KIATA WIND FARM

VEGETATION MANAGEMENT PLAN (CONSTRUCTION)

PLANNING and ENVIRONMENT ACT							
PLANNING SCHEME							
Dhir							
PERMIT No. PA 15 000 23							
MODIFIED ENDORGES STORY							
MODIFIED ENDORSED PLAN							
Signed for							
MINISTER FOR PLANNING for							
1-1-15							
Date							

Windlab Pty Ltd

ENDORSED TO COMPLY
WITH CONDITION
SOLLS 7
OF PLANNING PERMIT
PA 15000 23



Brett Lane & Associates Pty. Ltd.

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Report No. 13079 (7.1)

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1. INTRODUCTION

Windlab engaged Brett Lane & Associates Pty. Ltd. (BL&A) to prepare a Vegetation Management Plan (VMP) for a 950 hectare area of land at Coker Dam Road, Kiata, 10 kilometres south-east of Nhill in north-western Victoria (Figure 1). Windlab are proposing to construct Kiata Wind Farm comprising 13 wind turbines and associated infrastructure, including transmission cabling, substation and construction and maintenance access roads and tracks.

The Kiata Wind Farm development was the subject of a detailed flora and fauna assessment which is outlined in the report Kiata Wind Farm Flora and Fauna Assessment prepared by BL&A (2014). That report identified patches of native vegetation and scattered trees across the site, focussing on a defined assessment area in the proximity of access roads and impact areas for construction.

As part of the construction phase the following vegetation totalling 0.248 hectares is planned to be removed:

- A total of 0.030 hectares of remnant native vegetation under the Hindmarsh Planning Scheme (Permit no. PA1500023) issued by the Minister for planning;
- A total of 0.218 hectares of native vegetation in an application to Hindmarsh Shire council by Windlab May 2017 (BL&A Report 13079 (8.2).

This VMP details strategies and approaches to meet the requirements of Conditions 50 and 57 of this permit. These conditions are outlined below.

Vegetation Management Plan

50. The environmental management plan must include a vegetation management plan to be prepared in consultation with DELWP - Environment Portfolio. The vegetation management plan must include:

- Identification of the siting and extent of native vegetation which is authorised by this permit to be removed.
- Procedures for ensuring that native vegetation to be retained near wind energy facility infrastructure, including access tracks, will not be adversely affected by construction of the wind energy facility;
- Procedures for the rehabilitation of construction zones with appropriate pasture C. species.

Delineating vegetation stands for removal and retention

57. Before development starts, a plan to the satisfaction of the responsible authority identifying all native vegetation to be retained, and describing the measures to be used to protect the identified vegetation during construction, must be prepared in consultation with DELWP - Environment Portfolio and submitted to and approved by the responsible authority. When approved, the plan will be endorsed and will form part of this permit. All works constructed or carried out must be in accordance with the endorsed plan.

This plan provides the following:

- A description of the site:
- Maps outlining ecologically significant areas including areas of vegetation to be removed and retained;
- Methods for the identification of potential threats to areas of retained native vegetation and methods for protection of these areas; and

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 Risk management measures with management indicators for managing risks to sensitive environments.

The aim of this VMP is to provide guidance on the management of the construction phase of the project to minimize impact on areas of native vegetation to be retained and to minimise unnecessary impacts on the site as a whole.

This Plan was prepared by a team from BL&A, comprising Greg Cranston (Ecologist), Brett MacDonald (Senior Ecologist), Bernard O'Callaghan (Senior Ecologist and Project Manager) and Brett Lane (Principal Consultant).

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2. PROJECT DESCRIPTION

The property on which the wind farm is to be built covers 950ha, the nature of the windfarm construction however means only a small proportion of the site will be directly affected by the construction activities (impact area). The impact areas include:

- Thirteen turbine positions, including a 10 metre diameter base construction area and an adjacent 45x75 metre construction hardstand;
- The 6 metre wide turbine access tracks within the Wind Farm Assessment Area and a one metre width track for cabling;
- On-site electrical substation;
- Areas of removal of roadside vegetation required for line of site for access and entry points;
- Installation of two power poles;
- Site office, temporary batching plant, construction laydown area (111 metres x 160 metres); and
- Local roads, which are wide enough already for construction traffic.

This impact area is indicated in Figures 2 to 7, providing a defined area which contractors will be confined to, so as to eliminate unintentional impacts on retained native vegetation also identified these figures.

2.1. VMP context

This VMP details strategies and approaches to meet the requirements of Conditions 50 and 57 of this permit. These conditions are outlined below.

Vegetation Management Plan

- 50. The environmental management plan must include a vegetation management plan to be prepared in consultation with DELWP Environment Portfolio. The vegetation management plan must include:
- Identification of the siting and extent of native vegetation which is authorised by this
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- b. Procedures for ensuring that native vegetation to be retained near wind energy facility infrastructure, including access tracks, will not be adversely affected by construction of the wind energy facility;
- Procedures for the rehabilitation of construction zones with appropriate pasture species.

