## 9.7 Visual Cumulative Impact Summary

There would be a limited and small number of residential view locations within the White Rock 10km viewshed with direct views toward the White Rock and Sapphire turbines largely due to tree cover and undulating landform within the surrounding landscape.

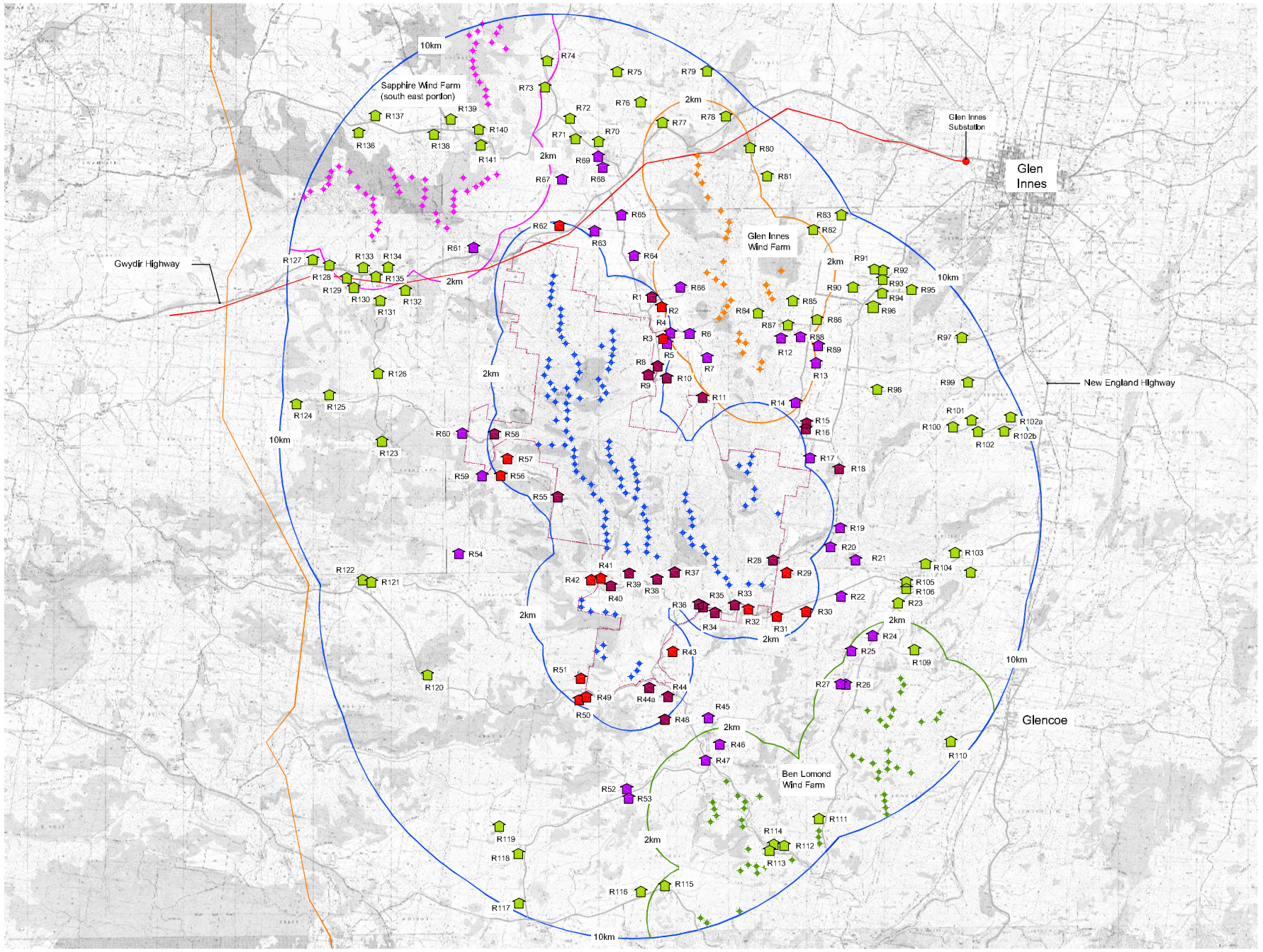
A sequential view would occur for motorists travelling along the Gwydir Highway although the journey between the wind farms would include a range of views extending toward and beyond turbines. The extent and overall visibility of turbines would be influenced by the direction of travel relative to the alignment of wind turbines as well as the relatively short travel time along the highway and local road network alongside and between the wind farm turbines.

