

CHAPTER 3

Project Description

3. PROJECT DESCRIPTION

This chapter presents a detailed description of the works associated with the construction and operation phases of the proposed Boco Rock Wind Farm development, which is otherwise referred to as ‘the Project’ throughout this Environmental Assessment (EA).

3.1 Key Terms

For the purposes of this EA the following terminology has been used when referring to the Project.

Locality: Area encompassing all lands within a 10 km radius around the Project site.

Project site: Land within the cadastre boundaries of all properties subject to this proposal, comprising an area of 11,750 hectares (ha).

Study area: 200 metre (m) wide corridor in which the turbine footprint, roads and electrical cables will be contained, comprising an area of 1,653 ha.

Development footprint: All proposed locations of the turbines, roads, reticulation, collector substation and facilities building, comprising a maximum area of 200 ha, of which 107 ha is considered permanent.

Clusters: It is likely that ‘Clusters’ of turbines will be constructed and commissioned in stages, which is discussed in more detail later in the chapter.

3.2 Location and Site Design

The Boco Rock Wind Farm is situated along the high altitude plateau of the Monaro Plains. The ranges are of moderate-to-high elevation (900 to 1,100 m above sea level, Australian Height Datum), dominated by the Sherwins Range running in a north-south direction. The nearest township is Nimmitabel, which is located approximately 6 km east of the Project.

When first announced in September 2008 the Project consisted of up to 73 turbines spread over nine different properties, with the capability to produce enough energy to supply over 70,000 average Australian households.

However in response to our announcement and a local resident “door-knocking” exercise, several changes were made to the Project. The majority of the responses received were positive. Where responses were less positive consultation with those affected parties was undertaken to mitigate the impact of the Project. Together with more detailed grid connection studies, other Project related studies and discussions with turbine manufacturers the Project was modified both in terms of scale and the area on which the Project will be situated. Further details relating to consultation can be found in **Chapter 6 Stakeholder Consultation**.

The Project now comprises of a wind farm with two potential design layouts; one consisting of 125 wind turbines (Layout Option 1) and the other 107 wind turbines (Layout Option 2) spread over 17 different properties (the Project site). Details of the land tenure for the Project are contained within **Appendix 1**. The difference in number between the two layouts is due to the relative sizes of the

wind turbine models being considered for the Project, and in particular their blade lengths. Coordinates of each layout are detailed in **Appendix 2**. The choice between these two design layouts is largely dependent on a successful tender process for the supply of wind turbines to the Project.

The Project will have an installed capacity approximately up to 270 MW, which is dependent on the turbine model selected, and will consist of the following components:

- The installation of up to 125 wind turbines in the area south west of Nimmitabel, NSW (refer to **Figures 3.1** and **3.2**) with a maximum blade tip height of 152 m;
- One collector substation comprising cable marshalling, switchgear and transformers,
- Site operations facilities and services building;
- Underground electrical interconnection lines (33 kilovolt (kV) capacity) and control cables within each of the wind turbine Clusters, connecting to the collector substation;
- Overhead electrical interconnection lines (33 kV capacity) and control cables between three of the wind turbine Clusters and the collector substation;
- Access roads from the public highways to the turbine locations and collector substation;
- Crane hardstand areas for the erection, assembly, commissioning, maintenance, recommissioning and decommissioning of the wind turbines;
- Approximately four permanent wind monitoring masts;
- Temporary site office and storage compound including site parking;
- Appropriate wind farm signage both during the construction and operational phases of the proposed development; and
- Mobile concrete batching plant(s) and rock crushing facilities.

The output of the Project will connect via a new 132 kV double-circuit overhead transmission line to existing Country Energy owned lines east of the Project site. This new line and associated substation at the point of connection will be assessed separately from the Project and will be subject to a separate approval under Part 5 of the Environmental Planning and Assessment (EP&A) Act 1979. However to provide context to this EA, a description of the proposed transmission line is included in **Section 3.11** of this chapter, and in subsequent chapters an assessment of the likely impacts and mitigation measures of the transmission line are addressed.

