APPENDIX 7

Sapphire Wind Farm Landscape and Visual Impact Assessment

Green Bean Design

Sapphire Wind Farm

View toward the constructed Gunning Wind Farm (ACT/NSW Renewable Energy Precinct)

LANDSCAPE & VISUAL IMPACT ASSESSMENT

Prepared for:

WIND PROSPECT CWP PTY LTD

September 2011

Prepared by:

GREEN BEAN DESIGN
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Green Bean Design – Capability Statement

Green Bean Design is an experienced landscape architectural consultancy specialising in landscape and visual impact assessment. As an independent consultant Green Bean Design provide professional advice to a range of Clients involved in large infrastructure project development.

Green Bean Design Principal Landscape Architect Andrew Homewood is a Registered Landscape Architect with over 18 years continuous employment in landscape consultancy and has completed numerous landscape and visual impact assessments for a variety of large scale electrical infrastructure and renewable energy projects, including wind energy and solar power developments.

Green Bean Design has been participated in thirteen wind energy projects across New South Wales, Victoria and Western Australia including assessments for:

- Silverton Wind Farm
- Boco Rock Wind Farm
- Collector Wind Farm
- Crookwell 3 Wind Farm
- Sapphire Wind Farm
- Willatook Wind Farm
- Eden Wind Farm
- Birrema Wind Farm
- White Rock Wind Farm
- Palings Yard Wind Farm

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Contents

Contents

Contents

Contents Page

Figures

Figures

Figures

Executive Summary

Green Bean Design (GBD) was commissioned by Wind Prospect CWP Pty Ltd (the Proponent) to undertake a Landscape and Visual Impact Assessment (LVIA) for the Sapphire wind farm and associated development infrastructure.

The Sapphire wind farm LVIA has assessed two potential turbine layouts for up to one hundred and fifty nine or one hundred and twenty five wind turbines with a maximum blade tip height of 156m from ground level to tip of blade, associated electrical works including options for a 330kV or 132kV transmission line grid connection, substations, facilities building and a small car park.

This LVIA involved a desk top study and field inspections to collect and analyse information to describe and define landscape characteristics of the area in which the Sapphire wind farm would be located. This LVIA has determined that the landscape surrounding the Sapphire wind farm has an overall medium sensitivity to accommodate change, and represents a landscape that is reasonably typical of landscape character areas that are commonly found in the surrounding area of the New England Tablelands Renewable Energy Precinct.

As a landscape with an overall medium sensitivity to accommodate change, some intrinsic characteristics of the landscape are likely to be altered by the wind farm; however, the landscape will have some capability to accommodate change. This LVIA has determined that the Sapphire wind farm would not be an unacceptable development within the New England Tablelands Renewable Energy Precinct.

The Sapphire wind farm visibility was determined within the 10km radius of the wind farm development and illustrated by a series of panoramic photographs and nine Zone of Visual Influence (ZVI) diagrams. The ZVI diagrams demonstrate the influence of topography on visibility and identify areas from which the wind farm turbines would be visible.

This LVIA assessed the potential visual impact of the Sapphire wind farm for the majority of residential view locations within the Sapphire 10km viewshed as well as impacts for motorists travelling along highways and local roads surrounding the wind farm. A number of criteria were considered and assessed to determined levels of visual impact.

A total of one hundred and two residential view locations within the Sapphire 10km viewshed have been determined to have a low or nil visual impact. Thirty four of the residential view locations would have moderate visual impact and three a high visual impact. One of the residential view locations with a high visual impact would be an associated residential property.

This LVIA assessed the potential visual impact associated with the proposed substations and associated electrical infrastructure works and determined that the overall visual impact of these elements would be low due to their location relative to existing view locations together with screening influence of surrounding topography and vegetation.

Executive Summary

A cumulative visual impact assessment identified three wind farm developments within and beyond the Sapphire wind farm 10km viewshed including the approved Glen Innes and the proposed White Rock and Ben Lomond wind farm projects. This LVIA determined that there would be some intervisibility between the Sapphire wind farm and other wind farm developments with potential 'direct' and 'indirect' visibility within the Sapphire wind farm viewshed from residential dwellings, and 'sequential' views from some surrounding road corridors.

Whilst there are opportunities for 'direct' and 'indirect' views from residential dwellings, and 'sequential' views from some surrounding road corridors between the Sapphire wind farm and other wind farms, there is unlikely to be a significant increase in visual impact arising from cumulative impacts.

Night time obstacle lighting would have the potential to create a visual impact for a small number of residential view locations surrounding the Sapphire wind farm. This LVIA notes that further to the withdrawal of the CASA Advisory Circular there are no guidelines by which to define criteria for wind farm night time obstacle lighting, and that night time lighting has been determined as not required for the Gullen Range wind farm. Night time obstacle lighting has also been recently removed from the Cullerin wind farm adjoining the Hume Highway to the west of Yass in New South Wales.

Although some mitigation measures are considered appropriate to minimise the visual effects for a number of the elements associated with the wind farm, it is acknowledged that the degree to which the wind turbines would be visually mitigated is limited by their scale and position within the landscape relative to surrounding view locations.

Introduction

SECTION 1

1.1 Introduction

This LVIA addresses one of the key requirements of the Sapphire wind farm Environmental Assessment (EA) to be submitted and assessed under Part 3A of the Environmental Planning & Assessment Act 1979 (EP&A Act).

This LVIA methodology adopted by GBD has been applied to a number of similar LVIA for large scale infrastructure projects prepared by GBD, which have been assessed and approved by the New South Wales Department of Planning & Infrastructure (DoPI) under Part 3A of the EP&A Act.

This LVIA addresses and responds to the Director General's Requirements (DGR's) dated 29th May 2009, and revised DGR's dated 21st February 2011 for the assessment of potential landscape and visual impacts of the project. **Table 1** outlines the relevant landscape and visual impact assessment requirements of the DGR's and the corresponding section in which they are addressed within this LVIA report.

Table 1 Director General's Requirements

DGR's	LIVA Reference
• provide a comprehensive assessment of the landscape character and values and any scenic or significant vistas of the area potentially affected by the project. This should describe community and stakeholder values of the local and regional visual amenity and quality, and perceptions of the project based on surveys and consultation.	Refer LVIA **Section 5, Section and 6,Section 7** and **Section 15**
• assess the impact of shadow "flicker", blade "glint" and night lighting from the wind farm on residences and road users.	Refer LVIA **Section 11** and **Section 12**
• identify the zone of visual influence (no less than 10 kilometres) and assess the visual impact of all project components on this landscape.	Refer LVIA **Section 4**
• include photomontages of the project taken from potentially affected residences (both existing and approved dwellings) where the occupant is assessed as likely to experience a high level of visual impact and of settlements and significant public viewpoints.	Refer LVIA **Section 10**
• provide a clear description of proposed visual amenity mitigation ad management measures and provide an assessment of the feasibility, effectiveness and reliability of proposed mitigation measures and any residual impacts after these measures have been implemented.	Refer LVIA **Section 16**
• assess the cumulative visual impacts of the project in terms of any existing and approved wind farms in the region and the	Refer LVIA **Sections 9** and **13**.

DGR's	LIVA Reference
TransGrid QNI.	
• The proposal should assess the worst case and representative impact for all key issues and also consider cumulative impacts from surrounding approved or proposed wind farms (Ben Lomond, Glen Innes and White Rock) as relevant.	Refer LVIA **Sections 9** and **13**.

Although not directly applicable to the requirements of the EA, GBD has reviewed the Glen Innes Severn and Inverell Shire Council's Development Control Plans (DCP) – Wind Power Generation 2008 and 2009 respectively and GBD confirm that this LVIA addresses a number of the key DCP requirements with regard to consideration of visual assessment, including provision for:

- the assessment of visual impact and scenic value;
- the assessment of cumulative impact;
- viewshed mapping; and
- photomontages.

The assessment of potential visual impact associated with Shadow Flicker has been assessed and included in **Section 11** of this LVIA.

The Proponent is considering two alternative design layouts for the Sapphire wind farm, although each design layout would generally occupy a similar extent of ridgeline areas. This LVIA references each alternative design layout as the '80m' or '110m' design layout. The '80m' design layout would incorporate a total of up to 159 wind turbines, and the '110m' design layout, a total of up to 125 wind turbines.

Although there is a general overlap between the turbine locations within the alternative design layouts, the LVIA has assessed and determined the potential landscape and visual impacts associated with each of the design layouts. The main difference between the '80m' and '110m' wind turbine specifications relates to the height of towers and diameter of the rotor blades, and is outlined in **Section 3** of this LVIA.

GBD is not aware of any landscape areas within the immediate wind farm viewshed that are subject to any Local, State or Federal statutory designations for high landscape values or scenic quality and/or scenic protection.

This LVIA involved a comprehensive evaluation of the landscape character in which the Sapphire wind farm and ancillary structures would be located, and an assessment of the potential landscape and visual impacts that could result from the construction and operation of the wind farm, taking into account appropriate mitigation measures. This LVIA is based on technical and design information provided by the Proponent to GBD.

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1.2 National Assessment Framework

GBD is cognisant of the Australian Wind Energy Association and Australian Council of National Trust's publication Wind Farms and Landscape Values National Assessment Framework (NAF), June 2007, and have encompassed the general assessment framework outlined in the NAF within the LVIA methodology. In addition to the NAF, the preparation of this LVIA has also included a review of the National Wind Farm Development Guidelines (Public Consultation Draft V2.4 July 2010).

Table 2 outlines the relevant requirements of the NAF and the corresponding section in which they are addressed within this LVIA report.

Table 2 NAF Requirements

NAF Tasks (through Steps 1 to 4)	LVIA Reference/Response
Step 1 Assess the Landscape Values **1A Preliminary Landscape Assessment** • 1A.1 Desktop Review • 1A.2 Seek information from Local Authority • 1A.3 Identify potential community and stakeholder interests • 1A.4 Site survey • 1A.5 Preliminary assessment of landscape values **1B Full Landscape Assessment** • 1B.1 Define the study area for assessment, including the zone of visual influence • 1B.2 Landscape Character Analysis • 1B.3 Natural and cultural values analysis • 1B.4 Involve communities and stakeholders in identifying landscape values • 1B.5 Document values and analyse significance	This LVIA has been prepared through a comparable methodology to that outlined in the NAF and has included a desktop review (pre site inspection) to determine potential view locations as well as establishing the extent and types of landscape characteristics within the 10km viewshed. Early telephone discussions with the relevant Local Authorities determined that no additional wind farm developments were current other than those notified on the DoPI website: (http://majorprojects.planning.nsw.gov.au/page/project-sectors/transport--communications--energy---water/generation-of-electricity-or-heat-or-co-generation/) Community and stakeholder interests have been identified by an ongoing process of direct consultation between the Proponent and relevant stakeholders. The results of the consultative process are included in this LVIA as well as other relevant sections of the **EA**. Site survey and preliminary assessment work has been undertaken and incorporated into this LVIA. The preparation of a separate preliminary assessment of landscape values is not a requirement under the NSW DoPI DGR's. This LVIA addresses the requirements of Step 1B and presents an analysis of key considerations included in the NAF.
Step 2 Describe and Model the Wind Farm in the Landscape • 2.1 Describe the development • 2.2 Model the development	This LVIA has described and modelled the Sapphire wind farm development and selected view points from a range of view locations including residential dwellings, road corridors and public lookouts within the 10km viewshed.

NAF Tasks (through Steps 1 to 4)	LVIA Reference/Response
• 2.3 Prepare a visual assessment report	
Step 3 Assess the Impacts of the Wind Farm on Landscape Values • 3.1 Seek community input to potential impacts • 3.2 Identify and describe impacts • 3.3 Identify potential cumulative impacts • 3.4 Identify other relevant factors • 3.5 Evaluate impacts	Community and stakeholder interests have been identified by an ongoing process of direct consultation between the Proponent and relevant stakeholders. The results of the consultative process are outlined and included in this LVIA as well as other relevant sections of the **EA**. This LVIA has identified and described potential landscape and visual impacts associated with the Sapphire wind farm development as well as potential cumulative impacts resulting from other wind farm projects within the New England Tablelands Renewable Energy Precinct.
Step 4 Respond to Impacts • 4.1 Changes to location or siting of the wind farm or ancillary infrastructure • 4.2 Layout and design considerations • 4.3 Minor changes and mitigation measures • 4.4 Recommend changes to the development	The development of the Sapphire wind farm turbine layout has been reviewed and adjusted throughout the preparation of this LVIA. Changes to the layout have occurred as a result of stakeholder consultation and specific concerns directed toward the visual impact of the wind farm from surrounding view locations. Significant changes have occurred throughout the development of the '80m' and '110m' design layouts including the removal and repositioning of turbines within the Wellingrove, Swan Vale and Sapphire turbine clusters.

The NAF is noted by its authors as a framework document and does not set out a detailed or prescribed method to undertake an assessment of landscape values. This LVIA has; however, followed the majority of techniques and has tested and determined outcomes for the principal issues that have been raised in the NAF.

1.3 Methodology

This LVIA methodology included the following activities:

- Desktop study addressing visual character and identification of view locations within the surrounding area;
- Fieldwork and photography;
- Preparation of ZVI diagrams;
- Assessment and determination of landscape sensitivity;
- Assessment and determination of visual impact;
- Preparation of photomontages and illustrative figures; and

- Preparation of a Shadow Flicker Assessment.

1.4 Desktop study

A desktop study was carried out to identify an indicative viewshed for the Sapphire wind farm. This was carried out by reference to 1:25,000 scale topographic maps as well as aerial photographs and satellite images of the project area and surrounding landscape. A preliminary ZVI diagram was also produced prior to the commencement of fieldwork in order to inform the likely extent and nature of areas within the nominated 10km viewshed of the proposed wind farm.

Topographic maps and aerial photographs were also used to identify the locations and categories of potential view locations that could be verified during the fieldwork component of the assessment. The desktop study also outlined the visual character of the surrounding landscape including features such as landform, elevation, landcover and the distribution of settlements.

1.5 Fieldwork

The fieldwork involved:

- A total of 3 days of site inspections to determine and confirm the potential extent of visibility of the Sapphire wind farm and ancillary structures;
- Determination and confirmation of the various view location categories and locations from which the Sapphire wind farm and ancillary structures could potentially be visible; and
- Preparation of a record for each view location inspected and assessed.

1.6 Assessment of Landscape Sensitivity

The potential impact of the Sapphire wind farm on the sensitivity of the landscape surrounding the wind farm would result primarily from the capability of the landscape to integrate with, or to accommodate the wind farm.

The capability of the landscape to accommodate the wind farm would result primarily from the nature and degree of perceptual factors that can influence interpretation and appreciation of the landscape, including landform, scale, topographic features, landcover and human influence or modifications.

1.7 Assessment of Visual Impact

The potential visual impact of the wind farm on surrounding view locations would result primarily from a combination of the potential visibility of the wind turbines and the characteristics of the landscape between, and surrounding, the view locations and the wind farm. The potential degree of visibility and resultant visual impact would be partly determined by a combination of factors including:

- Category and type of situation from which people could view the wind farm (examples of view location categories include residents or motorists);
- Visual sensitivity of view locations surrounding the wind farm;
- Potential number of people with a view toward the proposed wind farm from any one location;
- Distance between view locations and the wind farm; and
- Duration of time people could view the wind farm from any particular static or dynamic view location.

An underpinning rationale for this LVIA is that if people are not normally present at a particular location, such as agricultural areas, or they are screened by landform or vegetation, then there is likely to be a nil visual impact at that location.

If, on the other hand, a small number of people are present for a short period of time at a particular location then there is likely to be a low visual impact at that location, and conversely, if a large number of people are present then the visual impact is likely to be higher.

Although this rationale can be applied at a broad scale, this LVIA also considers, and has determined, the potential visual impact for individual view locations that would have a higher degree of sensitivity to the wind farm development, including the potential impact on individual residential dwellings situated in the surrounding landscape. The determination of a visual impact is also subject to a number of other factors which are considered in more detail in this LVIA.

Whilst this LVIA addresses a number of static elements associated with the Sapphire wind farm, the assessment acknowledges and has considered the potential visual impact associated with the movement of the wind turbine rotors.

1.8 Photomontages

The Proponent prepared photomontages from ten view locations to illustrate the potential visibility of the Sapphire wind farm following construction. The photomontage locations were selected by GBD and photographed by GBD in conjunction with the Proponent. The photomontage locations were selected to provide representative views from the vicinity of residential dwellings as well as publically accessible areas including road corridors. The photomontage locations are illustrated in **Figure 31** and the photomontages in **Figures 32** to **55**. The photomontages prepared by the Proponent were subject to peer review and verification by GBD.

1.9 Shadow Flicker & Blade Glint

The Proponent prepared a shadow flicker assessment for the Sapphire wind farm '80m' and '110m' design layouts. The results of the shadow flicker assessment are included in **Section 11** of this LVIA.

Location

SECTION 2

2.1 Location

The Sapphire wind farm (comprising the Wellingrove, Swan Vale and Sapphire turbine clusters) would be located in the north of New South Wales within the New England Tablelands Renewable Energy Precinct, around 18 km west of Glen Innes and 28km east of Inverell. The general location of the Sapphire wind farm is illustrated in **Figure 1**.

The Sapphire wind farm would extend across twenty two participating rural residential and farming properties, covering an area around 1,982 hectares, administered by the Glen Innes Severn and Inverell Shire Councils.

The Glen Innes Severn Council covers around 548,700 hectares covering large tracts of the New England Tablelands, and the Inverell Shire Council area covers approximately 860,600 hectares of the New England Tablelands. The footprint of the Sapphire wind farm project would therefore occupy a very small proportion of both Councils administered areas.

The eastern extent of the Sapphire wind farm would be located approximately 18km from Glen Innes, a rural town located at the intersection of the New England and Gwydir Highways. Gazetted around 1852, Glen Innes has an estimated population of 5,944 people as of the 2006 Census, residing either side of the New England Highway which passes through the centre of the town or located within the general rural district of Glen Innes.

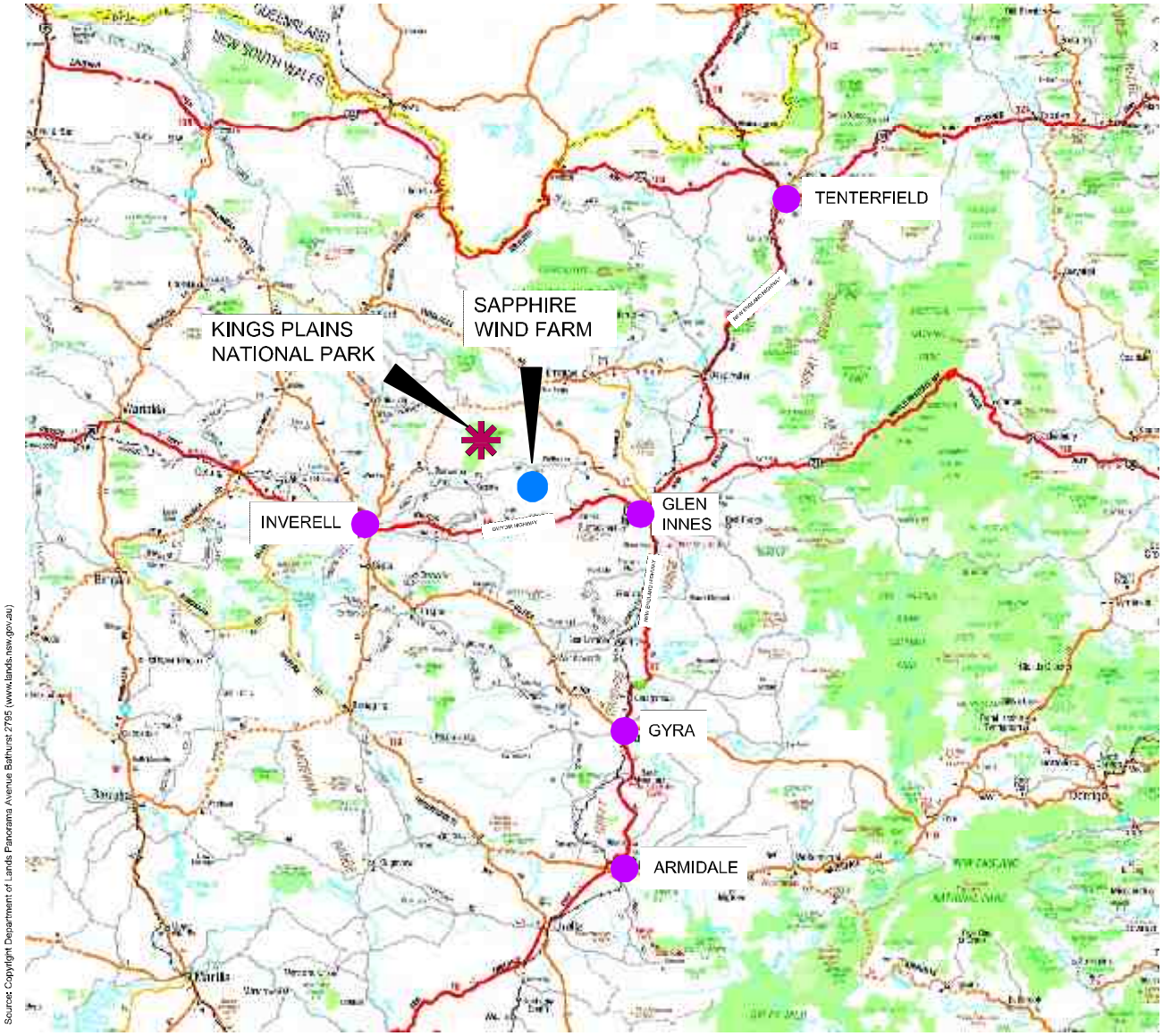
Glen Innes contains a number of historic and diverse built structures, which are still largely connected by the original fabric of urban development that was established following European settlement in the area. The more notable buildings include:

- The Courthouse;
- The Town Hall;
- Glen Innes Post Office;
- Old Police Station, Residence and Sheriffs Cottages;
- Great Central Hotel; and
- Royal Hotel.

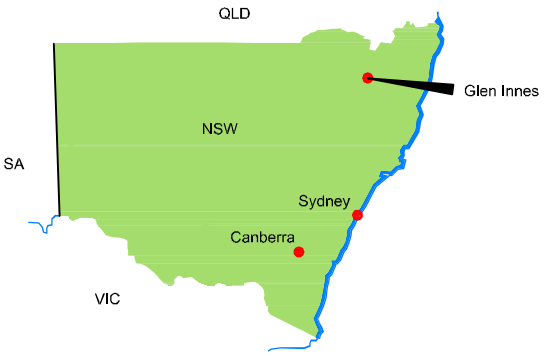
The Main North Railway once passed through Glen Innes; however, the line north of Armidale was abandoned and closed in the 1980's.

The western extent of the Sapphire wind farm would be located approximately 28km from Inverell, a rural town situated on the Macintyre River on the western slopes of the Northern Tablelands. With a population estimated around 9,800 people as of the 2006 Census, the Inverell district supports a diverse agricultural industry and mining for gem stones.

Figure 1
Location Plan



SAPPHIRE WIND FARM -
LOCATION PLAN, REGIONAL CONTEXT (Not to scale)



SAPPHIRE WIND FARM -
LOCATION PLAN, STATE CONTEXT (Not to scale)

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SAPPHIRE WIND FARM

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Views toward the Sapphire wind farm turbines from surrounding urban areas, including the Glen Innes and Inverell townships, would be restricted and/or screened by rising landform or vegetation. The Sapphire wind farm would be unlikely to have any direct or significant impact on the immediate visual qualities of Glen Innes or Inverell.

Wellingrove village is located to the north eastern portion of the Sapphire wind farm site. Gazetted in 1852 the village became a principal settlement and included a court and inn, but declined following the relocation of the court to Glen Innes. Wellingrove has an estimated population of 113 as of the 2006 Census.

There are a small number of National Parks within the New England Tableland region. The more significant include the Kings Plains, Gibraltar Range, Guy Fawkes River and Washpool National Parks. Through the influence of distance, landcover and topography, the Sapphire wind farm would not be visible from camping or recreational areas within any of these regional National Parks.

The closest National Park (Kings Plains National Park) is around 4km from the closest Sapphire wind farm turbine. Covering an area of just over 8,000 hectares the park includes walking tracks to take in Ironbark woodlands, creeks, pools and waterfalls. Camping facilities are provided within the park; however, the distribution of dense vegetation and tree cover throughout the park tends to limit the opportunity for views toward the Sapphire wind farm turbines.

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Sapphire wind farm Project Description

SECTION 3

3.1 Project description

The key visual components of the Sapphire wind farm would comprise:

- Up to 159 wind turbines ranging from 1.5 to 3.4MW;
- Individual transformers and switchgear with associated control systems to be located in the vicinity of the wind turbine towers (in some turbine models transformer equipment would be integrated within the tower or nacelle);
- Underground electrical and communication cable network linking turbines to each other within the site boundary;
- On site substation, internal 33kV reticulation and a 132kV or 330kV transmission line connection to the grid;
- Control room and facilities building;
- Up to 6 wind monitoring masts;
- Crane hardstand areas;
- On site access tracks for construction, operation and ongoing maintenance; and
- Sapphire wind farm signage.

Temporary works associated with the construction of the wind farm that may be visible during construction and operational phases include:

- Site Office; and
- Mobile concrete batching plant and rock crushing facilities.

3.2 Wind turbines

The specific elements of the wind turbines comprise:

- Concrete foundations;
- Tubular tapering steel towers;
- Nacelles at the top of the tower housing the gearbox and electrical generator;
- Rotors comprising a hub (attached to the nacelle) with three blades; and
- Three fibreglass blades attached to each hub.

The following diagram identifies the main components of a typical wind turbine:

Configuration and components of a typical wind turbine

Table 3 outlines the main design parameters for the proposed Sapphire '80m' design layout:

Table 3 Sapphire '80m' design layout:

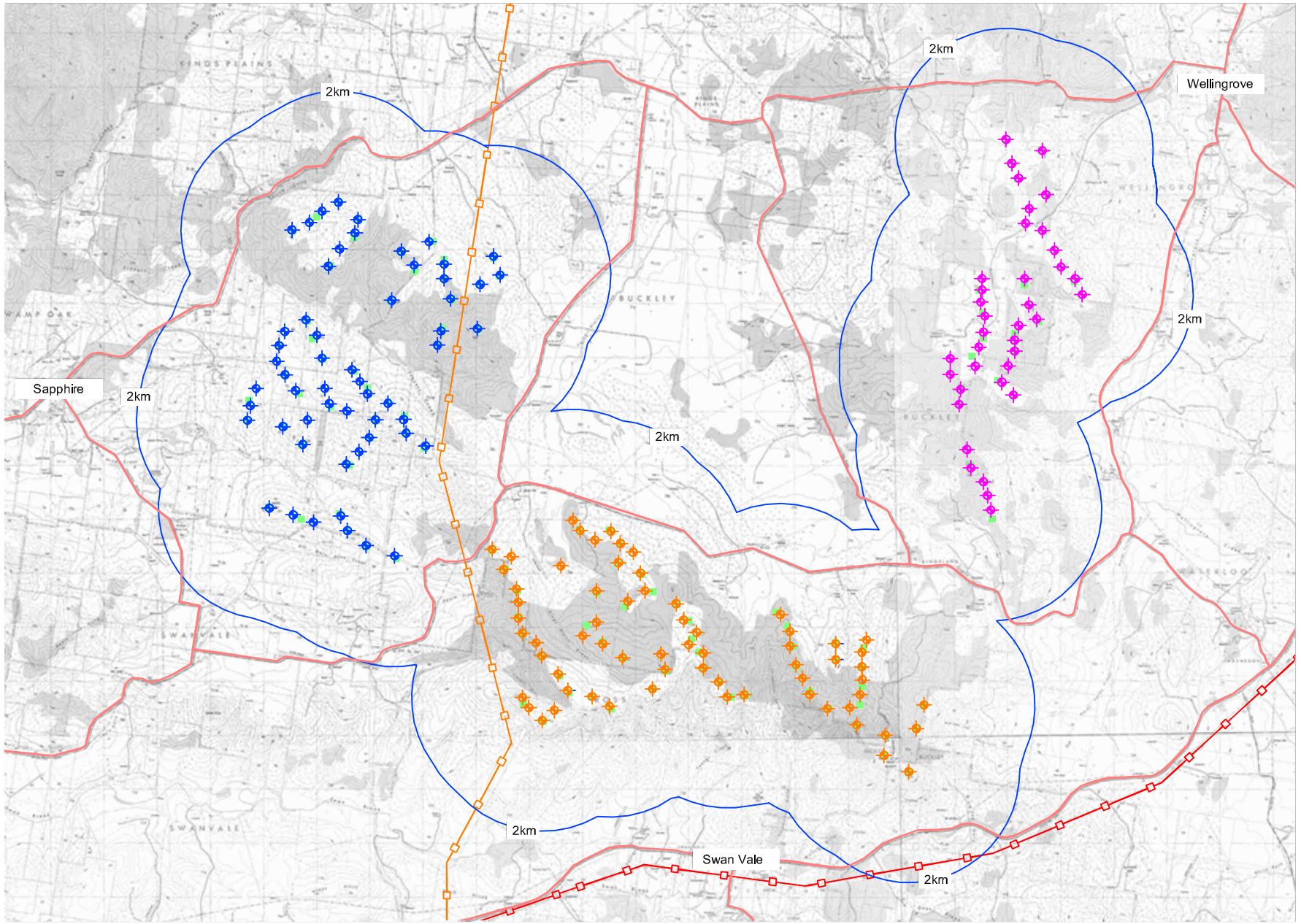
Element	Description
Tower height	100m
Rotor Diameter	92m
Overall height from ground level to tip of blade	146m
Proposed number of Sapphire wind turbines	**159 turbines**

Table 4 outlines the main design parameters for the proposed Sapphire '110m' design layout:

Table 4 Sapphire '110m' design layout:

Element	Description
Tower height	100m
Rotor Diameter	112m
Overall height from ground level to tip of blade	156m
Proposed number of Sapphire wind turbines	**125 turbines**

The'80m' and '110m' design layouts of the Sapphire wind farm are illustrated in **Figure 2.**



Source: Copyright Department of Lands Panorama Avenue Bathurst 2795 (www.lands.nsw.gov.au)

Legend

'80m' Sapphire wind turbine cluster

'80m' Swan Vale wind turbine cluster

'80m' Wellingrove wind turbine cluster

'110m' Sapphire wind farm turbine location

Existing 132kV transmission line

Existing 330kV transmission line

Local road or Highway

2km offset

0km 1km 2km 3km

Figure 2
'80m' and '110m' Design Layout

SAPPHIRE WIND FARM

Table 5 outlines the number of wind turbines proposed within each turbine cluster for the '80m' and '110m' design layouts.