Intervisibility between the Glen Innes wind farm and White Rock turbines would occur from residential dwellings north and north east of the White Rock Wind Farm and south to south east of the Glen Innes Wind Farm. Direct views between the two wind farms would be limited for the majority of residential dwellings due to their position and orientation relative to the proposed turbines.

Indirect views would occur within these same areas; however, the number of visible turbines would be relatively low and hence in addition to the individual impact assessment, the cumulative impact assessment would be low for the majority of these residential dwellings. Motorists travelling along the Gwydir Highway would experience a low direct cumulative impact as turbine visibility is limited by local landform, tree cover and the direction of travel relative to turbine locations. Certain local roads would experience sequential views for relatively short durations within the White Rock 10km viewshed.

Intervisibility between the Ben Lomond and White Rock wind farms would tend to result in nil or low direct and indirect cumulative visual impacts for the large majority of residents within the White Rock wind farm 10km viewshed due to natural undulating landforms, timbered areas and the separation distance between wind farm turbines. Motorists travelling along local roads would experience sequential views for relatively short durations within the White Rock 10km viewshed.

This LVIA determined that the White Rock wind farm is unlikely to result in any significant ‘direct’, ‘indirect’ or sequential cumulative visual impact.




## Legend

- White Rock wind turbine
- Sapphire wind turbine
- Glen Innes wind turbine
- Ben Lomond wind turbine
- White Rock wind farm site boundary
- Existing 132kV transmission line
- Existing 330kV transmission line
- Road
- Distance offset to wind turbines as noted
- Associated residential dwelling
- Residential dwelling within 2km of White Rock wind turbine
- Residential dwelling between 2 and 5km of White Rock wind turbine
- Residential dwelling between 5 and 10km of White Rock wind turbine

