

Jupiter Wind Farm

FINAL

September 2017

Response to Submissions and Preferred Project Report



EPYC Pty Ltd

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JUPITER WIND FARM

Response to Submissions (RtS) and Preferred Project Report (PPR)

EPYC Pty Ltd

September 2017

ERM Reference: 0223522RP08

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ABBREVIATIONS

Abbreviation	Description
AAAA	Aerial Agriculture Association of Australia
ABS	Australian Bureau of Statistics
ACMA	Australian Communications and Media Authority
AGL	Above Ground Level
AHD	Australian Height Datum
AHIMS	Aboriginal Heritage Information Management System
AHIP	Aboriginal Heritage Impact Permit
ALA	Aircraft Landing Area
ALARP	As Low As Reasonably Practicable
AM	Amplitude Modulation
ANZECC	Australian and New Zealand Environment Conservation Council
APZ	Asset Protection Zone
ASA	Airservices Australia
ASS	Acid Sulfate Soil
ATC	Air Traffic Control
BCA	Building Code of Australia
BPMC	Bushfire Management Committee
BGS	Below Ground Surface
BoM	Bureau of Meteorology
CAR	Civil Aviation Regulation
CASA	Civil Aviation Safety Authority
CB	Citizens' Band Radio
CCC	Community Consultative Committee
CEF	Community Enhancement Fund
CEMP	Construction Environmental Management Plan
CHA	Cultural Heritage Assessment
CLM Act	<i>Contaminated Land Management Act 1997</i>
CNMP	Construction Noise Management Plan
CO ₂ –e	Carbon dioxide equivalent
CoRTN	United Kingdom (UK) – Calculation of Road Traffic Noise
Council	Palerang and Goulburn Mulwaree Councils
CSIRO	Commonwealth Scientific and Industrial Research Organisation
CTMP	Construction Traffic Management Plan
dB	decibel
DCP	Development Control Plan
DECC	Department of Environment and Climate Change
DGRs	Director General's Requirements
DNVGL	Derived Native Grassland – Technical specialist Company responsible for preparation of various technical assessment reports associated with this EIS
DoD	Commonwealth Department of Defence
DoEE	Commonwealth Department of Environment & Energy (formally Commonwealth Department of Environment (DOE))
DP&E	NSW Department of Planning and Environment
DP&I	NSW Department of Planning & Infrastructure
Draft Wind Farm Guidelines	The Department of Planning and Infrastructure's <i>Draft NSW Planning Guidelines: wind Farms, December 2011</i>
DTI	NSW Department of Trade and Investment
DUAP	Department of Urban Affairs and Planning
EEC	Endangered Ecological Community
EIS	Environmental Impact Statement
EMF	Electromagnetic Field
EMI	Electromagnetic Interference

Abbreviation	Description
EMP	Environmental Management Plan
EMR	Electromagnetic Radiation
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>
EPA	NSW Environment Protection Authority
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i>
EPI	Environmental Planning Instrument
EPL	Environmental Protection Licence
ERA	Environmental Risk Assessment
ERM	Environmental Resources Management Australia Pty Ltd
ESD	Ecologically Sustainable Development
EVC	Ecological Vegetation Class
FDI	Fire Danger Index
FM	Frequency Modulation
FM Act	<i>Fisheries Management Act 1994</i>
FTE	Full time equivalent
GHG	Greenhouse Gas
GIS	Geographic Information System
GMDCP	<i>Goulburn Mulwaree Development Control Plan 2009</i>
GMLEP	<i>Goulburn Mulwaree Local Environment Plan 2009</i>
GNSS	Global Navigation Satellite System
GPS	Global Positioning System
GWh	Gigawatt hours
ha	hectares
Hz	Hertz
IEC	International Electro technical Commission
INP	NSW Environmental Noise Management – Industrial Noise Policy
ISEPP	<i>State Environmental Planning Policy (Infrastructure) 2007</i>
ISO	International Standards Organisation
ISP	Internet Service Providers
km	kilometre
kV	Kilovolt
LEP	Local Environment Plan
LGA	local government area
LSALT	Lowest Safe Altitudes
LCVIA	Landscape Character and Visual Impact Assessment
LRET	Large-scale Renewable Energy Target
m	metres
Minister	NSW Minister for Planning and Environment
MNES	Matters of National Environmental Significance
MOS	Manual of Standards
Mt	Million tonnes
MW	Megawatt
NEM	National Electricity Market
NHMRC	National Health Medical Research Council
nm	Nautical Miles
NP&W Act	<i>National Parks and Wildlife Act 1974</i>
NSW	New South Wales
NSW WFG	DPI Planning Guidelines Appendix B NSW Wind Farm Noise Guidelines 2011
NW Act	<i>Noxious Weeds Act 1993</i>
OECD	Organisation for Economic Cooperation and Development
OEH	NSW Office of Environment and Heritage
OH&S	Occupational Health and Safety
OLS	Obstacle Limitation Surface

Abbreviation	Description
ONMP	Operational Noise Management Plan
PA	Project Area
PAC	NSW Planning and Assessment Commission
PAD	Potential Archaeological Deposit
PDCP 2015	<i>Palerang Development Control Plan 2015</i>
PANS-OPS	Procedures for Air Navigation Services – Operations Surfaces
PBP	Planning for Bushfire Protection
PCT	Plant Community types
PEA	Preliminary Environmental Assessment
PEA Act	<i>Protection of the Environment Administration Act 1991</i>
PLEP	<i>Palerang Local Environment Plan 2014</i>
PoEO Act	<i>Protection of the Environment Operation Act 1997</i>
PPR	Preferred Project Report
PSR	Primary Surveillance Radar
RAP	Registered Aboriginal Party
RAV	Restricted Access Vehicles
RBL	Rating Background Level
REAP	Renewable Energy Action Plan
RECs	Renewable Energy Certificates
REF	Review of Environmental Factors
RET	Renewable Energy Target
RFS	NSW Rural Fire Service
RMS	Roads and Maritime Services (formerly the Roads and Transport Authority)
RNP	Road Noise Policy
Roads Act	<i>Roads Act 1993</i>
RSA	Rotor Swept Area
RtS	Response to Submissions
SA WFG	South Australia EPA Environment Noise Guidelines for Wind Farms
SA EPA	South Australian Environmental Protection Authority
SCADA	Supervisory control and data acquisition
SEARs	Secretary's Environmental Assessment and Requirements
SEPP	State Environmental Planning Policy
SIS	Species Impact Statement
SRD SEPP	<i>State Environmental Planning Policy (State and Regional Development) 2011</i>
SRES	Small-scale Renewable Energy Scheme
SSD	State Significant Development
SSR	Secondary Surveillance Radar
SWL	Standing Water Level
The Proponent	EPYC Pty Ltd, on behalf of Jupiter Wind Farm Pty Ltd
TSC Act	<i>Threatened Species Conservation Act 1995</i>
vpd	Vehicles per day
WFGGT	Wind Farm Greenhouse Gas Savings Tool
WHO	World Health Organisation
WM Act	<i>Water Management Act 2000</i>
WTG	Wind Turbine Generator
ZVI	Zone of Visual Influence

GLOSSARY OF TERMS

Term	Description
Braidwood Road	Used interchangeably with Goulburn Road and Goulburn-Braidwood Road throughout the EIS and supporting specialist assessment report, reflective of the change of name that occurs along this road between Goulburn and the Kings Highway in the vicinity of the PA.
Development Footprint	The Development Footprint is the area in which physical disturbance is proposed for the development of the Project, including the Permanent Development Footprint and Temporary Development Footprint.
Direct Employment	Direct employment includes the employees who are directly employed in developing, constructing and/or operating the wind farms and those directly employed in manufacturing wind farm plant and equipment and supporting these activities.
Endangered Ecological Community (EEC)	An ecological community listed as protected by the NSW <i>Threatened Species Conservation Act 1995</i> .
Goulburn Road	Used interchangeably with Braidwood Road and Goulburn-Braidwood Road throughout the EIS and supporting specialist assessment report, reflective of the change of name that occurs along this road between Goulburn and the Kings Highway in the vicinity of the PA.
native	Flora or fauna species that existed in NSW before European settlement.
negligible	Small and unimportant, such as to be not worth considering.
Obstacle Limitation Surface	These are a series of surfaces that set the height limits of objects around an aerodrome. Objects that project through the OLS become obstacles.
offset (biodiversity)	One or more appropriate actions put in place in an appropriate location to counterbalance a development's impact on biodiversity values.
PCT ID	An abbreviation meaning Plant Community Type Identification Number as according to the NSW Vegetation Information System.
perennial stream	Stream with a well-defined channel that flows continuously all year during a year of normal rainfall with the aquatic bed located below the water table for most of the year.
Permanent Development Footprint	This is the area of land that will be subject to permanent alteration as a result of installation and operation of Project infrastructure.
Plant Community Type (PCT)	From BBAM (2014): A NSW plant community type identified using the PCT classification system.
population	A group of animals or plants of the same species, potentially capable of interbreeding and sharing the same habitat in a particular area at a particular time.
Procedures for Air Navigation Services – Operations surfaces	This refers to the rules for designing aircraft instrument approach and departure procedures. The procedures are used to allow aircraft to land and take off when instrumental meteorological conditions impose instrument flight rules.
Project Area (PA)	The term Project Area (PA) refers to the area in which EPHYC has applied to develop the Project. The PA encompasses the parcels of land associated with the Development Footprint, as shown in <i>Figure 1-2</i> .
Prudent Avoidance	The avoidance without undue inconvenience and monetary expense to avert the possible human health risks associated with exposure to new high voltage transmission lines.
regeneration	Where native vegetation is allowed to return naturally to an area generally by removing existing impacts such as grazing or slashing.
regrowth vegetation	Defined in the <i>Native Vegetation Act 2003</i> as any native vegetation that has regrown since 1 January 1990 (or 1 January 1983 Western Division). Excluding regrowth after illegal clearing or natural events such as bushfire, floods and drought.
remnant vegetation	Any native vegetation that is not regrowth.
riparian	Associated with drainage lines.

Term	Description
Temporary Development Footprint	This is the area of land which will be temporarily disturbed during construction of the Project, and rehabilitated following construction, in order to minimise permanent impacts to biodiversity. Mitigation measures in these areas are to include revegetation, spreading mulched or cleared vegetation and spreading native grass seed with local species in accordance with an approved Construction and Environmental Management Plan (CEMP).
the Project	In this report, the Project refers to the proposal by the proponent (EPYC) to construct and operate the Jupiter Wind Farm. The Project will involve the construction of up to 88 wind turbine generators.
the Project Team	The Project Team consists of EPYC (the Proponent), Environmental Resources Management Pty Ltd (ERM) and their in-house and external technical specialists.
Threatened Ecological Community (TEC)	An ecological community listed as protected by the Commonwealth <i>Environment Protection and Biodiversity Conservation Act 1999</i> .
threatened flora	A species of plant listed as protected by the EPBC Act or the TSC Act
threatened species	A species listed as protected by the EPBC Act or the TSC Act
Total Economic Impact	The direct effect of the initial increase in demand and the associated flow-on effects throughout the economy. For example, the direct manufacture of WTGs requires the purchase of steel and other materials from suppliers, these suppliers would then need to restock to meet commitments to other customers creating a production induced flow-on effect in the economy.
Vegetation Information System	A resource held and administered by OEH that contains information on the vegetation types of NSW, mapping products and previous vegetation survey details.
vegetation type	A general term used to describe an association of flora species that are recognisable as a unit or grouping based on observed co-occurrence. Includes both native and non-native vegetation.
vegetation zone	From BBAM (2014): a relatively homogenous area of native vegetation on a development or BioBank site that is the same PCT and broad condition state.

1

INTRODUCTION

EPYC Pty Ltd (EPYC), on behalf of Jupiter Wind Farm Pty Ltd (JWFPL), the proponent of the Jupiter Wind Farm, has engaged Environmental Resources Management Australia Pty Limited (ERM) to prepare this Response to Submissions Report (RtS) to respond to submissions received during the public exhibition period of the Environmental Impact Statement (EIS) for the Jupiter Wind Farm (Project).

The layout and design of the Project has been amended to reduce the environmental impacts and respond to issues raised in submissions received during the public exhibition of the EIS. As a result the following key changes have been made to the Project:

- A reduction in the number of wind turbine generators (WTG) from 88 to 54 (including deleting from the Project all elements previously proposed to be constructed to the south of Kings Highway).
- Refinements to the locations of a number of WTG, access tracks, powerlines and associated infrastructure.

This RTS responds to the submissions received during public exhibition of the EIS and sets out, and provides an updated assessment of, the revised Project.

1.1

Project Overview

JWFPL is seeking State significant development (SSD) consent for the construction and operation of the Jupiter Wind Farm (the Project). The Project is SSD in accordance with clause 20, Schedule 1 of the *State Environmental Planning Policy (State and Regional Development) 2011* and is being assessed under Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

In support of the SSD application an EIS was prepared for the Project in accordance with the requirements of the *Environmental Planning and Assessment Regulation 2000*. The EIS was publicly exhibited by the Department of Planning and Environment (DP&E) between 30 November 2016 and 1 March 2017. An overview of the SSD application process is outlined in Figure 1.1a and 1.1b below. The current stage of the SSD application process is shown in green font.

Figure 1.1a

State Significant Development Application Process

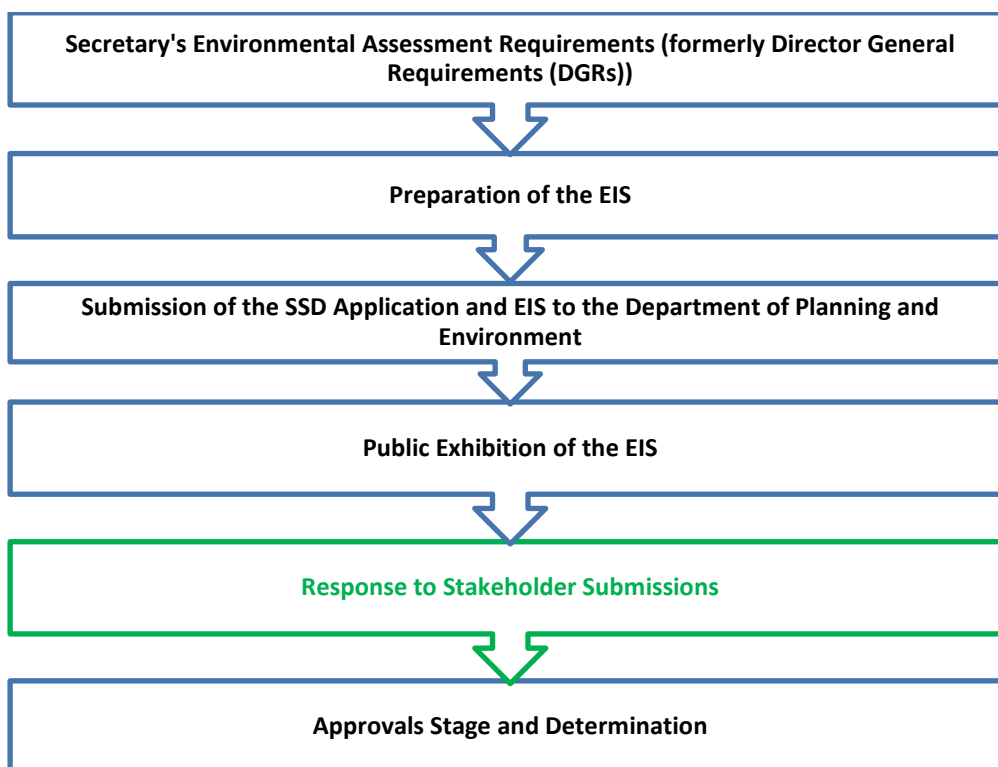
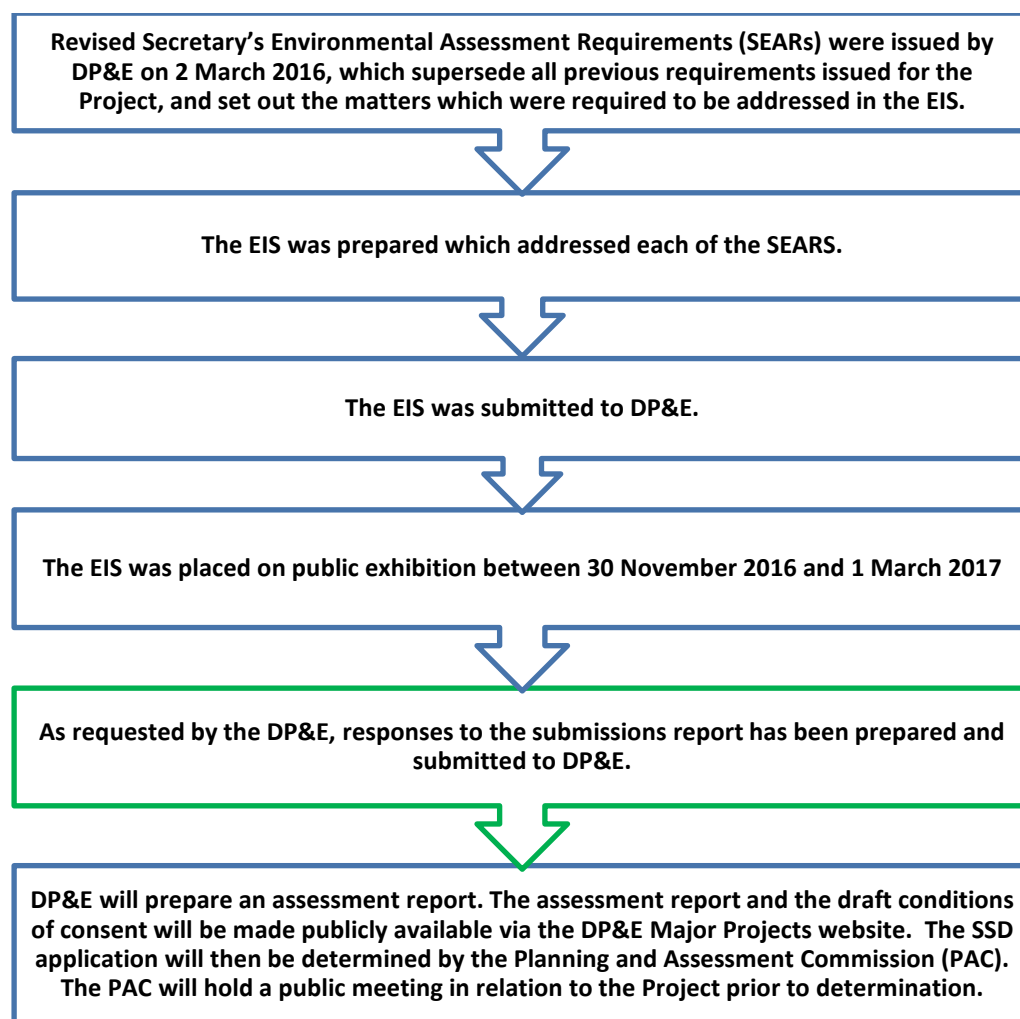


Figure 1.1b

State Significant Development Application Process

The revised Project (hereafter referred to as the Project) is located within the Southern Tablelands region of New South Wales (NSW). The Project Area (PA) covers an area of approximately 4,135 hectares (ha) spanning across the Goulburn Mulwaree Local Government Area (LGA) and the Queanbeyan-Palerang Regional Council (former Palerang LGA).

1.2 Purpose and Structure of the Report

This response to submissions and preferred project report has been prepared with due regard to ERM's existing knowledge of the Project, following review of other recent wind farm submissions reports and with regard to the DPE *Responding to Submissions - Draft Environmental Impact Assessment Guidance Series, Guideline 5* (the draft DPE RfS guideline), released for community consultation in June 2017. The key wind farm submissions reports referenced here included:

- Biala Wind Farm Response to Submissions Report (ERM, 2016).
- Rye Park Wind Farm Response to Submissions Report (Epuron, 2016).

The draft DPE RfS guideline provides direction to proponents on how to address comments and issues and communicate to the community and other stakeholders who have made a submission in response to a proposed project during the exhibition of the EIS. This guideline is preliminary at this stage and is yet to be finalised by DPE however the key features and guidance provided for responding to the submissions process and the preparation of the report have been referenced herein. The focus has been to prepare a document to align with the key principles, form and content that may in the future be endorsed by DPE.

The RtS report is structured as follows:

- **Chapter 1** – provides a project overview and the purpose and structure of the RtS report.
- **Chapter 2** – describes the exhibited Project as assessed in the EIS.
- **Chapter 3** – contains a summary of submissions received during the public exhibition, sets out how the submissions were analysed and provides a summary of the key issues raised in the submissions.
- **Chapter 4** – sets out the actions that have been undertaken both during and subsequent to the public exhibition, including community consultation, updates to the Project and updated assessments.
- **Chapter 5** – presents the changes made to the Project to respond to the issues raised in submissions and further reduce impacts.
- **Chapter 6** – describes the updated Project.
- **Chapter 7** – provides a detailed response to submissions, including discussion of the key issues raised during the exhibition and considered through further investigation during preparation of the RtS report.
- **Chapter 8** – updates the assessment of the Revised Project and includes a revised Statement of Commitments that lists the mitigation and management measures that will be implemented as part of the construction and operation phases of the Project, and an evaluation of the Project's acceptability.
- **Key References** – this section provides a brief list of the key references utilised throughout this RtS / PPR report. Additional applicable documents, policy, guidelines and standards were applied as relevant to the various environmental factors. The additional references are identified throughout this RtS / PPR report or in the original assessments conducted by technical specialists.

1.3

Contributors

The RtS report has been prepared by ERM in consultation with agencies and with contribution by a number of specialist sub-consultants who were responsible for preparation of updated technical assessments, as summarised below. *Table 1.1* provides a summary of the RtS team and their contributions to the supporting technical assessments.

Table 1.1

Response to Submission Report Contributors

Issue	Responsibility
Landscape and visual	ERM
Noise, shadow flicker, EMI/EMF, blade throw	DNV-GL
Biodiversity	ERM
Transport and traffic	GTA
Bushfire	ERM
Aboriginal and cultural heritage	ERM
Aviation	Aviation Projects

2 OVERVIEW OF EXHIBITED PROJECT

This chapter contains an overview of the Project as described in the EIS (referred to as the exhibited Project in this Rts) so as to enable a ready understanding and comparison between the exhibited Project and the updated Project presented in Chapter 6.

2.1 Exhibited Project Overview

The exhibited Project comprised the construction and operation of the Jupiter Wind Farm. The Project is located within the Southern Tablelands Region of NSW (refer Figure 2.1). For assessment purposes, the exhibited Project was divided into two distinct precincts, known as the northern precinct and southern precinct (refer Figure 2.2 – 2.4). The exhibited PA covered an area of approximately 4,999ha spanning across the Goulburn Mulwaree LGA and the Queanbeyan-Palerang Regional Council (former Palerang LGA) (refer Figure 2.5). The PA is situated approximately 5 kilometres south east of Tarago and approximately 18 km east of Bungendore.

The exhibited Project involved the construction and operation of up to 88 wind turbine generators (WTG) and ancillary facilities with a total installed capacity of up to 350 Megawatts (MW) of renewable energy.

The northern precinct consisted of up to 75 WTGs and the southern precinct consisted of up to 13 WTGs, all reaching a maximum height of 173 m above ground level.

The WTGs were proposed to be located across a number of involved landholder lots as shown on Figures 2.6 and 2.7.

The location of dwellings in the vicinity of the exhibited Project in the northern precinct and southern precinct are shown in Figures 2.8 and 2.9 respectively.

The exhibited Project also involved the construction and operation of a series of internal access roads; a 33 kV electrical reticulation network connecting the WTGs, including a 33 kV transmission line connecting the southern precinct to the on-site substation site; an on-site electrical substation and 330 kV transmission line connection to the existing TransGrid 330 kV transmission line that passes through the PA; along with other associated buildings (including substation control room and amenities) and ancillary structures and equipment, including temporary construction facilities.

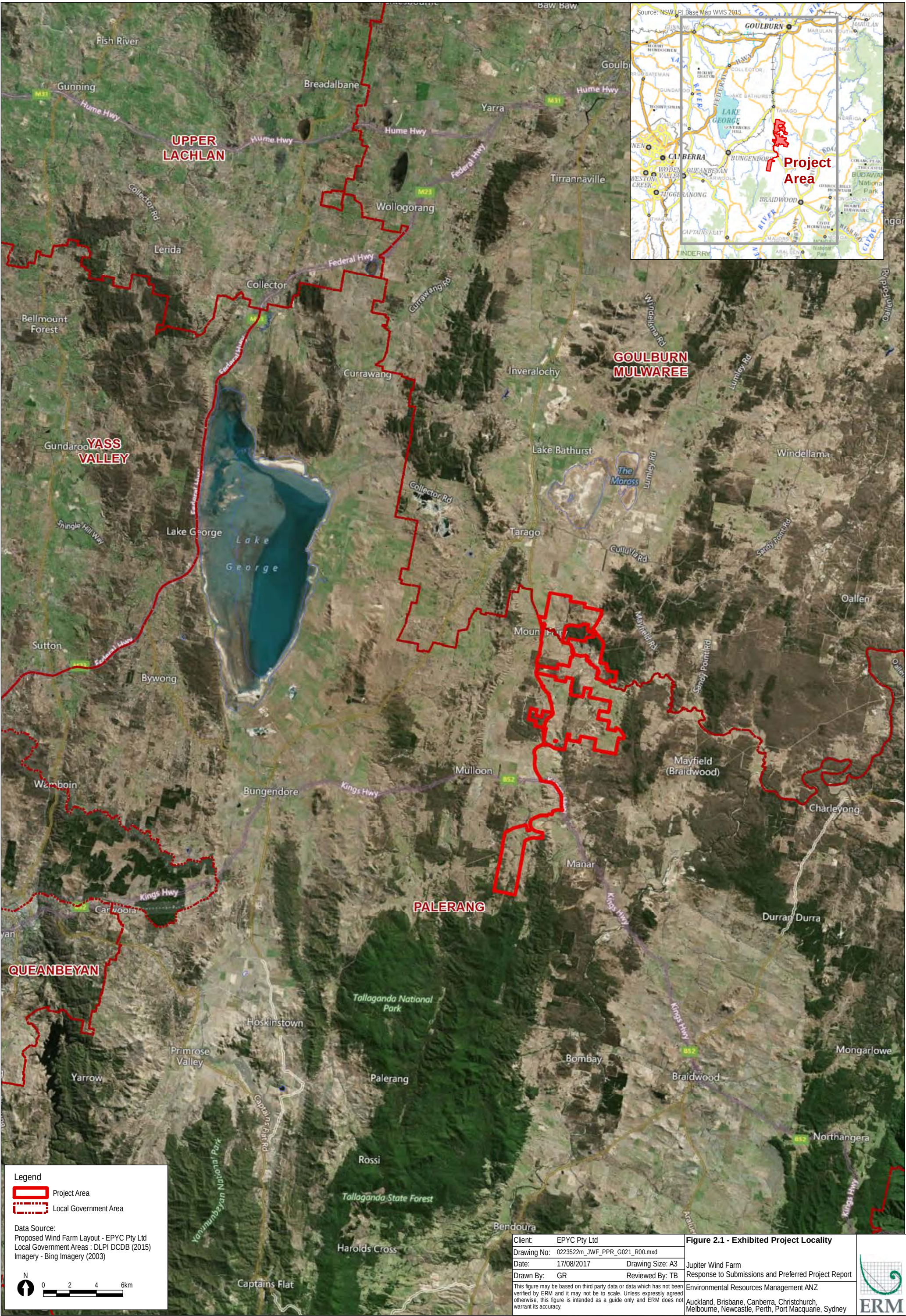
2.2 Key Issues for the Exhibited Project

Potential impacts arising from the exhibited Project were identified in the EIS and corresponding mitigation measures proposed where avoidance strategies were not feasible. A summary of the residual issues (after mitigation has been applied) is below:

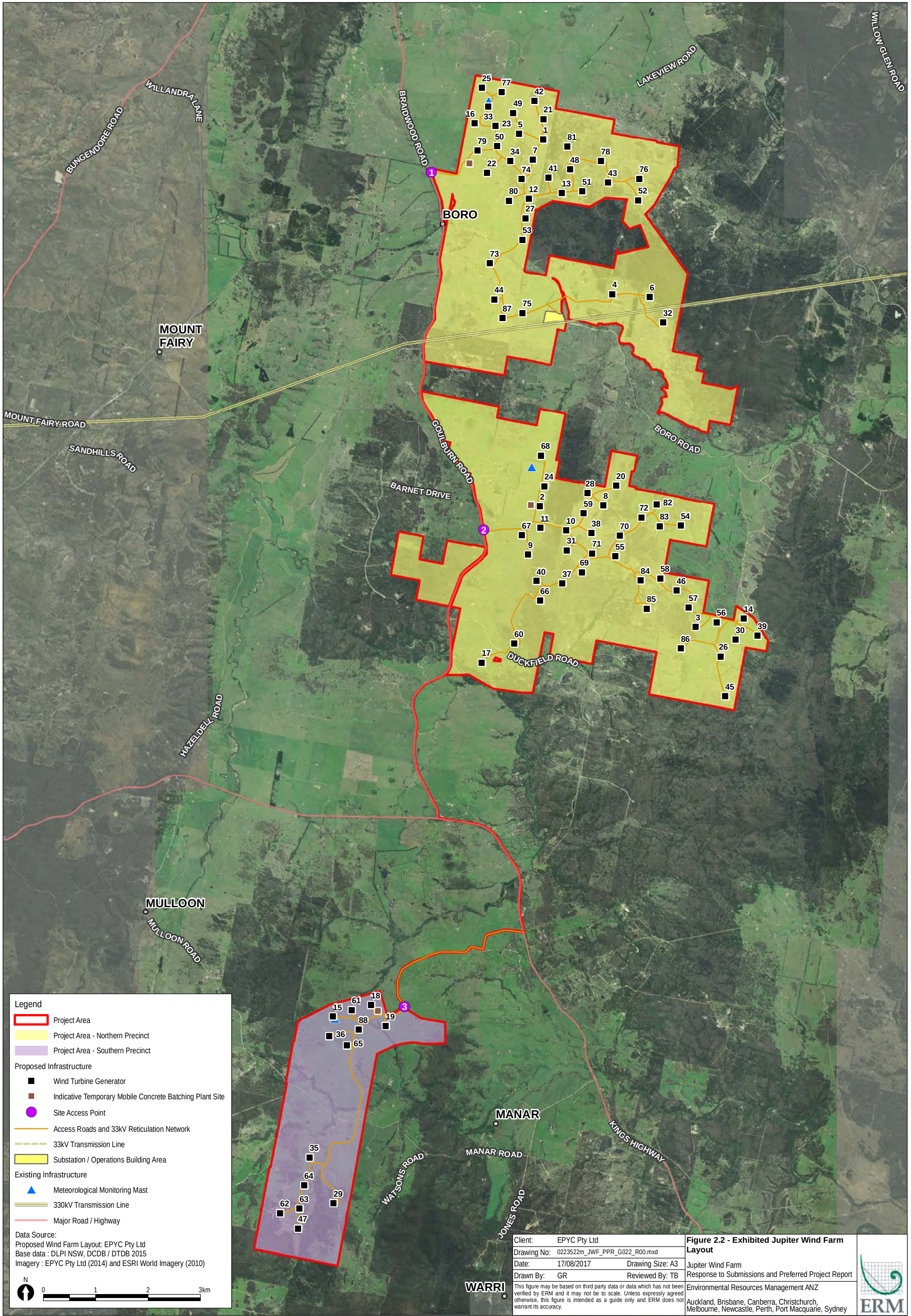
- Potential impacts to threatened matters, as well as general biodiversity values, including:
 - Foraging habitat for the Glossy Black cockatoo; and
 - Removal of approximately 1.63ha of the EPBC Act-listed community White Box-Yellow Box-Blakeley's Red Gum Grassy Woodland.
- Predicted construction noise levels above the ICNG noise affected management levels (standard hours) at the closest receptors in proximity to works, and were above the highly noise affected management level at two receptors, both of which are involved landowners.
- Predicted operational (wind farm and WTG) levels would be above the compliance limits established to achieve the SEARs at five non-involved landholders (six dwellings) with the maximum levels by which predicted values exceeded the limits was 3dB(A) based on a conservative worst-case and unmitigated scenario and were predicted to occur at the identified receptors for select wind speeds only.

