Preliminary Visual Impact Assessment

Paling Yards Wind Farm

Prepared for: GPGA

Project No: **1961** Issue: **REVISION D** Date: **28th October 2021**

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Project Name: Paling Yards Wind Farm Preliminary Landscape and Visual Impact Assessment

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1.0 Introduction

1.1 Introduction

Moir Landscape Architecture have been commissioned by GPGA to prepare a Preliminary Visual Impact Assessment (PVIA) for the proposed Paling Yards Wind Farm (the Project).

GPGA is proposing to construct and operate the renewable energy development located within the Central Tablelands of NSW, approximately 60km south of Oberon and 60km north of Goulburn.

GPGA is seeking State Significant Development (SSD) consent under Division 4.7 of Part 4 of the Environmental Planning & Assessment Act 1979 (EP&A Act). This PVIA is to be submitted in conjunction with the Scoping Report to the Secretary of the Department of Planning, Industry & Environment (DPIE) in support of the SSD application for the Project.

The Scoping Report will support the Secretary in issuing the Secretary's Environmental Assessment Requirements (SEARs) that will guide the Environmental Impact Statement (EIS) as part of the SSD application for the Project.

1.2 Project Background

Initially proposed in 2002 the Project has progressed over time due to rapid changes in technology.

A final EIS was submitted on 27th January 2014. The Response to Submissions Report, together with an Additional Information Report, was finalised and submitted to DPIE in April 2020.

Following further detailed discussions on the Project between the Proponent and DPIE, the previous DA was withdrawn. It was agreed as part of these discussions that due to recent technological advancements in the design of wind turbine equipment, and the amount of time which has passed since submission of the original DA and EIS, it would be best to submit a new application to the Department for consideration and assessment.

1.3 Relevant Experience

The Bulletin states the proponent is expected to engage professionals from relevant natural resource management and design professions, with demonstrated experience and capabilities in visual assessment to carry out a wind energy project visual assessment.

Moir Landscape Architecture Pty Ltd is a professional design practice and consultancy specialising in the areas of Landscape Architecture, Landscape Planning and Landscape and Visual Impact. Our team has extensive experience in undertaking Landscape and Visual Impact Assessments for wind energy projects. In the context of our experience and with guidance from the Visual Assessment Bulletin we have developed methodologies to ensure a comprehensive and qualitative assessment of the Project.

Relevant experience includes the preparation of Landscape and Visual Impact Assessments for the following Wind Energy Projects:

- *Crudine Ridge Wind Farm (Crudine, New South Wales)*
- *Bodangora Wind Farm (Bodangora, New South Wales)*
- *Capital II Wind Farm (Bungendore, New South Wales)*
- *Uungula Wind Farm (Wellington, New South Wales)*
- *Lord Howe Island Wind Turbines (Lord Howe Island, New South Wales)*
- *Hills of Gold Wind Farm (Nundle, New South Wales)*

1.0 Introduction

1.4 Preliminary Visual Impact Assessment

The purpose of this Preliminary Visual Impact Assessment (PVIA) is to provide a preliminary assessment of the potential visual impacts of the proposed Paling Yards Wind Farm and has been prepared in accordance with the *Wind Energy: Visual Assessment Bulletin,* December 2016 (referred to hereafter as the Visual Assessment Bulletin).

The visual assessment process is broken into two main stages (see **Figure 1**):

Phase 1: Preliminary Environmental Assessment and
Phase 2: EIS

This PVIA forms apart of ***Phase 1: Preliminary Environmental Assessment*** to be submitted to the Department of Planning, Industry & Environment (DPIE) together with the Scoping Report for the request for the Secretary's Environmental Assessment Requirements (SEARs).

The requirements of Stage 1: Preliminary Environmental Assessment are as follows:

At the Preliminary Environmental Assessment stage, a process consisting of community consultation regarding key landscape values and application of preliminary assessment tools has been developed. The tools include consideration of the potential impact of the proposals on dwellings and key public viewpoints.

The preliminary assessment tools have been designed to assist proponents to drive better outcomes. They will assist in identifying early in the process the locations where wind turbines may have impacts that warrant further consideration. This in turn provides an opportunity to refine the proposed wind turbine layout to avoid or minimise impacts, or justify the proposed design prior to lodgement of the application.

Proponents will be required to submit, with the request for SEARs, a Preliminary Environmental Assessment that includes a map with key information, results of community consultation and the application of the preliminary assessment tools. This will form the basis for the issue of the SEARs that will identify the matters that must be addressed in the Environmental Impact Statement (EIS).

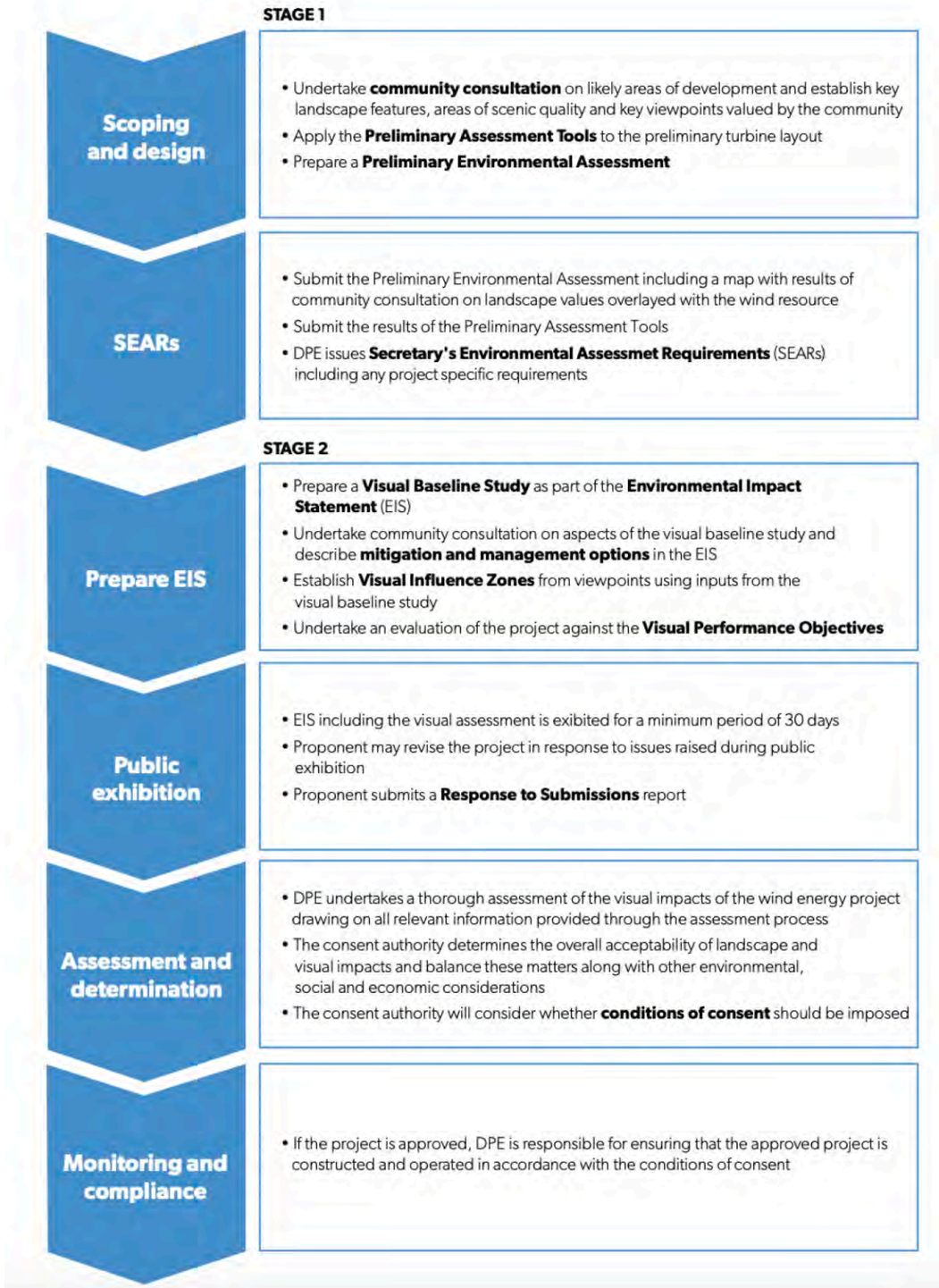


Figure 1 Steps in Visual Assessment Process (Source: Wind Energy Visual Assessment Bulletin, 2016)

2.0 Study Method

2.1 Study Method

The following has been undertaken to develop the PVIA:

Desktop Assessment:

- Review of previous studies relating to landscape and visual impact undertaken for the Project, in particular *Green Bean Design LVIA Paling Yards 2013*.
- Application of Preliminary Assessment Tools to determine receptors with potential sensitivity.
- Preparation of a preliminary Zone of Visual Influence (ZVI) to establish a theoretical zone of visibility of the Project.
- Identification of key viewpoints and landscape features using available mapping and background documents.

Site Inspection:

Photographic survey work for the study was undertaken in April 2021 to carry out a preliminary assessment of the existing landscape character from publicly accessible land within the Study Area. The findings of the site inspection has been included in the PVIA and will form the basis for discussion with the community in the EIS Phase of the Project.

Community Consultation:

Due to the life span of the Project, extensive community consultation has been undertaken over the life span of the Project. Results of the community consultation documented in previous studies have been utilised to gain perspective on the landscape values held by the community to inform the PVIA.

Community consultation will be continued through the EIS phase of the Project.

2.2 Report Structure

The following table provides an overview of the requirements of the Visual Assessment Bulletin and where these have been addressed in the PVIA:

Preliminary Visual Impact Assessment Report Structure:	
Bulletin Requirements:	**Addressed in report:**
• *Undertake community consultation to establish key landscape features valued by the community, key viewpoints in the area (both public and private) along with information about the relative scenic quality of the area.*	**Refer to Section 4.0:** **Community Consultation**
• *Production of a map detailing key landscape features (informed by community consultation and any ground-truthing undertaken), the preliminary wind turbine layout, the location of dwellings and key public viewpoints, and an overlay of the wind resource.*	**Refer to Section 5.0 :** **Existing Landscape Character**
• *Results of the preliminary assessment tools for both the visual magnitude and multiple wind turbine parameters.*	**Refer to Section 6.0:** **Preliminary Assessment Tools**
	Refer to Section 7.0: **Preliminary Dwelling and Viewpoint Assessment**
• *The use of Geographic Information Systems (GIS) to facilitate the application of the tools will streamline the evaluation phase of a project during the pre-lodgement stage. Most GIS systems can establish the theoretical 'zone of visual influence' of the proposal (the area from which the proposal is theoretically visible or the 'visual catchment').*	**Refer to Section 8.0:** **Preliminary Zone of Visual Influence**
Summary and Recommendations - Section 9.0	

Table 1 Overview of Report Structure

3.0 Project Overview

3.1 Regional Context

The site is located on the western extent of the Great Dividing Range in NSW, 60km south of Oberon, 60km north of Goulburn in NSW and approximately 140km west of Sydney (see **Figure 2**).

The surrounding area is predominantly National Park with the eastern edge of the site bordered by Kanangra Boyd National Park and Abercrombie National Park to the west and south. The site is situated in the Oberon Local Government Area (LGA).

The area is heavily undulating with some steep slopes. The site is bisected by Taralga Road which links the towns of Oberon and Taralga. The closest towns are Porters Retreat and Curraweela which have township populations of approximately 180 and 320 respectively. Several water courses traverse the area including the Abercrombie River which flows into the Lachlan River. The Abercrombie River forms the southern boundary of the site.

The site is approximately 40km to the north-east of the existing Crookwell 1 and Crookwell 2 Wind Farms.

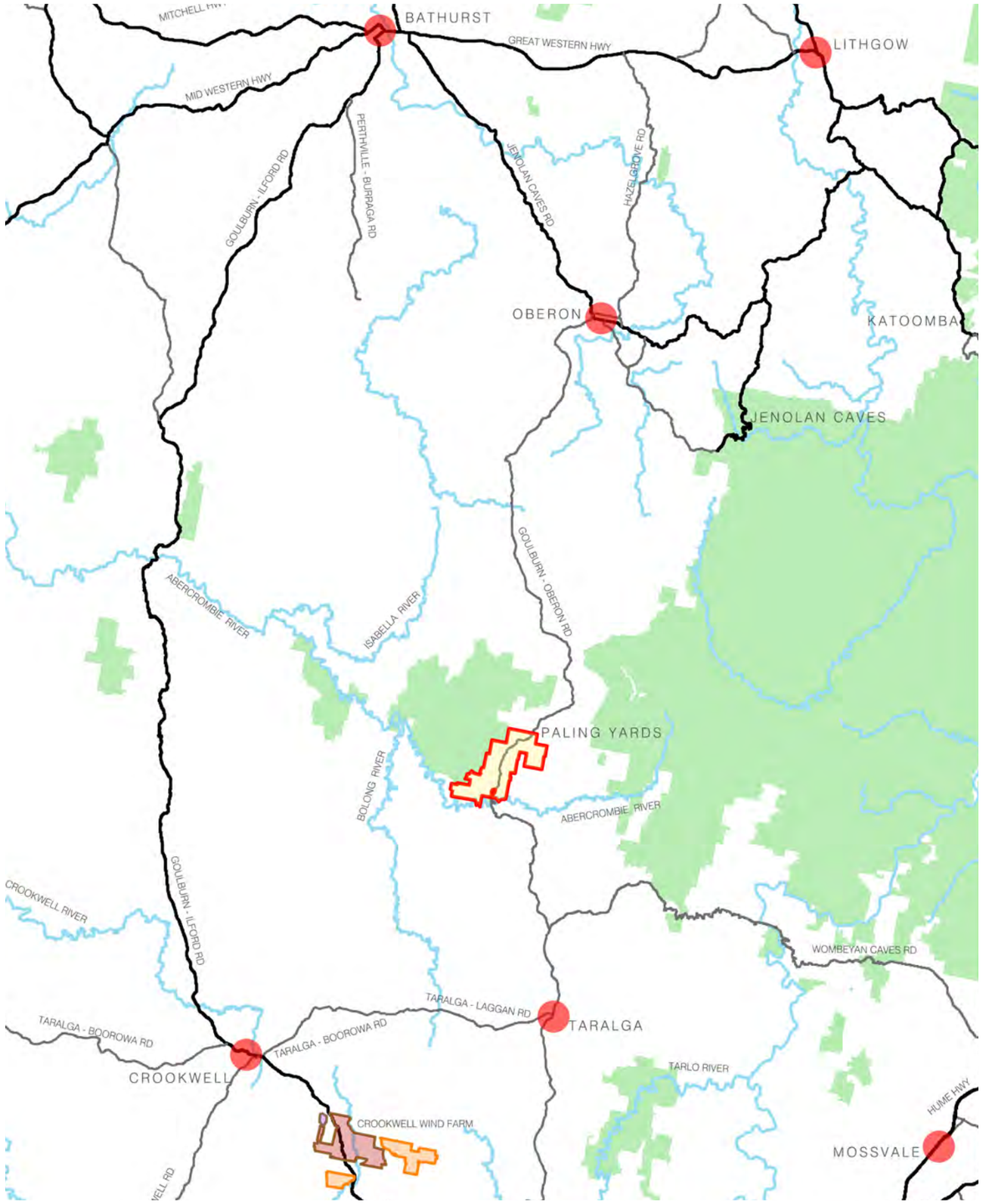


***Figure 2** The Project Site - Regional Context*

3.0 Project Overview

3.2 The Study Area

The Study Area refers to the land associated with and surrounding the Project. For the purpose of this report, the Study Area is loosely defined by an 8 km radius around the Project, however assessment of land outside of this radius will be undertaken as necessary. The Study Area is is bordered by National Parks and land to the south-east all of which are heavily vegetated.

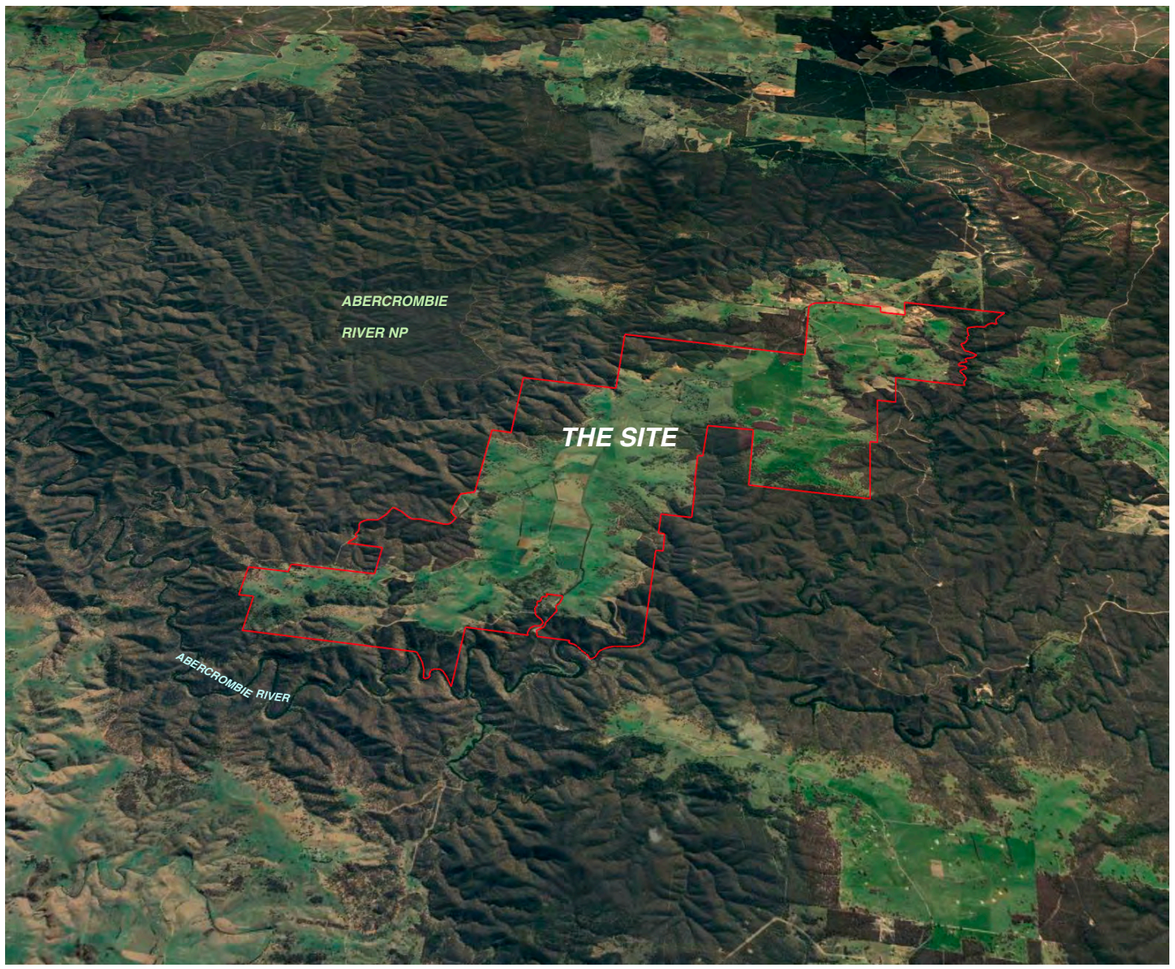


***Figure 3** Birds Eye View - The Project Site (Source: Google Earth)*

3.3 The Project Site

The Project Site (referred to as the site) includes three (3) separate land holdings including 'Mingary Park' and 'Paling Yards' and the site incorporates three homestead areas. Most of the site has been cleared of native vegetation although scattered trees are common within the site and thicker vegetation exists near the site's boundary (see Figure 3). The site ranges from between 900m and 1065m above sea level with significant slopes in many areas. Several ephemeral creeks and drainage lines cross the site which drains into the Abercrombie River. The site is currently used for agricultural purposes (predominantly for sheep and cattle grazing.

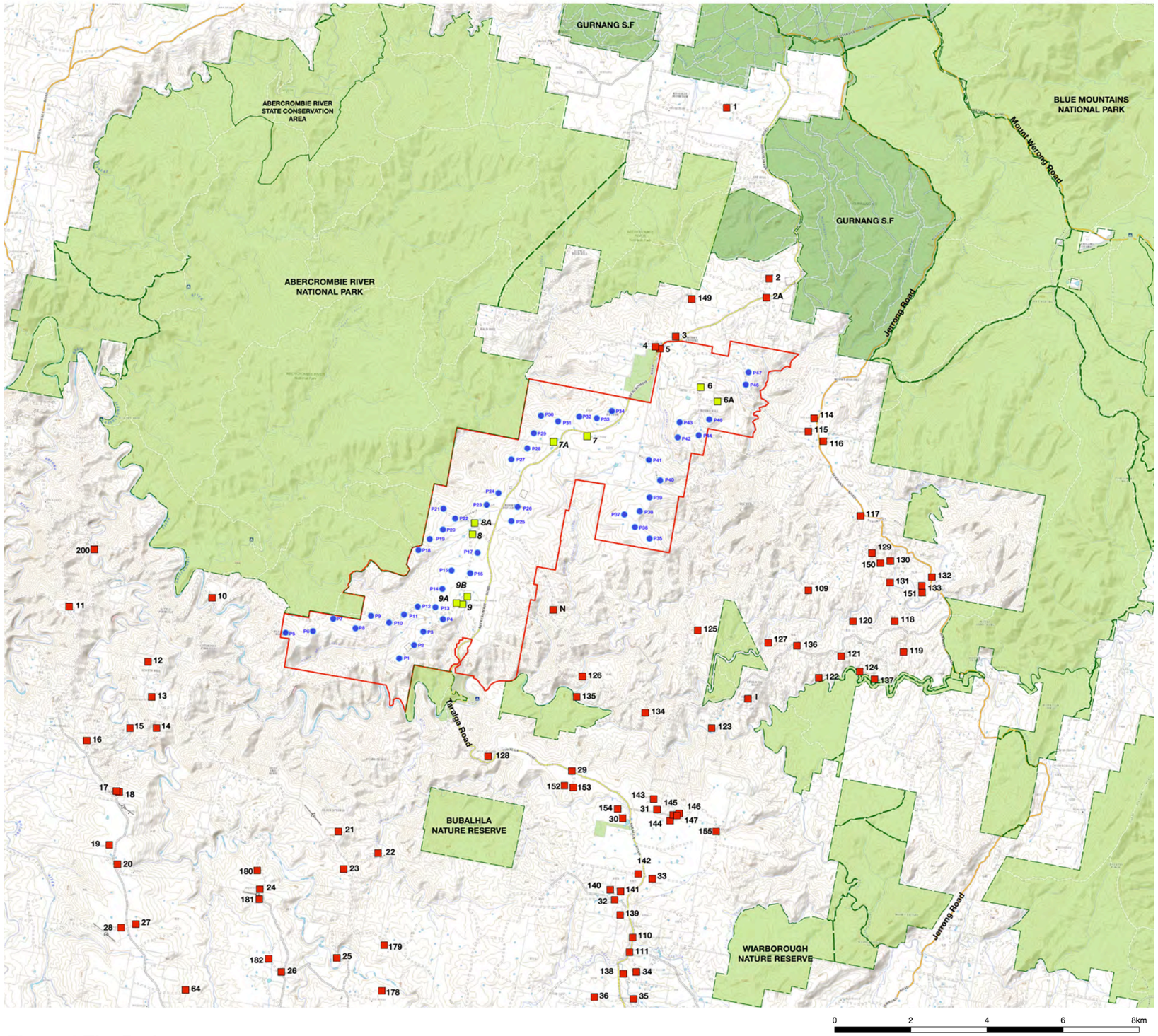
3.4 The Project

The proposed Paling Yards Wind Farm project (the Project) will deliver much needed renewable energy to the region and the overall push to reduce carbon emissions and achieve a net-zero emissions target. The proposal will comprise up to 47 wind turbines, each of which allow for a maximum capacity of up to 6MW per turbine, providing a total generation capacity of up to 300MW.

Whilst the approximate number of turbines that the site can accommodate is expected to be up to 47 wind turbines, the location of the individual turbines will be informed and resolved by the next phase of environmental investigations (see **Figure 4**). The proposed Paling Yards Wind Farm comprises of the following:

- Up to 47 individual wind turbines
- The approximate maximum blade tip height will be around 240m;
- Each turbine will have up to 6 MW generating capacity (depending on the type of turbine to be used);
- Internal unsealed tracks for turbine access;
- Upgrades to local road infrastructure including several access points from Abercrombie Road;
- An on-site electrical substation and approximately 9km of overhead powerline (70m in width) of up to 500kV to connect to the Mt Piper to Bannaby 500kV transmission line (including control room and other associated grid connection facilities);
- An underground electrical and communication cable network linking turbines to each other and the proposed substation;
- A temporary concrete batching plant to supply concrete for the foundations of the turbines and other associated structures;
- Potential for obstacle lighting to selected turbines;
- A wind farm and substation control room and facilities building co located with the substation;
- Potential for native vegetation removal in some areas and additional vegetation planting to provide screening.

3.0 Project Overview



The Project

Proposed Paling Yards Wind Farm

LEGEND

- Project Boundary
- Proposed 240m Turbine Location
- Involved Dwelling
- Non-involved Dwelling
- Main Road
- Minor Road
- National Park / Nature Reserve
- State Forest

***Figure 4** The Project*

4.0 Community Consultation

4.1 Overview of Community Consultation

In accordance with the Visual Assessment Bulletin: community consultation at this early stage may be broad, but should include discussions about the proposed project area, likely corridors of development, or preliminary turbine layouts and must involve people from the visual catchment.

The purpose of community consultation is to:

- Establish key landscape features
- Defined areas of scenic quality and
- Identify key public viewpoints valued by that community.

Due to the lengthy time frame of the Project, extensive community consultation has been undertaken to date. Results of consultation undertaken during the life of the Project have been utilised to inform the PVIA including: previous LVIA studies, Socioeconomic studies and submissions to the 2014 EIS.

An EIS was prepared and submitted on 27 January 2014, with the public exhibition taking place between the periods of March-May 2014. The DA received a total of 24 submissions from both the general public and other interested stakeholders. The Response to Submissions Report, together with an Additional Information Report, was finalised and submitted to DPIE in April 2020.

Following further detailed discussions on the project between the Proponent and DPIE, the previous DA was withdrawn. It was agreed as part of these discussions that due to recent technological advancements in the design of wind turbine equipment, and the amount of time which has passed since submission of the original DA and EIS, it would be best to submit a new application to the Department for consideration and assessment. This new proposal would also provide the opportunity for a new round of community engagement.

In January 2021, calls were made by GPG to property owners within a 5km radius of the proposed project site. The landowners were informed of the intention to submit a new application to DPIE. During the phone calls general feedback from the community regarding the wind farm were also asked and noted.

In February 2021, A site visit was carried out by GPGA to drop the letters to inform the intention to submit a new application to DPIE to the all the landowners for those who were not contactable via phone.

In July 2021, GPGA visited the host landowners and discussed about the updated layout and the timeline.

In July 2021, A specialist community consultation firm has been engaged by GPGA for the project and started to formulate the initial stage of CSE plan.

In August 2021, GPGA started contacting neighbours for discussion of neighbour agreement.

In Sept 2021, Project update in form of newsletter were sent to the community member within 5km by GPGA via Australia post and email where possible. GPGA has sent project update to both Oberon City Council and Upper Lachlan Council.

Community engagement will continue through the Project and provide the community with further opportunities to provide input into the Visual Baseline Study of the LVIA. The intent is to:

- Undertake early and proactive community engagement with nearby residents and the wider community to identify and address any concerns.
- Ensure the layout for the wind farm is designed to minimise potential visual and audible impact, reflecting community feedback and planning requirements.

5.0 Existing Landscape Character

5.1 Overview of Bioregion

The Project sits within the South Eastern Highlands Bioregion (see **Figure 5**). Topographically, the dominant features of the bioregion are plateau remnants, granite basins with prominent ridges formed on contact metamorphic rocks and the western ramp grading to the South Western Slopes. Streams cutting through the bioregion are deeply entrenched with only a few terrace features. Valleys are narrow and there is little Quaternary sediment except in the numerous lake basins of the Monaro province (Source: NPWS, 2003)

Images 1 - 3 illustrate the typical character of the landscape within the Study Area, which is consistent with the character of the South Eastern Highlands Bioregion.

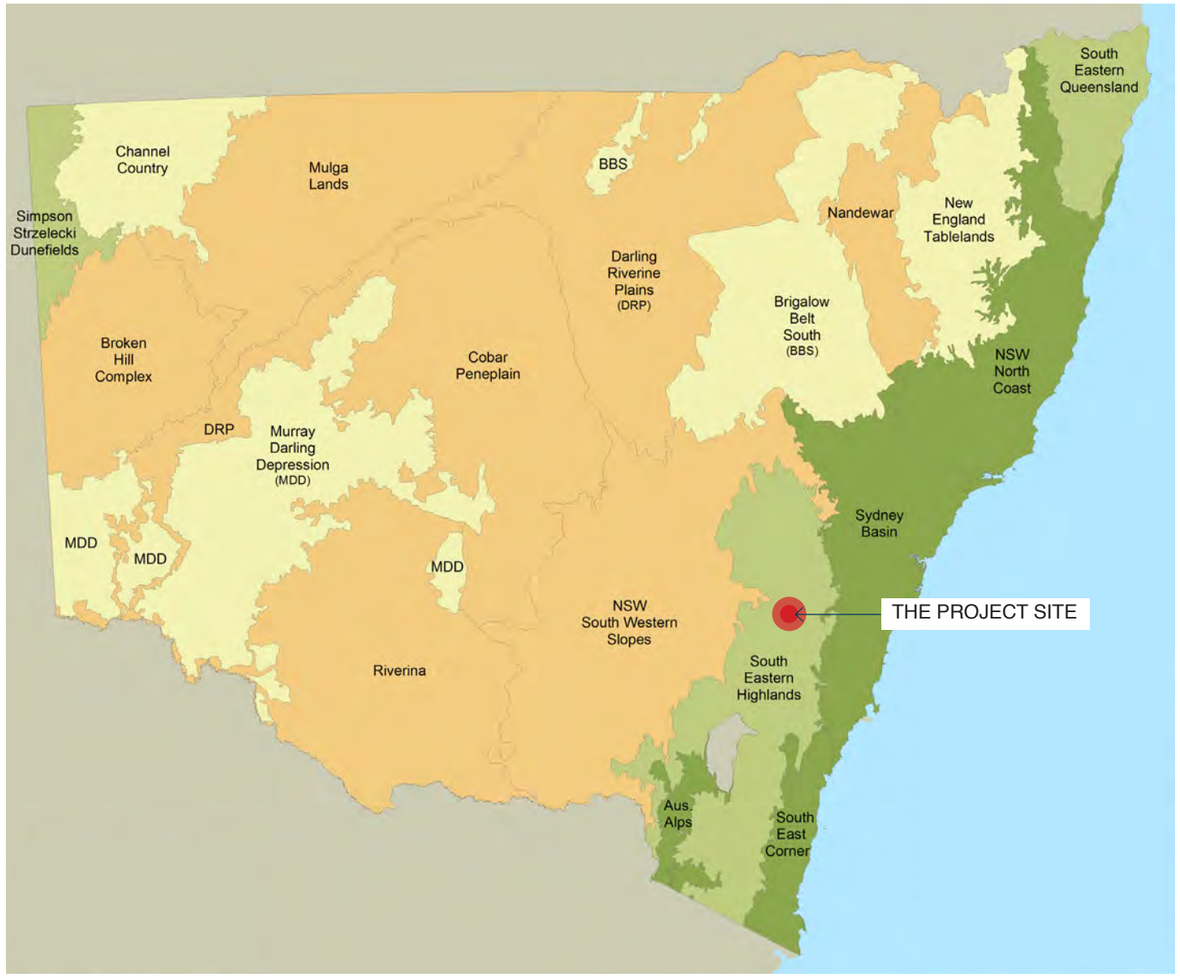


Figure 5** **Bioregions of New South Wales (Source: NPWS)

Image 1

Views across vegetated hills within the Study Area

Image 2

Vegetated Hills associated with Blue Mountains National Park

Image 3

Vegetated Hills associated with Abercrombie River Valley

5.0 Existing Landscape Character

5.2 Sensitive Land Use Designations

The Project is located within the Oberon Local Government Area and Upper Lachlan Shire is located to the south of the Project Site. The following provides an overview of the land use zoning within the Study Area and its immediate surrounds as shown on **Figure 6**.