Table 5 – Sapphire wind farm turbine clusters

Turbine cluster	'80m' layout option	'110m' layout option
'Wellingrove'	37	29
'Swan Vale'	66	51
'Sapphire'	56	45
Total	**159**	**125**

3.3 Wind Monitoring Masts

Up to six wind monitoring masts would be installed on-site, extending up to 100m in height. The wind monitoring masts would be of a guyed, narrow lattice or tubular steel design.

The wind monitoring masts would be unlikely to create a significant visual impact, and are similar in scale, or smaller than a number of surrounding communication masts visible in the landscape surrounding the wind farm project area.

3.4 On-site access tracks

On-site access tracks would be constructed to provide access to turbine locations across the site during construction and operation. During construction the majority of access tracks would be approximately 12m wide to allow for vehicle manoeuvring, and would be partially rehabilitated to a 6m width to facilitate access for maintenance vehicles during the operational phase.

The final access track design would be developed on a number of environmental grounds, including minimising the potential for visual impact by considering:

- Overall length and extent;
- Need for clearing vegetation;
- Potential for erosion;
- Extent of cut and fill; and
- Potential to maximise rehabilitation at the completion of the construction phase.

3.5 Electrical works

The principal electrical infrastructure (other than the wind turbines) that may be visible within the Sapphire wind farm would include:

- Generator transformers (may be located within the wind turbine nacelle or at the base of the tower);
- One or more collector substations and a switching substation;
- Approximately 10km of 66kV and/or 132kV overhead electrical conductors and support structures;
- Control cables (potentially located underground); and
- Operation facilities building.

The proposed electrical works are detailed in **Section 13** and illustrated in **Figure 61**.

Viewshed, Zone of Visual Influence and Visibility SECTION 4

4.1 Introduction

A key component of this LVIA is defined by the description, assessment and determination of the viewshed, zone of visual influence and visibility associated with the wind farm. It is a combination of these issues that sets out the framework for determining the significance and magnitude of potential visual impact of the wind farm on view locations within the landscape.

In order to clarify and explain this component of this LVIA, the relationship between viewshed, zone of visual influence and visibility is outlined and defined in **Table 6**.

Table 6 – Definitions

	Definition	Relationship
Viewshed	An area of land surrounding and beyond the project area which may be potentially affected by the wind farm.	Identifies the majority of this LVIA study area that incorporates view locations that may be subject to a degree of visual impact.
Zone of Visual Influence (ZVI)	A theoretical area of landscape from which the wind farm structures may be visible.	Determines areas within a viewshed from which the wind turbines may be visible.
Visibility	A relative determination at which a wind turbine or cluster of wind turbines can be clearly discerned and described.	Describes the likely number and relative scale of wind turbines visible from a view location.

An overview of viewshed, zone of visual influence and visibility is discussed in the following sections.

4.2 Viewshed

For the purpose of this LVIA viewshed is defined as the area of land surrounding and beyond the project area which could be potentially affected by the wind farm. In essence, the viewshed defines this LVIA study area. The viewshed for the Sapphire wind farm has been illustrated as a series of concentric bands (at 2km, 5km and 10km distance offsets) extending across the landscape from the wind turbines. The viewshed extent can vary between wind farm projects, and be influenced or informed by a number of criteria including the height of the wind turbines together with the nature, location and height of landform that could limit visibility.

It is important to note that the wind turbines would be visible from some areas of the landscape beyond the 10km viewshed; however, within the general parameters of normal human vision, a wind turbine at around 160m to the tip of the rotor blade would occupy a relatively small proportion of a person's field of view from distances in excess of 10km.

The viewshed is used as a framework and guide for visibility assessment, as the degree of visual impacts would tend to be gradated with distance although there are unlikely to be any distinct or abrupt noticeable changes between the nominated distance bands. For the purpose of this LVIA, the viewshed assumptions for the Sapphire wind farm are outlined in **Table 7**.

Table 7 – Viewshed Descriptors

Distance from turbine	Potential Viewshed Descriptors
>20km	Wind turbines become indistinct with increasing distance. Rotor movement may be visible but rotor structures are usually not discernable. Turbines may be discernable but generally indistinct within viewshed resulting in **Low** level visibility and **Nil** where influenced or screened by surrounding topography and vegetation.
10km – 20km	Wind turbines noticeable but tending to become less distinct with increasing distance. Blade movement may be visible but becomes less discernable with increasing distance. Turbines discernable but generally less distinct within viewshed (potentially resulting in **Low** level visibility).
5km – 10km	Wind turbines visible but tending to become less distinct depending on the overall extent of view available from the potential view location. Movement of blades discernable where visible against the skyline. Turbines potentially noticeable within viewshed (potentially resulting in **Low to Moderate** level visibility).
3 – 5km	Wind turbines clearly visible in the landscape but tending to become less dominant with increasing distance. Movement of blades discernable. Turbines noticeable but less dominant within viewshed (potentially resulting in **Moderate** level visibility).
1 – 3km	Wind turbines would generally dominate the landscape in which the wind turbine is situated. Potential for high visibility depending on the category of view location, their location, sensitivity and subject to other visibility factors. Turbines potentially dominant within viewshed (potentially resulting in **Moderate to High** level visibility).
<1km	Wind turbines would dominate the landscape in which they are situated due to large scale, movement and proximity. Turbines dominant and significant within viewshed (potentially resulting in **High** level visibility).

4.3 Zone of Visual Influence (ZVI)

The ZVI diagrams are used to identify theoretical areas of the landscape from which a defined number of wind turbines, or portions of turbines, could be visible within the viewshed. They are useful for

providing an overview as to the extent to which the Sapphire wind farm could be visible from surrounding areas. **Figure 3** illustrates typical situations from which the Sapphire wind farm turbines may be visible from 'tip of blade', 'rotor face or 'whole turbine' extents.

Nine ZVI diagrams have been prepared by the Proponent including:

- ZVI Diagram 1 – '80m' layout 'Tip of blade'
- ZVI Diagram 2 – '80m' layout 'Rotor face'
- ZVI Diagram 3 – '80m' layout 'Whole turbine'
- ZVI Diagram 4 – '110m' layout 'Tip of blade'
- ZVI Diagram 5 – '110m' layout 'Rotor face'
- ZVI Diagram 6 – '110m' layout 'Whole turbine'
- ZVI Diagram 7 – '80m' layout Sapphire, White Rock and Glen Innes (Cumulative)
- ZVI Diagram 8 – '80m' layout Sapphire and Glen Innes (Cumulative)
- ZVI Diagram 9 – '80m' layout Sapphire and White Rock (Cumulative)

The ZVI Diagrams 1 to 6 are illustrated in **Figures 4** to **9**. The cumulative ZVI Diagrams 7, 8 and 9 are illustrated in **Figures 28, 29** and **30** in **Section 9** of this LVIA.

4.4 ZVI Methodology

The methodology adopted by the Proponent is a purely geometric assessment where the visibility of the proposed Sapphire wind farm is determined from carrying out calculations based on a digital terrain model of the site and the surrounding terrain.

Calculations have been made to determine the visibility of the wind turbines:

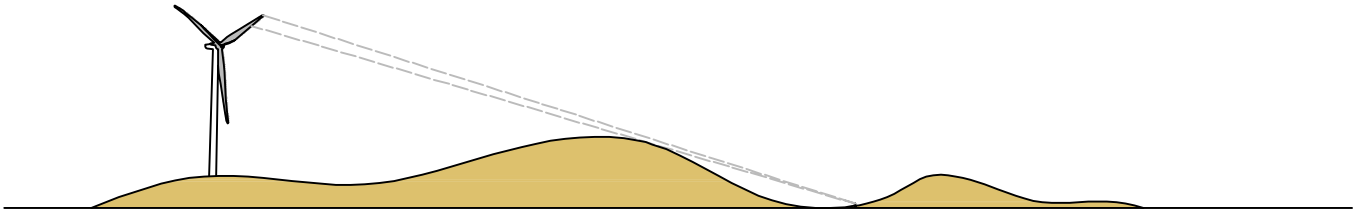
- blade tips (essentially a view toward any part of the wind turbine rotor, including views toward the tips of blades above ridgelines);
- hub height (essentially a view toward half the swept path of the wind turbine blades); and
- tower and rotor height (essentially a view toward the full turbine structure).

The calculations also take into account the terrain relief and earth curvature.

This assessment methodology is conservative as:

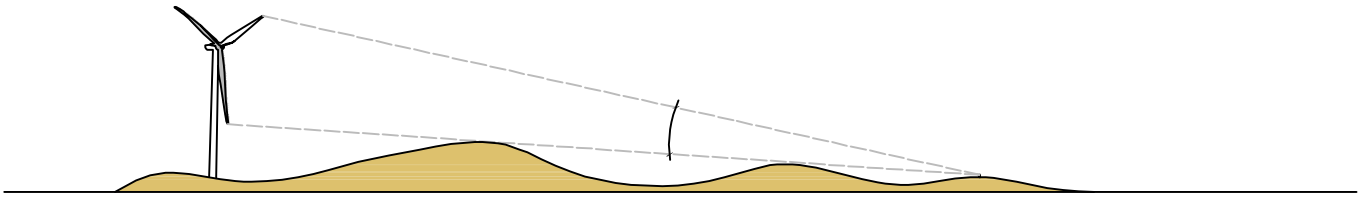
- The screening affects of any structures and vegetation above ground level are not considered in any way. Therefore the wind farm may not be visible at many of the locations indicated on the ZVI diagrams due to the local presence of trees or other screening materials.

Figure 3
ZVI Visibility Zones



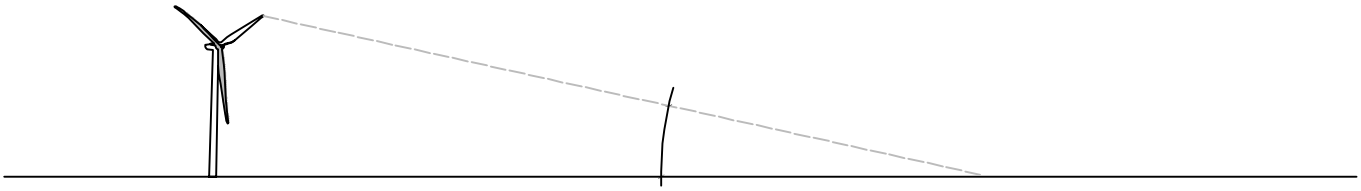
'Tip of blade'

View toward 'tip of blade' - where views extend toward any part of the turbine including views toward the tip of blades above hill and ridgelines.



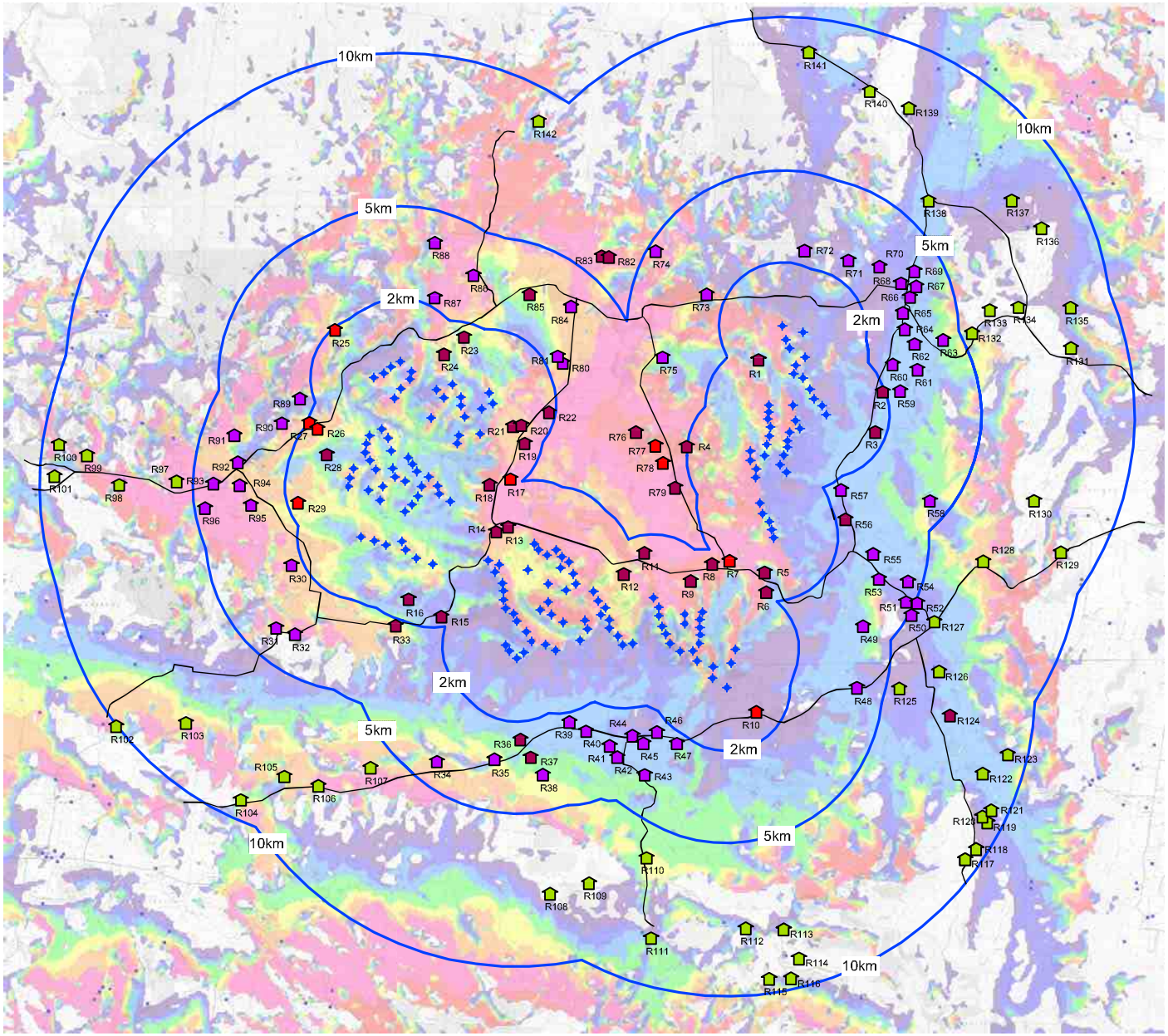
'Rotor face'

View toward 'rotor face' - where views extend toward the complete face of the wind turbine rotor with views toward the tower screened by landform.



'Whole turbine'

View toward 'whole turbine' - where views extend from the base of the tower to the tip of the rotor blade.



Source: Copyright: Department of Lands Panorama Avenue Bathurst 2795 (www.lands.nsw.gov.au)

Legend

'80m' design layout
Visible 'tip of blade'

- 0
- 1 to 20
- 21 to 40
- 41 to 60
- 61 to 80
- 81 to 100
- 101 to 120
- 121 to 125
- 126 to 140
- 141 to 159

Associated residential dwelling

Non associated residential dwelling within 2km of Sapphire wind turbine

Non associated residential dwelling between 2 and 5km of Sapphire wind turbine

Non associated residential dwelling between 5 and 10km of Sapphire wind turbine

0km 2.5km 5km

Figure 4 - ZVI Diagram 1
'80m' design layout
'tip of blade'

SAPPHIRE WIND FARM

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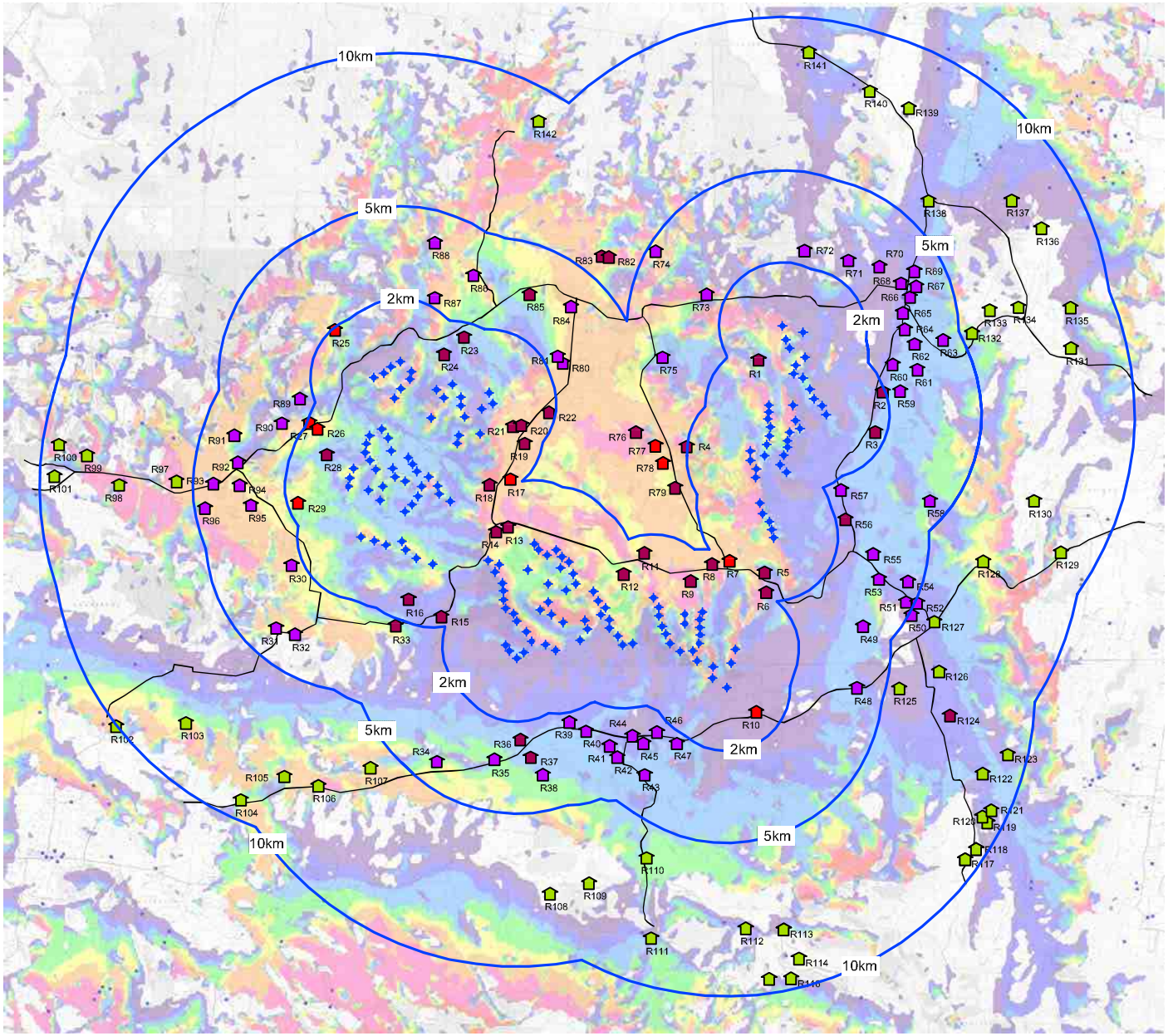

Source: Copyright: Department of Lands Panorama Avenue Bathurst 2795 (www.lands.nsw.gov.au)

Legend

'80m' design layout
Visible 'rotor face'

- 0
- 1 to 20
- 21 to 40
- 41 to 60
- 61 to 80
- 81 to 100
- 101 to 120
- 121 to 125
- 126 to 140
- 141 to 159

Associated residential dwelling

Non associated residential dwelling within 2km of Sapphire wind turbine

Non associated residential dwelling between 2 and 5km of Sapphire wind turbine

Non associated residential dwelling between 5 and 10km of Sapphire wind turbine

0km 2.5km 5km

Figure 5 - ZVI Diagram 2
'80m' design layout
'rotor face'

SAPPHIRE WIND FARM

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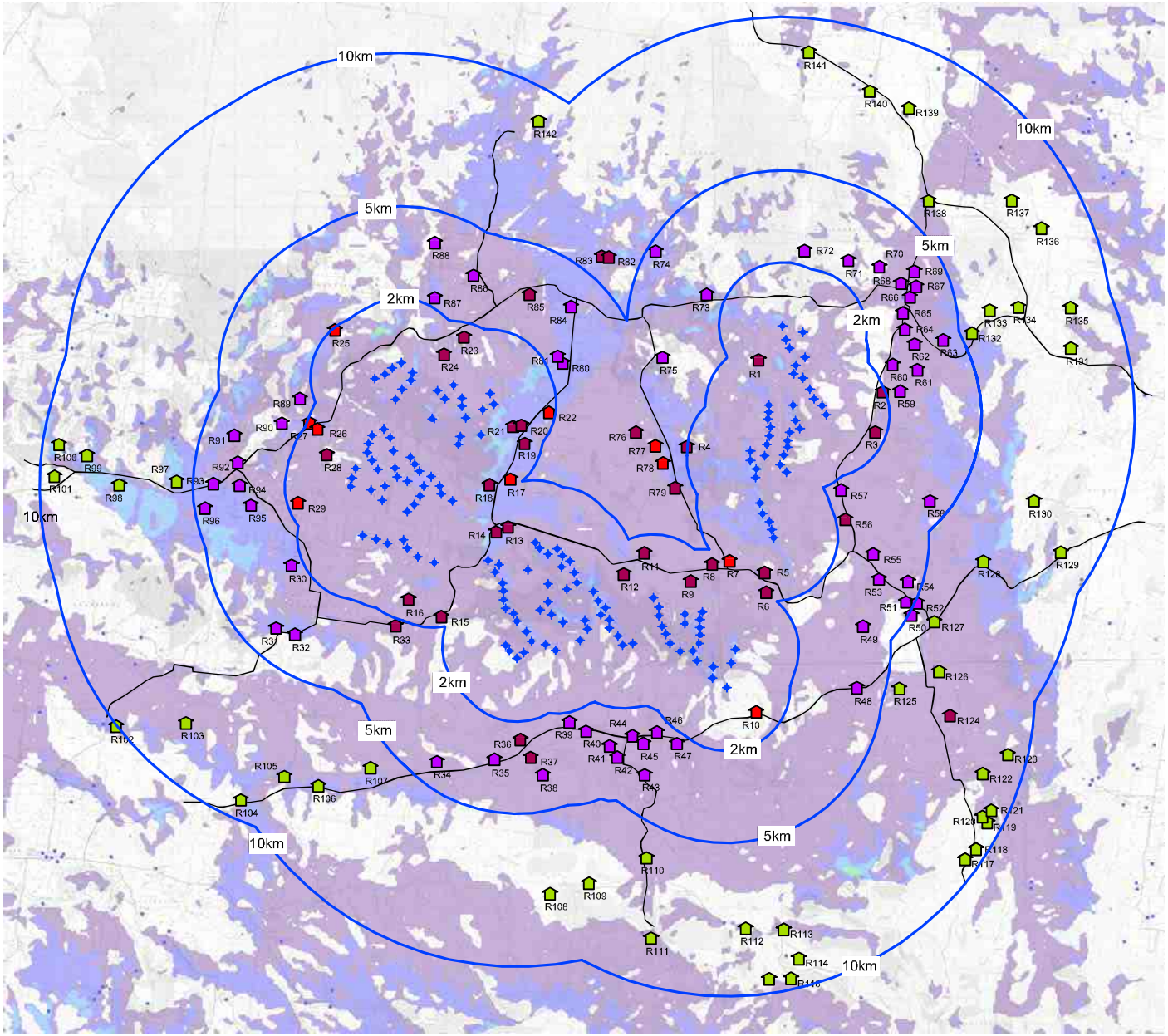
WIND PROSPECT CWP



Source: Copyright: Department of Lands Panorama Avenue Bathurst 2795 (www.lands.nsw.gov.au)

Legend

'80m' design layout
Visible 'whole turbine'

- 0
- 1 to 20
- 21 to 40
- 41 to 60
- 61 to 80
- 81 to 100
- 101 to 120
- 121 to 125
- 126 to 140
- 141 to 159

Associated residential dwelling

Non associated residential dwelling within 2km of Sapphire wind turbine

Non associated residential dwelling between 2 and 5km of Sapphire wind turbine

Non associated residential dwelling between 5 and 10km of Sapphire wind turbine

0km 2.5km 5km

Figure 6 - ZVI Diagram 3
'80m' design layout
'whole turbine'

SAPPHIRE WIND FARM

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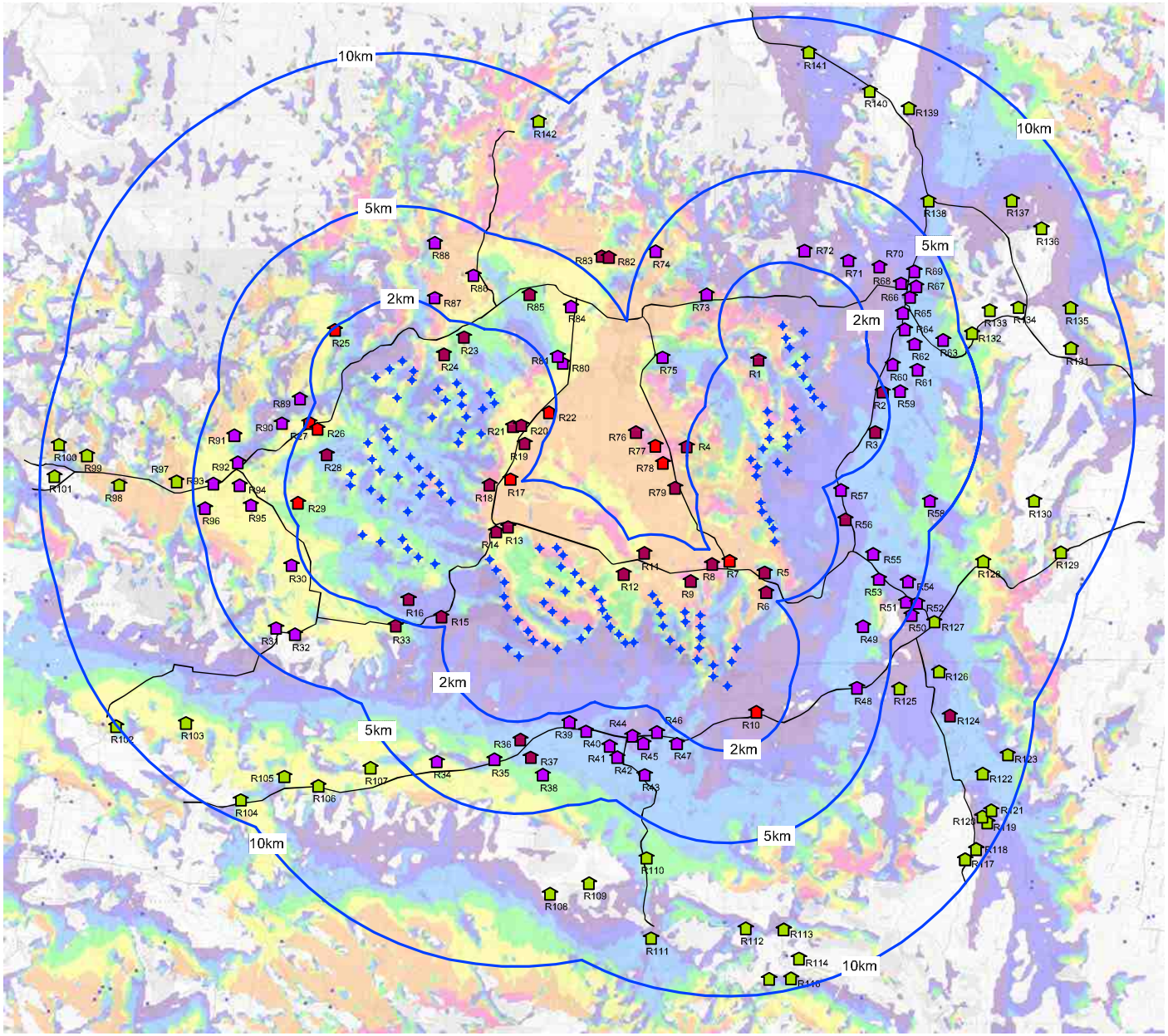
WIND PROSPECT CWP