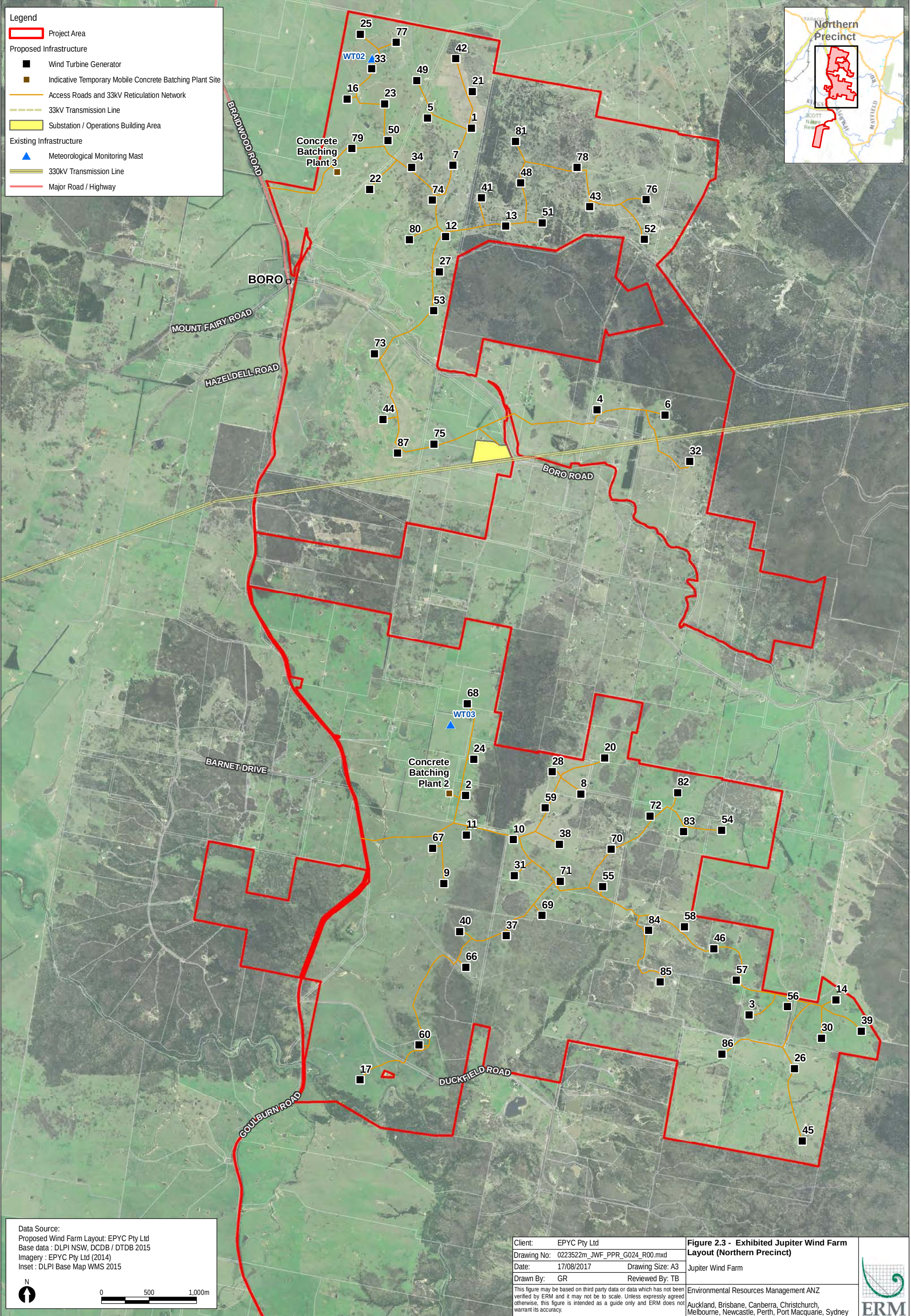
- The Project has a relatively limited visual catchment with moderate/high and high residual visual impacts affecting approximately 14 dwellings mostly limited to dwellings within 1-3km of the WTGs with the highest impacts associated with dwellings that are located on elevated ground with panoramic views over the surrounding rural landscape.
- The Development Footprint largely avoids recorded Aboriginal heritage objects and areas of sensitivity, however may impact on two objects that have been identified along the 33 kV transmission line alignment between the southern and northern precincts (and are considered to be of low archaeological significance), and two areas identified as having moderate levels of potential to contain subsurface archaeological deposits.
- The Project has the potential to impact on terrestrial television broadcasting in the vicinity of the PA. It is expected that any interference can be mitigated by identified strategies including improvements to the equipment at the affected dwelling.
- Potential shadow flicker impacts that exceed the recommended limit within 50 m of the dwelling are predicted at 11 dwellings (nine involved, and two non-involved landholders). The exceedances at the affected dwellings are predicted to be small.

The Project design and layout has been revised subsequent to the public exhibition of the EIS and many of the issues outlined above have been reduced or removed. The changes made to the exhibited Project are set out in Chapter 5 and a description of the Updated Project is in Chapter 6.



Client: EPYC Pty Ltd		Figure 2.1 - Exhibited Project Locality Jupiter Wind Farm Response to Submissions and Preferred Project Report Environmental Resources Management ANZ Auckland, Brisbane, Canberra, Christchurch, Melbourne, Newcastle, Perth, Port Macquarie, Sydney	
Drawing No: 0223522m_JWF_PPR_G021_R00.mxd			
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Legend

Project Area

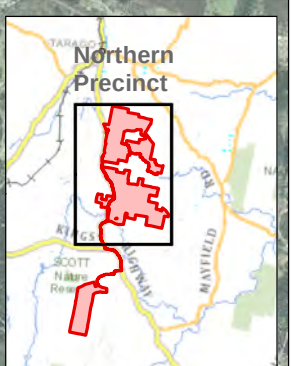
- Project Area

Proposed Infrastructure

- Wind Turbine Generator
- Indicative Temporary Mobile Concrete Batching Plant Site
- Access Roads and 33kV Reticulation Network
- 33kV Transmission Line
- Substation / Operations Building Area

Existing Infrastructure

- Meteorological Monitoring Mast
- 330kV Transmission Line
- Major Road / Highway



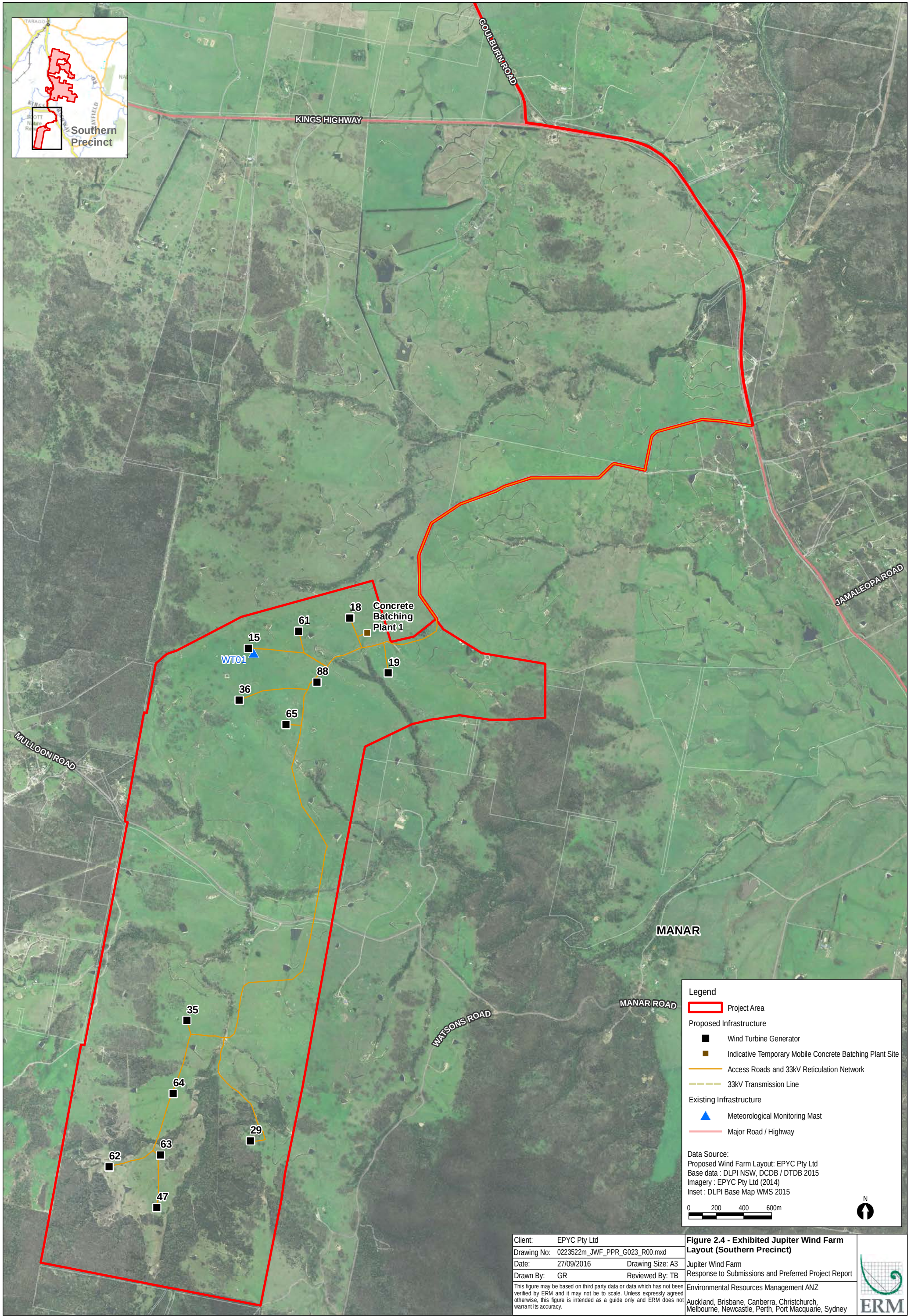
Data Source:
Proposed Wind Farm Layout: EPYC Pty Ltd
Base data : DLPI NSW, DCDB / DTDB 2015
Imagery : EPYC Pty Ltd (2014)
Inset : DLPI Base Map WMS 2015

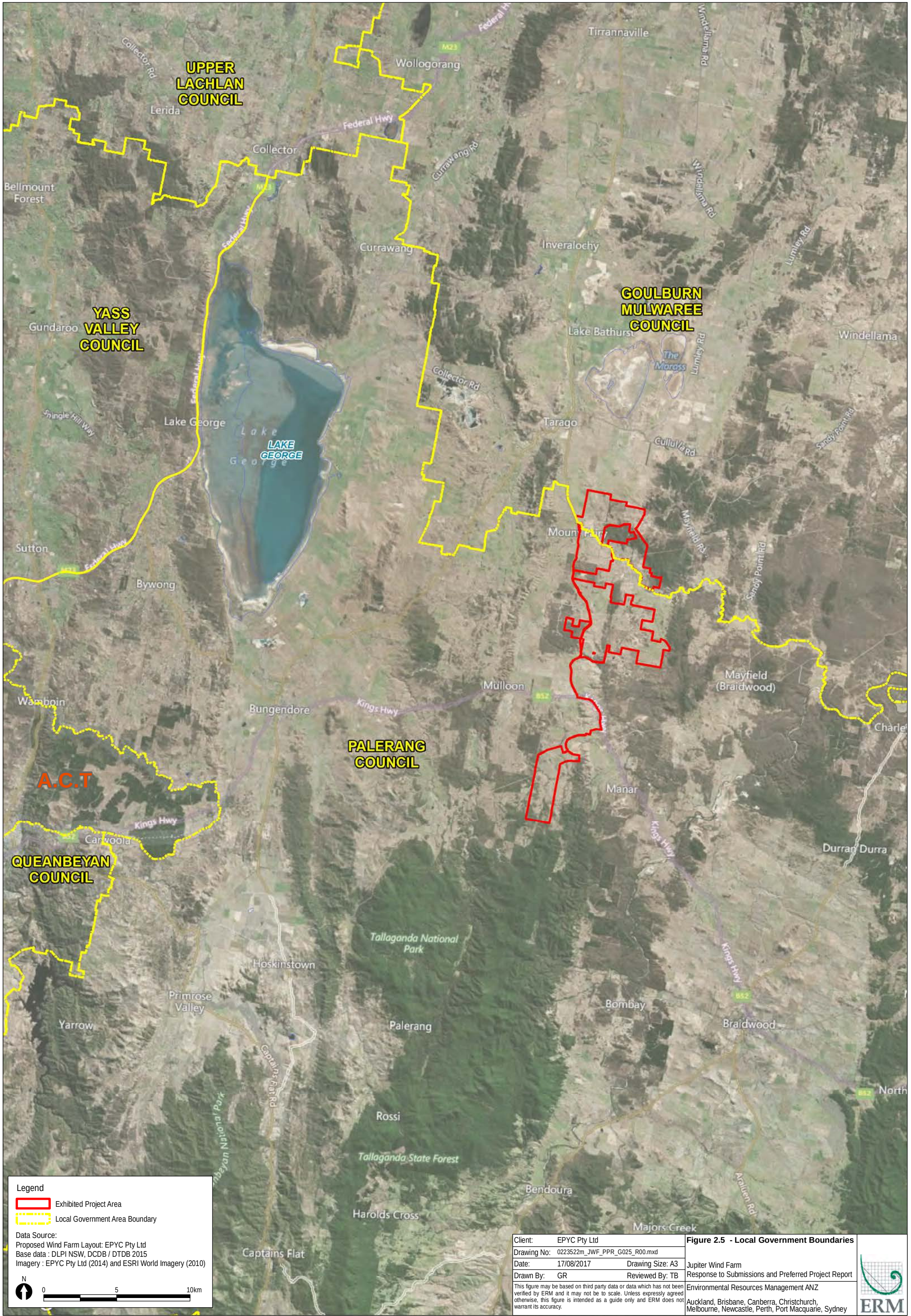
N

0 500 1,000m

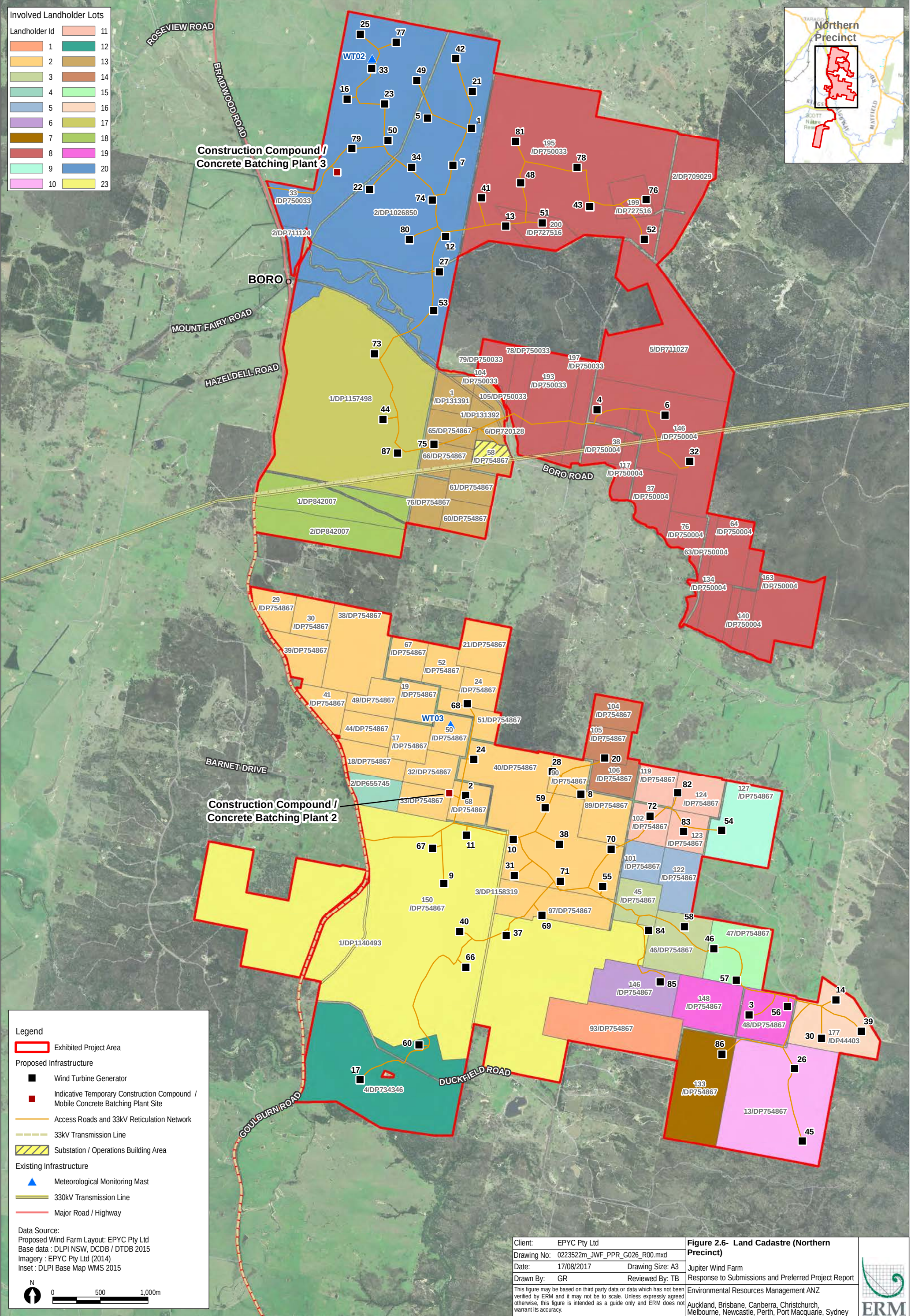
Client:	EPYC Pty Ltd	Figure 2.3 - Exhibited Jupiter Wind Farm Layout (Northern Precinct) Jupiter Wind Farm Environmental Resources Management ANZ Auckland, Brisbane, Canberra, Christchurch, Melbourne, Newcastle, Perth, Port Macquarie, Sydney
Drawing No:	0223522m_JWF_PPR_G024_R00.mxd	
Date:	17/08/2017	
Drawn By:	GR	
Reviewed By:	TB	

This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.



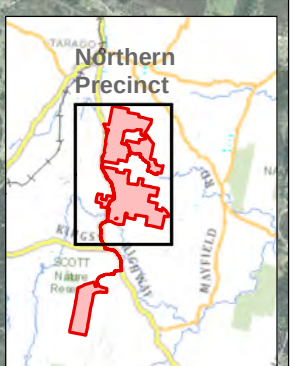


Client: EPYC Pty Ltd		Figure 2.5 - Local Government Boundaries
Drawing No: 0223522m_JWF_PPR_G025_R00.mxd		
Date: 17/08/2017	Drawing Size: A3	
Drawn By: GR	Reviewed By: TB	
This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.		
Jupiter Wind Farm Response to Submissions and Preferred Project Report Environmental Resources Management ANZ Auckland, Brisbane, Canberra, Christchurch, Melbourne, Newcastle, Perth, Port Macquarie, Sydney		



Involved Landholder Lots

Landholder Id	11
1	12
2	13
3	14
4	15
5	16
6	17
7	18
8	19
9	20
10	23



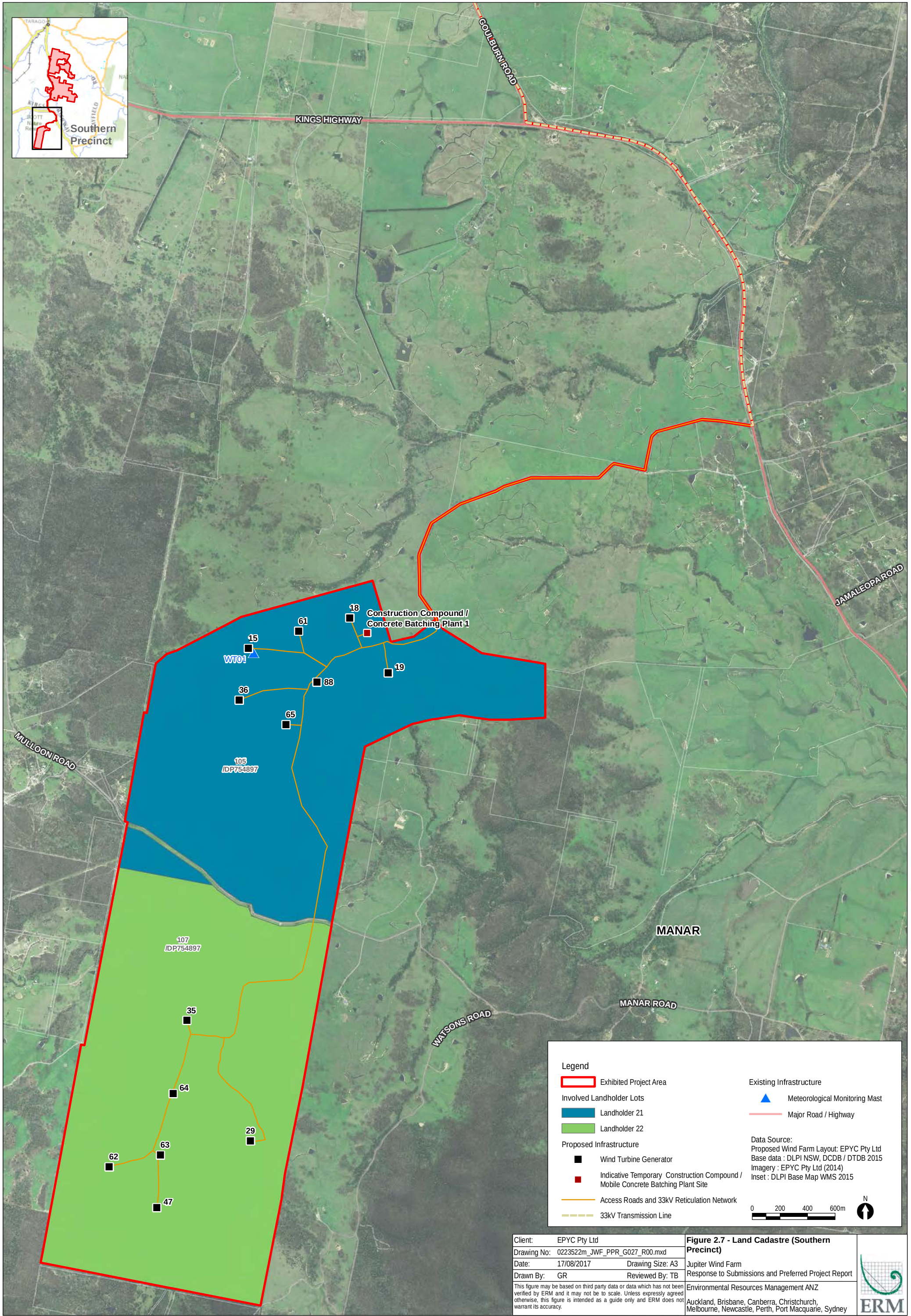
Legend

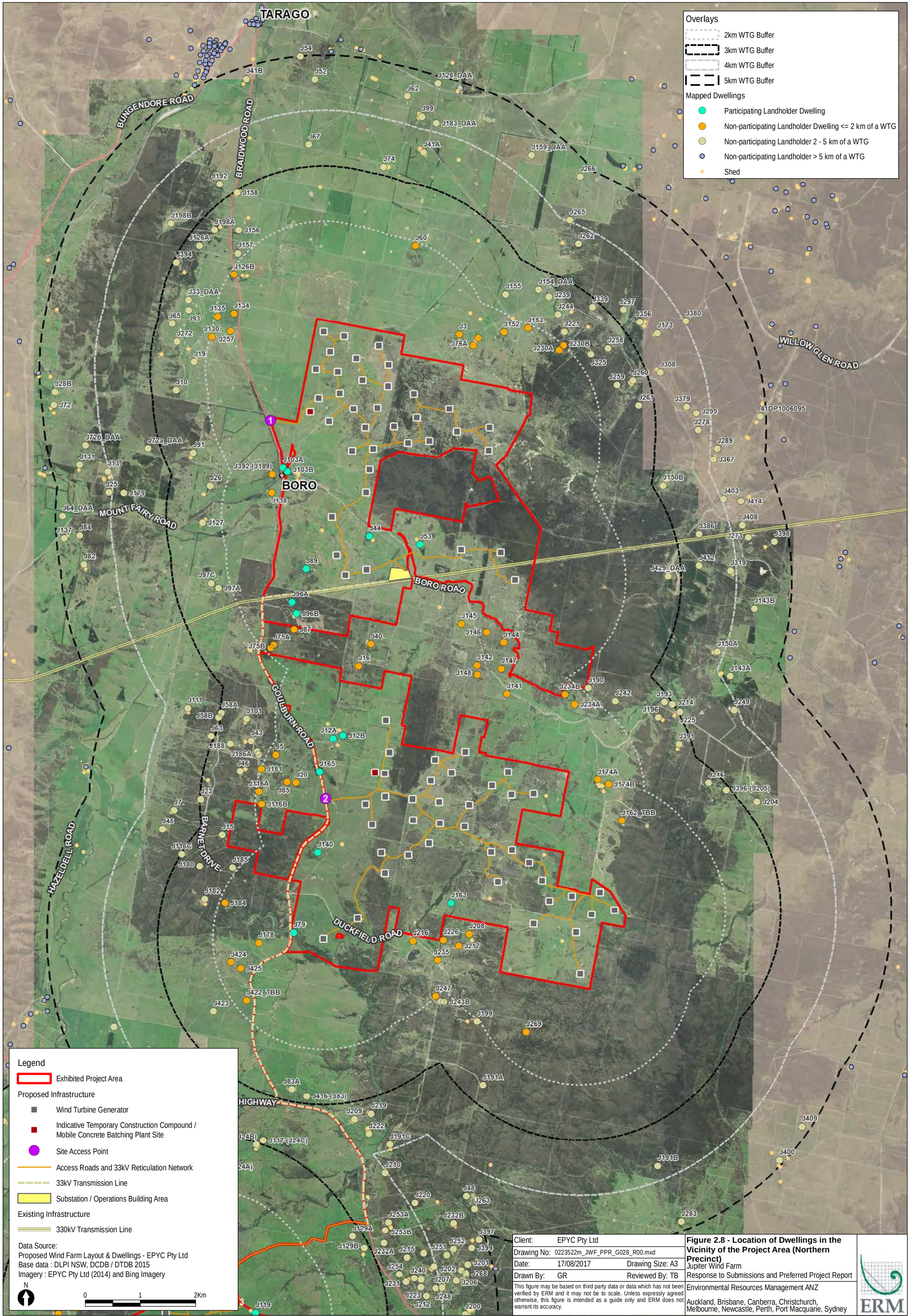
- Exhibited Project Area
- Proposed Infrastructure
 - Wind Turbine Generator
 - Indicative Temporary Construction Compound / Mobile Concrete Batching Plant Site
 - Access Roads and 33kV Reticulation Network
 - 33kV Transmission Line
 - Substation / Operations Building Area
- Existing Infrastructure
 - Meteorological Monitoring Mast
 - 330kV Transmission Line
 - Major Road / Highway

Data Source:
Proposed Wind Farm Layout: EPYC Pty Ltd
Base data : DLPI NSW, DCDB / DTDB 2015
Imagery : EPYC Pty Ltd (2014)
Inset : DLPI Base Map WMS 2015

N
0 500 1,000m

Client:	EPYC Pty Ltd	Figure 2.6- Land Cadastre (Northern Precinct) Jupiter Wind Farm Response to Submissions and Preferred Project Report Environmental Resources Management ANZ Auckland, Brisbane, Canberra, Christchurch, Melbourne, Newcastle, Perth, Port Macquarie, Sydney	
Drawing No:	0223522m_JWF_PPR_G026_R00.mxd		
Date:	17/08/2017		Drawing Size: A3
Drawn By:	GR		Reviewed By: TB
This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.			





Overlays

- 2km WTG Buffer
- 3km WTG Buffer
- 4km WTG Buffer
- 5km WTG Buffer

Mapped Dwellings

- Participating Landholder Dwelling
- Non-participating Landholder Dwelling <= 2 km of a WTG
- Non-participating Landholder 2 - 5 km of a WTG
- Non-participating Landholder > 5 km of a WTG
- Shed

Legend

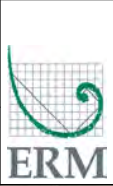
- Exhibited Project Area
- Proposed Infrastructure
 - Wind Turbine Generator
 - Indicative Temporary Construction Compound / Mobile Concrete Batching Plant Site
 - Site Access Point
 - Access Roads and 33kV Reticulation Network
 - 33kV Transmission Line
 - Substation / Operations Building Area
- Existing Infrastructure
 - 330kV Transmission Line

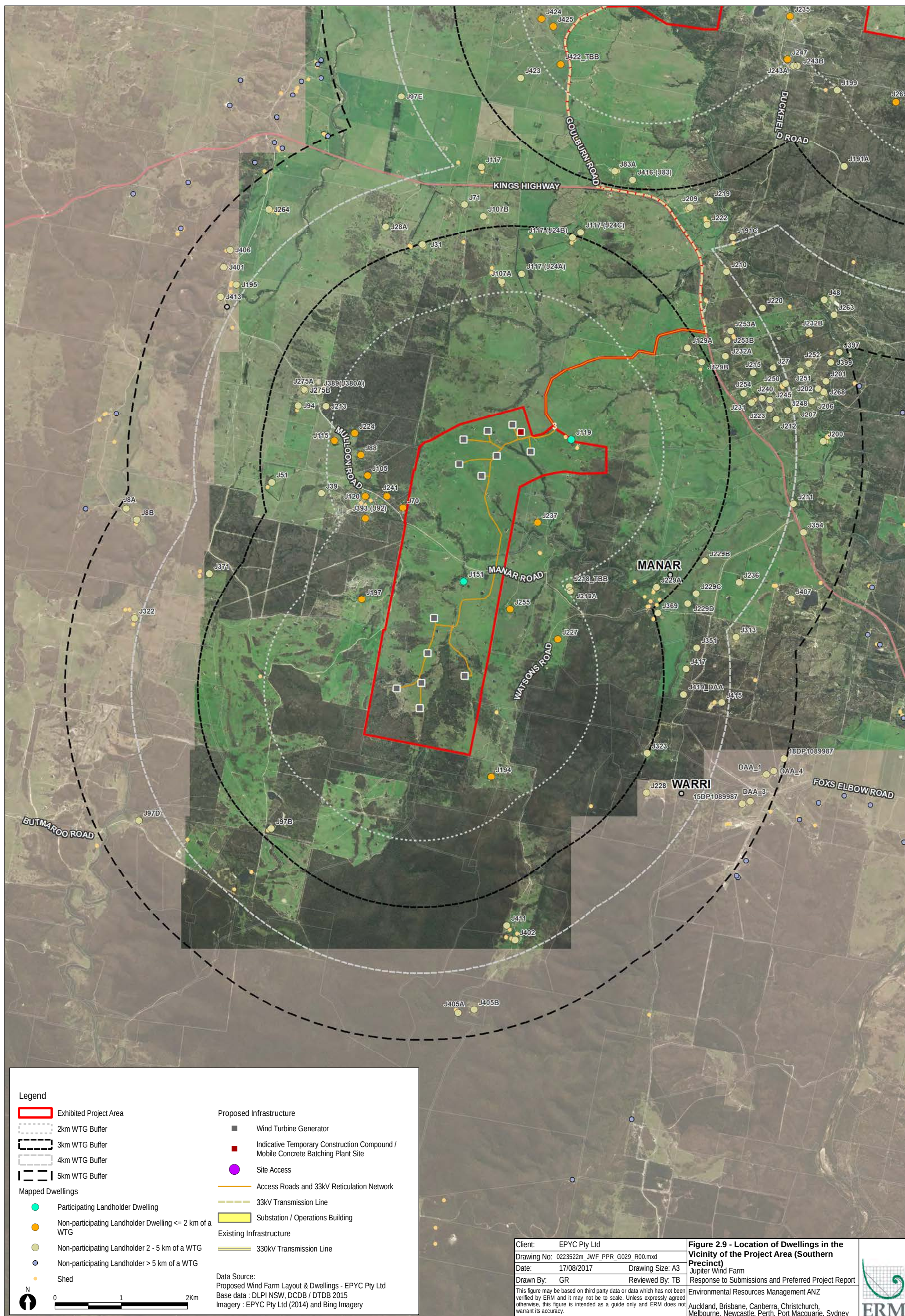
Data Source:
Proposed Wind Farm Layout & Dwellings - EPYC Pty Ltd
Base data : DLPI NSW, DCDB / DTDB 2015
Imagery : EPYC Pty Ltd (2014) and Bing Imagery



Client:	EPYC Pty Ltd	Figure 2.8 - Location of Dwellings in the Vicinity of the Project Area (Northern Precinct) Jupiter Wind Farm Response to Submissions and Preferred Project Report Environmental Resources Management ANZ Auckland, Brisbane, Canberra, Christchurch, Melbourne, Newcastle, Perth, Port Macquarie, Sydney
Drawing No:	0223522m_JWF_PPR_G028_R00.mxd	
Date:	17/08/2017	
Drawn By:	GR	
Reviewed By:	TB	

This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.





3 ANALYSIS OF SUBMISSIONS

3.1 Summary of Submissions Received

A total of 574 submissions were received by DP&E during the Jupiter Wind Farm EIS exhibition period from 451 different submitters.

DP&E provided EPYC with a copy of all submissions.

Submissions were received from:

- 11 governmental agencies, including councils; and
- 440 members of the public (including a number of special interest groups).

Some members of the public made multiple submissions. Every submission has been included in the number of individual submissions (574) but each submitter who made multiple submissions has been counted once only (451).

A list of the governmental agencies and special interest groups who have provided submissions is provided in Table 3.1 below. Copies of all received submissions (government, special interest and public) are presented on the Department of Planning and Environment website.