5.2.1 RU1 Primary Production

The Project Site and land immediately east of the Project Site is predominately zoned RU1 - Primary Production under the Oberon Local Environment Plan 2013.
The objectives of the RU1 zoning include:

- To encourage sustainable primary industry production by maintaining and enhancing the natural resource base.
- To encourage diversity in primary industry enterprises and systems appropriate for the area.
- To minimise the fragmentation and alienation of resource lands.
- To minimise conflict between land uses within this zone and land uses within adjoining zones.
- To enable other forms of development associated with primary production activities, which may require an isolated location or which support tourism or recreational activities.

5.2.2 RU2 Rural Landscape

Land to the south of the Project associated with the Upper Lachlan Shires predominately zoned RU1 - Primary Production under the Upper Lachlan Local Environment Plan 2010.

- To encourage sustainable primary industry production by maintaining and enhancing the natural resource base.
- To maintain the rural landscape character of the land.
- To provide for a range of compatible land uses, including extensive agriculture.
- To preserve environmentally sensitive areas including waterways and prevent inappropriate development likely to result in environmental harm.
- To protect the Pejar catchment area from inappropriate land uses and activities and minimise risk to water quality.
- To minimise the visual impact of development on the rural landscape.
- To minimise the impact of development on the existing agricultural landscape character.
- To protect and enhance the water quality of watercourses and groundwater systems and to reduce land degradation.
- To maintain areas of high conservation value vegetation.

5.2.3 RU3 Forestry

To the north east of the Project Site is the Gurnang State Forest which is zoned RU3 Forestry to enable development for forestry purposes and other development that is compatible with forestry land uses.

5.2.4 E1 National Parks and Nature Reserves

Land immediately west of the Project, southeast and to the east of the Project Area have been zoned as E1 - National Parks and Nature Reserves these include:

- *Abercrombie River National Park*
- *Blue Mountains National Park*
- *Bubahla Nature Reserve*
- *Wairborough Nature Reserve*

Land in these areas are reserved under the National Parks and Wildlife Act 1974 to protect their environmental significance. The EIS phase will refer to the *Guidelines for development adjoining NPWS lands* for general information on NPWS's expectations in relation to development that has the potential to impact NPWS lands.

5.0 Existing Landscape Character

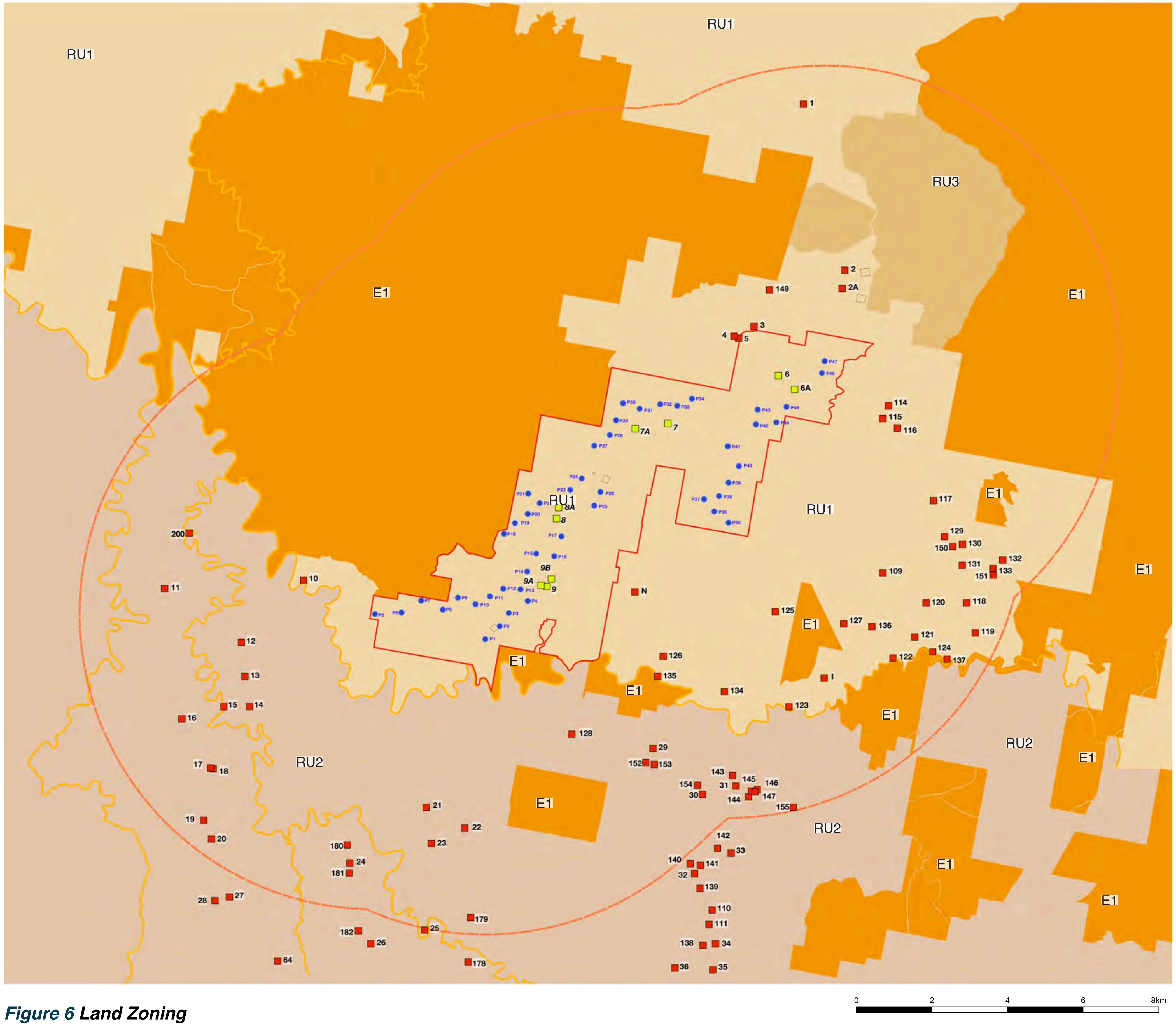


Figure 6 ***Land Zoning***

Land Zoning

Proposed Paling Yards Wind Farm

LEGEND

- Project Boundary
- Proposed 240m Turbine Location
- Involved Dwelling
- Non-involved Dwelling
- RU1 Primary Production
- RU2 Rural Landscape
- RU3 Forestry
- E1 National Parks and Nature Reserves
- LGA Boundary

Note:

Preliminary Assessment Tool 1: Visual Magnitude is based on a 2D Assessment alone and does not take into account topography, vegetation or other screening factors which may reduce the potential for viewing turbines.

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5.0 Existing Landscape Character

5.3 Key Landscape Features & Viewing Locations

The Bulletin states proponents must identify key landscape features, dwelling locations and key public viewpoints (refer to **Figure 7**). The following section provides an overview of the key features identified.

5.3.1 Rivers and creeks

The Abercrombie River runs for a total distance of 130km from its source near Mount Werong till its confluence with Lachlan River in Cowra. It provides habitat for platypus and water rats. A number of significant creek lines and rivulets flood the river plain and form a part of the unique riparian character of this area. Abercrombie River is one of the most significant features of the landscape that runs along the southern boundary of the Project Area. Significant creeks that drain the floodplain include Burra Burra Creek, Mount Werong Creek, Wiarborough Creek and Manus Creek.

5.3.2 National Parks and Nature Reserves

The north-eastern boundary of the Project Area is bordered by the Abercrombie River National Park. The Park covers an area of 19,000 hectares and comprises of two other nature reserves - the Razorback Nature Reserve and Copperhannia Nature Reserve. The Park is characterized by diverse vegetation communities that are characteristic of montane and tableland species and remnant bushland within the south-western Central Tablelands of NSW (NPWS, 2002).

To the east of the Project Area is the Blue Mountains National Park. The Park is characterized by undulating hills with dry sclerophyll vegetation. The Mount Werong area of this Park covers the headwaters of the Abercrombie River. This area along with the Razorback Nature Reserve and Copperhannia Nature Reserve plays an important role in conserving the character of one of the most important river systems in this region.

5.3.3 State Forest

The Gurnang State Forest is located to the northeast of the Project Area and covers an area of about 23,000 hectares. The State Forest is used for commercial forestry and is a highly modified landscape. It is also used for recreational activities such as authorised hunting.

5.3.4 Topography

Central Tablelands region is a key livestock and agricultural production hub that is characterized by an undulating to hilly topography. The Project Area is located on a raised tableland that ranges from 800m-1000m AHD in elevation. The surrounding region is predominantly undulating towards the north and steep with densely vegetated slopes towards the south (Environment NSW, n.d.). The high elevation of the Project Area makes it prominent in an otherwise undulating landscape. Settlements located to the southwest and south of the Project Site have views looking onto the raised tablelands.

5.3.5 Scenic lookouts / Points of interest

Significant points of interest include the Wombeyan Caves precinct which offers recreational opportunities such as camping, fishing, swimming and bush walking. Broughton's Lookout is located near Wombeyan Caves within the extents of Blue Mountains National Park. Most of these points of interest can be accessed by 4WD tracks and trails that run along the rugged, steep topography of the National Parks and Nature Reserves.

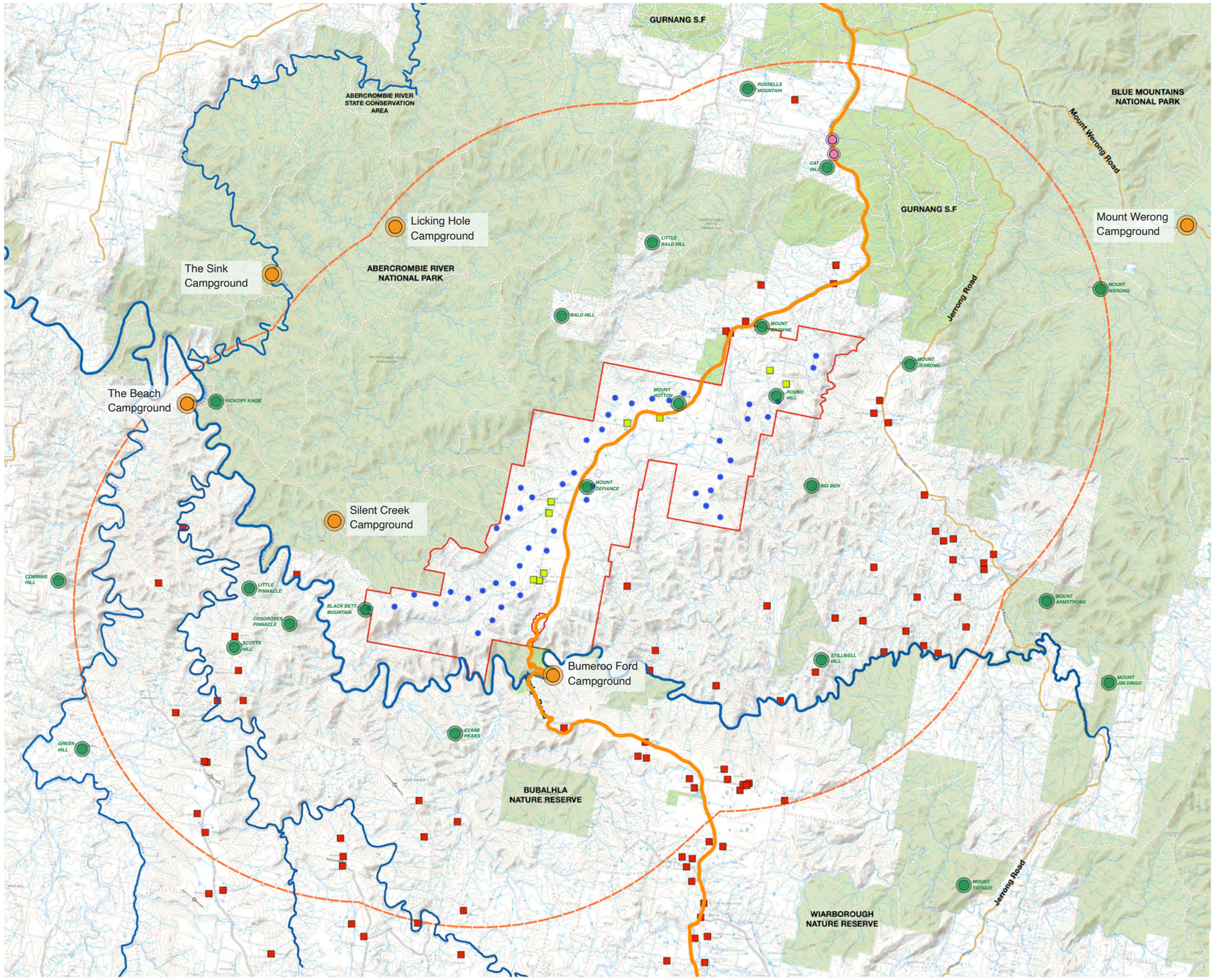
5.3.6 Walking tracks and Campgrounds

Abercrombie River National Park and the Blue Mountains National Park offer many scenic trails and campgrounds for their visitors. Some of these are the Boommaroo Ford Campground, Silent Creek Campground, The Sink Campground, The Beach Campground, Mount Werong Campground and Licking Hole Campground.

5.3.7 Access Roads

Abercrombie Road is the main road that runs through the Project Area roughly in the north-south direction. Proposed turbines will be located along the stretch of the road that runs through Paling Yards. The road serves as a major connector between Black Springs, Oberon and Curraweela, Taralga and other towns. The road negotiates through a rough and steep topography around the Abercrombie River valley area and is used by trucks, recreation vehicles and cars.

5.0 Existing Landscape Character



Landscape Features & Key Viewpoints

Proposed Paling Yards Wind Farm

LEGEND

- Project Boundary
- Proposed 240m Turbine Location
- Main Road
- Minor Road
- 8000 m from turbine

Landscape Features:

- Rivers
- Creekline
- State Forest
- National Park
- High Point
- Abercrombie Road

Key Viewing Locations

- Involved Dwelling
- Non-involved Dwelling
- Campgrounds
- Lookouts / Picnic Area

N

***Figure 7** Landscape Features and Key Viewpoints*

5.0 Existing Landscape Character

5.4 Landscape Character Units

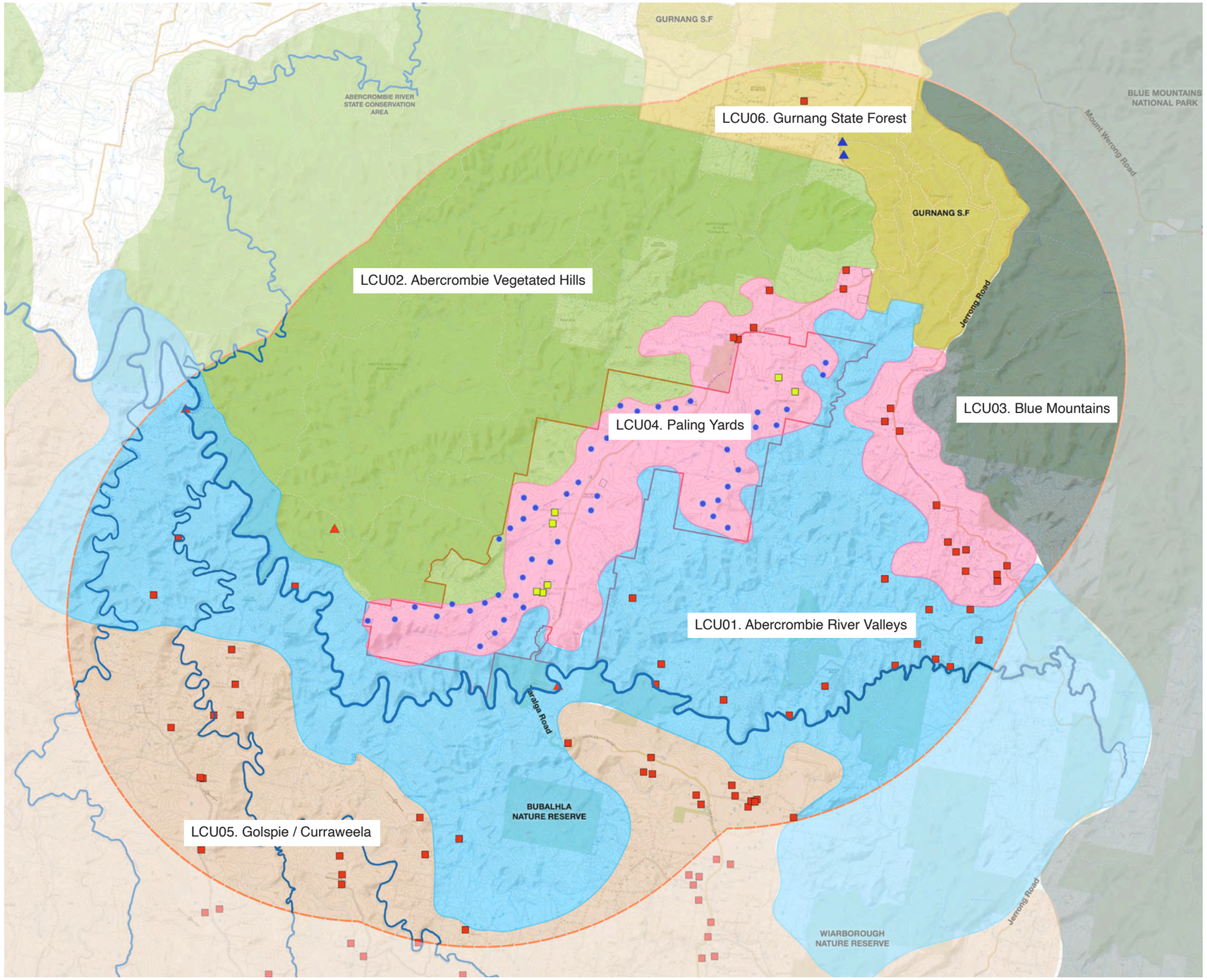
A number of Landscape Character typologies exist within the Project Area. As apart of the Preliminary Landscape Character Assessment, a total of six key landscape typologies referred to hereafter as Landscape Character Units (LCUs) have been identified (refer to **Figure 8**).

Table 2 provides an overview of the LCUs and preliminary Scenic Quality Ratings applied. The LCUs and Scenic Quality Ratings will be refined in the EIS Phase of the Project to reflect input provided by the community during ongoing consultation.

Landscape Character Units					
LCU:	**Name:**	**Description:**	**Key Landscape Features:**	**Key Viewpoints:**	**Preliminary Scenic Quality Rating:**
LCU01	**Abercrombie River Valley**	*Vegetated hills and valleys associated with Abercrombie River and associated tributaries.*	**Abercrombie River**	**Bummaroo Ford Campground** **The Beach Campground**	**High**
LCU02	**Abercrombie Vegetated Hills**	*Typical topographical character includes steep, undulating and densely vegetated slopes that cut deep in the landscape.*	**Vegetated Ranges**	**Silent Creek Campground** **Licking Hole Campground** **The Sink Campground**	**High**
LCU03	**Blue Mountains**	*Gently undulating hills vegetated with dry schlerophyll forests.*	**Vegetated Ranges**	**Mount Werong Campground**	**High**
LCU04	**Paling Yards**	*Largely cleared land associated with Paling Yards that supports cattle and sheep grazing*	**Rural Land** **Local high points**	**Abercrombie Road** **Jerrong Road**	**Moderate**
LCU05	**Golspie / Curraweela**	*Largely cleared land associated with Golspie and Curraweela that supports cattle and sheep grazing*	**Bolong River** **Burra Burra Creek**	**Taralga Road**	**Moderate**
LCU06	**Gurnang State Forest**	*Plantation forestry*	**Forest**	**No Public Access**	**Low**

Table 2 Overview of Landscape Character Units

5.0 Existing Landscape Character



Preliminary Landscape Character Units

Proposed Paling Yards Wind Farm

Project Boundary

Proposed 240m Turbine Location

Main Road

Minor Road

8000 m from turbine

Landscape Features:

Rivers

Creekline

Preliminary Landscape Character Units:

LCU01. Abercrombie River Valley

LCU02. Abercrombie Vegetated Hills

LCU03. Blue Mountains

LCU04. Paling Yards

LCU05. Golspie / Curraweela

LCU06. Gurnang State Forest

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Figure 8** **Preliminary Landscape Character Units

5.0 Existing Landscape Character

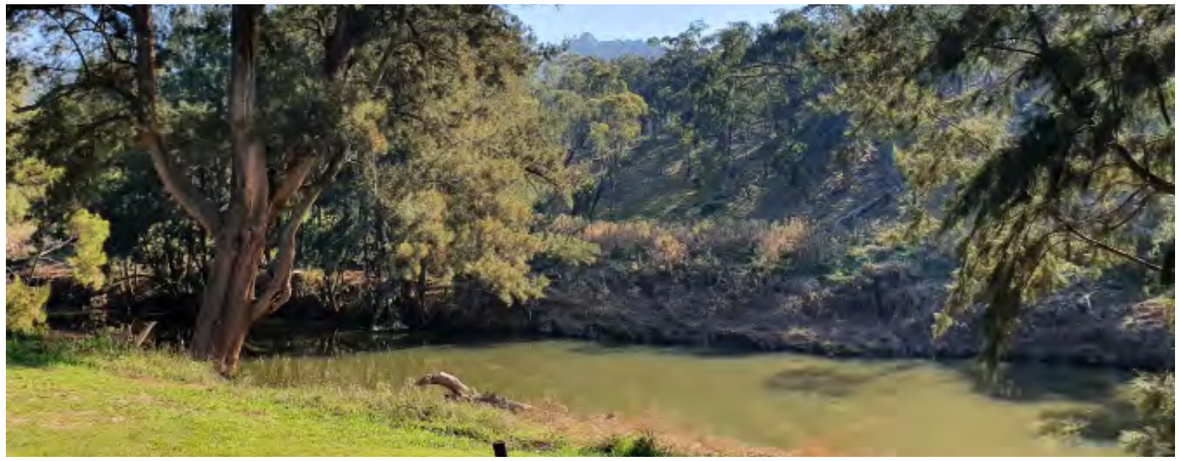


Image 4 Typical character of Abercrombie River Valley

Image 5 Birds eye view of Abercrombie River National Park

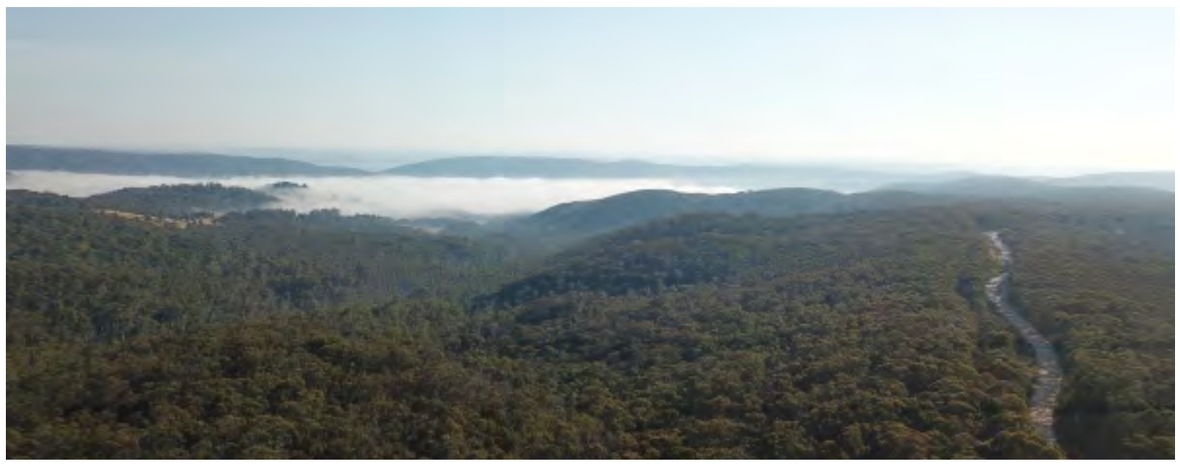


Image 6 Birds eye views of Blue Mountains National Park LCU

LCU01: Abercrombie River Valley

The Abercrombie River Valley is located south of the Project Site and borders the southern boundary of the Project Site. The River runs for a distance of 42 km and, along with other waterways such as Silent Creek and Retreat River, forms the Lachlan River catchment (NPWS, 2002). The river valley comprises of deep, steep hills with dense vegetation that is relatively untouched. The river surrounds are extensively used for recreational activities such as camping, picnicking, swimming and fishing. Prominent camp grounds include Silent Creek Campground, Bummaroo Ford Campground, and The Beach Campground.

LCU02: Abercrombie Vegetated Hills

The Abercrombie River National Park is located immediately west of the Project Site. For the purpose of this PVIA, the Abercrombie River National Park and adjoining vegetated hills has been defined as a character typology. The Abercrombie Vegetated Hills has unique vegetation communities that it hosts within its boundaries. The National Park supports diverse and important riparian vegetation communities which are characteristic of montane, tableland and western slopes species and also comprises of a large parcel of remnant bushland vegetation that is typical of the dry tablelands region (NPWS, 2002).

LCU03: Blue Mountains

Located to the east of the Project Site, the Blue Mountains National Park forms another character unit in the immediate vicinity of the Project Site. It is characterized by densely vegetated hilltops that rise at the same elevation as the Project Site. The topography is steep and undulating with prominent recreational spots such as Mount Werong Campground, Mount Jim Dingo and Mount Armstrong. Certain parts of the National Park are inhabited by low density rural settlements. Majority of the vegetation in the area forms a part of the dry sclerophyll forests.

5.0 Existing Landscape Character

Image 7 *Character of Paling Yards*

Image 8 *Pastoral character of Golspie and Curraweela*

Image 9 *Plantation forestry within Gurnang State Forest*

LCU04: Paling Yards

The Central West Tablelands which is characterized by gently undulating to steep, rough country forms the most prominent part of the Project Site. It runs roughly North-South and comprises of cleared, undulating hills that are extensively used for livestock grazing. The altitude is 800-1000m AHD and it stands as a feature amidst the surrounding undulating topography. Abercrombie Road is the main connector that runs north-south and cuts across the landscape character unit and it changes to Taralga Road beyond the Abercrombie River. It is an important road that connects towns such as Oberon, Black Springs, Curraweela and Taralga.

LCU05: Golspie / Currraweela

Towns such as Golspie and Curraweela are located in the Upper Lachlan Shire and are set over a gently undulating topography which is lower than the elevation of Paling Yards. The population of both these towns engage in livestock farming. As per the 2016 Census, the population of Golspie was 58 and that of Curraweela was 47 (ABS, 2017). Agricultural activity in these areas predominantly operates in the areas of grain-sheep and grain-cattle farming, specialised sheep and beef cattle farming and horse farming. The gently undulating landform hosts more settlements than those in Paling Yards around the Project Site Area.

LCU06: Gurnang State Forest

Gurnang State Forest is located northeast of the Project Site Area. It covers an area of 23,000 hectares and is primarily used for plantation forestry and also offers opportunities for authorised hunting. Surrounding settlements include Jerrong, Paling Yards, Porters Retreat and Jaunter. The landscape is highly modified for commercial forestry and supports the communities that live in close proximity to this area.

6.0 Preliminary Assessment Tools

6.1 Overview of Preliminary Assessment Tools

Preliminary assessment tools have been developed in the Bulletin to provide an early indication of where turbines require careful consideration because of potential visual impacts. The tools apply to both dwellings and key public viewpoints in the study area. The tools provide an early indication of where placement of turbines will require further assessment and justification, and where consultation with potentially affected landowners needs to be focused – including discussions for landholder agreements.

The preliminary assessment tools involve analysis of two key visual parameters:
1. Visual Magnitude (***Refer to Section 6.2***)
2. Multiple Wind Turbine Tool (***Refer to Section 6.4***)

6.2 Preliminary Assessment Tool 1: Visual Magnitude

The Visual Magnitude Threshold is based on the height of the proposed wind turbines to the tip of the blade and distance from dwellings or key public viewpoints as shown in ***Figure 9***.

In accordance with the Bulletin *'proposed turbines below the black line must be identified along with the dwellings or key public viewpoints as part of the request for SEARs'.* The proposed wind turbines are based on a worst case scenario with a tip height of 240 metres. The 'black line 'intersects at a distance of *3200 metres* and the 'blue line' intersects at *4750 metres*.

For the purpose of the Preliminary Assessment, the Visual Magnitude thresholds are based on a 2D assessment of the Project alone. Further assessment may indicate factors such as topography, relative distance and existing vegetation may minimise or eliminate the impacts of the project from residences.

6.3 Results of Preliminary Visual Magnitude Assessment

The Preliminary Assessment Tool 1 identified a total of ***12 non-involved dwellings*** (and 9 involved dwellings) within *3200m* of a proposed turbine (black line of visual magnitude). See ***Figure 10*** and ***Table 3***.

The Preliminary Assessment Tool 1 identified ***10 non-involved dwellings*** within *3200 - 4750m* of a proposed turbine (blue line of visual magnitude). See ***Figure 10*** and ***Table 2***.