Source: Copyright: Department of Lands Panorama Avenue Bathurst 2795 (www.lands.nsw.gov.au)

Legend

'110m' design layout
Visible 'tips of blade'

- 0
- 1 to 20
- 21 to 40
- 41 to 60
- 61 to 80
- 81 to 100
- 101 to 120
- 121 to 125

Associated residential dwelling

Non associated residential dwelling within 2km of Sapphire wind turbine

Non associated residential dwelling between 2 and 5km of Sapphire wind turbine

Non associated residential dwelling between 5 and 10km of Sapphire wind turbine

0km 2.5km 5km

Figure 7 - ZVI Diagram 4
'110m' design layout
'tip of blade'

SAPPHIRE WIND FARM

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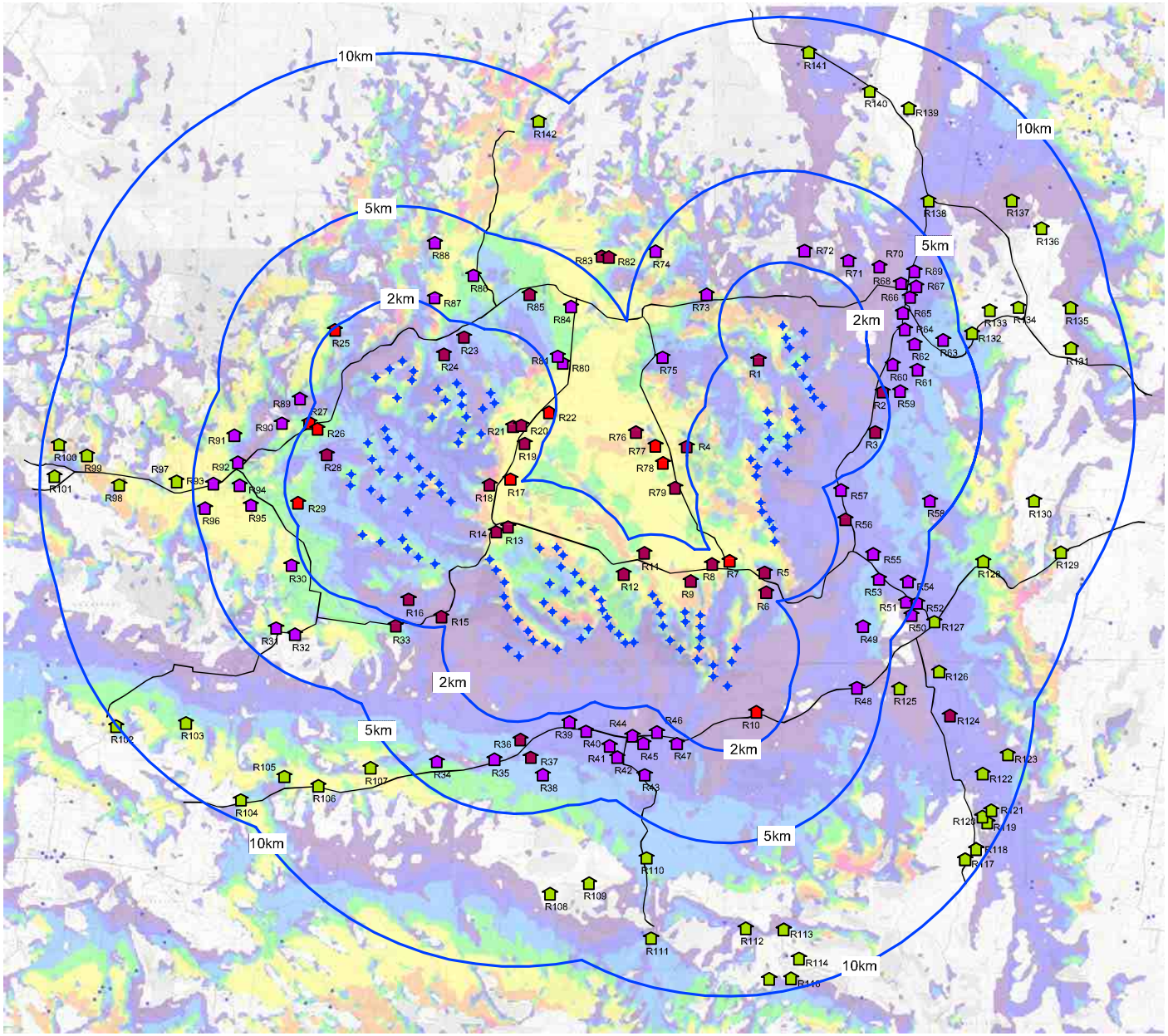

Source: Copyright: Department of Lands Panorama Avenue Bathurst 2795 (www.lands.nsw.gov.au)

Legend

'110m' design layout
Visible 'rotor face'

- 0
- 1 to 20
- 21 to 40
- 41 to 60
- 61 to 80
- 81 to 100
- 101 to 120
- 121 to 125

Associated residential dwelling

Non associated residential dwelling within 2km of Sapphire wind turbine

Non associated residential dwelling between 2 and 5km of Sapphire wind turbine

Non associated residential dwelling between 5 and 10km of Sapphire wind turbine

0km 2.5km 5km

Figure 8 - ZVI Diagram 5
'110m' design layout
'rotor face'

SAPPHIRE WIND FARM

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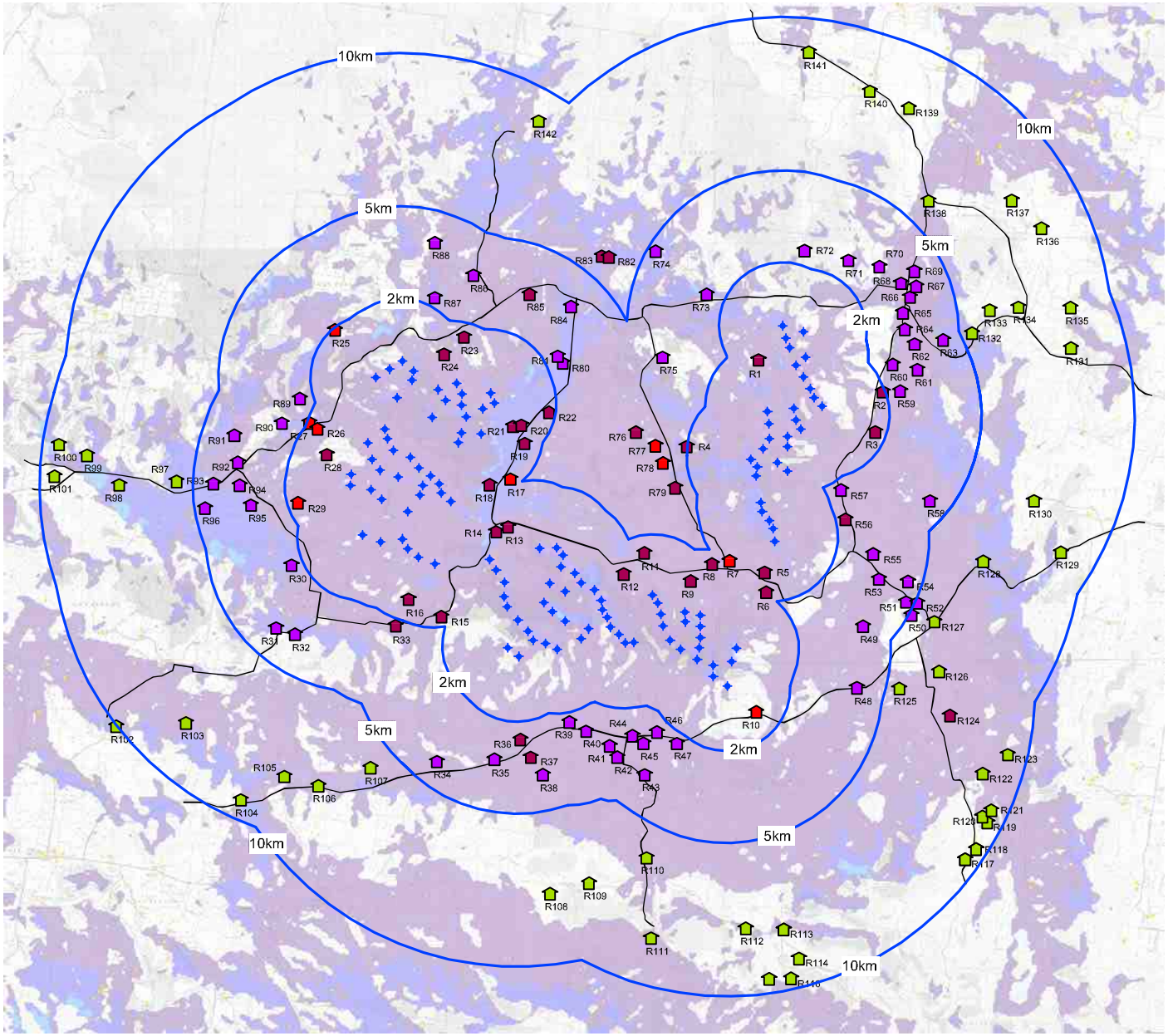

Legend

'110m' design layout
Visible 'whole turbine'

- 0
- 1 to 20
- 21 to 40
- 41 to 60
- 61 to 80
- 81 to 100
- 101 to 120
- 121 to 125

Associated residential dwelling

Non associated residential dwelling within 2km of Sapphire wind turbine

Non associated residential dwelling between 2 and 5km of Sapphire wind turbine

Non associated residential dwelling between 5 and 10km of Sapphire wind turbine

0km 2.5km 5km

Figure 9 - ZVI Diagram 6
'110m' design layout
'whole turbine'

SAPPHIRE WIND FARM

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- Additionally, the number of turbines visible is also affected by the weather conditions at the time. Inclement or cloudy weather tends to mask the visibility of the proposed wind project.

Accordingly, while the ZVI diagrams are a useful visualisation tool, they are very conservative in nature.

4.5 ZVI Summary

The most extensive and continuous area of visibility toward the Sapphire wind farm turbines would generally occur where the tips of the wind turbine rotor blades are visible above surrounding ridgelines or vegetation; however, views toward the tips and upper portions of the wind turbine rotors are likely to become less noticeable at reasonably short distances from the wind farm, and are generally visually negligible from medium to longer distance view locations.

The ZVI diagrams for 'tip' and 'hub height' cover similar extents of landscape surrounding the wind farm, and extend toward isolated pockets of rural landscape beyond 10km of the nearest wind turbine. The number and distribution of turbines visible between 'tip' and 'hub' height is influenced by the Waterloo Range and surrounding hills for a number of areas between the 5km to 10km distance offsets.

The ZVI diagrams illustrate areas of landscape which are likely to provide a view toward a greater number of wind turbines generally occur within private property and across tracts of unoccupied rural landscape, including land belonging to associated landowners.

Areas of land that also offer an opportunity to view a greater number of wind turbines do, however, extend across neighbouring and non associated properties and include:

- Gently undulating land within the Kings Plains area generally defined by the Eastern and Western Feeders, Waterloo Road to the south and Kings Plains Road to the north;
- North to south elevated ridgelines (Waterloo Range) to the west of Glen Innes;
- Elevated ridgeline and low hills extending east to west from Table Top Hill toward and crossing the Gwydir Highway;
- Elevated ridgeline and low hills extending west to east from Spring Mountain Road to White Rock Mountain; and
- A series of low hills and undulating land to the south east of Kings Plains National Park, extending south toward McKerrow Hill west of Woodstock Road.

The ZVI diagrams also illustrate a number of discrete pockets within portions of the 5km to 10km distance offset from which the wind turbines would not be visible, although this band of the viewshed also represents areas from which a greater number of turbines would also be visible.

The ZVI diagrams illustrate that the influence of surrounding landform begins to disperse visibility from beyond 5km, although opportunities to view turbines from elevated, but moderately distant and generally unoccupied areas occur from areas beyond 5km.

It should be noted that the wind turbines, when viewed from distances of around, or greater than 15km, will generally be less distinct from other distant elements within the same field of view, and that the majority of land within the viewshed comprises rural agricultural land.

4.6 Visibility

The level of wind turbine visibility within the Sapphire 10km viewshed can result from a number of factors including, but not limited to:

4.6.1 Distance

With an increase in distance the proportion of a person's horizontal and vertical field of view occupied by a visible turbine structure, or cluster of turbine structures, would decline.

As the view distance increases so do the atmospheric effects resulting from dust particles and moisture in the atmosphere, which makes the turbines appear to be grey thus potentially reducing the contrast between the wind turbines and the background against which they are viewed.

Whilst the distance between a view location and the wind turbines is a primary factor to consider when determining potential visibility, there are other issues which could also affect the degree of visibility.

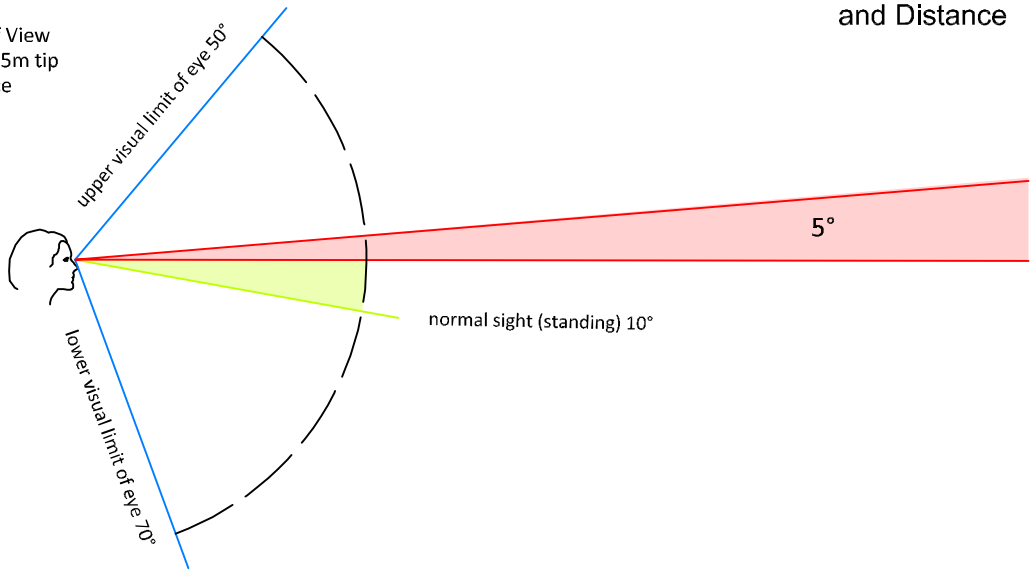
The influence of distance on visibility and the proportion of a person's vertical field of view occupied by wind turbines at set view distances are illustrated in **Figure 10**. The Gullen Range Wind Farm Assessment (2008) suggests that:

- A wind turbine that occupies less than 0.5% of field of view will likely result in an insignificant level of visual impact;
- A wind turbine that occupies between 0.5% and 2.5% of the vertical field of view will be potentially noticeable; and
- A wind turbine that occupies between 2.5% and 5% of the vertical field of view will be visually evident.

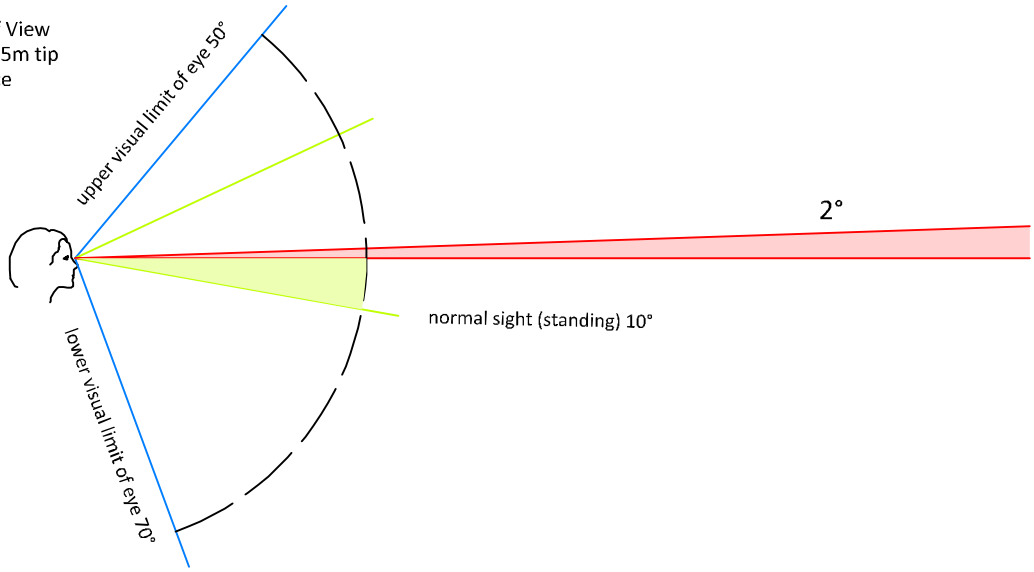
Whilst it is logical that objects will occupy a smaller field of view at greater distances, it is not apparent that specific results from previous wind farm assessments have been verified or tested against known examples of wind farm developments.

Figure 10
Turbine Visibility
and Distance

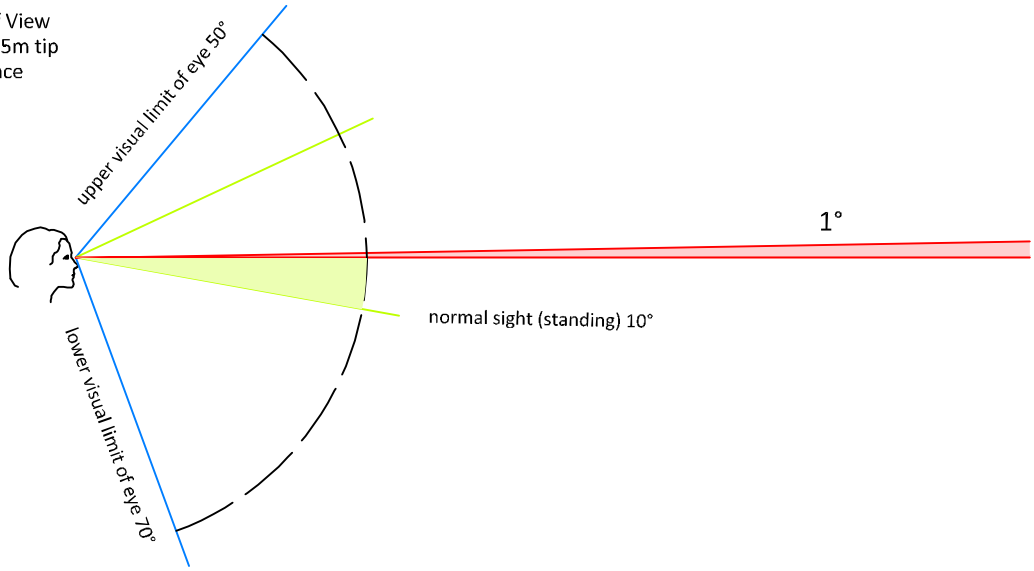
Proportion of vertical Field of View occupied by wind turbine (175m tip of blade) at 2km view distance



Proportion of vertical Field of View occupied by wind turbine (175m tip of blade) at 5km view distance



Proportion of vertical Field of View occupied by wind turbine (175m tip of blade) at 10km view distance



4.6.2 Movement

The visibility of the wind turbines would vary between the categories of static and dynamic view locations. In the case of static views the relationship between a wind turbine and the landscape would not tend to vary greatly. The extent of vision would be relatively wide as a person tends to scan back and forth across the landscape.

In contrast views from a moving vehicle are dynamic as the visual relationship between wind turbines is constantly changing as well as the visual relationship between the wind turbines and the landscape in which they are seen. The extent of vision can be partially constrained by the available view from within a vehicle at proximate distances.

4.6.3 Relative position

In situations where the view location is located at a lower elevation than the wind turbine structure most of it would be viewed against the sky. The degree of visual contrast between a white coloured turbine and the sky would depend on the presence of background clouds and their colour. Dark grey clouds would contrast more strongly with white turbines than a background of white clouds.

The level of contrast is also influenced by the position of the sun relative to the individual wind turbines and the view location. Where the sun is located in front of the viewer, the visible portion of the wind turbine would be seen in shadow. Where the background to the wind turbine is dark toned the visual contrast would be reduced. Where the sun is located behind the view location then the visible portion of the wind turbine would be in full sun. If the background is also light toned, such as white clouds, then the contrast is less when compared to a dark background. The ZVI diagrams illustrate overall visibility of the Sapphire wind farm; however, the ZVI do not take into account the screening influence of vegetation and built structures.

This LVIA has determined that levels of visibility (toward hub height) for the Sapphire ‘80m’ wind turbine layout would be:

Low – up to 30% of the overall wind farm visible to any portion of the wind turbine (1 to 60 turbines);

Medium – up to 60% of the overall wind farm visible to any portion of the wind turbine (61 to 120 turbines); and

High – over 60% of the wind turbines visible to any portion of the wind turbine (121 to 159 turbines).

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Local Environmental Factors

SECTION 5

5.1 Climatic and Atmospheric Conditions

Local climatic and atmospheric conditions have the potential to influence the visibility of the Sapphire wind farm from surrounding view locations, and more significantly, from distant view locations. The climate of the Nandewar Bioregion is characterised as 'fairly warm and dry' with rainfall varying across the bioregion but generally decreasing from east to west.

The Bureau of Meteorology has collected meteorological data over the past fifty years at Glen Innes Post Office which indicates that there are:

- 105 clear days (annual mean average);
- 130 cloudy days (annual mean average); and
- 80 days of rain (annual mean average).

Rainfall would tend to reduce the level of visibility from a number of view locations surrounding the Sapphire wind farm with the degree of visibility tending to decrease over distance. Rain periods would be likely to reduce the number of visitors travelling through the areas from which the Sapphire wind farm could be visible, and potentially decrease the duration of time spent at a particular public view location with a view toward the Sapphire wind farm.

Cloud cover would also tend to reduce the level of visibility of the Sapphire wind farm and lessen the degree of contrast between the wind turbine structures and the background against which the wind turbines would be visible.

On clear or partly cloudy days, the position of the sun would also have an impact on the degree of visibility of the Sapphire wind farm. The degree of impact would be largely dependent on the relationship between the position and angle of the sun relative to the view location. Late afternoon and early evening views toward the west would result in the wind turbines silhouetted above the horizon line, and with increasing distance would tend to reduce the contrast between the wind turbine structures and the surrounding landform.

The extent to which local weather conditions can influence visibility toward turbine structures is illustrated in **Figure 11**.

5.2 Topography and Drainage

Situated within the Nandewar Bioregion, the Sapphire wind farm would be located on a series of ridgelines, spurs and low undulating hills to the east, west and south of the Kings Plains Creek and associated plain. The topography and drainage patterns vary across each of the Sapphire wind farm turbine clusters and are described in detail below.

PHOTO A - Illustrates the visibility of wind turbines against a clear and blue sky backdrop with sunlight from above and to the right of the wind turbines creating a shadow line along the left hand side of the towers as well as portions of the rotor blades.

PHOTO A - DAY TIME VIEW FROM HUME HIGHWAY TOWARD CULLERIN WIND FARM AT AROUND 3.5KM (13th June 2010)

PHOTO B - Illustrates the visibility of wind turbines against a partly cloudy and overcast backdrop. The wind turbines in cloud shadow appear off white to grey in colour.

PHOTO B - DAY TIME VIEW FROM HUME HIGHWAY TOWARD CULLERIN WIND FARM AT AROUND 3.5KM (10th June 2010)

PHOTO C - Illustrates the visibility of wind turbines in fog/low cloud cover.

PHOTO C - DAY TIME VIEW FROM HUME HIGHWAY TOWARD CULLERIN WIND FARM AT AROUND 3.5KM (7th July 2010)

The landscape within and surrounding the Wellingrove turbine cluster contains topographic and drainage features, including:

- Wellingrove Hill (around 1,051m AHD);
- Unnamed hills within the south of the Wellingrove turbine cluster at around 1,006 to 1,106m AHD);
- Wellingrove Creek to the east of the Wellingrove turbine cluster (flowing south to north); and
- Unnamed ephemeral drainage lines typically flowing west to east along landform falling toward the Wellingrove Creek.

The landscape within and surrounding the Swan Vale turbine cluster contains topographic and drainage features, including:

- A series of low and unnamed hills rising above and to the north of Swan Brook at around 920m to 1,042m AHD;
- Mount Buckley at around 1,168m AHD;
- Vol Aston Hill at around 905m AHD;
- Swan Peak (to the west of the Swan Vale turbine cluster) at around 1,020m AHD;
- Swan Brook to the south of the Swan Vale turbine cluster (flowing east to west); and
- Unnamed ephemeral drainage lines typically flowing north to south along landform falling toward Swan Brook.

The landscape within and surrounding the Sapphire turbine cluster contains topographic and drainage features, including:

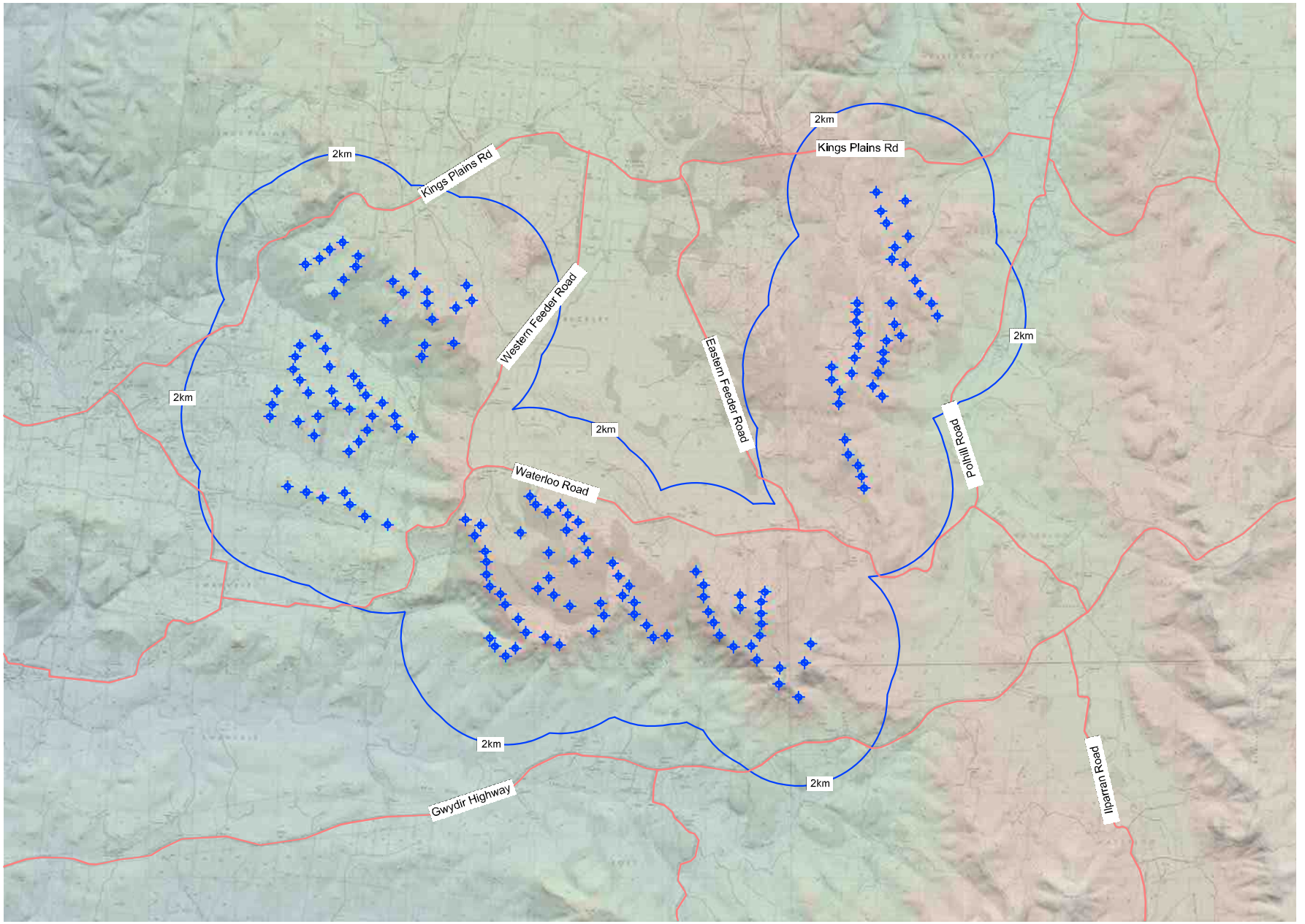
- A series of low and unnamed hills rising above and to the north and south of Horse Gully Creek at around 950m to 1,007m AHD;
- White Hill at around 873m AHD;
- Swan Peak (to the south west of the Sapphire turbine cluster) at around 1,020m AHD; and
- Horse Gully Creek, Frazers Creek, Mary Anne Creek and Spring Creek within and between turbines within the Sapphire turbine cluster.