Delineating vegetation stands for removal and retention

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2.2. VMP objectives

The objectives of this VMP include, but are not limited to the following:

- Clearly map the extent of native vegetation to be removed as part of permit number:
 PA1500023 at the Kiata Wind Farm site;
- Map the location and extent of native vegetation to be retained, and define protection parameters for any of these areas that occur in the proximity of the construction impact zone (No go zones);
- Provide methods to manage (i.e. avoid and minimise) impacts on vegetation within these 'No Go Zones' that may be directly or indirectly affected by the development;
- Manage all rubbish and construction waste during the construction phase of the project; and
- Ensure that machinery hygiene protocols (to minimise spread of weeds) are developed and implemented during the construction, operation and decommissioning phases of the project.

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3. MANAGEMENT ACTIONS

3.1. Management actions to be undertaken

Under this plan, the operator must commit to the following management actions to ensure that the site's environmental values are conserved:

- Restriction of unauthorised access:
- Provision of signage to deter prohibited activities;
- Rubbish and debris management (including soil stockpiles, rubbish, construction materials) as required;
- Limiting of all machinery and vehicular traffic to defined impact areas as much as possible (including restricting access/damage to impact areas during wet boggy weather);
- Clear perimeter flagging and signage of significant environmental values within 30 metres (approx) of defined impact areas;
- Prohibition of the use of fertilisers and the planting of lawn or other non-indigenous plants; and
- Induction of all contractors accessing the broader property into the prescriptions of this plan before accessing the property;

It is noted that temporary construction areas as referred to in Condition 50 – point C of the planning permit, are located on areas currently utilised for agricultural activities. Upon completion of the temporary works in these areas will be returned to their initial use in consultation with local landholders.

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4. SIGNIFICANT ENVIRONMENTAL VALUES

The significant environmental values are the patches of native vegetation, scattered trees and protected flora species identified during the previous flora and fauna assessment and are shown in Figures 2-7.

4.1. Marking of significant environmental values on the ground

4.1.1. Retained vegetation patches

Vegetation patches have been indentified both along the existing surrounding roads and within the site boundaries. Those on surrounding roads need not be flagged, with the protection of these patches achieved through a caveat that no vehicles or machinery are to be driven or parked in these patches (or road reserves on general where possible). This will form part of the site induction.

Some of the patches within the site boundaries however will need to be flagged and clearly signed for protection. These will be limited to those patches that occur within 30m (approx) of the defined 'impact area' for the project.

4.1.2. Scattered Trees

Scattered trees were identified during the flora and fauna assessment. Those that occur within 30m of the defined 'impact area' will be temporarily flagged and signed according to the individual 'Tree Retention Zone' (TRZ) radius (Appendix 1).

4.1.3. Protected flora

Areas of protected flora (Hairy Pod Wattle and FFG Act protected orchids) were also identified during the flora and fauna assessment. These occur in or adjacent to road reserves. It is very unlikely these would be impacted by the proposed works, however these areas will also be marked with lines flags to make contractors aware of their location.

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5. IMPLEMENTATION

This section outlines the risk assessment framework used to prioritise responses to the risk the project represents for significant environmental values. It pthen provides directions for managing those risks.

5.1. Risk assessment

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Risk assessment involves combining an assessment of the consequences of a particular potential impact of an action on significant environmental values with the likelihood of it occurring. To enable this assessment, both consequence and likelihood criteria have been developed (see Table 1).

Table 1 presents five risk categories (i.e. low to high / very low to extreme) based on the consequence and likelihood criteria.

The risk assessment assigns risk categories to specific activities that may impact on significant environmental values identified in the study area. The activities considered in the current risk assessment (i.e. activities that have the potential to impact on significant environmental values during the construction and operational phases of the Kiata wind farm project) are listed in Table 3.

Table 1: Consequence and likelihood criteria for significant environmental values risk assessment for Kiata Wind Farm.

		Consequence Criteria				
Negligible	Minor	Moderate	Major	Extreme		
Local population or area of community may change but detectable change unlikely to be beyond natural variation	Detectable change in local population or area of community (1 – 5 %) beyond natural variability but no impact on population or community viability (i.e. recruitment, breeding, recovery capacity).	Detectable change in local population or area of community (5 – 10%) beyond natural variability but no impact on population viability (i.e. recruitment, breeding, recovery capacity) in the long term but recovery may be delayed.	Detectable change in local (>10%) and regional (1 - 5%) population size or area of community beyond natural variability. Permanent impact on local population viability and capacity to recover	Local extinction of population or community and likely detectable change to regional population or area of community (> 5%) beyond natural variability. Permanent impact on viability and capacity to recover at regional scale.		
Likelihood Criteria						
Almost impossible	Very Unlikely	Possible	Highly Probable	Certain		
No previously documented instance	Instance has occurred very rarely elsewhere	Instance has occurred elsewhere but under different site conditions	Instance has occurred regularly elsewhere under similar site conditions	Certain to occur based on experience elsewhere		