- ***All dwellings identified within 4750m of the nearest proposed turbine are shown on Figure 9 and listed in Tables 3 and 4 - Section 7.0.***

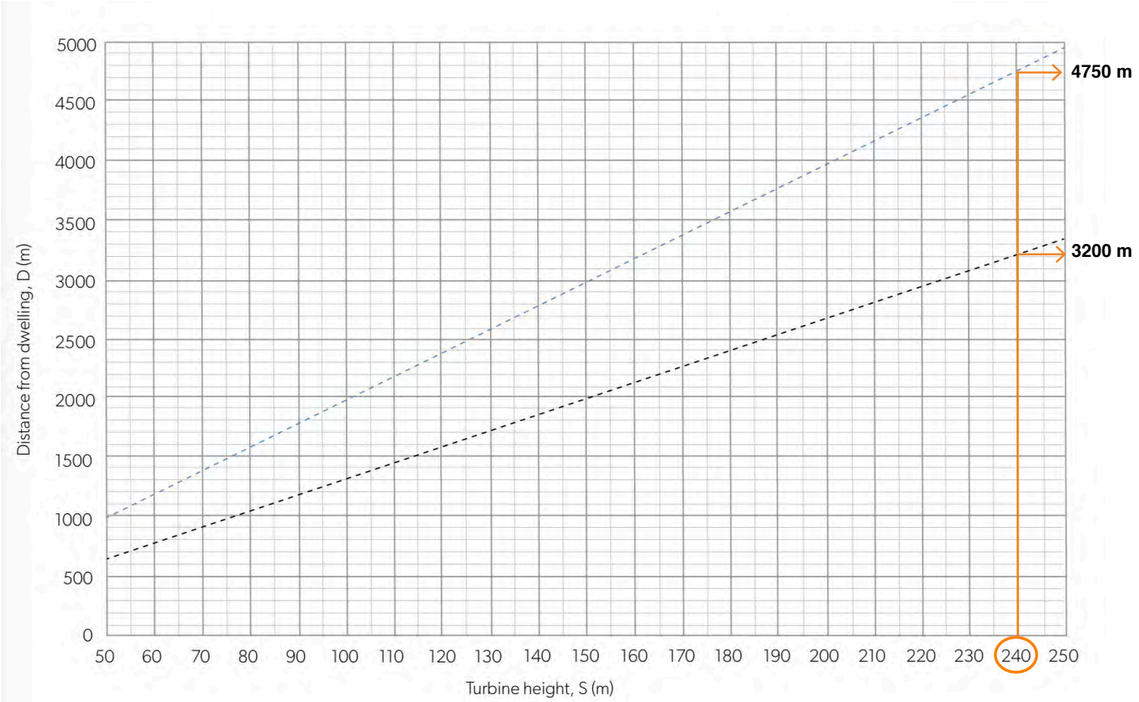
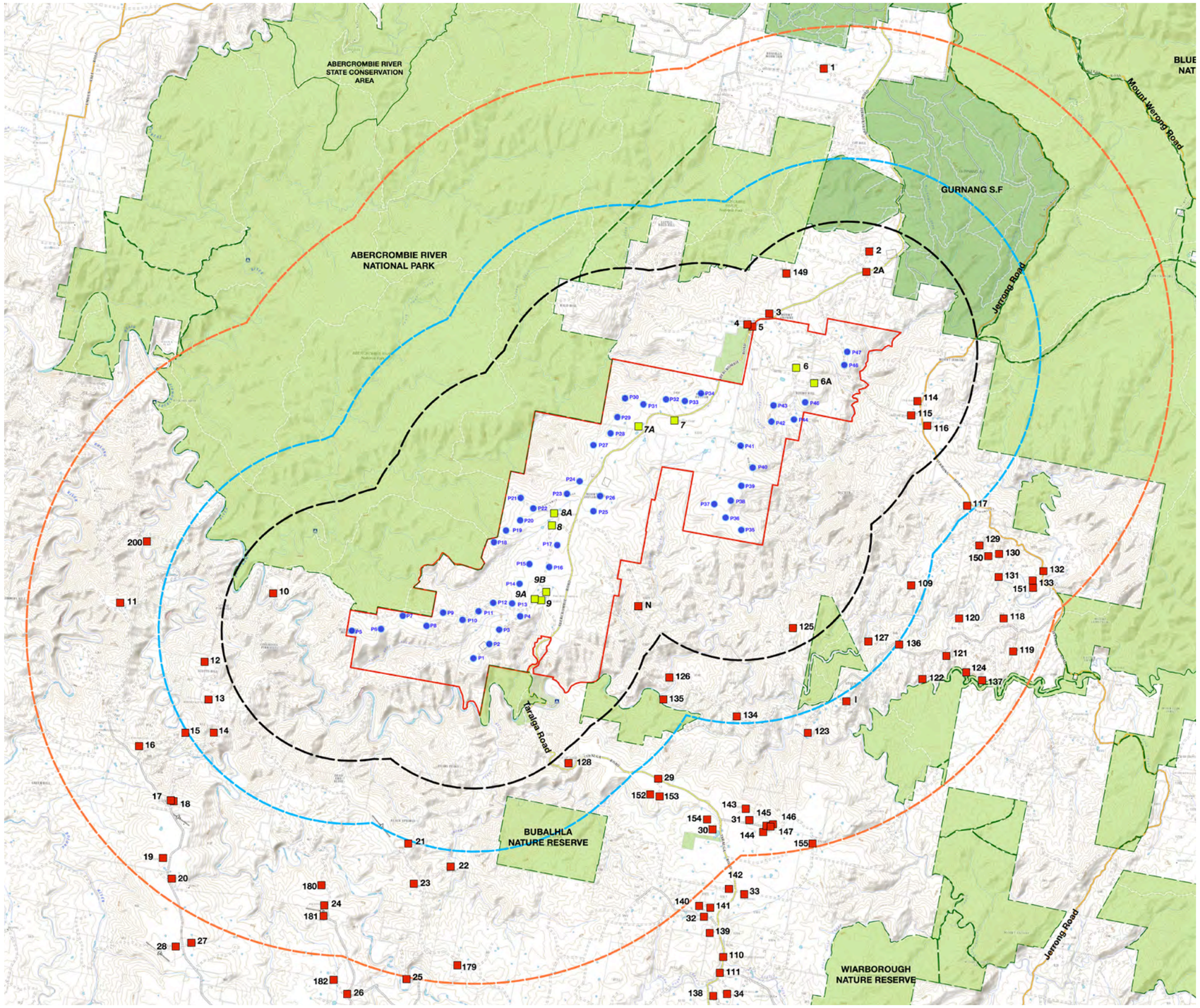


Figure 9 ***Visual Magnitude thresholds for Project Layouts***
(Source: Visual Assessment Bulletin)



Preliminary Visual Magnitude

Proposed Paling Yards Wind Farm

LEGEND

- Project Boundary
- Proposed 240m Turbine Location
- Involved Dwelling
- Non-involved Dwelling
- 3200m from turbine
- 4750m from turbine
- 8000m from turbine
- Main Road
- Minor Road
- National Park / Nature Reserve
- State Forest
- LGA Boundary

Note:

Preliminary Assessment Tool 1: Visual Magnitude is based on a 2D Assessment alone and does not take into account topography, vegetation or other screening factors which may reduce the potential for viewing turbines.

***Figure 10** Preliminary Visual Magnitude - Paling Yards Wind Farm*

6.0 Preliminary Assessment Tools

6.4 Preliminary Assessment Tool 2: Multiple Wind Turbine Tool

The Multiple Wind Turbine Tool provides a preliminary indication of potential cumulative impacts arising from the proposed wind energy project. To establish whether the degree to which dwellings or key public viewpoints may be impacted by multiple wind turbines, the proponent must map into six sectors of 60° any proposed turbines, and any existing or approved turbines within eight kilometres of each dwelling or key public viewpoint. ***Figure 11*** below provides examples of where a dwelling or key public viewpoint may have views to turbines in multiple 60° sectors.

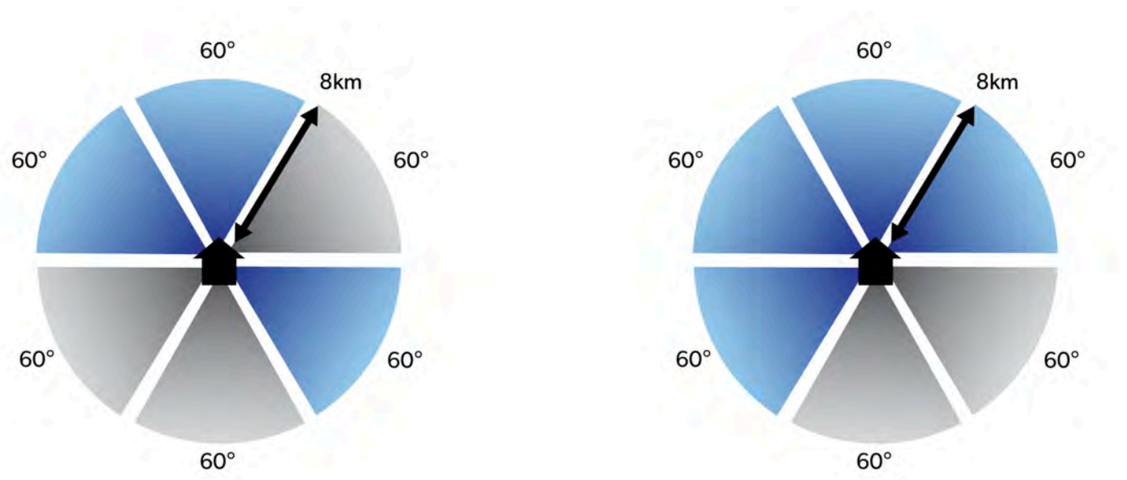


***Figure 11* Preliminary Assessment Tool: Multiple Wind Turbine Tool**

(Source: Visual Assessment Bulletin)

In accordance with the Bulletin *Where wind turbines are visible within the horizontal views of the dwelling or key public viewpoints in three or more 60° sectors, the proponents must identify the turbines, relative dwelling and key public viewpoint, along with the relative distance and submit these to the Department as part of the request for SEARs.* These turbines will become a focus for assessment in the EIS.

Figure 12 provides an overview of the number of 60° sectors visible from each of the dwellings identified within 8 kilometres.

6.5 Results of Preliminary Multiple Wind Turbine Tool (MWTT) Assessment

Note the following preliminary assessment of the multiple wind turbine tool is based on a 2D assessment in accordance with the Bulletin:

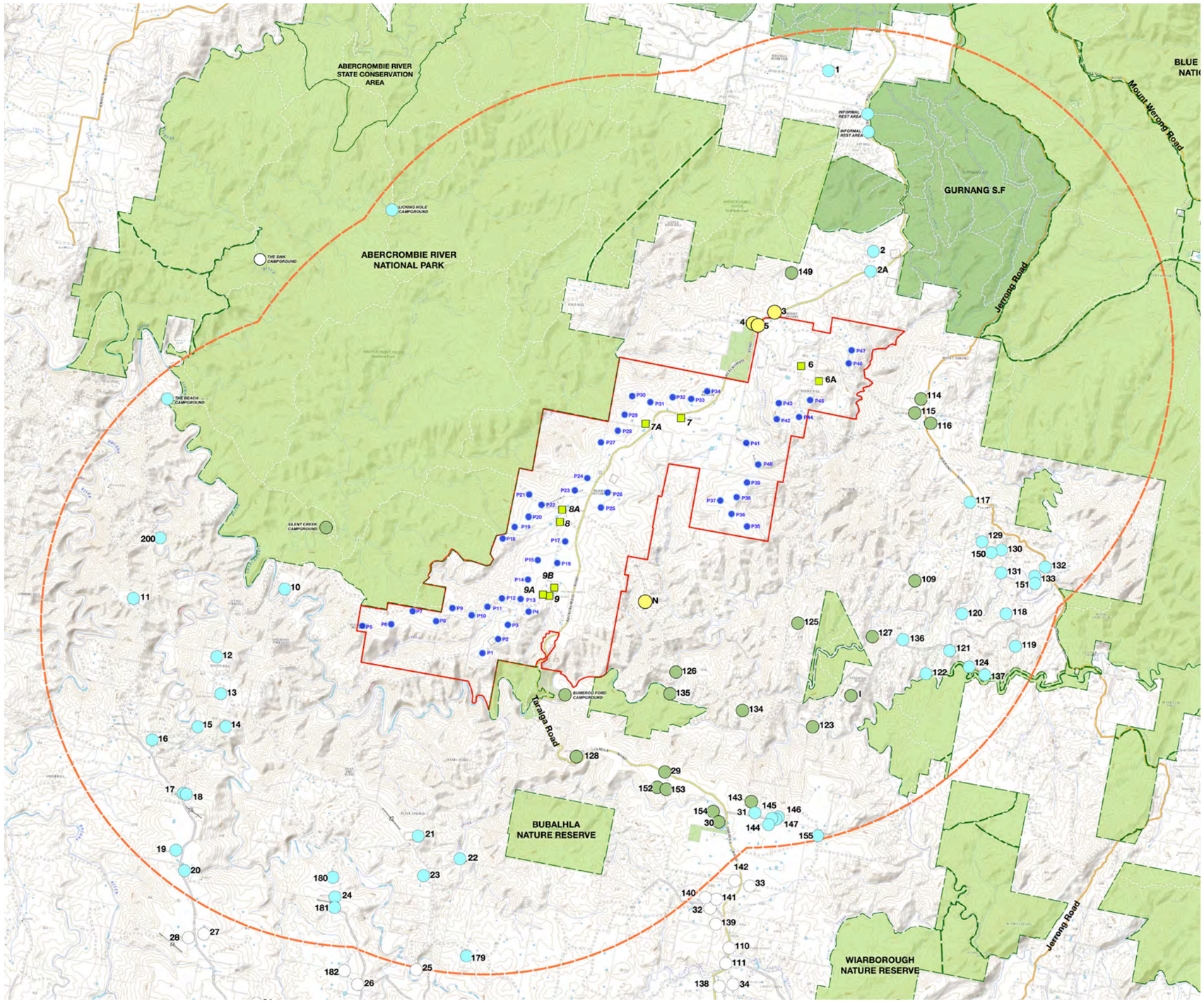
- Four (4) dwelling have the potential to view turbines in up to three (3) 60° sectors (up to 180°) (Dwellings, 3, 4, 5 and N).
- 19 non-involved dwellings have the potential to view turbines in up to two (2) 60° sectors (up to 120°) which is deemed acceptable for a rural residence.
- The remaining dwellings are likely to have views to turbines in up to one (1) 60° sector or are in excess of 8000 m which is deemed acceptable.
- Seven (7) public viewpoints were assessed using the Preliminary MWTT. The assessment found all public viewpoint locations have been identified as having turbines potentially visible in two (2) or less 60 degree sectors.

Further assessment and justification of dwelling 'N' will be detailed in the EIS.

Next Steps:

Further assessment and justification for placement of turbines in multiple sectors will need to be detailed in the EIS, along with a description of the mitigation and management measures being employed to reduce impacts. Such further assessment may identify that factors such as topography, relative distance and existing vegetation may minimise the impacts of the project.

6.0 Preliminary Assessment Tools



Preliminary Multiple Wind Turbine Tool

Proposed Paling Yards Wind Farm

LEGEND

- Project Boundary
- Proposed 240m Turbine Location
- Involved Dwelling
- 8000m from nearest turbine
- Main Road
- Minor Road
- National Park / Nature Reserve
- State Forest

NON-INVOLVED DWELLINGS

NUMBER OF 60° SECTORS:

- Dwelling in excess of 8 kilometres
- One (1) 60° Sector (60°)
- Up to Two (2) 60° Sectors (120°)
- Up to Three (3) 60° Sectors (180°)

Note:

Preliminary Assessment Tool 2: Multiple Wind Turbine Tool is based on a 2D Assessment alone and does not take into account topography, vegetation or other screening factors which may reduce the potential for viewing multiple turbines.

***Figure 12** Multiple Wind Turbine Tool - Paling Yards Wind Farm*

7.0 Preliminary Dwelling & Viewpoint Assessments

7.1 Preliminary Assessment of Dwellings

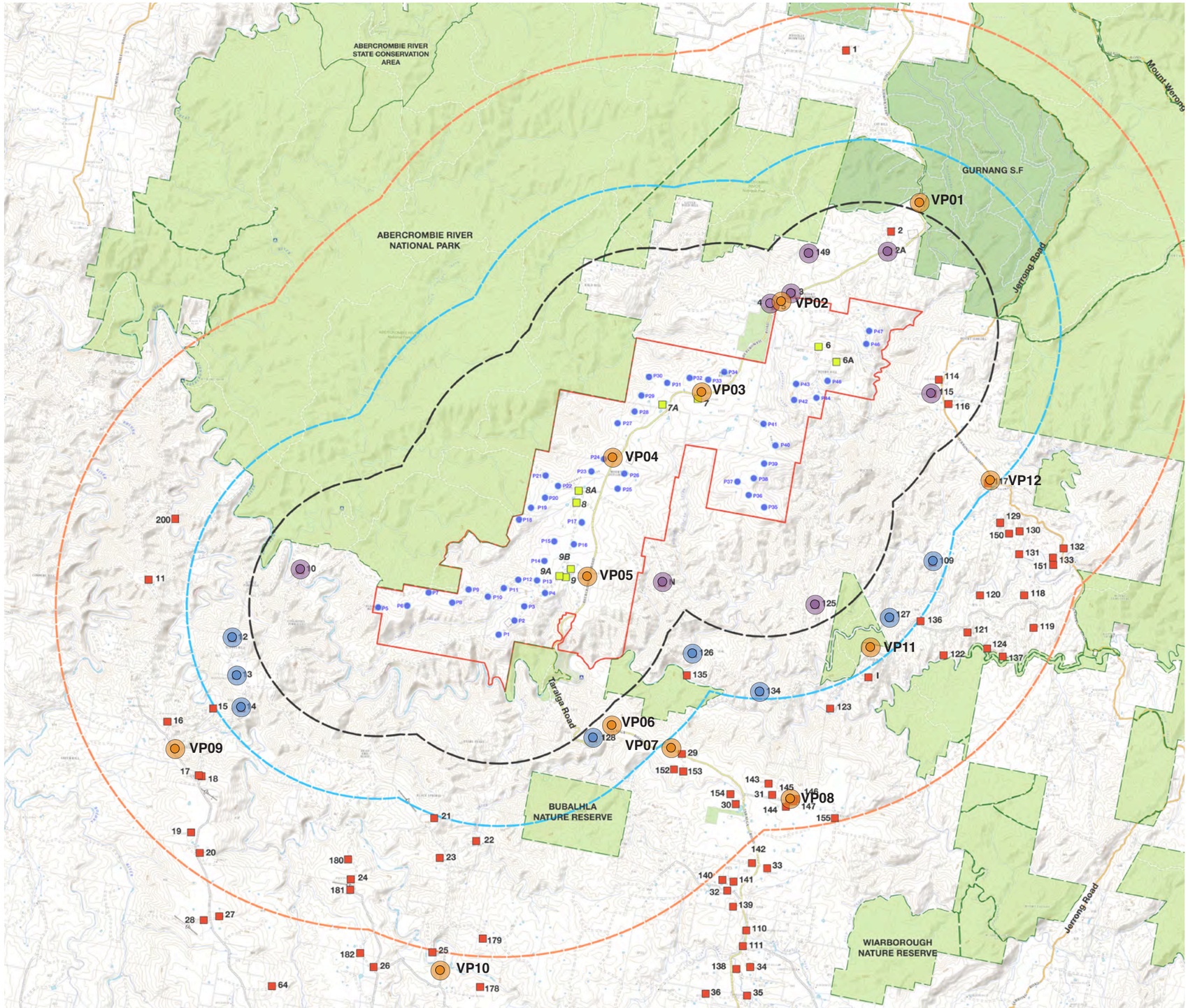
Table 3 provides a summary of the application of the preliminary assessment tools for each of the 12 residences within 3200 metres of the nearest turbine.

Table 4 summarises the preliminary assessment tools for all ten (10) non-involved dwellings within 3200 - 4750 metres of the nearest turbine.

Examples of the preliminary assessment tools applied to 12 representative non-involved dwellings within 4750 m have been included in ***Appendix A***.

7.2 Preliminary Assessment of Public Viewpoints

Appendix B provides preliminary assessments from Public Viewpoints to illustrate the existing landscape character of the area. A total of 12 preliminary viewpoints have been selected to illustrate the varying landscape character typologies throughout the Study Area and provide a preliminary assessment of the potential visibility of the Project (as shown on ***Figure 13***).



Preliminary Dwelling & Viewpoint Assessment Locations

Proposed Paling Yards Wind Farm

LEGEND

- Project Boundary
- Proposed 240m Turbine Location
- Involved Dwelling
- Non-involved Dwelling
- 3200m from turbine
- 4750m from turbine
- 8000m from turbine
- Main Road
- Minor Road
- Preliminary Dwelling Assessment - Dwellings within 3200 m
  Refer to Appendix A
- Preliminary Dwelling Assessment - Dwellings between 3200 - 4750 m
  Refer to Appendix A
- Preliminary Public Viewpoint Assessment Location -
  Refer to Appendix B

N

Figure 13 ***Preliminary Dwelling and Public Viewpoint Assessment Locations***

7.0 Preliminary Dwelling & Viewpoint Assessments

Non-involved dwellings within 3,200 metres of nearest WTG (Black Line of Visual Magnitude)					
Dwelling ID:	**Approx distance to nearest WTG (kms)**	**Number of turbines within 3,200 m**	**Number of 60° sectors (Based on 2D Assessment)**	**Number of potentially visible WTGs (Based on ZVI Assessment)**	**Preliminary Assessment Notes:**
2A	2.019 km	2	1	35 - 44	Refer to A1 (Appendix A)
2	2.519 km	2	1	15 - 24	
3	2.130 km	8	3	35 - 44	Refer to A2 (Appendix A)
4	2.003 km	10	3	35 - 44	Refer to A3 (Appendix A)
5	2.086 km	10	3	35 - 44	
10	2.130 km	2	1	15 - 24	Refer to A4 (Appendix A)
114	2.008 km	4	2	45 - 47	Refer to A5 (Appendix A)
115	2.059 km	4	2	15 - 24	
116	2.527 km	3	2	15 - 24	
125	2.724 km	2	2	15 - 24	Refer to A6 (Appendix A)
N	2.389 km	11	3	35 - 44	Refer to A7 (Appendix A)
149	2.434 km	2	1	1 - 14	Refer to A8 (Appendix A)

Table 3 Overview of Dwellings within 3,200 m

Non-involved dwellings within 3200 - 4750 metres of nearest WTG (Blue Line of Visual Magnitude)					
Dwelling ID:	**Approx distance to nearest WTG (kms)**	**Number of turbines within 4,750m**	**Number of 60° sectors (Based on 2D Assessment)**	**Approx. number of potentially visible WTGs (Based on ZVI Assessment)**	**Preliminary Assessment Notes:**
12	3.700 km	2	1	45 - 47	Refer to A9 (Appendix A)
13	3.906 km	2	1	45 - 47	Refer to A10 (Appendix A)
14	4.221 km	1	1	NIL	Refer to A11 (Appendix A)
109	4.393 km	1	2	35 - 44	Refer to A12 (Appendix A)
117	4.591 km	3	1	45 - 47	Refer to Viewpoint 12
126	3.962 km	14	2	1 - 14	Refer to A16 (Appendix A)
135	4.067 km	10	2	1 - 14	
127	4.156 km	2	2	1 - 14	Refer to A13 (Appendix A)
128	3.478 km	9	2	35 - 44	Refer to A14 (Appendix A)
134	4.582 km	1	2	15 - 24	Refer to A15 (Appendix A)

Table 4 Overview of Dwellings within 3200 - 4750 m

8.0 Preliminary Zone of Visual Influence

8.1 Preliminary Zone of Visual Influence

The Bulletin states *'the use of Geographic Information Systems (GIS) to facilitate the application of the tools will streamline the evaluation phase of the evaluation phase of a project during the pre-lodgement stage. This can also assist in refining the number of turbines and viewpoints that will ultimately need more detailed assessment.'*

A preliminary Zone of Visual Influence (ZVI) has been prepared for Paling Yards Wind Farm to illustrate the theoretical visibility of the proposed project (based on the preliminary layout). A wind turbine height of 240 metres has been used to provide a worst case scenario.

The Zone of Visual Influence (ZVI) represents the area over which a development can theoretically be seen, and is based on a Digital Terrain Model (DTM). The ZVI usually presents a bare ground scenario - ie. A landscape without screening, structures or vegetation, and is usually presented on a base map. It is also referred to as a zone of theoretical visibility (The Landscape Institute and the institute of Environmental Management and Assessment, 2002).

The ZVI has been determined through the use of digital topographic information and 3D modelling software *WindPro*. The ZVI has been assessed to approximately 10km from the project. Although it is possible for the development to be visible from further than 10km away, it is generally accepted that beyond 10km visibility is greatly diminished.

A preliminary ZVI figure has been prepared by Moir LA to assess the Paling Yards Wind Farm. ***Figure 14*** depicts the areas of land from which the proposed development may be visible at a blade tip height of 240 m and provides an indicative number of visible wind turbines. ***Figure 15*** depicts the areas of land from which the proposed turbines would theoretically be visible from a hub height of 165 m.

8.2 Summary of Preliminary Zone of Visual Influence

The following provides a brief summary of the Preliminary Zone of Visual Influence map prepared for Paling Yards Wind Farm:

- Due to the undulating topography that characterises the landscape, there are large areas of land in the Study Area, from which the proposal will be screened by topography.
- Views to the majority of turbines associated with the Project are likely to be visible from the majority of dwellings within 4,750 metres of the Project.
- A large percentage of dwellings are located along or close to ridgelines with views available toward the project.
- Dense vegetation typical of the landscape in the Study Area has the potential to reduce potential visibility from a large number of dwellings.

It is important to reiterate this is a preliminary ZVI is based on a worst case scenario assessment with no vegetation or structures. Ground truthing during field work will ascertain potential visibility taking into account structures and vegetation.

8.0 Preliminary Zone of Visual Influence

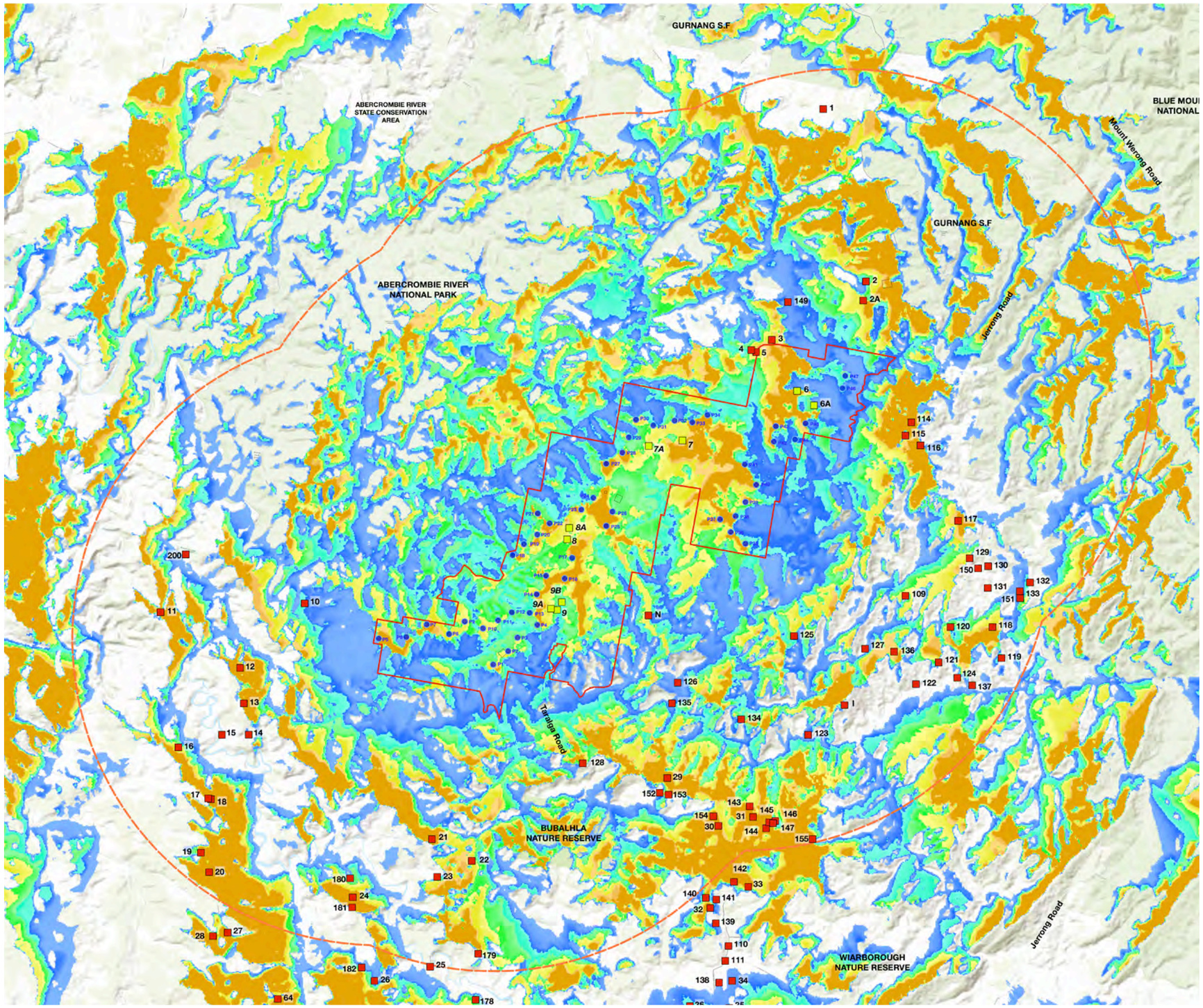


***Figure 14** Theoretical Zone of Visual Influence (Blade Tip Height - 240m)*

Zone of Visual Influence Blade Tip Height: 240 m

Proposed Paling Yards Wind Farm

LEGEND

- Project Boundary
- Proposed 240 m Turbine Location
- Involved Dwelling
- Non-involved Dwelling
- 8000 m from turbine
- Main Road

ZVI Number of Visible Turbines (at blade tip):

- 0
- 1-14
- 15-24
- 25-34
- 35-44
- 45-47

Note:

The ZVI is a preliminary assessment tool that represents a bare ground scenario - ie. a landscape without screening, structures or vegetation. As accurate information on the height and coverage of vegetation and buildings is unavailable, it is important to note the ZVI is based solely on topographic information. Therefore this form of mapping should be acknowledged as representing the worst case scenario.

N

8.0 Preliminary Zone of Visual Influence

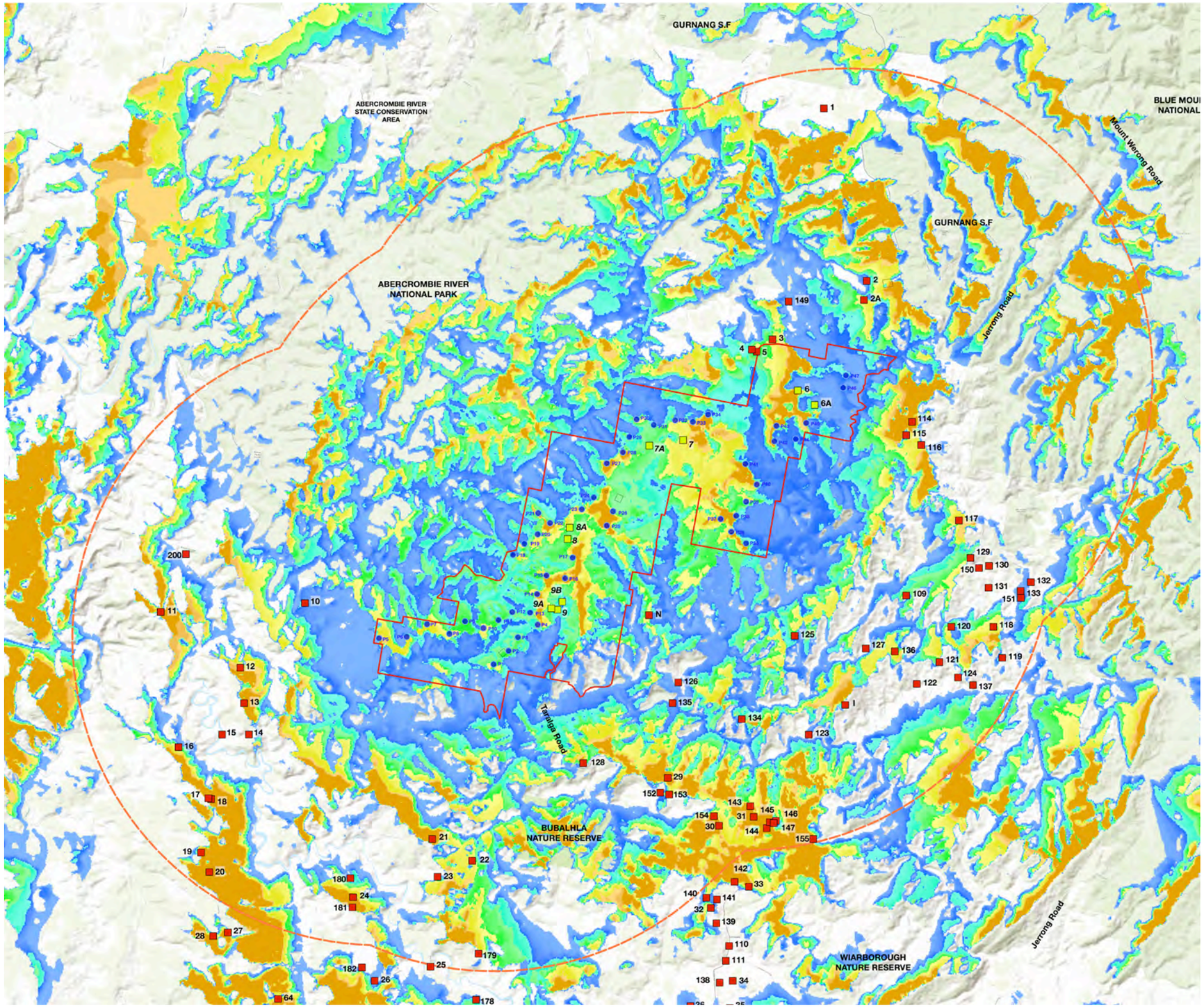


***Figure 15** Theoretical Zone of Visual Influence (Hub Height - 165m)*

Zone of Visual Influence Hub Height: 165 m

Proposed Paling Yards Wind Farm

LEGEND

- Project Boundary
- Proposed 240m Turbine Location
- Involved Dwelling
- Non-involved Dwelling
- 8000m from turbine
- Main Road

ZVI Number of Visible Turbines (at hub height):

- 0
- 1-14
- 15-24
- 25-34
- 35-44
- 45-47

Note:

The ZVI is a preliminary assessment tool that represents a bare ground scenario - ie. a landscape without screening, structures or vegetation. As accurate information on the height and coverage of vegetation and buildings is unavailable, it is important to note the ZVI is based solely on topographic information. Therefore this form of mapping should be acknowledged as representing the worst case scenario.