Table 3.1

Government and Special Interest Group Submitter Details

Government
<i>Civil Aviation Safety Authority (CASA)</i>
<i>Department of Industry (DOI)</i>
<i>Department of Primary Industries (DPI)</i>
<i>NSW Environment Protection Authority (EPA)</i>
<i>Goulburn-Mulwaree Council (GMC)</i>
<i>NSW Health</i>
<i>NSW Office of Environment and Heritage (OEH)</i>
<i>Queanbeyan-Palerang Regional Council (QPRC)</i>
<i>NSW Rural Fire Service (RFS)</i>
<i>Water NSW</i>
<i>Airservices Australia</i>
Special Interest Groups
<i>Tarago Parents and Citizens Association</i>
<i>TADPAI – Tarago and District Progress Association</i>
<i>Roseview Estate Residents Group</i>
<i>Wayne Cook, Environmental Consultant</i>
<i>RAJWT – Residents Against Jupiter Wind Turbines</i>
<i>PMLG – Parkesbourne/Mummel Landscape Guardians Inc.</i>
<i>Mulloon Matters Group</i>
<i>AWA – Australian Wind Alliance</i>
<i>Heron Resources Ltd</i>
<i>Saint Bakhomios Monastery</i>

3.2 Analysis of Submissions

To assist with analysis and response the submissions have been separated into categories as follows: governmental agency submissions, special interest group submissions, and submissions by members of the public.

- Government and special interest group submissions have been addressed separately, and the issues raised have again been presented separately to ensure the specific nature of the comments are reflected and queries raised, and ensure all key issues are identified. Responses for each of the issues contained within the government and special interest group submissions are provided in Annex A and B respectively. Chapter 7 contains a summary overview of the key issues raised in the governmental and special interest group submissions.
- For the public submitters the issues have been divided into each of the issues raised. The issues within each of the submissions from the members of the public have been grouped into the broad technical areas that are of interest to the submitter i.e. visual, noise, soil and water, economic etc. Public submissions have raised a number of recurring themes and issues. Accordingly, each of the issues have then been considered and categorised into a range of broad themes within each of the areas of concern rather than by repeating the response where the same issue has been raised in multiple submissions. Responses to public submissions have been provided in Annex C of this report. Chapter 7 also contains a summary overview of the key issues raised in the public submissions.

3.3 Summary of Issues Raised in Public Submissions

A range of concerns were raised in the special interest group and public submissions that comprised recurring themes that were common across many of the submissions. The recurring issues/themes identified in the special interest and public submissions are presented in Table 3.2 below:

Table 3.2 *Summary of recurring themes raised in government, special interest and public submissions*

Area of Concern	Recurring Issues/Themes
Visual	• Impacts to visual amenity as a result of the installation of multiple WTG's; • Adverse change to vista in rural area; • Inadequate mitigation measures; • Adequacy of assessment; and • WTG night lighting impacts.
Community Consultation	• Inadequate consultation between Proponent and the community; • Proximity of WTGs to residents; • Basis of site selection; • Future growth; and • Impact to future dwellings.
Bushfire	• Mitigation measures outlined throughout the Visual Impact Assessment have potential to increase bushfire risk around properties (vegetation screening etc.); • Aerial firefighting ability significantly impacted as a result of the installation of WTG's; and • Potential for infrastructure to trigger bushfires.
Noise	• Audible noise of WTGs; • Issues relating to infrasound; • Sleep disturbance and other health-related impacts; • Construction noise; and • Compliance of Project with noise criteria.
Blade throw	• Inadequate assessment; • Setback distances; • Risks to neighbouring properties; • Operation and maintenance manual for V90-3.0 MW turbines; and • Risk from ice throw.

Area of Concern	Recurring Issues/Themes
<i>Shadow flicker</i>	Increased presence of shadows and associated impacts to landowners, including health impacts.
<i>EMI/EMF</i>	- General EMI/EMF; - Adequacy of assessment; - Television reception; - Mobile phones and wireless internet; and - Radio interference.
<i>Biodiversity</i>	- WTG's placed in areas of high ecological significance; - Potential to disrupt the normal lifecycle of threatened species (Glossy Black Cockatoo etc.); - Potential for birdstrike including impact on migratory birds; - Noxious weeds; - Clearing impacts; - Assessment methodology and survey effort; - Impact on scarlet robin; - Impact on wedge tail eagle; and - Impact on wildlife corridors.
<i>Cultural Heritage</i>	- Inadequate Aboriginal Cultural Heritage assessment; - Issues relating to the disruption of potential archaeological deposits
<i>Traffic</i>	- Inadequate consideration of private bus routes (in particular school bus routes); - Elevated risk on roads due to increased large vehicle traffic / increased distractions as a result of WTG installation; - Construction of new roads; - Inadequate assessment; - Current road condition and damage to roads due to increased traffic; - Impact on Lower Boro Road; - Impact on Manar Road; - Operational impacts;
<i>Aviation</i>	- Impact on aerial firefighting; - Impact on aerial agriculture; - Impact on surrounding airstrips; - Aircraft landing areas;
<i>Soil and water</i>	- Erosion; - Hydrometeorology; - Aquifer interruption; and - Soil quality.
<i>Economic</i>	- Community benefit; - Benefit sharing; - Employment; - Generation capacity; - Greenhouse gases; - Procurement; - General economic; - Property value; and - Viability of project/project profitability.
<i>Health</i>	- Concerns for adverse health effects to those residing in proximity to wind turbines; - Exposure to infrasound; and - Stress/sleep disturbance/PTSD.
<i>Legislation, zoning and planning issues</i>	- Poor site selection, wind farm planned for a highly populated area; - Proximity to residents; - Impact on future dwellings and growth areas, including Mount Fairy; and - Incorrect description of development in project area.
<i>Decommissioning</i>	- Decommissioning options; - Decommissioning assurance and funding; - Decommissioning plan; and - Decommissioning responsibility.

4

ACTION TAKEN DURING AND AFTER EIS EXHIBITION

This chapter outlines particulars of the public exhibition of the EIS as well as actions taken during and subsequent to the public exhibition. Actions taken include:

- continuing community and stakeholder consultation;
- reviewing and considering submissions received;
- working with consultants to update and revise the Project layout and design to address the issues raised during submissions and reduce environmental impacts;
- commissioning updated technical assessments to assess the updated Project; and
- preparing this report to incorporate the above mentioned actions.

4.1

Public Exhibition of the EIS

The EIS prepared for the Project was publicly exhibited by DP&E between 30 November 2016 and 1 March 2017.

In addition to being made available online on the DP&E's major projects website, hard copies of the EIS were made publicly available for the duration of the exhibition at the following locations:

- Department of Planning and Environment: 320 Pitt St, Sydney;
- Department of Planning and Environment – NSW Major Projects Website;
- Goulburn Mulwaree Council office and library: Civic Centre, 184-194 Bourke Street, Goulburn;
- Queanbeyan Palerang Regional Council office: 256 Crawford St, Queanbeyan;
- Queanbeyan Palerang Regional Council office: 144 Wallace St, Braidwood;
- Queanbeyan Palerang Regional Council office: 10 Majara St, Bungendore;
- Tarago Post Office: 2 Braidwood Road, Tarago; and
- Nature Conservation Council of NSW: 14/338 Pitt St, Sydney.

Hard copies of the EIS were also distributed to relevant governmental agencies including the Environment Protection Authority, Division of Resources and Energy, Department of Primary Industries, Office of Environment & Heritage, RMS South West Region, South East, Local Land Services, Airservices Australia and Civil Aviation Safety Authority.

Notification of the exhibition period to the community was undertaken through the following methods:

- Update on the Jupiter Wind Farm Project website: <http://www.epyc.com.au/project-description>
- Jupiter Wind Farm Community Newsletter (Issue 7 – issued December 2016 and uploaded to the Project Website);
- Project's Community Consultative Committee (CCC) meeting – 13 December 2016; and
- Department of Planning and Environment - Community Information Session - 7 December 2016.

4.2

Community and Stakeholder Consultation – during and subsequent to the public exhibition of the EIS

Community consultation and the consultation activities that have been undertaken throughout the Project to date were identified as a key issue throughout the public exhibition period and during analysis of the submissions. Table 4.1 below outlines the community consultation undertaken during, and subsequent to, the public exhibition of the EIS.

Table 4.1**Community Consultation during and subsequent to the public exhibition**

Activity	Timing	Objectives	Targeted Stakeholders and Delivery Mode	Status
<i>Eighth Meeting of the CCC</i>	13-Dec-16	<i>Provide an update on the project status</i>	<i>Meeting held with CCC members</i>	<i>Completed</i>
		<i>ERM, DNV GL and Clouston Associates to give a presentation on the EIS</i>	<i>Meeting minutes subsequently published on Project website</i>	
<i>Update to CCC</i>	13-Jan-17	<i>Providing update to CCC</i>	<i>Answers to questions from CCC meeting presentation provided</i>	<i>Completed</i>
<i>Newsletter 7</i>	22-Dec-16	<i>Provide project update</i>	<i>Newsletter sent to Landholders and residents within an approximate 5km radius of the PA as well as Queanbeyan-Palerang Regional Council, Goulburn-Mulwaree Council and Other identified community groups. Newsletter sent via postal mail out to non-local residents/hand delivered to local residents by EPYC and to registered email addresses. A copy was also placed on the Project website</i>	<i>Completed</i>
		<i>Information on the community enhancement fund</i>		
		<i>Upcoming Community Consultation proposed dates</i>		
<i>EIS community consultation</i>	<i>17-Jan-2017 to 18-Jan-2017</i>	<i>Community consultation on proposed project as well as benefit sharing arrangements</i>	<i>Discussions held with Landholders and residents within 3km radius of the PA regarding the EIS on exhibition.</i>	<i>Completed</i>
	<i>23-Jan-2017 to 24-Jan-2017 & 7-Feb-2017 to 8-Feb-2017</i>	<i>Community consultation for mitigation discussions</i>	<i>Discussions held with landowners for mitigation measures where required and Benefit Sharing.</i>	
<i>Information day 3</i>	3-Feb-17	<i>Provide information about EPYC and the Project to the public via a face to face community information session</i>	<i>EIS discussion session on noise visual, ecology and other areas raised during the session Interested community members and local service providers were invited to the session.</i>	<i>Completed</i>
		<i>Feedback and discussions on the community enhancement fund</i>		
		<i>Feedback to improve mobile and television reception as well as internet speed</i>		

Activity	Timing	Objectives	Targeted Stakeholders and Delivery Mode	Status
<i>Ninth Meeting of the CCC</i>	<i>28-Mar-17</i>	<i>Provide an update on the Project status</i> <i>Discussions on timing of the response to submissions</i>	<i>Meeting held with CCC members</i> <i>Meeting minutes subsequently published on Project website</i>	<i>Completed</i>
<i>Neighbour Benefit sharing Program Invitations & confirmation</i>	<i>3-May-17 & 17-May-17</i>	<i>Invitation only discussion sessions for neighbours of the Project on Neighbour Benefit Sharing Program (NBSP)</i>	<i>Invitation extended to all residents with a dwelling or DA approved dwelling within 3km of a proposed WTG</i>	<i>Completed</i>
<i>Neighbour Benefit sharing Program Workshops & Follow up Discussions</i>	<i>26-27 May-2017 and 29-May-2017 to 12-Jul17</i>	<i>Providing update and additional information regarding NBSP and provide additional opportunities with follow ups for those unable to attend the sessions</i>	<i>Neighbours who had registered interest in obtaining information on NBSP</i> <i>Held benefit sharing talks with neighbours who had registered to attend. These meetings were run by an independent facilitator as well as being attended by an EPYC staff member</i>	<i>Completed</i>
<i>Newsletter 8</i>	<i>15-Aug-17</i>	<i>Provide general update</i>	<i>Newsletter sent to Landholders and residents within an approximate 5km radius of the original EIS PA as well as QPRC Council, Goulburn-Mulwaree Council and Other identified community groups.</i> <i>Newsletter sent via postal mail out to non-local residents/hand delivered to local residents by EPYC and to registered email addresses</i> <i>A copy was also placed on the Project website</i>	<i>Completed</i>
		<i>Provide map of revised layout</i>		
		<i>Provide update on Benefit Sharing</i>		
		<i>Provide dates for upcoming consultation</i>		
<i>Tenth Meeting of the CCC</i>	<i>23-Aug-17</i>	<i>Provide an update on the project layout</i>	<i>CCC members</i>	<i>Completed</i>
		<i>Provide an update on the PPR and RTS</i>		
<i>Visual assessment and Community consultation</i>	<i>30-Aug-17 to 31-Aug-17</i>	<i>Undertake additional analysis to inform and update the visual assessment for the revised layout</i>	<i>Neighbouring residents within 3km of the site</i>	<i>Completed</i>

Activity	Timing	Objectives	Targeted Stakeholders and Delivery Mode	Status
Community consultation and benefit sharing discussions	Mar-17 to Aug-17	Further consultation on mitigation and other enquiries	Local community within (but not limited to) 3km.	Completed
		Discuss Neighbour Benefit sharing (where required)		
		Provide an overview of the new layout.		
Community consultation	Sep-17 Ongoing	Further consultation related to the changes implemented (revised layout)	Local community within (but not limited to) 3km.	Ongoing
		Continue with consultation related to mitigation and NBSP		
Future consultation – Newsletters and Information Days	Sep-17 Ongoing	Further consultation in relation to the revised Project and Project status.	Neighbouring residents and local community	Ongoing

4.2.1

Consultation regarding Neighbour Benefit Sharing Program

Community consultations with the local residents continued during and following the EIS public exhibition. Arrangements were made for meetings with various land owners to inform them of the detailed assessments, with respect to their dwellings. During these meetings EPYC provided further clarification on specific topics based on the individual properties visited. A copy of the EIS was used as a reference during consultations to assist in addressing land owner's specific queries. Given the extensive assessment and the comprehensive EIS, it was important to meet with as many of the residents as possible in order facilitate their review of the EIS and clarify any ambiguity.

Another important part of these consultations was to provide further information regarding the Neighbour Benefit Sharing Program (NBSP) to those landholders within 2km of a turbine. Following public exhibition of the EIS and subsequent consultations undertaken, in May 2017 EPYC announced that they will extend the eligibility of the NBSP and make considerations for eligible residents within 3km of a turbine. Consequently, the voluntary NBSP was revised and updated accordingly to allow considerations of residents with a dwelling or DA for a dwelling within 3km of a turbine.

The timeline of development for the NBSP is provided below.

December 2013: The Preliminary Environmental Assessment report prepared for the purpose of requesting SEARs confirms EPYC's commitment to undertaking benefit sharing:

"Ideally everyone with a dwelling within 2km of a Proposed WTG would be included as an involved dwelling for the purpose of the project. Alternatively EPYC will endeavour to secure a Neighbour Benefit Sharing Agreement with any landowner with a dwelling within 2km of a proposed WTG".

October 2015: Following the initial commitment outlines in the request for DGR and upon review of the report by Ernst and Young on benefit sharing which was commissioned by OEH, EPYC formed the initial benefit sharing plan. This was announced during the 4th CCC meeting held in October 2015. The benefit sharing was proposed to include all landowners with a dwelling within 2km of a turbine. A number of dwellings located 2-3 km from a turbine were also included for the purpose of benefit sharing.

October 2015: The NBSP was introduced to the community via a series of one-on-one and some group meetings.

Following these introductions, negotiations with interested neighbouring residents continued. During the consultations it became clear the majority of the neighbours wished to review the EIS in its entirety for a better understanding of the overall project before they made a final decision on the NBSP. Therefore, negotiations continued at a slower pace until such time the EIS was completed and was made public. General consultations continued during this period.

December 2016 – March 2017: General consultations and NBSP discussions continued during the exhibition period with the residents.

March 2017 – August 2017: Following the review of the submissions and based on the feedback from the ongoing negotiations, the benefit sharing program was updated and extended to include everyone within 3km. Subsequently, a number of discussion sessions were planned and those eligible were invited to attend a session of their choice in order to obtain further information as well as provide feedback with respect to what would benefit them the most.

Invitations were forwarded to all eligible neighbouring landholders (residents with dwellings or DA approved dwellings within 3km of a turbine) on May 3rd and followed up on 17th of May, 2017. The locally held sessions were attended by neighbours who had registered and booked a preferred session. These meetings were run by an independent facilitator as well as an EPYC representative. Further opportunities were made available for those residents who had expressed an interest in obtaining further information, but were unable to attend the sessions. The independent facilitator followed up with pre-arranged calls to these residents in order to provide further details as well address their queries with respect to the updated NBSP.

Additional meetings with residents have been undertaken since the workshops to facilitate enquiries and provide clarification on the NSBP as well as the overall project processes where required.

EPYC encouraged all landholders considering the voluntary NBSP on offer to seek legal advice and informed them of the legal assistance fee reimbursement available upon signing the agreement (neighbouring deed) and issuance of a tax invoice.

Additional Neighbour Benefit Sharing Program features offered since EIS exhibition

The NBSP has been enhanced since the EIS and additional features are now being offered. Those features that have recently been included are outlined below:

- New benefit sharing program extended to all properties with a dwelling or DA approval for a dwelling within 3km of a turbine.
- The benefit sharing program for those within 1-2km of an installed turbine includes base rate of \$2,500 per annum plus an amount per turbine for those with a WTG within 2km of their dwelling. This annual payment will be adjusted with CPI every year after the first year. Considerations have also been made for visual impact based on the assessments undertaken.
- The annual payment under benefit sharing program will be for the life of the project which will be between 25-30 years. This payment will begin once the Jupiter Wind Farm is fully commissioned and generating into the grid.

- Those neighbours with a dwelling or DA approval for a dwelling within 2-3km of a turbine will be eligible for an annual payment of \$2,500 for the life of the project (i.e. 25-30 years). This payment is subject to CPI. Similarly, considerations have also been made for visual impact based on the assessments undertaken. This will be in the form of a one-off visual impact mitigation measure payment for those eligible (with dwelling/with DA within 3km of a turbine) whose dwellings have been identified with a high or mod/high unmitigated visual rating and those dwellings with moderate visual ratings. This measure was put in place to enable landholders to choose mitigation options that best meet their individual needs.

A consultation log summarising frequency and method of consultation for each individual dwelling located within 3km of a WTG is provided in Annex D.

4.2.2 Consultation on other Project benefits

Throughout and subsequent to the public exhibition of the EIS consultation has been undertaken with local residents to inform them of the Community Enhancement Fund (CEF) that will be established following project approval and made available annually for community based projects where the broader community can benefit from funding provided by the Project.

The CEF will be based on a per turbine contribution for the life of the project and subject to CPI adjustments/increases.

The local residents could also benefit from improved infrastructure (such as mobile/internet reception improvements) as well as various opportunities such as scholarships/internships made available through the CEF program.

Following the project approval, the CEF will be managed through a committee that will be constituted under Section 355 of the Local Government ACT 1993 enabling councils to obtain the assistance of committees, including those constituted by external individuals (such as citizens from within or outside the local council area). The committee formed will be governing the CEF and each of the respective councils within the project area will be responsible governance for the committee. The committee will be required to comply with applicable council policies and statutory requirements.

EPYC is currently in consultation with both Goulburn Mulwaree Council and Queanbeyan-Palerang Regional Council with regard to council contributions and the finalisation of an agreement with each of the councils will be included as part of the Statement of Commitments.

4.3 Governmental Agency and non-Governmental Organisation Consultation – during and subsequent to the public exhibition of the EIS

Consultation has been undertaken with the relevant government departments and agencies and non-governmental organisations following the public exhibition of the EIS to further understand potential Project impacts associated with the exhibited layout. Consultation included briefings and information sharing to better understand the requirements of the key agencies. Table 4.2 below outlines the key agencies and organisations consulted during, and subsequent, to the public exhibition of the EIS.

Table 4.2***Governmental Agency and non-Government Organisation Consultation during and subsequent to the public exhibition***

Stakeholder	Organisations Consulted and Notified
Government Departments and Agencies	• Department of Planning and Environment (DP&E); • Goulburn Mulwaree Council; • Queanbeyan-Palerang Regional Council; • NSW Office of Environment and Heritage (OEH) (Queanbeyan office); • NSW Department of Trade and Investment (Resources and Energy); and • Civil Aviation Safety Authority (CASA).
Non-Government Agencies and Organisations	• TransGrid; • Heron Resources; • NSW Farmers Association; • Tallaganda Shire State Emergency Services Auxiliary; • Wamboin Rural Fire Brigade; • Former Palerang Local Government Area (Lake George office) Fire Control Centre

Throughout the RtS and PPR document, consultation with various government and agency entities is discussed and referenced. This consultation is at various stages and will be progressed during and following the submission of the RtS and PPR document to DPE. For some government and agency entities recommendations for environmental management conditions or measures associated with construction and operational phases of the Project are provided. These will be reviewed, discussed and agreed by the Proponent in consultation with DPE. At the time this document was prepared, it is envisaged that any environmental management measures would be finalised as part of the conditions of approval that are to be drafted and finalised by DPE.

4.4 Updates to project design

Following public exhibition of the EIS, EPYC undertook a thorough review of the submissions received from the governmental agencies, special interest groups (SIG) and the public to consider the changes which could be made to the Project to respond to the submissions and reduce environmental impacts. This process included consultation with the community and governmental agencies following the EIS exhibition as outlined in this chapter and input from relevant technical specialists.

Community consultation occurred throughout January and February 2017 in order to provide support for the community in their review of the EIS during the public exhibition period. These consultations aimed to further investigate specific concerns raised with respect to particular aspects of the Project and make the necessary design and layout adjustments where reasonably feasible and practicable.

The Project layout was revised and updated following consideration of the outcomes of the consultation. The updated Project is outlined in Chapter 5.

4.5 Updated Technical Assessments

Specialist assessments have been updated to respond to issues raised in the submissions and to assess the updated Project, and are included within this RtS report as follows:

Visual

An updated Visual Impact Assessment (revised VIA) has been prepared by Environmental Resources Management (ERM) as part of this RtS, which addresses the concerns raised throughout the response to submissions and EIS exhibition period. The full revised Visual Impact Assessment is contained with Annex E of this report.

Noise

An updated Wind Farm Noise Impact Assessment has been prepared by DNV-GL as part of the RtS, which addresses the concerns raised throughout the response to submissions and EIS exhibition period, and summarises the results of the updated assessment carried out on the revised Project layout. The updated Wind Farm Noise Impact Assessment is provided in Annex F of this report.

Traffic

An updated Transport Impact Assessment (TIA) has been prepared by GTA Consultants as part of the RtS to address the concerns raised throughout the submissions, and sets out an assessment of the anticipated transport implications of the revised Project, including consideration of the potential transport impacts during both construction and operational phases. The TIA is provided in Annex G of this report.

5 CHANGES TO THE PROJECT

5.1 Summary of Revisions to the Exhibited Project

A summary of the revisions made to the Project following the public exhibition period is provided in Table 5.1 below.

The exhibited Project layout is presented in Chapter 2, Figure 2.2 and the revised layout for the Updated Project is presented in Chapter 6, Figure 6.2. The revised layout remains subject to further detailed design and micro-siting that will be undertaken as required during construction to avoid and further reduce potential impacts. Any requisite micro-siting will be undertaken in accordance with the micro-siting allowance as outlined in conditions of development consent issued by DP&E.

Table 5.1 *Comparison of exhibited Project with Updated Project*

Exhibited Project	Updated Project
Project Area of 4,999ha	Project Area of 4,135ha – a reduction of 17%
Up to 88 WTGs	Up to 54 WTGs - a reduction of 39% The following 34 WTGs have been removed from the Project: • T14 – T21 • T23 • T25 • T29 • T32-33 • T35-36 • T42 • T47 • T51 • T54 • T60-67 • T77-79 • T81-82 • T85 • T88
Development footprint 86.3ha	Development footprint 53.75 ha (permanent) – a reduction of 35%
Northern and southern precinct	The southern precinct and all WTGs proposed within the southern precinct have been removed from the Project. No Project elements, with the exception of WT01, the existing meteorological monitoring mast and associated access road, will be located south of Kings Highway in the area formerly known as the southern precinct. . There will be no WTGs constructed south of the Kings Highway.
Layout of WTGs as per Figure 2.8	Layout of WTGs as per Figure 6.2. Refinements have also been made to the locations of a number of WTGs, access tracks, powerlines and associated infrastructure.
A total of 63 residences owned by non-participating landholders located within 2km of a proposed WTG (50 in the northern precinct, and 13 in the southern precinct).	No residences owned by non-participating landholders are located within 1 km of a proposed WTG. 34 residences owned by <i>non-participating</i> landholders located within 1-2km of a proposed WTG – a reduction of 46%
A total of 15 residences owned by participating landholders' located within 2km of a proposed WTG (13 in the northern precinct, and 2 in the southern precinct).	A total of 4 residences owned by participating landholders located within 1km of a proposed WTG, a further 8 located within 1-2km of a proposed WTG and 1 within 2-3km of a proposed WTG.

Exhibited Project	Updated Project
Two temporary construction compounds and mobile concrete batching plants, one in the northern precinct and one in the southern precinct.	One temporary construction compound and two mobile concrete batching plants to be located in the revised project areas.

5.2

Justification for Updated Project

The exhibited Project layout and design has been reviewed in light of the submissions received during the public exhibition. Each of the submissions received was separated into the individual issues raised by each submitter and these issues were considered based on merit and relative significance.

A decision has been made by EPYC to amend the Project in a way that responds directly to the concerns raised by the submitters and that will reduce the predicted environmental impacts across the full suite of technical areas.

Key factors that were considered when deciding which WTGs to remove are as follows:

- Specific issues/requests during community consultation with landowners within 3km during the public exhibition phase in late January 2017 and early February 2017.
- Government submissions and meetings, in particular OEH, regarding biodiversity and heritage concerns.
- Particular concerns of special interest group submissions.
- Public submissions, particularly those with concerns about the WTGs located in the southern precinct.

The main concern raised in submissions and ongoing consultation related to visual impacts. A visual consultant independent of the original visual assessment in the EIS was engaged to consider the concerns and undertake an updated assessment of the revised and reduced layout. The key aim of the visual assessment was to address the concerns raised during the exhibition and subsequent consultation and demonstrate the extent to which the visual impacts of the Project to non-host properties have been reduced as a result of the revised layout. The visual impact assessment found that, in summary, that the site and its surrounds have a low visual sensitivity to a wind farm development and is a suitable landscape for the construction of a wind farm (refer to Annex E – Updated Visual Impact Assessment for additional information).

Another key issue that was raised was noise, and the EIS identified that a noise exceedance for the original Project layout was predicted for a small number of dwellings at certain wind speeds within the vicinity of the PA. The revised layout was prepared with the aim of addressing these predicted noise exceedances. The noise impact assessment undertaken for the revised layout confirmed that the operation of the updated Project is predicted to be fully compliant with the wind farm noise limits (refer to Annex F – Updated Wind Farm Noise Impact Assessment).

In revising the Project layout particular consideration was also given to concerns regarding biodiversity, heritage, aviation safety, traffic, blade throw, shadow flicker, EMI/EMF as well as potential wind resource, proximity to nearby dwellings, constructability and other technical aspects.

The review process resulted in a decision being made to delete 34 turbines from the Project as well as relocate a number of the remaining turbines. As a result, the entire southern precinct was deleted from the Project.

5.3

Public Benefits

The revised Project will provide the following primary benefits, whilst balancing environmental issues and community concerns:

- In full operation the revised Project will generate up to 240MW of electricity which equates to up to 755 Gigawatt-hour (GWh) per year and is sufficient to power equivalent to up to 103,400 homes annually (calculated using the NSW Wind Farm Greenhouse Gas Saving Tool and based on average NSW household electricity consumption).
- Contributing to the additional generating capacity required to meet the growing energy demand in NSW, and improve security of supply through avoidance of reliance on electricity supply from other States and diversification of electricity generation sources and supply locations.
- Reduction in potential visual, noise, biodiversity, heritage, bushfire, and traffic concerns in comparison with the exhibited Project.
- Saving approximately 0.6 Mt of GHG emission in 2020, which is the equivalent of removing the order of 183,000 passenger vehicles from NSW roads each year during the operational life of the Project.
- Contribute toward the Federal Government's Renewable Energy Target of ensuring at least 33,000 GWh of Australia's electricity comes from renewable sources by 2020.
- Contribute toward the NSW 2021 plan target of 20% renewables energy by 2020.
- provide significant direct investment in the local economy, consisting of an estimated \$71 million during construction, and a further \$4.8 million per annum during operation
- Providing direct fulltime employment opportunities for an estimated 230 people during construction, and an estimated 22 staff during its operational life.
- Generating additional economic stimulus in the local area and broader region associated with indirect employment opportunities through the use of local contractors and suppliers during construction, and demand for local services, particularly during construction.

Secondary benefits from the updated Project will include comprise the following:

- Upgraded and safer local roads proximate to the Project (the extent of which would be confirmed following the pre and post-construction road dilapidation surveys).
- Improvement to the township of Tarago and other localities such as Boro, Lower Boro and Mayfield as a result of contributions to a CEF for the provision and enhancement of community projects, facilities and council funded local infrastructure projects.
- Additional income streams for the local community through benefit sharing with neighbouring landholders.

6

UPDATED PROJECT

This chapter contains an overview of the updated Project and summary of key Project components, as revised in response to the feedback received from the public exhibition, and includes supporting figures. It is referred to as the updated Project and should be compared with the overview of the exhibited Project presented in Chapter 2 to understand the changes that have been made to the Project since the EIS was prepared. The updated Project is being put forward to DP&E for assessment and determination. This chapter has been prepared to function as a Preferred Project Report.

6.1

Updated Project Overview

The proposed development involves the construction and operation of the Jupiter Wind Farm (the Project) within the Southern Tablelands Region of New South Wales (NSW) (refer Figure 6.1).

The updated Project layout is presented in Figure 6.2 and remains subject to further detailed design. Approval is sought to micro-site WTGs and associated infrastructure as set out in Chapter 5. Any requisite micro-siting will be undertaken in accordance with conditions of development consent issued by DP&E.

The updated Project Area (PA) covers an area of approximately 4,135ha spanning across the Goulburn Mulwaree LGA and the Queanbeyan-Palerang Regional Council (QPRC) (former Palerang LGA) (refer Figure 6.3). The PA remains situated approximately 5 km south east of the township of Tarago and approximately 18 km east of Bungendore.

The updated Project will involve construction of up to 54 WTGs (each WTG could have a maximum generation capacity of up to 4.5MW) and associated infrastructure with a total installed capacity of up to 240MW of renewable energy. The portion of the updated Project within the Goulburn Mulwaree LGA will consist of up to 20 WTGs, and the portion within the QPRC LGA will consist of up to 34 WTGs. Each WTG will have a maximum tip height of 173 m above ground level. Depending on the number of turbines ultimately approved and constructed, the Project will generate up to approximately 754 GWh of electricity annually.

The WTGs will be located across a number of involved landholder lots as shown in Figure 6.4.

The location of dwellings (existing and approved) in the vicinity of the updated Project is shown in Figure 6.5. The updated Project spans across land zoned RU1 – Primary Production and E3 – Environmental Management as shown in Figure 6.6.

There is a Crown Land parcel through which the proposed 33kV transmission line passes along the Goulburn-Braidwood Road (Lot 7004 DP1020765) (refer Figure 6.7). A number of additional Crown Land parcels are located immediately adjacent to the PA. In addition, within the PA, there are several crossings that occur on unformed Crown roads (often referred to as ‘paper roads’), and therefore are not evident on the ground. The proponent has initiated consultation with Crown Lands and the necessary approvals to cross these unformed Crown roads will be sought through further consultation with Crown Lands after project approval and prior to commencement of construction.

The WTG’s located south of the transmission line will be connected to the substation via a 33kv transmission line alignment along the road reserves of Goulburn- Braidwood Road. When the 33kv transmission line reaches the 330kv line, it will run parallel to the existing TransGrid 330kV transmission line easement with the existing 330 kV transmission line through the PA to the on-site substation. The 33 kV transmission line will be built as either an above ground line consisting of poles and wires, or a buried underground cable (or a combination of both) with underground being the preferred option. The overall construction type will be determined during detailed Project design in consultation with relevant electrical suppliers and regulatory authorities.

There are currently three temporary meteorological monitoring masts located within the PA, which may be replaced with 2-3 permanent monitoring masts during project construction. The monitoring masts will assist in verifying the performance of the WTGs during operation of the Project. It is anticipated that the permanent masts will be 110 m AGL and would be supported by a small concrete foundation and guy wires. The location of the permanent monitoring masts will be confirmed during detailed design.

Environmental values that have been identified within the vicinity of the PA (as mapped by Goulburn Mulwaree and Queanbeyan-Palerang Regional Council (QPRC/former Palerang LGA)) are illustrated in Figure 6.8 and mineral exploration licences and known mineral deposits in the area are presented in Figure 6.9. Conservation areas are shown in Figure 6.10. The minimum lot sizes of surrounding rural lands and the draft Palerang Rural Lands Strategy rural residential zoning potential are shown in Figures 6.11 and 6.12, respectively.

There are a number of other wind farm developments that are operational, approved or seeking approval within approximately 100km of the Project and these are shown in Figure 6.13.

The obstacle lighting plan has been revised to align with the updated Project and is presented as Figure 6.14. A total of 31 of the WTGs will be lit and 23 will be unlit.