Table 2: Risk categories

Consequence Likelihood	Negligible	Minor	Moderate	Major	Extreme
Almost impossible	Very Low	Low	Low	Low	Moderate
Very Unlikely	Low	Low	Low	Moderate	High
Possible	Low	Low	Moderate	Moderate	High
Highly Probable	Low	Moderate	Moderate	High	High
Certain	Moderate	Moderate	High	High	Extreme

5.2. Environmental management

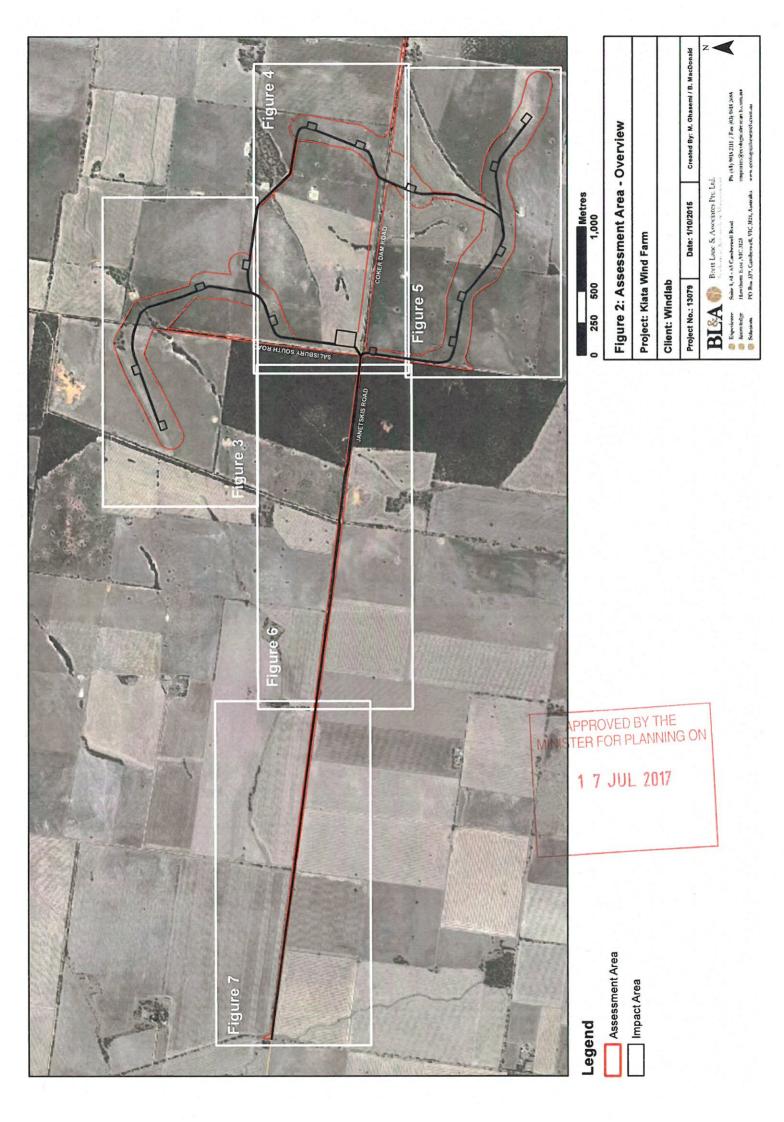
Significant environmental values identified in the study area are presented in Figures 2-7 (under native vegetation). With green spots marking the scattered trees and patches (light green and orange) marking the native vegetation patches. Protected flora identified during the flora and fauna assessments are also marked on the maps.