N

0km 1km 2km 3km 4km

Figure 23
Cumulative Impact



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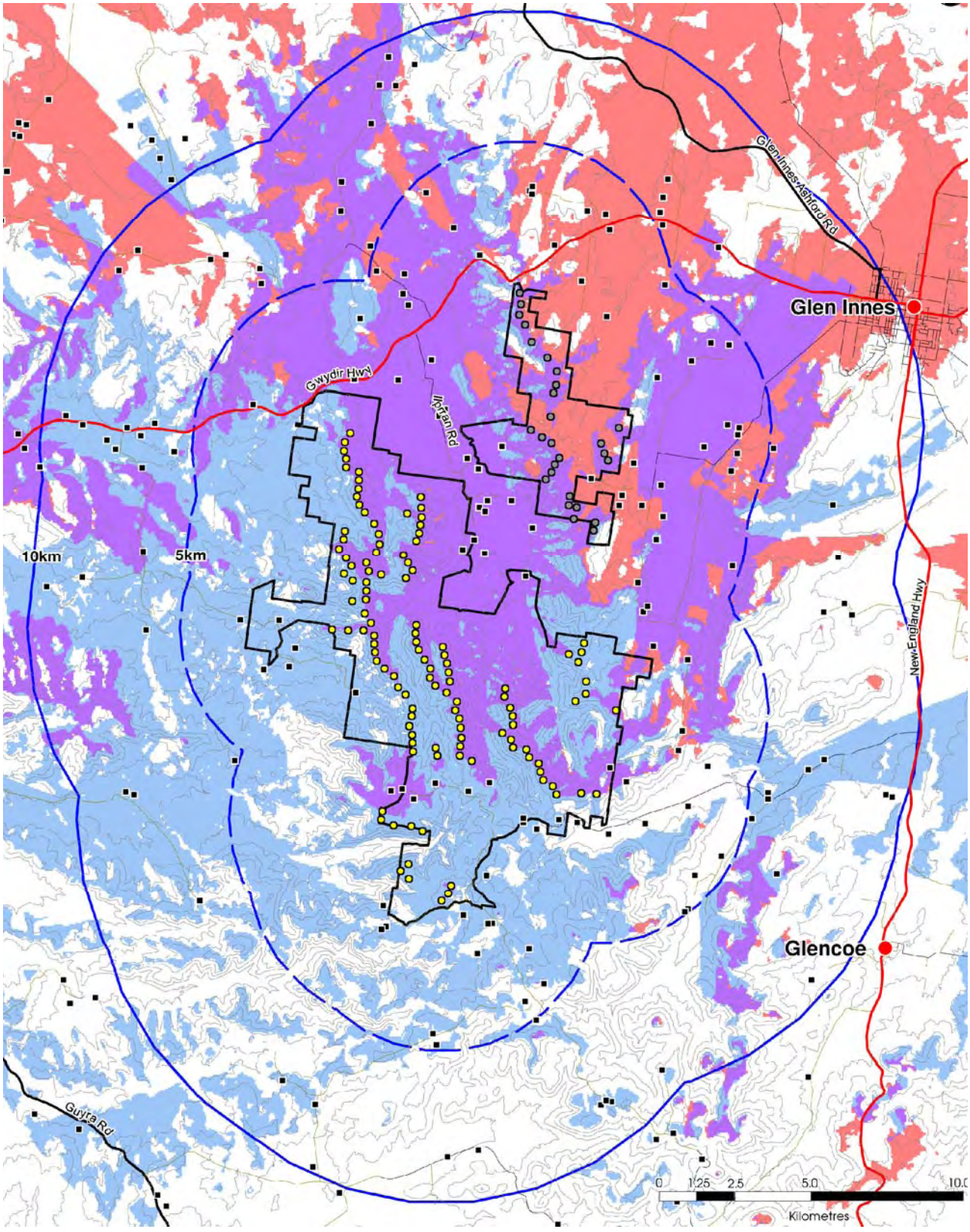
Figure 24 ZVI Diagram 4
White Rock and Glen Innes wind farms cumulative ZVI




Legend

- White Rock Proposed Turbine
- Glen Innes Approved Turbine
- Project Perimeters
- Combined Turbine Buffers
- 50m Contours
- House

Full turbines visible

- White Rock Turbines
- Glen Innes Turbines
- Cumulative Turbines

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# WHITE ROCK WIND FARM

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# Photomontages

SECTION 10

## 10.1 Photomontages

Photomontages have been prepared by the Proponent to illustrate the general appearance of the White Rock wind farm following construction. Eleven locations were selected to illustrate the White Rock wind farm from view locations in surrounding areas.

The photomontage locations were selected following a review of preliminary ZVI maps, together with a site inspection to identify potential representative viewpoints. The photomontage locations were selected from publically accessible sections of surrounding road corridors as well as areas of private property within the vicinity of residential dwellings. The locations were also selected to represent a range of distances between viewpoint locations and wind turbine (between 1.1km and 5.6km) to illustrate the potential influence of distance on visibility. Where possible photomontage locations were selected to provide representative views from single or multiple residential properties located within the vicinity of the photomontage location.

The photomontage locations are illustrated in **Figure 25** and photomontages presented in the following figures:

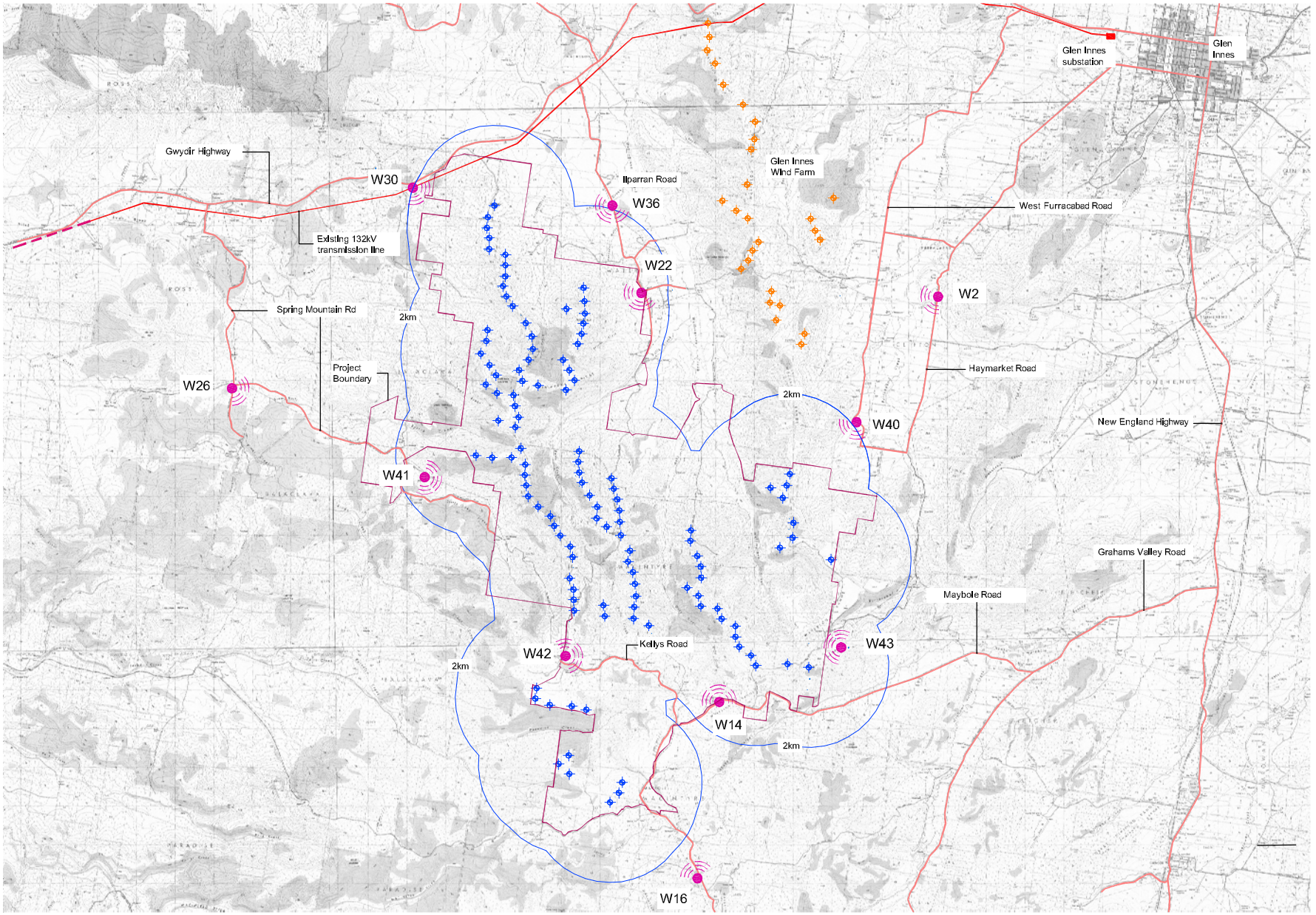
- **Figure 26** W2 – Haymarket Road;
- **Figure 27** W14 – Maybole Road;
- **Figure 28** W16 – Maybole Road;
- **Figure 29** W22 – Ilparran Road;
- **Figure 30** W26 – Spring Mountain Road;
- **Figure 31** W30 – Gwydir Highway;
- **Figure 32** W36 – Ilparran Road;
- **Figure 33** W40 – West Furracabad Road;
- **Figure 34** W41 – Private Property;
- **Figure 35** W42 – Private Property; and
- **Figure 36** W43 – Private Property.