N

9.0 Summary

9.1 Summary of PVIA

This Preliminary Visual Impact Assessment (PVIA) has been undertaken in accordance with the Visual Assessment Bulletin, and will be submitted in addition to the Scoping Report in the request for Secretary's Environmental Assessment Requirements (SEARs). The following provides a brief summary of the PVIA and outlines the steps that will be undertaken in the Landscape and Visual Impact Assessment (LVIA) which will form apart of the EIS Phase of the Project.

Existing Landscape Character

This PVIA provided a detailed assessment of the existing landscape character of the Study Area through the following:

- Identified land uses, key landscape features and key viewpoints.
- The preliminary landscape character assessment identified (6) six Landscape Character Units (LCUs) and applied preliminary scenic quality ratings to each of these LCUs ranging from Low - High.
- Preliminary identification of Landscape Character Units have been assigned Scenic Quality Ratings.

Next Steps:

- Utilise the landscape character assessment to prepare a detailed Visual Baseline Study.
- Identification of any additional key features, key viewpoints valued by the community through consultation and undertake detailed assessment.
- Refine the Landscape Character Units and allow the community to provide feedback on the relative scenic quality ratings of LCUs.
- Continue community consultation in accordance with the Visual Assessment Bulletin.
- Determine the Visual Influence Zone of key viewpoints and assess against the objectives outlined in the Visual Assessment Bulletin.

Application of the Preliminary Assessment Tools:

The purpose of the Preliminary Assessment Tools in the PVIA is to identify 'sensitive receptors' for further assessment in the EIS Phase of the Project.

- The Visual Magnitude Tool identified a total of **12 non-involved dwellings** within the black line of visual magnitude (3,200 m) and **10 non-involved dwellings** within the blue line of visual magnitude (3,200 - 4,750 m).
- The Multiple Wind Turbine Tool (MWTT) was applied to all dwellings within 8000 m of the nearest proposed turbine.
- The MWTT identified four (4) dwellings with turbines in more than two (2) 60 degree sectors.

Next Steps:

- The LVIA will assess each 'sensitive receptor' in detail to take into account topography, vegetation and other screening factors.
- The LVIA will determine the potential visual impact of each sensitive receptor and provide mitigation methods to reduce potential visual impacts.

Zone of Visual Influence

A Zone of Visual Influence (ZVI) has been prepared to illustrate the theoretical visibility of the Project and to assist in defining the visual catchment. Two Preliminary ZVI have been prepared: one from a blade tip height of 230 m and one from a hub height of 165 m to illustrate areas which

Next Steps:

- The LVIA will require further detailed assessment from areas identified as having potential visibility in the Preliminary ZVIs.
- Provide graphic representations of the Project using GIS technology including wire frame diagrams and photomontages.

References

References:

ERM, *Paling Yards Wind Farm: Consultation Report and Socio Economic Impact Assessment,* 16th January 2014

Green Bean Design Landscape Architects, *Paling Yards Wind Farm: Landscape and Visual Impact Assessmen*t, December 2013

NSW Planning and Environment, *Wind Energy: Visual Assessment Bulletin For State significant wind energy development*, December 2016.

NSW Department of Planning, Industry and Environment, *New South Wales National Parks and Wildlife Services, Developments adjacent to National Parks and Wildlife Service lands: Guidelines for consent and planning authorities*, 2020.

Maps:

NSW Government Land and Property Information, Spatial Information Exchange SIX Maps, Accessed at: <http://maps.six.nsw.gov.au/> [Accessed between January 2021 – May 2021]

https://www.environment.nsw.gov.au/bioregions/SouthWesternSlopes-Maps.htm

https://www.environment.nsw.gov.au/bioregions/SouthEasternHighlands-Maps.htm

Google Earth Pro 2021 [Viewed January 2021 - May 2021] www.google.com/earth/index.html

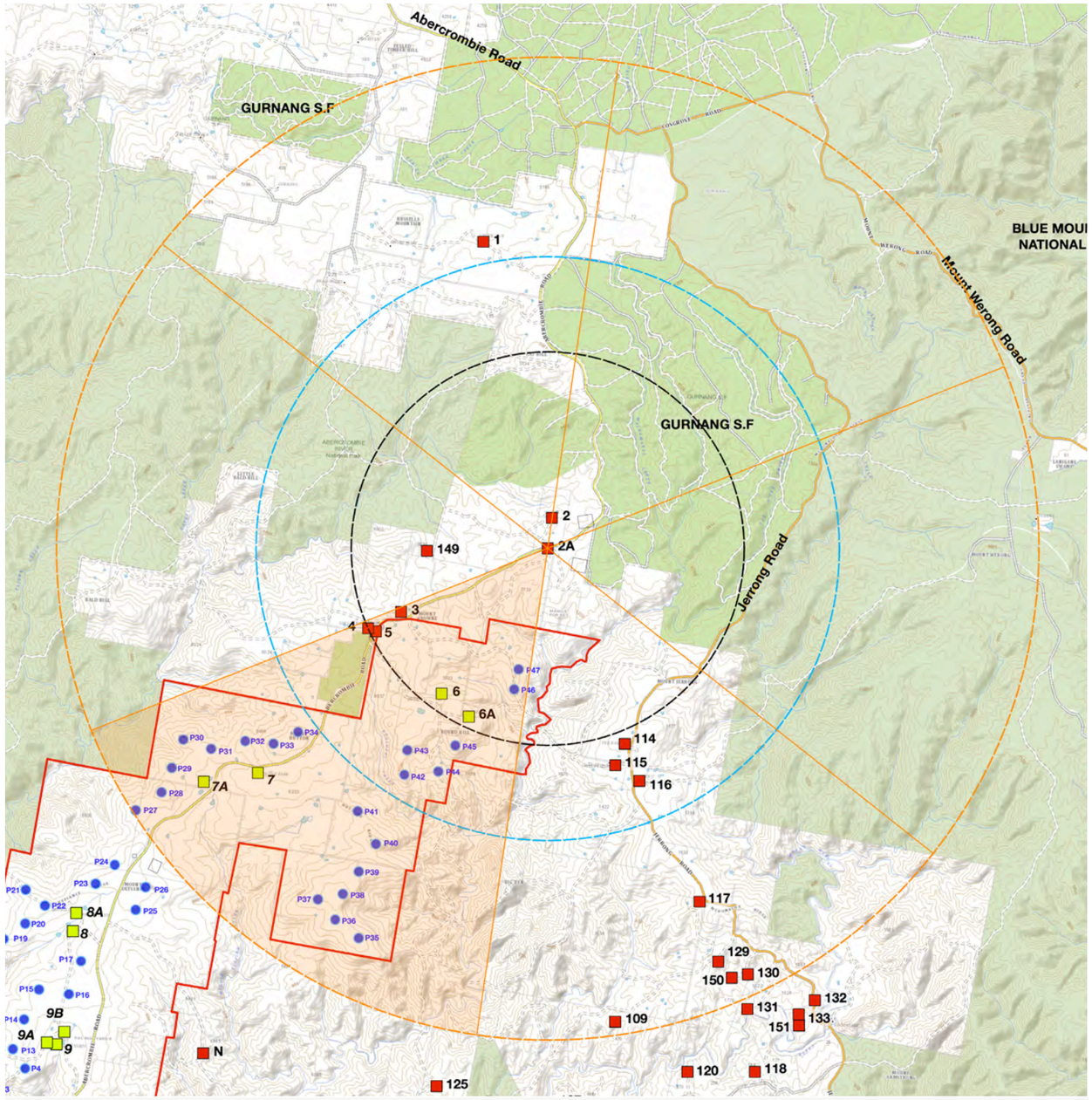
Appendix A

Preliminary Dwelling Assessments

A.1 - A.8: Dwellings within 3200 m (Black Line of Visual Magnitude)

A.9 - A.16: Dwellings within 3200 - 4750 m (Blue Line of Visual Magnitude)

A1. Dwelling 2A Preliminary Assessment Tools



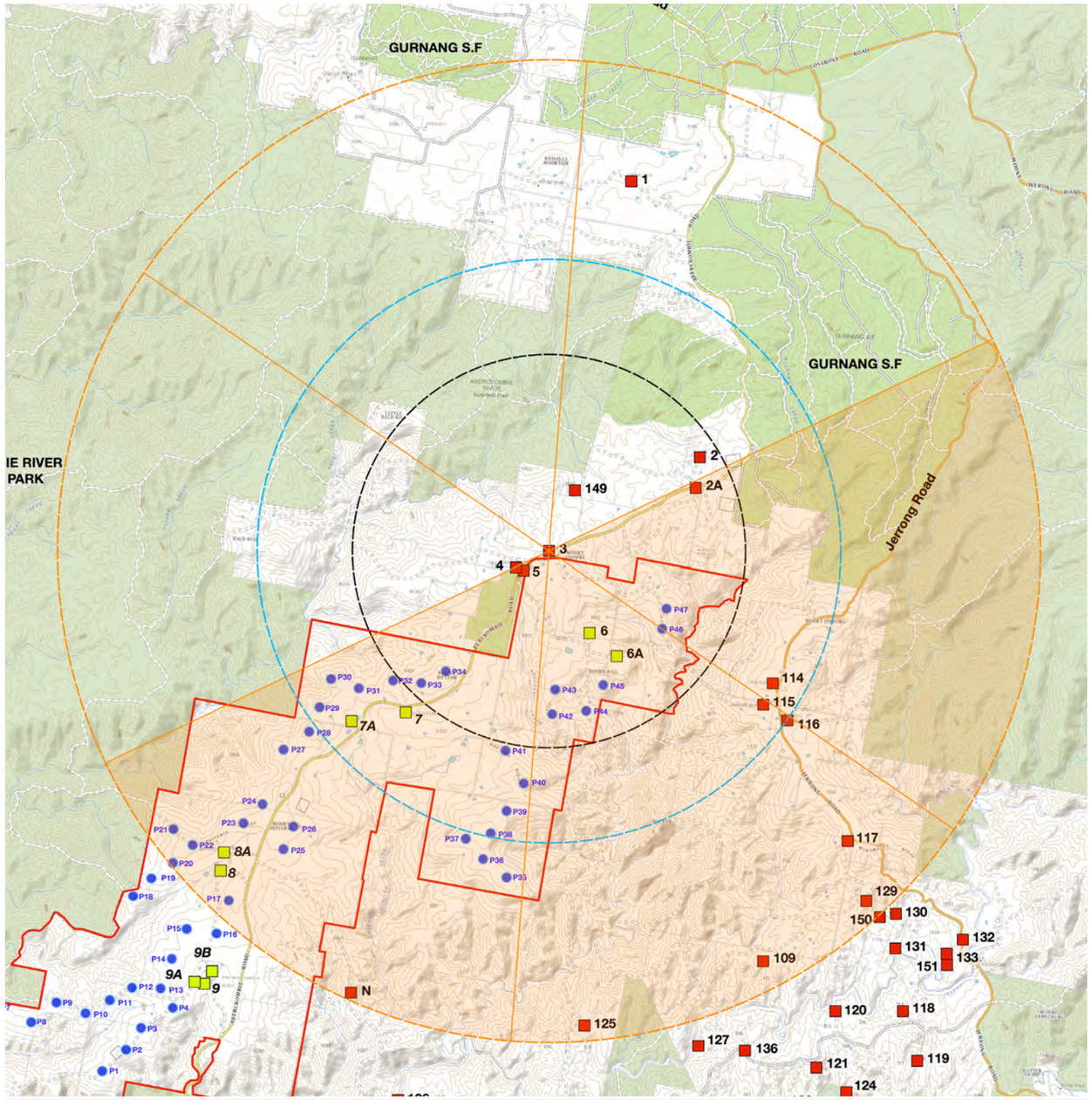
LEGEND

- Project Boundary
- Proposed Turbine Location
- Proposed Turbine in excess of 8000 m from dwelling
- Involved Dwelling
- Non-involved Dwelling
- 3200 m from nearest turbine (Black Line)
- 4750 m from nearest turbine (Blue Line)
- 8000 m from nearest turbine
- 60º sector
- 60º sector with turbines

Figure A.1 Aerial Image Dwelling 2A (Source: Google Earth Imagery Date: 18.10.2019)

Summary of Preliminary Assessment Tools:	
Distance to Nearest Turbine:	**2.019 km**
Number of proposed turbines within Black Line (3200 m):	**2**
Number of theoretical 60º sectors (Based on 2D assessment):	**1 (Up to 60º)**
Number of potentially visible turbines:	**35 - 44**

A2. Dwelling 3 Preliminary Assessment Tools



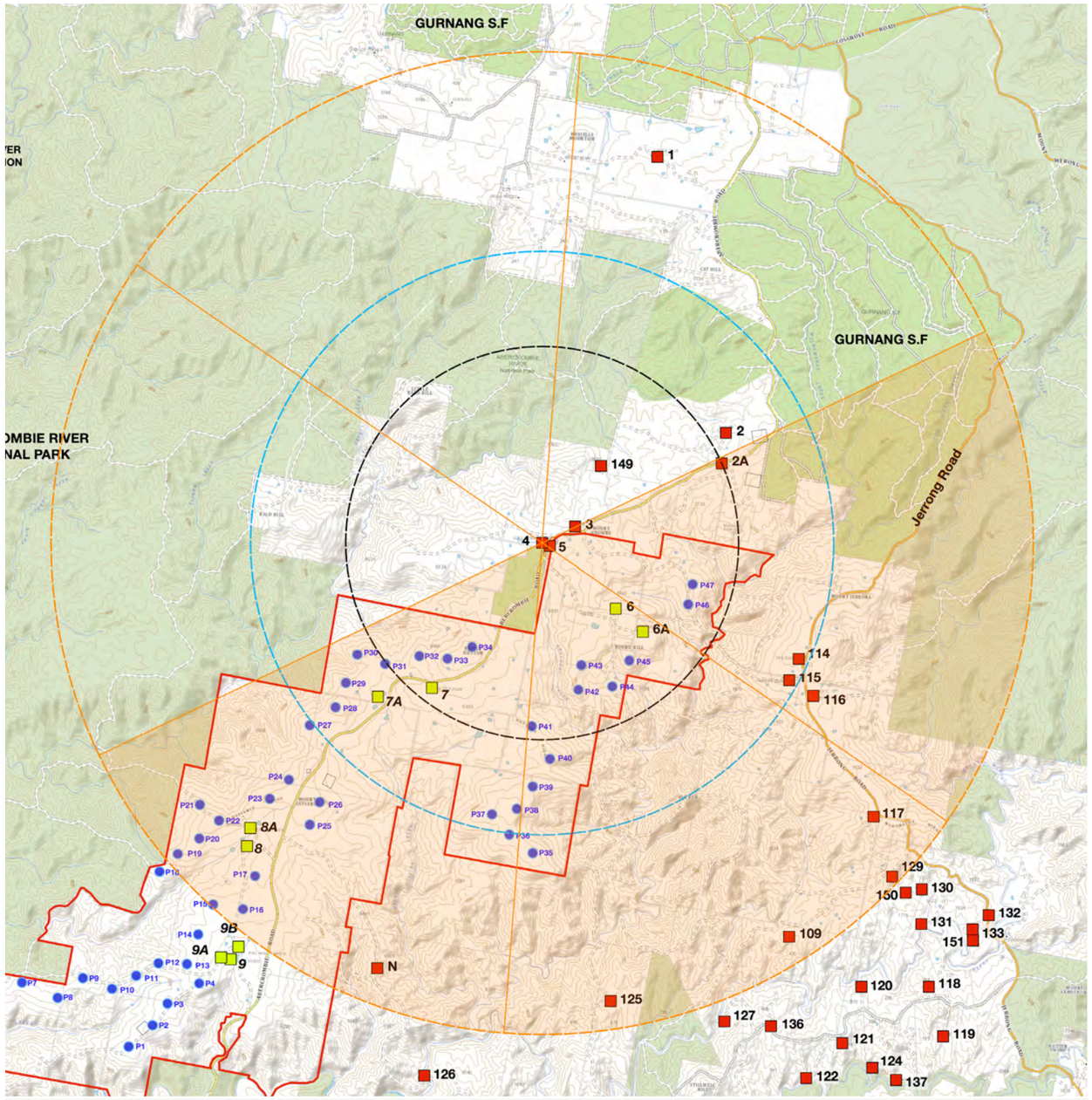
LEGEND

- Project Boundary
- Proposed Turbine Location
- Proposed Turbine in excess of 8000 m from dwelling
- Involved Dwelling
- Non-involved Dwelling
- 3200 m from nearest turbine (Black Line)
- 4750 m from nearest turbine (Blue Line)
- 8000 m from nearest turbine
- 60º sector
- 60º sector with turbines

Figure A.2 Aerial Image Dwelling 3 (Source: Google Earth Imagery Date: 18.10.2019)

Summary of Preliminary Assessment Tools:	
Distance to Nearest Turbine:	**2.130 km**
Number of proposed turbines within Black Line (3200 m):	**8**
Number of theoretical 60º sectors (Based on 2D assessment):	**3 (Up to 180º)**
Number of potentially visible turbines:	**35 - 44**

A3. Dwelling 4 Preliminary Assessment Tools



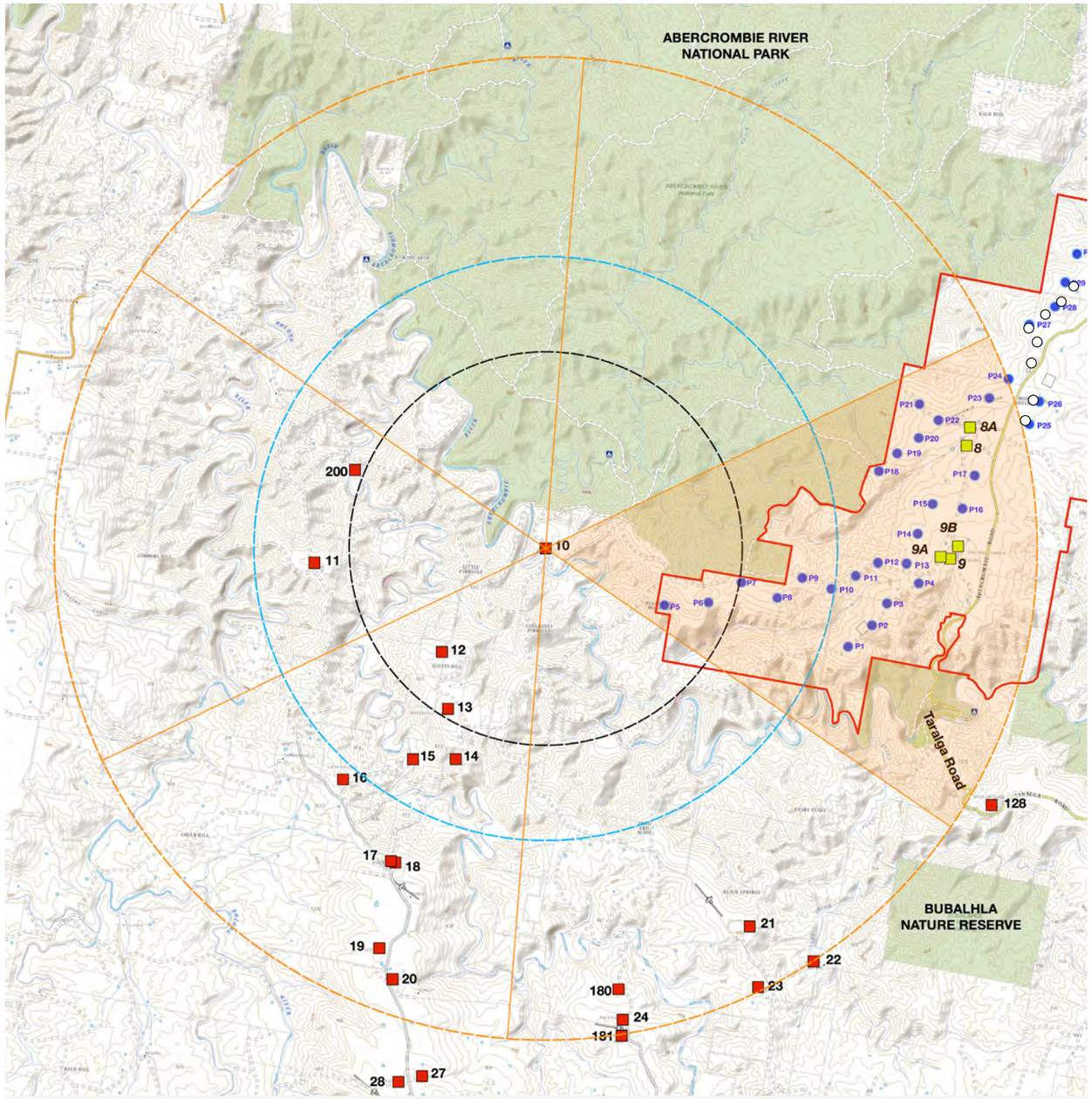
LEGEND

- Project Boundary
- Proposed Turbine Location
- Proposed Turbine in excess of 8000 m from dwelling
- Involved Dwelling
- Non-involved Dwelling
- 3200 m from nearest turbine (Black Line)
- 4750 m from nearest turbine (Blue Line)
- 8000 m from nearest turbine
- 60° sector
- 60° sector with turbines

Figure A.3 Aerial Image Dwelling 4 (Source: Google Earth Imagery Date: 18.10.2019)

Summary of Preliminary Assessment Tools:	
Distance to Nearest Turbine:	**2.003 km**
Number of proposed turbines within Black Line (3200 m):	**10**
Number of theoretical 60° sectors (Based on 2D assessment):	**3 (Up to 180°)**
Number of potentially visible turbines:	**35 - 44**

A4. Dwelling 10 Preliminary Assessment Tools



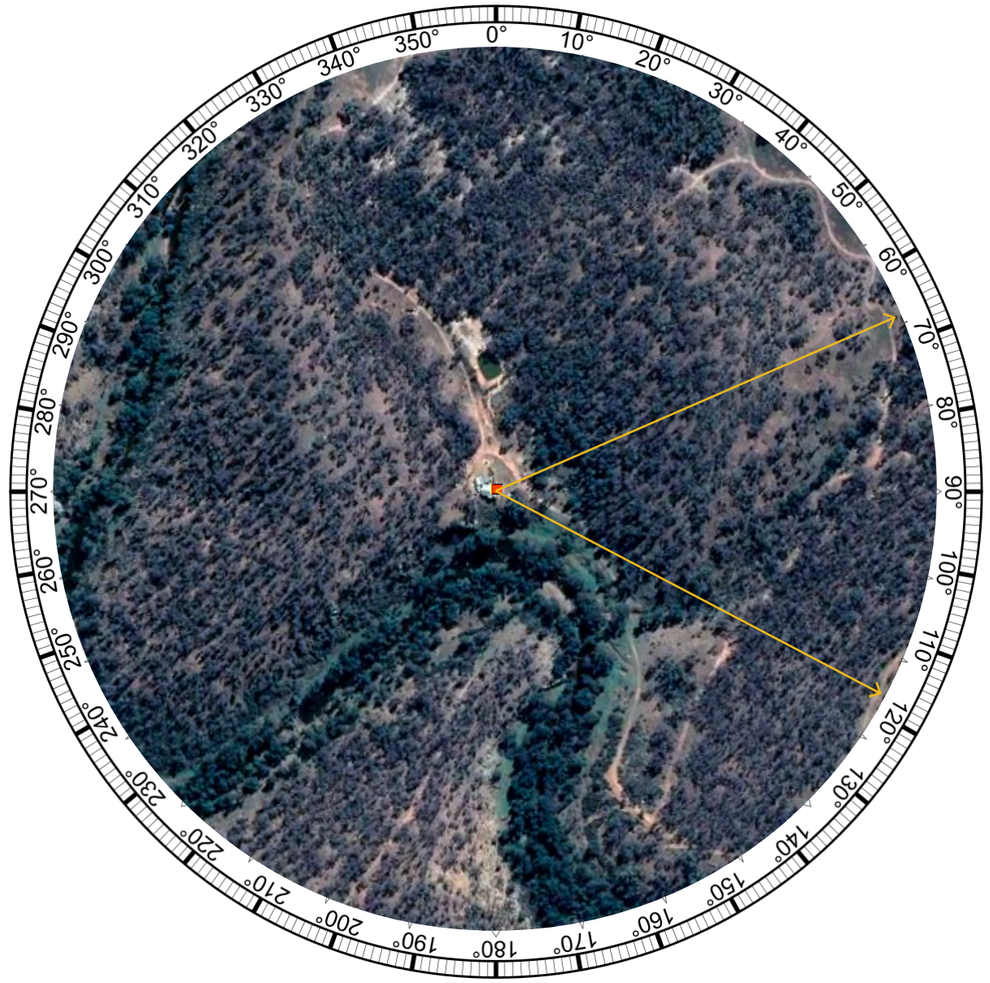
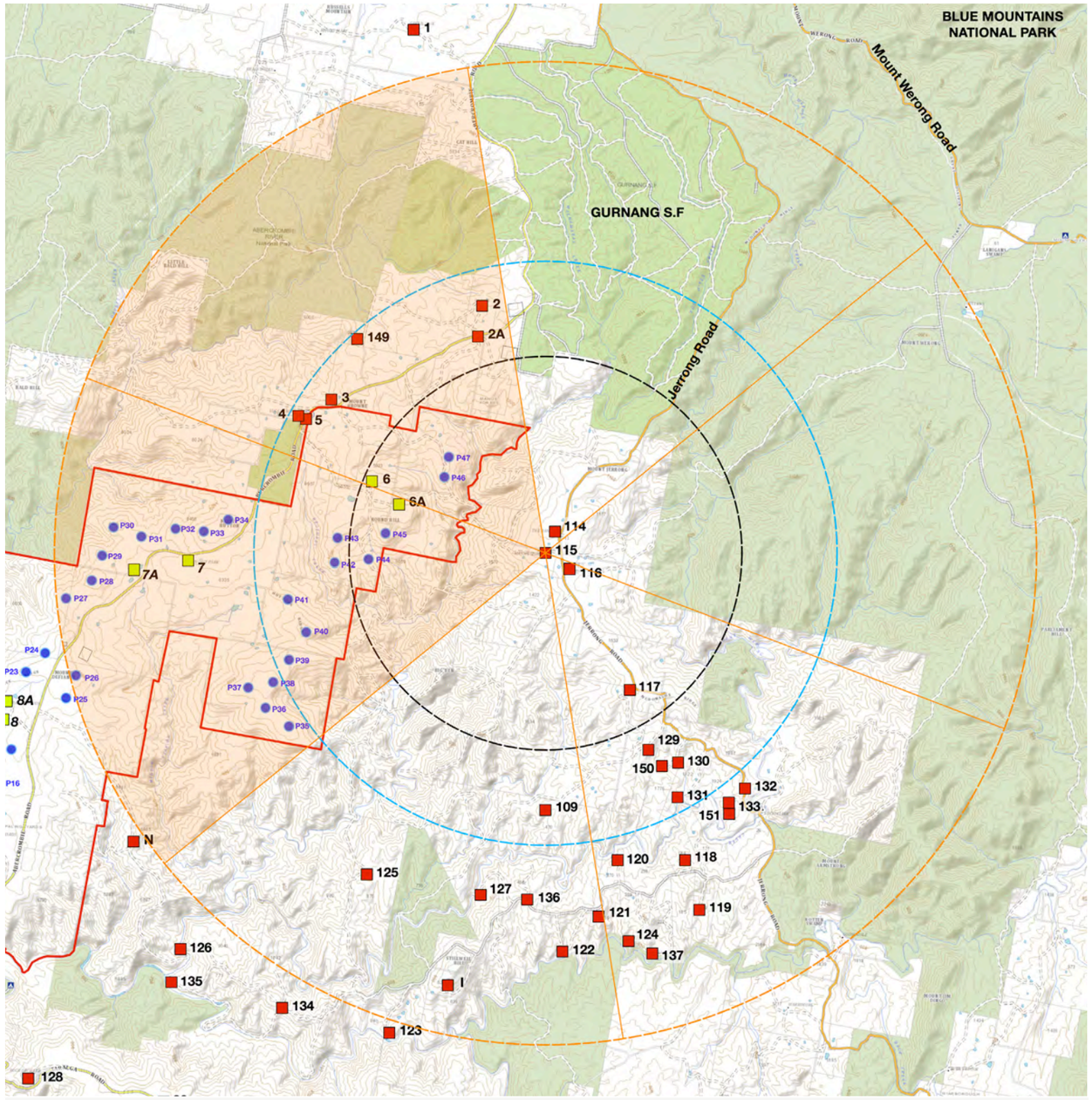


Figure A.4 Aerial Image Dwelling 10 (Source: Google Earth Imagery Date: 22.09.2018)

Summary of Preliminary Assessment Tools:	
Distance to Nearest Turbine:	**2.086 km**
Number of proposed turbines within Black Line (3200 m):	**2**
Number of theoretical 60° sectors (Based on 2D assessment):	**1 (Up to 60°)**
Number of potentially visible turbines:	**15 - 24**

A5. Dwelling 115 Preliminary Assessment Tools



LEGEND

- Project Boundary
- Proposed Turbine Location
- Proposed Turbine in excess of 8000 m from dwelling
- Involved Dwelling
- Non-involved Dwelling
- 3200 m from nearest turbine (Black Line)
- 4750 m from nearest turbine (Blue Line)
- 8000 m from nearest turbine
- 60° sector
- 60° sector with turbines

