

Flyers Creek Wind Farm Pty Ltd

Flyers Creek

WIND FARM

Environmental Assessment

CHAPTER 1

Introduction



1. Introduction

1.1 Background

This Environmental Assessment has been prepared by Aurecon on behalf of the proponent, Flyers Creek Wind Farm Pty Ltd, for the proposed development of a wind farm and associated ancillary infrastructure. The Environmental Assessment supports a Project Application lodged by proponent under the Environmental Planning and Assessment Act, 1979 (EP&A Act). The project site is located in the Central Western Region of New South Wales (NSW) approximately 20 kilometres south of Orange and 200 kilometres west of Sydney, NSW (Figures 1.1 and 1.2).

A project application based on an initial conceptual project layout was lodged with the NSW Department of Planning on 15 December 2008. Subsequently on 19 January 2009, the Director-General of the Department of Planning prescribed specific requirements for the scope and content of the Environmental Assessment (Appendix A).

On the 11 November 2009, the NSW Minister for Planning declared the proposed Flyers Creek Wind Farm to be a '*Critical Infrastructure*' project (under Section 75C of the Environmental Planning and Assessment Act, 1979) (Appendix B) being a project that is essential for the State and economic reasons and for social and environmental reasons.

This Environmental Assessment based on the updated project design addresses the Director-General's requirements and provides a description of the currently proposed project, the existing environment and planning context, an assessment of the potential environmental impacts of the project, the measures proposed to mitigate those impacts, justification of the project and the consultation undertaken and proposed in the future for the project.

1.2 Overview of Proposed Development

A wind farm is a collection of wind turbines that harness the natural energy provided by the wind to drive electric generators. The electricity generated by the wind farm is supplied to the electricity supply grid for use by network customers.

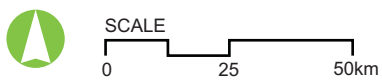
The wind farm will have a generation capacity to produce between 88 and 132 MW (million watts) of electrical power from the combined output of up to 44 wind turbines, each with a generation capacity of between two and three megawatts. The final details of the number of turbines and turbine model to be used have not yet been confirmed and this assessment addresses all the sites that have potential for development. For the purpose of assessing the environmental impacts of the development a representative turbine model is used in this assessment. Where variants to the characteristics of the turbine or array are possible, allowance has been made in the assessment for worse case parameters in terms of environmental impacts.