Each photomontage was generated through the following steps:

- A digital terrain model (DTM) of the White Rock wind farm site was created from digital contours obtained from Aerial Photography;
- The site DTM was loaded in the 'WindFarmer' software package;
- The layout of the wind farm and 3 dimensional representation of the wind turbine was configured in 'WindFarmer';
- The location of each viewpoint (photo location) was configured in WindFarmer – the sun position for each viewpoint was configured by using the time and date of the photographs from that viewpoint;
- The view from each photomontage location was then assessed in WindFarmer. This process requires accurate mapping of the terrain as modelled, with that as seen in the photographs. The photographs, taken from each photomontage location were loaded into WindFarmer and the visible turbines superimposed on the photographs;
- The photomontage were adjusted using Photoshop CS3 to compensate for fogging due to haze or distance, as well as screening by vegetation or obstacles; and
- The final image was converted to JPG format and imported and annotated as the final figure.

The horizontal and vertical field of view within the majority of the photomontages exceeds the parameters of normal human vision. However, in reality the eyes, head and body can all move and under normal conditions a person would sample a broad area of landscape within a panorama view. Rather than restricting the extent of each photomontage to a single photographic image, a broader field of view is presented to more fully illustrate the extent of the wind turbines.

Whilst a photomontage can provide an image that illustrates a very accurate representation of a wind turbine in relation to its proposed location and scale relative to the surrounding landscape, this LVIA acknowledges that large scale objects in the landscape can appear smaller in photomontage than in real life and is partly due to the fact that a flat image does not allow the viewer to perceive any information relating to depth or distance.




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

## Legend

- Photomontages Location
- White Rock wind turbine
- Glen Innes wind turbine
- White Rock site boundary
- Existing 132kV transmission line
- Road
- Offset distance as noted

N

0km 1km 2km 3km 4km

Figure 25
Photomontages Location

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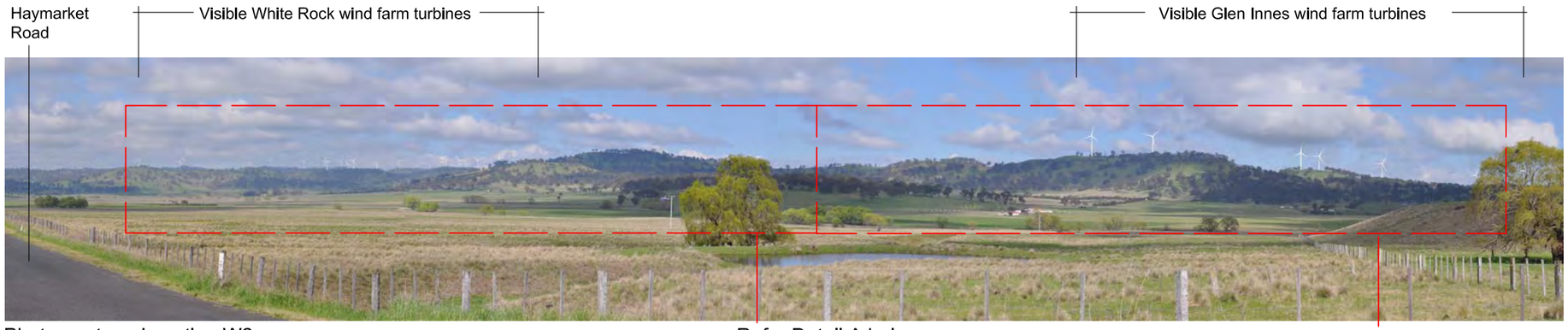


Photomontage Location W2
Haymarket Road, Extended panorama south west to west (Bearing 190° to 280°)

Photomontage Location W2 - Detail A

Photomontage Location W2 - Detail B

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POWER FOR PORTFOLIOS

# WHITE ROCK WIND FARM

Refer Figure 25 for Photomontage Location

Photo coordinates: Easting 370870  Northing 6703423 (MGA Zone56)