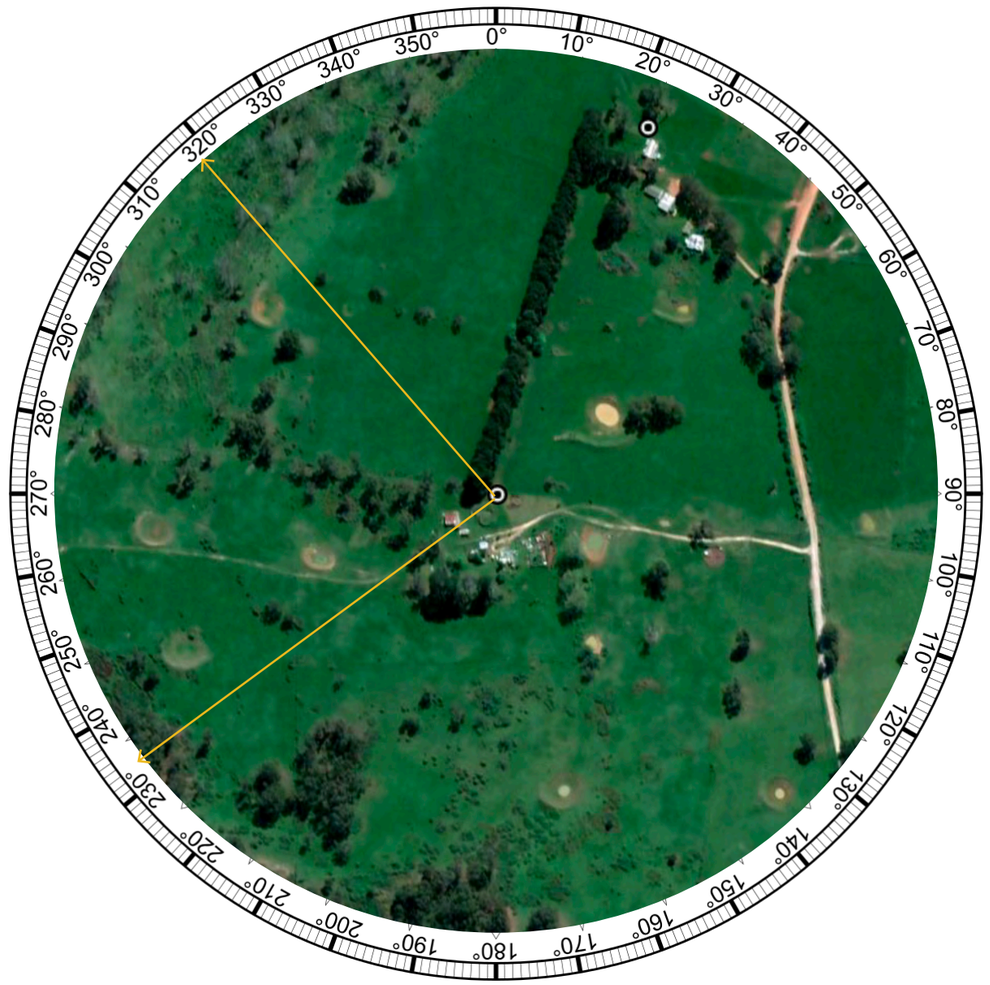


Figure A.5 Aerial Image Dwelling 115 (Source: Google Earth Imagery Date: 22.09.2018)

Summary of Preliminary Assessment Tools:	
Distance to Nearest Turbine:	**2.059 km**
Number of proposed turbines within Black Line (3200 m):	**4**
Number of theoretical 60° sectors (Based on 2D assessment):	**2 (Up to 120°)**
Number of potentially visible turbines:	**15 - 24**

A6. Dwelling 125 Preliminary Assessment Tools

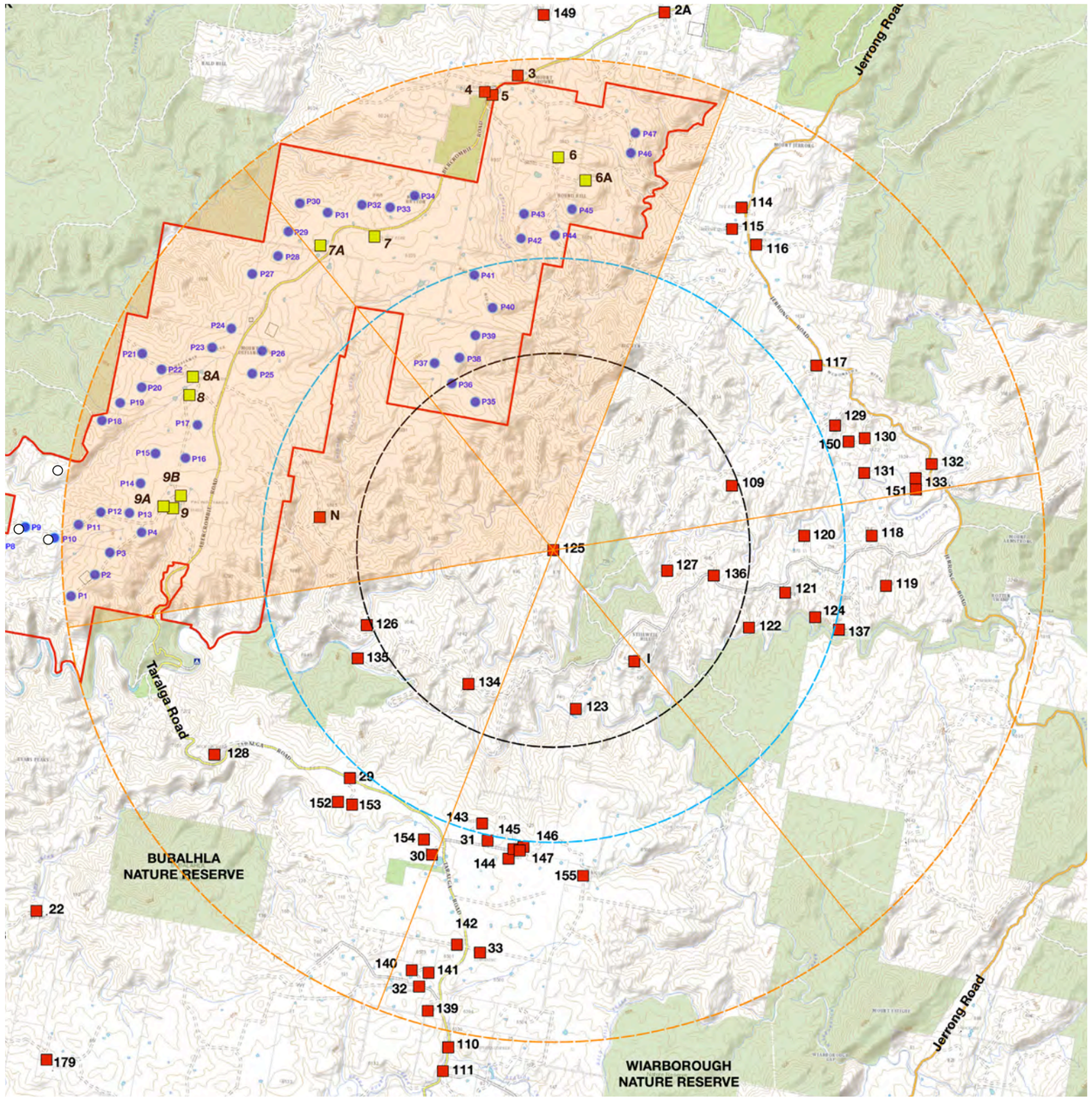
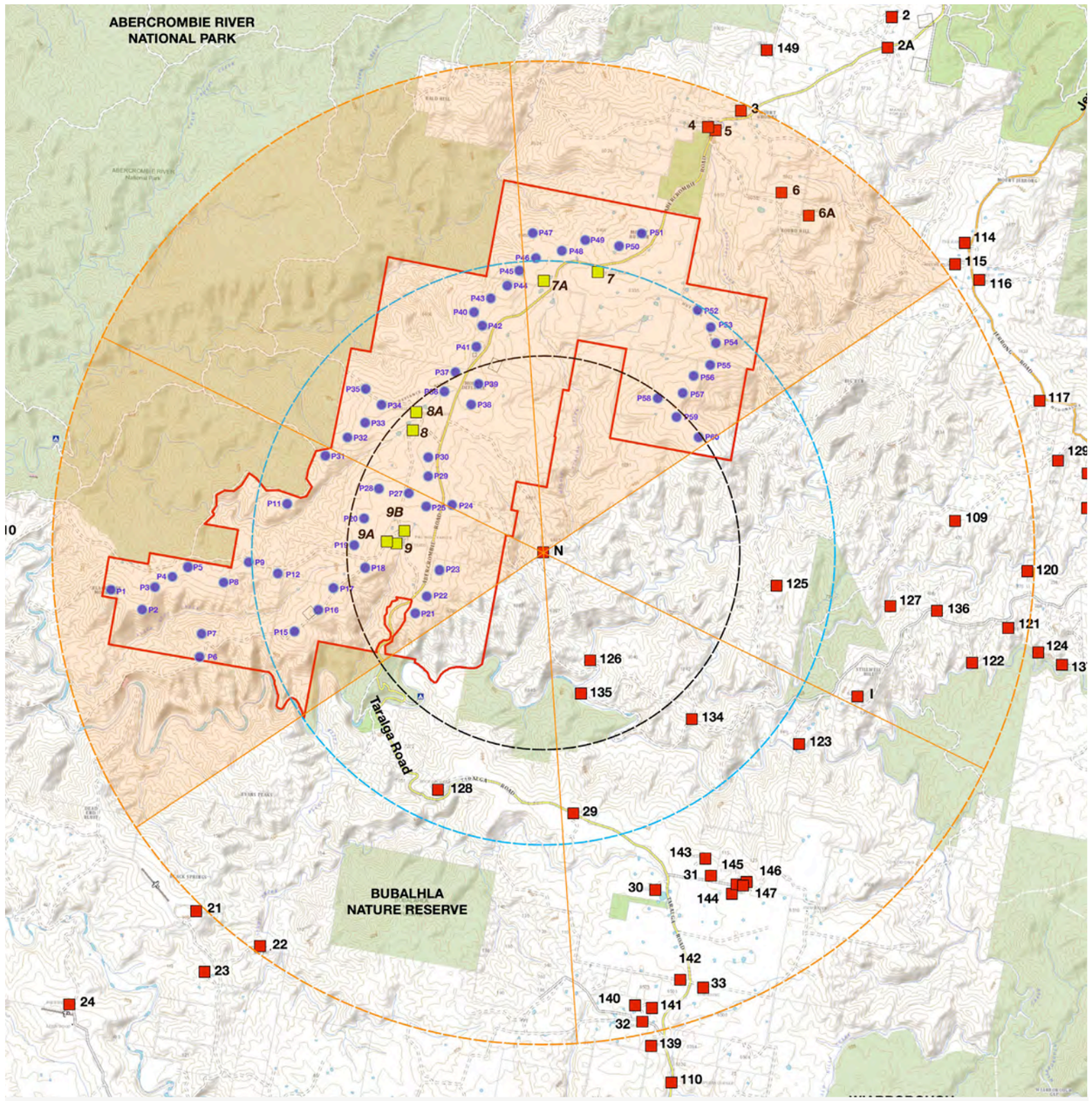


Figure A.6 Aerial Image Dwelling 125 (Source: Google Earth Imagery Date: 18.10.2019)

Summary of Preliminary Assessment Tools:	
Distance to Nearest Turbine:	**2.724 km**
Number of proposed turbines within Black Line (3200 m):	**2**
Number of theoretical 60° sectors (Based on 2D assessment):	**2 (Up to 120°)**
Number of potentially visible turbines:	**15 - 24**

A7. Dwelling N Preliminary Assessment Tools



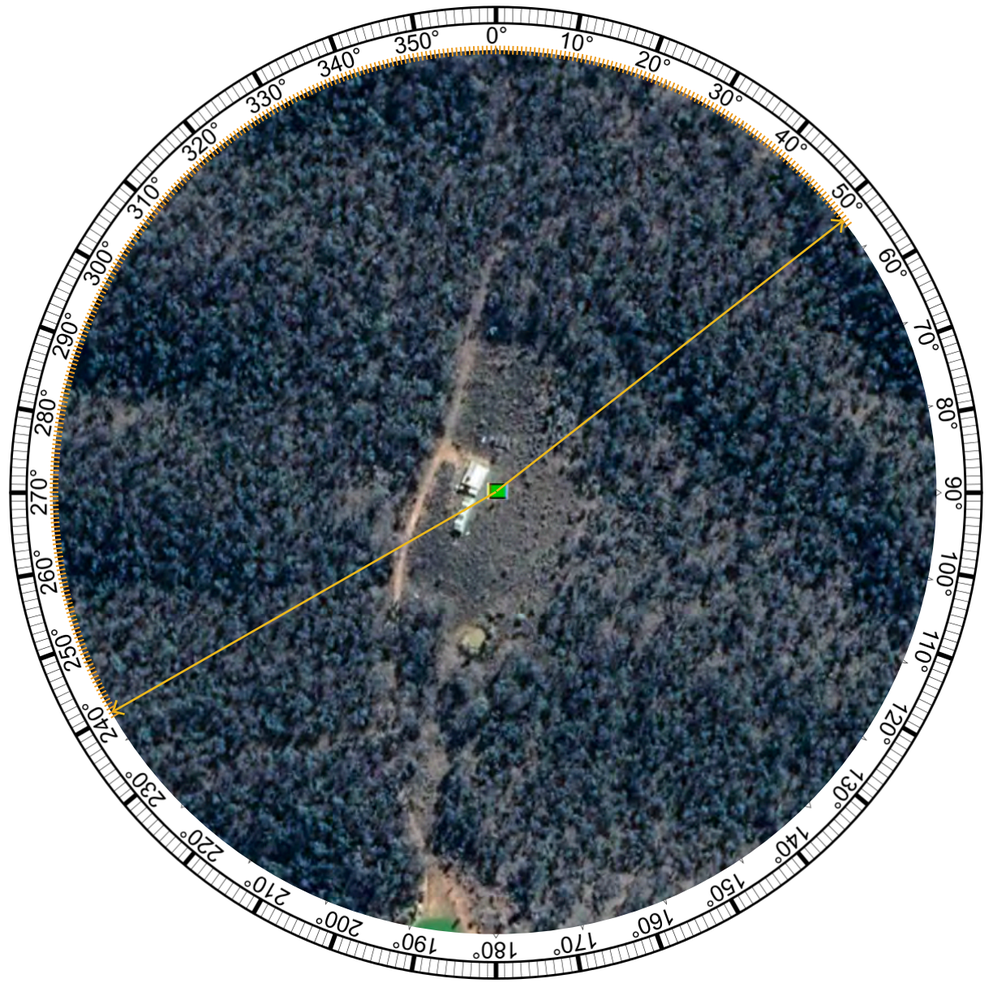
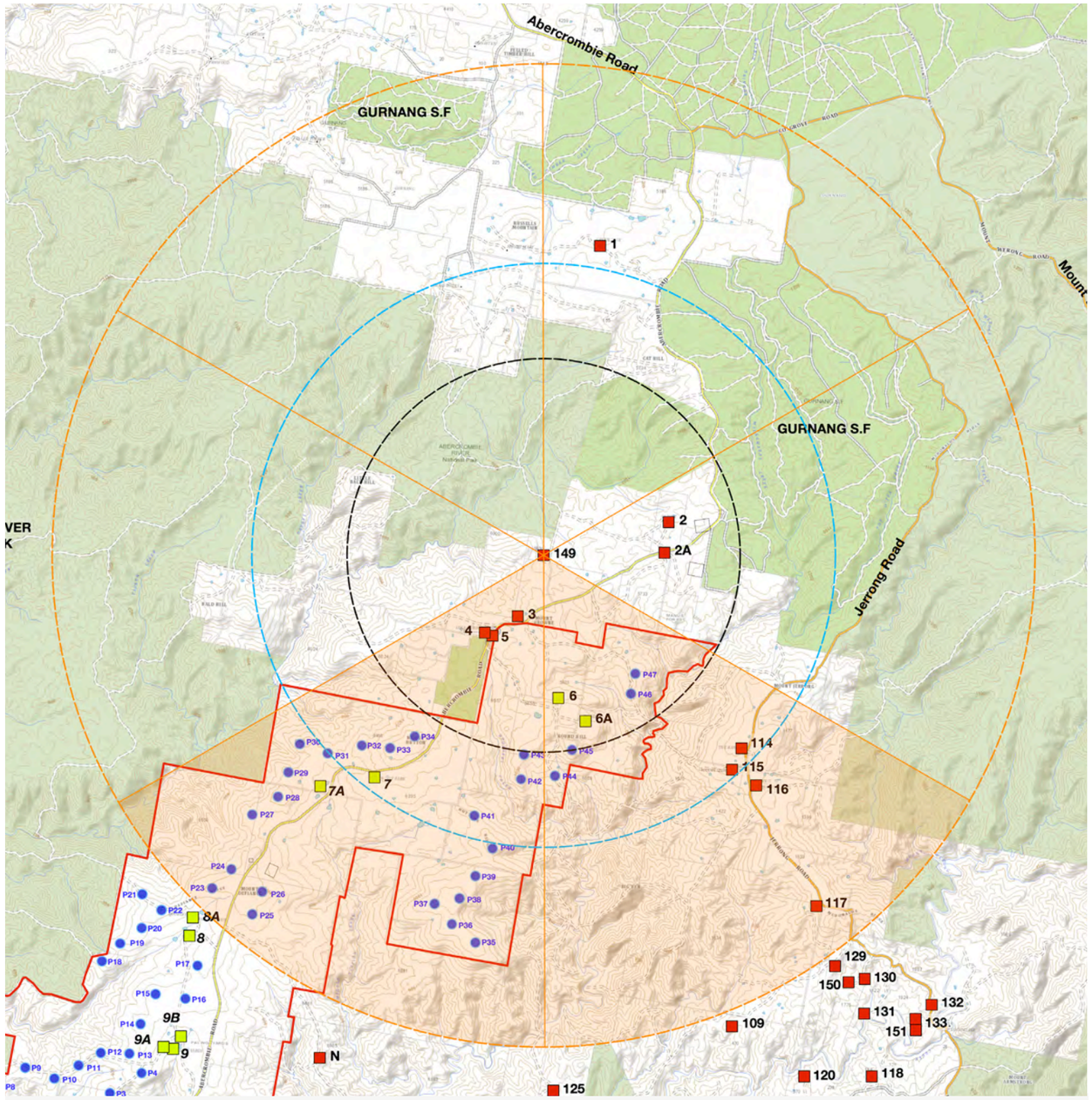


Figure A.7 Aerial Image Dwelling N (Source: Google Earth Imagery Date: 20.08.2018)

Summary of Preliminary Assessment Tools:	
Distance to Nearest Turbine:	**2.389 km**
Number of proposed turbines within Black Line (3200 m):	**18**
Number of theoretical 60° sectors (Based on 2D assessment):	**3 (Up to 180°)**
Number of potentially visible turbines:	**35 - 44**

A8. Dwelling 149 Preliminary Assessment Tools



LEGEND

Project Boundary	3200 m from nearest turbine (Black Line)
Proposed Turbine Location	4750 m from nearest turbine (Blue Line)
Proposed Turbine in excess of 8000 m from dwelling	8000 m from nearest turbine
Involved Dwelling	60° sector
Non-involved Dwelling	60° sector with turbines

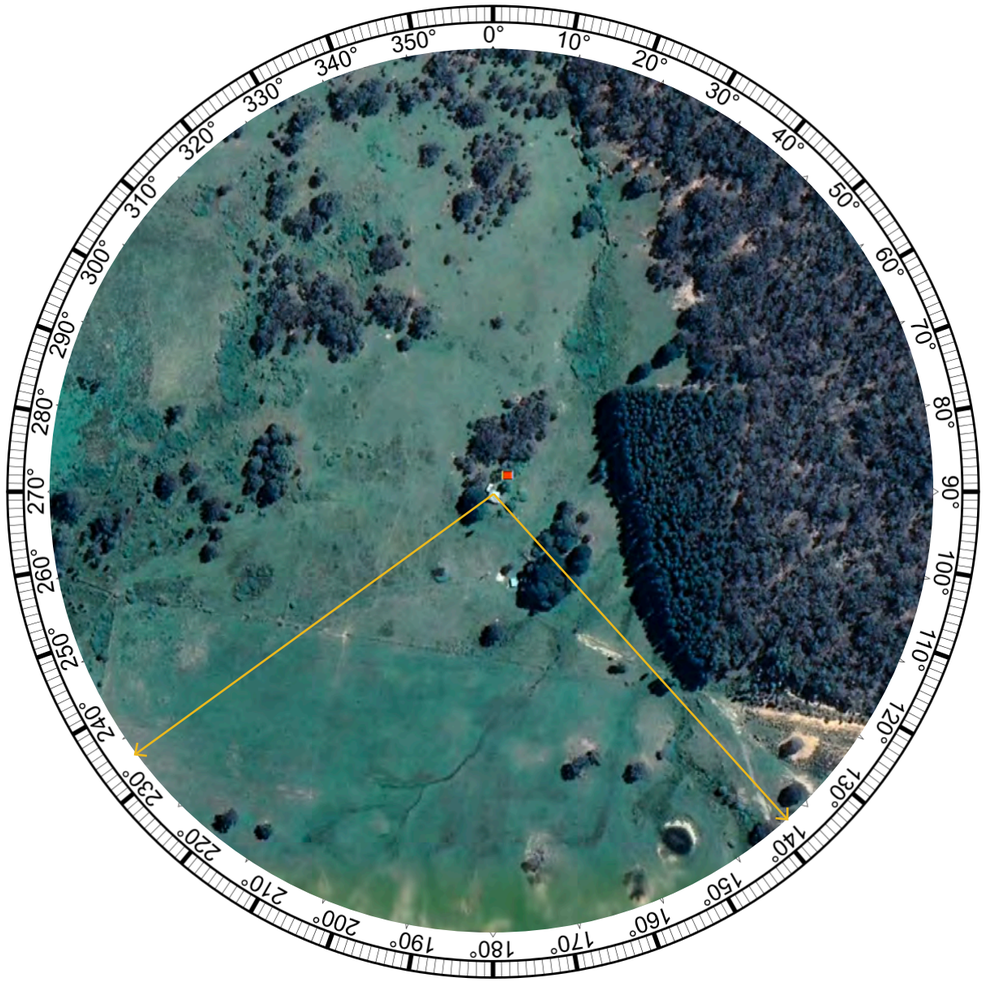
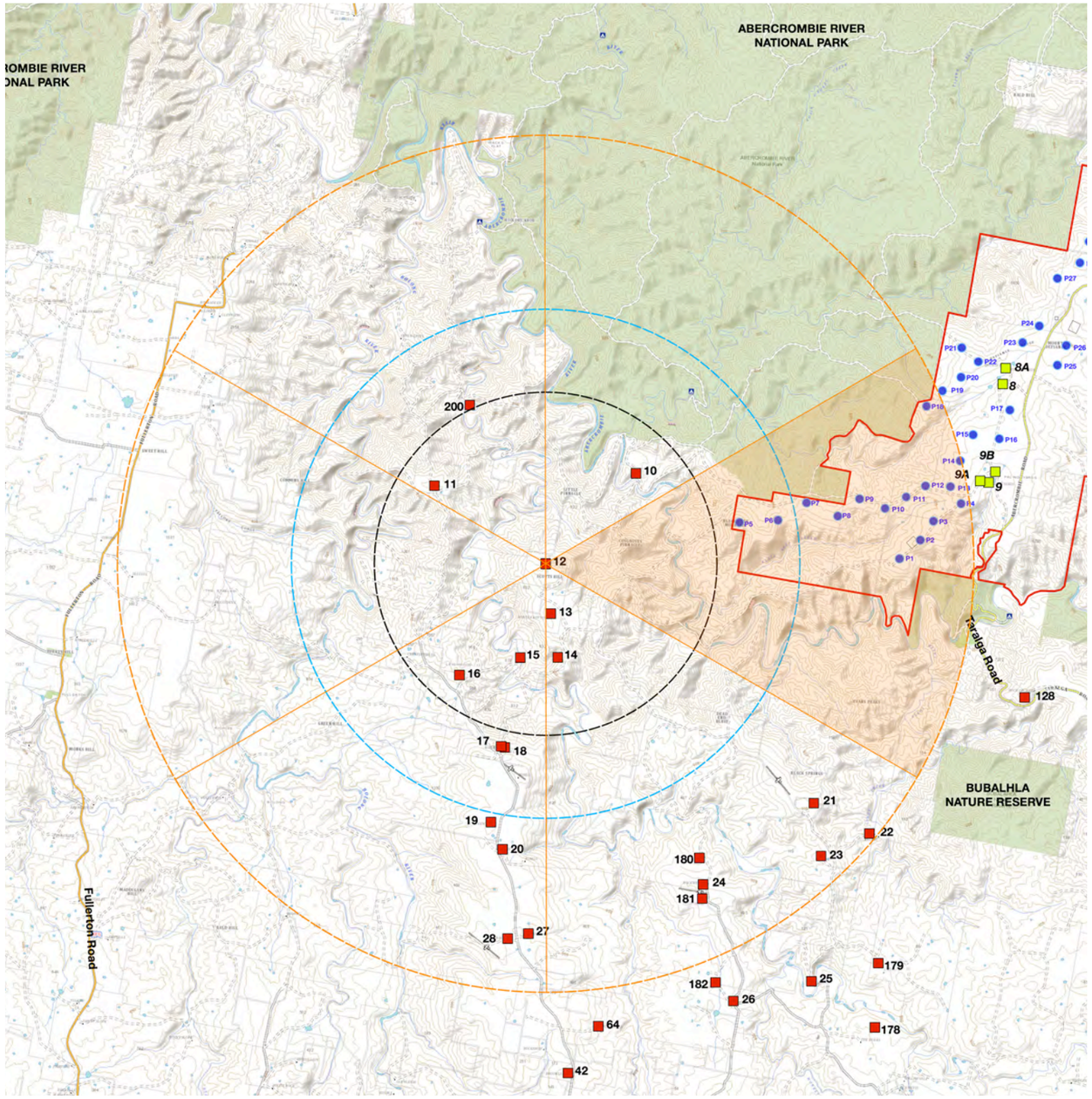


Figure A.8 Aerial Image Dwelling 149 (Source: Google Earth Imagery Date: 18.10.2019)

Summary of Preliminary Assessment Tools:	
Distance to Nearest Turbine:	**2.434 km**
Number of proposed turbines within Black Line (3200 m):	**2**
Number of theoretical 60° sectors (Based on 2D assessment):	**2 (Up to 120°)**
Number of potentially visible turbines:	**1 - 14**

A9. Dwelling 12 Preliminary Assessment Tools



LEGEND

- Project Boundary
- Proposed Turbine Location
- Proposed Turbine in excess of 8000 m from dwelling
- Involved Dwelling
- Non-involved Dwelling
- 3200 m from nearest turbine (Black Line)
- 4750 m from nearest turbine (Blue Line)
- 8000 m from nearest turbine
- 60° sector
- 60° sector with turbines

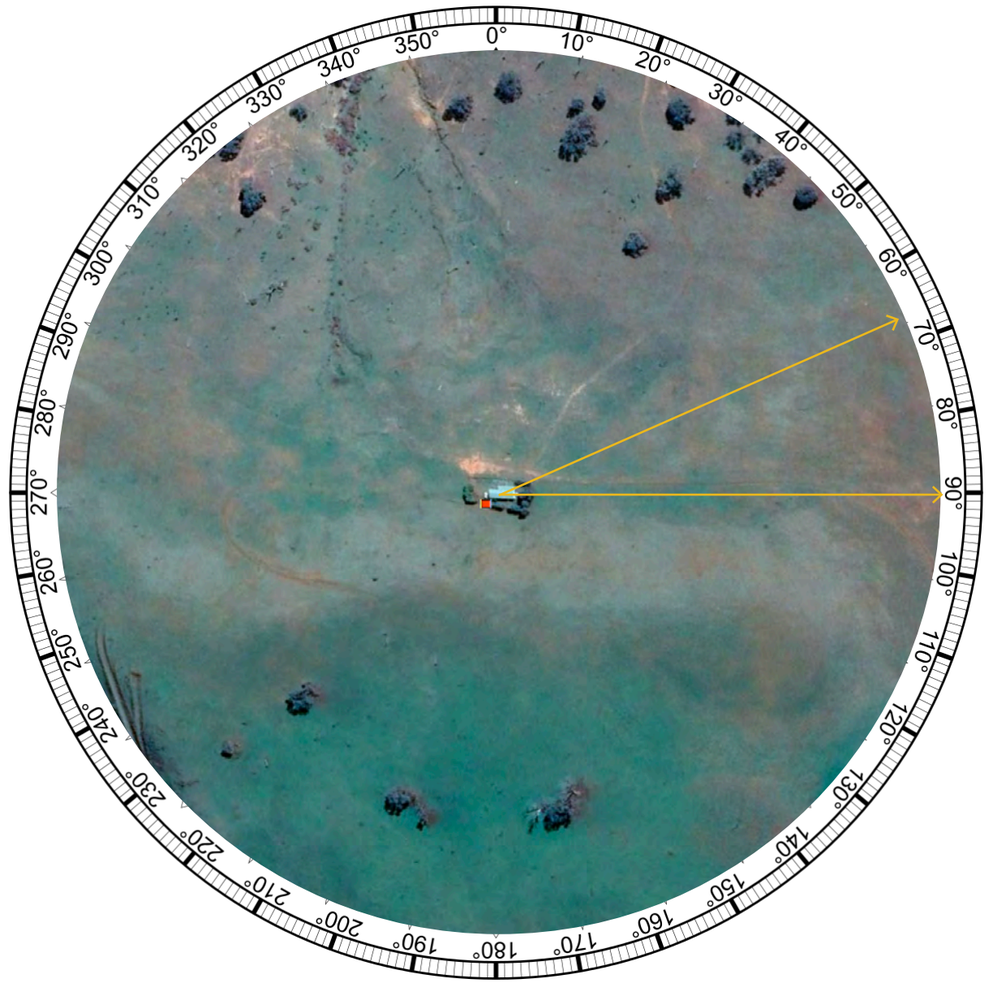
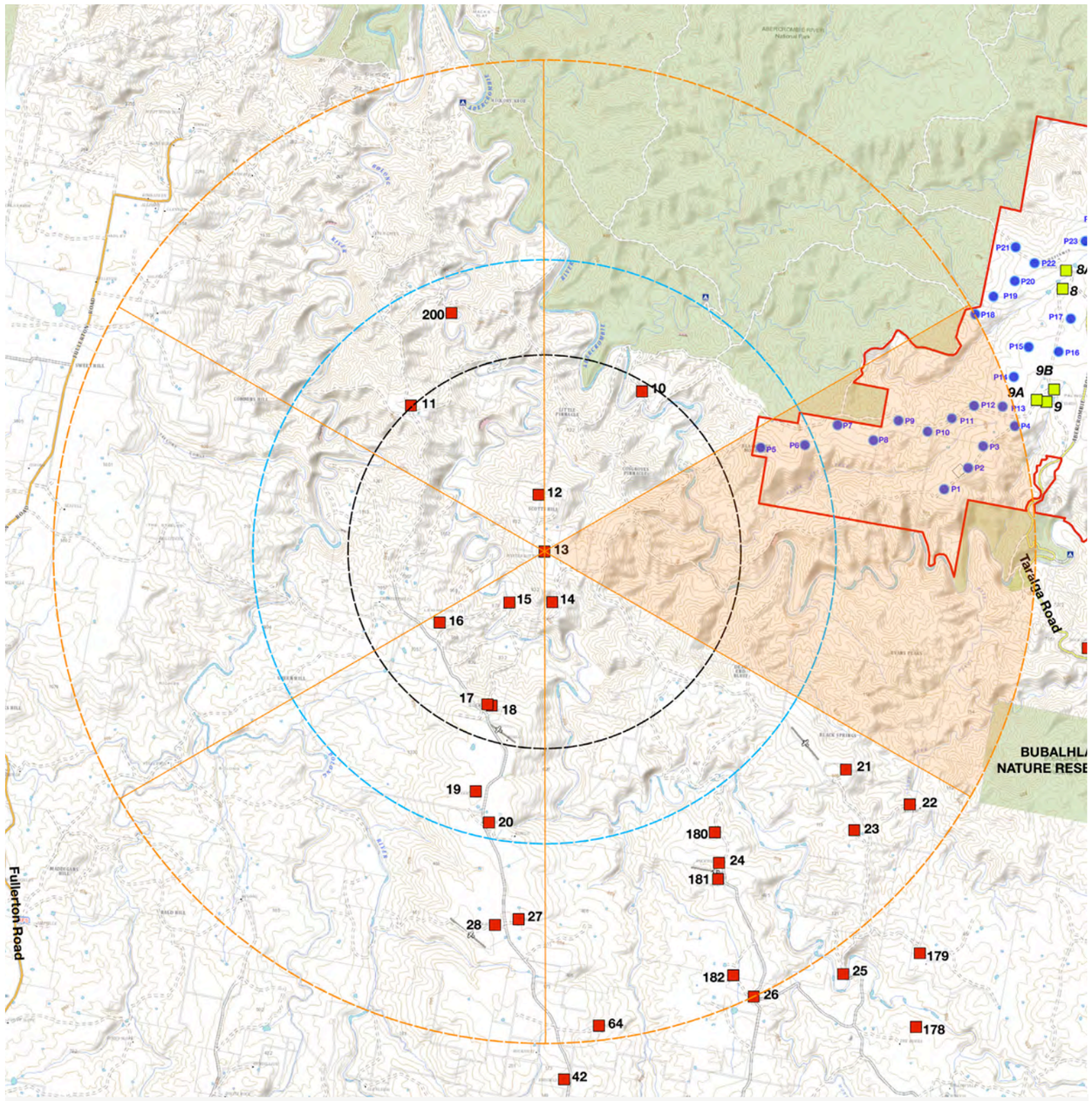