Landform elevation within and surrounding the Sapphire wind farm is illustrated in **Figure 12**.

5.3 Vegetation

A detailed survey of existing vegetation has been carried out as part of the biodiversity assessment for the Sapphire wind farm EA and is summarised in **Chapter 10** of the EA.

In general the landscape within the Sapphire wind farm site contains vegetation associated with woodland, drainage lines, small ponds/dams and cleared land for pasture and agricultural crop cultivation. Stands of remnant woodland occur within the wider context of a modified landscape which continues to be managed through a variety of farming activities.



Legend

Sapphire 80m wind turbine

Elevation (m)

- >1300
- 1000
- 900
- 700
- 500
- <300

0km 1km 2km 3km 4km

Figure 12
Topography

SAPPHIRE WIND FARM

The landscape within and surrounding the Sapphire wind farm turbine clusters is illustrated in the panorama photographs. Refer **Figures 14** to **22**.

Panoramic Photographs (Existing views) SECTION 6

6.1 Panoramic Photographs

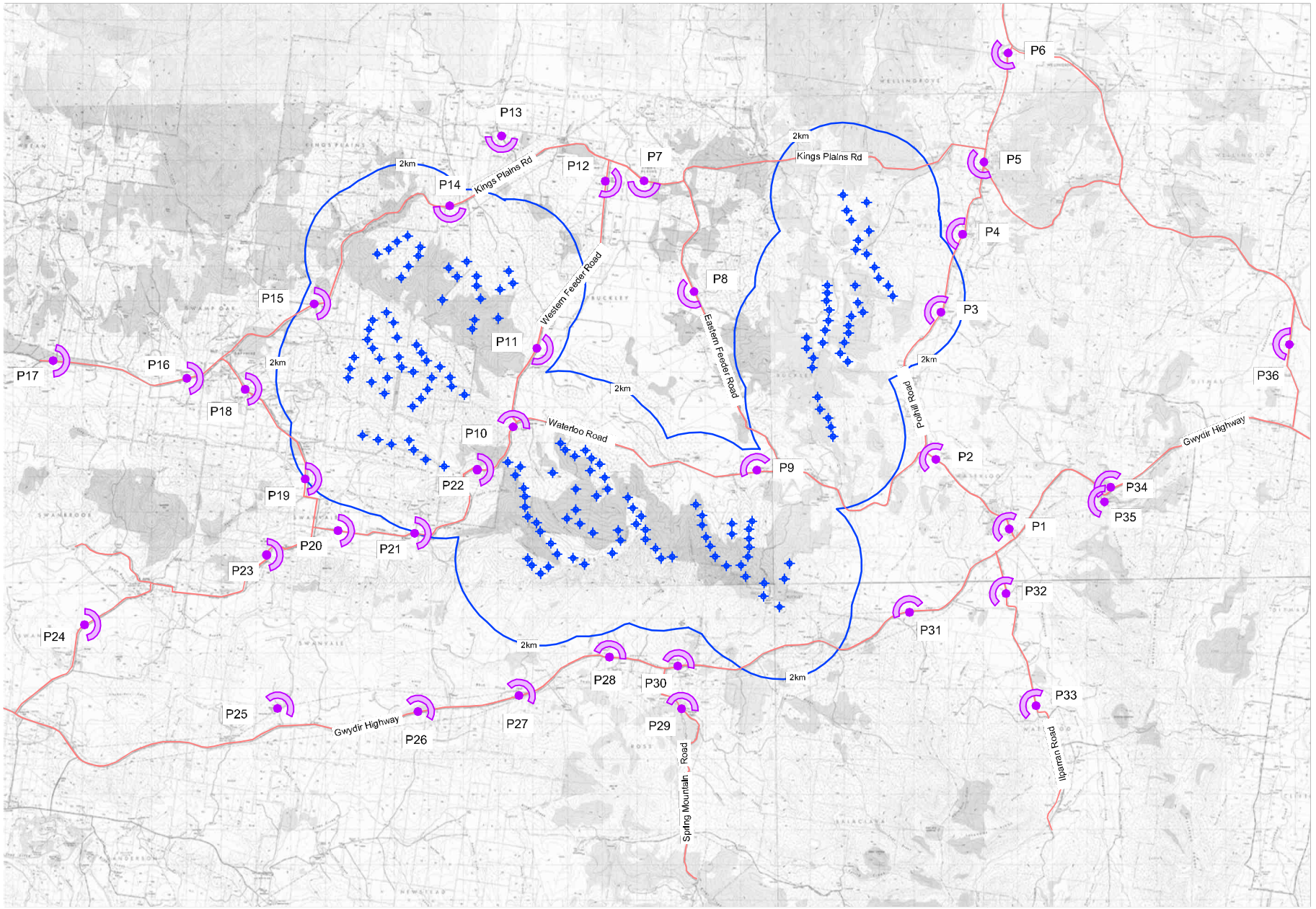
A series of digital photographs were taken during the course of the fieldwork to illustrate existing views in the vicinity of a number of view locations inspected and assessed as part of this LVIA. Individual photographs were digitally stitched together to form a segmented panorama image to provide a visual illustration of the existing view from each photo location.

The real world coordinate location for each panorama photograph was recorded with a hand held GPS unit to an accuracy of around plus or minus four meters. Additional information including the bearing or direction of each photograph, time of day and prevailing weather conditions was also recorded.

The panoramic photographs presented in this LVIA have been annotated to identify key features or structures located within the existing view, and indicatively illustrate the general extent and location of potentially visible wind turbines or portions of turbine structures for the proposed Sapphire and White Rock wind farms and approved Glen Innes wind farm.

The panoramic photograph locations are illustrated in **Figure 13**, and the panoramic photographs illustrated in **Figures 14** to **22**.

The panoramic photographs are not to be confused with the photomontages. The panoramic photographs do not include a representation or model of the wind turbine structures. The photomontages are discussed in **Section 10** of this LVIA, and are illustrated in **Figures 32** to **55**.



Source: Copyright Department of Lands Panorama Avenue Bathurst 2795 (www.lands.nsw.gov.au)

Figure 13
Photo Locations

SAPPHIRE WIND FARM

Photo Location P1- View north west from Waterloo Road

Photo Location P2- View west to north from Waterloo Road

Photo Location P3- View west to north west from Polhill Road

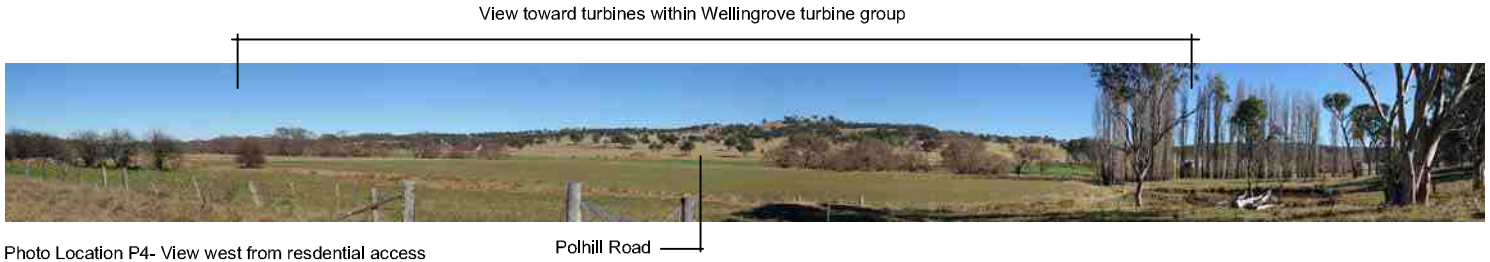


Photo Location P4- View west from resdential access road east of Polhill Road

Figure 14 Photo Sheet 1

SAPPHIRE WIND FARM

Extent of wind farm visibility illustrated on panoramic photographs is indicative only

Photo Location P5- View south to west from Polhill Road, Wellingrove

Photo Location P6- View south to south west from Polhill Road (at Strathbogie Road intersection)

Photo Location P7- View west to east from Kings Plains Road

Photo Location P8- View south to north west from Eastern Feeder Road

Figure 15 Photo Sheet 2

SAPPHIRE WIND FARM

Extent of wind farm visibility illustrated on panoramic photographs is indicative only

Photo Location P9- View west to north west from Waterloo Road

Photo Location P10- View north to north east from Waterloo Road

Photo Location P11- View east to south east from Western Feeder Road

Photo Location P12- View east to south east from Eastern Feeder Road

Figure 16 Photo Sheet 3

SAPPHIRE WIND FARM

Extent of wind farm visibility illustrated on panoramic photographs is indicative only

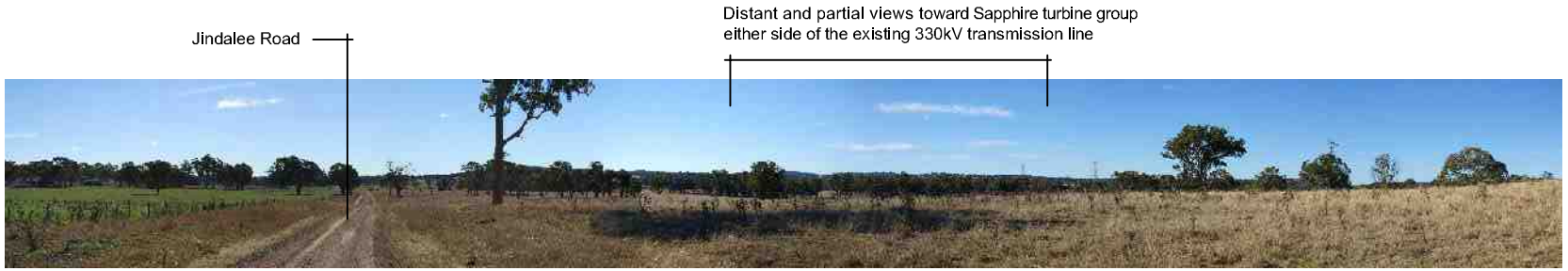


Photo Location P13- View south from Jindalee Road

Photo Location P14- View south east to south from Kings Plains Road

Photo Location P15- View east from Kings Plains Road

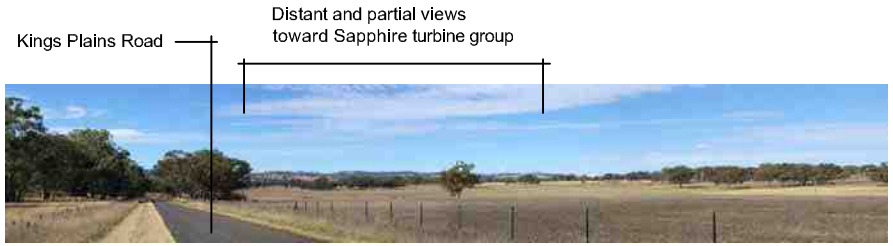


Photo Location P16- View east from Kings Plains Road

Figure 17 Photo Sheet 4

SAPPHIRE WIND FARM

Extent of wind farm visibility illustrated on panoramic photographs is indicative only

Partial views toward north
portion of Sapphire turbine group

Photo Location P17- View north to east from Kings Plains Road

View toward turbines within Sapphire turbine group

Photo Location P18- View east from Woodstock Road

View toward turbines within Sapphire turbine group

Swan Peak

Woodstock Road

Photo Location P19- View north east to south from Woodstock Road

View toward turbines within Sapphire turbine group

Photo Location P20- View north east to south east from Woodstock Road

Figure 18 Photo Sheet 5

SAPPHIRE WIND FARM

Extent of wind farm visibility illustrated on panoramic photographs is indicative only

Photo Location P21- View north to east from Waterloo Road

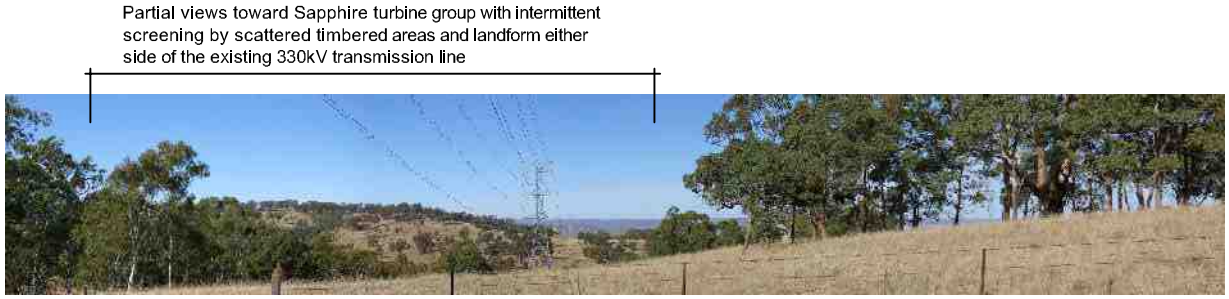


Photo Location P22- View south east to south from Kings Plains Road

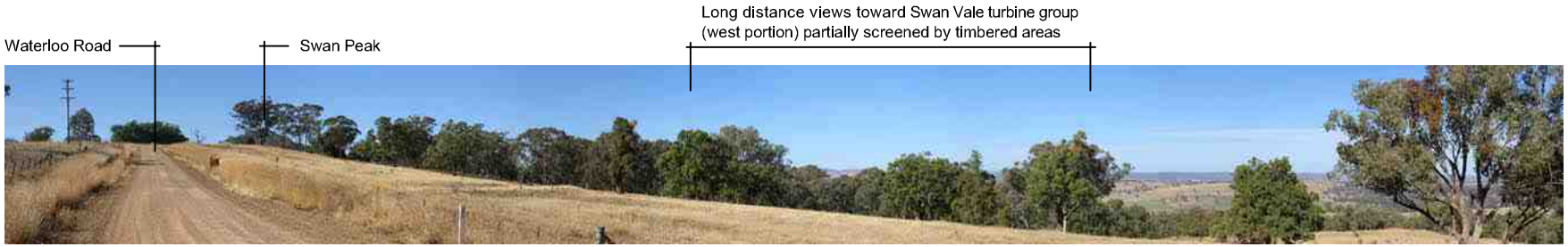


Photo Location P23- View east to south east from Waterloo Road

Photo Location P24- View east from Woodstock Road

Figure 19 Photo Sheet 6

SAPPHIRE WIND FARM

Extent of wind farm visibility illustrated on panoramic photographs is indicative only

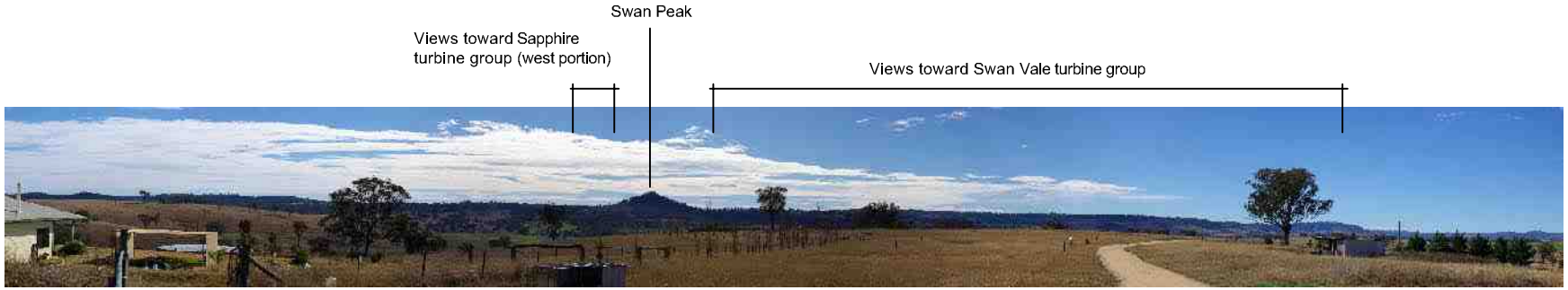


Photo Location P25- View north to east from Danthonia

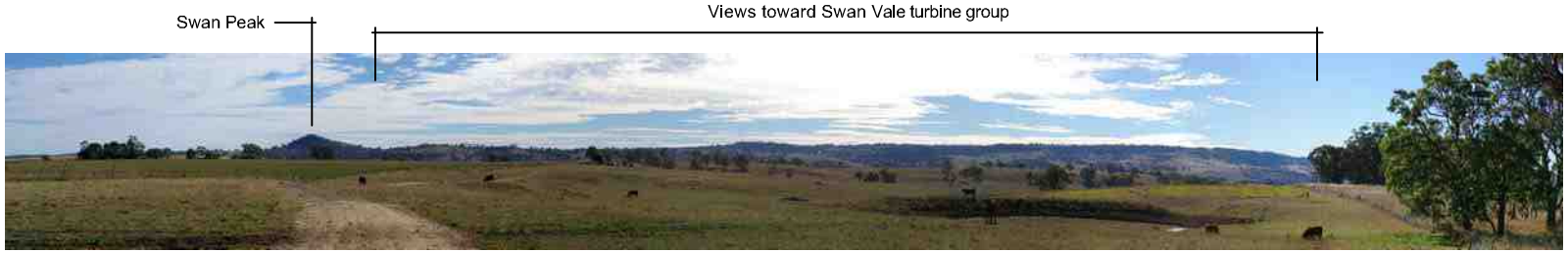


Photo Location P26- View north west to north east from property entry (off Gwydir Highway)

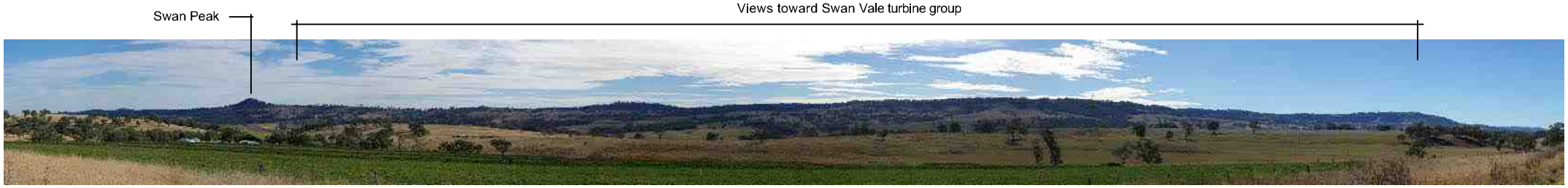


Photo Location P27- View north west to east from Gwydir Highway

Photo Location P28- View west to east from Gwydir Highway

Figure 20 Photo Sheet 7

SAPPHIRE WIND FARM

Extent of wind farm visibility illustrated on panoramic photographs is indicative only

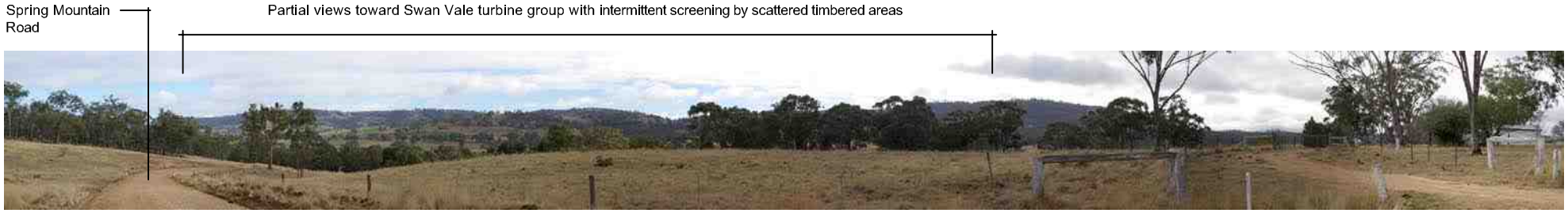


Photo Location P29- View north from Spring Mountain Road

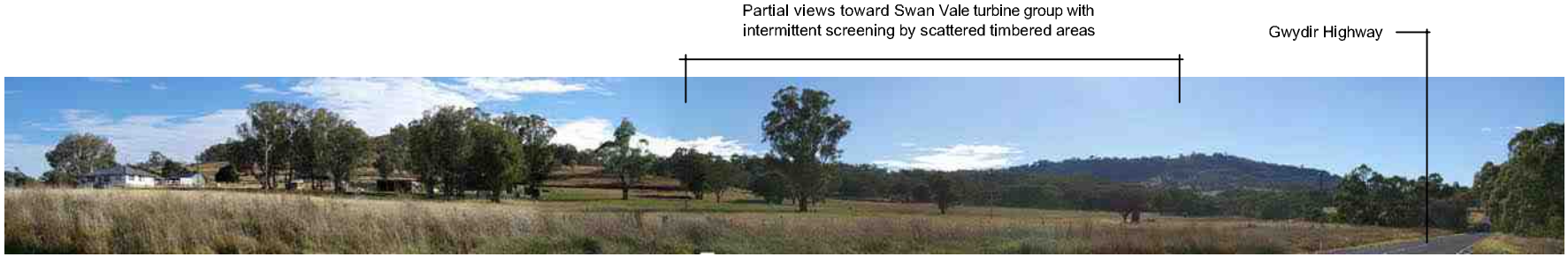


Photo Location P30- View north to east from Gwydir Highway

Photo Location P31- View north from Gwydir Highway

Photo Location P32- View north to north east from Ilparran Road

Figure 21 Photo Sheet 8

SAPPHIRE WIND FARM

Extent of wind farm visibility illustrated on panoramic photographs is indicative only

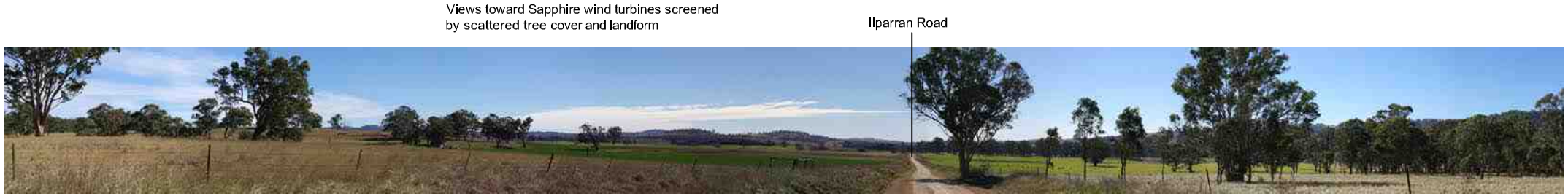


Photo Location P33- View north from Ilparran Road

Photo Location P34- View west from Gwydir Highway

Photo Location P35- View north from Sinclair Lookout

Photo Location P36- View west from Beaufort Lane

Figure 22 Photo Sheet 9

SAPPHIRE WIND FARM

Extent of wind farm visibility illustrated on panoramic photographs is indicative only

Landscape Character Areas and Sensitivity Assessment

SECTION 7

7.1 Landscape Character Areas

A fundamental part of the LVIA is to understand and describe the nature and sensitivity of different components of the landscape, and to assess the landscape character in a clear and consistent process. For the purpose of this LVIA, landscape character is defined as '*the distinct and recognisable pattern of elements that occur consistently in a particular type of landscape*' (The Countryside Agency and Scottish Natural Heritage 2002).

This LVIA has identified 5 Landscape Character Areas (LCA's), which occur within the landscape surrounding the Sapphire wind farm site. The LCA's represent areas that are relatively consistent and recognisable in terms of their key visual elements and physical attributes; which include a combination of topography/landform, vegetation/landcover, land use and built structures (including settlements and local road corridors).

The LCA's do not occur within boundaries and are not definable as discrete areas, and characteristics within one LCA may occur within adjoining or surrounding LCA's. The LCA's have not been assessed, described or illustrated as singular 'landscape units'. For the purpose of this LVIA the LCA's have been identified as:

- LCA 1 – Gently undulating to flat cultivated/pastoral farmland and mining areas;
- LCA 2 – Steep sided hills and volcanic features;
- LCA 3 – Drainage lines;
- LCA 4 – Forested hills and ridgelines; and
- LCA 5 – Rural dwellings.

7.2 Landscape Sensitivity Assessment

The British Landscape Institute describes landscape sensitivity as '*the degree to which a particular LCA can accommodate change arising from a particular development, without detrimental effects on its character*'.

The assessment of landscape sensitivity is based upon an evaluation of the physical attributes identified within each LCA, both singularly and as a combination that gives rise to the landscape's overall robustness and the extent to which it could accommodate the wind farm development. The criteria used to determine landscape sensitivity are outlined in **Table 8** and based on current good practice employed in the assessment of wind farm developments. This LVIA draws on the Land Use Consultants report on landscape sensitivity for wind farm developments on the Shetland Islands (March 2009). Landscape sensitivity is a relative term, and the intrinsic landscape values of the

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surrounding landscape could be considered of a higher or lower sensitivity than other areas in the New England Tablelands region.

Whilst the assessment of landscape sensitivity is largely based on a systematic description and analysis of landscape characteristics, this LVIA acknowledges that some individuals and other members of the local community would place higher values on the local landscape. These values could transcend preferences (likes and dislikes) and include personal, cultural as well as other parameters.

Table 8 – Criteria for the assessment of Landscape Sensitivity

Landscape Sensitivity Assessment Criteria			
Characteristic	**Aspects indicating lower sensitivity to the wind farm development**	↔	**Aspects indicating higher sensitivity to the wind farm development**
Landform and scale: patterns, complexity and consistency	• Large scale landform • Simple • Featureless • Absence of strong topographical variety	↔	• Small scale landform • Distinctive and complex • Human scale indicators • Presence of strong topographical variety
Landcover: patterns, complexity and consistency	• Simple • Predictable • Smooth, regular and uniform	↔	• Complex • Unpredictable • Rugged and irregular
Settlement and human influence	• Concentrated settlement pattern • Presence of contemporary structures (e.g. utility, infrastructure or industrial elements)	↔	• Dispersed settlement pattern • Absence of modern development, presence of small scale, historic or vernacular settlement
Movement	• Prominent movement, busy	↔	• No evident movement, still
Rarity	• Common or widely distributed example of landscape character area within a regional context	↔	• Unique or limited example of landscape character area within a regional context
Intervisibility with adjacent landscapes	• Limited views into or out of landscape • Neighbouring landscapes of low sensitivity • Weak connections, self contained area and views • Simple large scale backdrops	↔	• Prospects into and out from high ground or open landscape • Neighbouring landscapes of high sensitivity • Contributes to wider landscape • Complex or distinctive backdrops

The criteria set out in **Table 8** have been used to evaluate each of the LCA's using a gradated score between 1 and 5 to represent levels of sensitivity from low to high. The sensitivity grades are illustrated in **Tables 9** to **13** using shading against each of the criteria set out in **Table 8**.

The sensitivity of overall grades of high, medium or low sensitivity have been determined with reference to the following definitions:

High (Overall rating of 19 to 30) – Key characteristics of the LCA could be adversely impacted by the wind farm development and result in major alterations to perceived characteristics of the landscape. The degree to which the landscape could accommodate the wind farm development would potentially result in a number of perceived uncharacteristic and significant changes.

Medium (Overall rating of 12 to 18) – Some characteristics of the LCA could be altered by the wind farm development, although the landscape would have the capability to absorb some change. The degree to which the landscape could accommodate the wind farm development would potentially result in the introduction of prominent elements but be accommodated to some degree.