6.2

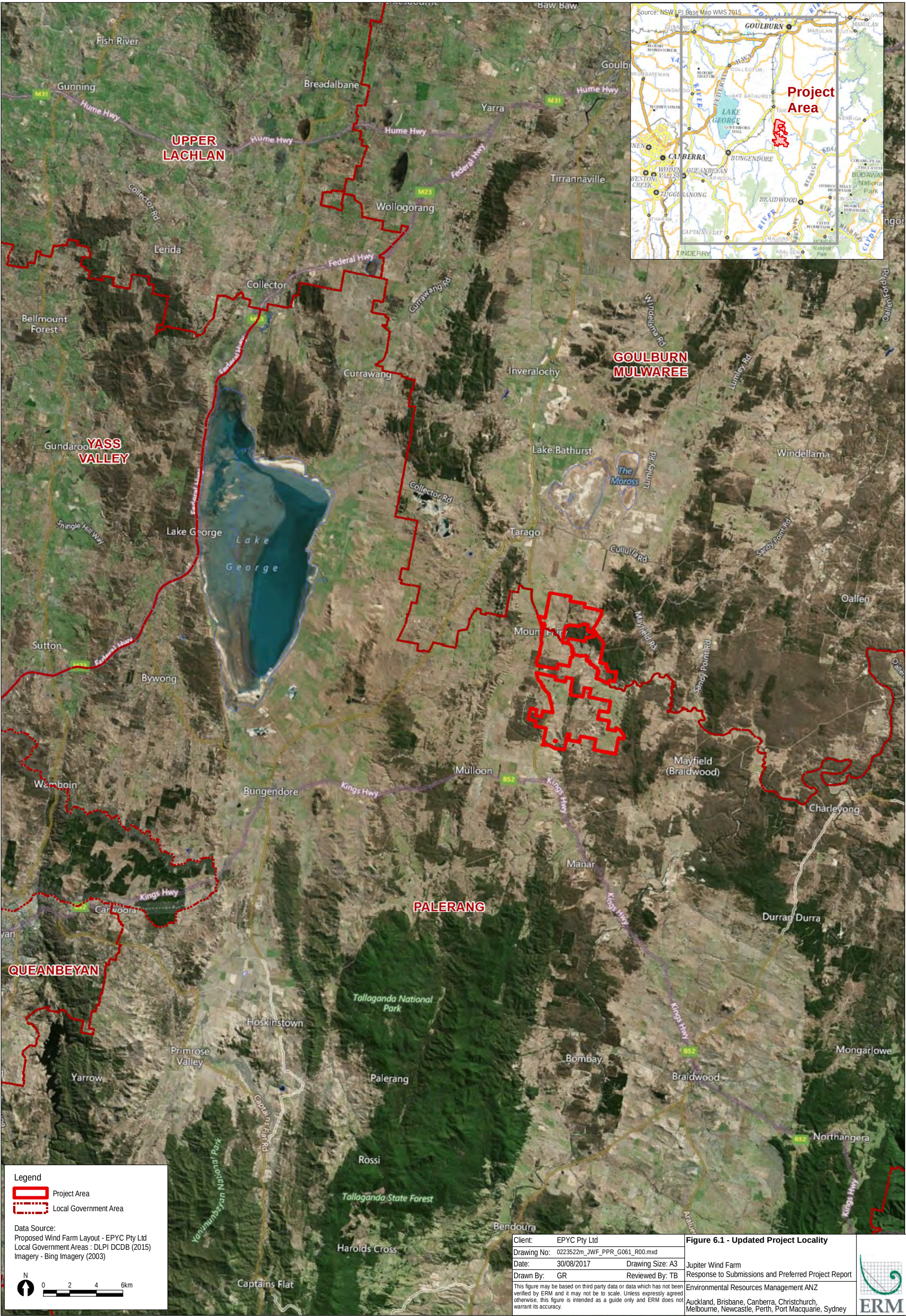
Project Components

The Project will consist of the following components:

- Up to 54 WTGs each with:
 - three blades mounted on a tubular steel tower, with a combined height of blade and tower limited to a maximum tip height of 173 metres AGL; and
 - An adjacent pad mounted wind turbine transformer (which may also be located within the steel tower), crane hardstand area, and related turbine lay down area.
- An electrical substation and switchyard, including transformers, switchgear, insulators and other ancillary equipment located adjacent to the 330kv Transmission line.
- A permanent operations and maintenance building, located adjacent to the substation site.
- An internal private access road network connecting the WTGs and the Project to the public road network.
- 33 kV electrical reticulation and fibre optic cabling connecting the WTGs (installed predominantly underground, with some sections aboveground if required by topographical or other constraints), and located generally along the same alignment as the internal private access road network.
- A 33 kV transmission line connecting the 33 kV electrical reticulation networks extending along the road reserve of Goulburn- Braidwood Road.
- A short 330 kV above ground transmission line connecting the on-site substation to the existing TransGrid 330 kV transmission line which passes through the PA.
- Minor upgrades to local roads as required for the delivery, installation and maintenance of WTGs and related facilities outlined above.
- Up to three permanent meteorological monitoring masts.

The following elements will also be required during construction of the Project:

- Temporary mobile concrete batching plant to supply concrete for turbine footings and substation construction works. Two representative locations and supporting access roads are nominated for the batching plant (Figure 6.2).
- Cleared hardstand areas for construction equipment and storage (construction laydown areas).
- Temporary buildings and facilities for construction personnel/equipment.
- Generators to provide temporary electricity during construction.
- Supply of potable water that is trucked onto the site for concrete batching and general construction activities.



Project Area

Local Government Area

Data Source:

Proposed Wind Farm Layout - EPYC Pty Ltd

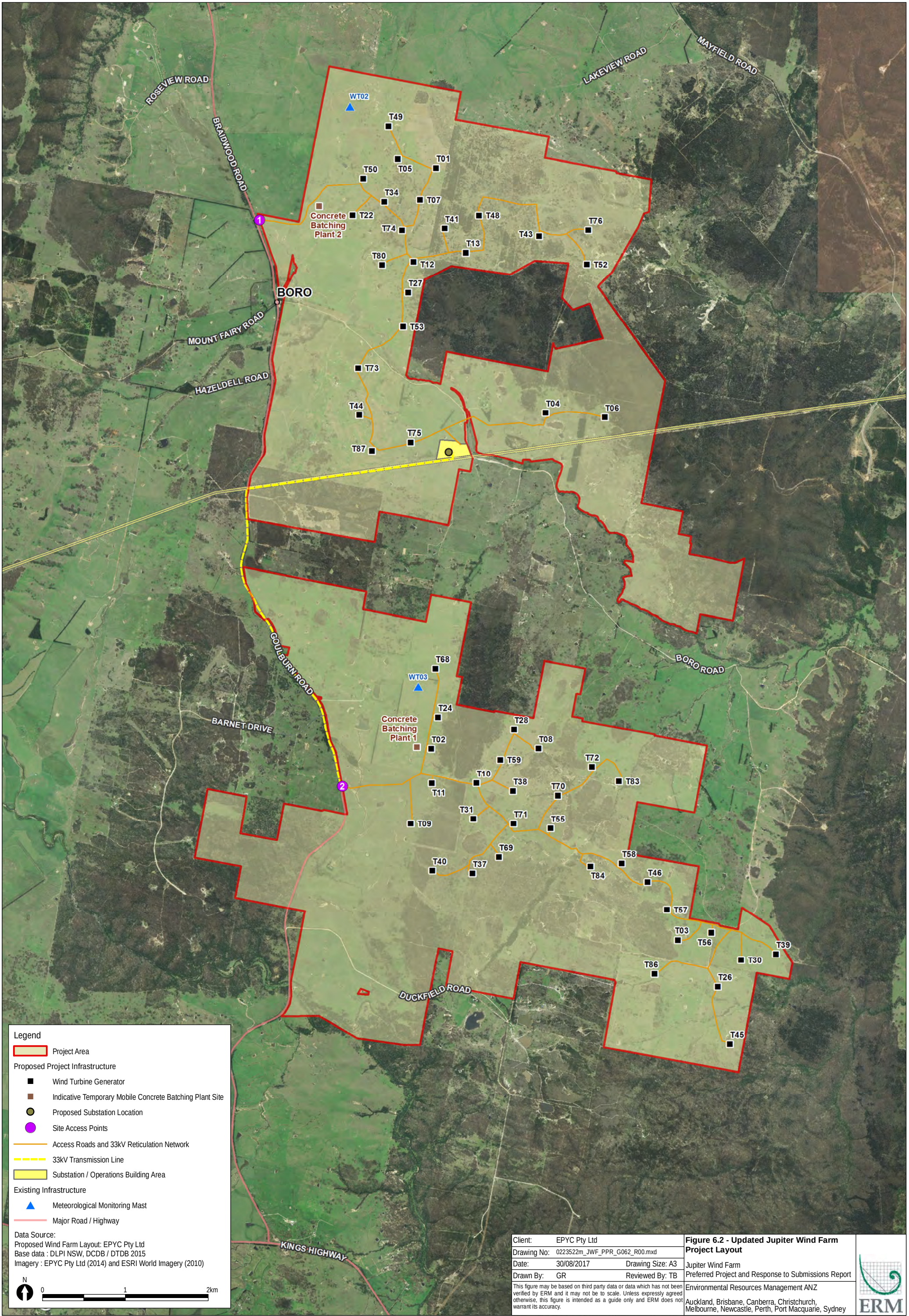
Local Government Areas : DLPI DCDB (2015)

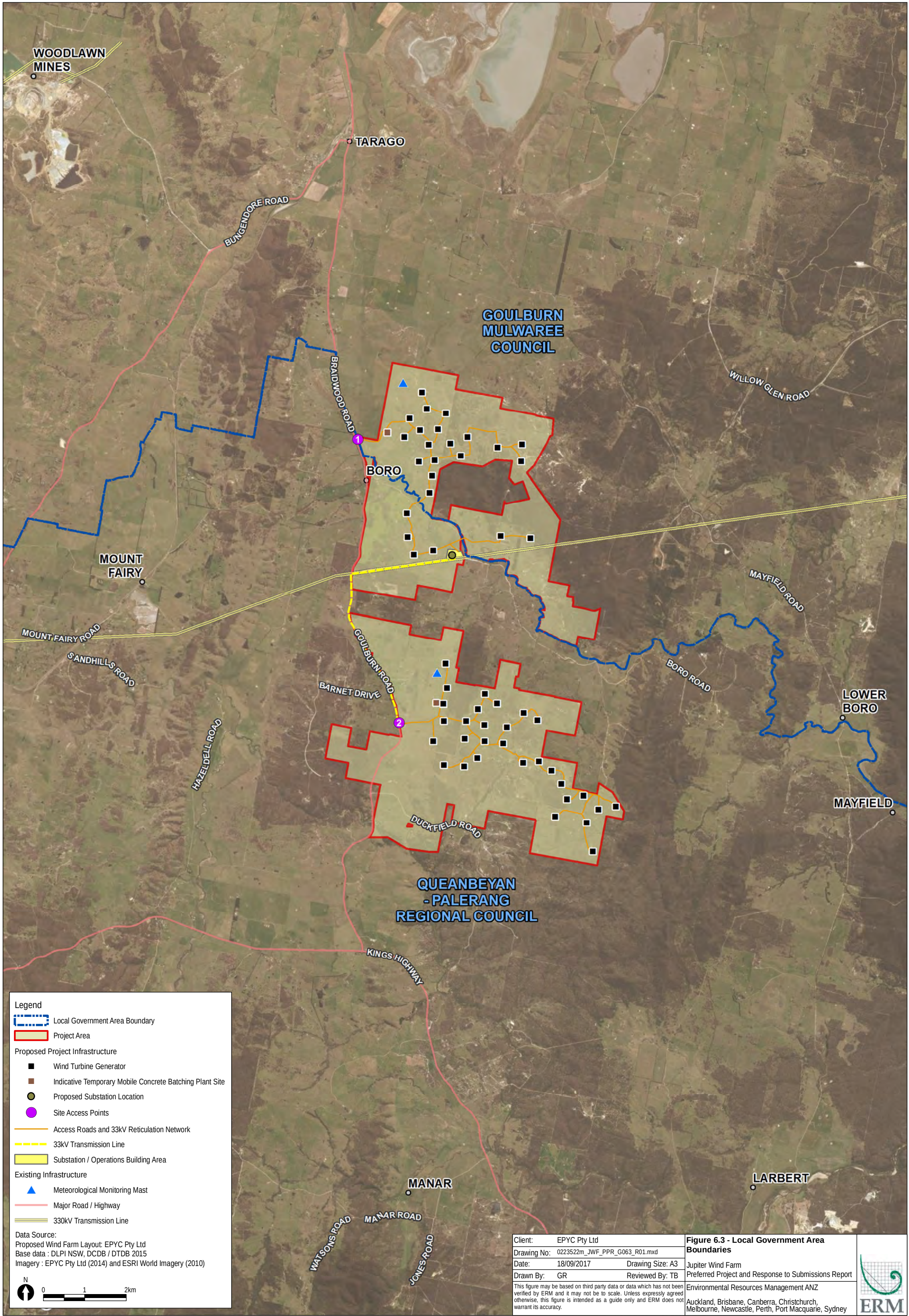
Imagery - Bing Imagery (2003)

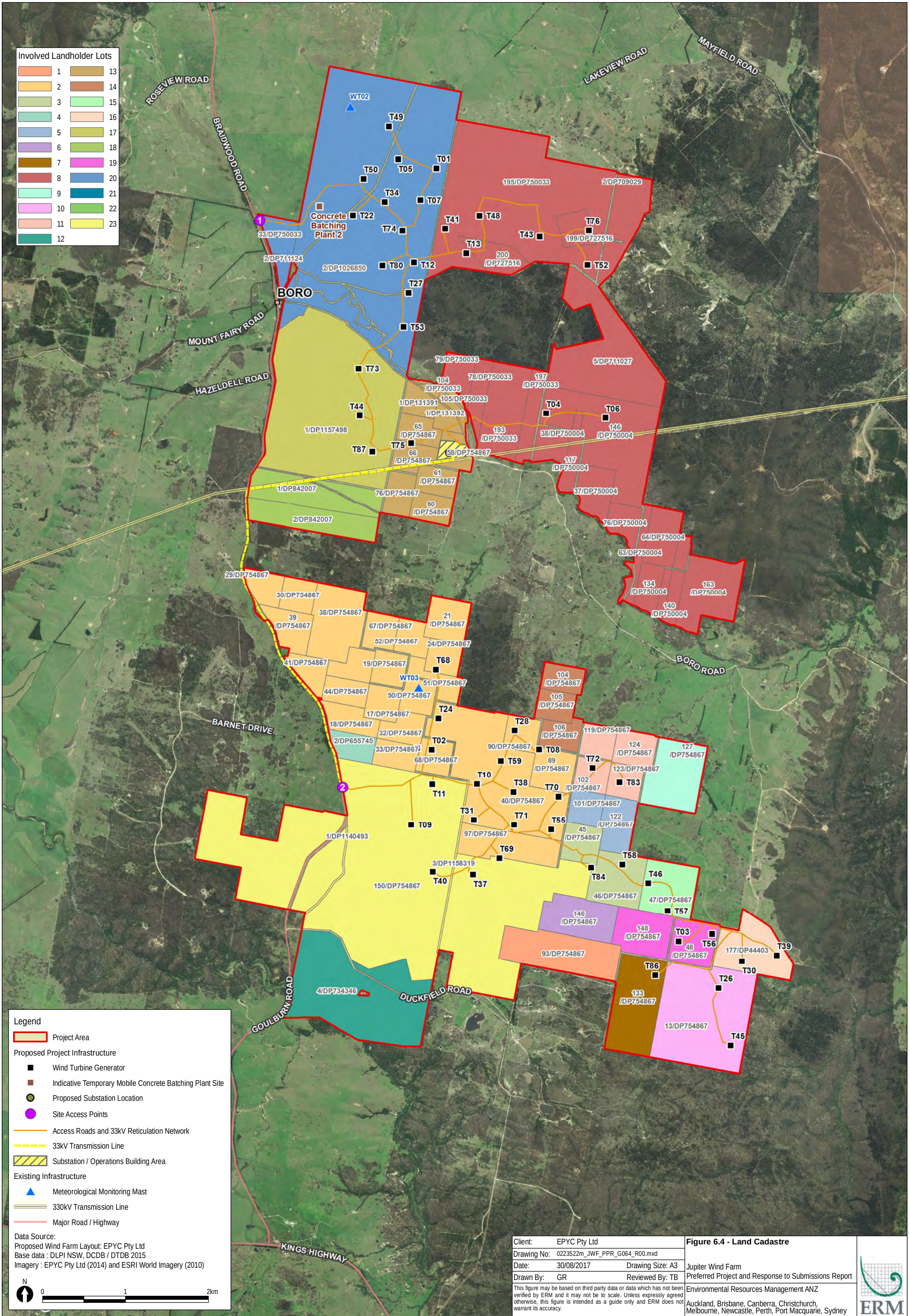
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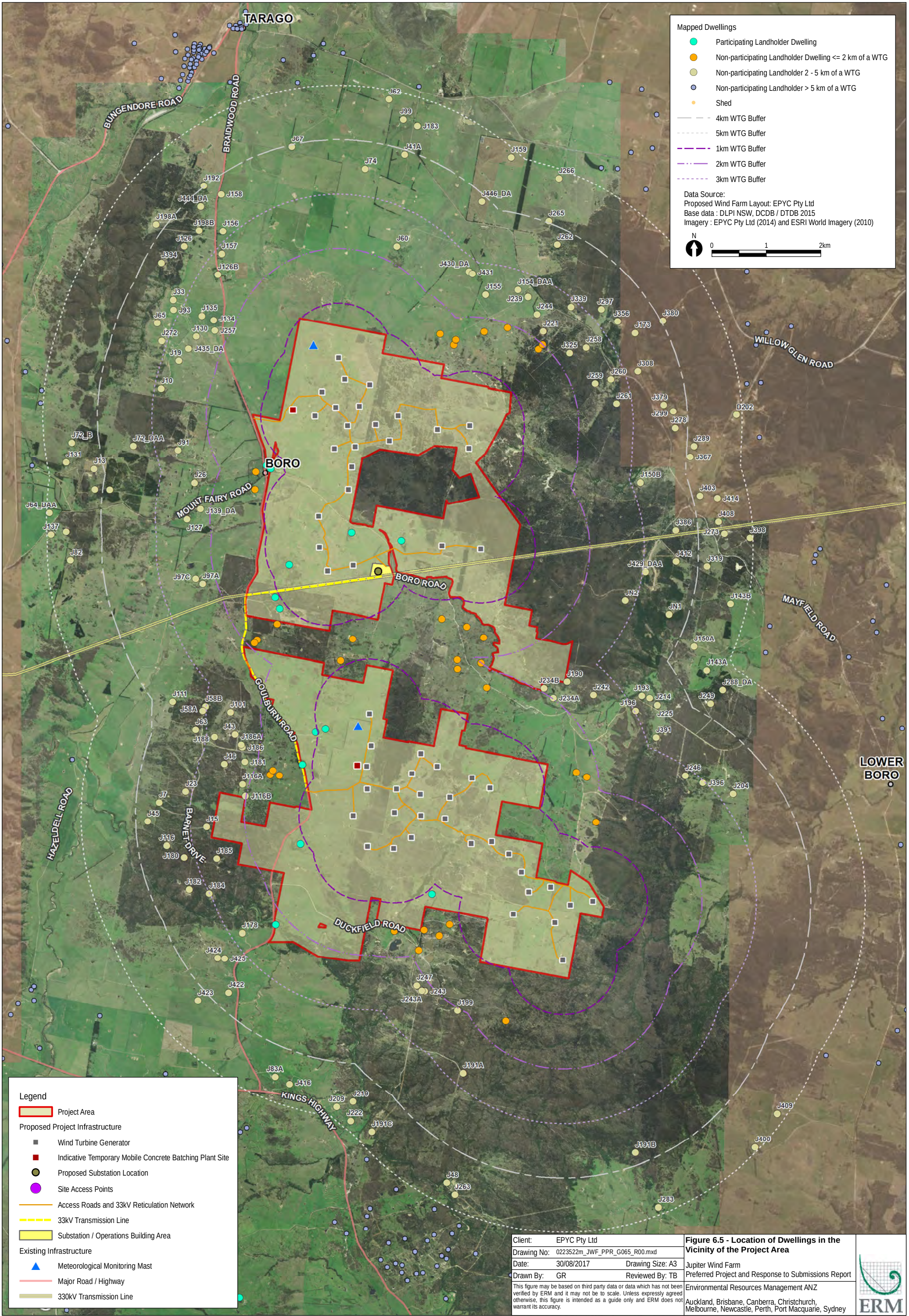
0 2 4 6km

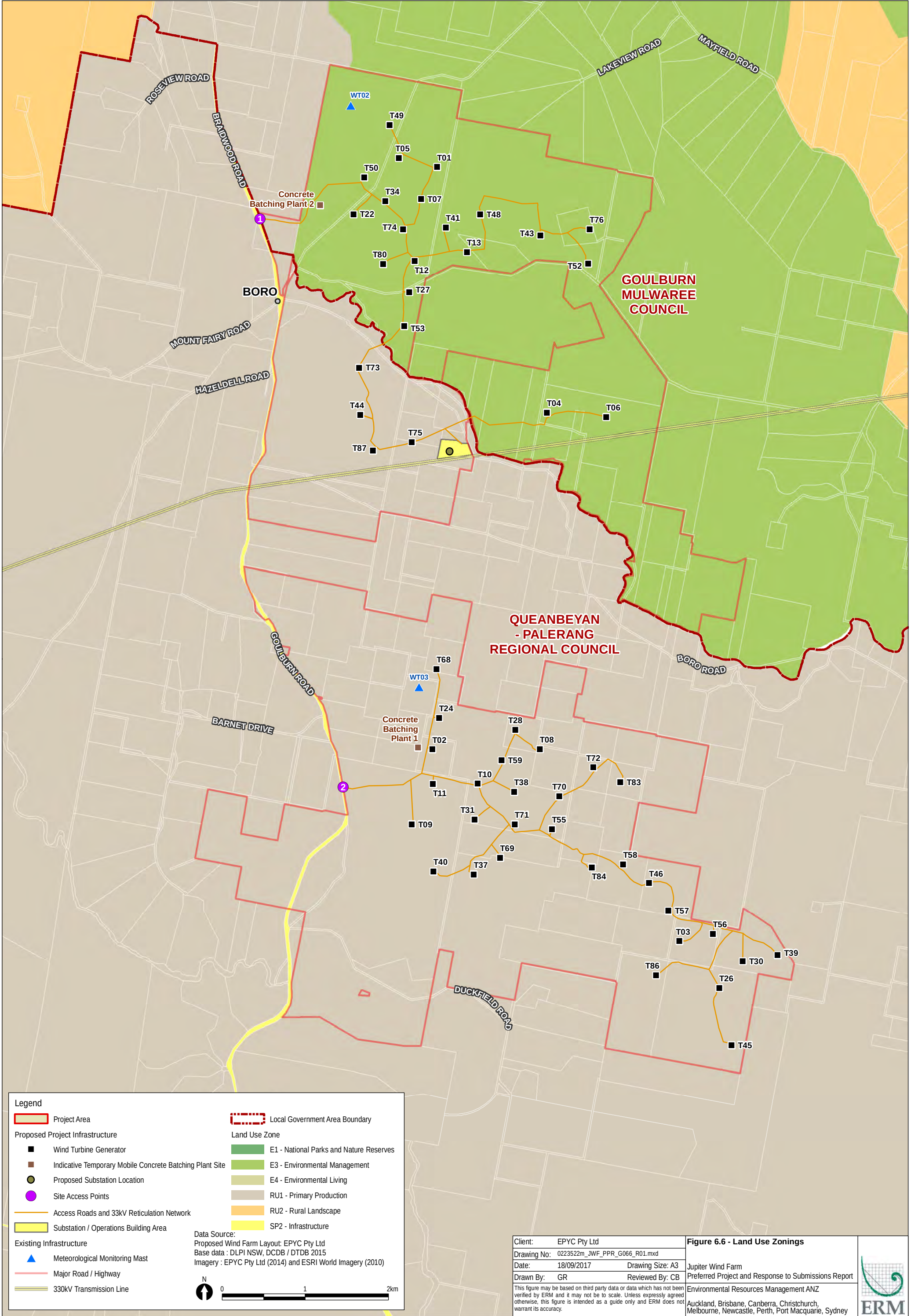
Client:	EPYC Pty Ltd	Figure 6.1 - Updated Project Locality
Drawing No:	0223522m_JWF_PPR_G061_R00.mxd	Jupiter Wind Farm
Date:	30/08/2017	Response to Submissions and Preferred Project Report
Drawn By:	GR	Reviewed By: TB
This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.		Environmental Resources Management ANZ
		Auckland, Brisbane, Canberra, Christchurch, Melbourne, Newcastle, Perth, Port Macquarie, Sydney