Figure A.9 Aerial Image Dwelling 12 (Source: Google Earth Imagery Date: 20.08.2018)

Summary of Preliminary Assessment Tools:	
Distance to Nearest Turbine:	**3.700 km**
Number of proposed turbines within Blue Line (4750 m):	**2**
Number of theoretical 60° sectors (Based on 2D assessment):	**1 (Up to 60°)**
Number of potentially visible turbines:	**45 - 47**

A10. Dwelling 13 Preliminary Assessment Tools



LEGEND

- Project Boundary
- Proposed Turbine Location
- Proposed Turbine in excess of 8000 m from dwelling
- Involved Dwelling
- Non-involved Dwelling
- 3200 m from nearest turbine (Black Line)
- 4750 m from nearest turbine (Blue Line)
- 8000 m from nearest turbine
- 60° sector
- 60° sector with turbines

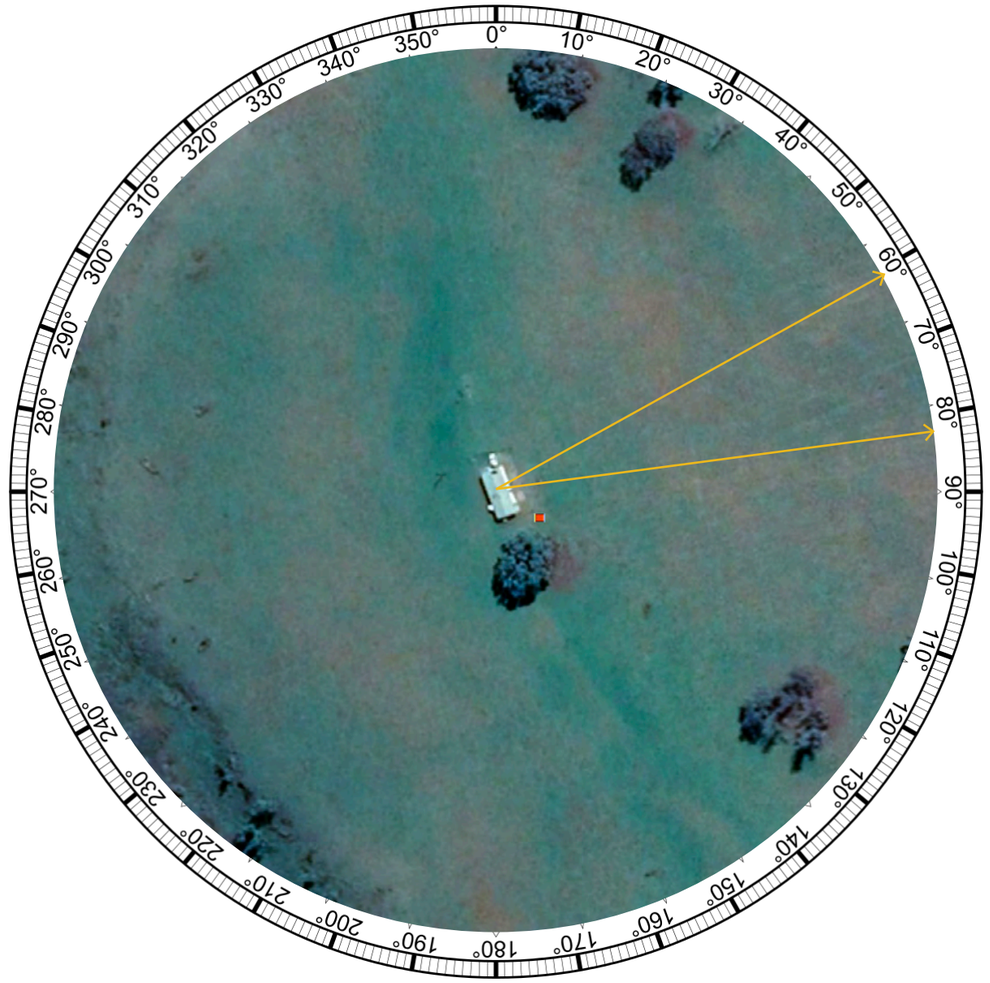
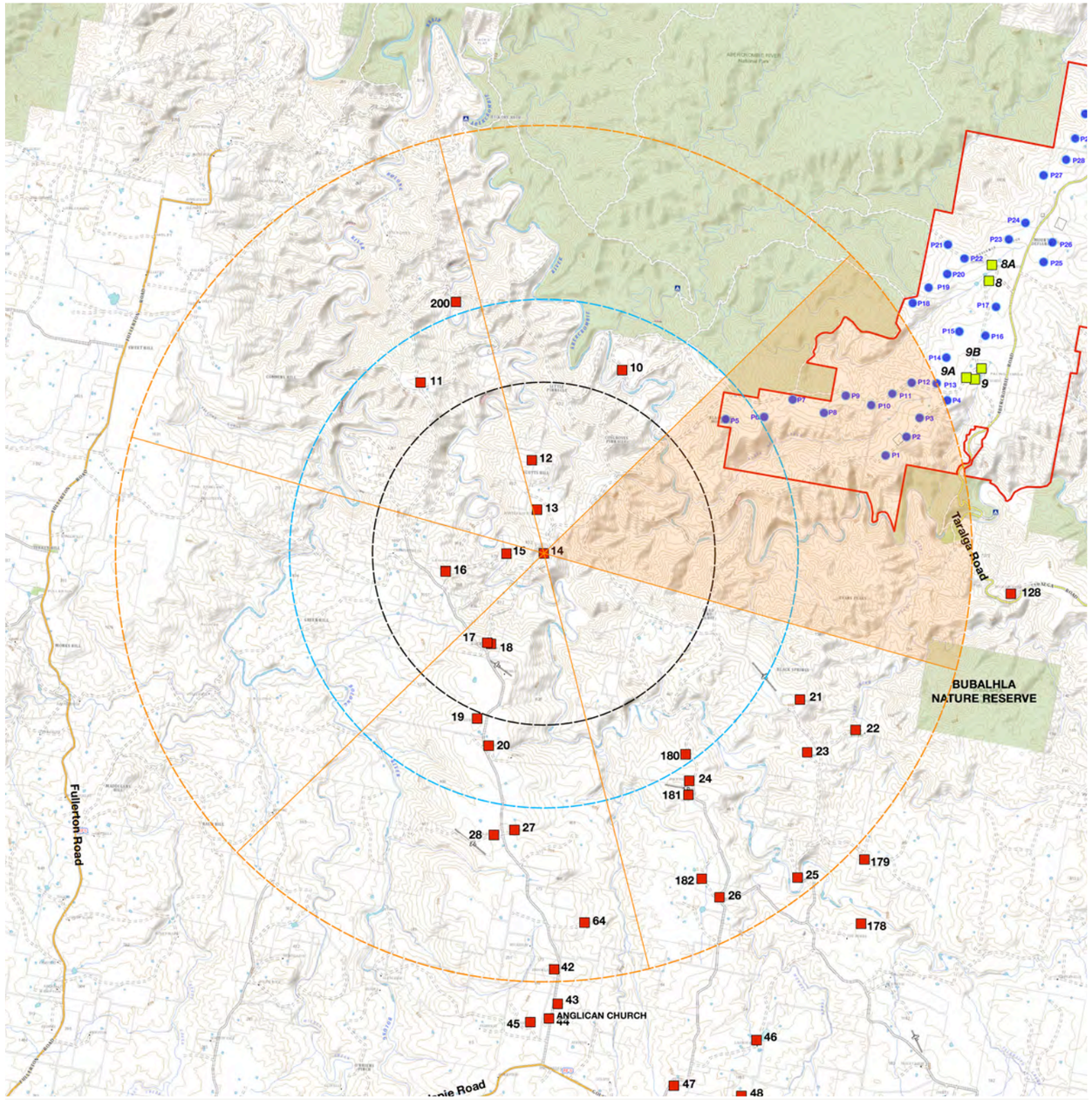


Figure A.10 *Aerial Image Dwelling 13 (Source: Google Earth Imagery Date: 18.10.2019)*

Summary of Preliminary Assessment Tools:	
Distance to Nearest Turbine:	**3.906 km**
Number of proposed turbines within Blue Line (4750 m):	**2**
Number of theoretical 60° sectors (Based on 2D assessment):	**1 (Up to 60°)**
Number of potentially visible turbines:	**45 - 47**

A11. Dwelling 14 Preliminary Assessment Tools



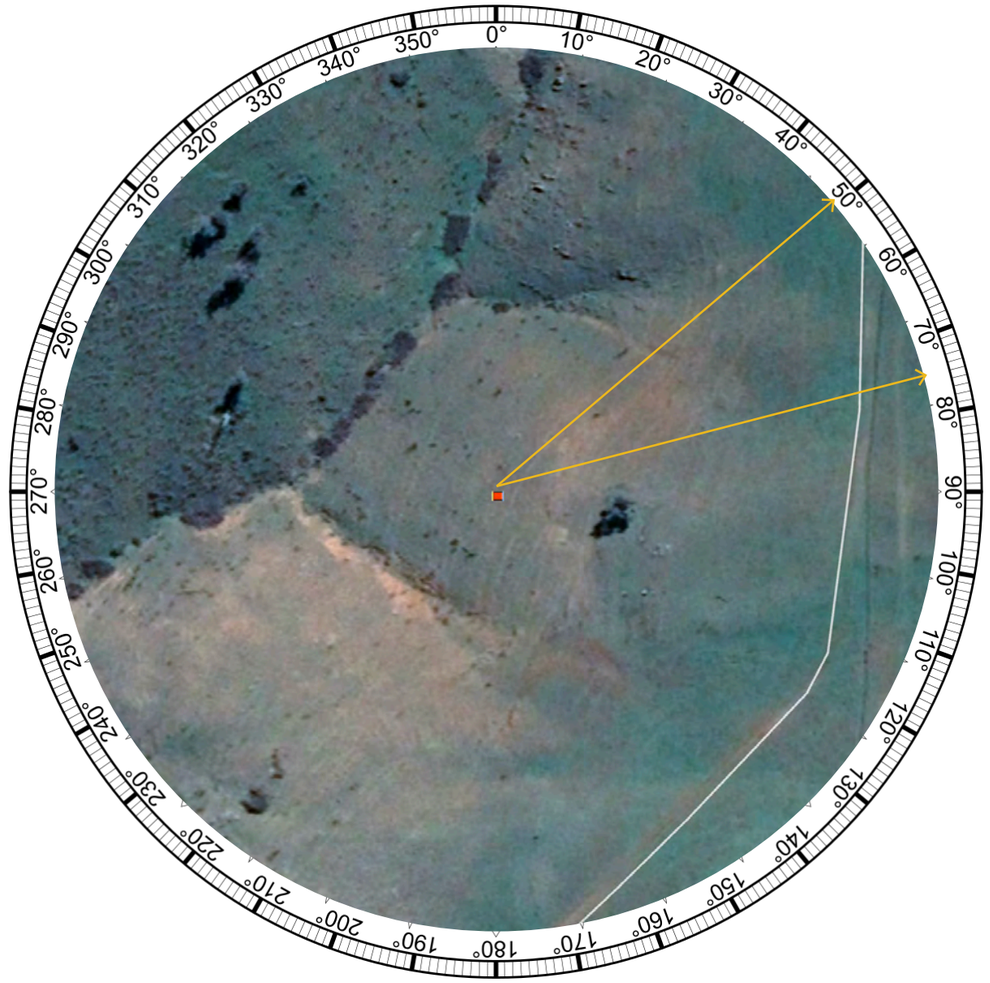
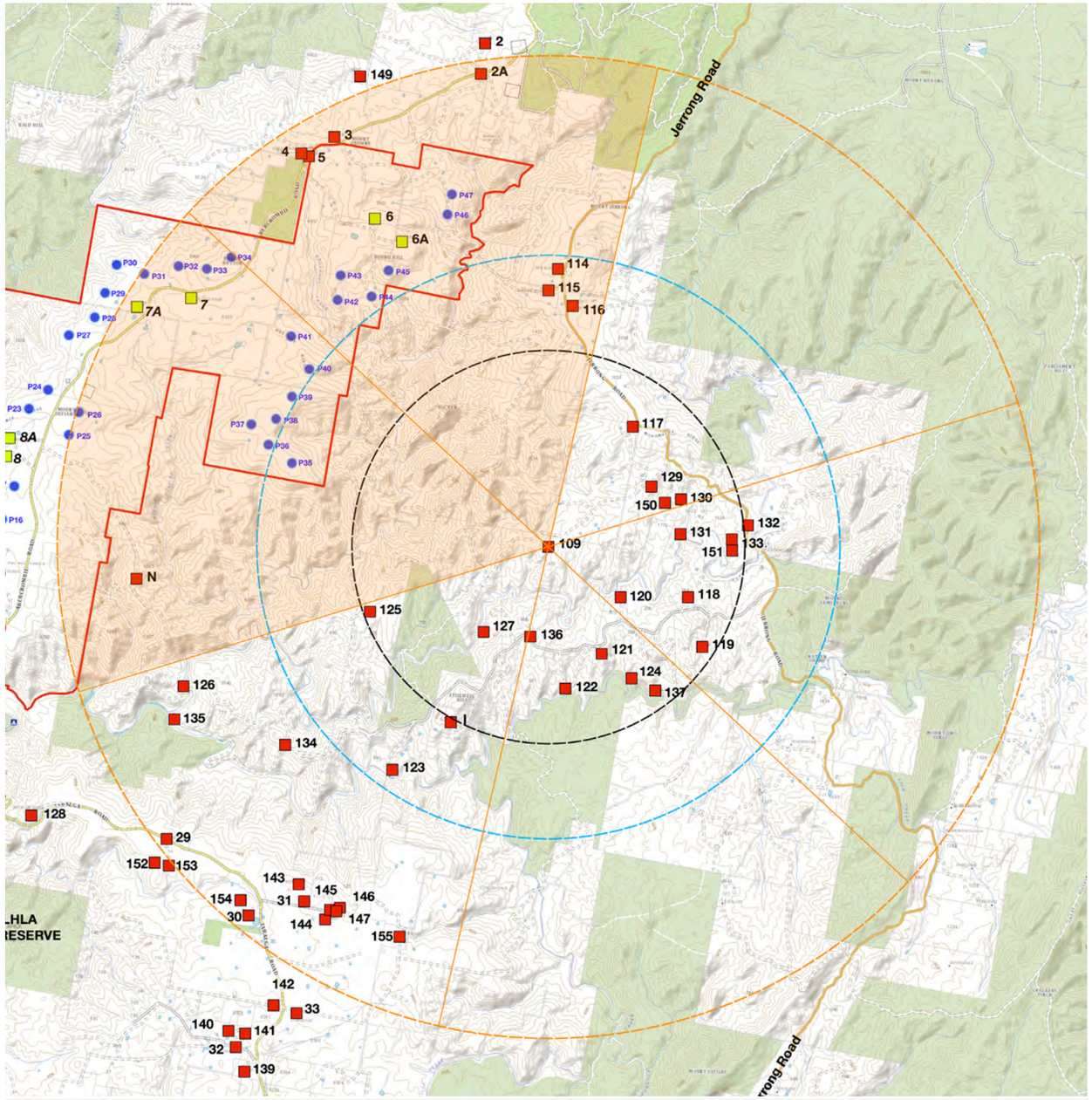


Figure A.11 Aerial Image Dwelling 14 (Source: Google Earth Imagery Date: 22.09.2018)

Summary of Preliminary Assessment Tools:	
Distance to Nearest Turbine:	**4.221 km**
Number of proposed turbines within Blue Line (4750 m):	**1**
Number of theoretical 60° sectors (Based on 2D assessment):	**1 (Up to 60°)**
Number of potentially visible turbines:	**NIL**

A12. Dwelling 109 Preliminary Assessment Tools



LEGEND

- Project Boundary
- Proposed Turbine Location
- Proposed Turbine in excess of 8000 m from dwelling
- Involved Dwelling
- Non-involved Dwelling
- 3200 m from nearest turbine (Black Line)
- 4750 m from nearest turbine (Blue Line)
- 8000 m from nearest turbine
- 60° sector
- 60° sector with turbines

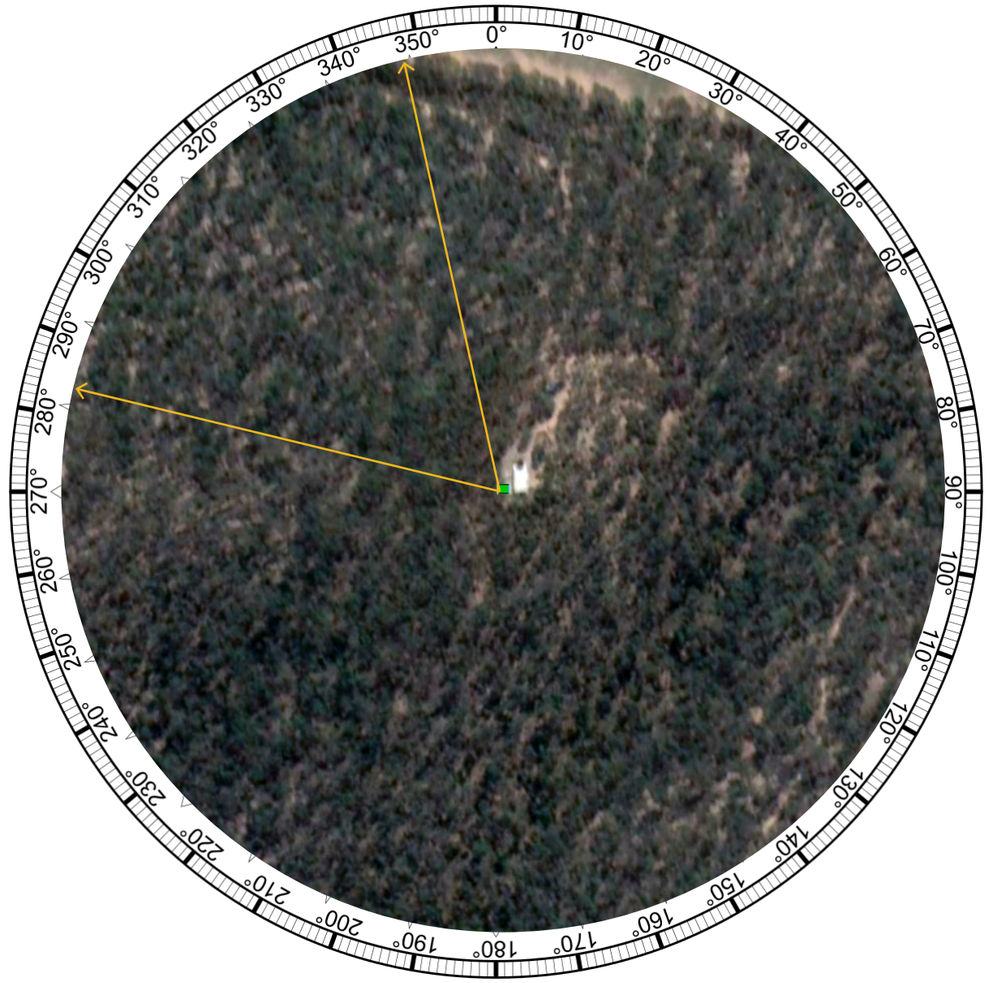
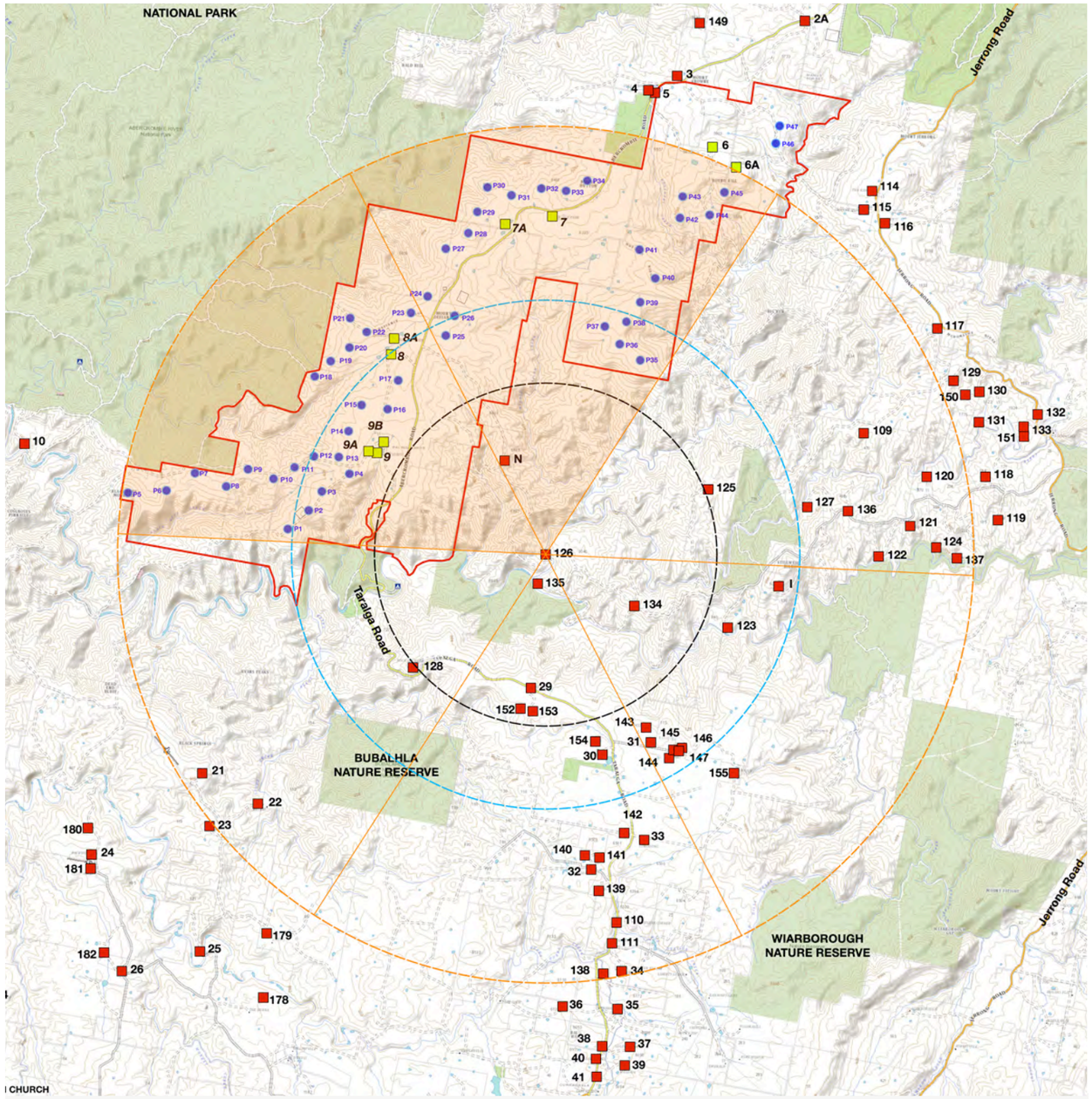


Figure A.12 Aerial Image Dwelling 109 (Source: Google Earth Imagery Date: 20.08.2018)

Summary of Preliminary Assessment Tools:	
Distance to Nearest Turbine:	**4.393 km**
Number of proposed turbines within Blue Line (4750 m):	**1**
Number of theoretical 60° sectors (Based on 2D assessment):	**2 (Up to 120°)**
Number of potentially visible turbines:	**35 - 44**

A13. Dwelling 126 Preliminary Assessment Tools



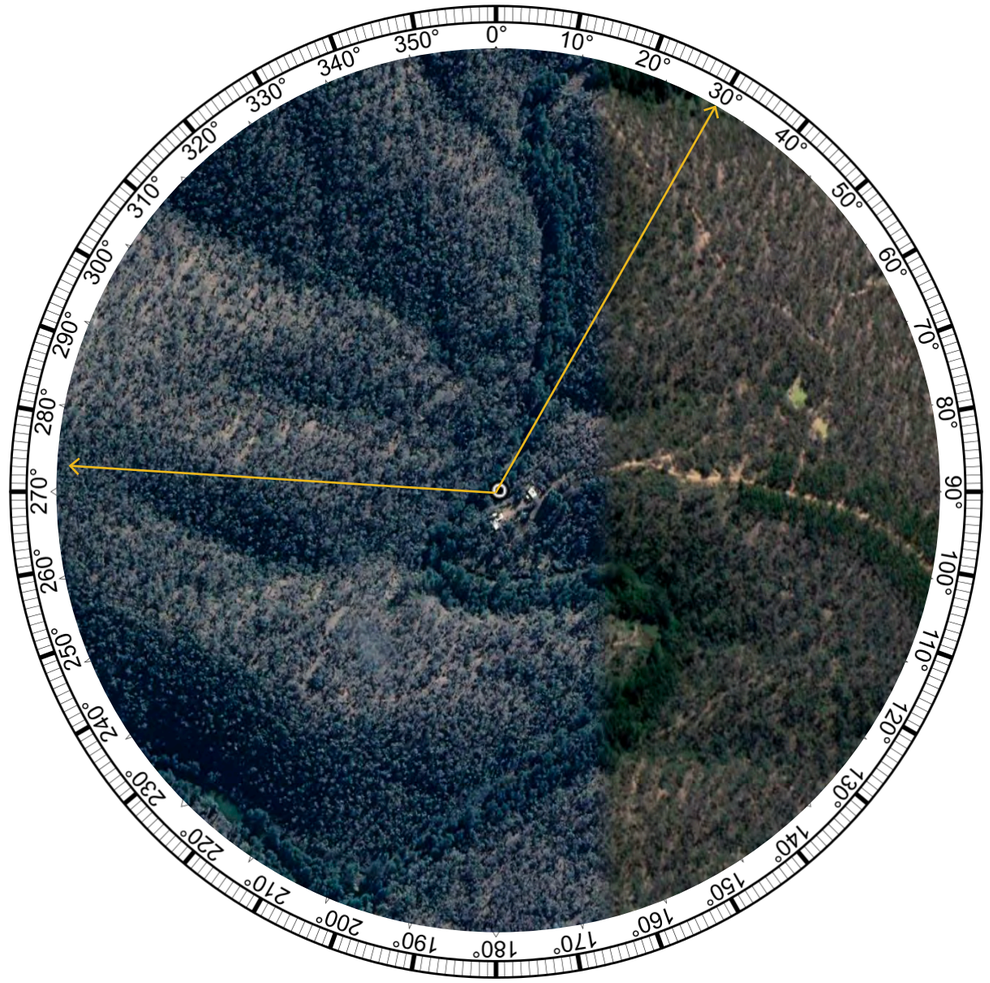


Figure A.13 Aerial Image Dwelling 126 (Source: Google Earth Imagery Date: 20.08.2018)

Summary of Preliminary Assessment Tools:	
Distance to Nearest Turbine:	**3.962 km**
Number of proposed turbines within Blue Line (4750 m):	**14**
Number of theoretical 60° sectors (Based on 2D assessment):	**2 (Up to 120°)**
Number of potentially visible turbines:	**1 - 14**

A14. Dwelling 127 Preliminary Assessment Tools

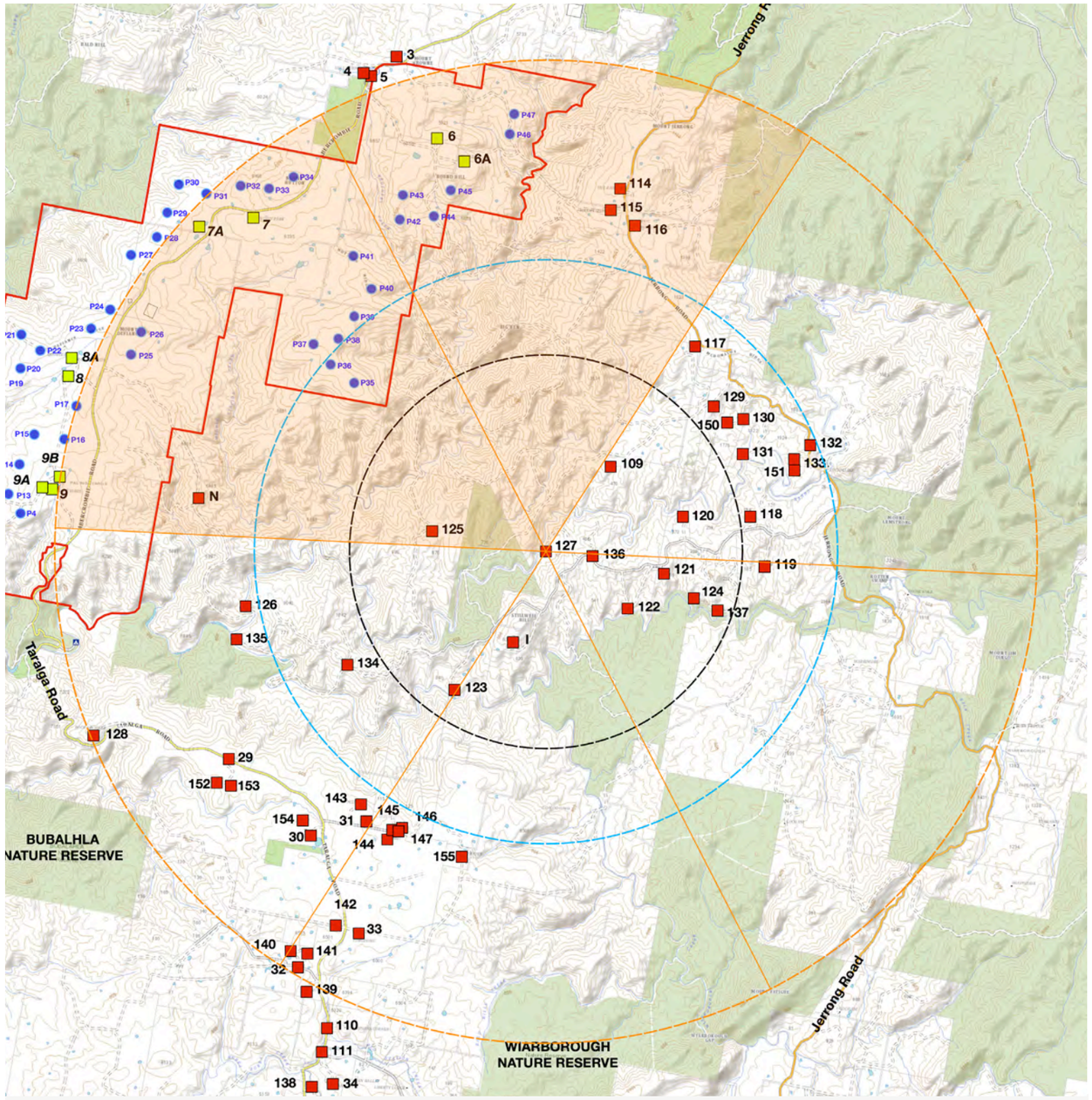
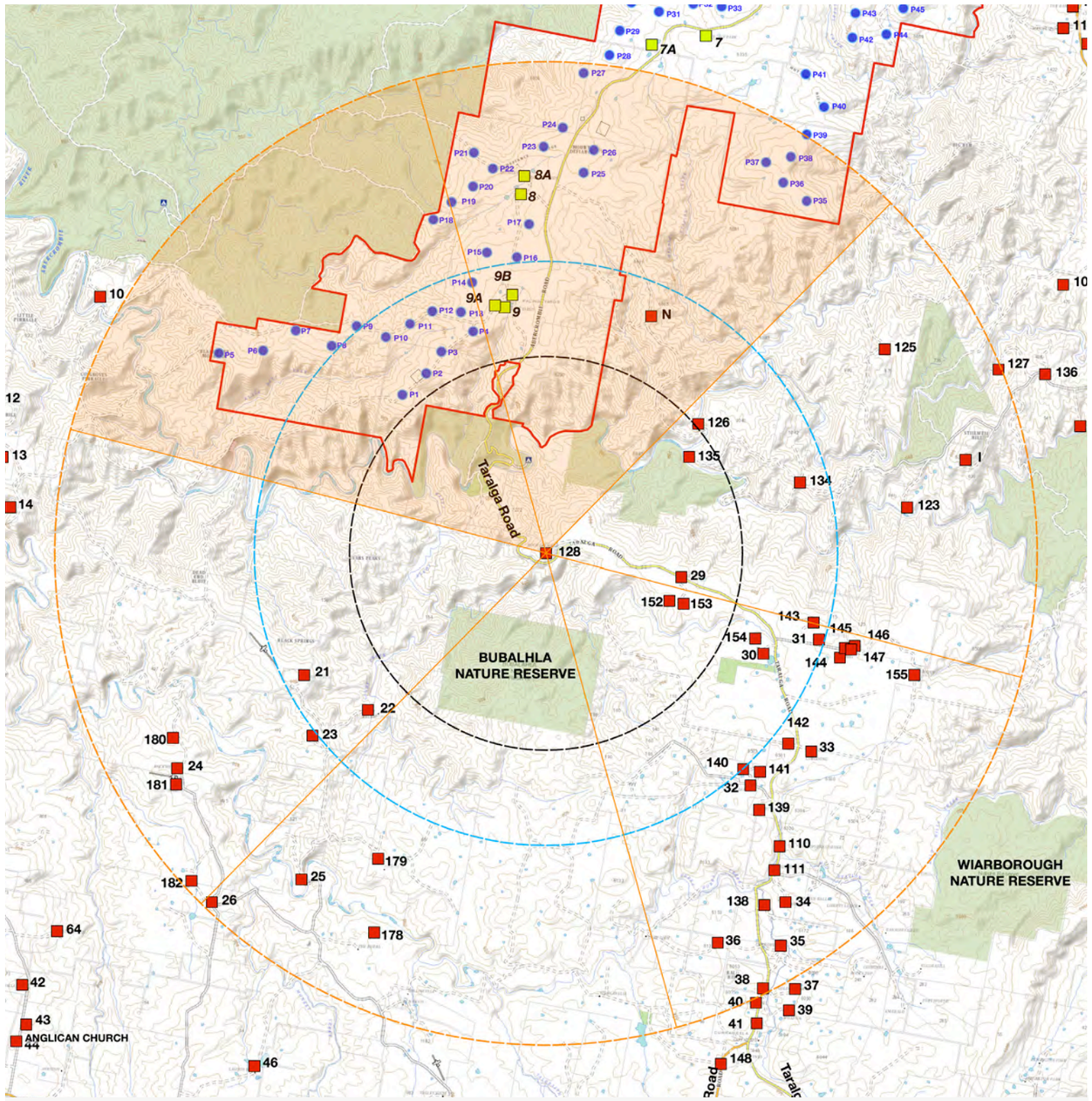