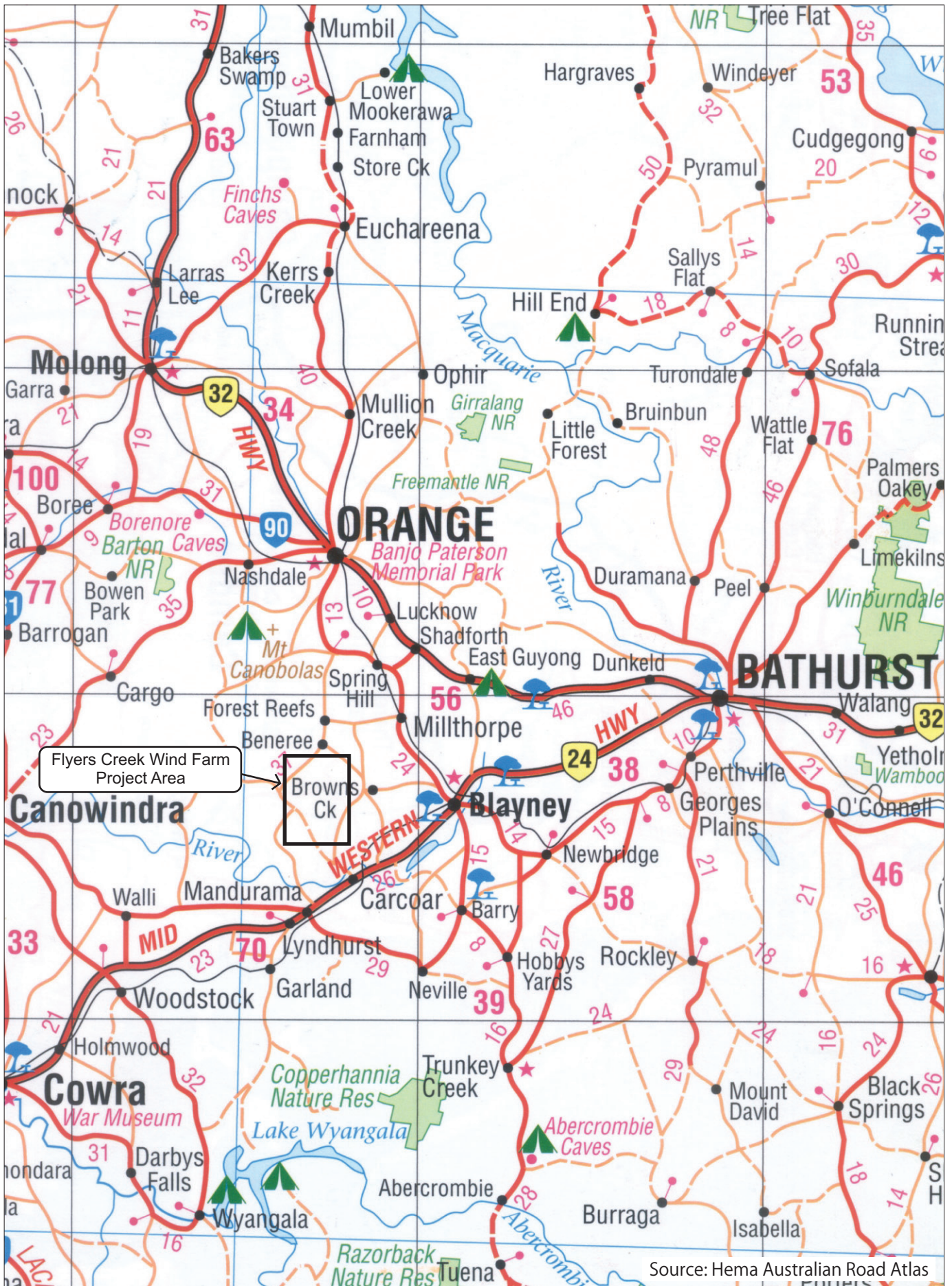
Regardless of the model selected, the turbines will be three bladed horizontal axis turbines mounted on towers of between 80 metres and 100 metres in height. The general form of the wind turbines is shown in Figure 1.3. The diameter of the turbine rotor will be between 88 metres and 112 metres, giving a total height to the top of the blade sweep of between 124 metres and 150 metres. The turbines will have automatic controls that enable them to face into the wind and to generate when wind speeds are suitable.

The proposed layout of wind turbines in the project area is shown in Figure 1.4. This array is based on up to 44 turbine sites being developed. While up to 46 sites were considered for development, only 44 are included in the current proposal. This number represents the maximum number of sites for development and ultimately the proponent may select a lesser number of sites to be developed. The turbines will be located at or near ridge tops to maximise energy generation and spaced to minimise interference between neighbouring turbines. The design of the wind farm will also address a range of environmental considerations as described in the Environmental Assessment.




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Source: Hema Australian Road Atlas



The individual turbines will be interconnected by 33 kV underground cables and be connected to a substation where the voltage will be increased from 33 kV to 132 kV for connection to the grid. The substation location is on the north-western side of the project area (Figures 1.4 and 1.5). A double circuit 33 kV overhead line may also be used as part of the electrical collection system to bring the output from the southern part of the wind farm to the northwest substation. Where underground cables are impractical, or would have unsuitable environmental impacts, some above ground 33 kV power lines may be utilised. Figure 1.6 provides an overview of the complete project including the proposed 132 kV transmission line which connects the wind farm to the electricity grid that is included in the planning application.

Control cables will also link each of the turbines to a facilities building located at the substation site. The wind farm will be designed to be operated automatically and remotely but will have a small number of staff in attendance during daytime hours.

Construction works at the wind farm site will include establishment and site preparation, the installation of access tracks, minor drainage works, turbines, wind monitoring masts, electricity reticulation, construction of a substation and associated facilities and auxiliary services buildings. Temporary construction site office and amenities facilities will be installed at the commencement of construction and, following completion of the construction phase, removed and the site restored.