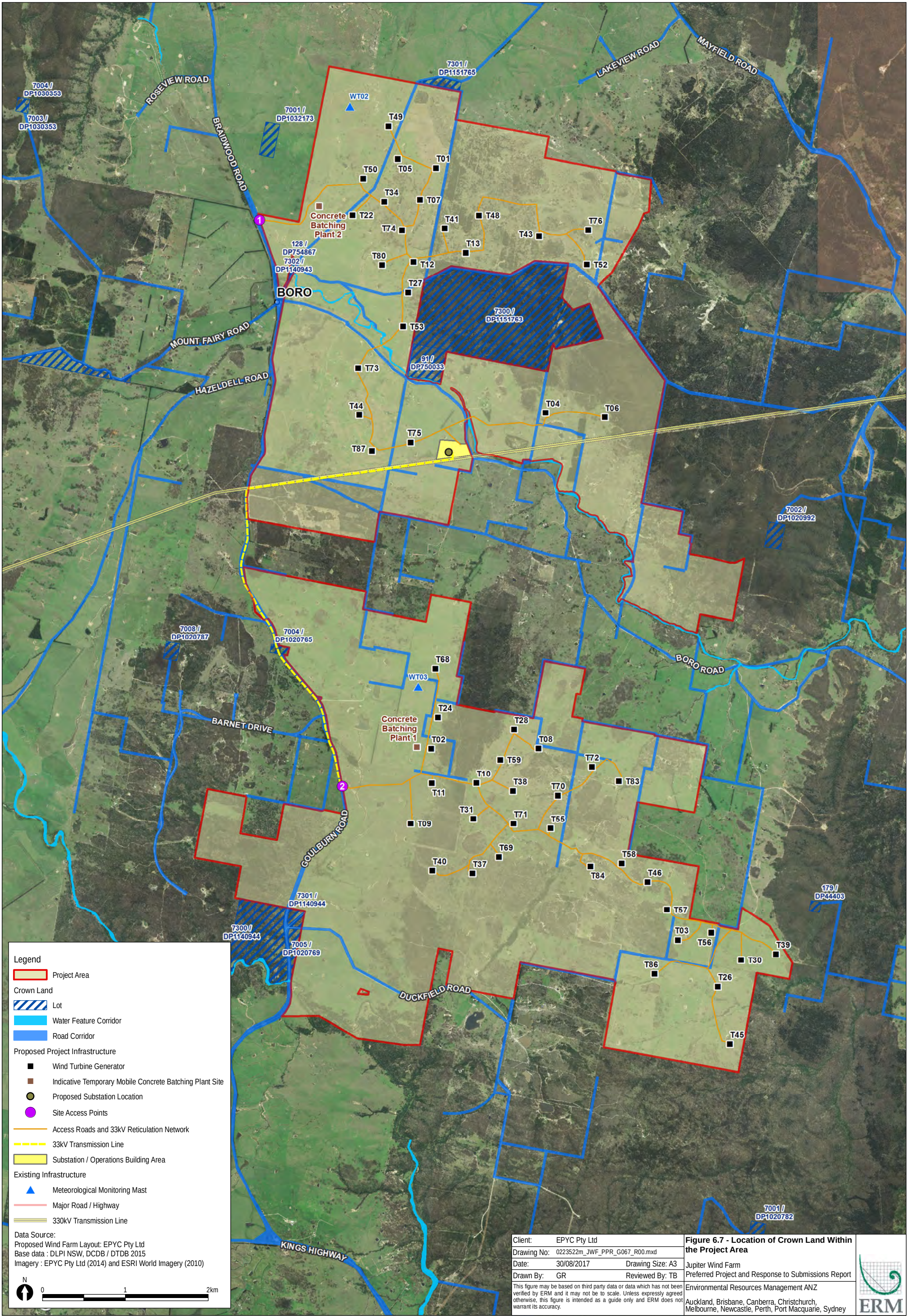


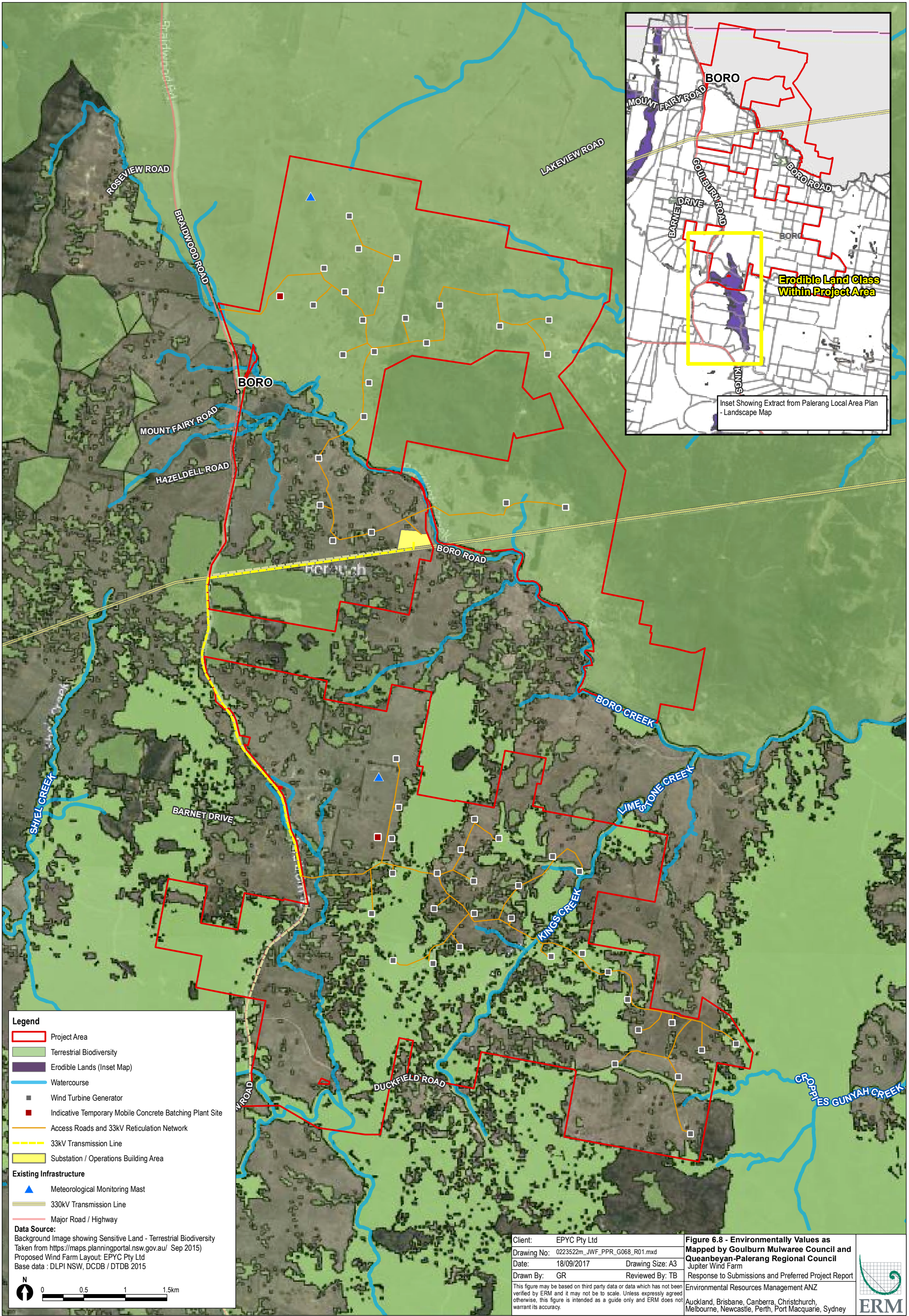


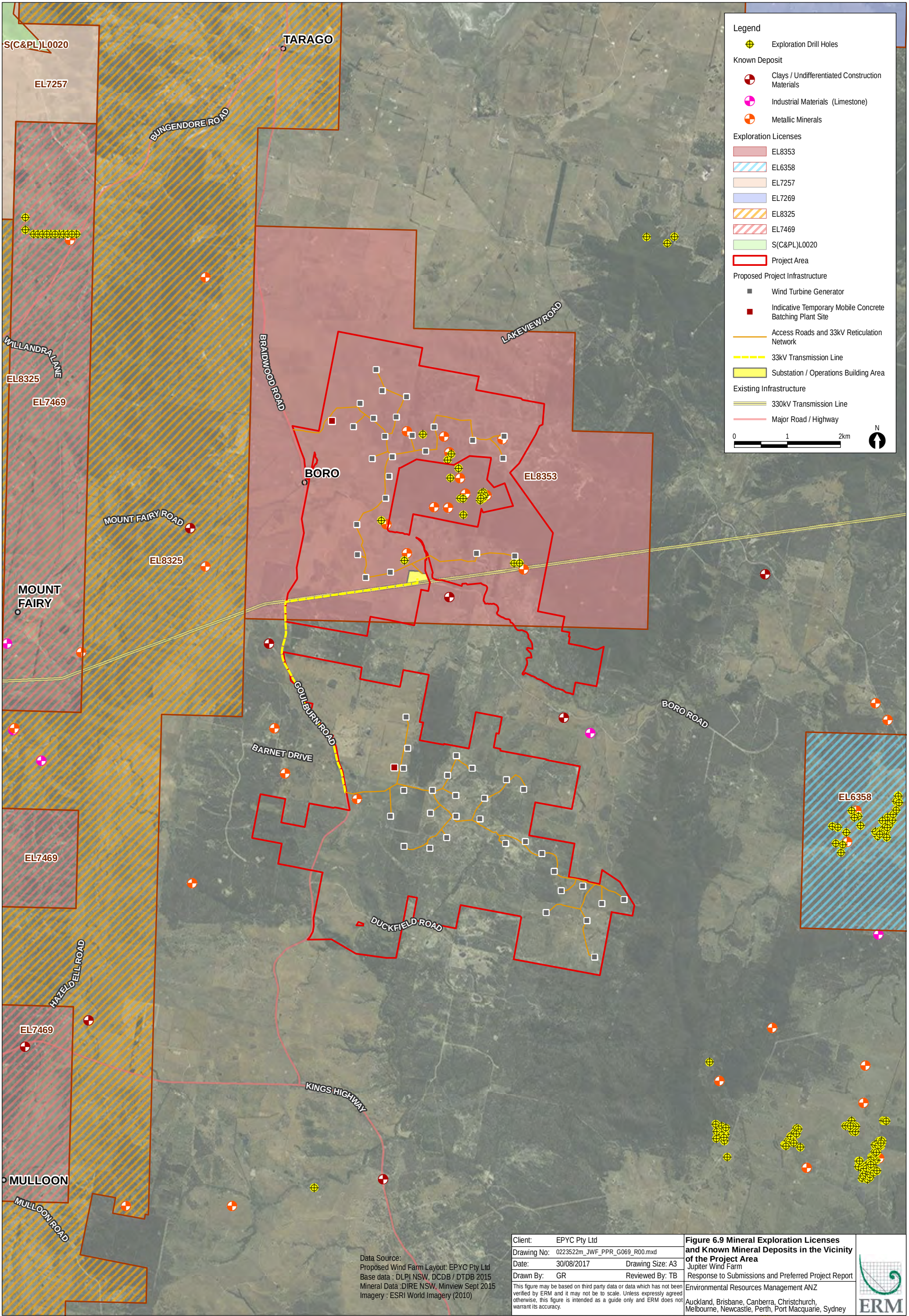










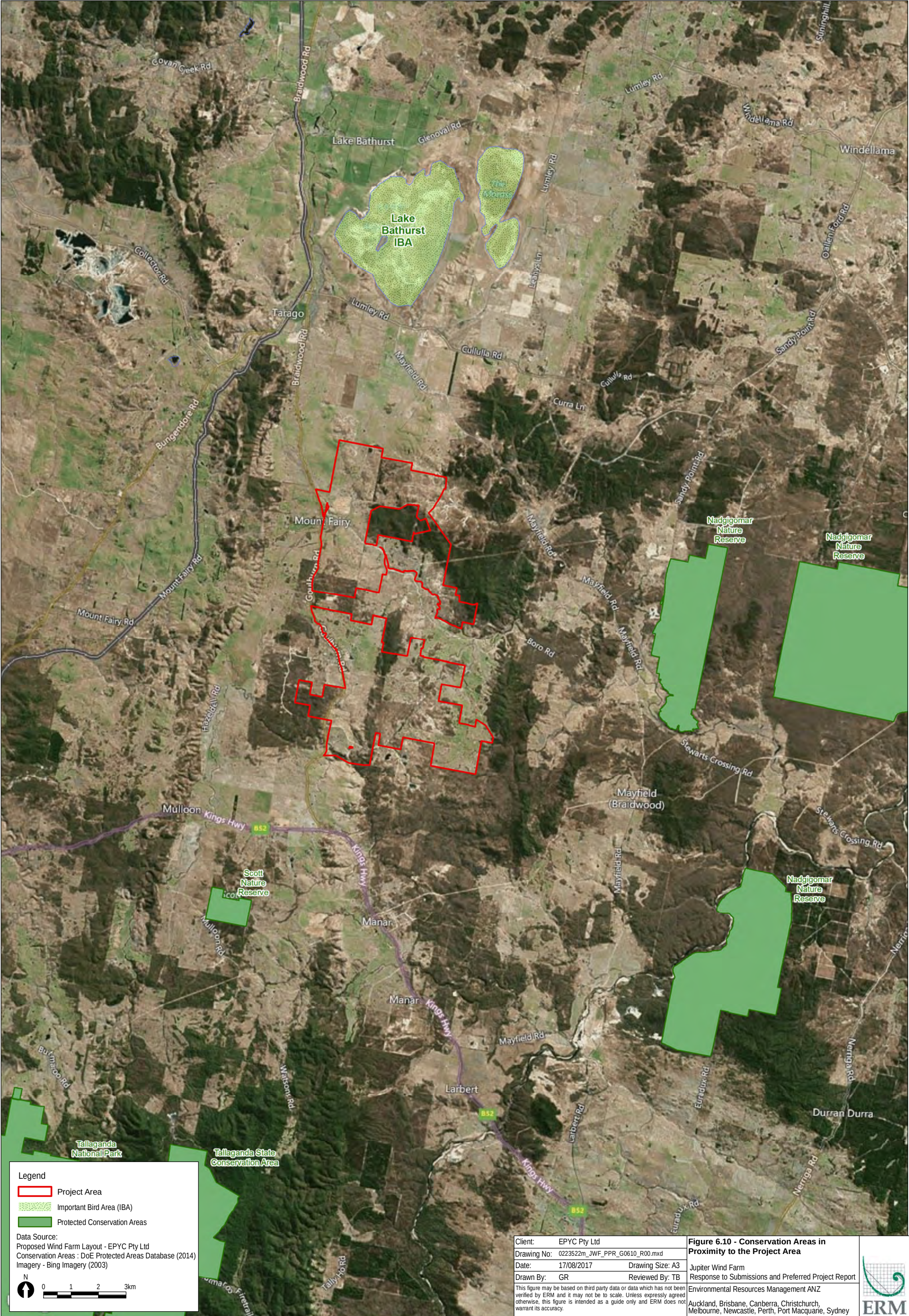


Data Source:
Proposed Wind Farm Layout: EPHY Pty Ltd
Base data : DLPI NSW, DCDB / DTDB 2015
Mineral Data :DIRE NSW, Minview Sept 2015
Imagery : ESRI World Imagery (2010)

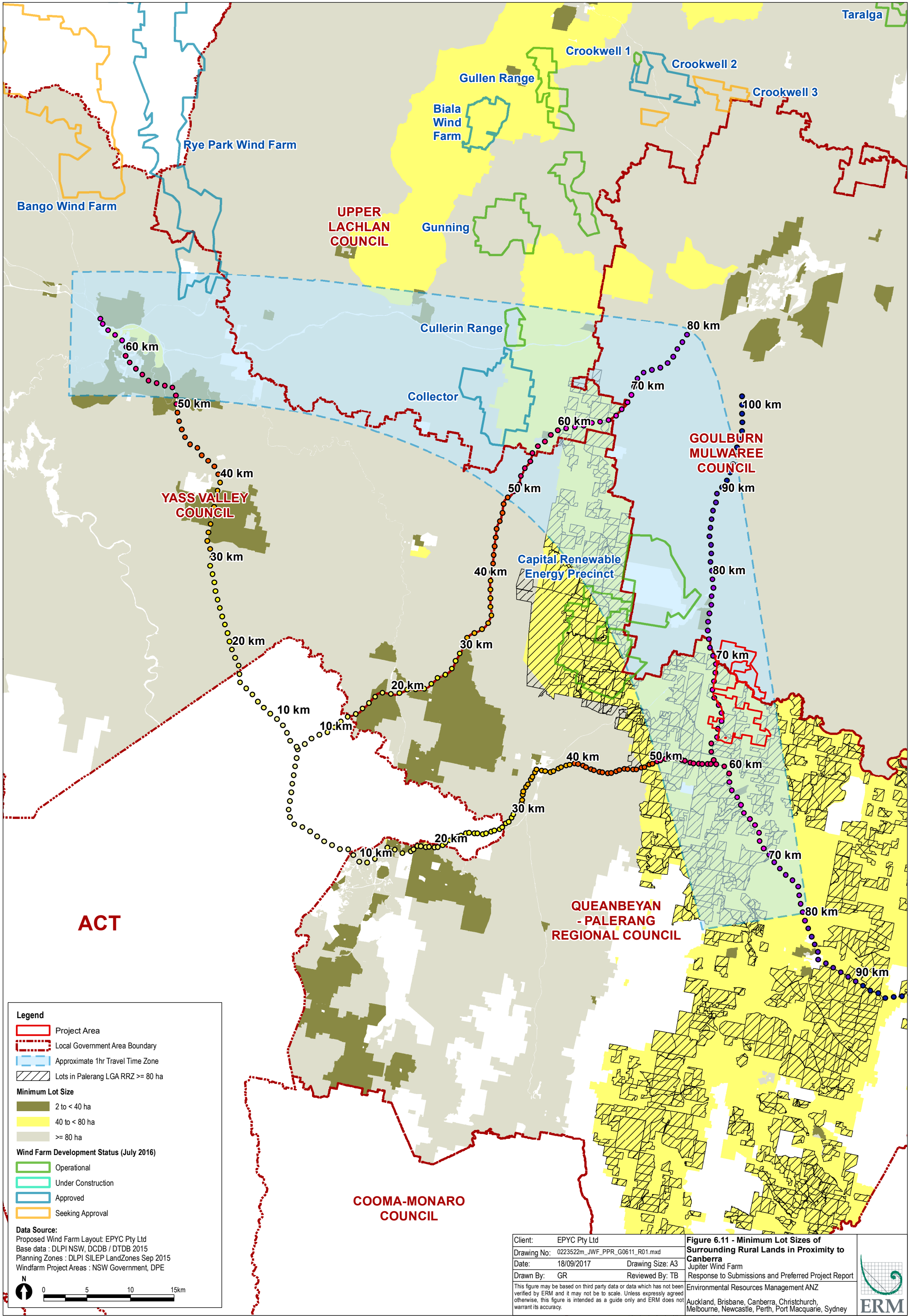
Client:	EPYC Pty Ltd
Drawing No:	0223522m_JWF_PPR_G069_R00.mxd
Date:	30/08/2017
Drawn By:	GR
Reviewed By:	TB
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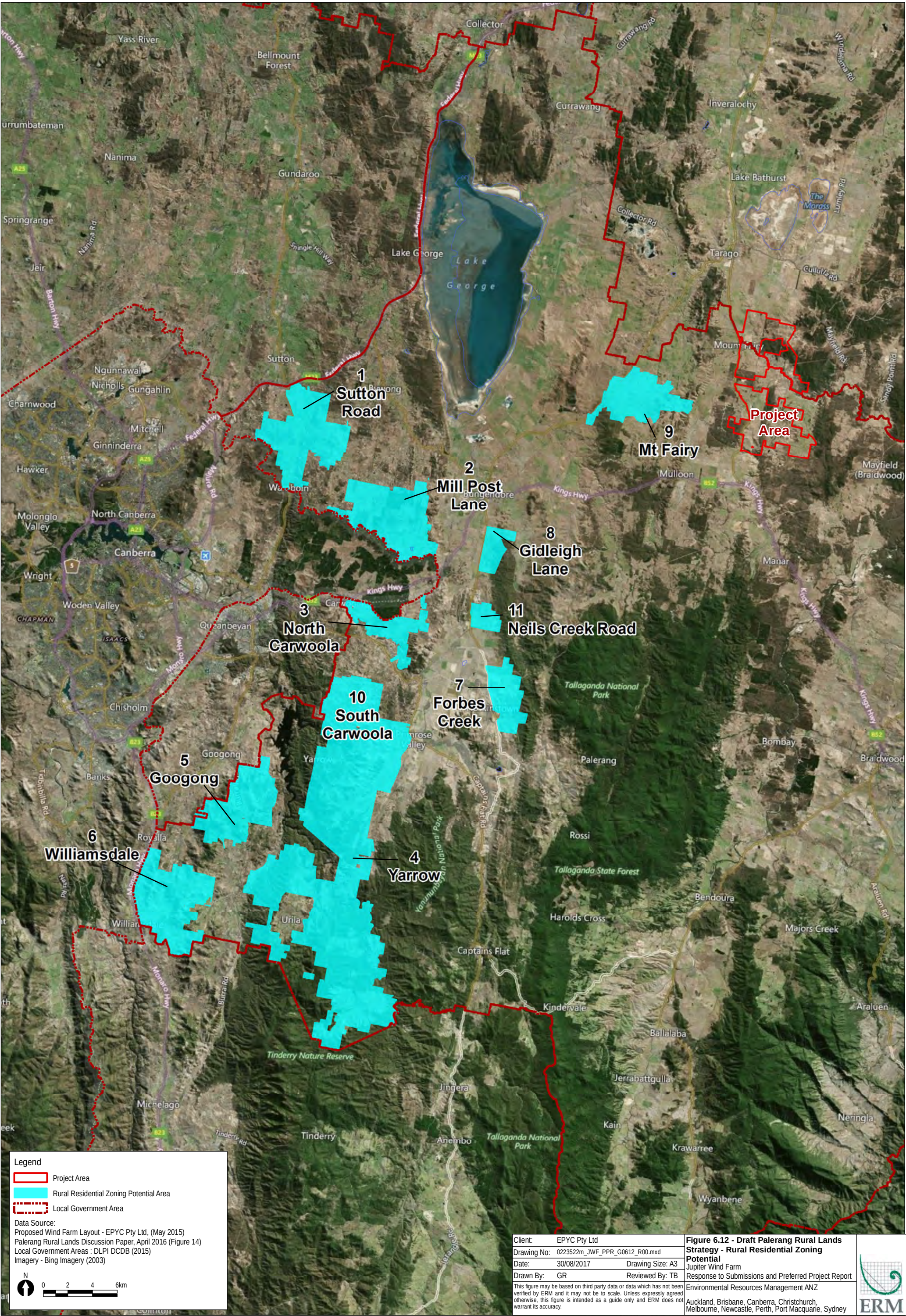
Figure 6.9 Mineral Exploration Licenses and Known Mineral Deposits in the Vicinity of the Project Area
Jupiter Wind Farm
Response to Submissions and Preferred Project Report
Environmental Resources Management ANZ
Auckland, Brisbane, Canberra, Christchurch, Melbourne, Newcastle, Perth, Port Macquarie, Sydney





Client: EPYC Pty Ltd		Figure 6.10 - Conservation Areas in Proximity to the Project Area Jupiter Wind Farm Response to Submissions and Preferred Project Report Environmental Resources Management ANZ Auckland, Brisbane, Canberra, Christchurch, Melbourne, Newcastle, Perth, Port Macquarie, Sydney	
Drawing No: 0223522m_JWF_PPR_G0610_R00.mxd			
Date: 17/08/2017	Drawing Size: A3		
Drawn By: GR	Reviewed By: TB		
This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.			





Legend

Project Area

Rural Residential Zoning Potential Area

Local Government Area

Data Source:

Proposed Wind Farm Layout - EPYC Pty Ltd, (May 2015)

Palerang Rural Lands Discussion Paper, April 2016 (Figure 14)

Local Government Areas : DLPI DCDB (2015)

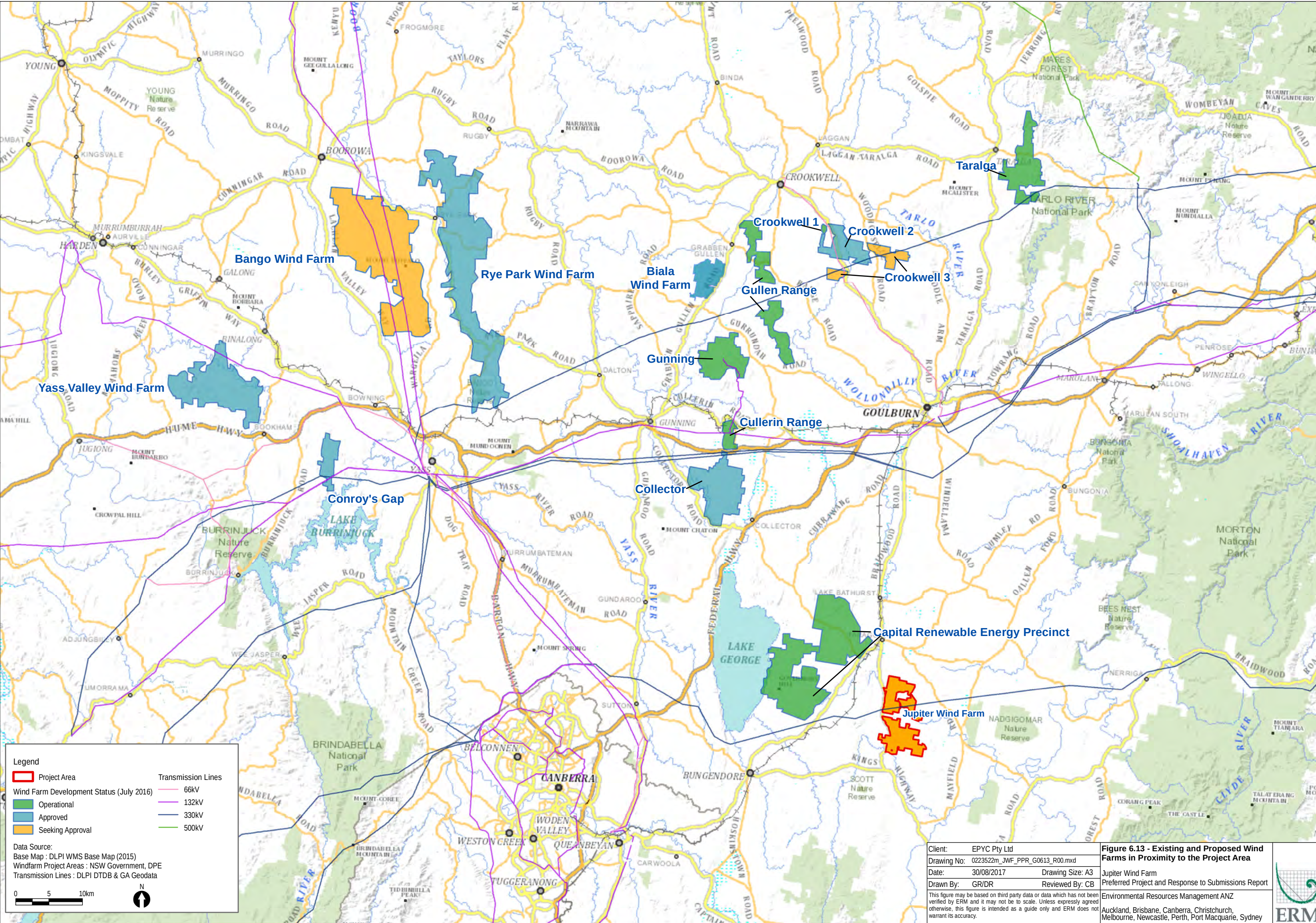
Imagery - Bing Imagery (2003)

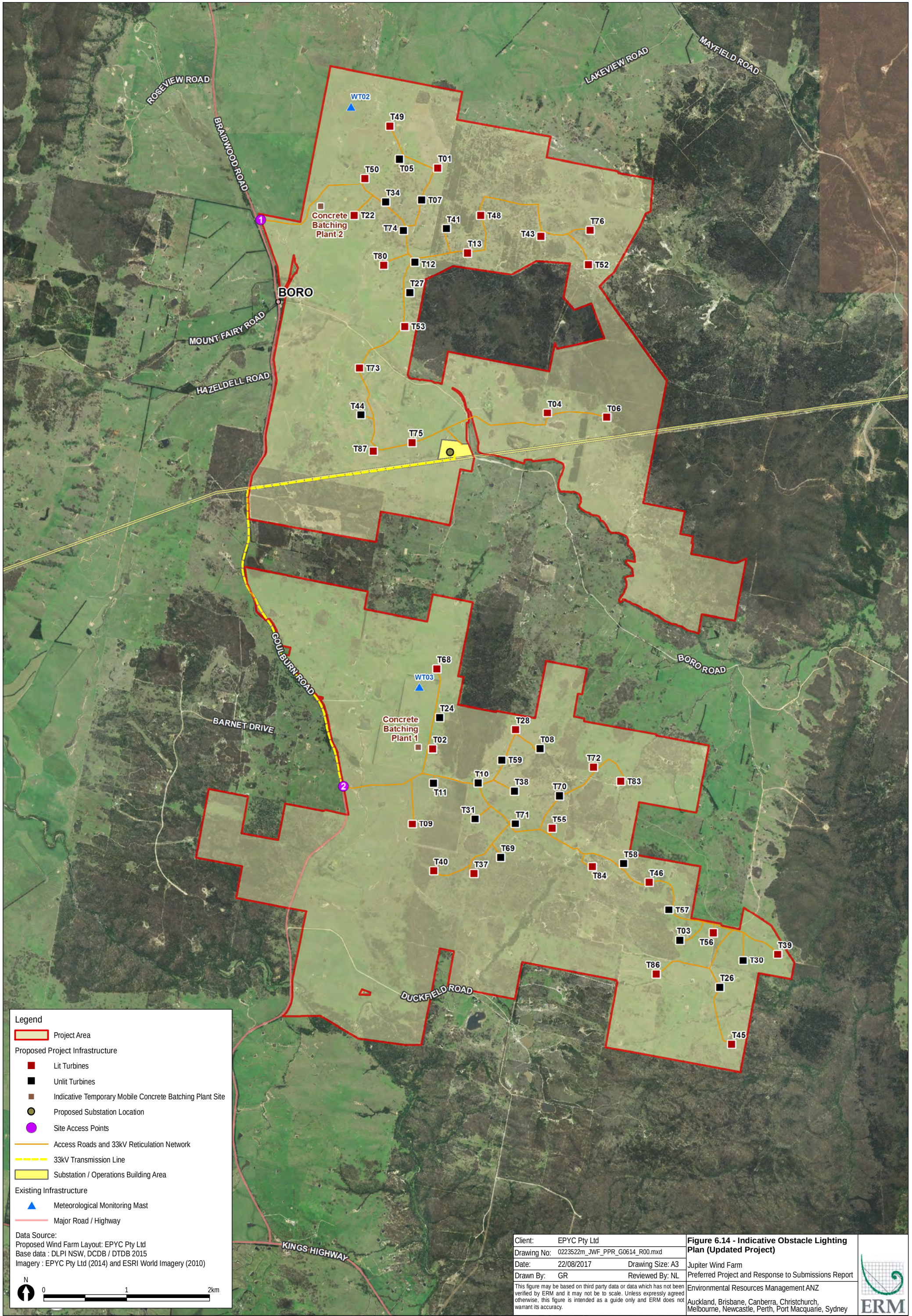
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0246km

Client:	EPYC Pty Ltd	Figure 6.12 - Draft Palerang Rural Lands Strategy - Rural Residential Zoning Potential Jupiter Wind Farm Response to Submissions and Preferred Project Report Environmental Resources Management ANZ Auckland, Brisbane, Canberra, Christchurch, Melbourne, Newcastle, Perth, Port Macquarie, Sydney	
Drawing No:	0223522m_JWF_PPR_G0612_R00.mxd		
Date:	30/08/2017		
Drawn By:	GR		
Reviewed By:	TB		

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Client:	EPYC Pty Ltd
Drawing No:	0223522m_JWF_PPR_G0614_R00.mxd
Date:	22/08/2017
Drawn By:	GR
Reviewed By:	NL
This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.	

Figure 6.14 - Indicative Obstacle Lighting Plan (Updated Project)

Jupiter Wind Farm
Preferred Project and Response to Submissions Report
Environmental Resources Management ANZ
Auckland, Brisbane, Canberra, Christchurch,
Melbourne, Newcastle, Perth, Port Macquarie, Sydney



7

RESPONSE TO SUBMISSIONS

A summary of the key issues raised in the submissions received during the public exhibition of the EIS is provided in this chapter.

This chapter should be read in conjunction with:

- Annexure A which contains a table outlining and responding to the issues raised in the submissions received from governmental agencies;
- Annexure B which contains a table summarising and responding to the issues raised in the submissions received from special interest groups and industry representatives; and
- Annexure C which contains a table summarising and responding to the issues raised in the submissions received from the broader public.

Throughout Annexure A, Annexure B and Annexure C of this submissions and preferred project report some submissions are responded to with “Comment Noted” or similar. This statement is provided in recognition and acknowledgement of the submission but does not imply any commitment to suggestions, recommendations, mitigation or management measures etc contained within the submission itself. In these circumstances the submission is noted and the environmental factor considered within the context of the Updated Statement of Commitments and preferred project evaluation, however some suggestions, recommendations, mitigation or management measures etc may not be warranted, or may not be possible based on the information available at the time the report was prepared.

7.1

Government and Industry Submissions

Submissions were received from governmental agencies and industry as listed in Table 3.1. A summary of the main issues raised throughout the governmental agency and industry submissions is provided in the section below. Detailed discussion of the individual issues raised in each governmental agency submissions is provided in Annex A.

NSW Health

NSW Health confirmed that they have undertaken an extensive review of the EIS. NSW Health stated that the EIS appears to comprehensively address any potential public health issues, particularly in regard to noise, vibration, shadow flicker and blade glint and the proposed monitoring, controls and mitigation measures appear to be adequate. NSW Health stated that they would raise no objection to the development it complies with the recommendations provided throughout the EIS (including the preparation of comprehensive CEMP's and OEMP's) and meets the requirements of the Draft NSW Planning Guidelines: Wind Farms. NSW Health also made recommendations for any private potable water supply provided to the operations and maintenance building.

Queanbeyan Palerang Regional Council (QPRC)

The submission provided by QPRC was separated out into comments on the traffic impacts of the project and broader comments on the EIS.

The EIS was reviewed by the Council's planning staff, which resulted in a number of issues relating to multiple environmental disciplines, including but not limited to:

- visual impacts and inadequate mitigation measures having potential to increase bushfire risk to nearby homes;
- increased noise during construction periods;

- impact on the ability to undertake aerial firefighting duties; and
- adequacy of the noise and visual impact assessments.

These comments have been specifically addressed in the table contained in Annex A of this report.

Issues relating to traffic generation, distribution and impacts to roads during construction were all outlined in the submission. An updated Traffic Impact Assessment has been prepared to address the issues raised relating to traffic generation and distribution and the potential impact to designated road routes. Please refer to Annex G for the updated Traffic Impact Assessment.

Environmental Protection Authority (EPA)

The EPA submission identified a number of broader environmental issues that DP&E may wish to consider in its overall assessment of the application including:

- Noise impacts during construction and operation of the wind farm;
- Air and water impacts; and
- Waste and contamination issues.

These comments have been specifically addressed in the table contained in Annex A of this report. In particular:

- Noise impacts during construction and operation will be managed through the preparation of Construction and Operational Environmental Management Plans, which will include the preparation of Noise Management Plans for both construction and during operations.
- Air quality impacts during construction will be managed via an Air Quality Management Plan (AQMP) which will form part of the Construction Environmental Management Plan (CEMP). The CEMP will also include specific measures and controls to manage the potential impacts of the Project on water during construction.
- A Waste Management Plan to be prepared as part of the CEMP to ensure that waste generated during construction is appropriately managed and lawfully disposed of.

The EPA's submission also included recommended conditions of consent regulating noise and blasting impacts. Ongoing consultation is occurring with EPA in relation to the EPA's recommended conditions.

Department of Primary Industries

The Department of Primary Industries (DPI) submission related mainly to the preliminary Decommissioning and Rehabilitation Plan, including requesting that it incorporate additional information on the current agricultural productivity of the project site (including agricultural practices, pasture components, weed levels, soil surveys and landform assessments). The preliminary Decommissioning and Rehabilitation Plan will be updated following project approval and prior to construction of the Project as required by any conditions of approval. It is expected that if consent is granted it will be issued subject to conditions imposing detailed rehabilitation objectives and a requirement to carry out progressive rehabilitation of all areas of the site not proposed for future disturbance as soon as reasonably practicable following construction or decommissioning.

DPI also commented regarding project activities within waterways and riparian areas, and asked to be consulted during relevant activities during project construction and during the preparation of the project CEMP.

DPI also recommended a number of mitigation measures which will be incorporated during construction of the project. Ongoing consultation is occurring with DPI in relation to the DPI's recommended conditions

Division of Resources and Geoscience within the DP&E (formerly known as the Department of Industries)

The submission prepared by the Division of Resources and Geoscience (DRG) raised issues relating to existing mineral exploration leases within the Project Area, and the potential for the project to limit the area for future mineral exploration. However it was determined that the areas identified by DoI were located outside the updated PA. Further, the project has a set life span and would not permanently sterilise the potential deposits near proposed turbine infrastructure. Additional queries were raised regarding consultation with Heron, which have been addressed in the Special Interest Groups table contained in Annex B and are summarised in section 7.2 below.

Goulburn Mulwaree Council (GMC)

The submission by Goulburn Mulwaree Council (GMC) noted its general support for renewable energy initiatives. GMC stated that its review of the EIS indicates potential impacts relating to visual amenity, noise and vibration, and traffic and that, given these issues, it does not support the approval of the Jupiter Wind Farm proposal in the form proposed in the EIS.

The changes made to the Project in response to submissions (including the reduction in the number of WTG's from 88 to 54, and the complete removal of the Southern Precinct) significantly reduce the visual, noise, ecological and heritage-related impacts associated with the construction and operation of the project.

An updated Landscape and Visual Impact Assessment Report has been prepared to assess the visual impacts of the revised Project and is contained in Annex E. In summary, the landscape and visual impact assessment of the site demonstrates that the site and its surrounds have a low visual sensitivity to a wind farm development and is a suitable landscape for the construction of a wind farm.

An updated Transport Impact Assessment has been included as Annex G of the RtS and a Traffic Management Plan will be prepared, in consultation with GMC, after project approval and prior to the commencement of construction.

Civil Aviation Safety Authority (CASA)

The submission prepared by CASA confirmed the use of obstacle lighting on WTG's with a height greater than 150m Above Ground Level (AGL) and provided additional information on the use of radar activated lighting systems, providing reference to NASF Guidelines D and the United States Federal Aviation Administration regulation relating to obstacle marking and lighting (Advisory Circulars 70/ 7460-1L). EPYC will comply with CASA's requirements regarding obstacle lighting on WTGs.

Water NSW

The Water NSW submission commented on the adequacy of the information contained in the with regards to water quality issues and erosion hazard. In response to this submission, an assessment was undertaken which confirmed that the revised project will have a neutral effect on water quality, based on similar hydrological assessments undertaken for other wind farm developments. For example, ERM have prepared similar hydrology assessments for similar windfarm developments, outside of the Sydney Drinking Catchment, and they have been approved by the DoPE. The hydrology assessment for this project determined that with the implementation of controls there would not be a significant negative impact on water quality within the Sydney Drinking water catchment. Ultimately the online NORBE tool was

completed due to the project being in the Sydney Drinking water catchment and the tool generated a response that the concurrence of the Sydney Catchment Authority was required. Their concurrence with our finding of neutral effect on water quality, as we state in the RTS report, has not yet been provided.

Further information relating to erosion and water quality issues is included in response to the issues identified by Water NSW in Table A.8 of Annex A of this report.

Office of Environment and Heritage (OEH)

The submission prepared by OEH concluded that sections of the project will have a significant impact on important biodiversity values and that additional information was required in relation to Aboriginal cultural heritage values, and that further biodiversity surveys and mapping be undertaken. OEH also provided recommendations for avoiding, minimising and offsetting the aforementioned impacts.

OEH's comments have been considered carefully and have formed a fundamental part of the development of the revised Project and layout. In particular:

- WTGs T19, T29, T32, T42, T47, T51, T60, T62, T63, T66, T78, T81 and T85 have been removed from the project in response to OEH's concerns and other issues raised in submissions; and
- WTGs T9, T10, T28, T37 and T40 have been relocated so as to reduce biodiversity impacts in line with the issues raised in OEH's submission.

Further information relating to biodiversity aspects is included in response to the issues identified by OEH in Chapter 8 and throughout Annex A, I and J of this report.

Rural Fire Service (RFS)

The submission prepared by RFS made mention to a number of specific areas relating to the controls to be implemented to prevent and manage of bushfires, including Asset Protection Zones and a Fire Management Plan, and the need for safe operational access to structures, water supply and public roads in the event of an emergency. Information responding to the issues raised by the RFS, including the matters proposed to be included in the Bushfire Management and Emergency Response Plan, are contained in Table A.10 of Annex A.

7.2 Special Interest Groups

Submissions were received from special interest groups as listed in Table 3.1. It should be noted that a number of submitters previously identified under the 'special interest group' category have now been addressed throughout the response to 'public' submission summary (Annex C of this report) as the community members align more accurately with the public category. A summary of the main issues raised throughout the special interest group submissions is provided in the section below. Detailed discussion of the issues raised in the special interest groups submissions are provided in separate spreadsheets for each group in Annex B.

Tarago Parents and Citizens Association

The submission prepared by the Tarago Parents and Citizens Association primarily focused on the potential impacts from the Project on the Tarago Public School, including concerns about the potential health, visual, property value and traffic related impacts on the community associated with Tarago Public School. The submission also discussed concerns relating to the adequacy of consultation with the Tarago Parents and Citizens Association.