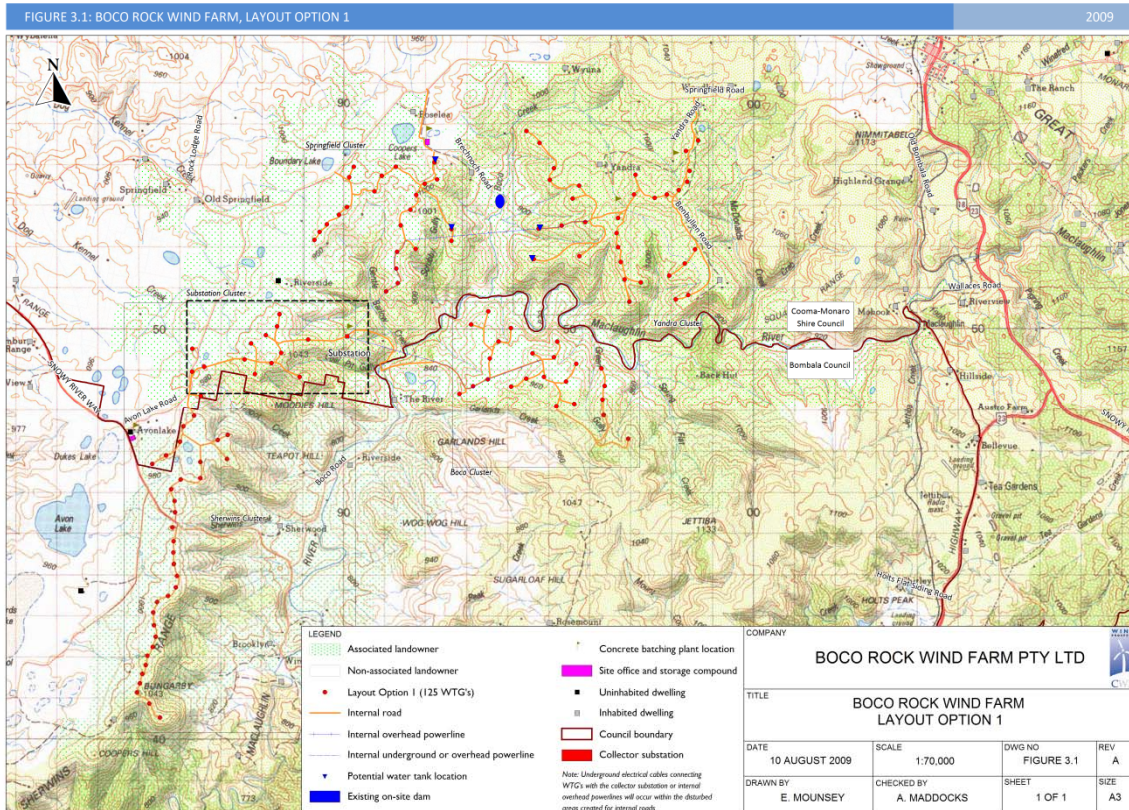


Figure 3.1 Boco Rock Wind Farm, Layout Option 1

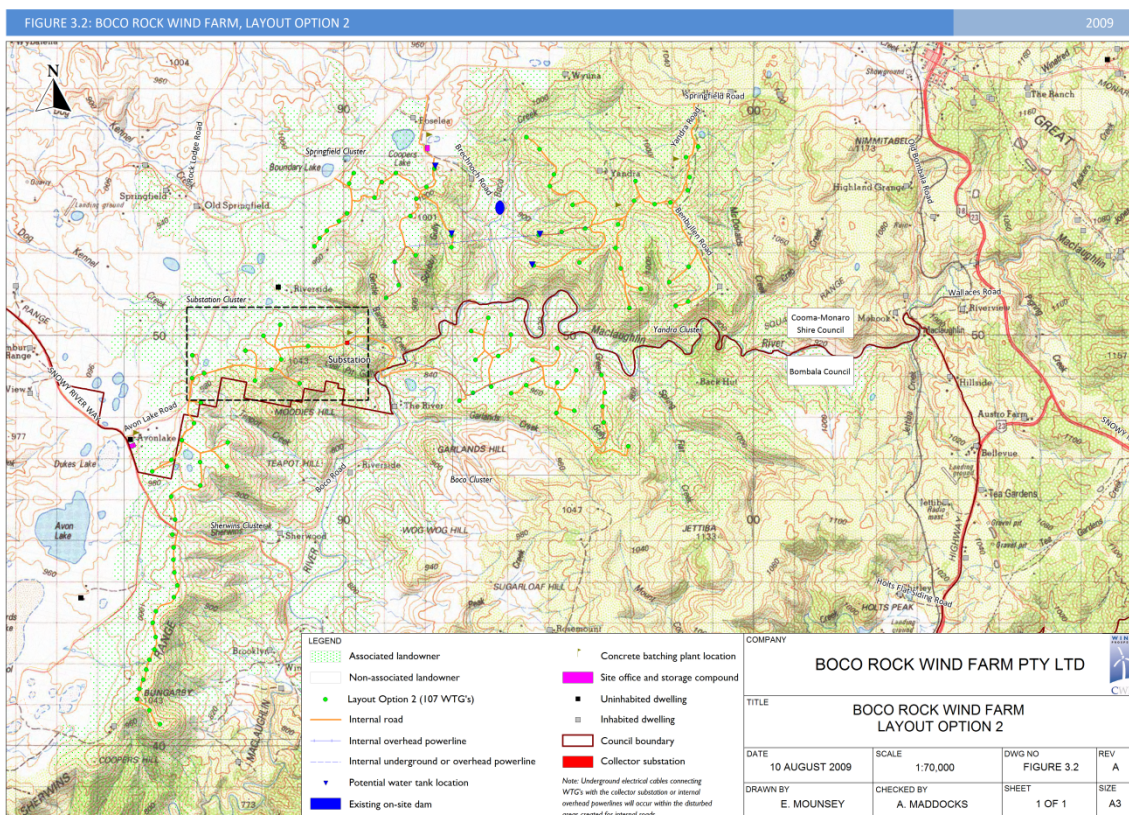


Figure 3.2 Boco Rock Wind Farm, Layout Option 2

(A3 size versions of these Figures are displayed in Volume 2)