A detailed description of the proposed development is provided in Chapter 3. The design of the wind farm, used for the assessment including the site layout and equipment specifications, is the result of a number of refinements to the initial wind farm concept design. The refinements have resulted from wind energy resource assessment considerations, landowner negotiations and matters arising out of the community and regulatory authority consultation process as well as available equipment options and the associated environmental impacts. The resultant project description is considered to enable a viable wind farm development with an acceptable impact on the environment and surrounding communities. It also represents the maximum development proposed and the actual installed wind farm may comprise a lesser scale development than that presented in this Environmental Assessment.

1.3 Project Location

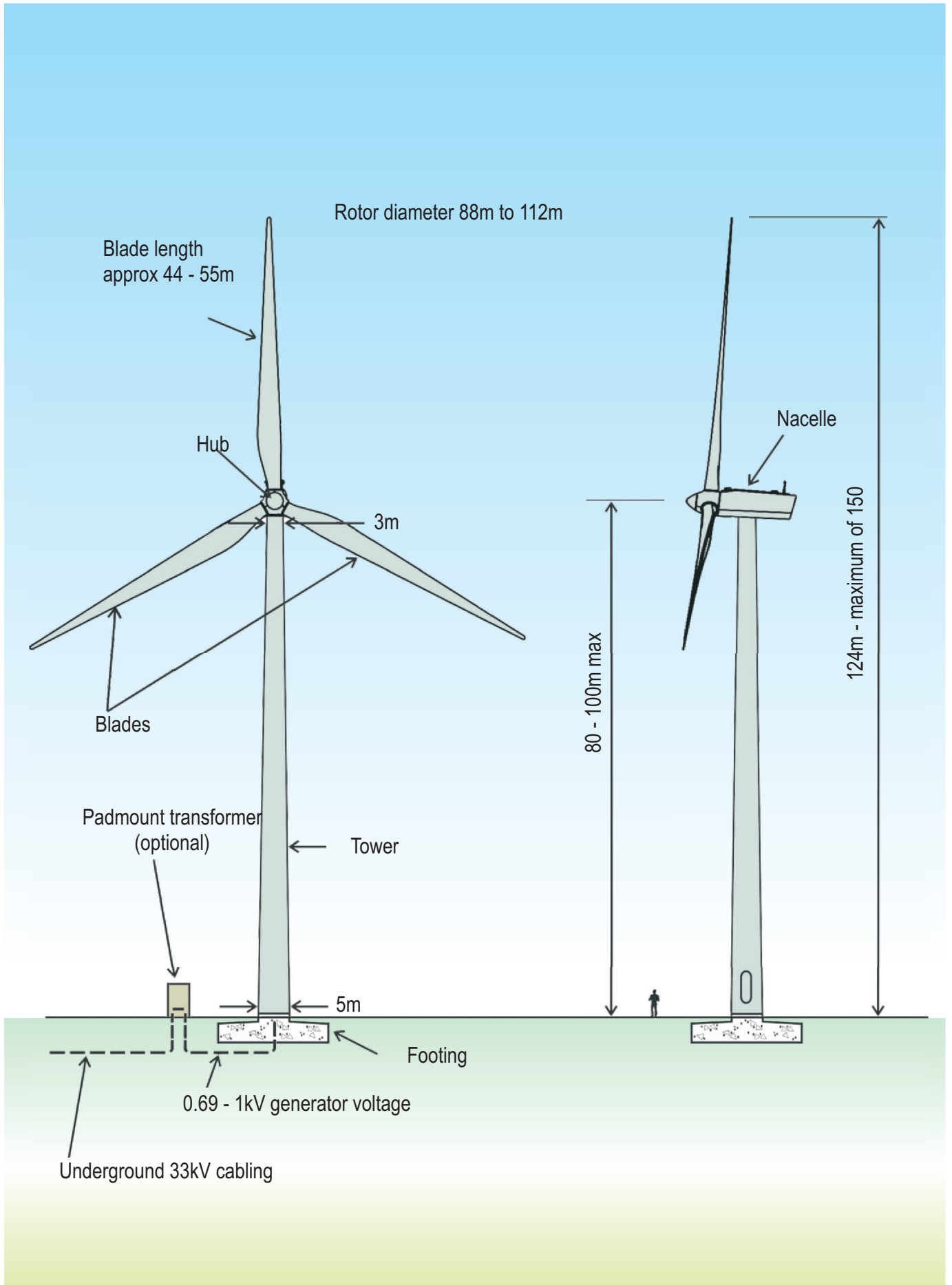
The proposed development is located in Central Western NSW, approximately 20 kilometres south of the regional centre of Orange and about 200 kilometres west of Sydney, as shown in Figure 1.1. It is wholly within the local government area of Blayney Shire. The turbine locations vary in elevation from approximately 780 metres to 950 metres above sea level with the valley floors surrounding the sites being at about 110 to 210 metres below the turbine sites.