With regards to noise, the wind farm is not expected to impact Tarago Public School, which is located approximately 6.4 km from the closest WTG. Wind farm noise levels were not modelled beyond 5 km, in either the JWF EIS or updated wind farm noise assessment conducted by DNV GL, such that a predicted value at the school is not available to provide comment on levels or audibility. The 5 km threshold was selected by DNV GL as levels beyond that distant are expected to be fully compliant at all receptors. However, receptor J67 is situated approximately 2.4 km south-east of Tarago Public School, closer to the wind farm, 4 km from the closest WTG. The highest predicted noise level at J67 is 31 dBA and fully compliant with the applicable noise limits. Assuming a noise level of ≤ 31 dBA is received at the school, noise levels at external school use positions e.g. in the playground, are unlikely to be audible or to dominate the acoustics environment during the daytime as they will be masked by other sources of noise within the existing environment e.g. traffic, animals, wind-blown vegetation. Noise levels at internal school use positions e.g. in the classroom, are also unlikely to be audible as the noise reduction provided by the classroom building envelope (windows open) would reduce internal levels to be ≤ 21 dBA, which are also expected to be masked by other sources of noise within or near to the classroom itself. With windows closed this internal noise level would be reduced further and depending on the classroom building envelope could actually be reduced by an additional 20 dBA. This discussion assumes a level of 31 dBA is received at the Tarago Public School based on the levels predicted at J67. Given that the school is an additional 2.4 km from the nearest WTG levels are in fact going to be significantly lower than the assumed 31 dBA value conservatively adopted and referenced (based on the DNV GL assessment) for this discussion.

EPYC has consulted with the principal of Tarago Public School and met with the head of the Tarago Parents and Citizens Association during consultations with the neighbouring residents. Please refer to Table B.1 of Annex B of this report for a detailed response to the specific matters raised by the Tarago Parents and Citizens Association.

Tarago and District Progress Association (TADPAI)

TADPAI's raised concerns relating to visual impacts and mitigation measures, community consultation, including in relation to Benefits Sharing, assessment of alternative sites and the funding of the decommissioning of the project.

Significant changes have been made to the Project to respond to submissions and reduce environmental impacts, including the removal of 34 WTGs and the whole of the Southern Precinct from the Project. The revised layout has significantly reduced the overall impact of the project as well as reducing the proximity of turbines to nearby neighbours. An updated Landscape and Visual Impact Assessment Report has been prepared to assess the visual impacts of the revised Project and is contained in Annex E. As noted above, the landscape and visual impact assessment of the site demonstrates that the site and its surrounds have a low visual sensitivity to a wind farm development and is a suitable landscape for the construction of a wind farm.

The alternatives to the wind farm were considered in Chapter 5 of the JWF EIS. Relocating the project to within a national park as suggested by TADPAI is not a viable option.

The general issues raised by the TADPAI are addressed in Section 7.3 below and a response to RAJW's specific concerns is contained in Table B.2 of Annex B.

Roseview Estate Residents Group (RERG)

The RERG submission raised concerns relating to: the site selected for the Project; the visual impacts of the Project, including the methodology used and proposed mitigation measures; noise impacts, including during construction; the benefit sharing scheme; impact on property values; potential bush fire risks; and adequacy of consultation.

The general issues raised by the RERG are addressed in Section 7.3 below and a response to RAJWT's specific concerns is contained in Table B.3 of Annex B.

Residents Against Jupiter Wind Turbines (RAJWT)

The RAJWT submission concluded that the construction and operation of the Jupiter Wind Farm would potentially impact a multitude of environmental, social and economic aspects of the region, including impacts to electricity prices and security, health of the community with regards to sleep disturbance, visual amenity, aerial firefighting and areas of ecological significance. RAJWT also raised concerns about the adequacy community consultation.

The general issues raised by the RAJWT are addressed in Section 7.3 below and a response to RAJWT's specific concerns is contained in Table B.5 of Annex B.

Parkesbourne/Mummel Landscape Guardians Inc. (PMLG)

The submission prepared by PMLG primarily focused on the potential impacts to landowners in regards to noise, including the adequacy of applicable noise guidelines, visual, health and the value of their properties. Additional areas of concern raised by PMLG include bushfire risk, decommissioning and impacts to the electricity grid and on electricity prices.

The general issues raised by the PMLG are addressed in Section 7.3 below and a response to PMLG's specific concerns is contained in Table B.6 of Annex B.

Mulloon Matters Group

The Mulloon Matters Group submission focuses on the ecological impacts of the Project including on specific threatened species of concern (eg Glossy Black Cockatoo and Eastern Bent-wing Bat) and the utilisation of areas of habitat by selected species.

The updated project layout, including the removal of 34 WTG's, has significantly reduced the ecological impacts of the Project as follows:

- The overall development footprint has been reduced from 86.28ha to 61.81ha;
- The entire Southern Precinct has been removed, removed resulting in less potential impacts from lower area surrounded by higher wooded areas.
- Removal of WTGs and realignment of access tracks in the patch of highest quality EPBC Act-listed Threatened Ecological Community (southern part of the central precinct) reduces impacts to this Threatened Ecological Community (TEC) as far as practicable (impact area reduced from 1.63ha to 1.17ha).
- Reduction of impacts to TSC Act listed Endangered Ecological Communities (EEC's): White Box Yellow Box Blakely's Red Gum Woodland 2.19ha down to 1.19ha; Tablelands Snow Gum, Black Sallee, Candlebark and Ribbon Gum Grassy Woodland in the South Eastern Highlands, Sydney Basin, South East Corner and NSW South Western Slopes Bioregion 4.70ha down to 4.39ha.
- There is very limited clearing within Glossy Black Cockatoo habitat, suggesting that anticipated impacts to this species of concern will be reduced and availability of viable habitat increased.
- Movement of a number of WTGs from woodland edges throughout the central precinct which reduces impacts to woodland edges and the species that often utilise this vegetation community (native birds, bats etc.). [Insert]

Additional information relating the reduction in anticipated impacts as a result of the proposed development is provided throughout Annex I, and is summarised within Chapter 8 of this report. A response to the Mulloon Matters Group's specific concerns is contained in Table B.7 of Annex B.

Australian Wind Alliance (AWA)

The AWA submission confirmed AWA's view that site selected is suitable for a wind farm but raises concerns relating to the adequacy of consultation and the Benefit Sharing Scheme offered by the proponent.

A response to the AWA's specific concerns is contained in Table B.8 of Annex B.

Heron Resources Limited (Heron)

Heron owns the nearby Woodlawn Mine and its submission focus on the potential for the Project to sterilise the potential future development of the mine into its (currently unexplored) Exploration Licence EL 8353 which contains a number of historical silver and base metal workings known as the 'Mt Boro Mine' and the 'Great Boro Mine'. Some of these historical mining areas exist within the PA, however the majority are outside the PA, within Government land. EPYC will continue to consult with the owners of EL8353 in the future in the event that mining operations are potentially inhibited due to the proposed development. Further, the project would not prevent Heron from undertaking future exploration activities within EL 8353 and, given its set life span, ultimately developing these subject to obtaining all required consents and approvals. The proponent is continuing to consult with Heron. Finally, the proponent notes that the operational Woodlawn Wind Farm is located in very close proximity to the Woodlawn Mine, evidencing that wind farms and the Woodlawn mine are able to successfully co-exist.

A response to the AWA's specific concerns is contained in Table B.9 of Annex B.

St. Bakhomios Coptic Orthodox Monastery

The submission prepared by St. Bakhomios Coptic Orthodox Monastery expresses concerns relating to the anticipated noise and visual impacts associated with the construction and operation of the Jupiter Wind Farm, and that such impacts will highly disturb the peace of the members of the organisation. With respect to the submission, a revised operational wind farm noise assessment has completed by DNV GL and determined that the revised project layout is compliant at all identified non host properties. While there may be some audible wind turbine noise, it should be noted that applicable noise limits are designed to protect amenity and minimise sleep disturbance. The noise compliance limits for the wind farm have been derived from background noise measurements taken at the site; therefore the derived noise limits take into account the existing rural background noise environment. It should also be noted that the project design has been revised to remove and relocate WTG's which has reduced overall noise impacts. In terms of visual amenity, following the revised layout 34 WTGs have been deleted from the project reducing the overall visual impact of the proposed project.

7.3

Public submissions

This section provides a summary of the key issues raised in the public submissions that were received in response to the public exhibition of the EIS exhibition period. The table contained in Annex C summarises and responds to each of the public submissions received.

7.3.1

Site Suitability

Issue theme: Site Selection – wind farm is not suited to the current location

The NSW Government has created six renewable energy precincts in areas where significant future renewable energy development is expected, especially wind farms. The Project is located within P4 of the South East renewable energy precinct. These six renewable energy precincts include North East, Hunter and Central Coast, Greater Sydney, North West, South East and Southwest. These precincts and the regional coordinators can be accessed via the link below: <http://www.environment.nsw.gov.au/communities/clean-energy.htm>

The process followed to select the site for the Project was outlined in Chapter 5 of the EIS.

As outlined above, the Project layout has been significantly revised to respond to the submissions and reduce impacts, particularly visual impact. In determining the revised Project layout, turbines were removed or relocated to provide a greater separation between turbines and non-associated dwellings.

The revised PA is considered suitable for the Project. Wind farms have been shown to be able to successfully co-exist with rural land uses, including agricultural production and rural residential.

7.3.2

Visual

A summary response for each of the main visual-related issues identified in the submissions received on the EIS is provided below.

It is important to note that the submissions related to the Project as described and assessed in the EIS and the Landscape Character and Visual Impact Assessment contained in the EIS (**Original LCVIA**).

Significant changes have since been made to the Project to respond to submissions and reduce environmental impacts, including the removal of 34 WTGs and the entire Southern Precinct from the Project. The revised layout has significantly reduced the overall impact of the project as well as reducing the proximity of turbines to nearby neighbours. An updated Landscape Character and Visual Impact Assessment (**Updated LCVIA**) has been prepared assessing the revised layout and is contained in Annex E of this report.

Issue theme: General Visual impacts

Whilst it is acknowledged that the Project will have an impact on visual amenity, this must be balanced against the public interest benefits which accrue from the development of renewable energy projects such as this Project.

Chief Justice Preston of the NSW Land and Environment Court in *Taralga Landscape Guardians Inc. v Minister for Planning and RES Southern Cross Pty Ltd* [2007] NSWLEC 59 (12 February 2007) recognised that there is 'broad public interest in the establishment of viable renewable energy sources' which must be balanced against 'the geographically narrower' potential impacts of the Project. In that decision, Chief Justice Preston

The correct approach to assessing the visual impacts of wind farms was set out by Chief Justice Preston in that decision as follows:

It is common that the areas that are best suited to wind energy are also the most visually prominent locations. In constructing windfarms, it is necessary to go where the wind is.

...

The threshold question to be considered for such a proposal is whether or not a first “breach” in the present general landscape should be permitted. Once such a breach is permitted, it is then relevant to turn to whether or not the extent of it should be limited, as a general question, and also to turn to the question of the impacts on individual properties. ... Having concluded that one turbine breaching the landscape would be acceptable, it is therefore appropriate to turn to the question of whether or not the totality of that which is proposed is acceptable or whether it should be modified in some fashion ... consider whether it is necessary or appropriate to remove elements of it if, in the first instance, one had reached a prima facie view that the present total project would have an unacceptable impact but that some lesser (but still viable) project might be approved.

The December 2016 NSW Wind Energy: Visual Assessment Bulletin does not apply to the Project, as revised SEARs for the Project were issued prior to its release. Nonetheless, the Updated LCVIA has considered the requirements of the Visual Assessment Bulletin.

The original layout assessed in the EIS resulted in 140 dwellings within 3km of the site, 81 of them have been assessed with moderate to negligible visual impact rating (assuming worst case scenario). Following the revised layout, as before there are no non-associated dwelling located within 1km of WTGs, only 88 dwellings (including sites with approved DAs but which are yet to be constructed) are located within 1-3km of WTGs. The Updated LCVIA confirms that [the site and its surrounds within the Southern Table Lands have a low visual sensitivity to a wind farm development and is a suitable landscape for the construction of a wind farm.]

Please refer to the updated Zone of Visual Influence diagram in Annex E of this report. The ZVI diagram is conservative as it assumes bare terrain, and does not allow for existing screening and built forms which may block views of WTGs.

The closest village to the Project is Tarago, which is located over 5km to the nearest WTG.

The updated Visual Impact Assessment report reveals that Tarago is the only town within close proximity to the Jupiter Wind Farm with views of the proposed turbines. Views are limited from the edge of the residential areas along the Bungendore - Tarago Road and the newly established Sherwins Ridge behind the town. From both locations views towards the Project include built form such as the town, railyards and train lines, roads and other infrastructure.

The threshold distance for visual impact is not directly proportional to the height of the turbines. The threshold distance does not always increase with the increase in height of the turbines. The overall visual impact of the Project is dependent on other factors - refer to Section 4.2 Visual Context of the Original LCVIA for other requirements which should be considered in determining the overall visual impact. Section 4.1 of the Original LCVIA (Distance and Wind Farm Visibility) refers to the consultants' approach to determining the contribution of distance to visual impact. Refer to Section 4.7 of the Original LCVIA (VIA Methodology) for information on how the assessment was conducted and includes Table 4.6, Visual Impact Assessment Criteria.

The effect of distance on turbine visibility had been standardised in the Original LCVIA to form a part of the quantitative factors in Table 4.6 and fit into the 4 ratings adopted for the sake of consistent assessment. The distance bands adopted in Table 4.1 fall into five ratings and have been re-quantified to fit into the four ratings adopted in Table 4.6 to assess visual impact.

The updated visual impact assessment considers the Visual Bulletin Requirement outlines the preferred assessment methodology and steps for undertaking a visual assessment of any State Significant Wind Farm Project in New South Wales. It requires the consideration of visibility distance zones, sensitive land use designations, landscape character type, landscape unit settings and scenic quality. Refer to Section 6 – Viewshed and Zones of Visual Influence which assist to assess the overall visual impact of the proposed turbines based on distance to a turbine. Refer to Table 6.1 which shows the various zones of visual influence are derived from the proportion that a wind turbine, fully visible, will occupy in the vertical field of view.

The updated LVIA does not adopt matrices to conduct the assessment of landscape and visual impact. The approach in the updated report is both qualitative and quantitative to result in an assessment that addresses all aspects that contribute to visual impact. Quantitatively, it considers distance from the viewpoint to the turbine, viewer numbers, and landscape character to establish a scale of effects. Qualitatively, it considers landscape sensitivity which takes location, the rarity of a particular landscape and scenic qualities of a particular landscape into account.

Issue theme: Jupiter Wind Farm will be the prominent new element within the predominant zone of the wind farm

Refer to Chapter 5.4 Combined and Sequential Visibility and Chapter 5.5 Cumulative Visual Impact Summary of the Original LCVIA. The Original LCVIA determined that the Project is unlikely to result in any significant combined or sequential cumulative visual impacts within the immediate study area resulting from associated views towards other wind farm developments within the study area. Refer to LCVIA Chapters 3.3.1 (Cumulative Landscape Impacts), 4.10.3 (Transmission Line Cumulative Impact), 5.0 (Cumulative Impacts), 5.4 (Combined and Sequential Visibility) that address visual impact in terms of other wind farms and infrastructure in the vicinity. The updated LVIA report assesses cumulative impact in Chapter 11. This assessment considers sequential (from highways, main roads and local roads) and simultaneous views along with the existing Capital Wind Farm and Woodlawn Wind Farm. Topography and existing vegetation are taken into account when assessing the simultaneous visual impact in the case where view sheds of different wind farms overlap. There are a few roads where multiple wind farms are visible, either sequentially or simultaneously. These viewing experiences can change peoples' perception of an area. Therefore the cumulative visual impact is considered to be low.

Issue theme: Concern for increase in density of wind farms

Woodlawn and Capital Wind Farm are about 8km and 10km away, respectively. There are very few locations where Jupiter can be seen in conjunction with other wind farms. Refer to Section 5.0 of the LCVIA (Cumulative Impacts). Cumulative impacts are addressed in Annex G of the EIS (LCVIA Report) and summarised in Chapter 11.8 of the EIS. Cumulative impacts are not a significant concern due to distances from existing projects and mostly obscured by the Mt. Fairy ridge.

The updated LVIA report assesses cumulative impact in Chapter 11. There are a few roads where multiple wind farms are visible, either sequentially or simultaneously. These viewing experiences can change peoples' perception of an area. Therefore the cumulative visual impact is considered to be low.

Issue theme: Photomontage v/s Wireframe: The wireframe images used in the Original LCVIA misrepresent information.

Wireframe models were provided as part of the Original LCVIA to provide an indication of the positioning and scale of WTGs within a given view frame. They were created using a 3d model of the wind farm and terrain, overlaid on a site photo with a varying field of view. They provide a reliable representation with regards to WTG location and scale. However, they are a representative tool used by visual consultants and photomontages are considered to be more

accurate. The updated LVIA addresses the photomontage methodology in Section 3.1.11 of the report. This methodology is accepted in the Land and Environment Court in New South Wales and has been used to assess visual impact of similar projects in Victoria, New South Wales and South Australia. ERM's photomontage examples are also referenced in The Draft National Wind Farm Guidelines (July 2010) as a preferred example of the production of photomontages to assess visual impact (Refer to Figure C -6 of the Guidelines which references ERM 2007).

Issue theme: Wireframe Accuracy

Photomontage and wireframe creation and accuracy is explained in Appendix B of the Original LCVIA (Annex F of the EIS).

Photomontages developed for the Original LCVIA were created by Fulcrum3D within the guidelines of the Draft NSW Planning Guidelines for Wind Farms (December 2011) and the Clean Energy Council Best Practice Guidelines (2013), as well as the Scottish Natural Heritage Visual Representation of Wind farms (2014). The process of creating a realistic photomontage of a wind farm begins with taking clear accurate photos. Weather conditions ideally need to be clear, and bearing and GPS co-ordinates are recorded.

Whilst a photomontage can provide an image that illustrates a photo realistic representation of a wind farm in relation to its proposed location and scale relative to the surrounding landscape, it is acknowledged that a photomontage cannot fully represent a human view. Flat image do not allow the viewer to perceive any information relating to depth or distance. To gain the most perceptually accurate view of the photomontages, they should be printed and viewed at A1/A0 sized sheets and held at arm's length.

Each viewpoint is accompanied by a location map, photo of the current view and wireframe model of the Project to indicate the expected view when complete. For a detailed description of the assessment criteria and impact ratings used, refer Table 4.6 of the Original LCVIA.

It is standard practice to show the full face of WTG blades to show more of the turbine. These will vary in rotation and angle depending on wind speed and direction.

The updated LVIA addresses wireframes to be a critical aspect of developing accurate photomontages. A wireframe view of the computer model helps illustrate alignment of the model with existing features in a view. The updated LVIA uses vertical 'poles' or 'cylinders' within wireframes as merely points on the landscape such as a group of trees, a corner of a planted hedgerow or a structure, to allow the computer model and the photograph to be accurately aligned. This ensures that the proposed wind turbines are accurately located within the photograph. Once aligned the terrain model is removed and the visible portions of the wind turbines are then rendered into the image. **Issue theme: Quality of Images and Provision of Graphics**

DP&E have limited capacity to upload high quality material on their website hence a lower resolution file was uploaded in line with the DP&Es requirements. EPYC also provided DP&E with a very high resolution copy on a USB which could be shared with those community members who requested it. Furthermore, the full resolution photomontages were made available on USB to the CCC.

To gain the most perceptually accurate view of the photomontages, they will need to be printed and viewed at A1/A0 sized sheets and held at arm's length. Where it was requested, an A1/A0 was printed for the landowner.

An updated Landscape and Visual Impact Assessment Report has been prepared to assess the visual impacts of the revised Project and is contained in Annex E. As noted above, the landscape and visual impact assessment of the site demonstrates that the site and its surrounds have a low visual sensitivity to a wind farm development and is a suitable landscape for the construction of a wind farm.

Issue theme: There are no photomontages relating to the substation and transmission line.

Image 4.1 and Image 4.2 contained in the Original LCVIA show a typical substation and transmission line. The substation will be screened as required and the 33kv line is proposed to be underground as preferred by RMS. The substation will be located adjacent to the existing 330kv line. There will be a short connection from the substation to the existing 330kv line.

Issue theme: The viewpoint selection did not include all affected dwellings

Since worst case scenario is assumed along with a conservative assessment at some instances, multiple photomontages from a single property will not change the impact rating. Thus, if two viewpoints were very similar (same view as a neighbour for example) only one photomontage was prepared and included in the Original LCVIA.

Geographical Information Systems (GIS) software maps the areas from which turbines, whole or in part, are visible which provides guidance on the selection of viewpoints on which to assess visual impact. This is referred to as a 'Seen Area Analysis'. This analysis was used in the updated LVIA to determine the private viewpoints along with whether or not access was given to dwelling, an analysis of aerial photography and an understanding of the landscape.

Where access has not been granted for the purposes of this updated assessment, an assessment has been based on proxy views from the surrounding road network or similar dwelling has been granted as required by the project SEARs and Visual Bulletin. For the latter, it must be recognised that this approach is by no means an accurate assessment; rather it serves to provide an overall assessment of the range of views towards the turbines.

The selection of viewpoints on which to assess the visual impact on residential properties seeks to provide representative views from a broad range of residential dwellings that surround the Jupiter Wind Farm. From our site visits, there are nine identifiable clusters of residential dwellings identified based on proximity, viewing angle and distance to the proposed turbines. The groupings are by no means absolute, but rather provide a suitable way to determine the likely visual impact from residential dwellings that surround the Project. Several viewpoints from within each cluster have been selected to determine visual impact and mitigation options for dwellings within each cluster. Refer to Seen Area Analysis in Chapter 7 and Residential Viewpoint Selection of Chapter 10.4 of the Updated LVIA for more information.

Issue theme: Public Viewpoints and Canberra

Refer to Chapter 4.6 of the Original LCVIA (Viewpoint Selection) - Even though the area is 60 minutes away from Canberra, it does not mean that the whole area is subject to visual impact from the Project. Refer also to Chapter 4.2 Visual Context - in particular 4.2.3 Viewer Movement which addresses the Visual Impact determined according to whether the viewer is stationary or moving which will justify that people commuting to Canberra will not experience high visual impact since dynamic views and visual impact are inversely proportional. Refer also to Chapter 4.3 (VIA Study Area) The SEARs require the identification of 'a zone of visual influence for the wind farm (no less than 10 km)'.

Through a desktop analysis and site visit, a study area of approximately 12km offset from the PA was identified based on topography, receptor location and viewing distance. Refer to Chapter 4.4 Zones of Visual Influence. ZVI diagrams are used to identify theoretical areas of the landscape from which a defined layout of WTGs could potentially be visible. This is a helpful tool for providing an overview as to the extent to which a wind farm may, or may not be visible from the surrounding area.

Therefore, the proximity of the township to Canberra is irrelevant to the visual impact of Jupiter Wind Farm. The term rural refers more to the density of the town and highlights that the number of viewers who are going to see the wind farm from a highly visible location on a main road will be relatively low.

In the updated LCVIA, 36 public viewpoints have been selected from publicly accessible locations within the view shed of the Project. The publicly accessible viewpoints are typically selected on the following basis:

- their potential to indicate the scale and extent of the Project at varying distances;
- their proximity to landscape features such as water bodies and volcanic cones;
- where a viewer has a likelihood to pause and have a view to the Project such as gaps in roadside vegetation or near road intersections.
- where it is indicative of the landscape characters defined within the viewshed

The viewpoints are generally located where direct views to the Project are available. Refer to Chapter 9 of the updated LCVIA for more information on public viewpoints.

One of the SEARs requirements for the LVIA undertaken for the project is the identification of a zone of visual influences for the wind farm no less than 10km away. The updated LVIA considers a zone of visual influences that encompasses 20km which is the adopted theoretical extent for turbines of 173m. Canberra does not fall within this zone of visual influence. The elevated hills which run to east of Canberra and between Canberra and JWF would mean there would be no views from Canberra of proposed turbines.

Issue theme: Inadequate consultation regarding visual impacts

EPYC has managed and undertaken a comprehensive community and stakeholder engagement program. This process of engagement has been undertaken in accordance with the Stakeholder and Community Engagement Strategy (the Strategy) developed for the Project. Chapter 7 of the EIS outlines the process of consultation and engagement EPYC has undertaken with key stakeholders (including the local community and government), and highlights where key issues raised throughout the consultation process to date have been addressed in the remainder of the EIS, including visual aspects.

The revised layout for the Project has been prepared having regard to all of the submissions received during the public exhibition of the EIS, including the very detailed submission provided on visual impacts.

A summary of the consultation undertaken subsequent to the public exhibition of the EIS is provided in Chapter 4 of this report. Ongoing consultation will continue throughout the life of the Project as outlined within the Statement of Commitments table provided throughout Chapter 8 of this report.

The Updated LCVIA has been prepared with the benefit of the detailed submissions provided on visual impacts during the public exhibition of the EIS.

Issue theme: EIS prepared by ERM while consultation carried out by EPYC

The authors of the EIS and RfS have been provided comprehensive notes and information regarding the consultation that has been undertaken and this information has been incorporated into the project documentation.

Issue theme: Inadequate visual impact assessment

The matrix used is obtained from RMS Guidelines for Landscape Character and Visual Impact Assessment. The assessment methodology is clearly outlined in Figure 1.1 of the LCVIA prepared for the EIS.

The methodology used for the visual impact assessment and photomontages is a widely used and industry accepted one. Viewpoints are assessed quantitatively and qualitatively. Many factors are taken into consideration when conducting the visual impact assessment including distance, topography and vegetation. Consultation was undertaken on several days, the method of which for each dwelling is detailed in the Annex F of the JWF EIS. CLOUSTON Associates has developed a best practice methodology based on internationally recognised approaches and 20 years of experience in the field of visual assessment.

All landowners within 3km were offered to participate in the assessment. Those who accepted received a detailed assessment. Others received a desktop assessment (assuming the worst case scenario) or were assessed from the road close to their property where appropriate.

Refer to '*Mitigation*' below for further details regarding the assessment leading to proposed mitigation measures.

In addition, an independent visual impact assessment has been conducted as part of the RfS and PPR process. This new assessment was completed to review and revise the existing methodology, and adjust any ratings to be in line with the revised wind farm layout/design in the PPR (refer Chapter 6). Importantly, this new assessment accounts for the revised layout which incorporates a reduction in the total number of Wind Turbine Generators (WTG) from 88 to 54 (34 WTG have been removed), including the complete removal of the Southern Precinct previously identified in the EIS layout. These PPR layout/design changes occurred primarily to minimise potential visual, noise, ecology and heritage impacts but are also expected to substantially reduce the anticipated impacts across all environmental factors.

The assessment methodology of the updated LVIA can be found in Chapter 3 of the report. This Landscape and Visual Impact Assessment (LVIA) assesses the landscape and visual impacts of the revised Project with regard to:

- the Updated SEARs;
- the Wind Energy Visual Bulletin, for State Significant Wind Energy Development, December 2016 (Visual Bulletin); and
- established landscape and visual methodology including the principles set out:
 1. in the Wind Farms and Landscape Values: National Assessment Framework, Australian Wind (Energy Association and Australian Council of National Trusts) June 2007 (**National Assessment Framework**); and
 2. by Chief Justice Preston of the NSW Land and Environment Court in *Taralga Landscape Guardians Inc v Minister for Planning and RES Southern Cross Pty Ltd* [2007] NSWLEC 59 (12 February 2007) (**Taralga Decision**).

Director-General's Environmental Assessment Report – Gullen Range Wind Farm, (March 2009). The updated Landscape and Visual Impact Assessment of the site demonstrates that the site and its surrounds within the Southern Table Lands have a low visual sensitivity to a wind farm development and is a suitable landscape for the construction of a wind farm.

Issue theme: The EIS did not identify most dwellings beyond 5 kms and therefore lacks the information necessary to determine the visual impact on the large number of properties not considered.

The SEARs required assessment of visual impact on dwellings up to 3km.

The Zones of Visual Influence discussed in Chapter 6 details the effect of distance and turbine visibility. For a turbine height of 173 m, the area of significant turbine visibility from residential properties occurs where wind turbines are within 2.0 km of a dwelling. However turbines at 173 m in height can be dominant out to 4.0km.

The SEARs require that the visual assessment for residential dwellings considers the area within a 3.0 km radius of the proposed turbines. The visual assessment methodology for residential impacts includes the following steps:

- identify all residential dwellings within 3.0 km of a turbine
- determine those dwellings that are likely to have a significant level of visual impact
- assess dwellings utilising photomontages and wireframes at representative locations to assess the visual impacts for non-associated residences;
- where significant visual impacts are predicted, consider the feasibility and effectiveness of mitigation measures for adverse impacts

This methodology is supported by past Victorian Planning Panel decisions and recent New South Wales Land and Environment Court decisions.

In some instances, no mitigation measures may be required due to either screening afforded by topography, existing vegetation, built form or lack of views from key areas within proximity to the dwelling.

Issue theme: Expertise of the authors of the Original LCVIA

Matt Knight is an experienced landscape architect. CLOUSTON Associates has developed a best practice methodology based on internationally recognised approaches and 20 years of experience in the field of visual assessment.

Hayden Burge is ERM's Visual Impact, Landscape and Urban Design Practice lead for New Zealand and Australia.

Clients include local and state government, Defence, Treasury and Finance, mining corporations and private and listed companies.

Hayden also regularly appears before appellant bodies and independent planning panels as an expert witness in urban design, visual impact assessment and landscape architecture. Hayden has prepared the visual impact assessment of numerous wind farm development, some of which area confidential but others include Gullen Range Wind Farm, Yass Valley Wind Farm and Taralga Wind Farm in New South Wales. Other wind farm projects include Dundonnell Wind Farm, Oakland Hills Wind Farm, Berrybank Wind Farm, Ryan Corner and Hawkesdale Wind Farms, and Lal Lal Wind Farm in Victoria.

Issue theme: Adequacy of visual impact mitigation measures

The mitigation measures outlined in the Original LCVIA and EIS aimed to demonstrate the effectiveness of vegetation screening as required by the revised SEARs, March 2016 (SSD 13_6277). The examples used are just indicative and not the final vegetation which may be planted as explained.

The location and design of screen planting used as a visual mitigation measure is site specific and requires detailed analysis of potential views and consultation with surrounding landowners during the detailed design phase. EPYC recognises that planting vegetation as screening would not provide effective mitigation in all circumstances.

In addition EPYC is offering eligible landowners within 3km a mitigation fee so that the landowner can conduct their own mitigation to suit their requirements, which could include the use of non-vegetation screening where appropriate. Any dwelling or DA approved dwelling within 3km of the project with a moderate visual impact rating is eligible to receive \$3,000 and anyone with a mod/high or high visual impact rating is eligible to receive \$5,000 for mitigation purposes subject to reaching agreement with EPYC.

Landscaping is a mitigation option available for the majority of residential properties in proximity to the proposed Jupiter Wind Farm. As the viewing location is relatively fixed, planting may be designed to either screen the wind turbines from view, or significantly reduce the visual dominance of wind turbines through filtering. Landscape mitigation measures can be utilised to screen and filter views to the Project from residential locations. Such measures are also suitable for facilities such as the on-site substation facilities. By analysing view angles for a 173 m it is possible to determine the approximate height that landscape mitigation would be required to achieve to ameliorate visual impacts from residential dwellings. Refer to Chapter 10.5 of the updated LVIA for more information on Landscape Mitigation

Issue theme: Concern about the effect of night lighting

Night time impacts are generally less than day time impacts due to the reduced viewing duration and lack of visual context (i.e. the majority of view is obscured by darkness). To further reduce the perceived impact two options are considered:

- the use of low intensity lighting will assist in reducing the level of impact experienced; and
- the implementation of radar activated lighting would likely diminish any night time visual impacts to negligible.

CASA has indicated that they would consider radar activated night lighting which would mean that the lights would only be on if a plane approaches towards the project area. The alternative is low intensity night lighting.

Please refer to Section 4.12 Annex F of the JWF EIS for effect of night lighting.

The Aeronautical Impact Assessment for Jupiter Wind Farm prepared by Aviation Projects has been updated for the revised turbine layout. Those turbines identified to include aviation obstacle lighting are to include steady red low intensity lighting at night as per Section 9.4 of the MOS Part 139 as outlined in subsection 9.4.6. (Low intensity lights).

The current night lighting recommended for the Jupiter Wind Farm is Aviation Obstacle Lighting is to be steady, low intensity lighting.

At the time of preparing this report, it is understood that CASA are exploring the use of Radar Activated Lighting which only activate lighting when aircraft are within 5.0 km of a turbine. This will reduce the hours of activated lighting and therefore the anticipated visual impact from aviation obstacle lighting.

The area around the Jupiter Wind Farm is not clear of lights in the night views. Lights are visible from road users, agricultural lighting and more recently the residential dwellings in areas of smaller allotments.

The proposed aviation lighting, would be visible both when activated and where view include the nacelle of a turbines. The preceding analysis of views from both public and private locations has determined that landscape mitigation would be effective at screening views of most turbines including the nacelle on which lighting would be mounted.

Should the Radar Activated Lighting System be implemented the visual impact of night lighting would be low where a turbine nacelle is visible or in absence of landscape screening and low to negligible where views are screened.

Issue theme: Original LCVIA does not adequately account for impacts to the visual amenity of affected landowners.

The methodology which was adopted for the Original LCVIA is based off the RMS Guidelines for Landscape Character and Visual Impact Assessment (RMS, 2013) which has been addressed in Table 4.4 (Visual Impact Rating) of the Original LCVIA. The determination of the impacts is based on two criteria including sensitivity and magnitude.