Distance to nearest visible turbine 3.5km

Figure 26 Photomontage
W2 Haymarket Road

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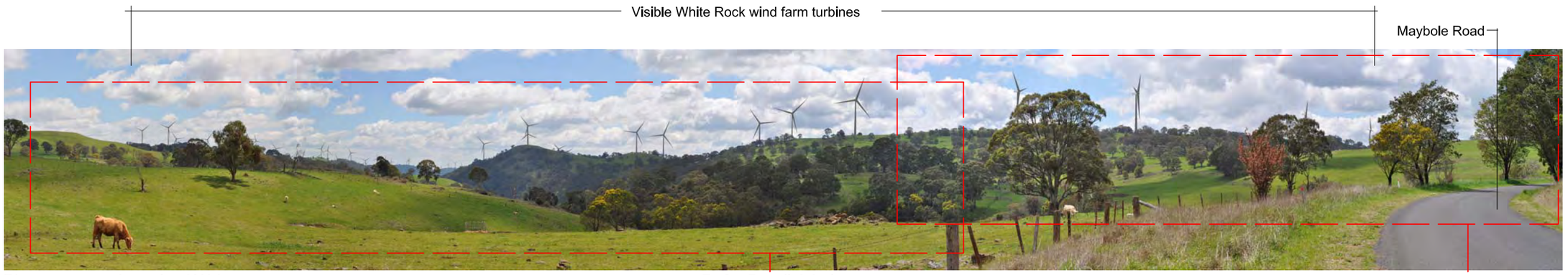


Photomontage Location W14
Maybole Road, Extended panorama north west to east (Bearing 290° to 90°)

Photomontage Location W14 - Detail A

Photomontage Location W14 - Detail B

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# WHITE ROCK WIND FARM

Refer Figure 25 for Photomontage Location

Photo coordinates: Easting 365256  Northing 6692934 (MGA Zone56)

Distance to nearest visible turbine 1.25km

Figure 27 Photomontage
W14 Maybole Road

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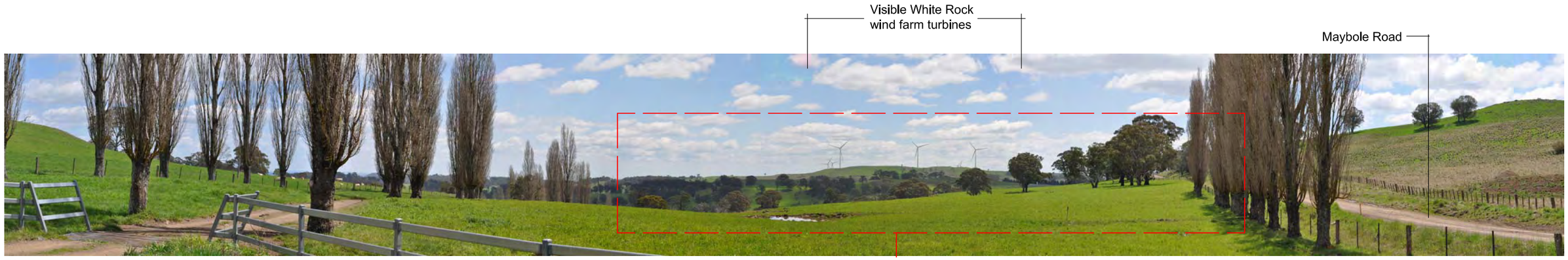


Photomontage Location W16
Maybole Road, Extended panorama west to north (Bearing 240° to 10°)

Refer Detail A below

Photomontage Location W16 - Detail A

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# WHITE ROCK WIND FARM

Refer Figure 25 for Photomontage Location

Photo coordinates: Easting 364630  Northing 6688475 (MGA Zone56)

Distance to nearest visible turbine 2.9km

Figure 28 Photomontage
W16 Maybole Road

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Photomontage Location W22
Ilparran Road, Extended panorama south east to west (Bearing 110° to 275°)

Refer Detail A below

Refer Detail B below

Photomontage Location W22 - Detail A

Photomontage Location W22 - Detail B

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POWER FOR PORTFOLIOS

# WHITE ROCK WIND FARM

Refer Figure 25 for Photomontage Location

Photo coordinates: Easting 363196 Northing 6703600 (MGA Zone56)