Lower Rating (Overall rating of 11 or less) – The characteristics of the LCA are generally robust and less affected by the wind farm development. The degree to which the landscape could accommodate the wind farm development would not significantly alter existing landscape character.

7.3 Analysis of Landscape Sensitivity

The following section of this LVIA provides an analysis of landscape sensitivity within the viewshed of the wind farm development and considers each of the five LCA's.

7.3.1 LCA 1 Gently undulating to flat cultivated/pastoral farmland and mining areas

Plate 1 – Typical view across undulating to flat cultivated land

Table 9 – LCA 1, Landscape Sensitivity

	Lower Sensitivity		↔		**Higher Sensitivity**
	Low	**Low to Med**	**Medium**	**Med to High**	**High**
Sensitivity Rating	**1**	**2**	**3**	**4**	**5**
Landform and Scale		■			
	Landform varies between **large** to **moderate scale** and is relatively **simple** in structure. Topography is generally level to gently sloping land through cultivated farmland areas within broad valleys and plains. Small scale mining areas occur across very gently undulating to level areas alongside existing or former drainage lines. The mines are generally at a scale relative to the surrounding landscape and are not visually prominent.				
Landcover		■			
	Landcover through this LCA is **simple** and **regular** being largely determined by cultivated crop and pastoral livestock production. Extensive areas of grass pasture, with occasional cultivated farmland are interspersed with scattered tree cover.				
Settlement and human influence				■	
	Human settlement is **dispersed** throughout the LCA with some evidence of contemporary structures including **utility infrastructure** and **agricultural industrial** elements.				
Movement				■	
	There is **limited** evidence of movement within the LCA with occasional traffic movement along local unsealed roads and farm machinery working in surrounding fields.				
Rarity		■			
	The principal landscape elements within this LCA are **well distributed** and **widely represented** within the local area, the 10km viewshed, as well as the New England Tablelands Renewable Energy Precinct. The significance and value of landscape elements within this LCA are considered to important within a 'local district' context.				
Intervisibility				■	
	Views within some portions of this LCA are **limited** and **restricted** by surrounding landform and tree cover resulting in **self contained views**. There are some opportunities for view prospects from elevated and cleared areas across neighbouring landscapes.				
Overall Sensitivity Rating	Medium (Score 18 out of 30)				

7.3.2 LCA 2 Steep sided hills and volcanic features

Plate 2 – Typical view toward steep sided hills and volcanic feature (Swan Peak)

Table 10 – LCA 2, Landscape Sensitivity

	Lower Sensitivity ↔ **Higher Sensitivity**				
	Low	**Low to Med**	**Medium**	**Med to High**	**High**
Sensitivity Rating	**1**	**2**	**3**	**4**	**5**
Landform and Scale				■	
	Landform and topography is **distinctive** but with **limited** features. Swan Peak forms a singular and local recognisable landscape feature.				
Landcover		■			
	Landcover through this LCA is **simple** and **regular** comprising cleared pasture and forested hillside and ridgeline areas.				
Settlement and human influence				■	
	Human settlement is **dispersed** throughout the LCA with some evidence of contemporary structures including **utility infrastructure** and **agricultural industrial** elements.				
Movement			■		
	There is **limited** evidence of movement within portions of the LCA with occasional traffic movement along local unsealed roads and farm machinery working in surrounding fields. A higher level of movement occurs along the Gwydir Highway to the south of the wind farm and steep sided hills within the Swan Vale turbine cluster..				
Rarity			■		
	The principal landscape elements within this LCA are **represented** within the local area, the 10km viewshed, as well as the New England Tablelands Renewable Energy Precinct. The significance and value of landscape elements within this LCA are considered to important within a 'local district' context.				
Intervisibility		■			
	Views into and out of this LCA **limited** and **restricted** by surrounding landform which **contains** opportunities for long distant views from elevated areas.				
Overall Sensitivity Rating	Medium (Score 18 out of 30)				

7.3.3 LCA 3 Drainage lines

Plate 3 – Typical view across drainage line (Wellingrove Creek)

Table 11 – LCA 3, Landscape Sensitivity

	Lower Sensitivity ↔ **Higher Sensitivity**				
	Low	**Low to Med**	**Medium**	**Med to High**	**High**
Sensitivity Rating	**1**	**2**	**3**	**4**	**5**
Landform and Scale		■			
	Landform is generally **simple** alongside the majority of drainage lines through large scale pastoral landscape. Drainage lines are largely **featureless** and have been largely cleared, with tree cover limited to occasional or small groups of trees.				
Landcover		■			
	Landcover through this LCA is **simple** and **regular** comprising cultivated ground or improved pasture.				
Settlement and human influence				■	
	Settlement is **dispersed** with some evidence of **utility infrastructure** and agricultural elements.				
Movement				■	
	There is **limited** evidence of movement within the LCA with occasional traffic along roads and machinery working in surrounding fields.				
Rarity		■			
	The principal landscape elements within this LCA are **represented** within the local area, the 10km viewshed, as well as the New England Tablelands Renewable Energy Precinct. The significance and value of drainage elements within this LCA are considered to important within a 'local district' context.				
Intervisibility			■		
	Views into and out of this LCA **limited** and **restricted** by surrounding landform which **contains** opportunities for long distant views.				
Overall Sensitivity Rating	Medium (Score 17 out of 30)				

7.3.4 LCA 4 Forested hills and ridgelines

Plate 4 – Typical views across forested hills and ridgelines

Table 12 – LCA 4, Landscape Sensitivity

	Lower Sensitivity		↔		**Higher Sensitivity**
	Low	**Low to Med**	**Medium**	**Med to High**	**High**
Sensitivity Rating	**1**	**2**	**3**	**4**	**5**
Landform and Scale			■		
	Landform is **large scale** and **simple** with some topographical variation across low hill and ridgeline areas.				
Landcover		■			
	Landcover through this LCA is **simple** and **regular** comprising scattered and denser stands of tree cover.				
Settlement and human influence				■	
	Settlement is **dispersed** with some evidence of **utility infrastructure** and agricultural elements.				
Movement				■	
	There is **limited** evidence of movement within the LCA with occasional traffic movement along local unsealed roads and farm machinery working in surrounding fields.				
Rarity		■			
	The principal landscape elements within this LCA are **represented** within the local area, the 10km viewshed, as well as the New England Tablelands Renewable Energy Precinct. The significance and value of landscape elements within this LCA are considered to important within a 'local district' context.				
Intervisibility		■			
	Backdrops to this LCA are visually **limited** and **restricted** by undulating landform and surrounding ridgelines restricting distant views.				
Overall Sensitivity Rating	Medium (Score 17 out of 30)				

7.3.5 LCA 5 Rural dwellings

Plate 5 – Typical view toward rural dwelling and associated infrastructure

Table 13 – LCA 5, Landscape Sensitivity

	Lower Sensitivity ↔ **Higher Sensitivity**				
	Low	**Low to Med**	**Medium**	**Med to High**	**High**
Sensitivity Rating	**1**	**2**	**3**	**4**	**5**
Landform and Scale			■		
	Landform is **large scale** and **simple** with some topographical variation surrounding the majority of rural residential dwellings.				
Landcover			■		
	Landcover through the broader LCA is **simple** and **regular**. Cultural planting around residential dwellings incorporates ornamental plantings as well as tree planting demarcating property boundaries and shelter belt planting.				
Settlement and human influence				■	
	Settlement is **dispersed** with some evidence of **utility infrastructure** and agricultural elements.				
Movement			■		
	There is **limited** evidence of movement within the LCA associated with activities around residences.				
Rarity		■			
	The principal landscape elements within this LCA are **represented** within the local area, the 10km viewshed, as well as the New England Tablelands Renewable Energy Precinct. The significance and value of landscape elements within this LCA are considered to important within a 'local district' context.				
Intervisibility		■			
	Backdrops to this LCA are visually **limited** and **restricted** by landform blocking views.				
Overall Sensitivity Rating	Medium (Score 17 out of 30)				

7.4 Summary

In terms of overall landscape sensitivity, this LVIA has determined that the landscape within the 10km viewshed of the proposed Sapphire wind farm has a medium sensitivity to accommodate change, and represents a landscape that is reasonably typical of landscape types found in surrounding areas of the New England Tableland Renewable Energy Precinct.

As a landscape with an overall medium sensitivity to accommodate change, some characteristics are likely to be altered by the wind farm development; however, the landscape would have some capability to accommodate change. This capability is largely derived from the presence of predominantly large scale and open landscape characteristics across portions of the wind farm development, together with the relatively low density of settlement and potential views located within the immediate and surrounding areas of the viewshed.

This LVIA has determined that the wind farm would not be an unacceptable development within the Sapphire wind farm viewshed, which in a broader context also contains built elements such as roads, agricultural industry, aircraft landing strips, communication towers, power lines as well as an approved wind farm development within the vicinity of the Sapphire wind farm site.

This LVIA notes that the Glen Innes wind farm has been approved for construction within the Sapphire 10km viewshed; however, as this had not been constructed and was not a visible element at the time of this LVIA preparation, it has not been included in the assessment of landscape sensitivity. The presence of an existing wind farm would tend to decrease the level of sensitivity of any LCA in which it was located subject to an assessment and determination of cumulative impact.

Despite being 'naturalistic' in appearance large portions of the New England Tablelands landscape have been heavily modified by agricultural improvement for pasture and arable production post European settlement. Irrespective of the extent and nature of modifications to the landscape, it is not correct to assume that the landscape surrounding the wind farm should be any less valued as a result of modification. Physical change in the appearance of the landscape is an ongoing and constant process from both human and environmental influences and can result in both positive and negative effects.

Visual Impact Assessment Criteria and Matrices SECTION 8

8.1 Introduction

The degree of visual impact resulting from the construction and operation of the Sapphire wind farm would result primarily from the combination of the following factors:

- The visibility or extent to which the proposed wind farm structures would be visible from surrounding areas;
- The degree of visual contrast between the wind farm structures and the capability of the surrounding landscape to visually accommodate the wind farm;
- The category and type of situation from which people could view the wind farm (examples of view categories include residents or motorists);
- The distance between the view location and the wind farm turbines;
- The potential number of people with a view toward the proposed wind farm from any one location;
- The duration of time people could view the wind farm from any static or dynamic view location; and
- The visual sensitivity of view location surrounding the wind farm.

An overall determination of visual impact at each view location has also been assessed and determined against the criteria outlined in **Table 14** below**:**

Table 14 - View Location Assessment Criteria

Criteria	Definition
Category of Viewer	
Static	Residence
Dynamic	Motorist or passenger
Number of Viewers	
High	>500 people per day
Moderate	250 - 500 people per day
Low	100 - 250 people per day
Very Low	<100 people per day
View Distance	
Distant	>10km
Long	5km – 10km

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Criteria	Definition
Medium	3 – 5km
Short	1 – 3km
Very short	<1km
Period of View	
Long term	> 2 hours
Moderate term	30 - 120 minutes
Short term	10 – 30 minutes
Very Short Term	< 10 minutes

Table 15 – Visual Impact Criteria Matrix

	Distant and Long Distance			Medium Distance			Short Distance			Very Short Distance		
Period of View	**L/M**	**S**	**VS**	**L/M**	**S**	**VS**	**L/M**	**S**	**VS**	**L/M**	**S**	**VS**
High No. of Viewers	M	L	L	H	M	M	H	H	M	H	H	H
Moderate No. of Viewers	L	L	L	M	M	L	H	M	M	H	H	M
Low No. of Viewers	L	L	L	M	L	L	M	M	L	H	M	L
Very Low No. of Viewers	L	L	L	L	L	L	M	L	L	M	M	L

- **Period of View** L/M=Long to Moderate term, S=Short term , VS=Very Short term
- **Levels of visibility** L=low, M=medium and H=high

The visual impact criteria matrix outlined in **Table 15** is used **as a guide** to determine levels of visual impact. The determination of visual impact for each view location is also considered against other factors, which include the sensitivity of the view category and overall visibility of the wind farm from surrounding view locations. The general relationship between view category and its potential level of sensitivity is outlined in **Table 16.** The process of assessment and determination of visual impact has been applied consistently for associated and non associated residential viewpoints.

Table 16 – View Location Sensitivity

View Category	Sensitivity
Residential Properties	***Highest Sensitivity***
Pedestrians (recreational)	▽
Public Recreational Space	▽
Rural employment/farming	▽
Motorists	▽
Business (commercial)	▽
Industry	*Lower Sensitivity*

8.2 Residential and Public View Location Visibility Matrices

Tables 17 and **18** present Visibility Matrices for residential and public view locations.

Potential residential and public view locations are illustrated in **Figures 23** and **24**.

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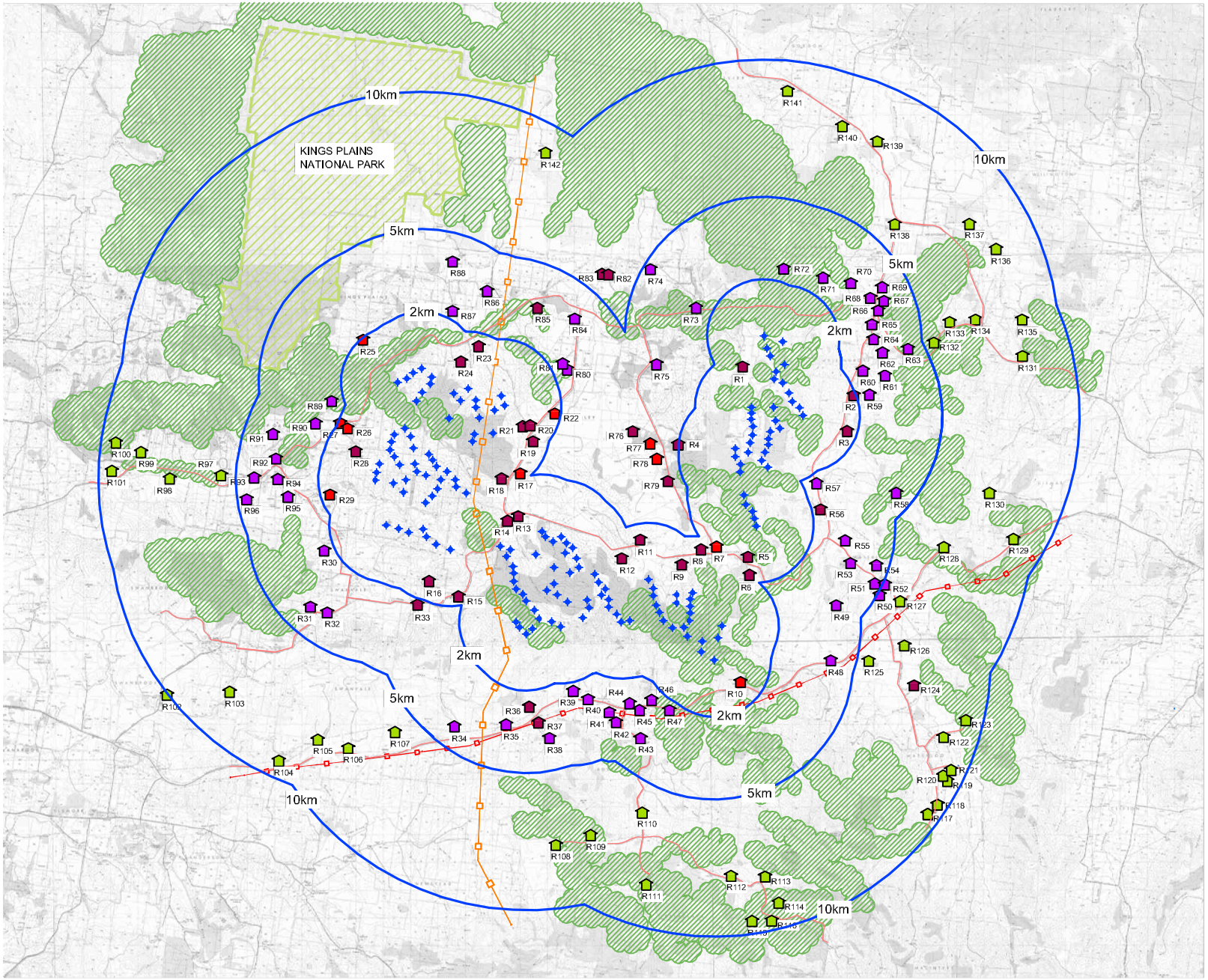

Source: Copyright Department of Lands Panorama Avenue Bathurst 2795 (www.lands.nsw.gov.au)

Figure 23
Residential View Locations

SAPPHIRE WIND FARM

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CWP

Table 17 - Residential View Location Matrix (Sapphire Wind Farm turbines)

View Location	Category of Potential View Location	View context from residence toward Sapphire '80m' and '110m' wind turbine layouts (Wellingrove, Swan Vale and Sapphire turbine clusters)	Approximate distance to closest turbine	Relative number of people	Period of view	View Location sensitivity	Visibility rating from residence (for '80m' design layout ZVI at hub height)	Overall Visual Impact for '80m' and 110m' layouts
R1	Resident (Associated)	**Wellingrove turbine cluster:** View east to south east toward Wellingrove turbines including partial views toward upper portions of turbines beyond and above timbered areas. **Swan Vale turbine cluster:** Views south and south west toward Swan Vale turbines are largely screened by topography and timbered areas. **Sapphire turbine cluster:** Views west toward the Sapphire turbines are largely screened by topography and timbered areas.	1.2km	Very Low	Varies – potential long term	High	Medium	Low to Moderate
R2	Resident (Associated)	**Wellingrove turbine cluster:** View west toward Wellingrove turbines along low hill ridgeline and partial views toward upper portions of turbines beyond. **Swan Vale turbine cluster:** Views south west toward the Swan Vale turbines are largely screened by	2km	Very Low	Varies – potential long term	High	Low	Low to Moderate

Table 17 - Residential View Location Matrix (Sapphire Wind Farm turbines)

View Location	Category of Potential View Location	View context from residence toward Sapphire '80m' and '110m' wind turbine layouts (Wellingrove, Swan Vale and Sapphire turbine clusters)	Approximate distance to closest turbine	Relative number of people	Period of view	View Location sensitivity	Visibility rating from residence (for '80m' design layout ZVI at hub height)	Overall Visual Impact for '80m' and 110m' layouts
		topography and timbered areas. **Sapphire turbine cluster:** Views west toward the Sapphire turbines are largely screened by topography and timbered areas.						
R3	Resident (Associated)	**Wellingrove turbine cluster:** View west toward Wellingrove turbines along low hill ridgeline and partial views toward upper portions of turbines beyond. **Swan Vale turbine cluster:** Views south west toward the Swan Vale turbines are largely screened by topography and timbered areas. **Sapphire turbine cluster:** Views west toward the Sapphire turbines are largely screened by topography and timbered areas.	1.7km	Very Low	Varies – potential long term	High	Low	Low to Moderate
R4	Resident (Associated)	**Wellingrove turbine cluster:** Partial views east toward Wellingrove turbines with screening provided by scattered tree cover around and beyond	2km	Very Low	Varies – potential long term	High	High	Low

Table 17 - Residential View Location Matrix (Sapphire Wind Farm turbines)

View Location	Category of Potential View Location	View context from residence toward Sapphire '80m' and '110m' wind turbine layouts (Wellingrove, Swan Vale and Sapphire turbine clusters)	Approximate distance to closest turbine	Relative number of people	Period of view	View Location sensitivity	Visibility rating from residence (for '80m' design layout ZVI at hub height)	Overall Visual Impact for '80m' and 110m' layouts
		residence. **Swan Vale turbine cluster:** Views south west toward Swan Vale turbines are largely screened by scattered tree cover and undulating landform south of residence. **Sapphire turbine cluster:** Views west toward the Sapphire turbines are largely screened by scattered tree cover surrounding residence.						
R5	Resident (Associated)	**Wellingrove turbine cluster:** Views extend north toward turbines within the south portion of the Wellingrove turbine cluster, with the majority likely to be screened by landform and tree cover. **Swan Vale turbine cluster:** Views south to west toward the Swan Vale turbines will be screened by planting surrounding residence. **Sapphire turbine cluster:** Views west toward the Sapphire	1.3km	Very Low	Varies – potential long term	High	Low	Low to Moderate

Table 17 - Residential View Location Matrix (Sapphire Wind Farm turbines)

View Location	Category of Potential View Location	View context from residence toward Sapphire '80m' and '110m' wind turbine layouts (Wellingrove, Swan Vale and Sapphire turbine clusters)	Approximate distance to closest turbine	Relative number of people	Period of view	View Location sensitivity	Visibility rating from residence (for '80m' design layout ZVI at hub height)	Overall Visual Impact for '80m' and 110m' layouts
		turbines will be screened by planting surrounding residence.						
R6	Resident (Associated)	**Wellingrove turbine cluster:** Views extend north toward turbines within the south portion of the Wellingrove turbine cluster, with the majority likely to be screened by landform and tree cover. **Swan Vale turbine cluster:** Views south to west toward the Swan Vale turbines will be screened by planting surrounding residence. **Sapphire turbine cluster:** Views west toward the Sapphire turbines will be screened by planting surrounding residence.	1.8km	Very Low	Varies – potential long term	High	High	Low to Moderate
R7	Resident	**Wellingrove turbine cluster:** Potential views extend north east toward turbines within the south portion of the Wellingrove turbine cluster, with the majority likely to be screened by	1.6km	Very Low	Varies – potential long term	High	Medium	Low

Table 17 - Residential View Location Matrix (Sapphire Wind Farm turbines)

View Location	Category of Potential View Location	View context from residence toward Sapphire '80m' and '110m' wind turbine layouts (Wellingrove, Swan Vale and Sapphire turbine clusters)	Approximate distance to closest turbine	Relative number of people	Period of view	View Location sensitivity	Visibility rating from residence (for '80m' design layout ZVI at hub height)	Overall Visual Impact for '80m' and 110m' layouts
		landform and tree cover. **Swan Vale turbine cluster:** Views south to west toward the Swan Vale turbines will be screened by planting surrounding the residence. **Sapphire turbine cluster:** Views west toward the Sapphire turbines will be screened by planting surrounding residence.						
R8	Resident (Associated)	**Wellingrove turbine cluster:** Potential views extend north east toward turbines within the south portion of the Wellingrove turbine cluster, with the majority likely to be screened by landform and tree cover. **Swan Vale turbine cluster:** Views south to west toward the Swan Vale turbines will be partially screened by planting surrounding residence. **Sapphire turbine cluster:** Views west toward the Sapphire turbines will be largely screened by planting surrounding residence.	1.6km	Very Low	Varies – potential long term	High	Medium	Low

Table 17 - Residential View Location Matrix (Sapphire Wind Farm turbines)

View Location	Category of Potential View Location	View context from residence toward Sapphire '80m' and '110m' wind turbine layouts (Wellingrove, Swan Vale and Sapphire turbine clusters)	Approximate distance to closest turbine	Relative number of people	Period of view	View Location sensitivity	Visibility rating from residence (for '80m' design layout ZVI at hub height)	Overall Visual Impact for '80m' and 110m' layouts
R9	Resident (Associated)	**Wellingrove turbine cluster:** Potential views extend north east toward turbines within the south portion of the Wellingrove turbine cluster, with the majority likely to be screened by landform and tree cover. **Swan Vale turbine cluster:** Views south to west toward the Swan Vale turbines will be partially screened by planting surrounding residence. **Sapphire turbine cluster:** Views west to north west toward the Sapphire turbines will be largely screened by planting surrounding residence.	1km	Very Low	Varies – potential long term	High	High	Low
R10	Resident	**Wellingrove turbine cluster:** Views north toward the Wellingrove turbine cluster will be screened by landform and tree cover. **Swan Vale turbine cluster:** Views north to north west toward the Swan Vale turbines will be partially screened by scattered tree cover and	1.3km	Very Low	Varies – potential long term	High	Low	Low

Table 17 - Residential View Location Matrix (Sapphire Wind Farm turbines)

View Location	Category of Potential View Location	View context from residence toward Sapphire '80m' and '110m' wind turbine layouts (Wellingrove, Swan Vale and Sapphire turbine clusters)	Approximate distance to closest turbine	Relative number of people	Period of view	View Location sensitivity	Visibility rating from residence (for '80m' design layout ZVI at hub height)	Overall Visual Impact for '80m' and 110m' layouts
		landform rising to the north of the residence. A small number of turbines will be visible within the south east portion of the Swan Vale turbine cluster. **Sapphire turbine cluster:** Views north west toward the Sapphire turbines will be largely screened by scattered tree cover and landform.						
R11	Resident (Associated)	**Wellingrove turbine cluster:** Views toward the Wellingrove turbine cluster will be partially screened by landform and tree cover. **Swan Vale turbine cluster:** Views south east to south west toward the Swan Vale turbines will be partially screened by scattered tree cover. **Sapphire turbine cluster:** Views west to north west toward the Sapphire turbines will be largely screened by scattered tree cover and landform.	1.4km	Very Low	Varies – potential long term	High	Medium	Low to Moderate
R12	Resident (Associated)	**Wellingrove turbine cluster:** Views north east toward the Wellingrove	1.1km	Very Low	Varies – potential	High	Medium	Low to Moderate

Table 17 - Residential View Location Matrix (Sapphire Wind Farm turbines)

View Location	Category of Potential View Location	View context from residence toward Sapphire '80m' and '110m' wind turbine layouts (Wellingrove, Swan Vale and Sapphire turbine clusters)	Approximate distance to closest turbine	Relative number of people	Period of view	View Location sensitivity	Visibility rating from residence (for '80m' design layout ZVI at hub height)	Overall Visual Impact for '80m' and 110m' layouts
		turbine cluster will be generally screened by landform and tree cover. **Swan Vale turbine cluster:** Views south east to south west toward the Swan Vale turbines will be partially screened by scattered tree cover. **Sapphire turbine cluster:** Views west to north west toward the Sapphire turbines will be largely screened by scattered tree cover and landform.			long term			
R13	Resident (Associated)	**Wellingrove turbine cluster:** Views north east toward the Wellingrove turbine cluster will be generally screened by landform and tree cover. **Swan Vale turbine cluster:** Views extend south to south east toward turbines within the west portion of the Swan Vale cluster with partial screening provided by scattered tree cover surrounding the residence. **Sapphire turbine cluster:** Views west to north west toward the	1km	Very Low	Varies – potential long term	High	Medium	Low

Table 17 - Residential View Location Matrix (Sapphire Wind Farm turbines)

View Location	Category of Potential View Location	View context from residence toward Sapphire '80m' and '110m' wind turbine layouts (Wellingrove, Swan Vale and Sapphire turbine clusters)	Approximate distance to closest turbine	Relative number of people	Period of view	View Location sensitivity	Visibility rating from residence (for '80m' design layout ZVI at hub height)	Overall Visual Impact for '80m' and 110m' layouts
		Sapphire turbines will be largely screened by scattered tree cover surrounding and beyond the residence.						
R14	Resident (Associated)	**Wellingrove turbine cluster:** Views north east toward the Wellingrove turbine cluster will be generally screened by landform and tree cover. **Swan Vale turbine cluster:** Views extend south to south east toward turbines within the west portion of the Swan Vale cluster with partial screening provided by scattered tree cover surrounding the residence. **Sapphire turbine cluster:** Views west to north west toward the Sapphire turbines will be largely screened by scattered tree cover surrounding and beyond the residence.	935m	Very Low	Varies – potential long term	High	Medium	Low to Moderate
R15	Resident (Associated)	**Wellingrove turbine cluster:** Views toward the Wellingrove turbine cluster will be generally screened by landform and tree cover. **Swan Vale turbine cluster:**	1.7km	Very Low	Varies – potential long term	High	Low	Low

Table 17 - Residential View Location Matrix (Sapphire Wind Farm turbines)

View Location	Category of Potential View Location	View context from residence toward Sapphire '80m' and '110m' wind turbine layouts (Wellingrove, Swan Vale and Sapphire turbine clusters)	Approximate distance to closest turbine	Relative number of people	Period of view	View Location sensitivity	Visibility rating from residence (for '80m' design layout ZVI at hub height)	Overall Visual Impact for '80m' and 110m' layouts
		Partial views extend toward turbines within the west portion of the Swan Vale cluster with screening provided by scattered tree cover surrounding the residence. **Sapphire turbine cluster:** Views north toward the Sapphire turbines will be largely screened by scattered tree cover surrounding and beyond the residence.						
R16	Resident (Associated)	**Wellingrove turbine cluster:** Views north east toward the Wellingrove turbine cluster will be generally screened by landform and tree cover. **Swan Vale turbine cluster:** Limited views extend toward turbines within the west portion of the Swan Vale cluster with some screening provided by scattered tree cover surrounding the residence. **Sapphire turbine cluster:** Partial views will extend toward the south portion of the Sapphire turbine cluster, with the majority of turbines screened by landform rising to the north	1.4km	Very Low	Varies – potential long term	High	Low	Low to Moderate