The RMS citation refers visual values of people affected qualitatively and quantitatively. Judgement as to the significance of the effects is arrived at by a process of reasoning, based upon analysis of the baseline conditions, identification of visual receptors (viewers of the scene) and assessment of their sensitivity, as well as the magnitude and nature of the changes that may result from any development.

The SEARs require that ‘consideration of the feasibility and effectiveness of the proposed mitigation measures is undertaken for all non-associated residences within 3km of a proposed turbine where significant visual impacts are predicted’. Targeted site visits were however conducted by the authors of the original LVIA (with support of EPYC) to assist in providing a detailed consideration of the feasibility and effectiveness of any proposed mitigation measures..

For the reasons outlined in the updated LVIA report, viewer sensitivity from any residential dwellings is always rated as high, before considering turbine visibility, proximity and landscape mitigation. The updated LVIA was conducted while taking into consideration SEARs and Visual Bulletin, both of which require the assessment of visual impacts and the amenity of landholders and communities. Once the impacts are determined, both the SEARs and the Visual Bulletin require the suitability of mitigation measures manage impacts to be considered.

7.3.3 Community Consultation

A summary response for each of the main community consultation-related themes identified throughout the RIS is provided below. Individual responses to the key issues raised in public submissions regarding consultation are provided within Annex C of this report.

Issue theme: Lack of Consultation or poor quality consultation

EPYC has managed and undertaken a comprehensive community and stakeholder engagement program. This process of engagement has been undertaken in accordance with the Stakeholder and Community Engagement Strategy developed for the Project. Chapter 7 of the EIS outlines the process of consultation and engagement EPYC has undertaken with key stakeholders (including the local community and government), and highlights where key issues raised throughout the consultation process to date have been addressed in the remainder of the EIS, including visual aspects. Consultation logs were also included in the EIS outlining the consultation undertaken with the owners of all identified dwellings within 3km.

The revised layout for the Project has been prepared having regard to all of the submissions received during the public exhibition of the EIS, including the very detailed submission provided on visual impacts.

A summary of the consultation undertaken subsequent to the public exhibition of the EIS is provided in Chapter 4 of this report. Consultation logs are contained in Annex D of this report, which outlines the consultation undertaken with the owners of all identified dwellings within 3km since preparation of the EIS.

EPYC acknowledges that some landowners did not receive the initial mail out in 2012 owing to issues with mail addresses and letter boxes. Accordingly, following the initial mail out in 2012, EPYC's project team have been personally delivering all mail outs including notifications, newsletters, letters and other required communications to the local community within 5km of the proposed project.

It should be noted that there are still some landholders that do not have a letterbox and have not provided an alternative address for correspondence. EPYC has endeavoured to contact these owners by other means where practicable.

Following public release of the preliminary turbine layout, EPYC undertook door knocking and one-on-one meetings with residents within 3 km of the Project Area during two separate campaigns in October 2014. The main purpose was to provide project updates to the community and have feedback on relevant community issues. There were a few community members who participated constructively and provided feedback which was incorporated into the project. Following this consultation campaign, the layout was amended and released again in December 2014. An Information Day was held locally in December 2014.

EPYC believes that it has undertaken genuine and comprehensive consultation for this project.

Ongoing consultation will continue throughout the life of the Project as outlined within the Statement of Commitments contained throughout Chapter 8 of this report, and is identified throughout relevant sections of this report.

Issue theme: The wind farm will result in community divide

EPYC acknowledges that differing community members hold diverging views about wind farms in general and the Project in particular. EPYC is committed to ensure the best possible outcome for both the Project and the community.

This RTS concludes that the project can be successfully implemented while meeting its environmental obligations and realising significant economic and environmental benefits for both the local and the wider communities.

Issue theme: Project information has been incomplete

EPYC has endeavoured to be as open and transparent as possible with the community with respect to information about the proposed Project and does not agree that any misleading information has been provided.

7.3.4

Bushfire

A summary response for each of the main bushfire-related themes identified in submissions is provided below. Additional documentation for bushfire that is provided in conjunction with the responses to submissions is provided in Annex A, B, C and H.

Issue theme: Impacts to firefighting ability with regards to recent fire events

The installation of WTGs will remove the option of fixed wing aircraft suppression of fires over the wind farm itself; however helicopters will still be able to manoeuvre through the wind farm and assist with fire suppression. The nearest house is located 599m from a WTG and the windfarm would not limit aerial firefighting capabilities on other properties in the surrounding area. Access and suitably wide fire breaks will assist in control and reduce the likelihood of fire leaving the property. The final location and design of these will be confirmed in consultation with the RFS.

Neither ERM nor EPYC claim that they can anticipate and protect against all means of fire ignition related to the wind farm. The bushfire assessment clearly states that some bushfire risk will remain (residual risk) and that the emergency plan will be developed in conjunction with relevant stakeholders, including local fire services, adjoining property owners and employees. The current RFS position in relation to windfarm development is that wind turbines are not expected to pose unacceptable risks (AFAC 2014).

Issue theme: Bushfire assessment prepared in consultation with NSW Rural Fire Service

Consultation with the local RFS is considered important in understanding the local fire history and experience under local conditions.

Formal advice was sought from the NSW RFS and their response to the EIS was received on 6 March 2017. The NSW RFS did not raise any objections. All of their recommendations will be addressed within the Bushfire Management and Emergency Response Plan.

Issue theme: Misleading classification of landscapes and bushfire hazard ratings

Grassfires can start and spread quickly. Grass is a fine fuel and burns faster than the areas of woodland/forest, although they tend to be less intense and produce fewer embers than bushfires. In response to the public and agency submissions and in light of the updated fire history (refer Figure 1), the revised hazard modelling has increased the areas of grassland and pasture from 'low' (low-medium fuel quantity, fuel structure facilitates easier control) to 'medium' (medium level quantity, available to burn during average seasons, medium or high fire intensity expected) (refer Figure 2).

By reducing the grass and other fire fuels around all of the wind farm assets and upgrading the existing road infrastructure, it will limit the ability of a fast moving grassfire to ignite the windfarm infrastructure through direct flame contact or radiant heat. Access and suitably wide fire breaks will reduce the likelihood of fire leaving the property and assist in control. The final location and design of these will be confirmed in consultation with the RFS.

The updated bushfire risk assessment shows that the wind farm will not result in any increase bushfire risk to that already present within the rural landscape.

The description of a cleared landscape dominated by rolling hills where the majority of native vegetation has been partially or fully cleared for grazing and cropping activities is not considered to be misleading. The woodland and forest vegetation within the Project Area is typically fragmented and patchy with the largest stands often occurring on ridges and slopes, most likely due to landscape modification by preferential clearance of the flatter, more fertile areas for agricultural pasture development.

Issue theme: Inadequate Bushfire Assessment Objectives

Formal advice was sought from the NSW RFS and their response to the EIS was received on 6 March 2017. The NSW RFS did not raise any objections to the Project. All of their recommendations will be addressed within the Bushfire Management and Emergency Response Plan. In their formal submission, the RFS confirm that any firefighting operations in close proximity to wind turbines will be managed in the same way as any other potential hazard in accordance with Standard Operating Procedures. EPYC commit to preparing the Bushfire Management and Emergency Response Plan in full consultation with the RFS and adjoining property owners.

Issue theme: Qualification of specialists who prepared the bushfire assessment

Joanne Woodhouse is experienced in bush fire hazard assessments and bush fire management plans. All ERM deliverables are technically reviewed by experienced practitioners and go through quality assurance review prior to submission.

Issue theme: Increased risk of fire as a result of visual mitigation measures

The location and design of screen planting used as a visual mitigation measure is site specific and requires detailed analysis of potential views and consultation with surrounding landowners during the detailed design phase. Planting vegetation may not provide effective mitigation in all circumstances and should be undertaken in accordance with the RFS Standards for Asset Protection Zones. In order to provide the landholders with visual impact rating of high, mod/high and mod, with flexibility so that they can choose their preferred mitigation option that would suite their requirements, EPYC has put in place a one-off visual impact mitigation measure payment for those eligible (with dwelling/with DA within 3km of a turbine). Those with dwellings which have been identified with a high or mod/high unmitigated visual rating and those with dwellings with moderate visual ratings will be offered \$5000 and \$3000 respectively.

Issue theme: Increased fire risk during construction and operation of the Project

The bushfire assessment makes specific reference to these hazards including:

- ignition creating activities such as welding should not be undertaken outside on days of total fire ban;
- maintain a 10 m wide fuel reduced zones around construction activities that may result in ignition of a fire (i.e. welding);
- use of a dedicated 10,000 litre tanker (to be available on site daily during the construction phase of the development, particularly during the bushfire season or when high risk activities such as welding are being undertaken); and
- all site vehicles used during the construction phase will have diesel engines and will use the site access roads to minimise the likelihood of igniting dry grass.

The final bushfire risk management measures will be determined and then documented within the Construction and Operational Environmental Management Plans that will be prepared for the Project, to ensure a safe working environment in the area.

Issue theme: Fire History

In response to the public and agency submissions and in light of the updated fire history (refer Figure 1 of Annex H), the revised hazard modelling has increased the areas of grassland and pasture from 'low' (low-medium fuel quantity, fuel structure facilitates easier control) to 'medium' (medium level quantity, available to burn during average seasons, medium or high fire intensity expected) (refer Figure 2 of Annex H).

Issue theme: Impacts to areas within the locality of the Southern Precinct

The Southern Precinct is no longer included in the Project Area and associated impacts are expected to be mitigated.

7.3.5**Noise**

A summary response to the main noise-related themes identified in the submissions received in relation to the EIS is provided below.

It is important to note that the submissions related to the Project as described and assessed in the EIS and the Noise Impact Assessment contained in appendix E to the EIS (**Original Noise Assessment**).

Significant changes have since been made to the Project to respond to submissions and reduce environmental impacts, including the removal of 34 WTGs and the entire Southern Precinct from the Project. The revised layout has significantly reduced the overall impact of the project as well as reducing the proximity of turbines to nearby neighbours. An updated Noise Impact Assessment Report (**Updated Noise Assessment**) has been prepared assessing the revised layout and is contained in Annex F of this report.

Issue theme: General noise compliance

Any Development Consent and Environment Protection Licence granted for the Project will contain detailed and legally enforceable noise criteria and monitoring regimes which will need to be complied with regardless of the final Project layout once a final turbine model has been selected and any micro siting has occurred.

Issue theme: What data is available from meteorological mast M1 & M3?

In order to gain an understanding of the probability of meteorological conditions for enhanced noise propagation, a calendar year of measured data was used to produce the wind speed and direction frequency distributions provided in Appendix H of the DNV GL noise assessment report provided in the JWF EIS, in order to ensure that this wind data was not biased seasonally.

DNV GL has assessed the variation of the power law wind shear exponent (α) over a one year period at the location of the site masts M1 (82 m), M2 (82 m), and M3 (108 m) for wind speeds above a cut-off of 3 m/s. In this assessment a calendar year of measured data was used to ensure that this data was not biased seasonally.

Issue theme: Concerns regarding vibration

Vibration impacts are anticipated during construction and will be localised, and subject to appropriate mitigation measures to avoid/minimise impact. Operational wind farms do not generate vibration. Any vibration impacts are limited to construction works in close proximity to receptors or buildings, or associated with blasting if it becomes required. As documented in the JWF EIS these impacts are expected to be minimal, if any at all. They would be mitigated and managed to acceptable levels in accordance with future EPL or SSD conditions of approval that are expected to be provided by the EPA and DPE.

Issue theme: Concerns regarding assessment and qualifications

All aspects of the wind farm noise assessment have been carried out by suitably qualified personnel, employed by independent expert consultancies.

The on-site field work (including device installation) was managed and conducted by Steven De Luzuriaga (ERM, Acoustics Engineer) with guidance of Nathan Lynch (ERM, Principal Acoustics Engineer) and support from DNV GL. Steve is a qualified and experienced acoustician (Graduate Certificate of Architectural Science (Audio and Acoustics), University of Sydney, Australia, 2016) and Member, Australian Acoustical Society (MAAS) with seven years professional experience, four of which have been in acoustics. Nathan is a qualified and experienced acoustician (Master of Design Science (Audio & Acoustics) University of Sydney, Australia, 2007) and Member, Australian Acoustical Society (MAAS) with nine years professional experience all in acoustics.

The DNV GL advisor who supported the background noise monitoring team, noise assessment analyst, and report author was David Price. David is a qualified Senior Engineer employed by DNV GL, with experience in wind farm noise assessments spanning a period of over 15 years, and a Member of the Australian Acoustic Society (MAAS).

Issue theme: Noise mitigation

The Original Noise Assessment included discussion of a number of noise management and mitigation contingency strategies that provide for additional noise attenuation should higher noise levels than those predicted in this assessment result following commissioning.

However, given the changes now made to the Project layout, the Updated Noise Assessment predicts that the wind farm will be fully compliant with applicable noise limits at all identified non host properties. Given this, it is not anticipated that additional noise management strategies such as noise reduced modes of operation, turbine shut-down, or physical barriers will be required. The contingencies documented in the JWF EIS Wind Farm Noise Assessment will be considered and implemented as necessary if noise monitoring identifies non-compliant noise levels.

Issue theme: Infrasound effects

After extensively reviewing the available peer-reviewed scientific evidence the National Health and Medical Research Council (NHMRC) released a statement on 11/2/2015 concluding that 'there is currently no consistent evidence that wind farms cause adverse health effects in humans.' In addition, the updated project layout outlined in Chapter 6 is expected to be 100% compliant at all identified non host properties.

A study carried out by Resonate Acoustics (an independent acoustics consultant not associated with the Project) in 2013 has shown that infrasound measured from WTGs is similar in magnitude to other sources of environmental noise. For example wind and ocean waves also cause similar infrasound effects, and these natural phenomena have not been linked to any adverse health effects in humans or livestock. Generally speaking for infrasound to be harmful, its energy levels would need to be so significant that the sound in these frequencies would in fact become audible, which is not the case for wind farms.

As the propagation of Special Audible Characteristics are complex to model and generally are not a feature at well-designed modern wind farms, such features are not included in pre-construction modelling. However it is important to note that the SEARs and guidelines applicable to the Project have suitable provisions in place to monitor and manage instances of Special Audible Characteristics if these are found to be a feature at the site. For example, a 5 dB penalty in post-construction noise compliance assessments would be added if such characteristics are detected in the wind farm operational noise.

Due to noise attenuation rates, at distances of 10 -20 km the noise level of the wind farm will be negligible compared to other existing environmental noise sources.

Issue theme: Audible noise

The Original Noise Assessment was conducted in accordance with the SEARs, March 2016 (SSD 13_6277) and all relevant guidelines. The updated layout (refer revised wind farm noise impact assessment in Annex F) is fully compliant with the required standards.

Noise logger locations were identified and utilized by qualified acousticians. Where the land owner accepted to participate the noise logging took place. Where access was not granted a similar or nearby location was selected. The wind farm may be audible at some receptors or publically accessible locations. The wind farm is however expected to comply with the applicable guidelines and noise limits documented in the Updated Wind Farm Noise Assessment, refer Annexure F of this report.

Issue theme: Construction noise

As noted in Chapter 5 of the JWF EIS Supplementary Acoustics Assessment, the predicted construction noise levels are typical of construction works and activities undertaken in the vicinity of and in close proximity to residential areas. Although predicted noise levels are above the management levels for a number of scenarios these are associated with predicted 15 minute noise values calculated via modelling for the purposes of the assessment, in accordance with the applicable NSW noise guidelines. These values do not represent a constant noise emission that would be experienced by the community on a daily basis throughout the project schedule. The predicted noise levels will only be experienced for limited periods of time when works are occurring; they will not be experienced for full daytime, evening or night time periods. Any impacts associated with these works will be temporary and do not represent a permanent impact on the community and surrounding environment. In accordance with the requirements of the applicable NSW construction noise guidelines suitable recommendations, which can be practically implemented on-site, are provided in Chapter 7 of the JWF EIS Supplementary Acoustics Assessment. Construction noise levels will be reduced and impacts minimised with the successful implementation of these recommendations. These recommendations include the preparation of a Construction Noise Management Plan (CNMP)

that should be developed to ensure that appropriate work practices are implemented during the projects construction to minimise impact. Residual Construction Impacts may not be reduced to negligible levels for all receptors during all construction activities; however the recommendations are designed to ensure that any residual impacts are minimised as far as is practically achievable.

Issue theme: Compliance/exceedance

The revised noise assessment undertaken for the updated Project (Annex F) was undertaken in accordance with the SEARs, March 2016 (SSD 13_6277) and specified guidelines as stated in the Jupiter Wind Farm, Wind Farm Noise Impact Assessment prepared by DNV GL in Annex E of the EIS.

Compliance limits for the wind farm have been derived from background noise curves representing the background noise over a complete 24 hour period.

While the revised noise assessment indicates that the wind farm is 100% compliant with noise limits at all identified non host properties, in the event that the operational wind farm noise is found to exceed the operational noise limits, there are a number of established mitigation and management options (e.g. noise reduced operation modes, turbine shut-down, physical barriers, etc.) that can be used to control the wind turbine noise. These methods are detailed in the Jupiter Wind Farm, Wind Farm Noise Impact Assessment prepared by DNV GL in Annex E of the EIS.

Noise compliance during construction and operation will be managed through the Development Consent and EPL for the Project.

Issue theme: Cumulative impacts

Both the Original and Updated Noise Assessment assessed cumulative noise contributions from the Woodlawn and Capital 1 Wind Farms, and proposed Capital 2 Wind Farm wind farms in the noise assessment for the Project. In DNV GL's experience, wind farm operational sound levels at dwellings further than 5 km from operational wind farms will generally comply with noise limits. The Updated Noise Assessment confirms that the revised layout is predicted to fully comply with relevant noise limits is predicted for all non-host residences.

Issue theme: Health impacts from noise

The revised wind farm noise impact assessment prepared by DNV GL in Annex F includes an assessment of the operational wind farm noise for all identified dwellings up to 5 km from the wind farm. Beyond this distance, wind farm sound levels will be below noise limits, and generally by a significant margin, and therefore it is not anticipated that there will be any adverse health effects related to the wind farm noise at such distances. DNV GL is not aware of any peer-reviewed scientific papers or books that demonstrate a direct link between wind farm noise and adverse health effects.

A WTG noise impact assessment was conducted in accordance with the SEARs, March 2016 (SSD 13_6277) and specified guidelines as stated in the Jupiter Wind Farm, Wind Farm Noise Impact Assessment prepared by DNV GL in Annex E of the EIS. Furthermore the revised layout is 100% compliant at all identified non host properties. Additionally, the National Health and Medical Research Council (NHMRC) released a statement on 11/02/2015 (NHMRC Statement: Evidence on Wind Farms and Human Health) prepared on the advice of the Council of NHMRC with consideration of the comprehensive assessment of the evidence on wind farms and human health. After careful consideration and deliberation, NHMRC concludes that there is currently no consistent evidence that wind farms cause adverse health effects in humans.

Issue theme: Accuracy of noise model

DNV GL has carried out operational wind farm noise predictions using the ISO9613-2 noise model, which is an industry standard noise model. Within this model a ground absorption parameter of $G = 0$ has been assumed (i.e. "hard ground"), which assumes that the noise is reflected from ground surfaces. Research has shown that this modelling assumption is generally considered accurate in the case of noise propagation across concave topographical features or valleys, or potentially conservative for other topographical scenarios. Assuming "hard ground" for the noise modelling is recommended in the EPA SA Guidelines.

Issue theme: Adequacy of monitoring

The Original noise assessment at the Jupiter site has been carried out in accordance with the SEARs, March 2016 (SSD 13_6277) and specified guidelines as stated in the Jupiter Wind Farm, Wind Farm Noise Impact Assessment prepared by DNV GL in Annex E of the EIS.

The background noise assessment carried out by ERM and DNV GL has met these requirements for each noise monitoring location, including the requirement that a minimum of 500 data points should be from the worst case wind direction or at least 6 weeks of monitoring should be undertaken. In order to maintain consistency with the background noise measurements, post-construction measurements confirming compliance are normally carried out at a similar time of year as the pre-construction measurements.

The noise compliance limits for the wind farm have been derived from background noise measurements taken at the site; therefore the derived noise limits take into account the existing rural background noise environment. A number of the logger locations have been assumed to be representative of other residential locations neighbouring the Project, based on consideration of proximity, topography, vegetation, and general similarity of acoustic environments.

Compliance limits for the wind farm have been derived from background noise curves representing the background noise over a complete 24 hour period.

In the updated DNV GL noise assessment included in Annex F, the effects of metrological conditions have also been considered, including the influence of the wind regime, temperature effects and conditions for enhanced propagation though the year.

7.3.6**Biodiversity**

A summary response to the main biodiversity related themes identified in the submissions received in relation to the EIS is provided below.

The submissions received related to the Project as described and assessed in the EIS and the Biodiversity Assessment Report contained in appendix D to the EIS (**Biodiversity Assessment**).

Significant changes have since been made to the Project to respond to submissions and reduce environmental impacts, including biodiversity impacts. The changes made to the Project have resulted in the development footprint reducing from 86.28ha to 61.81ha (temporary impact during construction) and 53.75ha (permanent impact once operational). Figure 3 of Annex I (Project Design Alterations) shows the alterations and attachment 1 (RtS Layout changes summary) contains the discussion regarding the changes to the project layout and the anticipated impacts to biodiversity.

Please refer to Chapter 8 for details. Additional documentation provided in conjunction with the responses to submissions is provided in Annex H of this report.

Issue theme: Glossy Black Cockatoo - Flight Paths

ERM have considered flight paths and have assessed that area as being habitat of note for the Glossy Black-cockatoo. In response to submissions the proponent has reduced the development footprint in many areas including reducing the density of WTGs within designated areas of interest.

Issue theme: Bird impacts

A Bird and Bat Adaptive Management Plan (BBAMP) will be prepared in consultation with OEHL, including 12 months pre-construction surveys for birds and bats.

Issue theme: Glossy Black Cockatoo - Impacts

There is very limited clearing within GBC habitat. Nevertheless, following completion of the project construction, the areas will be surveyed and any impacted areas will be offset according to BBAMP. Response to submissions reference no. 1OEHL20 (Government submissions spreadsheet) outlines measures to mitigate impacts to GBC. Additionally refer to Figure 3 - Glossy Black-Cockatoo Habitat and Project Changes.

Issue theme: Impacts to bats (in particular, the Eastern Bentwing-bat)

EPYC and ERM undertook extensive discussions with OEHL regarding the Eastern Bentwing-bat survey effort. The OEHL correspondence from early March 2015 indicates OEHL's acceptance of targeted detector deployment number, spacing and seasonal timing. This included ground-level detection units in woodlands across the PA for a variety of durations and three units mounted at 50m above ground level for one year. There was also a specific effort to have sufficient units deployed at ground level across the PA to detect any 'pulse' of the species moving across the site. Those units were deployed as directed by OEHL from 5th March 2015 for at least two weeks (were in place for 21 days until 26th March 2015) (acknowledging a typographical error in the EA Table 4.13). The results detected no 'pulse' of the species migration through the PA, indicating that this species is not present in the PA during the time of monitoring. Refer to Figure 5 of Annex H (Eastern Bentwing-bat Migration Monitoring Ground Level Units 5/3/15-26/3/15) for additional information.

Issue theme: Vegetation clearance

WTG micro-siting and detailed fauna assessments (refer to Annex D of the EIS) have been undertaken to ensure that the removal of vegetation does not significantly impact habitat utilisation by fauna. Additionally, with the removal of 34 WTGs from the overall project, impacts to biodiversity will be greatly decreased.

Issue theme: Potential impacts to Diamond Firetail and Scarlet Robin populations.

Both species are unlikely to be affected by clearing of small areas of vegetation proposed for the Project, and are considered to be at low risk of WTG collision, as the species generally fly below RSA height. With regards to the Diamond Firetail, the species was recorded in open habitats and the amount of vegetation clearance is likely to be negligible for this species. The risk of mortality due to vehicle strike will be managed through introducing speed limits for Project vehicles in and around the PA. Therefore, the Project is unlikely to have a significant impact on the species. In addition the Southern Precinct has been removed from the project further reducing impacts on this species.

Issue theme: Adequacy of methodology

Please refer to the Section 4 (Methodology) of Annex D of the EIS for methodology and relevant background searches to ensure all potential threatened species were considered as part of the EIS.

Issue theme: Impact on migratory birds

It is expected that the reduction in the number of WTG's and the removal of the Southern Precinct will substantially reduce any potential impacts to migratory bird species and population. In addition, A Bird and Bat Adaptive Management Plan (BBAMP) will be prepared in consultation with OEH, which will include 12 months pre-construction surveys for birds and bats.

Issue theme: Prevalence and spread of noxious weeds

Weed management measures aimed at controlling the spread of introduced weed species will be included as part of the CEMP and will be upheld throughout the OEMP.

Issue theme: Survey effort

Refer to Section 4.2 of the Biodiversity Impact Assessment (Annex D of the EIS). Extensive liaison was undertaken with OEH regarding survey effort and completed survey effort was consistent with recommendations from OEH.

Issue theme: Wedge Tail Eagle

Refer to attachment 2 of Annex I (Amended seven part tests) of Annex I for raptor assessment of significance (or seven-part test). A BBAMP will be prepared in consultation with OEH, including: 12 months pre-construction surveys for birds and bats.

Issue theme: Wildlife corridor

EPYC have committed to reducing the number of WTGs from 88 to 54 and relocating a number of others. With the removal of 34 WTGs from the proposed project design and the relocation of 14 WTGs, the overall impacts to biodiversity (in particular, habitat loss/degradation) will be greatly reduced. The proponent has considered the agency and public submissions and to reduce the Project's potential impacts on biodiversity, and has made a number of changes to the development footprint.

7.3.7**Heritage**

A summary response to the main Aboriginal heritage related themes identified in the submissions received in relation to the EIS is provided below.

It is important to note that the submissions related to the Project as described and assessed in the EIS and the Cultural Heritage Assessment Report contained in appendix G to the EIS (**Original CHA**).

Significant changes have since been made to the Project to respond to submissions and reduce environmental impacts, including the removal of 34 WTGs and the entire Southern Precinct from the Project. An Updated Aboriginal Heritage Background Review and Landform Mapping (**Updated Heritage Assessment**) has been prepared to supplement the information contained in the EIS and is contained in Annex J of this report.

Issue theme: Adequacy of assessment

ERM recognise that several crests and flat or gently sloping landforms, slightly elevated and adjacent to drainage lines within the PA would have been attractive camping locations (refer to Annex J). These mapped areas have been identified based on their relatively undisturbed ground within archaeologically sensitive landforms close to water and are identified as having moderate potential to reveal Aboriginal cultural heritage. Where disturbance to these areas cannot be avoided a program of subsurface testing has been recommended and will be undertaken during the detailed design phase of the Project, during which the final locations of Project infrastructure components and ground disturbance activities will be confirmed.

Issue theme: Potential risk of damage to archaeological / heritage value throughout the Southern Precinct

The Project has been revised to remove the Southern Precinct and so will not have any impacts on archaeological or heritage values in this area.

7.3.8

Traffic

A summary of the response for each of the main traffic and transport-related themes identified in the submissions is provided below.

A detailed Transport Impact Assessment Report was contained in Annex H to the EIS (**Original Traffic Assessment**). An updated Transport Impact Assessment has been prepared for the Revised Project (**Updated Traffic Assessment**) and is contained in Annex G.

Issue theme: Damaged roads

Dilapidation surveys will be completed before and after construction along transport routes, and any damage caused to roads by the construction of the project will be repaired in accordance with the conditions imposed on any consent granted for the Project.

Issue theme: Dangerous roads

A Construction Traffic Management Plan will be prepared following project approval which will consider aspects of the construction traffic and speeds, and provide measure to assist in the management of associated impacts. .

Issue theme: Construction related traffic impacts

There will be construction related traffic impacts associated with the delivery of turbine components and other infrastructure. A Construction Traffic Management Plan will be prepared prior to the commencement of construction of the Project which will include measures to mitigate potential impacts, and additional assessment to respond to potential impacts if necessary. During operation traffic impacts would be minimal and limited to service vehicles (utilities or similar).

Issue theme: Decommissioning

A separate Decommissioning Traffic Management Plan will be prepared prior to decommissioning works taking place to assist in the management of traffic and transport related issues and impacts.

Issue theme: Adequacy of assessment

The Updated Traffic Assessment specifically addressed issues identified in submissions relating to the adequacy of the traffic assessment, including the additional bus routes (public and private) and provides a response to any potential impacts (refer Annex G).

Issue theme: Increased traffic

The surrounding road network currently operates with a Level of Service C or better. Whilst increased traffic is anticipated during construction, the surrounding road network is anticipated to continue to operate with a Level of Service C or better. Although the initial assessment did not find any public bus routes along Goulburn/Braidwood Road, the community has advised there are existing bus routes that are privately run bus services and not part of the NSW transport run.

A detailed Construction Traffic Management Plan would be prepared for the haulage of the over dimensioned and/or over massed components. This will also take into account any private bus routes.

Issue theme: Impacts to Lower Boro Road

The Original Traffic Assessment stated that access roads servicing the Northern Precinct will cross over Lower Boro Road. However, following the changes made to the Project, construction vehicles would no longer utilize Lower Boro Road to access the site. Rather, vehicles accessing the site will do so via Braidwood / Goulburn Roads (Kings Highway will no longer be utilized to access the Southern Precinct as it no longer part of the updated project design) and will not be required to travel along the lower order local road network. As a result, the Updated Traffic Assessment confirms that no upgrades or maintenance will be required for lower order local roads (with the exception of the crossing points of the local roads).

With regards to the operational phase of the project, traffic impacts are expected to be minimal, and limited to service vehicles only (utilities or similar, which would have minimal impact on the current state of the road network).

Issue theme: Manar Road and southern precinct

The Southern Precinct has been removed as part of the updated project design and all associated transport impacts within the proximity of the Southern Precinct are expected to be substantially reduced, if not entirely removed.

Issue theme: Utilization of alternative roads

The preferred traffic route was identified in consultation with RMS and both Councils. The identified traffic route is consistent with those adopted for the other nearby constructed wind farm projects.

The potential alternative routes identified in submissions would have a number of construction and approval issues, including grade differences and creating an additional access to a classified road. They are not considered suitable for this reason.

Issue theme: School bus route

A detailed Traffic Management Plan will be developed in consultation with the local Councils as road authorities and RMS to ensure that the timing for oversize and overmass deliveries are scheduled to minimise the impacts on existing road users. School bus routes and timings will be a factor considered in the traffic management plan. Further consideration on school bus routes is contained in the Updated Traffic Assessment.

7.3.9

Aviation

A summary response for each of the main aviation-related themes identified throughout the Rts is provided below.

Issue theme: Aerial firefighting

Two Development Assessment and Planning Officers from the NSW Rural Fire Service (RFS) were consulted with regards to the Project, and advised that wind farms are considered to be an advantage to RFS operations because they generally require a cleared area, a water supply and provide improved access to the project area. NSW RFS has worked with other firefighting agencies in the Australian and New Zealand National Council for Fire and Emergency Services (AFAC) in developing a national position on wind farms and bush fires. AFAC developed the Wind Farms and Bushfires Operations Position and requires the following:

- Aerial firefighting operations will treat turbine towers similar to other tall obstacles;
- Pilots and Air Operations Managers will assess these risks as part of routine procedures;
- Risks due to wake turbulence and the moving blades should also be considered; and
- Wind turbines are not expected to pose unacceptable risks.

Issue theme: Aerial Agriculture

The Aerial Agriculture Association of Australia (AAAA) has developed National Windfarm Operating Protocols (adopted May 2014). These protocols note that some wind farm proposals may be approved in areas where aerial application takes place. The AAAA was consulted during the preparation of the aviation impact assessment. The consultation of the EIS provided opportunities and built awareness of the proposed Project and opportunity for aerial agriculture operators to comment. The use of helicopters enables aerial application operations to be conducted in closer proximity to obstacles than would be possible with fixed wing aircraft due to their greater manoeuvrability. Pilots conducting low level operations under the visual flight rules (VFR) are expected to possess an adequate level of understanding of the effects of mechanical turbulence caused by wind farms to maintain an acceptable level of safety.

Issue theme: Impacts to surrounding airstrips

Without specific knowledge of the aerodrome in question, it is not possible to provide a detailed response to the issues regarding "take-off to the south east". The effect of wind turbine wake turbulence was assessed in the Aeronautical Impact Assessment. National Airport Safeguarding Framework Guideline D suggests that that wind turbines may create turbulence that is noticeable up to 16 rotor diameters from the turbine. Given that the maximum diameter of the WTG models under consideration is 126 m, the distance at 16 diameters (16D) is 2016 m (1.09 nm) downstream from the wind turbine.

The highest turbine in the revised layout is WTG40, at 729 m AHD site elevation + 173 m turbine height = 902 m AHD (2,959 ft AMSL). The minimum vertical separation required above the ground or obstacles is 500 ft. That leaves 3,000 ft between 3,500 ft and 6,500 ft AMSL available for the operation of recreational (and other) aircraft. This volume of airspace is satisfactory for the needs of its users.

