managed hedgerows and scrubby field boundaries and wooded shelterbelts. The view is foreshortened by topography and the existing turbine mast and hub are almost entirely visible against the skyline to the centre of the view (note the blades have been removed). The view is representative of users of the bridleway and the value of the view no greater than local. The sensitivity of visual receptors at this viewpoint is considered high.	At a distance of 569 m from the proposed project the proposed replacement wind turbine would appear approximately 6.88 cm tall at arm's length. Although it would appear larger than the existing turbine it would be seen as a replacement and therefore not greatly detract from the view. There would be a small scale of visual change over a small geographical extent of the view resulting in a small magnitude of change in the view overall.
Viewpoint 3 (VP 03)	View from track at Dikes Fields, south of Weaverthorpe	View looking north over an rolling landscape comprising a patchwork of rectilinear arable fields, the steeply incised wooded valley of Wad Dale, shelter belts and plantations and the settlement of Weaverthorpe sitting low down in the wider valley bottom. Several single wind turbines are visible at varying distances. The existing turbine mast and hub are visible against the backdrop of an arable field and shelterbelt on the distant valley side to the centre of the view (note the blades have been removed). The view is representative of the scattered community, users of a bridleway to the east and community travelling along the local road network. The value of the view is no greater than local. The sensitivity of visual receptors represented by this viewpoint is considered medium to high.	At a distance of 3.41 km from the proposed project the proposed replacement wind turbine would appear approximately 1.15 cm tall at arm's length. Although it would appear slightly larger than the existing turbine it would be seen as a replacement and not greatly detract from the view. There would be a small scale of visual change over a limited geographical extent of the view resulting in a small magnitude of change in the view overall.
Viewpoint 4 (VP 04)	View from Butterwick	View looking north west over an rolling landscape comprising a	At a distance of 4.68 km from the proposed project the proposed

Viewpoint Reference	Viewpoint Title	Baseline	Magnitude of change
	Road, south of Butterwick	patchwork of rectilinear arable fields bounded by a mix of managed, overgrown and gappy hedgerows and shelter belts and plantations. The settlement of Weaverthorpe is visible sitting low down in the wider valley bottom. A number of single wind turbines are visible at varying distances. The existing turbine mast and hub are visible, partially against the sky and partially the backdrop of woodland on the distant valley side towards the right of the view (note the blades have been removed). The view is representative of the scattered community and community travelling along the local road network. The value of the view is no greater than local. The sensitivity of visual receptors represented by this viewpoint is considered medium to high.	replacement wind turbine would appear approximately 0.84 cm tall at arm's length. Although it would appear slightly larger than the existing turbine it would be seen as a replacement and not greatly detract from the view. There would be a small scale of visual change over a limited geographical extent of the view resulting in a negligible magnitude of change in the view overall.
Viewpoint 5 (VP 05)	View from National Cycle Route 166, road north of Cat Babbleton	View looking west-south west over a rolling landscape comprising a large arable (rapeseed oil) field and wind turbine in the foreground, with a mix of plantations and woodland blocks interspersed with arable fields in the midground to the distance. A number of other single and double wind turbines are visible at varying distances. The top of the existing turbine mast and hub are just visible against the skyline to the centre of the view in the far distance (note the blades have been removed). The view is representative of the scattered local community and community travelling along the local road network as well as people using National Cycle Route 166. The value of the view is local. The sensitivity of visual receptors at this viewpoint is considered medium to high.	At a distance of 4.43 km from the proposed project the proposed replacement wind turbine would appear approximately 0.88 cm tall at arm's length. Although it would appear slightly larger than the existing turbine it would be seen as a replacement and not greatly detract from the view. There would be a small scale of visual change over a limited geographical extent of the view resulting in a negligible magnitude of change in the view overall.
Viewpoint 6 (VP 06)	View from Sherburn to Weaverthorpe road	View looking west-south west over sloping arable fields with a mix of managed hedgerows and scrubby and overgrown field boundaries and woodland blocks and shelterbelts. Much of the view is foreshortened by topography in the foreground and the top half of the existing	At a distance of 761 m from the proposed project the proposed replacement wind turbine would appear approximately 5.15 cm tall at arm's length. Although it would appear slightly larger than the existing turbine it would be seen as a replacement and not greatly

Viewpoint Reference	Viewpoint Title	Baseline	Magnitude of change
		turbine mast and hub are visible against the skyline to the centre of the view (note the blades have been removed). One other single wind turbine is visible in the distance to the left of the view. The view is representative of the scattered local community and community travelling along the local road network and the value of the view no greater than local. The sensitivity of visual receptors at this viewpoint is considered medium to high.	detract from the view. There would be a small scale of visual change over small geographical extent of the view resulting in a small magnitude of change in the view overall.

4 CONCLUSION

4.1 Appraisal summary

People living and moving within and around local communities whose views are most likely to be affected would be those located close to the project. There would likely be some views towards the proposed replacement turbine from individual farmsteads and other small groups of scattered properties, but intervening vegetation is expected to limit these to some degree particularly where shelter belts are planted close to and around properties. Many views would be distant with the proposed project forming a very small component in views. Local communities are considered more highly visually sensitive. However, due to the positioning of the proposed project and the fact that it would be a replacement of an existing turbine, the magnitude of change would be relatively small.

The local community travelling along the road between Sherburn and Weaverthorpe would have glimpsed views of the proposed project from short sections of the road nearby. Views from the local community travelling along other roads in the area would be generally limited and intermittent due to intervening topography and roadside vegetation. Road users are generally considered less sensitive to the proposed project and the magnitude of change in views would be relatively small.

People engaged in outdoor recreation who are likely to have views of the proposed project include people using the bridleway to the south in closer proximity to the proposed project and also people using National Cycle Route 166. People engaged in outdoor recreation are considered more highly visually sensitive. However, due to the positioning of the proposed project and the fact that it would be a replacement of an existing turbine, the magnitude of change would be relatively small.

Given the fact the proposed project comprises a replacement wind turbine and there are relatively few sensitive visual receptors nearby it is not expected to result in notable visual effects.