Table 17 - Residential View Location Matrix (Sapphire Wind Farm turbines)

View Location	Category of Potential View Location	View context from residence toward Sapphire '80m' and '110m' wind turbine layouts (Wellingrove, Swan Vale and Sapphire turbine clusters)	Approximate distance to closest turbine	Relative number of people	Period of view	View Location sensitivity	Visibility rating from residence (for '80m' design layout ZVI at hub height)	Overall Visual Impact for '80m' and 110m' layouts
		of the residence.						
R17	Resident	**Wellingrove turbine cluster:** Views east toward the Wellingrove turbine cluster will be generally screened by landform and tree cover **Swan Vale turbine cluster:** Views south to south east toward the Swan Vale turbine cluster will be generally screened by landform and tree cover. **Sapphire turbine cluster:** Partial views extend west toward a small portion of the Sapphire turbine cluster.	2km	Very Low	Varies – potential long term	High	Medium	Low
R18	Resident (Associated)	**Wellingrove turbine cluster:** Views east toward the Wellingrove turbine cluster will be generally screened by landform and tree cover **Swan Vale turbine cluster:** Views south to south east toward the Swan Vale turbine cluster will be	1.4km	Very Low	Varies – potential long term	High	High	Low

Table 17 - Residential View Location Matrix (Sapphire Wind Farm turbines)

View Location	Category of Potential View Location	View context from residence toward Sapphire '80m' and '110m' wind turbine layouts (Wellingrove, Swan Vale and Sapphire turbine clusters)	Approximate distance to closest turbine	Relative number of people	Period of view	View Location sensitivity	Visibility rating from residence (for '80m' design layout ZVI at hub height)	Overall Visual Impact for '80m' and 110m' layouts
		generally screened by landform and tree cover **Sapphire turbine cluster:** Partial views extend west to north west toward a small portion of the Sapphire turbine cluster.						
R19	Resident (Associated)	**Wellingrove turbine cluster:** Views east toward the Wellingrove turbine cluster will be generally screened by landform and tree cover **Swan Vale turbine cluster:** Views south toward the Swan Vale turbine cluster will be generally screened by landform and tree cover **Sapphire turbine cluster:** Partial views extend west toward a small portion of the Sapphire turbine cluster.	1.5km	Very Low	Varies – potential long term	High	Medium	Low
R20	Resident (Associated)	**Wellingrove turbine cluster:** Views east toward the Wellingrove turbine cluster will be generally screened by landform and tree cover	1.3km	Very Low	Varies – potential long term	High	Medium	Low

Table 17 - Residential View Location Matrix (Sapphire Wind Farm turbines)

View Location	Category of Potential View Location	View context from residence toward Sapphire '80m' and '110m' wind turbine layouts (Wellingrove, Swan Vale and Sapphire turbine clusters)	Approximate distance to closest turbine	Relative number of people	Period of view	View Location sensitivity	Visibility rating from residence (for '80m' design layout ZVI at hub height)	Overall Visual Impact for '80m' and 110m' layouts
		Swan Vale turbine cluster: Views south to south east toward the Swan Vale turbine cluster will be generally screened by landform and tree cover. **Sapphire turbine cluster:** Partial views extend west toward a small portion of the Sapphire turbine cluster.						
R21	Resident (Associated)	**Wellingrove turbine cluster:** Views toward the Wellingrove turbine cluster will be generally screened by landform and tree cover **Swan Vale turbine cluster:** Views south to south west toward the Swan Vale turbine cluster will be generally screened by landform and tree cover. **Sapphire turbine cluster:** Partial views extend west to south west toward a small portion of the Sapphire turbine cluster.	1.1km	Very Low	Varies – potential long term	High	Medium	Low

Table 17 - Residential View Location Matrix (Sapphire Wind Farm turbines)

View Location	Category of Potential View Location	View context from residence toward Sapphire '80m' and '110m' wind turbine layouts (Wellingrove, Swan Vale and Sapphire turbine clusters)	Approximate distance to closest turbine	Relative number of people	Period of view	View Location sensitivity	Visibility rating from residence (for '80m' design layout ZVI at hub height)	Overall Visual Impact for '80m' and 110m' layouts
R22	Resident (Associated)	**Wellingrove turbine cluster:** Views east toward the Wellingrove turbine cluster will be largely screened by landform and tree cover to the east of the residence. **Swan Vale turbine cluster:** Views south to south east toward the Swan Vale turbine cluster will be partially screened by landform and tree cover **Sapphire turbine cluster:** Views extend south to south west toward the north portion of the Sapphire turbine cluster.	1.8km	Very Low	Varies – potential long term	High	Medium	Moderate
R23	Resident (Associated)	**Wellingrove turbine cluster:** Views east toward the Wellingrove turbine cluster will be screened by landform and tree cover to the east of the residence. **Swan Vale turbine cluster:** Views south to south east toward the Swan Vale turbine cluster will be generally screened by landform and	1.5km	Very Low	Varies – potential long term	High	Low	Low

Table 17 - Residential View Location Matrix (Sapphire Wind Farm turbines)

View Location	Category of Potential View Location	View context from residence toward Sapphire '80m' and '110m' wind turbine layouts (Wellingrove, Swan Vale and Sapphire turbine clusters)	Approximate distance to closest turbine	Relative number of people	Period of view	View Location sensitivity	Visibility rating from residence (for '80m' design layout ZVI at hub height)	Overall Visual Impact for '80m' and 110m' layouts
		tree cover **Sapphire turbine cluster:** Views extend west to south west toward the north portion of the Sapphire turbine cluster.						
R24	Resident (Associated)	**Wellingrove turbine cluster:** Views east toward the Wellingrove turbine cluster will be screened by landform and tree cover to the east of the residence. **Swan Vale turbine cluster:** Views south to south east toward the Swan Vale turbine cluster will be generally screened by landform and tree cover. **Sapphire turbine cluster:** Views extend south toward the north portion of the Sapphire turbine cluster.	1km	Very Low	Varies – potential long term	High	Low	Low to Moderate
R25	Resident	**Wellingrove turbine cluster:** Views east toward the Wellingrove turbine cluster will be screened by landform and tree cover to the east of	2km	Very Low	Varies – potential long term	High	Medium	Nil

Table 17 - Residential View Location Matrix (Sapphire Wind Farm turbines)

View Location	Category of Potential View Location	View context from residence toward Sapphire '80m' and '110m' wind turbine layouts (Wellingrove, Swan Vale and Sapphire turbine clusters)	Approximate distance to closest turbine	Relative number of people	Period of view	View Location sensitivity	Visibility rating from residence (for '80m' design layout ZVI at hub height)	Overall Visual Impact for '80m' and 110m' layouts
		the residence. **Swan Vale turbine cluster:** Views south east toward the Swan Vale turbine cluster will be screened by landform and tree cover to the east of the residence. **Sapphire turbine cluster:** Views south east toward the Sapphire turbine cluster will be screened by landform and tree cover to the east of the residence.						
R26	Resident	**Wellingrove turbine cluster:** Views east toward the Wellingrove turbine cluster will be screened by landform and tree cover to the east of the residence. **Swan Vale turbine cluster:** Views south east toward the Swan Vale turbine cluster will be largely screened by landform and tree cover to the east of the residence. **Sapphire turbine cluster:** Views east to south east will extend	1.7km	Very Low	Varies – potential long term	High	Medium	High

Table 17 - Residential View Location Matrix (Sapphire Wind Farm turbines)

View Location	Category of Potential View Location	View context from residence toward Sapphire '80m' and '110m' wind turbine layouts (Wellingrove, Swan Vale and Sapphire turbine clusters)	Approximate distance to closest turbine	Relative number of people	Period of view	View Location sensitivity	Visibility rating from residence (for '80m' design layout ZVI at hub height)	Overall Visual Impact for '80m' and 110m' layouts
		toward the majority of turbines within the Sapphire turbine cluster.						
R27	Resident	**Wellingrove turbine cluster:** Views east toward the Wellingrove turbine cluster will be screened by landform and tree cover surrounding and beyond the residence. **Swan Vale turbine cluster:** Views south east toward the Swan Vale turbine cluster will be largely screened by landform and tree cover to the south of the residence. **Sapphire turbine cluster:** Views east toward the Sapphire turbine cluster will be partially screened by tree cover and vegetation surrounding and beyond the residence.	2km	Very Low	Varies – potential long term	High	Medium	Low to Moderate
R28	Resident (Associated)	**Wellingrove turbine cluster:** Views east toward the Wellingrove turbine cluster will be screened by landform and tree cover surrounding and beyond the residence.	1km	Very Low	Varies – potential long term	High	Low	High

Table 17 - Residential View Location Matrix (Sapphire Wind Farm turbines)

View Location	Category of Potential View Location	View context from residence toward Sapphire '80m' and '110m' wind turbine layouts (Wellingrove, Swan Vale and Sapphire turbine clusters)	Approximate distance to closest turbine	Relative number of people	Period of view	View Location sensitivity	Visibility rating from residence (for '80m' design layout ZVI at hub height)	Overall Visual Impact for '80m' and 110m' layouts
		Swan Vale turbine cluster: Views south east toward the Swan Vale turbine cluster will be largely screened by landform and tree cover to the south of the residence. **Sapphire turbine cluster:** Views will extend north east to south east toward a number of turbines within the Sapphire turbine cluster.						
R29	Resident	**Wellingrove turbine cluster:** Views east toward the Wellingrove turbine cluster will be screened by landform and tree cover surrounding and beyond the residence. **Swan Vale turbine cluster:** Views south east toward the Swan Vale turbine cluster will be largely screened by landform and tree cover to the south of the residence. **Sapphire turbine cluster:** Views will extend east toward turbines within the Sapphire turbine cluster.	1.7km	Very Low	Varies – potential long term	High	Medium	High

Table 17 - Residential View Location Matrix (Sapphire Wind Farm turbines)

View Location	Category of Potential View Location	View context from residence toward Sapphire '80m' and '110m' wind turbine layouts (Wellingrove, Swan Vale and Sapphire turbine clusters)	Approximate distance to closest turbine	Relative number of people	Period of view	View Location sensitivity	Visibility rating from residence (for '80m' design layout ZVI at hub height)	Overall Visual Impact for '80m' and 110m' layouts
R30	Resident	**Wellingrove turbine cluster:** Views north east toward the Wellingrove turbine cluster will be screened by landform and tree cover surrounding and beyond the residence. **Swan Vale turbine cluster:** Views east toward the Swan Vale turbine cluster will be largely screened by tree cover surrounding the residence. **Sapphire turbine cluster:** Views east to north east toward the Sapphire turbine cluster will be largely screened by tree cover surrounding the residence.	2.5km	Very Low	Varies – potential long term	High	Medium	Low to Moderate
R31	Resident	**Wellingrove turbine cluster:** Views north east toward the Wellingrove turbine cluster will be screened by landform and tree cover surrounding and beyond the residence. **Swan Vale turbine cluster:** Views east toward the Swan Vale turbine cluster will be largely screened	4.3km	Very Low	Varies – potential long term	High	Medium	Low to Moderate

Table 17 - Residential View Location Matrix (Sapphire Wind Farm turbines)

View Location	Category of Potential View Location	View context from residence toward Sapphire '80m' and '110m' wind turbine layouts (Wellingrove, Swan Vale and Sapphire turbine clusters)	Approximate distance to closest turbine	Relative number of people	Period of view	View Location sensitivity	Visibility rating from residence (for '80m' design layout ZVI at hub height)	Overall Visual Impact for '80m' and 110m' layouts
		by tree cover surrounding and beyond the residence. **Sapphire turbine cluster:** Views north east toward the Sapphire turbine cluster will be largely screened by tree cover surrounding the residence.						
R32	Resident	**Wellingrove turbine cluster:** Views north east toward the Wellingrove turbine cluster will be screened by landform and tree cover surrounding and beyond the residence. **Swan Vale turbine cluster:** Views east toward the Swan Vale turbine cluster will be largely screened by tree cover surrounding and beyond the residence. **Sapphire turbine cluster:** Views north east toward the Sapphire turbine cluster will be largely screened by tree cover surrounding the residence.	4km	Very Low	Varies – potential long term	High	Medium	Low to Moderate
R33	Resident	**Wellingrove turbine cluster:**	2.4km	Very Low	Varies –	High	Medium	Low to

Table 17 - Residential View Location Matrix (Sapphire Wind Farm turbines)

View Location	Category of Potential View Location	View context from residence toward Sapphire '80m' and '110m' wind turbine layouts (Wellingrove, Swan Vale and Sapphire turbine clusters)	Approximate distance to closest turbine	Relative number of people	Period of view	View Location sensitivity	Visibility rating from residence (for '80m' design layout ZVI at hub height)	Overall Visual Impact for '80m' and 110m' layouts
	(Associated)	Views north east toward the Wellingrove turbine cluster will be screened by landform and tree cover surrounding and beyond the residence. **Swan Vale turbine cluster:** Views east toward the Swan Vale turbine cluster will be partially screened by tree cover surrounding and beyond the residence. **Sapphire turbine cluster:** Views north toward the Sapphire turbine cluster will extend toward turbines within the south and mid portion of the Sapphire turbine cluster.			potential long term			Moderate
R34	Resident	**Wellingrove turbine cluster:** Views north east toward the Wellingrove turbine cluster will be screened by landform and tree cover surrounding and beyond the residence. **Swan Vale turbine cluster:** Views north east will extend toward turbines within the south and central portion of the Swan Vale turbine cluster	4.4km	Very Low	Varies – potential long term	High	Medium	Moderate

Table 17 - Residential View Location Matrix (Sapphire Wind Farm turbines)

View Location	Category of Potential View Location	View context from residence toward Sapphire '80m' and '110m' wind turbine layouts (Wellingrove, Swan Vale and Sapphire turbine clusters)	Approximate distance to closest turbine	Relative number of people	Period of view	View Location sensitivity	Visibility rating from residence (for '80m' design layout ZVI at hub height)	Overall Visual Impact for '80m' and 110m' layouts
		Sapphire turbine cluster: Views north toward the Sapphire turbine cluster will be largely screened by landform rising to the north of the residence.						
R35	Resident	**Wellingrove turbine cluster:** Views north to north east toward the Wellingrove turbine cluster will be screened by landform and tree cover surrounding and beyond the residence. **Swan Vale turbine cluster:** Views will extend north toward turbines within the south and central portion of the Swan Vale turbine cluster. **Sapphire turbine cluster:** Views north to north west toward the Sapphire turbine cluster will be largely screened by landform rising north toward the Swan Vale turbine cluster.	3.5km	Very Low	Varies – potential long term	High	Medium	Moderate
R36	Resident (Associated)	**Wellingrove turbine cluster:** Views north east toward the Wellingrove turbine cluster will be screened by landform and tree cover surrounding	2.7km	Very Low	Varies – potential long term	High	Low	Moderate

Table 17 - Residential View Location Matrix (Sapphire Wind Farm turbines)

View Location	Category of Potential View Location	View context from residence toward Sapphire '80m' and '110m' wind turbine layouts (Wellingrove, Swan Vale and Sapphire turbine clusters)	Approximate distance to closest turbine	Relative number of people	Period of view	View Location sensitivity	Visibility rating from residence (for '80m' design layout ZVI at hub height)	Overall Visual Impact for '80m' and 110m' layouts
		and beyond the residence. **Swan Vale turbine cluster:** Views north will extend toward turbines within the south and central portion of the Swan Vale turbine cluster. **Sapphire turbine cluster:** Views north west toward the Sapphire turbine cluster will be largely screened by landform rising north toward the Swan Vale turbine cluster.						
R37	Resident (Associated)	**Wellingrove turbine cluster:** Views north east toward the Wellingrove turbine cluster will be screened by landform and tree cover surrounding and beyond the residence. **Swan Vale turbine cluster:** Views north will extend toward turbines within the south and central portion of the Swan Vale turbine cluster. **Sapphire turbine cluster:** Views north west toward the Sapphire turbine cluster will be largely screened by landform rising north toward the	3.4km	Very Low	Varies – potential long term	High	Low	Moderate

Table 17 - Residential View Location Matrix (Sapphire Wind Farm turbines)

View Location	Category of Potential View Location	View context from residence toward Sapphire '80m' and '110m' wind turbine layouts (Wellingrove, Swan Vale and Sapphire turbine clusters)	Approximate distance to closest turbine	Relative number of people	Period of view	View Location sensitivity	Visibility rating from residence (for '80m' design layout ZVI at hub height)	Overall Visual Impact for '80m' and 110m' layouts
		Swan Vale turbine cluster.						
R38	Resident	**Wellingrove turbine cluster:** Views north east toward the Wellingrove turbine cluster will be screened by landform and tree cover surrounding and beyond the residence. **Swan Vale turbine cluster:** Views north will extend toward turbines within the south and central portion of the Swan Vale turbine cluster. **Sapphire turbine cluster:** Views north west toward the Sapphire turbine cluster will be largely screened by landform rising north toward the Swan Vale turbine cluster.	4km	Very Low	Varies – potential long term	High	Medium	Moderate
R39	Resident	**Wellingrove turbine cluster:** Views north east toward the Wellingrove turbine cluster will be screened by landform and tree cover surrounding and beyond the residence. **Swan Vale turbine cluster:** Views north will extend toward turbines within the south and central portion of	2.5km	Very Low	Varies – potential long term	High	Low	Moderate

Table 17 - Residential View Location Matrix (Sapphire Wind Farm turbines)

View Location	Category of Potential View Location	View context from residence toward Sapphire '80m' and '110m' wind turbine layouts (Wellingrove, Swan Vale and Sapphire turbine clusters)	Approximate distance to closest turbine	Relative number of people	Period of view	View Location sensitivity	Visibility rating from residence (for '80m' design layout ZVI at hub height)	Overall Visual Impact for '80m' and 110m' layouts
		the Swan Vale turbine cluster. **Sapphire turbine cluster:** Views north west toward the Sapphire turbine cluster will be largely screened by landform rising north toward the Swan Vale turbine cluster.						
R40	Resident	**Wellingrove turbine cluster:** Views north east toward the Wellingrove turbine cluster will be screened by landform and tree cover surrounding and beyond the residence. **Swan Vale turbine cluster:** Views north will extend toward turbines within the south and central portion of the Swan Vale turbine cluster. **Sapphire turbine cluster:** Views north west toward the Sapphire turbine cluster will be largely screened by landform rising north toward the Swan Vale turbine cluster.	3km	Very Low	Varies – potential long term	High	Low	Moderate
R41	Resident	**Wellingrove turbine cluster:**	3.7km	Very Low	Varies – potential	High	Low	Moderate

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View Location	Category of Potential View Location	View context from residence toward Sapphire '80m' and '110m' wind turbine layouts (Wellingrove, Swan Vale and Sapphire turbine clusters)	Approximate distance to closest turbine	Relative number of people	Period of view	View Location sensitivity	Visibility rating from residence (for '80m' design layout ZVI at hub height)	Overall Visual Impact for '80m' and 110m' layouts
		Views toward the Wellingrove turbine cluster will be screened by landform and tree cover surrounding and beyond the residence. **Swan Vale turbine cluster:** Views north will extend toward turbines within the south and central portion of the Swan Vale turbine cluster. **Sapphire turbine cluster:** Views north west toward the Sapphire turbine cluster will be largely screened by landform rising north toward the Swan Vale turbine cluster.			long term			
R42	Resident	**Wellingrove turbine cluster:** Views north east toward the Wellingrove turbine cluster will be screened by landform and tree cover surrounding and beyond the residence. **Swan Vale turbine cluster:** Views north will extend toward turbines within the south and central portion of the Swan Vale turbine cluster. **Sapphire turbine cluster:**	4km	Very Low	Varies – potential long term	High	Low	Moderate

Table 17 - Residential View Location Matrix (Sapphire Wind Farm turbines)

View Location	Category of Potential View Location	View context from residence toward Sapphire '80m' and '110m' wind turbine layouts (Wellingrove, Swan Vale and Sapphire turbine clusters)	Approximate distance to closest turbine	Relative number of people	Period of view	View Location sensitivity	Visibility rating from residence (for '80m' design layout ZVI at hub height)	Overall Visual Impact for '80m' and 110m' layouts
		Views north west toward the Sapphire turbine cluster will be largely screened by landform rising north toward the Swan Vale turbine cluster.						
R43	Resident	**Wellingrove turbine cluster:** Views north east toward the Wellingrove turbine cluster will be screened by landform and tree cover surrounding and beyond the residence. **Swan Vale turbine cluster:** Views north will extend toward turbines within the south and central portion of the Swan Vale turbine cluster. **Sapphire turbine cluster:** Views north west toward the Sapphire turbine cluster will be largely screened by landform rising north toward the Swan Vale turbine cluster.	4.4km	Very Low	Varies – potential long term	High	Low	Moderate
R44	Resident	**Wellingrove turbine cluster:** Views north east toward the Wellingrove turbine cluster will be screened by landform and tree cover surrounding and beyond the residence.	3.4km	Very Low	Varies – potential long term	High	Low	Moderate

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View Location	Category of Potential View Location	View context from residence toward Sapphire '80m' and '110m' wind turbine layouts (Wellingrove, Swan Vale and Sapphire turbine clusters)	Approximate distance to closest turbine	Relative number of people	Period of view	View Location sensitivity	Visibility rating from residence (for '80m' design layout ZVI at hub height)	Overall Visual Impact for '80m' and 110m' layouts
		Swan Vale turbine cluster: Views north will extend toward turbines within the south and central portion of the Swan Vale turbine cluster. **Sapphire turbine cluster:** Views north west toward the Sapphire turbine cluster will be largely screened by landform rising north toward the Swan Vale turbine cluster.						
R45	Resident	**Wellingrove turbine cluster:** Views north east toward the Wellingrove turbine cluster will be screened by landform and tree cover surrounding and beyond the residence. **Swan Vale turbine cluster:** Views north will extend toward turbines within the south and central portion of the Swan Vale turbine cluster. **Sapphire turbine cluster:** Views north west toward the Sapphire turbine cluster will be largely screened by landform rising north toward the Swan Vale turbine cluster.	3.4km	Very Low	Varies – potential long term	High	Low	Moderate

Table 17 - Residential View Location Matrix (Sapphire Wind Farm turbines)

View Location	Category of Potential View Location	View context from residence toward Sapphire '80m' and '110m' wind turbine layouts (Wellingrove, Swan Vale and Sapphire turbine clusters)	Approximate distance to closest turbine	Relative number of people	Period of view	View Location sensitivity	Visibility rating from residence (for '80m' design layout ZVI at hub height)	Overall Visual Impact for '80m' and 110m' layouts
R46	Resident	**Wellingrove turbine cluster:** Views north east toward the Wellingrove turbine cluster will be screened by landform and tree cover surrounding and beyond the residence. **Swan Vale turbine cluster:** Views north will extend toward turbines within the south and central portion of the Swan Vale turbine cluster. **Sapphire turbine cluster:** Views north west toward the Sapphire turbine cluster will be largely screened by landform rising north toward the Swan Vale turbine cluster.	2.7km	Very Low	Varies – potential long term	High	Low	Moderate
R47	Resident	**Wellingrove turbine cluster:** Views north to north east toward the Wellingrove turbine cluster will be screened by landform and tree cover surrounding and beyond the residence. **Swan Vale turbine cluster:** Views north will extend toward turbines within the south and central portion of the Swan Vale turbine cluster.	2.5km	Very Low	Varies – potential long term	High	Low	Moderate

Table 17 - Residential View Location Matrix (Sapphire Wind Farm turbines)

View Location	Category of Potential View Location	View context from residence toward Sapphire '80m' and '110m' wind turbine layouts (Wellingrove, Swan Vale and Sapphire turbine clusters)	Approximate distance to closest turbine	Relative number of people	Period of view	View Location sensitivity	Visibility rating from residence (for '80m' design layout ZVI at hub height)	Overall Visual Impact for '80m' and 110m' layouts
		Sapphire turbine cluster: Views north west toward the Sapphire turbine cluster will be largely screened by landform rising north toward the Swan Vale turbine cluster.						
R48	Resident	**Wellingrove turbine cluster:** Views north toward the Wellingrove turbine cluster will be screened by landform and tree cover surrounding and beyond the residence. **Swan Vale turbine cluster:** Views west to north west will extend toward turbines within the south and central portion of the Swan Vale turbine cluster. **Sapphire turbine cluster:** Views north west toward the Sapphire turbine cluster will be largely screened by landform rising north toward the Swan Vale turbine cluster.	4.4km	Very Low	Varies – potential long term	High	Low	Moderate
R49	Resident	**Wellingrove turbine cluster:** Views north to north west toward the Wellingrove turbine cluster will be	4.2km	Very Low	Varies – potential long term	High	Low	Low

Table 17 - Residential View Location Matrix (Sapphire Wind Farm turbines)

View Location	Category of Potential View Location	View context from residence toward Sapphire '80m' and '110m' wind turbine layouts (Wellingrove, Swan Vale and Sapphire turbine clusters)	Approximate distance to closest turbine	Relative number of people	Period of view	View Location sensitivity	Visibility rating from residence (for '80m' design layout ZVI at hub height)	Overall Visual Impact for '80m' and 110m' layouts
		largely screened by landform and tree cover surrounding and beyond the residence. **Swan Vale turbine cluster:** Views west toward the Swan Vale turbine cluster will be largely screened by landform and tree cover surrounding and beyond the residence. **Sapphire turbine cluster:** Views west to north west toward the Sapphire turbine cluster will be largely screened by landform and tree cover surrounding and beyond the residence.						
R50	Resident	**Wellingrove turbine cluster:** Views north west toward the Wellingrove turbine cluster will be largely screened by landform and tree cover surrounding and beyond the residence. **Swan Vale turbine cluster:** Views west toward the Swan Vale turbine cluster will be largely screened by landform and tree cover surrounding and beyond the residence.	5.2km	Very Low	Varies – potential long term	High	Low	Low

Table 17 - Residential View Location Matrix (Sapphire Wind Farm turbines)

View Location	Category of Potential View Location	View context from residence toward Sapphire '80m' and '110m' wind turbine layouts (Wellingrove, Swan Vale and Sapphire turbine clusters)	Approximate distance to closest turbine	Relative number of people	Period of view	View Location sensitivity	Visibility rating from residence (for '80m' design layout ZVI at hub height)	Overall Visual Impact for '80m' and 110m' layouts
		Sapphire turbine cluster: Views north west toward the Sapphire turbine cluster will be largely screened by landform and tree cover surrounding and beyond the residence.						
R51	Resident	**Wellingrove turbine cluster:** Views north west toward the Wellingrove turbine cluster will be largely screened by landform and tree cover surrounding and beyond the residence. **Swan Vale turbine cluster:** Views west toward the Swan Vale turbine cluster will be largely screened by landform and tree cover surrounding and beyond the residence. **Sapphire turbine cluster:** Views north west toward the Sapphire turbine cluster will be largely screened by landform and tree cover surrounding and beyond the residence.	5km	Very Low	Varies – potential long term	High	Low	Low
R52	Resident	**Wellingrove turbine cluster:** Views north west toward the	5.3km	Very Low	Varies – potential	High	Low	Low

Table 17 - Residential View Location Matrix (Sapphire Wind Farm turbines)

View Location	Category of Potential View Location	View context from residence toward Sapphire '80m' and '110m' wind turbine layouts (Wellingrove, Swan Vale and Sapphire turbine clusters)	Approximate distance to closest turbine	Relative number of people	Period of view	View Location sensitivity	Visibility rating from residence (for '80m' design layout ZVI at hub height)	Overall Visual Impact for '80m' and 110m' layouts
		Wellingrove turbine cluster will be largely screened by landform and tree cover surrounding and beyond the residence. **Swan Vale turbine cluster:** Views west toward the Swan Vale turbine cluster will be largely screened by landform and tree cover surrounding and beyond the residence. **Sapphire turbine cluster:** Views north west toward the Sapphire turbine cluster will be largely screened by landform and tree cover surrounding and beyond the residence.			long term			
R53	Resident	**Wellingrove turbine cluster:** Views north west toward the Wellingrove turbine cluster will be largely screened by landform and tree cover surrounding and beyond the residence. **Swan Vale turbine cluster:** Views west toward the Swan Vale turbine cluster will be largely screened by landform and tree cover surrounding	3.8km	Very Low	Varies – potential long term	High	Low	Low

Table 17 - Residential View Location Matrix (Sapphire Wind Farm turbines)