Figure A.14 Aerial Image Dwelling 127 (Source: Google Earth Imagery Date: 20.08.2018)

Summary of Preliminary Assessment Tools:	
Distance to Nearest Turbine:	**4.156 km**
Number of proposed turbines within Blue Line (4750 m):	**2**
Number of theoretical 60° sectors (Based on 2D assessment):	**2 (Up to 120°)**
Number of potentially visible turbines:	**1 - 14**

A15. Dwelling 128 Preliminary Assessment Tools



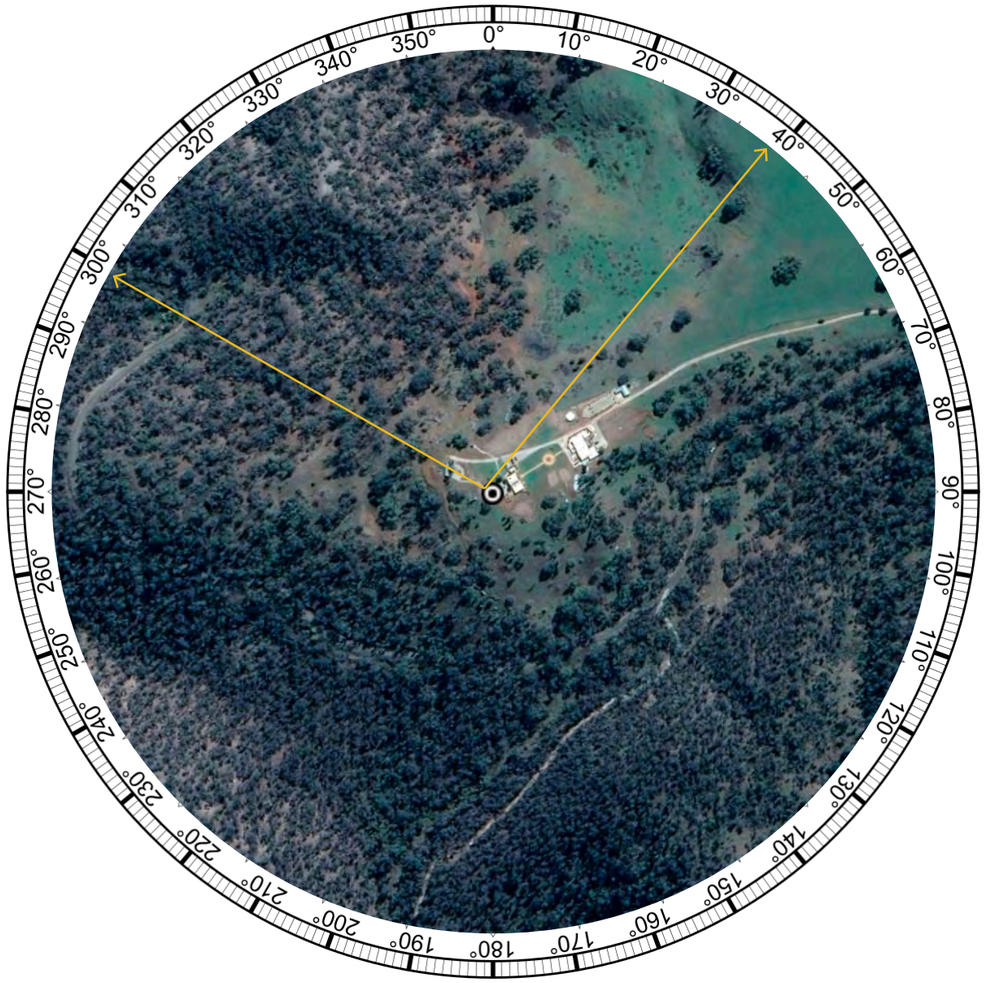


Figure A.15 Aerial Image Dwelling 128 (Source: Google Earth Imagery Date: 20.08.2018)

Summary of Preliminary Assessment Tools:	
Distance to Nearest Turbine:	**3.479 km**
Number of proposed turbines within Blue Line (4750 m):	**9**
Number of theoretical 60° sectors (Based on 2D assessment):	**2 (Up to 120°)**
Number of potentially visible turbines:	**35 - 44**

A16. Dwelling 134 Preliminary Assessment Tools

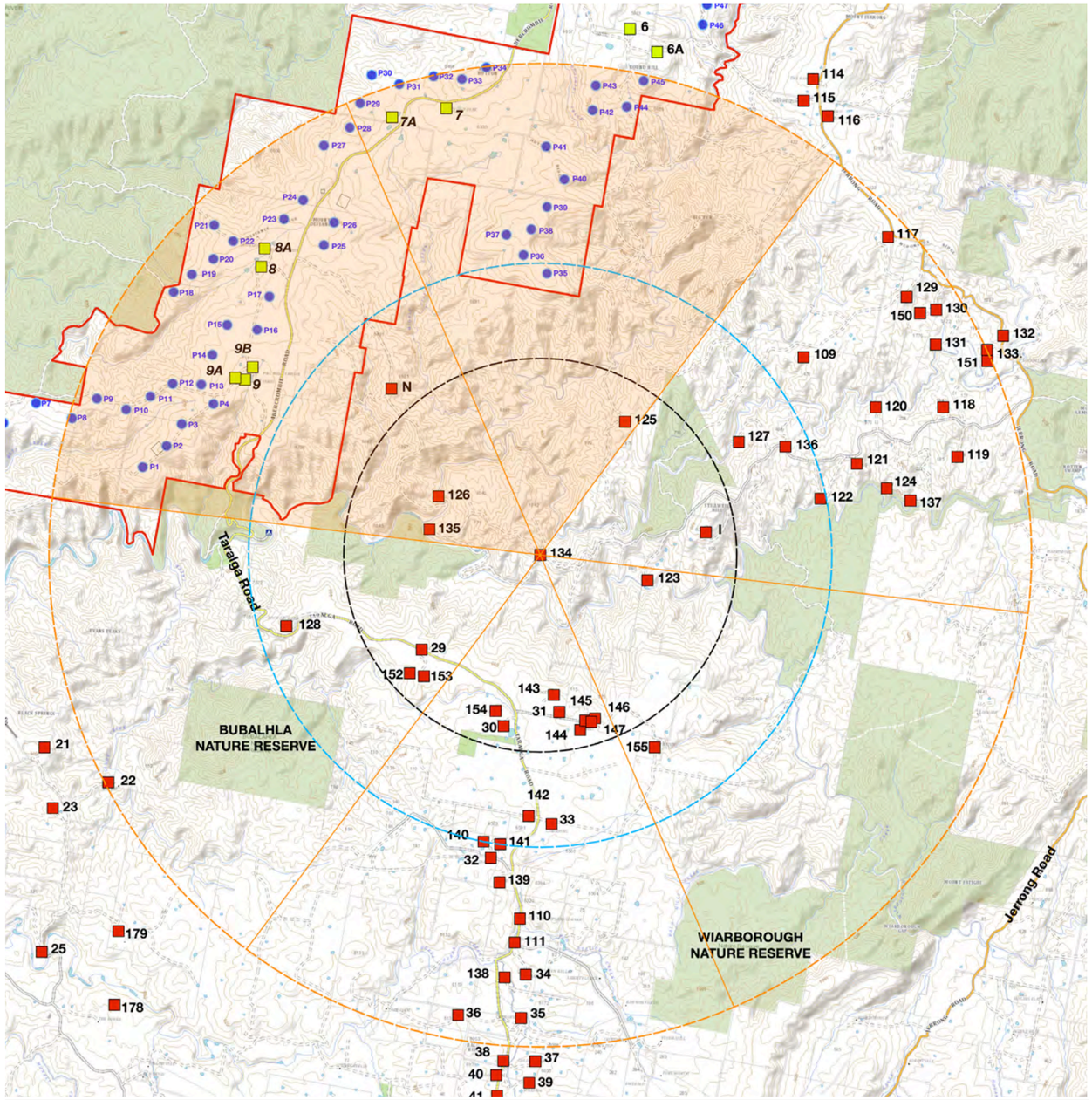


Figure A.16 Aerial Image Dwelling 134 (Source: Google Earth Imagery Date: 20.08.2018)

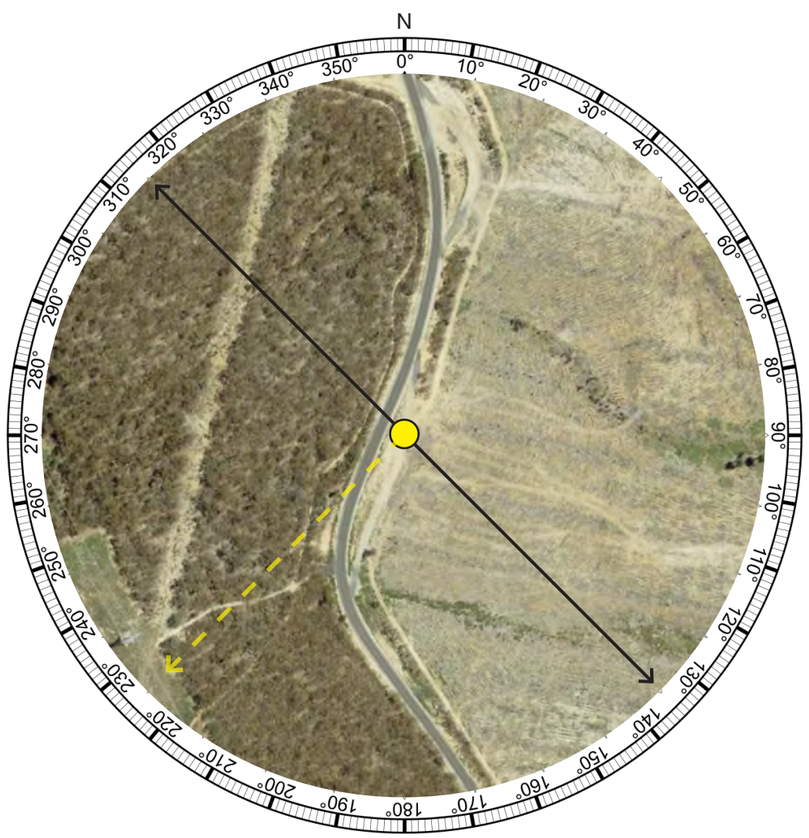
Summary of Preliminary Assessment Tools:	
Distance to Nearest Turbine:	**4.582 km**
Number of proposed turbines within Blue Line (4750 m):	**1**
Number of theoretical 60° sectors (Based on 2D assessment):	**2 (Up to 120°)**
Number of potentially visible turbines:	**15 - 24**

Appendix B

Preliminary Public Viewpoint Assessments

VP01 Abercrombie Road, Paling Yards

Existing View



Aerial Image VP01 (Aerial Image Source: Six Maps)

VIEWPOINT VP01

Viewpoint Summary:	
Location:	
Abercrombie Road, Paling Yards	
Coordinates:	Viewing Direction:
34° 5’8.14”S 149°49’56.45”E	Southwest
Distance to nearest WTG:	Elevation:
3.40 km	1112m

Existing Landscape Character Description:

This viewpoint was taken from the crest of Abercrombie Road where the Abercrombie River National Park and Gurnang State Forest intersect each other. Abecrombie Road is an important road that connects towns such as Black Springs and Bathurst to southern towns such as Taralga, Richmond, and Goulburn.

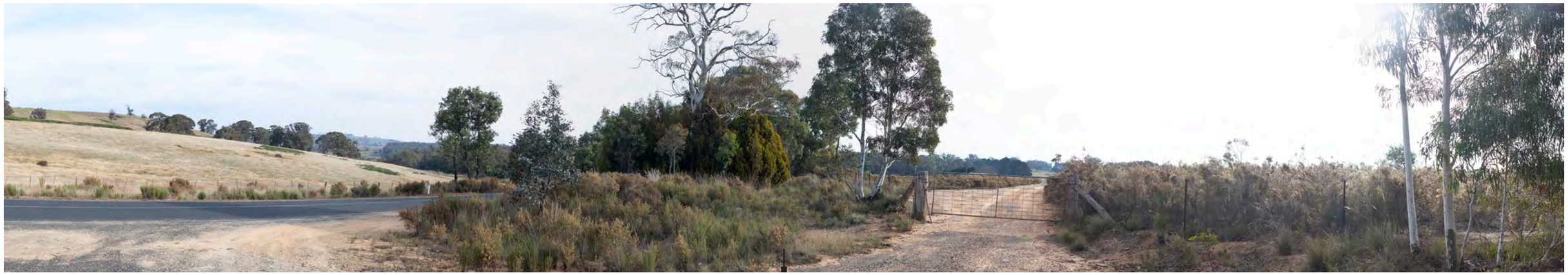
The area is densely vegetated with dry sclerophyll forests which are characteristic of the Central Tablelands region. The topography is undulating and steep in certain sections, thus offering opportunities for a scenic drive.

The elevated western ridgeline and dense vegetation of the Abercrombie River National Park screens views that look beyond. Detrimental feature identified in this viewpoint is the transmission line.

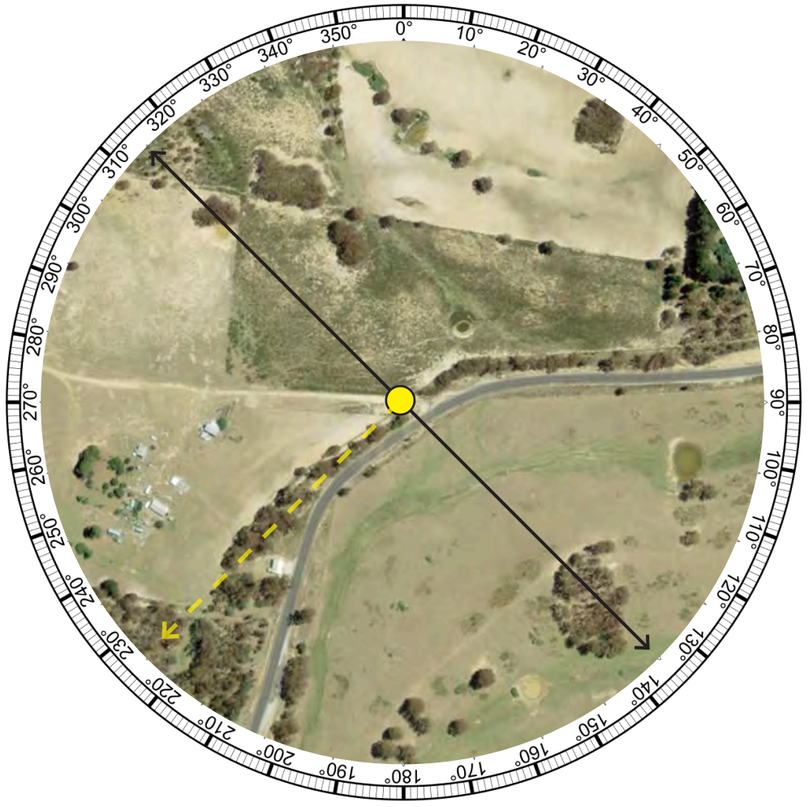
Potential Visual Impact:

It is likely that the vegetation on the western ridgeline will screen most views of the Project Site. However, the turbines that are located south of Abercrombie Road might be visible because of the undulations in the topography. A combination of vegetation and topography are likely to screen most views of the Project Area.

VP02 Near driveway of Dwelling 5, Abercrombie Road, Paling Yards



Existing View



Aerial Image VP02 (Aerial Image Source: Six Maps)

VIEWPOINT VP02

Viewpoint Summary:	
Location:	
Near driveway of Dwelling 5, Abercrombie Road, Paling Yards	
Coordinates:	Viewing Direction:
34° 6'27.43"S 149°47'40.27"E	Northwest
Distance to nearest WTG:	Elevation:
2.115 km	1015m

Existing Landscape Character Description:

The viewpoint was taken from the driveway of Dwelling 5 on Abercrombie Road as a representative shot for dwellings 4 and 5. Abercrombie Road is a major road that connects all residences around the area and it is also an important connector for heavy vehicles.

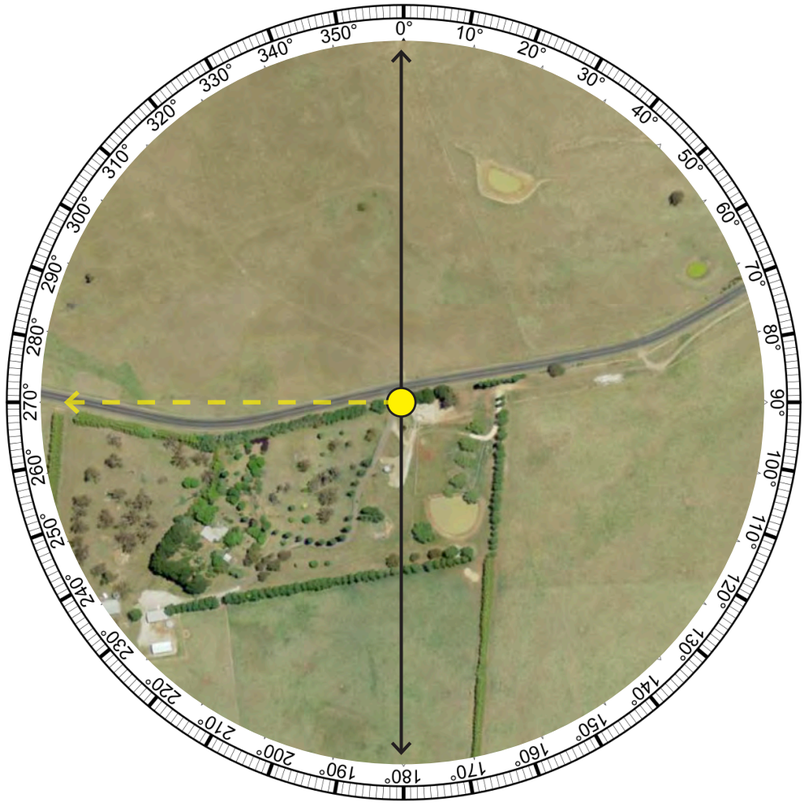
The topography around this viewpoint is generally undulating with scattered vegetation on hilltops that have been cleared for agricultural activity and predominantly sheep grazing. Rolling hills that are dotted with remnant patches of woodlands are a characteristic of this region as is evident in this viewpoint. The patchy woodlands can be seen in the far middle ground towards the south. The boundaries of the rural residential lot are generally lined with dense windbreak plantations which screens most views of the Project Area towards the Project Area.

Potential Visual Impact:

Due to the close proximity of this viewpoint to the Project Site, it is highly likely that turbines will be visible from this viewpoint. Vegetation in the foreground would help in screening most of the Project Area but it is highly likely that a majority of the turbines will be visible from this location.

VP03A Driveway and entrance gate of 6335 Abercrombie Road, Paling Yards (Dwelling ID: 7)

Existing View



Aerial Image VP03A (Aerial Image Source: Six Maps)

VIEWPOINT VP03A

Viewpoint Summary:	
Location:	Elevation:
Driveway and entrance gate of 6335 Abercrombie Road, Paling Yards (Dwelling ID: 7)	1010m
Coordinates:	Viewing Direction:
34° 7’45.02”S 149°46’30.66”E	West
Distance to nearest WTG:	Elevation:
0.34km	1010m

Existing Landscape Character Description:

This viewpoint is located at an elevated point at the driveway entrance of 6335 Abercrombie Road and is within the extents of the Project Area. The surrounding landscape is characterized by cleared undulating hills with scattered and patchy vegetation that is dotted on hilltops and undulations prevalent within the valley. Land has largely been cleared for grazing activity and for farm buildings in the vicinity.

Roadside and windbreak plantations are visible for most properties that can be seen in the foreground and midground. This vegetation will help screen views towards the turbines.

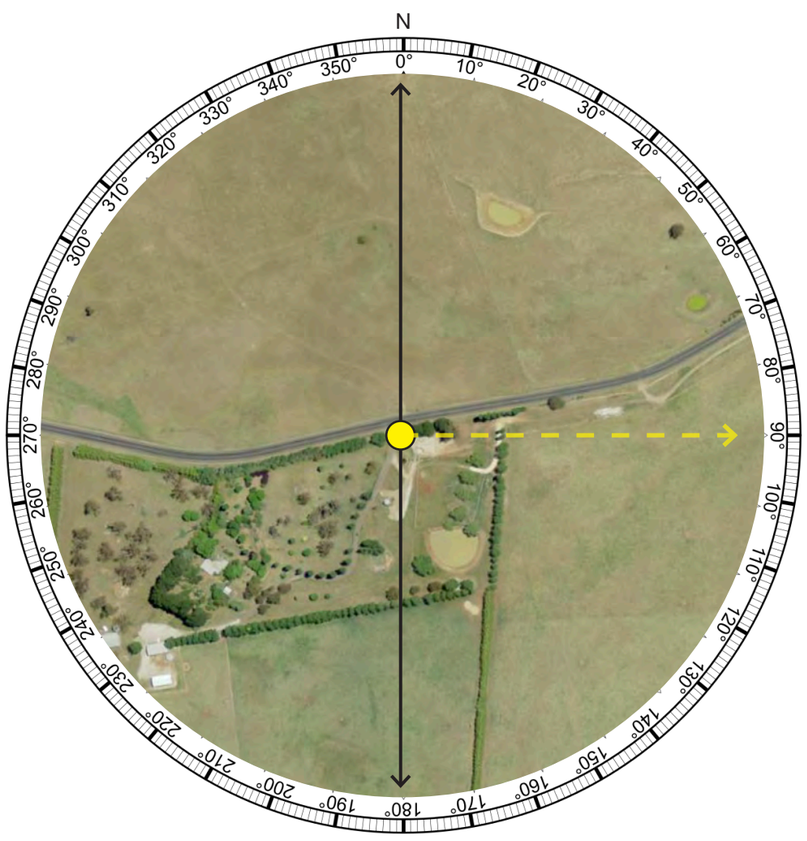
Turbines have been proposed along the northern ridgeline which slopes towards the west/southwest, which will yield views of the turbines that have been proposed in this direction.

Potential Visual Impact:

Turbines will be clearly visible from this location because of its close proximity to the Project Area. It is likely that roadside vegetation would screen some of the views of the turbines for the dwellings that are located in this area.

VP03B Driveway and entrance gate of 6335 Abercrombie Road, Paling Yards (Dwelling ID: 7)

Existing View



Aerial Image VP03B (Aerial Image Source: Six Maps)

VIEWPOINT VP03B

Viewpoint Summary:	
Location:	
Driveway and entrance gate of 6335 Abercrombie Road, Paling Yards (Dwelling ID: 7)	
Coordinates:	Viewing Direction:
34° 7’45.02”S 149°46’30.66”E	East
Distance to nearest WTG:	Elevation:
0.34km	1010m

Existing Landscape Character Description:

This viewpoint is located at an elevated point at the driveway entrance of 6335 Abercrombie Road and is within the extents of the Project Area. The surrounding landscape is characterized by cleared undulating hills with scattered and patchy vegetation that is dotted on hilltops and undulations prevalent within the valley. Land has largely been cleared for grazing activity and for farm buildings in the vicinity.

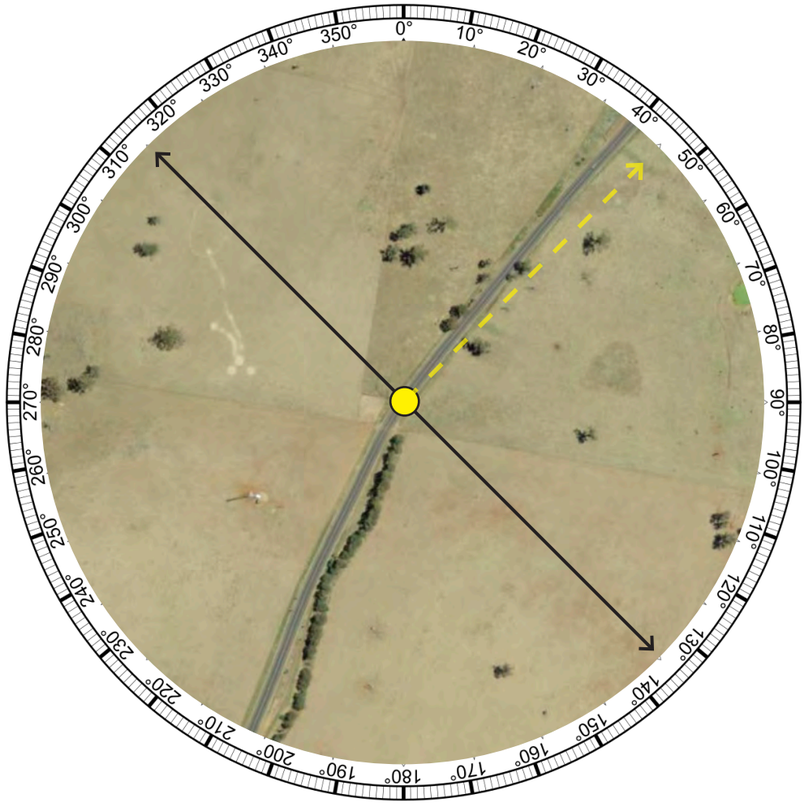
Minimal windbreak plantations along the lot’s boundary will reduce the likelihood of screening of the wind turbines from this location. Farm buildings on the lot may contribute towards screening some of the views. The road rises in elevation as it moves along the east and the north, and this may help is screening views of the turbines that are located beyond the visible extents of the viewpoint.

Potential Visual Impact:

Turbines will be clearly visible from this location because of its close proximity to the Project Area. Due to the absence of dense roadside and windbreak vegetation, the turbines will be very clearly visible at this location.

VP04A Near telecom tower on Abercrombie Road, Paling Yards

Existing View



Aerial Image VP04A (Aerial Image Source: Six Maps)

VIEWPOINT VP04A

Viewpoint Summary:	
Location:	
Near telecom tower on Abercrombie Road, Paling Yards	
Coordinates:	Viewing Direction:
34° 8'40.42"S 149°45'5.68"E	Northeast
Distance to nearest WTG:	Elevation:
0.30km	1004m

Existing Landscape Character Description:

Located at the highest elevation of the proposed development, this viewpoint sits at the heart of the Project Area. It is located near the telecom tower on Abercrombie Road and overlooks the surrounding tablelands and undulating hills that have been cleared for agricultural activity.

Very few trees dot the surrounding landscape. The rise in the ridgeline towards the east contributes towards screening views towards the valley that lies beyond this gently rise. Towards the north, views are very open with minimal vegetation. The ridgelines that are visible in the background are dotted with patchy woodland vegetation. These may help in screening some views towards the turbine.

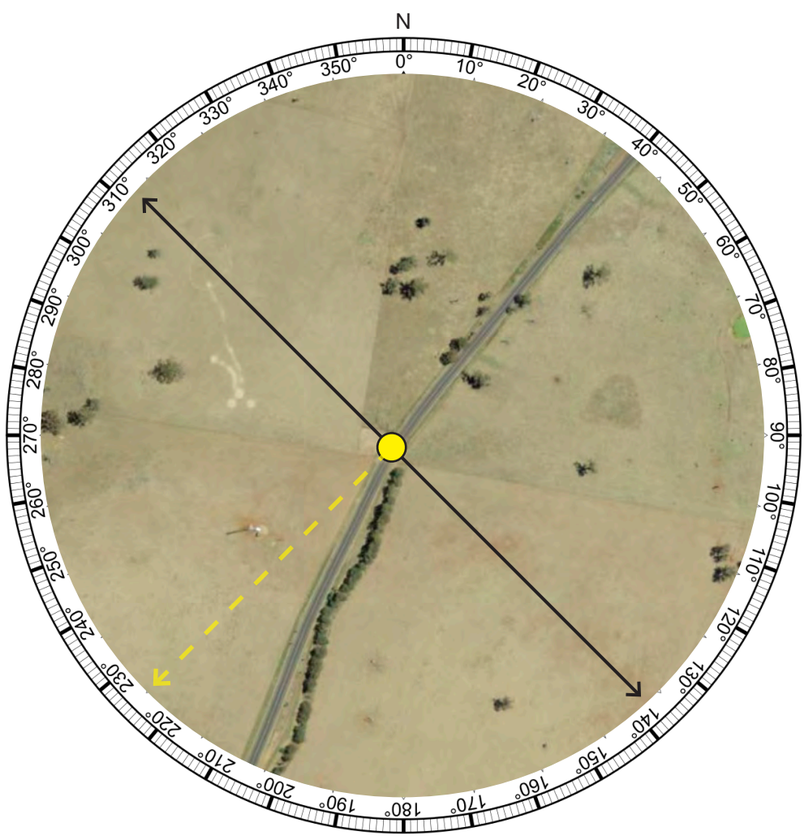
Detrimental features that are visible in the near middleground include powerlines.