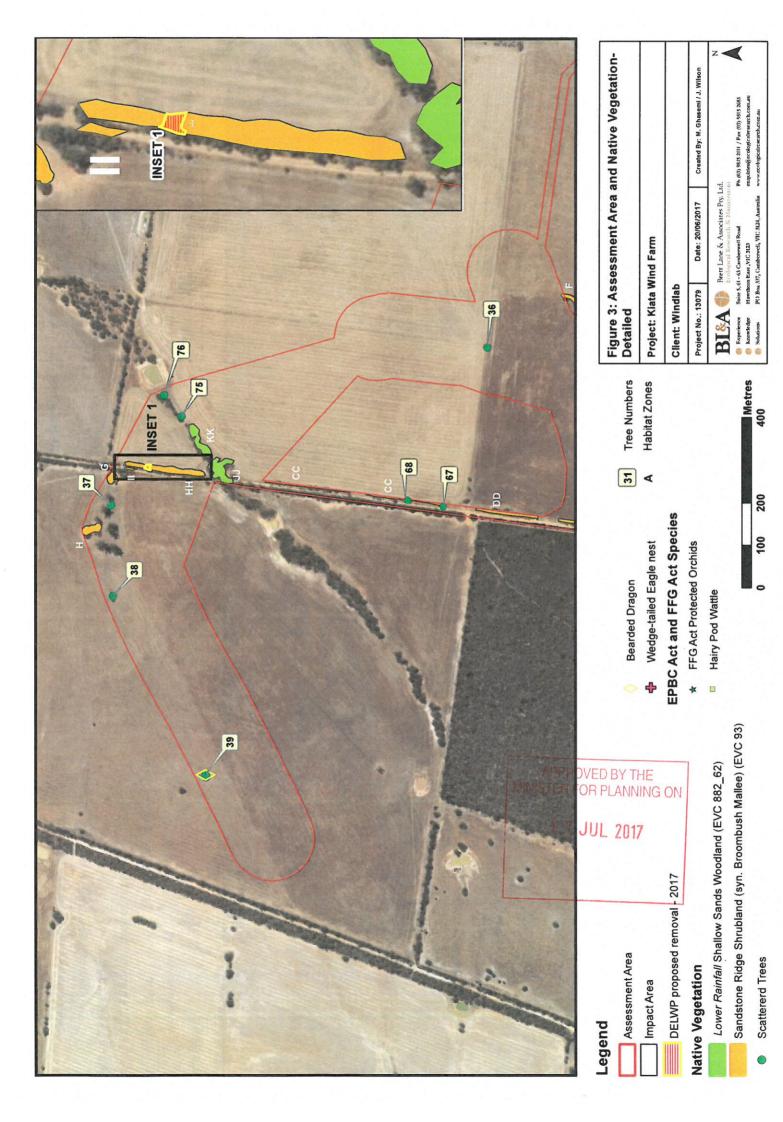
These values need to be managed for during and after the construction phase of the Kiata wind farm project according to the criteria outlined in Table 3.