View Location	Category of Potential View Location	View context from residence toward Sapphire '80m' and '110m' wind turbine layouts (Wellingrove, Swan Vale and Sapphire turbine clusters)	Approximate distance to closest turbine	Relative number of people	Period of view	View Location sensitivity	Visibility rating from residence (for '80m' design layout ZVI at hub height)	Overall Visual Impact for '80m' and 110m' layouts
		and beyond the residence. **Sapphire turbine cluster:** Views west to north west toward the Sapphire turbine cluster will be largely screened by landform and tree cover surrounding and beyond the residence.						
R54	Resident	**Wellingrove turbine cluster:** Views north west toward the Wellingrove turbine cluster will be partially screened by tree cover surrounding and beyond the residence. **Swan Vale turbine cluster:** Views west toward the Swan Vale turbine cluster will be screened by landform and tree cover surrounding and beyond the residence. **Sapphire turbine cluster:** Views west to north west toward the Sapphire turbine cluster will be screened by landform and tree cover surrounding and beyond the residence.	4.7km	Very Low	Varies – potential long term	High	Low	Low
R55	Resident	**Wellingrove turbine cluster:** Views west to north west toward the	3.4km	Very Low	Varies – potential	High	Low	Low

Table 17 - Residential View Location Matrix (Sapphire Wind Farm turbines)

View Location	Category of Potential View Location	View context from residence toward Sapphire '80m' and '110m' wind turbine layouts (Wellingrove, Swan Vale and Sapphire turbine clusters)	Approximate distance to closest turbine	Relative number of people	Period of view	View Location sensitivity	Visibility rating from residence (for '80m' design layout ZVI at hub height)	Overall Visual Impact for '80m' and 110m' layouts
		Wellingrove turbine cluster will be partially screened by tree cover surrounding and beyond the residence. **Swan Vale turbine cluster:** Views west toward the Swan Vale turbine cluster will be screened by landform and tree cover surrounding and beyond the residence. **Sapphire turbine cluster:** Views west to north west toward the Sapphire turbine cluster will be screened by landform and tree cover surrounding and beyond the residence.			long term			
R56	Resident (Associated)	**Wellingrove turbine cluster:** Views west to north west toward the Wellingrove turbine cluster will be partially screened by tree cover surrounding and beyond the residence. **Swan Vale turbine cluster:** Views south west toward the Swan Vale turbine cluster will be screened by landform and tree cover surrounding and beyond the residence.	2.5km	Very Low	Varies – potential long term	High	Low	Low

Table 17 - Residential View Location Matrix (Sapphire Wind Farm turbines)

View Location	Category of Potential View Location	View context from residence toward Sapphire '80m' and '110m' wind turbine layouts (Wellingrove, Swan Vale and Sapphire turbine clusters)	Approximate distance to closest turbine	Relative number of people	Period of view	View Location sensitivity	Visibility rating from residence (for '80m' design layout ZVI at hub height)	Overall Visual Impact for '80m' and 110m' layouts
		Sapphire turbine cluster: Views west toward the Sapphire turbine cluster will be screened by landform and tree cover surrounding and beyond the residence.						
R57	Resident	**Wellingrove turbine cluster:** Views west to north west will extend north and west to south west toward turbines within the Wellingrove turbine cluster. **Swan Vale turbine cluster:** Views south west toward the Swan Vale turbine cluster will be screened by landform and tree cover surrounding and beyond the residence. **Sapphire turbine cluster:** Views west toward the Sapphire turbine cluster will be screened by landform and tree cover surrounding and beyond the residence.	2km	Very Low	Varies – potential long term	High	Low	Moderate
R58	Resident	**Wellingrove turbine cluster:** Views west to north west toward the Wellingrove turbine cluster will be	5km	Very Low	Varies – potential long term	High	Medium	Low

Table 17 - Residential View Location Matrix (Sapphire Wind Farm turbines)

View Location	Category of Potential View Location	View context from residence toward Sapphire '80m' and '110m' wind turbine layouts (Wellingrove, Swan Vale and Sapphire turbine clusters)	Approximate distance to closest turbine	Relative number of people	Period of view	View Location sensitivity	Visibility rating from residence (for '80m' design layout ZVI at hub height)	Overall Visual Impact for '80m' and 110m' layouts
		screened by landform and tree cover surrounding and beyond the residence. **Swan Vale turbine cluster:** Views south west toward the Swan Vale turbine cluster will be screened by landform and tree cover surrounding and beyond the residence. **Sapphire turbine cluster:** Views west toward the Sapphire turbine cluster will be screened by landform and tree cover surrounding and beyond the residence.						
R59	Resident	**Wellingrove turbine cluster:** Views west to south west toward Wellingrove turbines are partially screened by timbered areas with views extending toward a small number of turbines within the north portion of the Wellingrove turbine cluster. **Swan Vale turbine cluster:** Views south west toward the Swan Vale turbine cluster are screened by topography and/or timbered areas.	2.5km	Very Low	Varies – potential long term	High	Low	Low

Table 17 - Residential View Location Matrix (Sapphire Wind Farm turbines)

View Location	Category of Potential View Location	View context from residence toward Sapphire '80m' and '110m' wind turbine layouts (Wellingrove, Swan Vale and Sapphire turbine clusters)	Approximate distance to closest turbine	Relative number of people	Period of view	View Location sensitivity	Visibility rating from residence (for '80m' design layout ZVI at hub height)	Overall Visual Impact for '80m' and 110m' layouts
		Sapphire turbine cluster: Views west toward the Sapphire turbine cluster are screened by undulating landform and timbered areas.						
R60	Resident	**Wellingrove turbine cluster:** Views west to south west toward Wellingrove turbines are partially screened by timbered areas with views extending toward a small number of turbines within the north portion of the Wellingrove turbine cluster. **Swan Vale turbine cluster:** Views south west toward the Swan Vale turbine cluster are screened by topography and timbered areas. **Sapphire turbine cluster:** Views west toward the Sapphire turbine cluster are screened by undulating landform and timbered areas.	2.8km	Very Low	Varies – potential long term	High	Low	Low
R61	Resident	**Wellingrove turbine cluster:** Views toward Wellingrove turbines are partially screened by timbered areas with views extending toward a small	3.3km	Very Low	Varies – potential long term	High	Low	Low

Table 17 - Residential View Location Matrix (Sapphire Wind Farm turbines)

View Location	Category of Potential View Location	View context from residence toward Sapphire '80m' and '110m' wind turbine layouts (Wellingrove, Swan Vale and Sapphire turbine clusters)	Approximate distance to closest turbine	Relative number of people	Period of view	View Location sensitivity	Visibility rating from residence (for '80m' design layout ZVI at hub height)	Overall Visual Impact for '80m' and 110m' layouts
		number of turbines within the north portion of the Wellingrove turbine cluster. **Swan Vale turbine cluster:** Views south west toward the Swan Vale turbine cluster are screened by topography and/or timbered areas. **Sapphire turbine cluster:** Views west toward the Sapphire turbine cluster are screened by undulating landform and timbered areas.						
R62	Resident	**Wellingrove turbine cluster:** Views west to south west toward Wellingrove turbines are partially screened by timbered areas with views extending toward a small number of turbines within the north portion of the Wellingrove turbine cluster. **Swan Vale turbine cluster:** Views south west toward the Swan Vale turbine cluster are screened by topography and timbered areas. **Sapphire turbine cluster:**	3.8km	Very Low	Varies – potential long term	High	Low	Low

Table 17 - Residential View Location Matrix (Sapphire Wind Farm turbines)

View Location	Category of Potential View Location	View context from residence toward Sapphire '80m' and '110m' wind turbine layouts (Wellingrove, Swan Vale and Sapphire turbine clusters)	Approximate distance to closest turbine	Relative number of people	Period of view	View Location sensitivity	Visibility rating from residence (for '80m' design layout ZVI at hub height)	Overall Visual Impact for '80m' and 110m' layouts
		Views west toward the Sapphire turbine cluster are screened by undulating landform and timbered areas.						
R63	Resident	**Wellingrove turbine cluster:** Views west to south west toward Wellingrove turbines are partially screened by timbered areas with views extending toward a small number of turbines within the north portion of the Wellingrove turbine cluster. **Swan Vale turbine cluster:** Views south west toward the Swan Vale turbine cluster are screened by topography and timbered areas. **Sapphire turbine cluster:** Views west toward the Sapphire turbine cluster are screened by undulating landform and timbered areas.	4.6km	Very Low	Varies – potential long term	High	Low	Low
R64	Resident	**Wellingrove turbine cluster:** Views south west toward Wellingrove turbines are partially screened by timbered areas with views extending toward a small number of turbines within the north portion of the	3.3km	Very Low	Varies – potential long term	High	Low	Low

Table 17 - Residential View Location Matrix (Sapphire Wind Farm turbines)

View Location	Category of Potential View Location	View context from residence toward Sapphire '80m' and '110m' wind turbine layouts (Wellingrove, Swan Vale and Sapphire turbine clusters)	Approximate distance to closest turbine	Relative number of people	Period of view	View Location sensitivity	Visibility rating from residence (for '80m' design layout ZVI at hub height)	Overall Visual Impact for '80m' and 110m' layouts
		Wellingrove turbine cluster. **Swan Vale turbine cluster:** Views south west toward the Swan Vale turbine cluster are screened by topography and timbered areas. **Sapphire turbine cluster:** Views west toward the Sapphire turbine cluster are screened by undulating landform and timbered areas.						
R65	Resident	**Wellingrove turbine cluster:** Views south west toward Wellingrove turbines are partially screened by timbered areas with views extending toward a small number of turbines within the north portion of the Wellingrove turbine cluster. **Swan Vale turbine cluster:** Views south west toward the Swan Vale turbine cluster are screened by topography and timbered areas. **Sapphire turbine cluster:** Views west toward the Sapphire turbine cluster are screened by undulating	3.4km	Very Low	Varies – potential long term	High	Low	Low

Table 17 - Residential View Location Matrix (Sapphire Wind Farm turbines)

View Location	Category of Potential View Location	View context from residence toward Sapphire '80m' and '110m' wind turbine layouts (Wellingrove, Swan Vale and Sapphire turbine clusters)	Approximate distance to closest turbine	Relative number of people	Period of view	View Location sensitivity	Visibility rating from residence (for '80m' design layout ZVI at hub height)	Overall Visual Impact for '80m' and 110m' layouts
		landform and/or timbered areas.						
R66	Resident	**Wellingrove turbine cluster:** Views south west toward Wellingrove turbines are partially screened by timbered areas with views extending toward a small number of turbines within the north portion of the Wellingrove turbine cluster. **Swan Vale turbine cluster:** Views south west toward the Swan Vale turbine cluster are screened by topography and timbered areas. **Sapphire turbine cluster:** Views west toward the Sapphire turbine cluster are screened by undulating landform and timbered areas.	3.8km	Very Low	Varies – potential long term	High	Low	Low
R67	Resident	**Wellingrove turbine cluster:** Views south west toward Wellingrove turbines are partially screened by timbered areas with views extending toward a small number of turbines within the north portion of the Wellingrove turbine cluster.	4km	Very Low	Varies – potential long term	High	Low	Low

Table 17 - Residential View Location Matrix (Sapphire Wind Farm turbines)

View Location	Category of Potential View Location	View context from residence toward Sapphire '80m' and '110m' wind turbine layouts (Wellingrove, Swan Vale and Sapphire turbine clusters)	Approximate distance to closest turbine	Relative number of people	Period of view	View Location sensitivity	Visibility rating from residence (for '80m' design layout ZVI at hub height)	Overall Visual Impact for '80m' and 110m' layouts
		Swan Vale turbine cluster: Views south west toward the Swan Vale turbine cluster are screened by topography and timbered areas. **Sapphire turbine cluster:** Views west toward the Sapphire turbine cluster are screened by undulating landform and timbered areas.						
R68	Resident	**Wellingrove turbine cluster:** Views south west toward Wellingrove turbines are partially screened by timbered areas with views extending toward a small number of turbines within the north portion of the Wellingrove turbine cluster. **Swan Vale turbine cluster:** Views south west toward the Swan Vale turbine cluster are screened by topography and timbered areas. **Sapphire turbine cluster:** Views west toward the Sapphire turbine cluster are screened by undulating landform and timbered areas.	3.6km	Very Low	Varies – potential long term	High	Low	Low

Table 17 - Residential View Location Matrix (Sapphire Wind Farm turbines)

View Location	Category of Potential View Location	View context from residence toward Sapphire '80m' and '110m' wind turbine layouts (Wellingrove, Swan Vale and Sapphire turbine clusters)	Approximate distance to closest turbine	Relative number of people	Period of view	View Location sensitivity	Visibility rating from residence (for '80m' design layout ZVI at hub height)	Overall Visual Impact for '80m' and 110m' layouts
R69	Resident	**Wellingrove turbine cluster:** Views south west toward Wellingrove turbines are partially screened by timbered areas with views extending toward a small number of turbines within the north portion of the Wellingrove turbine cluster. **Swan Vale turbine cluster:** Views south west toward the Swan Vale turbine cluster are screened by topography and timbered areas. **Sapphire turbine cluster:** Views west toward the Sapphire turbine cluster are screened by undulating landform and/or timbered areas.	4.2km	Very Low	Varies – potential long term	High	Low	Low
R70	Resident	**Wellingrove turbine cluster:** Views south west toward the Wellingrove turbines are largely screened by tree cover surrounding and beyond the residence. **Swan Vale turbine cluster:** Views south west toward the Swan Vale turbine cluster are screened by a	3.3km	Very Low	Varies – potential long term	High	Low	Low

Table 17 - Residential View Location Matrix (Sapphire Wind Farm turbines)

View Location	Category of Potential View Location	View context from residence toward Sapphire '80m' and '110m' wind turbine layouts (Wellingrove, Swan Vale and Sapphire turbine clusters)	Approximate distance to closest turbine	Relative number of people	Period of view	View Location sensitivity	Visibility rating from residence (for '80m' design layout ZVI at hub height)	Overall Visual Impact for '80m' and 110m' layouts
		combination of undulating landform and tree cover to the south of the residence. **Sapphire turbine cluster:** Views west to south west toward the Sapphire turbine cluster are screened by dense tree cover to the south and south west of the residence.						
R71	Resident	**Wellingrove turbine cluster:** Views south t o south west toward the Wellingrove turbines are largely screened by tree cover surrounding and beyond the residence. **Swan Vale turbine cluster:** Views south west toward the Swan Vale turbine cluster are screened by a combination of undulating landform and tree cover to the south of the residence. **Sapphire turbine cluster:** Views toward the Sapphire turbine cluster are screened by dense tree cover to the south and south west of the residence.	2.8km	Very Low	Varies – potential long term	High	Low	Low
R72	Resident	**Wellingrove turbine cluster:**	2.6km	Very Low	Varies –	High	Low	Low

Table 17 - Residential View Location Matrix (Sapphire Wind Farm turbines)

View Location	Category of Potential View Location	View context from residence toward Sapphire '80m' and '110m' wind turbine layouts (Wellingrove, Swan Vale and Sapphire turbine clusters)	Approximate distance to closest turbine	Relative number of people	Period of view	View Location sensitivity	Visibility rating from residence (for '80m' design layout ZVI at hub height)	Overall Visual Impact for '80m' and 110m' layouts
		Views toward the Wellingrove turbines are largely screened by tree cover surrounding and beyond the residence. **Swan Vale turbine cluster:** Views toward the Swan Vale turbine cluster and screened by a combination of undulating landform and tree cover to the south of the residence. **Sapphire turbine cluster:** Views toward the Sapphire turbine cluster are screened by dense tree cover to the south and south west of the residence.			potential long term			
R73	Resident	**Wellingrove turbine cluster:** Views south to south east toward the Wellingrove turbines are largely screened by tree cover surrounding and beyond the residence. **Swan Vale turbine cluster:** Views south toward the Swan Vale turbine cluster and screened by a combination of undulating landform and tree cover to the south of the residence.	2.7km	Very Low	Varies – potential long term	High	High	Low

Table 17 - Residential View Location Matrix (Sapphire Wind Farm turbines)

View Location	Category of Potential View Location	View context from residence toward Sapphire '80m' and '110m' wind turbine layouts (Wellingrove, Swan Vale and Sapphire turbine clusters)	Approximate distance to closest turbine	Relative number of people	Period of view	View Location sensitivity	Visibility rating from residence (for '80m' design layout ZVI at hub height)	Overall Visual Impact for '80m' and 110m' layouts
		Sapphire turbine cluster: Views south west toward the Sapphire turbine cluster are screened by dense tree cover to the south and south west of the residence.						
R74	Resident	**Wellingrove turbine cluster:** Partial south east views extend south to south east toward the Wellingrove turbine cluster. **Swan Vale turbine cluster:** Views south to south west toward the Swan Vale turbine cluster are likely to be screened by scattered tree cover surrounding and beyond and residence. **Sapphire turbine cluster:** Views toward the Sapphire turbine cluster are generally screened by dense tree cover to the south and south west of the residence.	4.9km	Very Low	Varies – potential long term	High	Medium	Low
R75	Mine	N/A	N/A	N/A	N/A	N/A	N/A	N/A
R76	Resident	**Wellingrove turbine cluster:** Views east toward the Wellingrove	4km	Very Low	Varies – potential	High	High	Low

Table 17 - Residential View Location Matrix (Sapphire Wind Farm turbines)

View Location	Category of Potential View Location	View context from residence toward Sapphire '80m' and '110m' wind turbine layouts (Wellingrove, Swan Vale and Sapphire turbine clusters)	Approximate distance to closest turbine	Relative number of people	Period of view	View Location sensitivity	Visibility rating from residence (for '80m' design layout ZVI at hub height)	Overall Visual Impact for '80m' and 110m' layouts
		turbines are largely screened by tree planting surrounding the residence. **Swan Vale turbine cluster:** Views south toward the Swan Vale turbines are screened by tree planting surrounding the residence. **Sapphire turbine cluster:** Views west toward the Sapphire turbines are largely screened by tree planting surrounding the residence.			long term			
R77	Resident	**Wellingrove turbine cluster:** Views east toward the Wellingrove turbines are largely screened by tree planting surrounding the residence. **Swan Vale turbine cluster:** Views south toward the Swan Vale turbines are screened by tree planting surrounding the residence. **Sapphire turbine cluster:** Views west toward the Sapphire turbines are largely screened by tree planting surrounding the residence.	3km	Very Low	Varies – potential long term	High	Medium	Low

Table 17 - Residential View Location Matrix (Sapphire Wind Farm turbines)

View Location	Category of Potential View Location	View context from residence toward Sapphire '80m' and '110m' wind turbine layouts (Wellingrove, Swan Vale and Sapphire turbine clusters)	Approximate distance to closest turbine	Relative number of people	Period of view	View Location sensitivity	Visibility rating from residence (for '80m' design layout ZVI at hub height)	Overall Visual Impact for '80m' and 110m' layouts
R78	Resident	**Wellingrove turbine cluster:** Views east toward the Wellingrove turbines are partially screened by tree planting surrounding the residence. **Swan Vale turbine cluster:** Views south toward the Swan Vale turbines are screened by tree planting surrounding the residence. **Sapphire turbine cluster:** Views west toward the Sapphire turbines are largely screened by tree planting surrounding the residence.	3km	Very Low	Varies – potential long term	High	Medium	Low
R79	Resident	**Wellingrove turbine cluster:** Views east toward the Wellingrove turbines are partially screened by tree planting surrounding the residence. **Swan Vale turbine cluster:** Views south toward the Swan Vale turbines are screened by tree planting surrounding the residence. **Sapphire turbine cluster:** Views west toward the Sapphire	2.7km	Very Low	Varies – potential long term	High	Medium	Low

Table 17 - Residential View Location Matrix (Sapphire Wind Farm turbines)

View Location	Category of Potential View Location	View context from residence toward Sapphire '80m' and '110m' wind turbine layouts (Wellingrove, Swan Vale and Sapphire turbine clusters)	Approximate distance to closest turbine	Relative number of people	Period of view	View Location sensitivity	Visibility rating from residence (for '80m' design layout ZVI at hub height)	Overall Visual Impact for '80m' and 110m' layouts
		turbines are largely screened by tree planting surrounding the residence.						
R80	Resident	**Wellingrove turbine cluster:** Views east toward the Wellingrove turbines are partially screened by tree planting surrounding the residence. **Swan Vale turbine cluster:** Views south toward the Swan Vale turbines are screened by tree planting surrounding the residence. **Sapphire turbine cluster:** Views west toward the Sapphire turbines are largely screened by tree planting surrounding the residence.	2.6km	Very Low	Varies – potential long term	High	Medium	Low
R81	Resident	**Wellingrove turbine cluster:** Views east toward the Wellingrove turbines are partially screened by tree planting surrounding the residence. **Swan Vale turbine cluster:** Views south toward the Swan Vale turbines are screened by tree planting surrounding the residence.	2.5km	Very Low	Varies – potential long term	High	Medium	Low

Table 17 - Residential View Location Matrix (Sapphire Wind Farm turbines)

View Location	Category of Potential View Location	View context from residence toward Sapphire '80m' and '110m' wind turbine layouts (Wellingrove, Swan Vale and Sapphire turbine clusters)	Approximate distance to closest turbine	Relative number of people	Period of view	View Location sensitivity	Visibility rating from residence (for '80m' design layout ZVI at hub height)	Overall Visual Impact for '80m' and 110m' layouts
		Sapphire turbine cluster: Views west toward the Sapphire turbines are largely screened by tree planting surrounding the residence.						
R82	Resident (Associated)	**Wellingrove turbine cluster:** Partial views extend south to south east toward the Wellingrove turbine cluster. **Swan Vale turbine cluster:** Views south to south west toward the Swan Vale turbine cluster are likely to be screened by scattered tree cover surrounding and beyond and residence. **Sapphire turbine cluster:** Views south west toward the Sapphire turbine cluster are generally screened by dense tree cover to the south and south west of the residence.	6km	Very Low	Varies – potential long term	High	Medium	Low
R83	Resident (Associated)	**Wellingrove turbine cluster:** Partial views extend south to south east toward the Wellingrove turbine cluster. **Swan Vale turbine cluster:** Views south to south west toward the	6km	Very Low	Varies – potential long term	High	Medium	Low

Table 17 - Residential View Location Matrix (Sapphire Wind Farm turbines)

View Location	Category of Potential View Location	View context from residence toward Sapphire '80m' and '110m' wind turbine layouts (Wellingrove, Swan Vale and Sapphire turbine clusters)	Approximate distance to closest turbine	Relative number of people	Period of view	View Location sensitivity	Visibility rating from residence (for '80m' design layout ZVI at hub height)	Overall Visual Impact for '80m' and 110m' layouts
		Swan Vale turbine cluster are likely to be screened by scattered tree cover surrounding and beyond and residence. **Sapphire turbine cluster:** Views south west toward the Sapphire turbine cluster are generally screened by dense tree cover to the south and south west of the residence.						
R84	Resident	**Wellingrove turbine cluster:** Views east to south east toward the Wellingrove turbine cluster are screened by tree cover surrounding and beyond the residence. **Swan Vale turbine cluster:** Views south toward the Swan Vale turbine cluster are screened by tree cover surrounding and beyond the residence. **Sapphire turbine cluster:** Views south west toward the Sapphire turbine cluster are screened by tree cover surrounding and beyond the residence.	3.8km	Very Low	Varies – potential long term	High	Medium	Low

Table 17 - Residential View Location Matrix (Sapphire Wind Farm turbines)

View Location	Category of Potential View Location	View context from residence toward Sapphire '80m' and '110m' wind turbine layouts (Wellingrove, Swan Vale and Sapphire turbine clusters)	Approximate distance to closest turbine	Relative number of people	Period of view	View Location sensitivity	Visibility rating from residence (for '80m' design layout ZVI at hub height)	Overall Visual Impact for '80m' and 110m' layouts
R85	Resident (Associated)	**Wellingrove turbine cluster:** Views east to south east toward the Wellingrove turbines are partially screened by tree planting surrounding the residence. **Swan Vale turbine cluster:** Views south to south east toward the Swan Vale turbines are screened by tree planting surrounding the residence. **Sapphire turbine cluster:** Views south west toward the Sapphire turbines are largely screened by tree planting surrounding the residence.	3.5km	Very Low	Varies – potential long term	High	Medium	Low
R86	Resident	**Wellingrove turbine cluster:** Views east to south east toward the Wellingrove turbines are partially screened by tree planting surrounding the residence. **Swan Vale turbine cluster:** Views south to south east toward the Swan Vale turbines are screened by tree planting surrounding the residence.	3.7km	Very Low	Varies – potential long term	High	Medium	Low

Table 17 - Residential View Location Matrix (Sapphire Wind Farm turbines)

View Location	Category of Potential View Location	View context from residence toward Sapphire '80m' and '110m' wind turbine layouts (Wellingrove, Swan Vale and Sapphire turbine clusters)	Approximate distance to closest turbine	Relative number of people	Period of view	View Location sensitivity	Visibility rating from residence (for '80m' design layout ZVI at hub height)	Overall Visual Impact for '80m' and 110m' layouts
		Sapphire turbine cluster: Views south to south west toward the Sapphire turbines are largely screened by tree planting surrounding the residence.						
R87	Resident	**Wellingrove turbine cluster:** Distant views east to south east toward the Wellingrove turbine cluster are partially screened by tree cover to the east of the residence. **Swan Vale turbine cluster:** Views south to south east toward the Swan Vale turbine cluster are screened by scattered tree cover and undulating landform to the south of the residence. **Sapphire turbine cluster:** Views south toward the Sapphire turbine cluster are partially screened by tree cover to the east of the residence.	2.4km	Very Low	Varies – potential long term	High	High	Low
R88	Resident	**Wellingrove turbine cluster:** Distant views east to south east toward the Wellingrove turbine cluster are partially screened by landform to the	4km	Very Low	Varies – potential long term	High	Medium	Low

Table 17 - Residential View Location Matrix (Sapphire Wind Farm turbines)

View Location	Category of Potential View Location	View context from residence toward Sapphire '80m' and '110m' wind turbine layouts (Wellingrove, Swan Vale and Sapphire turbine clusters)	Approximate distance to closest turbine	Relative number of people	Period of view	View Location sensitivity	Visibility rating from residence (for '80m' design layout ZVI at hub height)	Overall Visual Impact for '80m' and 110m' layouts
		east of the residence. **Swan Vale turbine cluster:** Views south east toward the Swan Vale turbine cluster are screened by undulating landform to the south of the residence. **Sapphire turbine cluster:** Views south toward the Sapphire turbine cluster are screened by undulating landform to the south of the residence.						
R89	Resident	**Wellingrove turbine cluster:** Distant views east toward the Wellingrove turbine cluster are screened by topography and timbered areas. **Swan Vale turbine cluster:** Views south east toward the Swan Vale turbine cluster are screened by topography and timbered areas. **Sapphire turbine cluster:** Views east toward Sapphire turbines are partially screened by timbered areas	2.6km	Very Low	Varies – potential long term	High	Low	Low

Table 17 - Residential View Location Matrix (Sapphire Wind Farm turbines)

View Location	Category of Potential View Location	View context from residence toward Sapphire '80m' and '110m' wind turbine layouts (Wellingrove, Swan Vale and Sapphire turbine clusters)	Approximate distance to closest turbine	Relative number of people	Period of view	View Location sensitivity	Visibility rating from residence (for '80m' design layout ZVI at hub height)	Overall Visual Impact for '80m' and 110m' layouts
		with views extending toward a small number of turbines within the north west portion of the Sapphire turbine cluster.						
R90	Resident	**Wellingrove turbine cluster:** Distant views east toward the Wellingrove turbine cluster are screened by topography and timbered areas. **Swan Vale turbine cluster:** Views south east toward the Swan Vale turbine cluster are screened by topography and timbered areas. **Sapphire turbine cluster:** Views east toward the Sapphire turbine cluster are partially screened by timbered areas with views extending toward a small number of turbines within the north west portion of the Sapphire turbine cluster.	2.7km	Very Low	Varies – potential long term	High	Medium	Low
R91	Mine	N/A	N/A	N/A	N/A	N/A	N/A	N/A
R92	Resident	**Wellingrove turbine cluster:** Distant views toward the Wellingrove turbine cluster are screened by	3.7km	Very Low	Varies – potential long term	High	Medium	Low

Table 17 - Residential View Location Matrix (Sapphire Wind Farm turbines)