Distance to nearest visible turbine 1.49km

Figure 29 Photomontage
W22 Ilparran Road

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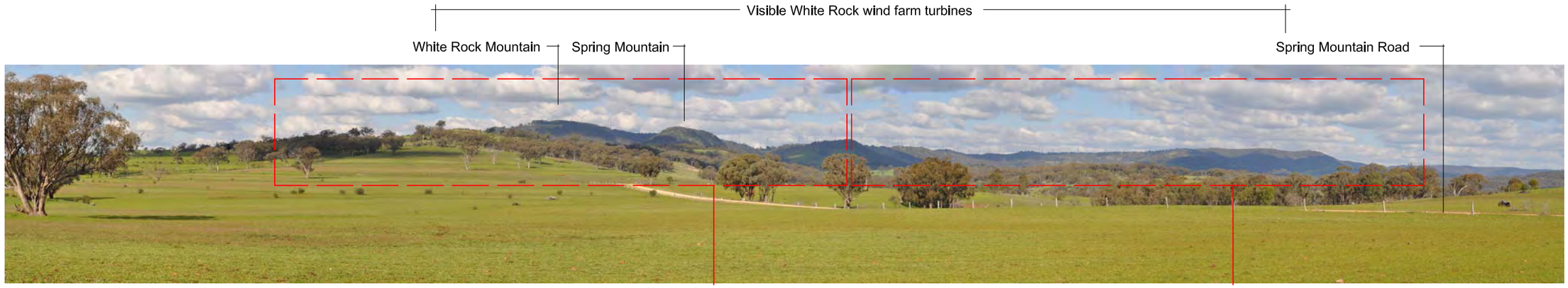
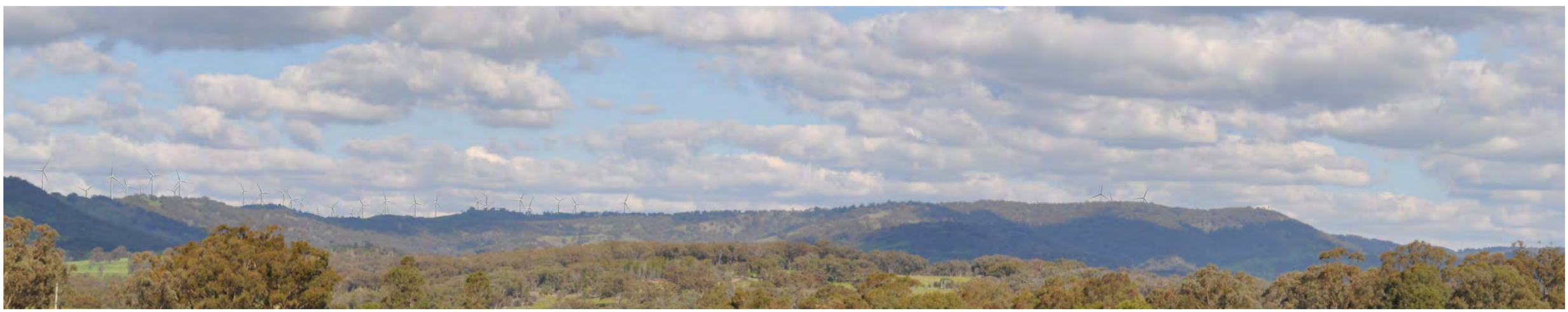



Photomontage Location W26
Spring Mountain Road, Extended panorama east to south east (Bearing 50° to 160°)

Photomontage Location W26 - Detail A



Photomontage Location W26 - Detail B

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POWER FOR PORTFOLIOS

# WHITE ROCK WIND FARM

Refer Figure 25 for Photomontage Location

Photo coordinates: Easting 352588  Northing 6701140 (MGA Zone56)

Distance to nearest visible turbine 6.48km

Figure 30 Photomontage
W26 Spring Mountain Road

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