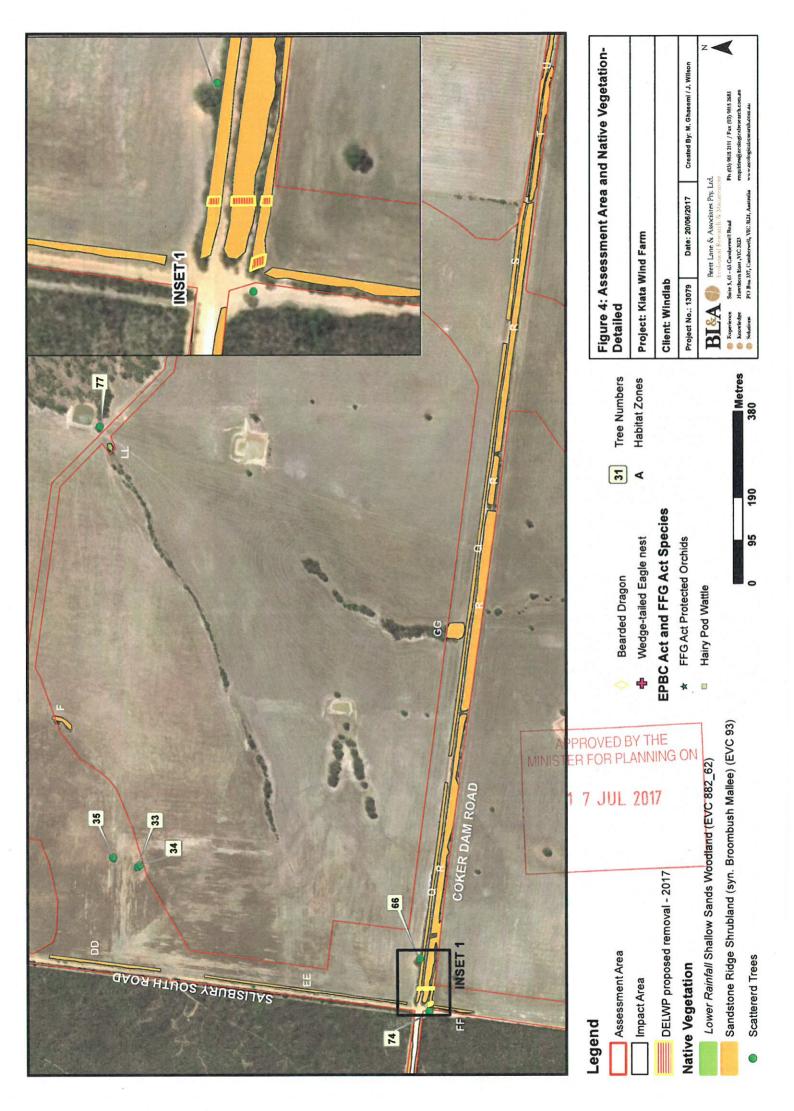


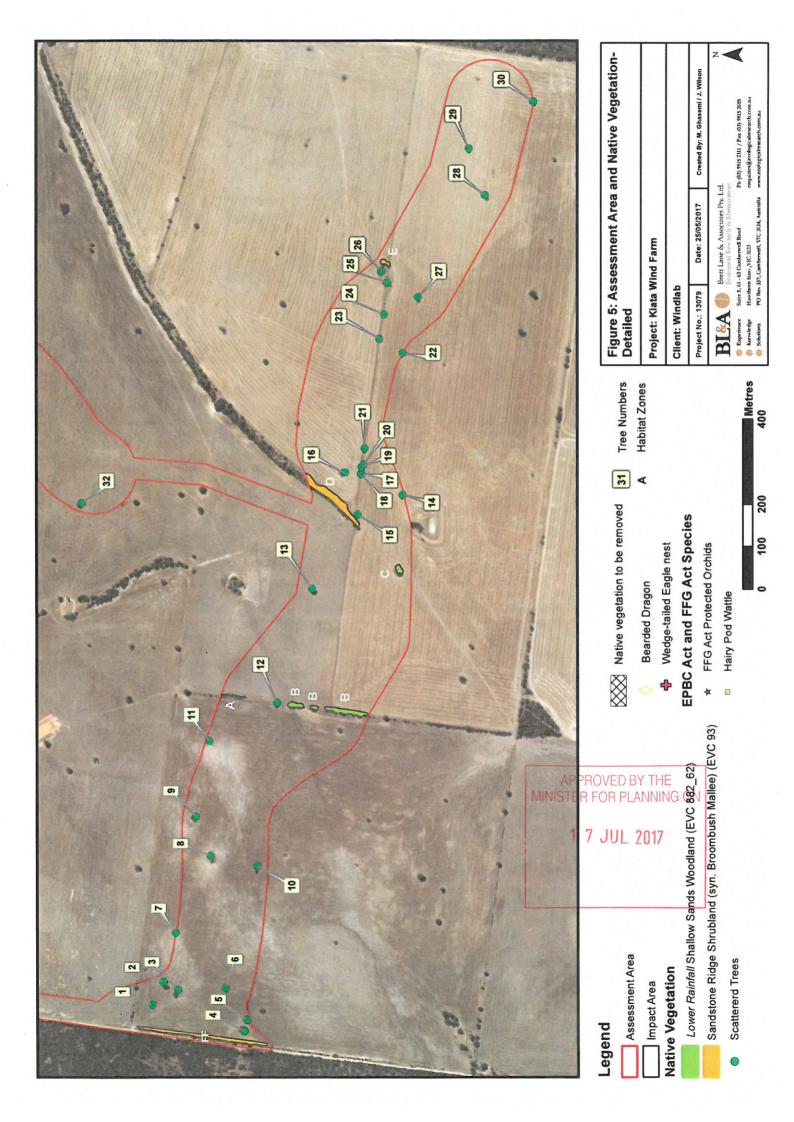


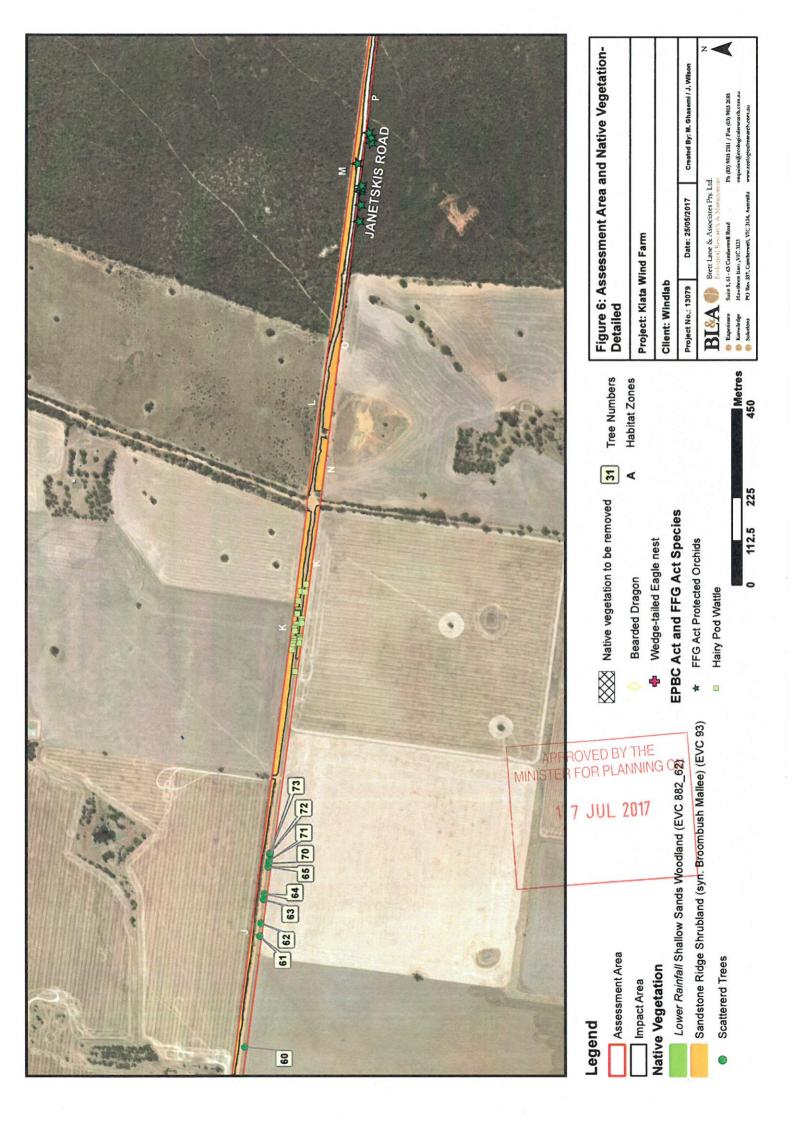


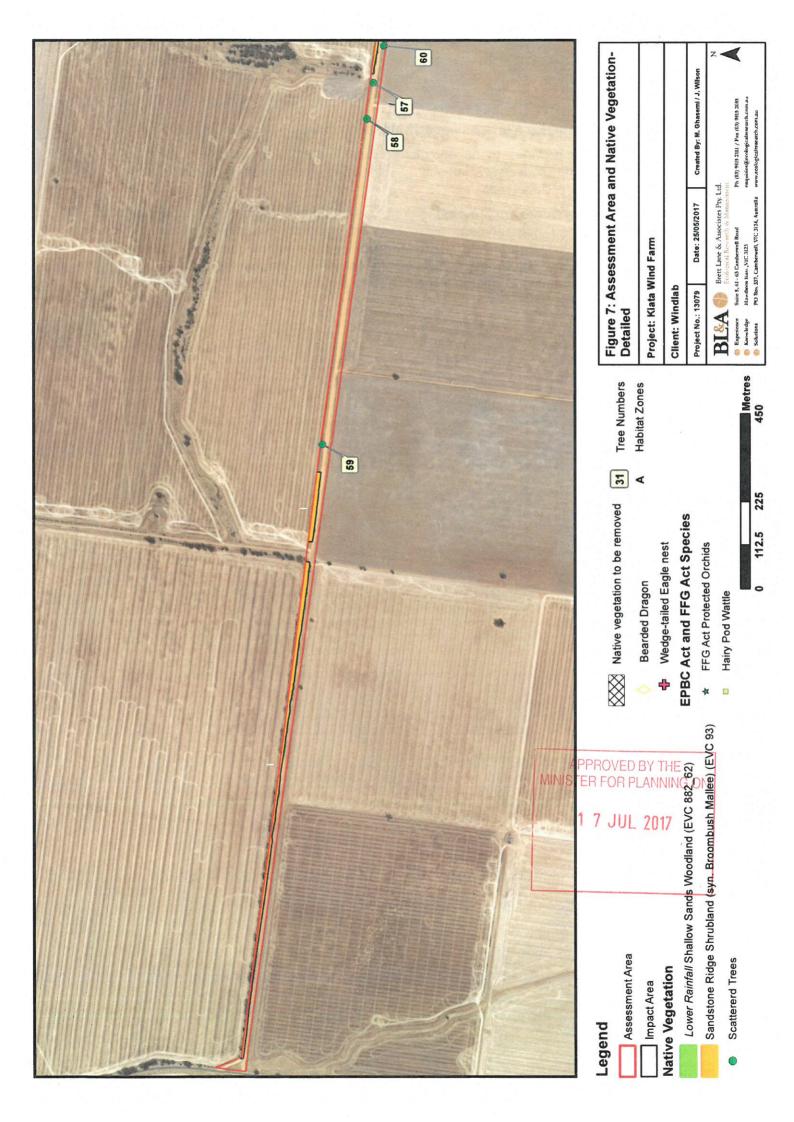












5.3. Environmental management activities and controls

Table 3 below provides management measures aimed at reducing the risk of specific activities adversely impacting significant environmental values then reassesses the residual risk.

Compliance indicators are provided to enable monitoring of the success or failure of the proposed management measures. Management methods are to be reviewed and adapted if the associated compliance indicators aren't being achieved. This is to be carried out in consultation with a contractor who is suitably qualified in the relevant field of expertise (e.g. botanist for issues pertaining to flora).