Typical dimensions of the components that comprise the Project are presented in **Table 3.1** below. The estimated impact area for the transmission line is also detailed below in **Table 3.1** to give stakeholders the opportunity to understand the overall study area of all activities associated with the Project.

Table 3.1 Project components and approximate dimensions (based on greatest impact)

Project Component	Approximate Dimensions
<i>Permanent</i>	
Turbine footings (max footprint)	15 x 15 m
Turbine assembly / crane hardstand areas	50 x 25 m
Collector substation	100 x 100 m
Facilities building	30 x 6 m
Site access: new roads *	70 km x 12 m
Site access: upgrade of existing internal roads/tracks *	9 km x 6 m
Underground cabling on-site	64 km x 1 m
Under or above ground cabling on-site #	4 km x 30m
Internal overhead electrical interconnection / easement #	14 km x 30 m
<i>Temporary (during construction)</i>	
Earthworks alongside permanent infrastructure (roads/hardstands) ^	70 km x 10 m (est.)
Concrete batch plant	50 x 100 m
Rock crushing facility	50 x 60 m
Site office	40 x 100 m
Construction compound	150 x 200 m
<i>Components Subject to Part 5 of the EP&A Act (1979)</i>	
External overhead electrical cable #	25 km x 45 m
External substation	200 x 200 m

* It is expected that if a 12 m wide road design is considered appropriate for construction, then up to 6 m of road width undergo rehabilitation after the infrastructure has been installed (post construction phase). The width of the road required is dependant on final turbine selection and availability of suitable cranes. Track-mounted cranes require roads up to 12 m in width where as tyre-mounted cranes require roads 6 m in width. If a 6 m road design is constructed then no rehabilitation would occur to the road after the infrastructure has been installed (post construction phase).

The estimated easement width is 30 m for the internal overhead powerlines and 45 m for the transmission line, however the actual impact area has been estimated to be 5 % of this total area given the low level of

impacts associated with installing the power/transmission lines and the sparse vegetation cover along the selected routes.

[^] Construction of the internal road network will require earth works that are beyond the limits of the permanent road impact within the Study area. This is required to level areas of steep gradient to a design suitable for safely transporting Project components into position. Detailed civil designs have been prepared for Layout Option 1 (considered to have the greatest impact) that include impacts associated with permanent road, hardstand and turning head areas in addition to the area considered the extent of the earth works. A thorough assessment of these impacts is included in **Chapter 10 Flora and Fauna**.

Details of each of the component parts of the development are described in the following sections and in the accompanying figures. An outline of the construction and operational phases of the development are also provided, along with a timeframe detailing the proposed stages of activity pending development approval.

The two Layout Options have been designed with respect to a number of technical, environmental and social factors and more detailed site assessments. The layouts ensure optimum, undisturbed use of the measured and predicted wind resource, after accommodating constraints, for the range of turbines currently being considered for the Project.

Given the scale of the Project it is likely that 'Clusters' of turbines will be constructed and commissioned in stages, which is discussed in more detail later in the chapter. Consequently, and for the benefit of stakeholder understanding, we have broken down the Project into four main Clusters (**Table 3.2, Figures 3.3 to 3.6**).

Table 3.2 Wind turbine Clusters

Turbine Cluster	Number of Turbines (Layout Option 1)	Number of Turbines (Layout Option 2)	General location
"Yandra"	32	27	North eastern Cluster, accessible via Yandra and Benbullen Roads off Springfield Road
"Springfield"	23	20	North western Cluster, accessible via Dummy Lane off Springfield Road
"Boco"	23	21	South eastern Cluster, accessible via an internal access road and Boco Road off the Snowy River Way
"Sherwins"	47	39	South western Cluster, accessible via Avon Lake Road and the Snowy River Way

A fifth cluster, referred to as the 'Substation cluster' (see **Figure 3.5**), incorporates the northern wind turbines, internal roads, electrical cabling and the Project site collector substation of the Sherwins Cluster. This has been defined with respect to any staging of construction activity. If the Sherwins Cluster is not constructed in the first phase of works, it will be necessary to construct the electrical infrastructure associated with the 'Substation cluster', to enable the power generated to connect to the collector substation and be exported.