An aerial photograph of the site showing the project boundary, proposed turbine sites and general location of access tracks is provided in Figure 1.5.

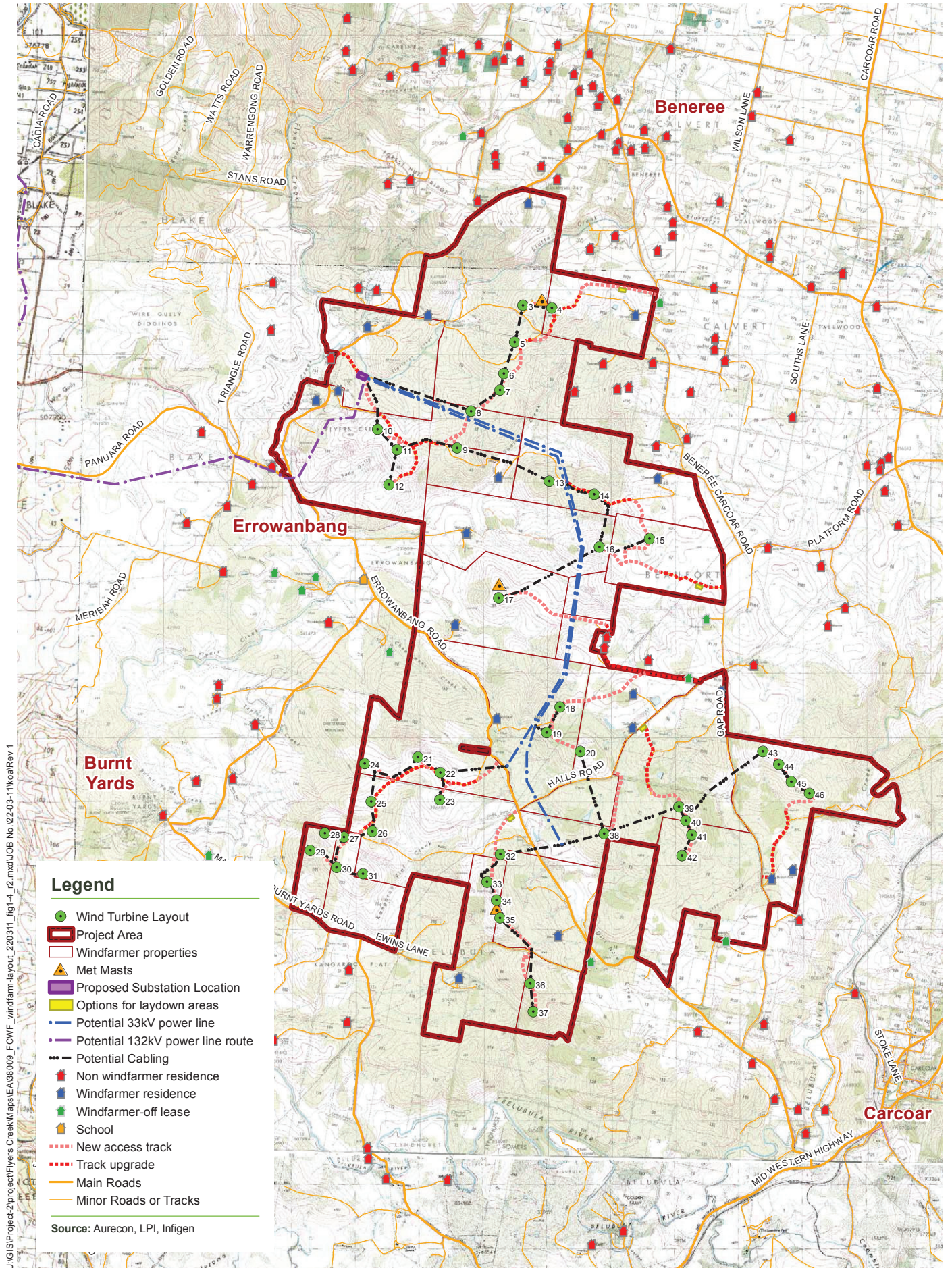
1.4 Properties Involved in the Development

The land on which the proposed Flyers Creek Wind Farm and ancillary facilities will be located comprises privately owned properties, which are predominantly cleared pastoral lands used for sheep and cattle grazing. The 132 kV transmission line required for grid connection is proposed for land owned by Cadia Mine Holdings and one private farm used for grazing (Figure 1.6).