Table 3: Measures for managing risks to significant environmental values

	Second ord	1			を 10 mm 10		
Sensitive Ecological	rieniagemen	lmnact	Nisy Mariagerita	agement		Monitoring	Residual impact
Value	Potential Impacts	Significance	Management Measures	Responsibility	Compliance Indicator/s	Frequency	Significance
isk 1: Driving (all ve	Task 1: Driving (all vehicles and machinery)						
			 All vehicles to remain within the defined 'impact areas' as much as possible. 				
		Low risk due to	 Areas of retained native vegetation (patches) within the 'impact areas' or within 30m of the impact areas will be flagged at two metres from the perimeter of each patch and appropriately signed "Significant vegetation zone - No Go Zone". 				
Native vegetation patches	Damage/degradation	possible likelihood and minor consequence	 No turning points are to be created in the 'No Go" zone. Turning points will take advantage of existing paddock access points, driveways or roads. 	Drivers of any vehicles and machinery	No damage to vegetation within fenced protected areas	Daily	Low risk due to very unlikely likelihood and minor consequence
			 No parking areas are to be created in the "No Go' zone. Parking areas will be established on adjacent private land or side roads. 				
			 No plant and equipment is to be parked or stored in the "No Go" zone. Storage and parking areas will be established on adjacent private land or within the work site. 				
			 All vehicles to remain within the defined 'impact areas' as much as possible 				
Scattered Trees	Damage	Low risk due to very unlikely likelihood and moderate	 Each scattered tree within the impact area or within 30m of the impact area will be flagged according to its individual Tree Retention Zone (TRZ) for protection. The TRZ will be a radius 12 times the DBH of that particular tree (minimum of 2 metres). See Appendix 1 for size of individual TRZ's and figures 2-7 for a map of their locations. 	Drivers of any vehicles and machinery	No encroachment within Tree Retention Zones (TRZ's)	Daily	Low risk due to very unlikely likelihood and moderate consequence
			 TRZ's (of those trees within 30m of impact area only) will be securely fenced off with high-visibility temporary fencing and appropriately signed as "Tree Retention Zone - No Go Zone" 				
Protected flora (Hairy Pod Wattle and FFG Act Protected Orchids)	Damage to identified populations of protected flora caused my use of	Low risk due to very unlikely likelihood and moderate	 Identified populations of both Hairy Pod Wattle and FFG Act protected orchids will be clearly marked with flagging tape to make their locations known. 	All Drivers	No impact on demarcated protected flora	Weekly	Low risk due to very unlikely likelihood and moderate
sk 2: Permitted ren	Task 2: Permitted removal of native vegetation	consequence	1				
			 Areas-of vegetation to be removed will be clearly marked with spray paint and surrounding areas to be retained will be clearly flagged and signed for protection. 				
Native vegetation patches	Damage to surrounding areas	Moderate risk due to highly probable likelihood and	enowed: - Conythose areas permitted under permit number. PA1500023 are to be removed: - Removed vegetation to either be immediately extracted by vehicle, or set	Vegetation clearing contractor	No removal of additional vegetation other than that	Once off	Low risk due to very unlikely likelihood and
	0	2017 consequence	HE G	0	approved under permit		minor consequence
			ON				



	Pre-Management	gement	Risk Management	gement			Post-Management
Sensitive Ecological Value	Potential Impacts	Impact Significance	Management Measures	Responsibility	Compliance Indicator/s	Monitoring Frequency	Residual impact Significance
Task 3: Construction				17			
			 All contractors to be trained in issues relating to weed hygiene at a compulsory induction prior to commencing works Energy all postly modified actionment units is delinered to give its close. 				
Native vegetation and pasture	Weed invasion	Moderate risk due to possible likelihood and moderate	 Ensure an earth moving equipment which is derivered to site is cream. Wheel washing facilities will be provided at one location on the wind farm. Any vehicles not meeting the required standards of hygiene and cleanliness shall be sent to this location for cleaning before given access to site. 	Any contractor or person accessing site	Implementation of weed hyglene procedures	Daily	Low risk due to very unlikely likelihood and moderate consequence
		eouendesuoo	 Any materials required for construction (eg. road making materials) must come from an area free of weeds. 				
			 A program of spot spraying of any noxious weeds will be implemented throughout construction and operational phases. 				
Native vegetation	Damage or destruction due to	Low risk due to possible likelihood and	 Ensure that fill is not introduced into any areas of retained native vegetation. Designate and temporarily fence areas for soil stockpiling (not within 'No Go Zones'). 	All relevant	Soil stockpiling not occurring within 'No Go Zones'	Daily during	Low risk due to very unlikely likelihood and
patches and TRZ's	dumping of fill	minor consequence	 Soil and other excavated materials temporarily taken away to then be returned at a later date will be stored in a clean site free of weeds. 	contractors	Stockpiling areas to be clean and free of weeds	construction phase	minor consequence
Native vegetation	Damage to or destruction of areas of retained native	107M S28W	 Integrity of the flagging/fencing around the periphery of areas of retained native vegetation and TRZ's (those occurring within 30m of any impact areas) to be maintained throughout the construction, operational and decommissioning phases of the project 	All relevant	No rubbish/construction waste	Daily during	Low risk due to very
patches and TRZ's	vegetation due to the dumping of rubbish and construction	likelihood and minor consequence	 Regular monitoring of rubbish/construction waste adjacent to works areas. 	contractors	found in No Go Zones	construction phase	unlikely likelihood and minor consequence
	wastes		 Any rubbish/construction waste found occurring within areas of retained native vegetation or TRZ's is to be removed immediately 				