View Location	Category of Potential View Location	View context from residence toward Sapphire '80m' and '110m' wind turbine layouts (Wellingrove, Swan Vale and Sapphire turbine clusters)	Approximate distance to closest turbine	Relative number of people	Period of view	View Location sensitivity	Visibility rating from residence (for '80m' design layout ZVI at hub height)	Overall Visual Impact for '80m' and 110m' layouts
		topography and timbered areas. **Swan Vale turbine cluster:** Views south east toward the Swan Vale turbine cluster are screened by topography and timbered areas. **Sapphire turbine cluster:** Views south east toward the Sapphire turbine cluster are largely screened by timbered areas with views extending toward a small number of turbines within the west portion of the Sapphire turbine cluster.						
R93	Resident	**Wellingrove turbine cluster:** Views east toward the Wellingrove turbine cluster are screened by topography and timbered areas. **Swan Vale turbine cluster:** Views south east toward the Swan Vale turbine cluster are screened by topography and timbered areas. **Sapphire turbine cluster:** Views east to north east toward the Sapphire turbine cluster are largely	4.5km	Very Low	Varies – potential long term	High	Medium	Low

Table 17 - Residential View Location Matrix (Sapphire Wind Farm turbines)

View Location	Category of Potential View Location	View context from residence toward Sapphire '80m' and '110m' wind turbine layouts (Wellingrove, Swan Vale and Sapphire turbine clusters)	Approximate distance to closest turbine	Relative number of people	Period of view	View Location sensitivity	Visibility rating from residence (for '80m' design layout ZVI at hub height)	Overall Visual Impact for '80m' and 110m' layouts
		screened by timbered areas with views extending toward a small number of turbines within the west portion of the Sapphire turbine cluster.						
R94	Resident	**Wellingrove turbine cluster:** Distant views east toward the Wellingrove turbine cluster are screened by topography and timbered areas. **Swan Vale turbine cluster:** Views east to south east toward the Swan Vale turbine cluster are screened by topography and timbered areas. **Sapphire turbine cluster:** Views east toward Sapphire turbines are largely screened by timbered areas with views extending toward a small number of turbines within the west portion of the Sapphire turbine cluster.	3.6km	Very Low	Varies – potential long term	High	Medium	Low
R95	Resident	**Wellingrove turbine cluster:** Distant views east toward the Wellingrove turbine cluster are screened by topography and timbered	3.2km	Very Low	Varies – potential long term	High	Medium	Low

Table 17 - Residential View Location Matrix (Sapphire Wind Farm turbines)

View Location	Category of Potential View Location	View context from residence toward Sapphire '80m' and '110m' wind turbine layouts (Wellingrove, Swan Vale and Sapphire turbine clusters)	Approximate distance to closest turbine	Relative number of people	Period of view	View Location sensitivity	Visibility rating from residence (for '80m' design layout ZVI at hub height)	Overall Visual Impact for '80m' and 110m' layouts
		areas. **Swan Vale turbine cluster:** Views south east toward the Swan Vale turbine cluster are screened by topography and timbered areas. **Sapphire turbine cluster:** Views east toward Sapphire turbines are largely screened by timbered areas with views extending toward a small number of turbines within the west portion of the Sapphire turbine cluster.						
R96	Resident	**Wellingrove turbine cluster:** Distant views toward the Wellingrove turbine cluster are largely screened by topography and timbered areas. **Swan Vale turbine cluster:** Views south east toward the Swan Vale turbine cluster are partially screened by topography and timbered areas. **Sapphire turbine cluster:** Views toward Sapphire turbines are partially screened by timbered areas with views extending toward a medium	5km	Very Low	Varies – potential long term	High	Medium	Low

Table 17 - Residential View Location Matrix (Sapphire Wind Farm turbines)

View Location	Category of Potential View Location	View context from residence toward Sapphire '80m' and '110m' wind turbine layouts (Wellingrove, Swan Vale and Sapphire turbine clusters)	Approximate distance to closest turbine	Relative number of people	Period of view	View Location sensitivity	Visibility rating from residence (for '80m' design layout ZVI at hub height)	Overall Visual Impact for '80m' and 110m' layouts
		number of turbines within the west portion of the Sapphire turbine cluster.						
R97	Resident	**Wellingrove turbine cluster:** Distant views east toward the Wellingrove turbine cluster are screened by tree cover to the east of the residence. **Swan Vale turbine cluster:** Views south east toward the Swan Vale turbine cluster are screened by tree cover to the east of the residence. **Sapphire turbine cluster:** Views east toward the Sapphire turbine cluster are screened by tree cover to the east and south east of the residence.	5.7km	Very Low	Varies – potential long term	High	High	Low
R98	Resident	**Wellingrove turbine cluster:** Distant views east toward the Wellingrove turbine cluster are largely screened by topography and timbered areas.	7.6km	Very Low	Varies – potential long term	High	High	Low

Table 17 - Residential View Location Matrix (Sapphire Wind Farm turbines)

View Location	Category of Potential View Location	View context from residence toward Sapphire '80m' and '110m' wind turbine layouts (Wellingrove, Swan Vale and Sapphire turbine clusters)	Approximate distance to closest turbine	Relative number of people	Period of view	View Location sensitivity	Visibility rating from residence (for '80m' design layout ZVI at hub height)	Overall Visual Impact for '80m' and 110m' layouts
		Swan Vale turbine cluster: Distant views (>13km) toward the Swan Vale turbine cluster are largely screened by scattered tree cover to the east of the residence. **Sapphire turbine cluster:** Partial views east extend toward turbines within the Sapphire turbine cluster.						
R99	Resident	**Wellingrove turbine cluster:** Distant views east toward the Wellingrove turbine cluster are screened by topography and timbered areas. **Swan Vale turbine cluster:** Views south east toward the Swan Vale turbine cluster are screened by topography and timbered areas. **Sapphire turbine cluster:** Views toward the Sapphire turbine cluster are screened by topography and timbered areas..	8.7km	Very Low	Varies – potential long term	High	High	Nil

Table 17 - Residential View Location Matrix (Sapphire Wind Farm turbines)

View Location	Category of Potential View Location	View context from residence toward Sapphire '80m' and '110m' wind turbine layouts (Wellingrove, Swan Vale and Sapphire turbine clusters)	Approximate distance to closest turbine	Relative number of people	Period of view	View Location sensitivity	Visibility rating from residence (for '80m' design layout ZVI at hub height)	Overall Visual Impact for '80m' and 110m' layouts
R100	Resident	**Wellingrove turbine cluster:** Views toward the Wellingrove turbine cluster are screened by topography and timbered areas. **Swan Vale turbine cluster:** Views toward the Swan Vale turbine cluster are screened by topography and timbered areas. **Sapphire turbine cluster:** Views toward the Sapphire turbine cluster are screened by topography and timbered areas.	9.7km	Very Low	Varies – potential long term	High	High	Nil
R101	Resident	**Wellingrove turbine cluster:** Views toward the Wellingrove turbine cluster are screened by topography and timbered areas. **Swan Vale turbine cluster:** Views toward the Swan Vale turbine cluster are screened by topography and timbered areas. **Sapphire turbine cluster:** Views toward the Sapphire turbine	9.9km	Very Low	Varies – potential long term	High	Nil	Nil

Table 17 - Residential View Location Matrix (Sapphire Wind Farm turbines)

View Location	Category of Potential View Location	View context from residence toward Sapphire '80m' and '110m' wind turbine layouts (Wellingrove, Swan Vale and Sapphire turbine clusters)	Approximate distance to closest turbine	Relative number of people	Period of view	View Location sensitivity	Visibility rating from residence (for '80m' design layout ZVI at hub height)	Overall Visual Impact for '80m' and 110m' layouts
		cluster are screened by topography and timbered areas.						
R102	Resident	**Wellingrove turbine cluster:** Views toward the Wellingrove turbine cluster are screened by topography and timbered areas. **Swan Vale turbine cluster:** Long distant (>13km) and partial views toward turbines within the Swan Vale turbine cluster. **Sapphire turbine cluster:** Distant (>10km) and partial views toward turbines within the Sapphire turbine cluster.	10.4km	Very Low	Varies – potential long term	High	Medium	Low
R103	Resident	**Wellingrove turbine cluster:** Views toward the Wellingrove turbine cluster are screened by topography and timbered areas. **Swan Vale turbine cluster:** Distant and partial views toward turbines within the Swan Vale turbine cluster.	8.6km	Very Low	Varies – potential long term	High	Medium	Low

Table 17 - Residential View Location Matrix (Sapphire Wind Farm turbines)

View Location	Category of Potential View Location	View context from residence toward Sapphire '80m' and '110m' wind turbine layouts (Wellingrove, Swan Vale and Sapphire turbine clusters)	Approximate distance to closest turbine	Relative number of people	Period of view	View Location sensitivity	Visibility rating from residence (for '80m' design layout ZVI at hub height)	Overall Visual Impact for '80m' and 110m' layouts
		Sapphire turbine cluster: Distant and partial views toward turbines within the Sapphire turbine cluster.						
R104	Resident	**Wellingrove turbine cluster:** Views north east toward the Wellingrove turbine cluster are screened by a combination of distance (>18km), intervening undulating landform and tree cover. **Swan Vale turbine cluster:** Views extend north east toward a small number of turbines within the west portion of the Swan Vale turbine cluster. **Sapphire turbine cluster:** Views extend toward a small number of turbines within the west portion of the Sapphire turbine cluster.	10.5km	Very Low	Varies – potential long term	High	Medium	Low
R105	Residents, Employees or Visitors (facilities include: medical	**Wellingrove turbine cluster:** Views north east toward the Wellingrove turbine cluster are screened by a combination of distance (>18km), intervening undulating landform and	8.4km	Medium	Varies – potential long term	High	Medium	Low to Moderate

Table 17 - Residential View Location Matrix (Sapphire Wind Farm turbines)

View Location	Category of Potential View Location	View context from residence toward Sapphire '80m' and '110m' wind turbine layouts (Wellingrove, Swan Vale and Sapphire turbine clusters)	Approximate distance to closest turbine	Relative number of people	Period of view	View Location sensitivity	Visibility rating from residence (for '80m' design layout ZVI at hub height)	Overall Visual Impact for '80m' and 110m' layouts
	centre, school, accommodation , workshops and meeting hall).	tree cover. **Swan Vale turbine cluster:** Views extend north east toward a small number of turbines within the west portion of the Swan Vale turbine cluster. **Sapphire turbine cluster:** Views extend north toward a small number of turbines within the west portion of the Sapphire turbine cluster. The overall extent and visibility of each turbine cluster from within the property would be influenced by the position of an individual's view location relative to commercial, facilities and built structures within the property.						
R106	Resident	**Wellingrove turbine cluster:** Views toward the Wellingrove turbine cluster are screened by a combination of distance, intervening undulating landform and tree cover. **Swan Vale turbine cluster:** Views extend toward a small number of turbines within the west portion of the	8km	Very Low	Varies – potential long term	High	High	Low

Table 17 - Residential View Location Matrix (Sapphire Wind Farm turbines)

View Location	Category of Potential View Location	View context from residence toward Sapphire '80m' and '110m' wind turbine layouts (Wellingrove, Swan Vale and Sapphire turbine clusters)	Approximate distance to closest turbine	Relative number of people	Period of view	View Location sensitivity	Visibility rating from residence (for '80m' design layout ZVI at hub height)	Overall Visual Impact for '80m' and 110m' layouts
		Swan Vale turbine cluster. **Sapphire turbine cluster:** Views extend toward a small number of turbines within the west portion of the Sapphire turbine cluster.						
R107	Resident	**Wellingrove turbine cluster:** Views toward the Wellingrove turbine cluster are screened by a combination of distance, intervening undulating landform and tree cover. **Swan Vale turbine cluster:** Views extend toward a small number of turbines within the west portion of the Swan Vale turbine cluster. **Sapphire turbine cluster:** Views toward the Sapphire turbine cluster and largely screened by a combination of landform and tree cover.	6km	Very Low	Varies – potential long term	High	Medium	Low
R108	Resident	**Wellingrove turbine cluster:** Views north east toward the Wellingrove turbine cluster are screened by topography and timbered areas.	8km	Very Low	Varies – potential long term	High	Nil	Nil

Table 17 - Residential View Location Matrix (Sapphire Wind Farm turbines)

View Location	Category of Potential View Location	View context from residence toward Sapphire '80m' and '110m' wind turbine layouts (Wellingrove, Swan Vale and Sapphire turbine clusters)	Approximate distance to closest turbine	Relative number of people	Period of view	View Location sensitivity	Visibility rating from residence (for '80m' design layout ZVI at hub height)	Overall Visual Impact for '80m' and 110m' layouts
		Swan Vale turbine cluster: Views north toward the Swan Vale turbine cluster are screened by topography and timbered areas. **Sapphire turbine cluster:** Views north west toward the Sapphire turbine cluster are screened by topography and timbered areas.						
R109	Resident	**Wellingrove turbine cluster:** Views north east toward the Wellingrove turbine cluster are screened by topography and timbered areas. **Swan Vale turbine cluster:** Views north toward the Swan Vale turbine cluster are screened by topography and timbered areas. **Sapphire turbine cluster:** Views north west toward the Sapphire turbine cluster are screened by topography and timbered areas.	8km	Very Low	Varies – potential long term	High	Nil	Nil
R110	Resident	**Wellingrove turbine cluster:** Views north east toward the Wellingrove	6.4km	Very Low	Varies – potential	High	Medium	Low

Table 17 - Residential View Location Matrix (Sapphire Wind Farm turbines)

View Location	Category of Potential View Location	View context from residence toward Sapphire '80m' and '110m' wind turbine layouts (Wellingrove, Swan Vale and Sapphire turbine clusters)	Approximate distance to closest turbine	Relative number of people	Period of view	View Location sensitivity	Visibility rating from residence (for '80m' design layout ZVI at hub height)	Overall Visual Impact for '80m' and 110m' layouts
		turbine cluster are screened by topography and timbered areas. **Swan Vale turbine cluster:** Views north toward the Swan Vale turbine cluster are screened by topography and timbered areas. **Sapphire turbine cluster:** Views north west toward the Sapphire turbine cluster are screened by topography and timbered areas.			long term			
R111	Resident	**Wellingrove turbine cluster:** Views north east toward the Wellingrove turbine cluster are screened by topography and timbered areas. **Swan Vale turbine cluster:** Views north toward the Swan Vale turbine cluster are screened by topography and timbered areas. **Sapphire turbine cluster:** Views north west toward the Sapphire turbine cluster are screened by topography and timbered areas.	8.8km	Very Low	Varies – potential long term	High	Low	Low

Table 17 - Residential View Location Matrix (Sapphire Wind Farm turbines)

View Location	Category of Potential View Location	View context from residence toward Sapphire '80m' and '110m' wind turbine layouts (Wellingrove, Swan Vale and Sapphire turbine clusters)	Approximate distance to closest turbine	Relative number of people	Period of view	View Location sensitivity	Visibility rating from residence (for '80m' design layout ZVI at hub height)	Overall Visual Impact for '80m' and 110m' layouts
R112	Resident	**Wellingrove turbine cluster:** Views north toward the Wellingrove turbine cluster are screened by topography and timbered areas. **Swan Vale turbine cluster:** Distant views north toward portions of the Swan Vale turbine cluster. **Sapphire turbine cluster:** Views toward the Sapphire turbine cluster are screened by topography and/or timbered areas.	8.2km	Very Low	Varies – potential long term	High	Low	Low
R113	Resident	**Wellingrove turbine cluster:** Views north toward the Wellingrove turbine cluster are screened by topography and timbered areas. **Swan Vale turbine cluster:** Views north to north west toward portions of the Swan Vale turbine cluster. **Sapphire turbine cluster:** Views north west toward the Sapphire turbine cluster are screened by	8.5km	Very Low	Varies – potential long term	High	Low	Low

Table 17 - Residential View Location Matrix (Sapphire Wind Farm turbines)

View Location	Category of Potential View Location	View context from residence toward Sapphire '80m' and '110m' wind turbine layouts (Wellingrove, Swan Vale and Sapphire turbine clusters)	Approximate distance to closest turbine	Relative number of people	Period of view	View Location sensitivity	Visibility rating from residence (for '80m' design layout ZVI at hub height)	Overall Visual Impact for '80m' and 110m' layouts
		topography and timbered areas.						
R114	Resident	**Wellingrove turbine cluster:** Views north toward the Wellingrove turbine cluster are screened by topography and timbered areas. **Swan Vale turbine cluster:** Views north to north west toward the Swan Vale turbine cluster are screened by topography and timbered areas. **Sapphire turbine cluster:** Views north west toward the Sapphire turbine cluster are screened by topography and timbered areas.	9.8km	Very Low	Varies – potential long term	High	Nil	Nil
R115	Resident	**Wellingrove turbine cluster:** Views north toward the Wellingrove turbine cluster are screened by topography and timbered areas. **Swan Vale turbine cluster:** Views north to north west toward the Swan Vale turbine cluster are screened by topography and timbered areas. **Sapphire turbine cluster:**	10km	Very Low	Varies – potential long term	High	Low	Nil

Table 17 - Residential View Location Matrix (Sapphire Wind Farm turbines)

View Location	Category of Potential View Location	View context from residence toward Sapphire '80m' and '110m' wind turbine layouts (Wellingrove, Swan Vale and Sapphire turbine clusters)	Approximate distance to closest turbine	Relative number of people	Period of view	View Location sensitivity	Visibility rating from residence (for '80m' design layout ZVI at hub height)	Overall Visual Impact for '80m' and 110m' layouts
		Views north west toward the Sapphire turbine cluster are screened by topography and timbered areas.						
R116	Resident	**Wellingrove turbine cluster:** Views north toward the Wellingrove turbine cluster are screened by topography and timbered areas. **Swan Vale turbine cluster:** Views north to north west toward the Swan Vale turbine cluster are screened by topography and timbered areas. **Sapphire turbine cluster:** Views north west toward the Sapphire turbine cluster are screened by topography and timbered areas.	10.5km	Very Low	Varies – potential long term	High	Low	Nil
R117	Resident	**Wellingrove turbine cluster:** Views north to north west toward the Wellingrove turbine cluster are screened by topography and timbered areas. **Swan Vale turbine cluster:** Views north west toward the Swan Vale turbine cluster are screened by	10km	Very Low	Varies – potential long term	High	Nil	Nil

Table 17 - Residential View Location Matrix (Sapphire Wind Farm turbines)

View Location	Category of Potential View Location	View context from residence toward Sapphire '80m' and '110m' wind turbine layouts (Wellingrove, Swan Vale and Sapphire turbine clusters)	Approximate distance to closest turbine	Relative number of people	Period of view	View Location sensitivity	Visibility rating from residence (for '80m' design layout ZVI at hub height)	Overall Visual Impact for '80m' and 110m' layouts
		topography and timbered areas. **Sapphire turbine cluster:** Views north west toward the Sapphire turbine cluster are screened by topography and timbered areas.						
R118	Resident	**Wellingrove turbine cluster:** Views north to north west toward the Wellingrove turbine cluster are screened by topography and timbered areas. **Swan Vale turbine cluster:** Views north west toward the Swan Vale turbine cluster are screened by topography and timbered areas. **Sapphire turbine cluster:** Views north west toward the Sapphire turbine cluster are screened by topography and timbered areas.	10km	Very Low	Varies – potential long term	High	Low	Nil
R119	Resident	**Wellingrove turbine cluster:** Views north to north west toward the Wellingrove turbine cluster are screened by topography and timbered	10km	Very Low	Varies – potential long term	High	Low	Low

Table 17 - Residential View Location Matrix (Sapphire Wind Farm turbines)

View Location	Category of Potential View Location	View context from residence toward Sapphire '80m' and '110m' wind turbine layouts (Wellingrove, Swan Vale and Sapphire turbine clusters)	Approximate distance to closest turbine	Relative number of people	Period of view	View Location sensitivity	Visibility rating from residence (for '80m' design layout ZVI at hub height)	Overall Visual Impact for '80m' and 110m' layouts
		areas. **Swan Vale turbine cluster:** Distant view north west toward a small portion of the Swan Vale turbine cluster. **Sapphire turbine cluster** Views north west toward the Sapphire turbine cluster are screened by topography and timbered areas.						
R120	Resident	**Wellingrove turbine cluster:** Views north to north west toward the Wellingrove turbine cluster are screened by topography and timbered areas. **Swan Vale turbine cluster:** Distant view north west toward a small portion of the Swan Vale turbine cluster. **Sapphire turbine cluster:** Views north west toward the Sapphire turbine cluster are screened by topography and timbered areas.	9.5km	Very Low	Varies – potential long term	High	Low	Low
R121	Resident	**Wellingrove turbine cluster:** Views north to north west toward the	9.8km	Very Low	Varies – potential	High	Low	Low

Table 17 - Residential View Location Matrix (Sapphire Wind Farm turbines)

View Location	Category of Potential View Location	View context from residence toward Sapphire '80m' and '110m' wind turbine layouts (Wellingrove, Swan Vale and Sapphire turbine clusters)	Approximate distance to closest turbine	Relative number of people	Period of view	View Location sensitivity	Visibility rating from residence (for '80m' design layout ZVI at hub height)	Overall Visual Impact for '80m' and 110m' layouts
		Wellingrove turbine cluster are screened by topography and timbered areas. **Swan Vale turbine cluster:** Distant view north west toward a small portion of the Swan Vale turbine cluster. **Sapphire turbine cluster:** Views north west toward the Sapphire turbine cluster are screened by topography and timbered areas.			long term			
R122	Resident	**Wellingrove turbine cluster:** Views north to north west toward the Wellingrove turbine cluster are screened by topography and timbered areas. **Swan Vale turbine cluster:** Distant view north west toward a small portion of the Swan Vale turbine cluster. **Sapphire turbine cluster:** Views north west toward the Sapphire turbine cluster are screened by topography and timbered areas.	9km	Very Low	Varies – potential long term	High	Low	Low

Table 17 - Residential View Location Matrix (Sapphire Wind Farm turbines)

View Location	Category of Potential View Location	View context from residence toward Sapphire '80m' and '110m' wind turbine layouts (Wellingrove, Swan Vale and Sapphire turbine clusters)	Approximate distance to closest turbine	Relative number of people	Period of view	View Location sensitivity	Visibility rating from residence (for '80m' design layout ZVI at hub height)	Overall Visual Impact for '80m' and 110m' layouts
R123	Resident	**Wellingrove turbine cluster:** Views north to north west toward the Wellingrove turbine cluster are screened by topography and timbered areas. **Swan Vale turbine cluster:** Distant view north west toward a small number of Swan Vale turbines. **Sapphire turbine cluster:** Views north west toward the Sapphire turbine cluster are screened by topography and timbered areas.	9.8km	Very Low	Varies – potential long term	High	Low	Low
R124	Resident (Associated)	**Wellingrove turbine cluster:** Views west to north west to north are largely screened by topography and timbered areas as well as wind break planting to the north of the residence. **Swan Vale turbine cluster:** View north west toward a small number of Swan Vale turbines within the eastern portion of the turbine cluster. **Sapphire turbine cluster:**	7.5km	Very Low	Varies – potential long term	High	Low	Low

Table 17 - Residential View Location Matrix (Sapphire Wind Farm turbines)

View Location	Category of Potential View Location	View context from residence toward Sapphire '80m' and '110m' wind turbine layouts (Wellingrove, Swan Vale and Sapphire turbine clusters)	Approximate distance to closest turbine	Relative number of people	Period of view	View Location sensitivity	Visibility rating from residence (for '80m' design layout ZVI at hub height)	Overall Visual Impact for '80m' and 110m' layouts
		Views north west toward the Sapphire turbine cluster are screened by topography and timbered areas.						
R125	Resident	**Wellingrove turbine cluster:** Views west to north west toward the Wellingrove turbine cluster are largely screened by topography and timbered areas as well as planting surrounding the residence. **Swan Vale turbine cluster:** View north west toward a small number of Swan Vale turbines within the eastern portion of the turbine cluster. **Sapphire turbine cluster:** Views north west toward the Sapphire turbine cluster are screened by topography and timbered areas.	6.9km	Very Low	Varies – potential long term	High	Low	Low
R126	Resident	**Wellingrove turbine cluster:** Views north west toward the Wellingrove turbine cluster are largely screened by topography and timbered areas as well as planting surrounding the residence.	6.9km	Very Low	Varies – potential long term	High	Low	Low

Table 17 - Residential View Location Matrix (Sapphire Wind Farm turbines)

View Location	Category of Potential View Location	View context from residence toward Sapphire '80m' and '110m' wind turbine layouts (Wellingrove, Swan Vale and Sapphire turbine clusters)	Approximate distance to closest turbine	Relative number of people	Period of view	View Location sensitivity	Visibility rating from residence (for '80m' design layout ZVI at hub height)	Overall Visual Impact for '80m' and 110m' layouts
		Swan Vale turbine cluster: Views extend north west toward a small number of Swan Vale turbines within the eastern portion of the turbine cluster. **Sapphire turbine cluster:** Views north west toward the Sapphire turbine cluster are screened by topography and timbered areas.						
R127	Church (non resident)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
R128	Resident	**Wellingrove turbine cluster:** Indirect views extend toward turbines within the Wellingrove turbine cluster with partial screening provided by scattered tree planting. **Swan Vale turbine cluster:** Views west toward the Swan Vale turbine cluster will be largely screened by tree cover to the west and south west of the residence. **Sapphire turbine cluster:**	7km	Very Low	Varies – potential long term	High	Medium	Low to Moderate

Table 17 - Residential View Location Matrix (Sapphire Wind Farm turbines)

View Location	Category of Potential View Location	View context from residence toward Sapphire '80m' and '110m' wind turbine layouts (Wellingrove, Swan Vale and Sapphire turbine clusters)	Approximate distance to closest turbine	Relative number of people	Period of view	View Location sensitivity	Visibility rating from residence (for '80m' design layout ZVI at hub height)	Overall Visual Impact for '80m' and 110m' layouts
		Views north west toward the Sapphire turbine cluster are screened by topography and timbered areas.						
R129	Resident	**Wellingrove turbine cluster:** Views west toward the Wellingrove turbine cluster are screened by topography and timbered areas. **Swan Vale turbine cluster:** Views west toward the Swan Vale turbine cluster are screened by topography and timbered areas. **Sapphire turbine cluster:** Views west toward the Sapphire turbine cluster are screened by topography and timbered areas.	9.7km	Very Low	Varies – potential long term	High	Low	Nil
R130	Resident	**Wellingrove turbine cluster:** Views west toward the Wellingrove turbine cluster are screened by topography and timbered areas. **Swan Vale turbine cluster:** Views west toward the Swan Vale turbine cluster are screened by	8.5km	Very Low	Varies – potential long term	High	Nil	Nil

Table 17 - Residential View Location Matrix (Sapphire Wind Farm turbines)

View Location	Category of Potential View Location	View context from residence toward Sapphire '80m' and '110m' wind turbine layouts (Wellingrove, Swan Vale and Sapphire turbine clusters)	Approximate distance to closest turbine	Relative number of people	Period of view	View Location sensitivity	Visibility rating from residence (for '80m' design layout ZVI at hub height)	Overall Visual Impact for '80m' and 110m' layouts
		topography and timbered areas. **Sapphire turbine cluster:** Views west toward the Sapphire turbine cluster are screened by topography and timbered areas.						
R131	Resident	**Wellingrove turbine cluster:** Views west toward the Wellingrove turbine cluster are screened by topography and timbered areas. **Swan Vale turbine cluster:** Views south west toward the Swan Vale turbine cluster are screened by topography and timbered areas. **Sapphire turbine cluster:** Views west toward the Sapphire turbine cluster are screened by topography and timbered areas.	8.5km	Very Low	Varies – potential long term	High	Nil	Nil
R132	Resident	**Wellingrove turbine cluster:** Views west toward the Wellingrove turbine cluster are screened by topography and timbered areas. **Swan Vale turbine cluster:**	5.6km	Very Low	Varies – potential long term	High	Low	Nil

Table 17 - Residential View Location Matrix (Sapphire Wind Farm turbines)

View Location	Category of Potential View Location	View context from residence toward Sapphire '80m' and '110m' wind turbine layouts (Wellingrove, Swan Vale and Sapphire turbine clusters)	Approximate distance to closest turbine	Relative number of people	Period of view	View Location sensitivity	Visibility rating from residence (for '80m' design layout ZVI at hub height)	Overall Visual Impact for '80m' and 110m' layouts
		Views south west toward the Swan Vale turbine cluster are screened by topography and timbered areas. **Sapphire turbine cluster:** Views west toward the Sapphire turbine cluster are screened by topography and timbered areas.						
R133	Resident	**Wellingrove turbine cluster:** Views west toward the Wellingrove turbine cluster are screened by topography and timbered areas. **Swan Vale turbine cluster:** Views south west toward the Swan Vale turbine cluster are screened by topography and timbered areas. **Sapphire turbine cluster:** Views west toward the Sapphire turbine cluster are screened by topography and timbered areas.	6.3km	Very Low	Varies – potential long term	High	Nil	Nil
R134	Resident	**Wellingrove turbine cluster:** Views west toward the Wellingrove turbine cluster are screened by	7.3km	Very Low	Varies – potential long term	High	Nil	Nil