The privately owned lands for the Flyers Creek Wind Farm itself include 25 pastoral properties. The properties associated with the project and to which the Project Application applies are described in Chapter 4 and are also shown in Figure 4.1 together with properties adjoining the project site. Tables 4.1 and 4.2 provide property details of the lands on which the proposed wind farm and ancillary features are proposed to be located and to which the Project Application applies. Chapter 4 also describes other land uses at the locality and the land ownership associated with those activities.



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Legend


- Wind Turbine Layout
- Project Area
- Windfarmer properties
- ▲ Met Masts
- Proposed Substation Location
- Options for laydown areas
- Potential 33kV power line
- Potential 132kV power line route
- - - Potential Cabling
- Non windfarmer residence
- Windfarmer residence
- Windfarmer-off lease
- School
- New access track
- - - Track upgrade
- Main Roads
- Minor Roads or Tracks

Source: Aurecon, LPI, Infingon



1:80,000
0 1 2kilometres

Projection: GDA 1994 MGA Zone 55



Flyers Creek Wind Farm Pty Ltd, as the proponent of the project, has entered into leases with the landowners of the properties within the project boundary on which the wind farm development is to be located. Under the terms of these leases, Flyer Creek Wind Farm Pty Ltd has the consent of the landowners to lodge the Project Application and the supporting Environmental Assessment. Provided the necessary approvals are obtained, the option agreements also provide landowner agreement for Flyer Creek Wind Farm Pty Ltd to lease the land to construct, operate and eventually decommission the wind farm.

1.4.1 Other wind farms and industry in the region

Figure 1.1 shows operating wind farms for the Central Western and Southern Tablelands regions of NSW. The Flyers Creek Wind Farm project area is about eight kilometres to the northwest of the existing Blayney Wind Farm that is owned and operated by Eraring Energy. The Blayney Wind Farm comprises fifteen Vestas 660 kilowatt wind turbines and has a total generating capacity of 10 MW. The Blayney Wind Farm is connected via an 11 kV/66 kV substation to a 66 kV Country Energy transmission line. It began operating in 2000 and has been well accepted by the local community despite some localised objection during the Development Application review period. The Blayney Wind Farm is visible from some parts of the Flyers Creek Wind Farm site but views to Blayney Wind Farm are limited by topography and/or vegetation from many locations in the vicinity of the Flyers Creek Wind Farm site.

The Cadia mine, owned and operated by Newcrest Mining Ltd, is located about five kilometres northwest of the Flyers Creek Wind Farm project. It commenced operating in 1998 and produces significant quantities of gold and copper ore. The mine operates 24 hours per day and is a visible feature of the locality. Further details of the Cadia mining operation can be found in Chapter 5.

1.5 Local Government Area (LGA)

The proposed Flyers Creek Wind Farm, associated substation and grid connection facilities are wholly within Blayney Shire Local Government Area (LGA) and the Blayney Local Environment Plan 1998 (BLEP) sets out the Council's planning provisions for the Shire. The Cabonne Shire is located to the northwest of the project area and only the new 132 kV transmission line for grid connection and switching station are within close proximity to Cabonne Shire.

1.6 Project participants

The proponent for the proposed wind farm is Flyers Creek Wind Farm Pty Ltd. The energy produced by the Flyers Creek Wind Farm will be sold within the National Electricity Market.

A summary of the key project participants who are directly involved with the project is provided below:

- Flyers Creek Wind Farm Pty Ltd is a company formed for the explicit purpose of the development of the Flyers Creek Wind Farm
- Infigen Energy is the parent company of Flyers Creek Wind Farm Pty Ltd and is managing the design, contractual and financial matters for the wind farm implementation
- Landowners of properties within the project boundary where the wind turbines and associated infrastructure will be located have leased their land to Flyers Creek Wind Farm Pty Ltd.