6. MONITOR AND REVIEW

If significant changes are made to the proposed layout of the windfarm and/or any access tracks, then further monitoring and reporting may be required. This should be undertaken by qualified ecologist and any necessary changes to this vegetation management plan and other documentation made accordingly.

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7. REFERENCES

Brett Lane and Associates Pty Ltd (BL&A) 2014, *Kiata Wind Farm: Flora and Fauna Assessment, Report No.* 13079 (4.1), Report prepared for Windlab Pty Ltd by Brett Lane and Associates Pty Ltd, Hawthorn East, Victoria.

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Appendix 1 Scattered trees identified during flora and fauna assessment, including TRZ's.

Tree		DBH	Tree retention zone (TRZ)	Retention/removal
No.	Common name	(cm)	radius (cm)	status
		Wind Fa	rm Assessment Area	
1	Yellow Mallee	10	200	Retained
2	Desert Stringybark	10	200	Retained
3	Desert Stringybark	10	200	Retained
4	Slender-leaf Mallee	10	200	Retained
5	Slender-leaf Mallee	10	200	Retained
6	Desert Stringybark	10	200	Retained
7	Desert Stringybark	10	200	Retained
8	Desert Stringybark	10	200	Retained
9	Desert Stringybark	10	200	Retained
10	Slender-leaf Mallee	10	200	Retained
11	Desert Stringybark	10	200	Retained
12	Slender-leaf Mallee	10	200	Retained
13	Siender-leaf Mailee	10	200	Retained
14	Slender-leaf Mallee	10	200	Retained
15	Yellow Mallee	10	200	Retained
16	Slender-leaf Mallee	10	200	Retained
17	Yellow Mallee	10	200	Retained
18	Slender-leaf Mallee	10	200	Retained
19	Slender-leaf Mallee	10	200	Retained
20	Yellow Mallee	10	200	Retained
21	Slender-leaf Mallee	10	200	Retained
22	Slender-leaf Mallee	10	200	Retained
23	Slender-leaf Mallee	10	200	Retained
24	Slender-leaf Mallee	10	200	Retained
25	Yellow Mallee	10	200	Retained
26	Yellow Mallee	10	200	
27	Slender-leaf Mallee	10	200	Retained APPE Retained STER
28	Desert Stringybark	10	200	Retained
29	Desert Stringybark	10	200	Retained 1 7
30	Slender-leaf Mallee	10	200	Retained
31	Desert Stringybark	10	200	Retained
32	Slender-leaf Mallee	10	200	Retained
33	Desert Stringybark	10	200	Retained



34	Desert Stringybark	10	200	Retained
35	Slender-leaf Mallee	10	200	Retained
36	Slender-leaf Mallee	10	200	Retained
37	Slender-leaf Mallee	10	200	Retained
38	Slender-leaf Mallee	10	200	Retained
39	Slender-leaf Mallee	10	200	Retained
66	Narrow-leaf Red Mallee	10	200	Retained
	Const	truction Ac	cess Track Assessment Area	· 一个中国基础。
57	Dumosa Mallee	15	200	Retained
58	Dumosa Mallee	15	200	Retained
59	Square-fruit Mallee	5	200	Retained
60	Dumosa Mallee	10	200	Retained
61	Dumosa Mallee	10	200	Retained
62	Square-fruit Mallee	10	200	Retained
63	Dumosa Mallee	10	200	Retained
64	Square-fruit Mallee	10	200	Retained
65	Narrow-leaf Red Mallee	10	200	Retained
67	Wimmera Mallee Box	10	200	Retained
68	Wimmera Mallee Box	10	200	Retained ROVED BY THE
69	Yellow Mallee	10	200	Retained
70	Dumosa Mallee	10	200	Retained 7 JU 2017
71	Dumosa Mallee	10	200	Retained
72	Square-fruit Mallee	10 '	200	Retained
73	Dumosa Mallee	10	200	Retained
74	Dumosa Mallee	15	200	Retained
75	Desert Yellow-gum	40	480	Retained
76	Desert Yellow-gum	50	600	Retained
77	Desert Yellow-gum	70	840	Retained

