Appendix 1: Photomontages

Photomontages prepared by DNV and Green Bean Design.

Information compiled by Wind Projects Australia.

Reference	Viewpoint	Description
A.	NA	Description and Methodology
B.	NA	Map of Viewpoints
C.	1	No WTGs.
D.	1	Concrete Towers; 170 m Rotor Diameter; 165 m hub height.
E.	3	No WTGs.
F.	3	Concrete Towers; 170 m Rotor Diameter; 165 m hub height.
G.	6	No WTGs.
H.	6	Concrete Towers; 170 m Rotor Diameter; 165 m hub height.
I.	7	No WTGs.
J.	7	Concrete Towers; 170 m Rotor Diameter; 165 m hub height.

A. Description and Methodology

Viewpoint Selection

The Proponent engaged Green Bean Design (GBD) to prepare photographs from the photomontage locations. The work was completed by Andrew Homewood (Principal Landscape Architect Green Bean Design Pty Ltd, Graduate Diploma Landscape Management, BSc (Dual Hons) Landscape Design and Archaeology, National Diploma Horticulture, Registered Landscape Architect, AILA, MEIANZ).

The Proponent engaged DNV GL (now DNV) to prepare photomontages based on the data provided by GBD. David Price (Bachelor of Engineering with Honours, Member Engineers Australia), who has 20-years of experience with DNV, including in the preparation of photomontages, prepared two sets of photomontages.

The general location of photomontage locations were selected by the proponent after consultation with West Wimmera Shire Council and GBD.

GBD included photographs from a range of locations towards the wind farm site; eight viewpoints are presented in the body of the planning report, satisfying the criteria of preparing photographs toward the site. The locations of the viewpoints are designed to represent public viewing locations at a range of distances rather than to capture the view from a specific dwelling. Thus, photographs are taken from the road-side as well as trying to capture areas central to where dwellings are clustered.

The photographs that have been rendered into photomontages are representative of these viewpoints:

- Viewpoint 1 is representative of a small cluster of dwellings and the Wombelano Recreation Reserve, nominally 5 km from the eastern row of wind turbines on the site.
- Viewpoint 3 is representative of viewpoints 3, 4 and 5 – approximately 2 – 3 km from the north-west corner wind turbine. There are around ten dwellings scattered around this viewpoint.

- Viewpoint 6 is representative of viewpoints 2 and 6 – capturing a view of the wind farm from the north of the site at close range. This viewpoint is relatively close to Dwelling D12, which is approximately 1.2 km from the north-eastern wind turbine.
- Viewpoint 7 is representative of viewpoints 7 and 8 – capturing the site from the south at a distance of 2.3 km from the nearest wind turbines. The photomontage is taken from Pinehills No 2 Road, which runs east/west, and contains four dwellings, all a similar distance from the site.

Indicative Wind Turbine

A single representative wind turbine has been modelled to cover the potential "worst-case" impact of different materials and sizes of the wind turbines, as well as allowing for some conservatism relative to the candidate wind turbine that has been selected.

Specifications of the modelled wind turbine are as follows:

- 170 m rotor (higher impact than the proposed 162 m rotor)
- 165 m hub height (results in maximum allowable tip height)
- 250 m maximum tip height (maximum allowable tip height)
- 80 m lower tip height (above minimum allowable tip height of 55 m; equivalent 162 m rotor would have 88 m lower tip height.)
- Concrete tower construction (permission sought for both concrete and steel towers).

The concrete tower provides a useful indication of what either a concrete or a hybrid concrete/steel tower may look like – as the concrete tower section will generally have a wider base and slightly darker off-white colouration when compared to traditional steel towers and is considered to be a slightly higher impact than the traditional steel tower.

Data Capture

The images were captured with a Nikon D700 full frame digital SLR with a Nikon AF Nikor 50 mm 1:1.4D prime lens. The camera was mounted horizontally (landscape) for all panorama shots.

The images were captured between 10 am and 12:30 pm on the 3rd July 2019.

The images were captured at a height of 1.7 m above natural ground level.

GPS co-ordinates of the photos were recorded using a handheld Garmin GPS (Montana 650t). The camera was oriented to magnetic north using a handheld field compass, and the bearing of the start and end shot of each panorama was recorded using a Manfrotto panorama head attached to a tripod via levelling base.

Panorama shots were stitched together using Adobe Photoshop 2019.

No external assumptions were relied upon for the site photography, and no modifications were made to any existing elements.