Potential Visual Impact:

Turbines will be visible primarily towards the north and the east. Since the viewpoint is located in very close proximity to the turbines, they will be visible all around from this viewpoint. The gentle rise in the eastern ridgeline may help in screening some of the views.

VP04B Near telecom tower on Abercrombie Road, Paling Yards

Existing View



Aerial Image VP04B (Aerial Image Source: Six Maps)

VIEWPOINT VP04B

Viewpoint Summary:	
Location:	
Near telecom tower on Abercrombie Road, Palling Yards	
Coordinates:	Viewing Direction:
34° 8’40.42”S 149°45’5.68”E	Northeast
Distance to nearest WTG:	Elevation:
0.30km	1004m

Existing Landscape Character Description:

Located at the highest elevation of the proposed development, this viewpoint sits at the heart of the Project Area. The telecom tower is visible in this viewpoint and a very gentle rise in the road can be seen towards the southwest. The viewpoint is located at one of the highest elevations within the Central Highlands region.

Very few trees dot the surrounding landscape. The topography generally slopes from south to the west. The gently rise of the southern ridgeline helps in mitigating some of views of the valley that lies beyond. Towards the west, ridges that are densely vegetated with dry sclerophyll forests within the Abercrombie River National Park are visible.

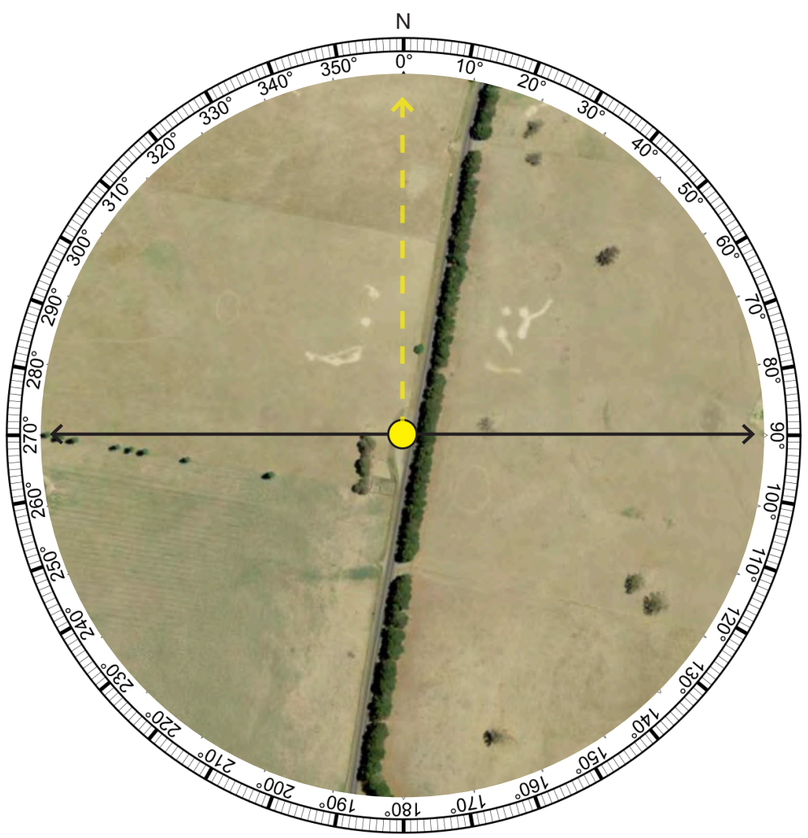
The road is an important connector for all dwellings in this area and it also provides access to infrastructure such as the telecom tower and electrical transmission lines..

Potential Visual Impact:

Views towards the southwest are very clear due to the lack of vegetation and fairly planar topography. Most turbines will be visible in this direction but some of the turbines might be screened due to the gentle rise in the southern ridgeline.

VP05A Driveway of dwellings 9, 9A and 9B on Abercrombie Road, Paling Yards

Existing View



Aerial Image VP05A (Aerial Image Source: Six Maps)

VIEWPOINT VP05A

Viewpoint Summary:	
Location:	
Driveway of dwellings 9, 9A & 9B on Abercrombie Road, Paling Yards	
Coordinates:	Viewing Direction:
34°10’13.17”S 149°22’18.91”E	North
Distance to nearest WTG:	Elevation:
0.873 km	954m

Existing Landscape Character Description:

This viewpoint is located near the entrance gate and driveway of dwellings 9, 9A and 9B. It is a representation of the views from these involved dwellings.

The topography around this viewpoint is very gently undulating. The ridgeline towards the far west has more undulations with fairly dense patches of trees within an otherwise cleared landscape. Towards the east, a dense corridor or windbreak plantations screens all views to this side. The dense vegetation corridor runs for a distance of roughly 2km. Predominant land use of this area is agricultural.

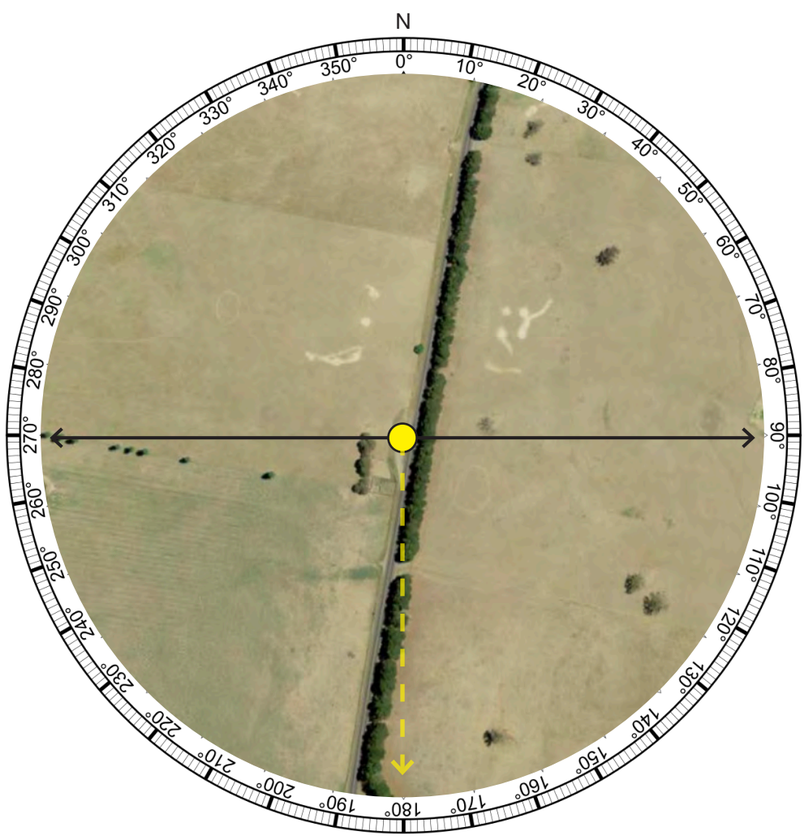
Views towards the northwest are very clear and will, therefore, offer clear views of the Project.

Potential Visual Impact:

Turbines will be primarily visible towards the north and the west. The viewpoint is located in very close proximity to the turbines. Views towards the east will be screened by the vegetation corridor.

VP05B Driveway of dwellings 9, 9A and 9B on Abercrombie Road, Paling Yards

Existing View



Aerial Image VP05B (Aerial Image Source: Six Maps)

VIEWPOINT VP05B

Viewpoint Summary:	
Location:	
Driveway of dwellings 9, 9A & 9B on Abercrombie Road, Paling Yards	
Coordinates:	Viewing Direction:
34°10’13.17”S 149°22’18.91”E	North
Distance to nearest WTG:	Elevation:
0.873 km	954m

Existing Landscape Character Description:

This viewpoint is located near the entrance gate and driveway of dwellings 9, 9A and 9B. It is a representation of the views from these involved dwellings. The viewpoint looks towards the south.

The topography around this viewpoint is very gently undulating. Vegetation of the windbreak plantations towards the east and the west help is screening most views in this direction. The dense windbreak plantation that runs along the eastern side of the road screens all views towards the Project Site. Towards the west, the windbreak plantations are not very dense, and will thus allow partial views of the turbines.

Ridgelines located in the background are dotted with vegetation and are not clearly visible from this viewpoint.

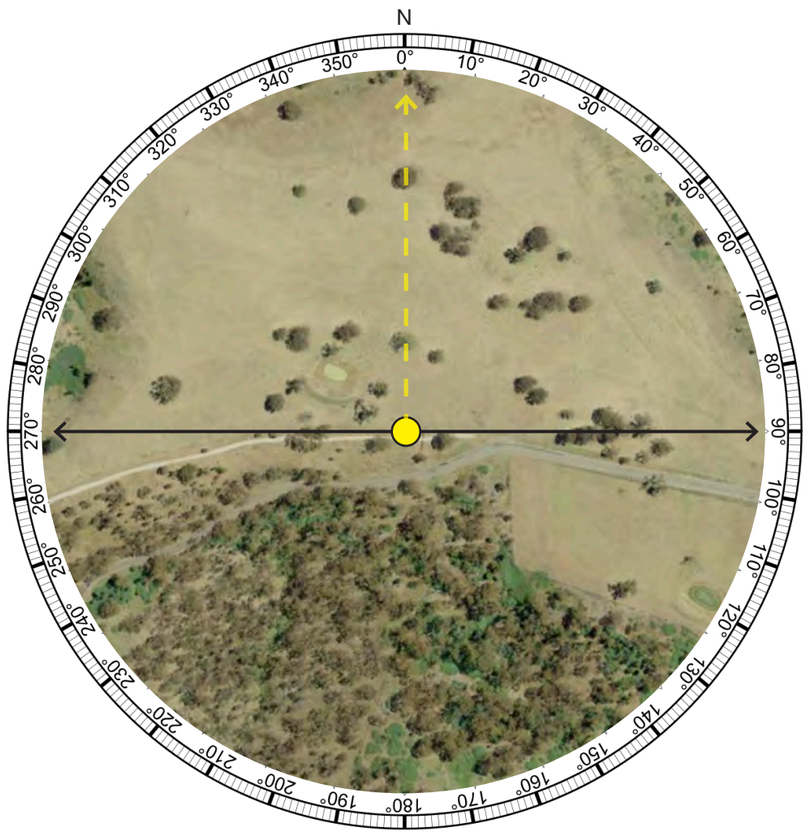
Potential Visual Impact:

Turbies will be visible priarily towards the south and the west. The viewpoint is located in very close proximity to the turbines. Views towards the east will be screened by the dense vegetation corridor. Vegetation towards the west will offer partial views of the turbines.

VP06 Entrance gate of 7272 Taralga Road, Curraweela (Dwelling ID: 28, Abercrombie Ridge Accommodation)

W 280° 290° 300° 310° 320° 330° 340° 350° N 10° 20° 30° 40° 50° 60° 70° 80° E

Existing View



Aerial Image VP06 (Aerial Image Source: Six Maps)

VIEWPOINT VP06

Viewpoint Summary:	
Location:	
Entrance gate of 7272 Taralga Road, Curraweela (Abercrombie Ridge Accommodation - dwelling ID: 28)	
Coordinates:	Viewing Direction:
34°12'16.22"S 149°45'13.39"E	North
Distance to nearest WTG:	Elevation:
3.755 km	913m

Existing Landscape Character Description:

Located near the driveway entrance of the Abercrombie Ridge Accommodation, this viewpoint lies south of the Project Site. This stretch of Taralga Road receives moderate to busy traffic of heavy vehicles that operate between Gurnang State Forest and towns such as Taralga.

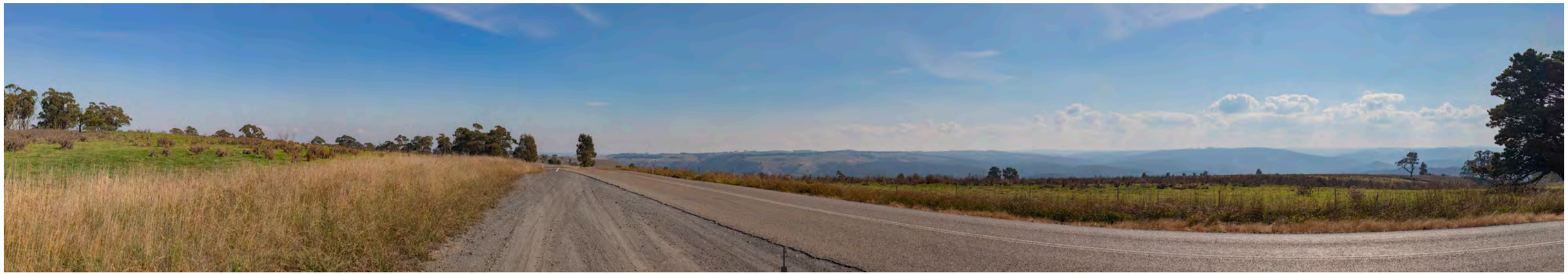
The viewpoint is lcoated at an elevation similar to the Project Area. Gently undulating topography that is dotted with trees in its immediate vicinity to the north and dense vegetation towards the south characterizes this viewpoint. The fairly levelled ridgeline does not screen the views that look towards the north. Scattered vegetation on the nearest ridgeline will offer partial views of the turbine around this viewpoint.

The extremely gentle rise in the topography towards the far north may help in screening some of the views of the Project Site.

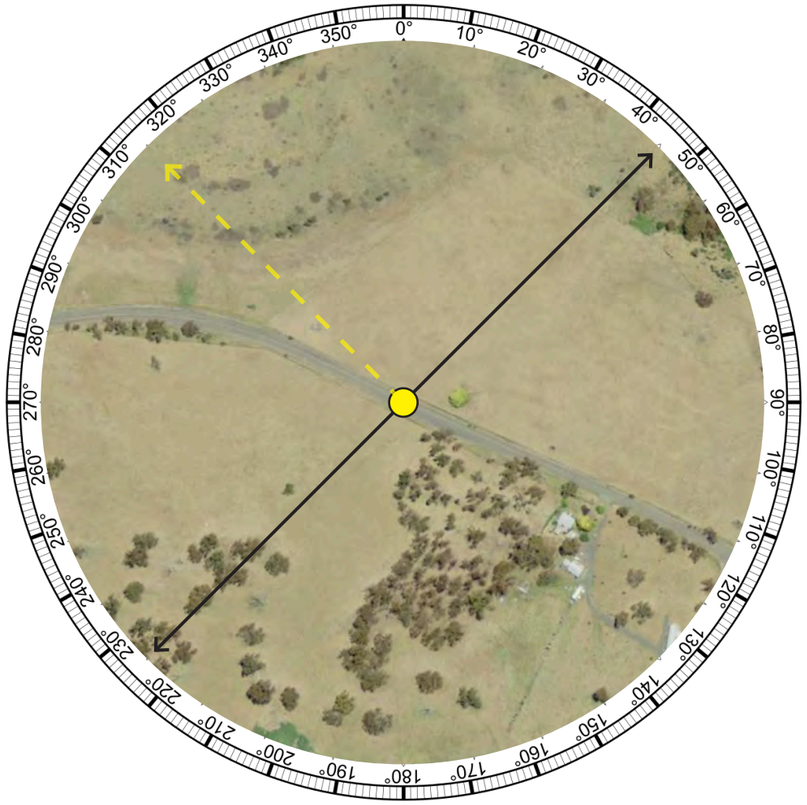
Potential Visual Impact:

Views towards the north will not be screened and the Project Area will be visible from this viewpoint. Turbines are predominantly visible towards the north and the west.

VP07 Near driveway of 6875 Taralga Road, Curraweela (Dwelling ID: 29, Tangenong Cottages)



Existing View



Aerial Image VP07 (Aerial Image Source: Six Maps)

VIEWPOINT VP07

Viewpoint Summary:	
Location:	
Near driveway of 6875 Taralga Road, Curraweela (Dwelling ID: 29, Tangenong Cottages)	
Coordinates:	Viewing Direction:
34°12'32.02"S 149°46'10.67"E	Northwest
Distance to nearest WTG:	Elevation:
5.133 km	930m

Existing Landscape Character Description:

The viewpoint is located near the driveway of Tangenong Cottages located on Taralga Road in Curraweela. It is an important road that connects most dwellings in the area.

The surrounding topographical character is gently undulating with expansive views of the ridgeline towards the north. Vegetation is very scattered and does not screen the views around this viewpoint. The Project Area is very clearly visible from this viewpoint because of its elevation amidst the surrounding topography.

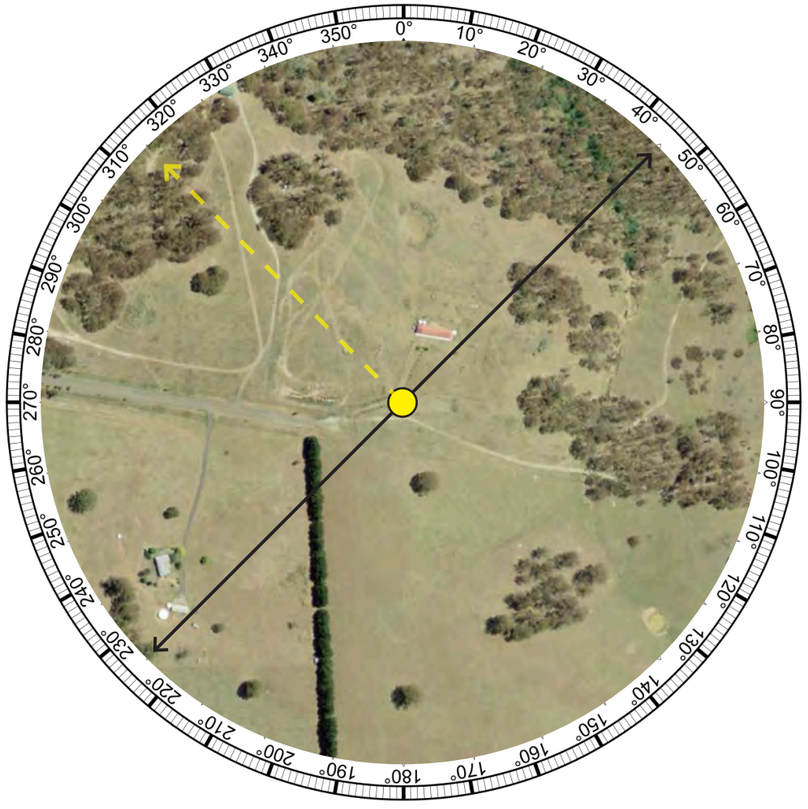
Surrounding land uses include agriculture, recreation and major road.

Potential Visual Impact:

The Project Area will be very clearly visible from the viewpoint because of the clear, expansive views and lack of screening vegetation.

VP08 Driveway entrance gate of 125 Cobodong Road, Curraweela (Dwelling ID: 146)

Existing View



Aerial Image VP08 (Aerial Image Source: Six Maps)

VIEWPOINT VP08

Viewpoint Summary:	
Location:	Elevation:
Driveway entrance gate of 125 Cobodong Road, Curraweela (Dwelling ID: 146)	972m
Coordinates:	Viewing Direction:
34°13'10.43"S 149°48'5.65"E	Northwest
Distance to nearest WTG:	Elevation:
7.323 km	972m

Existing Landscape Character Description:

The viewpoint is located near the entrance gate of 125 Cobodong Road, Curraweela. It is a low use road which is used only to access the dwellings in this area. The viewpoint is a representation of dwellings 143-147 and dwelling 31.

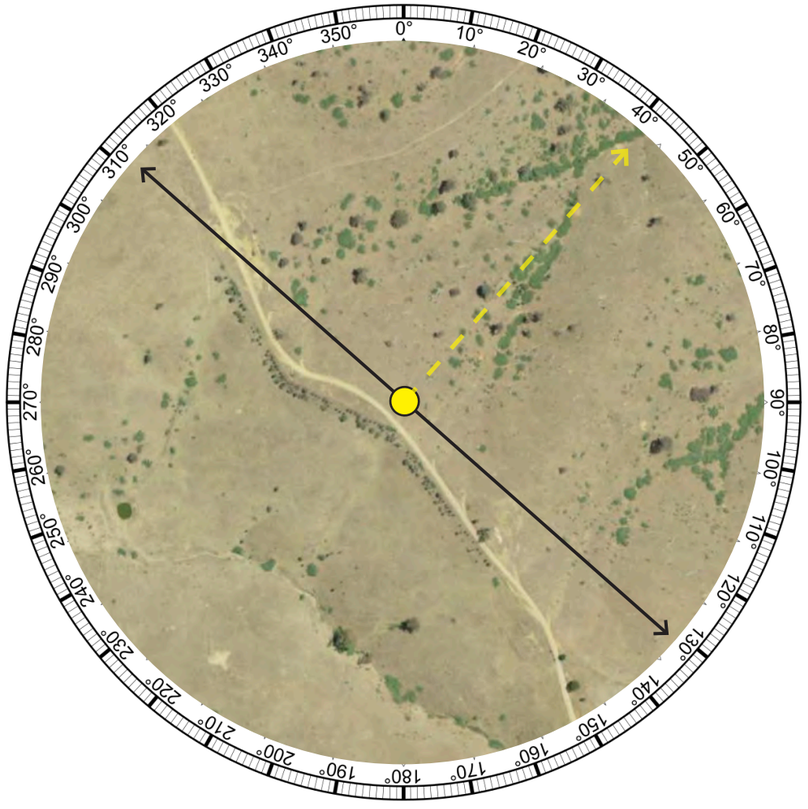
The surrounding topography of this area is gently undulating and steep in some locations. The residential lots in this area are lined with dense windbreak plantations which screen all views towards the north. Detrimental features for this viewpoint include power lines.

Potential Visual Impact:

Due to the curvature of the surrounding landscape and dense tree plantations towards the north, views towards the Project Area will be mostly screened. Partial views of turbine tops might be offered in certain areas.

VP09 Levels Road, Golspie

Existing View



Aerial Image VP09 (Aerial Image Source: Six Maps)

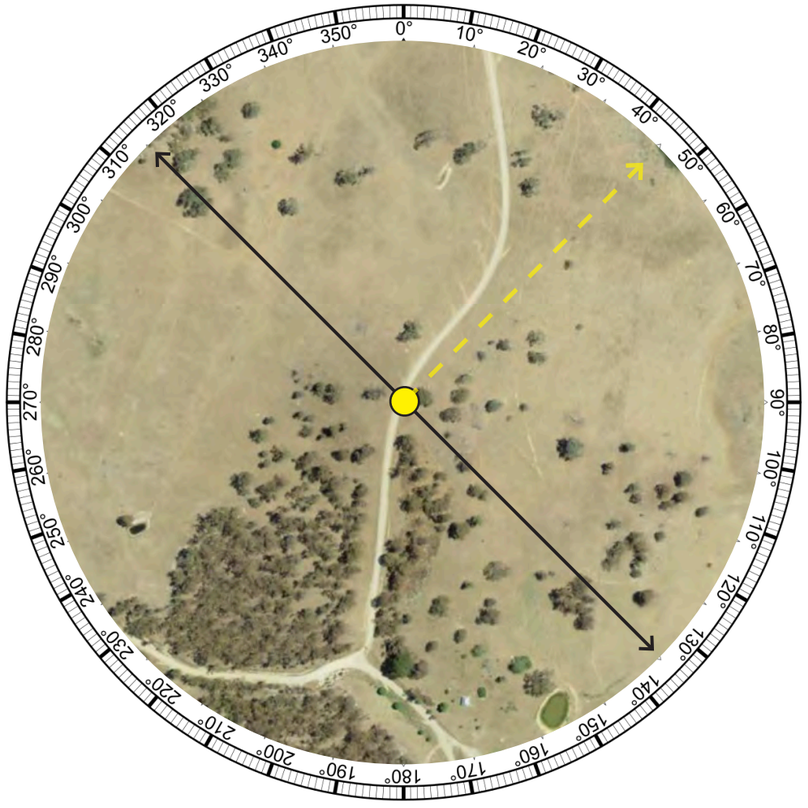
VIEWPOINT VP09

Viewpoint Summary:	
Location:	
Levels Road, Golspie	
Coordinates:	Viewing Direction:
34°12'52.09"S 149°38'14.51"E	Northeast
Distance to nearest WTG:	Elevation:
6.171 km	**856m**

Existing Landscape Character Description:
The viewpoint is located on Levels Road in Golspie. It represents the views from the highest point on Levels Road. The surrounding topography of this area is steep and undulating. The vegetation is cleared to support the grazing activity in the surrounding area. The ridgelines in the distance are cleared with scattered vegetation that will offer clear views of the Project Area.
Potential Visual Impact:
The Project Area will be very clearly visible from the viewpoint because of the clear, expansive views and lack of screening vegetation. The ridgeline towards the east will screen most views of the Project Area.

VP10 Blue Hill Road, Yalbraith

Existing View



Aerial Image VP10 (Aerial Image Source: Six Maps)

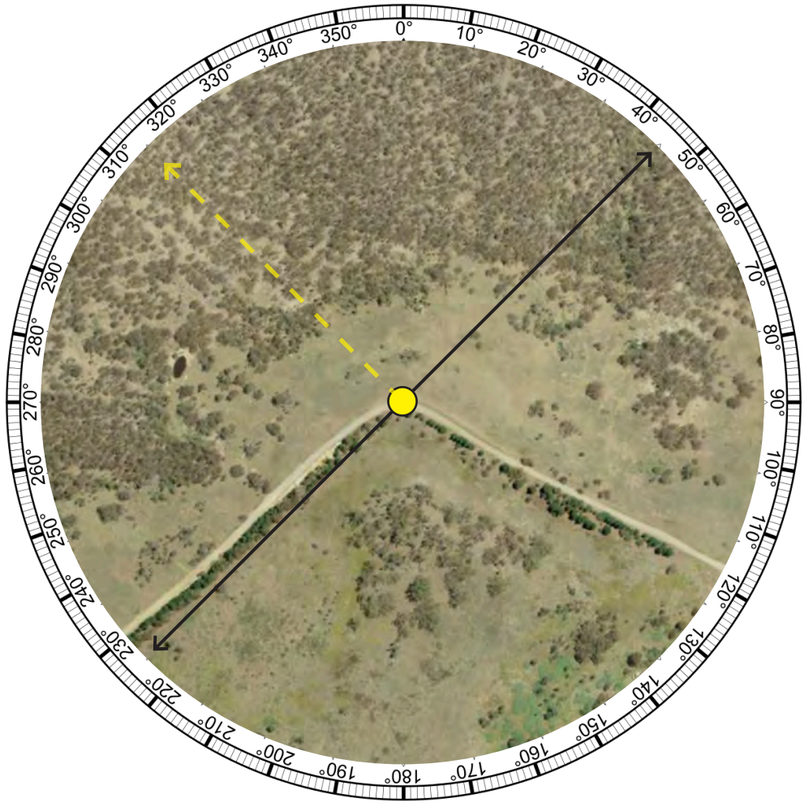
VIEWPOINT VP10

Viewpoint Summary:	
Location:	
Blue Hill Road, Golspie	
Coordinates:	Viewing Direction:
34°15’37.29”S 149°42’28.70”E	Northeast
Distance to nearest WTG:	Elevation:
8.549 km	841m

Existing Landscape Character Description:
The viewpoint is located on Blue Hill Road and is indicative of the dwellings surrounding this area. The topography around this viewpoint is undulating with rolling hills that have been cleared for grazing and agricultural activity. Views towards the north are screened by patchy vegetation on the northern ridgeline and this may help in screening some of the views towards the Project Area.
Potential Visual Impact:
The Project Area will be screened by the surrounding topography.

VP11 Glen Road

Existing View



Aerial Image VP11 (Aerial Image Source: Six Maps)

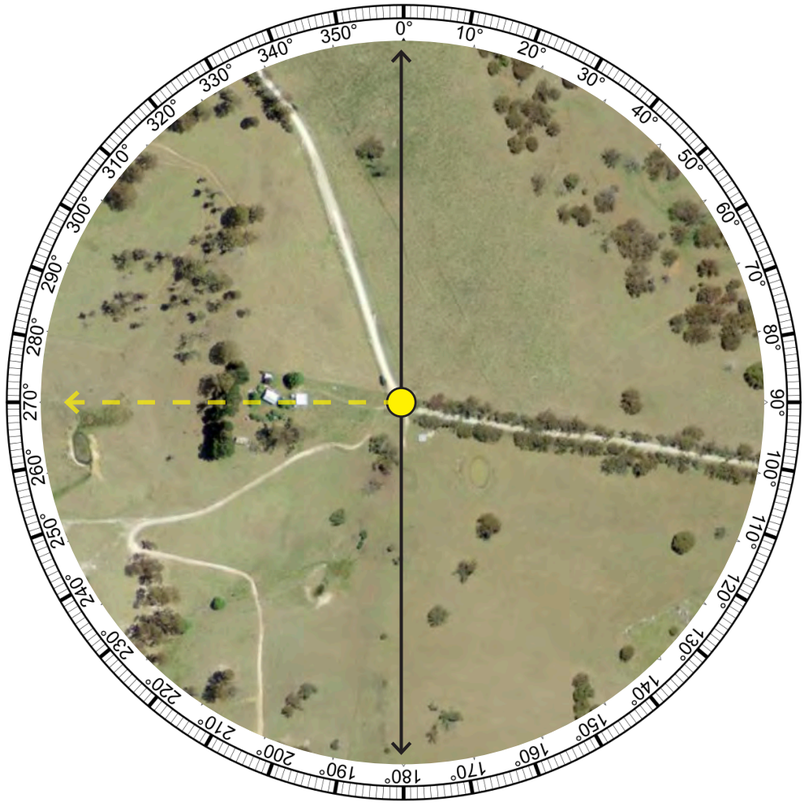
VIEWPOINT VP11

Viewpoint Summary:	
Location:	Elevation:
Glen Road, Jerrong	908m
Coordinates:	Viewing Direction:
4°11'6.85"S 149°49'21.37"E	Northwest
Distance to nearest WTG:	Elevation:
4.482 km	908m

Existing Landscape Character Description:
This viewpoint is located along Glen Road looking towards the project site. The view from this location are unobstructed and expansive due to the elevation. Glen Road is a low use road used primarily as an access to properties and the Mountain Bike Park nearby. The topography is undulating and steep and lacks any vegetation. Few scattered trees are visible to the right of the view. The ridgeline associated with the project site is very prominent to the west.
Potential Visual Impact:
The WTG's are visible to the northwest of the view. This viewpoint location offers expansive views to the project site due to the lack of any surrounding vegetation.

VP12 Jerrong Road

Existing View



Aerial Image VP12 (Aerial Image Source: Six Maps)

VIEWPOINT VP12

Viewpoint Summary:	
Location:	Elevation:
Jerrong Road, Jerrong	1036m
Coordinates:	Viewing Direction:
34° 8’50.30”S 149°51’11.14”E	West
Distance to nearest WTG:	Elevation:
4.835 km	1036m

Existing Landscape Character Description:

This viewpoint is located at the entrance to NAD 117 along Jerong Road. The development Site is located to the west of this viewpoint. Views from this location are open and expansive as it sits at a similar elevation to the project site. Dense vegetation associated with the residential dwelling is visible in the near foreground of the view. Breaks in the scattered vegetation may provide fleeting views to the development Site to the left of the view.

The topography appears flat as the viewpoint is located on a tablelands and gently undulates towards the north. The land use is primarily characterised by cleared land used for agricultural activities such as grazing and cropping.

Potential Visual Impact:

The WTG’s associated with the development Site will be visible to the west and southwest. Views to the west, primarily to the middle of the view, will fragmented by the dense vegetation.