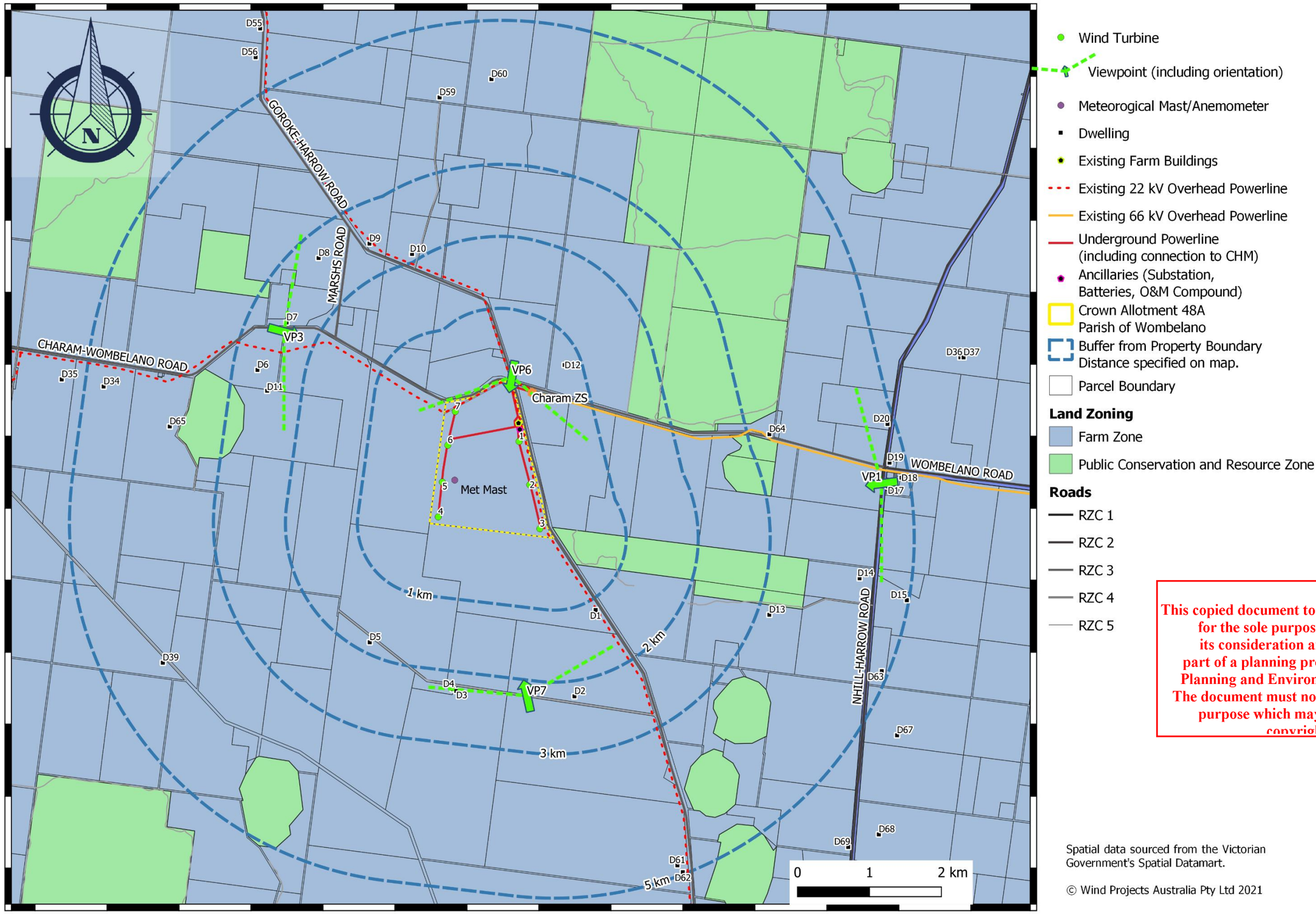
Photomontage Preparation

DNV GL took the photographs prepared by GBD, along with associated metadata, and prepared photomontages in WindPRO version 3.4. They relied on SRTM1 elevation data.

As underground powerlines are proposed for connection of the wind farm to Charam Zone Substation, no additional powerline infrastructure is included in any of the photomontages.

The on-site substation and operations and maintenance facility are south of the existing shearing shed, resulting in them being obscured from Viewpoint 6. Existing vegetation obscures these ancillary buildings from the remaining viewpoints.

B. Location Map



Spatial data sourced from the Victorian Government's Spatial Datamart.

View Point 1

C. No WTGs

D. Concrete Tower: 170 m rotor, 165 m hub height, 250 m maximum tip height, 80 m lower tip height.

View Point 3

E. No WTGs

F. Concrete Towers: 170 m rotor, 165 m hub height, 250 m maximum tip height, 80 m lower tip height

View Point 6

G. No WTGs

H. Concrete Towers: 170 m rotor, 165 m hub height, 250 m maximum tip height, 80 m lower tip height.

View Point 7

I. No WTGs

J. Concrete Towers: 170 m rotor, 165 m hub height, 250 m maximum tip height, 80 m lower tip height.