The term 'aircraft landing area' (ALA) remains in force within Australian's aviation regulatory framework. CASA has published recommended practices in its Civil Aviation Advisory Publication (CAAP) 92-1(1) Guidelines for aeroplane landing areas. The purpose of the CAAP 92-1(1) guidance is described as follows:

These guidelines set out factors that may be used to determine the suitability of a place for the landing and taking-off of aeroplanes. Experience has shown that, in most cases, application of these guidelines will enable a take-off or landing to be completed safely, provided that the pilot in command:

a. has sound piloting skills; and

b. displays sound airmanship.

The revised project design will include the removal of turbines 17, 60, 62 and 67, which will significantly reduce the aviation impacts to nearby residents. Additionally, turbines 68 and 73 will be relocated (within 100m). The amended project design and layout will be sufficient in ensuring that flight paths remain safe and that any interference will be mitigated where feasible.

Issue theme: Aircraft Landing Areas (ALA's)

With respect to aircraft taking off or landing from an aerodrome, based on the guidance provided in NASF Guideline D, it can be concluded that there are no aircraft landing areas (ALAs) located in such a position that aircraft taking off or landing may be affected by wake turbulence caused by the Project wind turbines.

With reference to the Jupiter Wind Farm EIS, there are a number of uncertified/unregistered airfields located within 30 NM of the proposed wind farm. Bungendore, Currandooly, Gundaroo and Braidwood airfields are located within this area. These airfields do not have instrument procedures, and as such do not have any OLS (obstacle limitation surface) or PANSOPS (Procedures for Air Navigation Services – Operations) surfaces. These airfields are sufficiently distant from the proposed wind farm that take-off and landing operations are not affected. None of these airfields have permanent lighting and would not normally be used in night flying operations.

Issue theme: Impacts to landowners within the vicinity of the Southern Precinct

The Southern Precinct has been removed from the final project layout and as a result all aviation-related impacts are expected to be mitigated.

7.3.10**Shadow Flicker**

A summary response for each of the main shadow flicker-related themes identified throughout the submission is provided below.

A Shadow Flicker Assessment was conducted by DNV_GL as part of the EIS and is available for review in Annex L of the EIS. This is also summarised in Chapter 16.4 of the EIS document. This assessment showed that there were no shadow flicker exceedances at dwelling locations for non-host properties for the original Project layout assessed. The revised project decreases turbine numbers and increases the separation between turbines and non-associated residences. Accordingly, the changes made as part of the revised Project will also further reduce shadow flicker impacts. Residual shadow flicker can be mitigated through a number of measures, including the installation of screening structures or vegetation and the use of turbine control strategies.

Issue theme: Increased presence of shadows and associated impacts to landowners

According to the relevant guidelines, some level of shadow flicker is acceptable at dwellings in the vicinity of a wind farm. If the shadow flicker experienced at a dwelling is below the specified limits, there is no need to implement mitigation strategies. For dwellings that are sufficiently far from the turbines, it is expected that the shadow flicker will be diffused to the extent that any variation in light levels will not be sufficient to cause annoyance.

Issue theme: Presence of shadow flicker having potential to impact health of nearby residents

Shadow flicker caused by wind turbines is generally not considered to have an impact on human health. Peer-reviewed research, including that conducted by the National Health and Medical Research Council (NHMRC), indicates that there is no scientific evidence linking shadow flicker from wind farms with adverse health effects. DNV GL is not aware of any studies showing that wind turbine shadow flicker has the potential to cause or exacerbate migraines, but acknowledges that many factors may trigger migraines and that different people are sensitive to different triggers.

The likely level of shadow flicker impact at a dwelling generally depends on its location relative to the wind farm. Although shadow flicker can theoretically extend over many kilometres, the intensity of the shadow decreases with distance. For dwellings located more than 1260 m from turbines, it is expected that the shadow flicker will be diffused to the extent that any variation in light levels will not be sufficient to cause annoyance, which may reduce or eliminate the potential for the shadow flicker to trigger migraines.

It is important to note that the theoretical modelling conducted represented a conservative (worst case) scenario of the actual annual hours of shadow flicker experienced at a dwelling. The prediction of the actual shadow flicker duration for the worst case scenario did not take into account any reduction due to low or high wind speed (when the WTGs would not be operating), vegetation or other shielding effects around each dwelling in calculating the number of shadow flicker hours.

Therefore, the values presented represent an overestimation of actual shadow flicker impact. In addition, following reduction in turbine numbers in the revised layout, no shadow flicker exceedances at dwelling locations for non-host properties is anticipated.

Issue theme: Impacts associated to properties within vicinity of Southern Precinct

The Southern Precinct has been removed as part of the updated project design and as such, all impacts are expected to be mitigated.

Issue theme: Shadow flicker with regards to night-lighting

Please refer to Section 7.3.1 above for Night Lighting impacts.

7.3.11

Blade Throw

A summary response for each of the main blade throw-related themes identified in the submission is provided below.

Issue theme: Adequacy of assessment

The risk of blade throw has been addressed for the project based on a review of literature and guidelines that have been used to describe or assess this risk in other jurisdictions around the world. This review has established typical blade throw risks in the vicinity of a wind turbine. Although it is possible to quantify the risk of blade through a site-specific blade throw analysis, such analyses have not typically been conducted for sites in Australia because wind farms are generally installed in rural areas and are located a significant distance from population centres, which further reduces potential blade throw risks.

The revised layout for the Jupiter Wind Farm consists of 54 turbines. Based on the analysis performed by Cotton, the cumulative probability of blade failure per annum over a 54 turbine wind farm is $1-(1-0.001)^{54} = 0.053$ incidents per year, or 1 incident every 18 years across the entire wind farm. The likelihood of a turbine blade failure resulting in property damage, injury, or death is determined by the probability of a failure occurring that causes a blade or part of the blade to detach from the turbine, combined with the probability of a blade fragment actually hitting property or a person in the surrounding area, and is therefore very low.

Issue theme: Setbacks to alleviate blade throw impact

Although maximum theoretical blade throw distances may be similar to setbacks established for noise or other impacts, it is not necessary for setbacks to be established based on maximum theoretical blade throw distances, as the risk of such events occurring is very low. Setbacks should be established based on the probabilities of impacts occurring, and acceptable levels of risk. Increasing setback distances to account for potential maximum blade throw and ice throw distances would reduce the risk of impacts from these events. However, if the risk associated with such events is already very low, and below acceptable risk levels, creating or increasing setback distances may not be necessary. Additionally, it is not expected that restrictions on land use would be required to mitigate the already low risks of blade throw incidents.

Issue theme: Blade throw risk to neighbouring properties

The likelihood of a blade throw incident occurring at the proposed Jupiter Wind Farm is in the order of 10^{-3} to 10^{-4} incidents per turbine per year (1 incident per 1000 to 10,000 years per turbine), however the risk of a blade fragment being thrown onto a neighbouring property is significantly lower, as the risk of a blade throw occurring needs to be combined with the probability of a fragment landing at a specific location or in a specific area.

Issue theme: Mechanical Operation & Maintenance Manual for V90-3.0 MW turbines.

The advice given in wind turbine operating and maintenance manuals is expected to be intended for people who are continually working in close proximity to turbines. Consequently, the cumulative risk of injury being caused by a blade throw event is greater for those people. For a person who spends relatively short periods of time in close proximity to a turbine, the risk of being hit by a blade fragment thrown from the turbine is substantially lower.

The Dutch Wind Turbine Risk Zoning Handbook suggests that the annual probability of an individual being hit and killed by a blade fragment thrown from a 5 MW IEC Class I turbine with a hub height of 120 m is 10^{-5} (1-in-100,000) at a distance of 71 m, and 10^{-6} (1-in-1 million) at a distance of 214 m. A study performed by MMI Engineering Ltd on behalf of the UK Health and Safety Executive estimated the overall annual risk of being killed by a blade or blade fragment at a distance of twice the turbine hub height as 10^{-8} (or 1-in-100 million), which is comparable to the annual risk of fatality due to an aircraft accident (likelihood of 1.6×10^{-8} or 1-in-62.5 million assuming two flights per year) or being struck by lightning (likelihood of 5.35×10^{-8} or 1-in-18.7 million). In Australia, the risk of death to those working in agriculture is typically approximately 1.5×10^{-4} (or 1-in-6,667) [Safe Work Australia, 2003], while the risk of death on Australian roads is approximately 0.5×10^{-4} (1-in-20,000) [Bureau of Infrastructure, Transport and Regional Economics, 2016].

The likelihood of injury due to a blade throw event can therefore be considered small, particularly when compared to the likelihood of accidents occurring during many everyday activities, and are within the levels of risk typically deemed acceptable by society.

Issue theme: Potential risk and impacts associated with ice thrown from WTG's

DNV GL is not aware of any instances of turbine blade icing occurring at an Australian wind farm. The conditions required for icing to occur are not prevalent, and icing of anemometers at wind monitoring masts is not typically observed in this region. It is therefore considered that the risk of turbine blade icing and ice throw is low. Additionally, it is noted that the landowner's property exists in proximity to the Southern Precinct, which has been removed as part of the updated project design.

7.3.12

EMI/EMF

A summary response for each of the main EMI/EMF -related themes identified throughout the submissions is provided below.

Issue theme: General interference

The main mechanism by which a wind turbine can interfere with telecommunications signals is through the physical presence of the turbine, rather than through any EMF emissions from the turbine, which are expected to be very low.

Issue theme: Adequacy of assessment

DNV GL has extensive experience in conducting EMI assessments for proposed wind farm developments in several jurisdictions across Australia. A number of DNV GL staff have also provided expert witness evidence regarding EMI at planning hearings for multiple wind farms, and have participated in community open days and consultation meetings to provide information on potential EMI impacts.

The EMI assessment has been conducted on the basis of publicly-available information regarding services in the PA, methodologies outlined in the relevant planning guidelines, various standard industry practices, and the results of external studies. The potential impact to some services, such as fixed point-to-point links, satellite television and internet signals, and terrestrial television broadcasts, can be assessed qualitatively. In many cases, however, assessment of the potential EMI impacts cannot be performed qualitatively, either because the necessary information is not publicly-available or because the theoretical models are not sufficiently accurate or reliable. In these cases, it is often necessary to rely on feedback obtained from consultation with the service operators. The consultation process is intended to draw upon the knowledge and experience of these operators to develop a joint assessment of the potential for impact, as recommended in the Draft National Wind Farm Development Guidelines.

Issue theme: Television impacts

There is potential for WTGs in the PA to cause interference to digital television signals, particularly in areas where the signal strength is already marginal. Modelling of impacts to television broadcasts is particularly difficult, and a review of the relevant literature suggests that, when compared to empirical data, none of the detailed theoretical scattering models proposed provide an accurate or realistic estimation of signal scattering from wind turbines. The simplified ‘keyhole’ approach used by DNV GL to identify dwellings that are most likely to experience potential interference to television signals is an established method that does not rely on detailed modelling of signal scatter. Rather, it highlights the region around each turbine where signal scattering is likely to be an issue. Following development consent, EPYC will commit to undertaking television signal strength assessments at all required dwellings. Where necessary, mitigation measures will be implemented as required to improve or restore television signal reception if it is found to be affected by the project. One of the potential mitigation options involves the installation of a television repeater to improve television signal strength in the area. Impacts will be mitigated and managed to acceptable levels in accordance with future EPL or SSD conditions of approval that are expected to be provided by the EPA and DPE.

Issue theme: Mobile phones and wireless internet impacts

Although it is theoretically possible for interference to mobile phone and wireless internet signals to occur in areas of marginal coverage where the signal passes through the wind farm, there is no strong evidence in the literature of impact to these signals. Additionally, DNV GL has consulted with Telstra, Optus, and Vodafone in regards to potential interference to mobile phone signals for multiple wind farm sites across Australia and no concerns have been raised to date. It is understood that NBN Co typically takes wind farms into account when determining signal coverage and service availability, and is likely to offer the Sky Muster satellite service to customers in areas that may be affected by the wind farm. Considering the elevation angle of the Sky Muster satellites at the project site, it is unlikely that the project will interfere with the NBN satellite service.

It is acknowledged that the suggested mitigation options may not be suitable in all situations. In some cases, it may be possible to achieve better signal strength by moving a short distance within a dwelling or while outdoors. In situations where the signal strength is more broadly affected, other mitigation options may be available to improve the mobile phone and wireless internet coverage in that area.

Issue theme: Radio interference

Interference to AM radio signals is only expected in very close proximity to turbine locations. Similarly, interference to FM radio signals is typically only experienced within several tens of metres of a wind turbine. It is unlikely that any permanent radio receivers will be located sufficiently close to the wind farm to be affected by this type of interference. A permanent digital radio service is not currently available in the PA, and therefore the potential impact on digital radio signals has not been considered in the assessment.

Interference to CB radio from the wind farm is considered unlikely. Generally, interference to CB radio signals would only be expected in close proximity to turbines, or where the signal passes through the wind farm and is intercepted by a turbine. Relocating away from the location of a turbine, or such that the signal can pass through the wind farm unobstructed, should be sufficient to mitigate any interference.

7.3.13

Soil and Water

A summary response for each of the main soil and water-related themes identified in submission is provided below. Additional documentation prepared in conjunction with the responses to submissions is provided in Annex K.

Issue theme: Erosion risks

The Revised Universal Soil Loss Equation (RUSLE) was used to determine the erosion hazard for pad sites in the study area. Conservative inputs were utilised for all components in the equation. It is recognised that RUSLE has limitations (which are stated in Landcom 2004), but this document also goes on to state that 'the RUSLE has its benefits and should be applied at all urban development sites, even at a cursory level' and it is the expected approach on all such assessment reports. The results of the RUSLE identified the erosion hazard was low to moderate. With the implementation of erosion and sediment controls and limited time of disturbance due to construction, the erosion hazard for pad sites was considered low.

Existing erosion control works (in the form of contour banks) are present in some locations on the site and disturbance to these structures should be avoided where possible to prevent negative impacts to their current functioning. Potential impacts of the proposal have been identified and mitigation measures proposed in the assessment report.

A Construction Soil and Water Management Plan (CSWMP) will be developed prior to construction and following approval of the EIS, as is standard practice for this type of development. The management measures outlined in the assessment report will be included in the assessment. The CSWMP will outline monitoring requirements.

Issue theme: Aquifer interference

Groundwater issues are considered negligible given the positioning of the turbines at higher elevations. The ratio of area occupied by turbine and that which remains undisturbed is not considered to have any significant effect on the recharging of groundwater systems.

Issue theme: Soil quality

Soil quality characteristics as relevant to soil and water assessment provided in the soil and water assessment report. A large number of turbines and associated access tracks have been removed from the proposal so the disturbance footprint has been reduced significantly.

The soil and water risk management measures will be determined and then documented within the Construction and Operational Environmental Management Plans that will be prepared for the Project, to ensure a safe working environment in the area.

Issue theme: Inadequacy of the JWF EIS

The submission prepared by Wayne Cook ((Environmental Consultant – Soil and Landscape Management) primarily addressed the adequacy of the findings of the EIS in relation to the potential soil and water impacts associated with the project.

The submission suggests that the EIS does not adequately address the highly fragile and erosive nature of the soils found within the project area, along with other impacts and shortcomings related to erosion, mitigation measures, the Soil and Water Management Plan, groundwater, and the requirements of the SEAR's. Responses to the related submissions are extensive but addressed within Table B.4 of Annex B.

7.3.14

Economic

A summary response for each of the main economic-related themes identified throughout the RfS is provided below.

Chapter 8 contains an update of the strong economic benefits which the Project will deliver for both the local and broader community.

Issue theme: Community Benefit

EPYC had originally established a voluntary Neighbour Benefit Sharing Program (NBSP) which was initially offered to all neighbours within 2km and a number of neighbours with dwellings within 2-3km. Following the EIS exhibition and review of the submissions received, EPYC expanded the NBSP to include all neighbours with dwelling or DA for dwelling within 3km of the site. Information regarding community benefits related to the NBSP was provided within the December 2016 newsletter.

In addition a Community Enhancement Fund (CEF) will also be established following further consultation with both GMC and QPRC to benefit the greater community. Please refer to Chapter 4 for additional information regarding the Community Enhancement Fund.

Issue theme: Lack of information provided regarding the Benefit Sharing Programme

The NBSP was originally announced in October 2015 at the CCC meeting (refer to the minutes on EPYC's website). This offer has also been noted in several Newsletters as well as discussed with individual eligible landholders. More recently, in May 2017, EPYC held benefit sharing workshops locally and invited the eligible landholders within 3km to attend one of the many sessions on offer. The NBSP details including the basis of the offer and related calculations as well as the details of the visual impact mitigation measure payment were made available to those who participated or indicated an interest for further information.

Issue theme: Employment

Employment of locally skilled trade persons is dependent on a number of factors including the availability of skillset, availability of labour, and labour rates.

EPYC has maintained a register for EOI for skilled workers and local contractors since 2014. As the project progresses, there will be further advertising for local trades, expertise, service providers to register their interest. It is estimated that up to 230 full time equivalent opportunities will be generated by the Project during the construction phase and an estimated 22 staff during operations (SKM, 2012).

Issue theme: Generation Capacity

The 2016 report released by Australian Energy Market Operator Limited highlights that underlying demand is predicted to continue to increase, and this, along with further withdrawals of coal-fired generation, needs to be met through increased future generation capacity. It is acknowledged that additional intermittent generation alone may not materially improve reliability of the system; however investment in new, cost effective renewable sources, such as wind energy, is an important component in increasing electricity supply in response to increasing demand, whilst reducing GHG emissions. This is in line with the Independent Review into the Future Security of the National Electricity Market by Dr Alan Finkel. There were four key outcomes namely increased security, future reliability, rewarding consumers, and lower emissions. The proposed Jupiter Wind Farm project is expected to contribute to these key outcomes as well as AEMO forecasts with an anticipated annual generation of 755GWh into the national grid.

Issue theme: Greenhouse Gases

As outlined in Section 2.3.1 of the JWF EIS, the estimate of 0.9Mt of GHG savings was derived by using the NSW Department of Environment and Heritage (OEH) Wind Farm Greenhouse Gas Savings Tool (WFGGT). The greenhouse gas assessment as required by the SEARs was limited to 'demonstrate quantified and substantiated greenhouse gas benefits', which are outlined in the EIS. Additional detail is considered outside the scope of works of the EIS. The revised Project is estimated to provide 0.6Mt of GHG savings which is the equivalent of removing in the order of 183,000 passenger vehicles from NSW roads each year during the operational life of the Project.

Issue theme: Procurement

Procurement of materials will be undertaken during the construction phase. A number of factors will be considered as part of the procurement of the WTGs, including manufacturing time, cost, availability, and reliability. Preference will be made for Australian goods and services where they satisfy procurement criteria.

The WTGs will be purchased overseas as there are no manufacturers within Australia at this time.

Issue theme: Expenditure

The generated expenditure has been extrapolated from the figures presented in the Clean Energy Council publication 'Wind farm investment, employment and carbon abatement in Australia' dated 2012. The revised Project will provide significant direct investment in the local economy, consisting of an estimated \$71 million during construction, and a further \$4.8 million per annum during operation (SKM, 2012).

The benefits to the local community include additional income streams for host landholders, NBSP, and the CEF. The voluntary NBSP will comprise agreements made with neighbours that will enable the non-involved landholder to benefit financially from the Project throughout its operational life. The CEF will also provide direct contributions to the local community throughout the operational life of the Project.

Issue theme: Clarification regarding Government contributions

Wind farms do not rely on or receive government contributions. The Renewable Energy Target (RET) provides an obligation for electricity retailers to supply a certain portion of the energy from renewable sources. This in turn will encourage investment in renewable energy which subsequently will assist in mitigation against CO₂ emissions and climate change.

Issue theme: Justification of SSD

The project is State Significant Development as it meets the criteria set out by the NSW Department of Planning in the *State Environmental Planning Policy (State and Regional Development)* 2011.

Issue theme: Local economic benefits to trades

Local expertise will be utilised where possible as this will reduce cost for developer and contractor and more importantly benefit the local trades.

Since 2012, EPYC staff and their contractors have utilized the services provided by a range of businesses in the Tarago area including the Tarago petrol station and the Loaded Dog Hotel.

If the services are not available locally then a regional area such as Goulburn, Braidwood, and Bungendore could also benefit.

Issue theme: Property Value

A review of available literature, including the recent Urbis (2016) investigation undertaken in support of release of the new draft Wind Energy Planning Framework by DP&E, did not find a correlation between declining property values in properties in proximity to wind farm developments, which has been supported by a statement made by the DP&E in the Secretary's Environmental Assessment Report for the approved Yass Valley Wind Farm, which states that:

"The Department acknowledges that, in relation to impacts on land values, the NSW Valuer-General commissioned a report on the impacts of wind farms on land values in Australia. The report states as its principal finding, based on analysis of previous studies and its own investigations, that the majority of wind farms erected in Australia appear to have had no quantifiable effect on land values."

Issue theme: Existing Land use

The existing agricultural activities occurring within the PA will be able to coexist with the Project and the proposed infrastructure. The Project will result in direct economic benefit to the community through additional income streams for host-land holders, neighbours through the NBSP, and broader community via CEF.

Issue theme: Viability of Project/Project profitability

EPYC confirms that the revised Project remains viable.

7.3.15

Health

A summary response for each of the main health-related themes raised in submissions is provided below.

Issue theme: Concerns that the Project will result in adverse health effects

The National Health and Medical Research Council (NHMRC) Statement: Evidence on Wind Farms and Human Health was released on Wednesday, 11 February 2015. The Statement was prepared on the advice of the Council of NHMRC with consideration of the comprehensive assessment of the evidence on wind farms and human health. It provides advice to the community and to policy makers on this issue. After careful consideration and deliberation, NHMRC concluded that there is currently no consistent evidence that wind farms cause adverse health effects in humans. Given the limitations of the existing evidence and continuing concerns expressed by some members of the community, NHMRC considers that further high quality research on the possible health effects of wind farms is required. However, it is beyond the scope of the Environmental Impact Statement to research, examine, evaluate or determine health effects associated with wind farms, if any. With regards to noise (a common factor perceived to be associated with health impacts) the NHMRC Statement: Evidence on Wind Farms and Human Health concluded two key features: 1) that "there is no direct evidence that exposure to wind farm noise affects physical or mental health"; and 2) more specifically, they stated that, "while exposure to environmental noise is associated with health effects, these effects occur at much higher levels of noise than are likely to be perceived by people living in close proximity to wind farms in Australia".

Issue theme: Infrasound

The NHMRC Statement: Evidence on Wind Farms and Human Health states that "There is no direct evidence that considered the possible effects on health of infrasound or low frequency noise from wind farms. Exposure to infrasound and low-frequency noise in a laboratory setting has few, if any, effects on body functions. However, this exposure did not replicate all of the characteristics of wind farm noise as it has generally been at much higher levels and of short duration. Although individuals may perceive aspects of wind farm noise at greater distances, it

is unlikely that it will be disturbing at distances of more than 1,500 metres. Noise from wind farms, including its content of low-frequency noise and infrasound, is similar to noise from many other natural and human-made sources." These acoustical features were also addressed in the Jupiter Wind Farm, Wind Farm Noise Impact Assessment prepared by DNV-GL in Annex E of the EIS.

7.3.16

Decommissioning

A summary response for the main decommissioning-related theme identified throughout the RtS is provided below.

Issue theme: Decommissioning assurances and funding

The Jupiter Wind Farm Preliminary Decommissioning and Rehabilitation Plan is provided in Annex O of the EIS. As stated, a fund to cover the costs of decommissioning the Project infrastructure and rehabilitating the Project Area will be established during operation and prior to decommissioning of the wind farm. The size of the decommissioning fund will be based on the estimated cost of decommissioning and the value of the WTGs and associated infrastructure at the time of the fund's establishment. The amount set aside for the decommissioning fund will have consideration for two cost scenarios (re-uses of WTG or scrap metal as described in the plan) and will be first estimated prior to commencement of construction of the Project, and then during detailed design when turbine make and capacity is known. These funds may be held by a legal firm or an authorised appointed trustee corporation. The estimated decommissioning costs will be re-evaluated every five years with each review of this plan (refer to Chapter 7 of the plan) and prior to decommissioning.

The rehabilitation and monitoring of the Project decommissioning is the responsibility of the Proponent (EPYC), or any subsequent owners of the wind farm. Section 4.1 of the Preliminary Decommissioning and Rehabilitation Plan provides insight into the primary objectives identified throughout the rehabilitation and monitoring program, which include 'return disturbed areas back to its pre-construction conditions and contours'.

In addition, the funds establishment and value is contingent on the approval of the project and the detailed design of the wind farm. Following these key milestones, it will then be possible to estimate the size of the decommissioning fund. The amount set aside will however have consideration for two cost scenarios. At this time and as the fund is established (during operation) the nature of the fund i.e. will funds be held by a legal firm or an authorised appointed trustee corporation etc. will also be confirmed.

It is considered beyond the scope of the EIS (and the RtS report) to provide any commentary regarding State or Federal Government commitments or views, or those associated with other relevant entities e.g. DP&E and PAC.

7.3.17

Planning (includes Legislation and Zoning)

A summary response for the main planning-related theme identified throughout the RtS is provided below.

Issue theme: Proximity of Project to residents and consistency with zoning

Detailed consideration of the consistency of the Project with the relevant zone objectives was contained in Table 6.4 of the EIS and discussed in section 6.4.2 and 6.5.2. All adjacent non host dwellings are Zoned RU1 or E3. Wind farms are a permissible land use on RU1 zone (under clause 31(1) of ISEPP) in both GMC and QPRC but not in E3. The proposed WTGs in the QPRC are located within land zoned RU1, while those in QPRC are located in areas zoned either RU1 or E3. The Project is not permissible within E3 but is considered to be consistent with the objectives of the E3 zone. Furthermore, Section 89E(3) of the EP&A Act, provides that:

“Development consent (for State Significant Developments) may be granted despite the development being partly prohibited by an environmental planning instrument.”

Accordingly, SSD development consent for the Project, which has been recognised by the SRD SEPP as being of State significance, can still be granted notwithstanding the partial prohibition on that part of the PA zoned E3 - Environmental Management Zone. This reflects legislative recognition that the ‘broad public interest in the establishment of viable renewable energy sources’ must be balanced against ‘geographically narrower concerns’ related to potential localised impacts of the Project (Chief Justice Preston of the NSW Land and Environment Court set out in *Taralga Landscape Guardians Inc v Minister for Planning and RES Southern Cross Pty Ltd* [2007] NSWLEC 59 (12 February 2007)).

Furthermore, the revised Project has reduced the potential to impact on environmental and social values including biodiversity, visual and noise.

8 UPDATED ENVIRONMENTAL ASSESSMENT, STATEMENT OF COMMITMENTS AND PREFERRED PROJECT EVALUATION

8.1 Updated Environmental Assessment

This chapter provides an overview of the updated environmental assessment carried out on the revised Project including a new statement of commitments.

Six technical assessments have been updated or revised in response to the submissions and to assess the key aspects of the revised Project layout, including visual, traffic, and noise, biodiversity, and heritage and bushfire impacts. A summary of the key findings of the revised technical assessment is provided below.

Other environmental factors such as water supply, water quality and hydrology; socio-economic; aviation safety; electromagnetic interference; shadow flicker; blade throw; health; and the preliminary decommissioning and rehabilitation plan were considered as part of this updated assessment and evaluation, however stand-alone technical assessments were not warranted or prepared.

All environmental factors are addressed in the updated statement of commitments presented in Section 8.2, Table 8.1, and in the overall evaluation of the preferred project documented in Section 8.3 of this report.

8.1.1 Visual

ERM has prepared an updated Landscape Character and Visual Impact Assessment (Updated Visual Assessment) (dated September 2017) to assess the revised Project and respond to submissions received during the public exhibition. A full copy of the Updated Visual Assessment is presented as Annex E.

The Updated Visual Assessment was undertaken to determine the sensitivity of the landscape in relation to the revised Project. The Jupiter Wind Farm site is an area that is largely modified by agricultural activity and associated structures and infrastructure including roads and transmission lines. The landscape in the area is one that continues to undergo visual change and modification through sub-division of large rural land holdings into smaller allotments.

The major visual and landscape impact will be on residents immediately adjacent to the WTGs. Views from the majority of residential dwellings to the proposed WTGs are filtered or screened by existing vegetation. For the majority of these dwellings, landscape mitigation is one option available which may reduce the visual impact from affected dwellings. There are several elevated dwellings towards the northern end of the Project which will have either direct or oblique views of WTGs. The assessment for these dwellings determined that landscape mitigation may screen views to some but not all visible WTGs and that landscape mitigation could take some time to be effective.

In summary, the Updated Visual Assessment demonstrates that the site and its surrounds have a low visual sensitivity to a wind farm development and is a suitable landscape for the construction of a wind farm. Based on the above it is considered that the visual impacts associated with the revised Project are acceptable and are significantly reduced from the Project as originally assessed in the EIS.

8.1.2 Traffic and Transport

GTA consultants prepared an updated Transport Impact Assessment (Updated Transport Assessment) (dated September 2017) to assess the revised Project, and to respond to submissions received during the public exhibition. A full copy of the Updated Transport Assessment is presented as Annex G.

The Updated Transport Assessment was undertaken to determine whether the surrounding road network has the operational capacity and geometric layout to physically and safely accommodate the likely traffic generation of the revised Project in an acceptable manner or with appropriate mitigation measures and controls.

The revised Project is expected to generate more traffic during construction than during the operational phase. It is anticipated that the revised Project could generate up to some 200 vehicle trips (200 in and 200 out) per day and some 12,000 vehicle trips (12,000 in and 12,000 out) over the construction period of the project and up to 123 vehicle trips per hour during peak construction periods. Accordingly, the construction traffic impacts resulting from the revised Project are reduced from the Project as originally assessed in the EIS.

Traffic generation during the operational phase will be minimal given the low employee activity within the site.

Road capacity assessments suggest that the surrounding road network would continue to operate with a Level of Service (LOS) C or better both during the construction and operational phases.

The WTG components would be shipped to Port Kembla and transported via restricted access vehicle (RAV) to the Project site. Swept path assessments indicate that the existing road network infrastructure requires minor modifications in order to accommodate the swept path requirements of the RAVs.

Based on the above it is considered that the transport impacts on the surrounding road network operations and safety of its users associated with the Project are acceptable.

8.1.3

Wind Farm Noise

DNV-GL has prepared an updated Noise Impact Assessment for the revised Project (Updated Noise Assessment). A full copy of the Updated Noise Assessment is presented as Annex F.

The Updated Noise Assessment was undertaken to assess the noise impacts of the revised Project and compare noise predictions with compliance limits on a revised list of dwellings neighbouring the revised Project. The Updated Noise Assessment considered dwellings up to a distance of 5km from the proposed WTGs including built dwellings, partially built dwellings, and locations which have planning approval for a dwelling.

Wind farm noise predictions were undertaken, using the conservative modelling and noise assessment assumptions utilised for the Noise Impact Assessment contained in appendix E to the EIS (**Original Noise Assessment**) at each of the dwellings, including the effect of the cumulative impact of neighbouring wind farms. The predicted noise levels for each dwelling for the 24 hour period were then compared to the compliance limits, enabling the predicted level of compliance (i.e., noise prediction minus the compliance limit) for each of the dwellings for the 24 hour period to be calculated. The wind farm noise from the revised Project is predicted to be compliant with relevant noise compliance limits for the 24 hour period for all dwellings neighbouring the revised Project, for all operating wind speeds.

Based on the above, the noise impacts predicted to result from the revised Project are significantly reduced from the Project as originally assessed in the EIS and the noise impacts from the operation of the revised Project are acceptable.

8.1.4

Biodiversity

ERM has prepared responses to the public and government agency submissions relating to biodiversity. This has included a variety of additional data analysis and clarification of a number of biodiversity features of the PA and potential impacts. The additional analysis and clarification has led to the creation of a suite of supplementary documents that are presented in Annex I. When considered as a whole the supplementary documents update the biodiversity assessment within the original Biodiversity Assessment Report (Annex D to the EIS) to reflect changes made to the Project and respond to specific matters requested by OEH.

In addition, ERM have also assessed the reduction in the development footprint which will result from the revised Project. Generally the reduction in WTGs from 88 to 54 (including the removal of the entire southern cluster) and the relocation of other WTGs away from biodiversity significantly reduces the anticipated impacts to biodiversity within and surrounding the PA.

A key area of concern among the submissions was the surveys employed for the Eastern Bentwing-bat and the results obtained from such surveys. The RtS Annexure A (refer responses to OEH requirements on pages 19-30) includes clarification of the survey effort which was undertaken in accordance and with direction from OEH, including a full year of monitoring on wind masts and targeted deployment of detectors coinciding with the annual migration event for that species. The results indicated that there was no 'pulse' of the species migrating through the PA as would have been expected immediately following any maternity cave emergence.

The changes made to the Project have resulted in the development footprint reducing from 86.28ha to 61.81ha (temporary impact during construction) and 53.75ha (permanent impact once operational). Refer to Figure 3 of Annex I (Project Design Alterations) which shows the alterations and attachment 1 (RtS Layout changes summary) contains the discussion.

Some key positive outcomes of the footprint impact area reduction and reduced WTG density include: the removal of WTGs from the far southern cluster (an area surrounded by woodland), reduced area of impacts to native vegetation, reduction and avoidance (as far as practical) of impacts through Commonwealth and State listed EECs, and reduced densities of WTGs in the Glossy Black-cockatoo feeding area.

The proponent will manage residual impacts in accordance with the CEMP and associated sub-plans, including the proposed Bird and Bat Adaptive Management Plan (BBAMP) and will continue to develop the biodiversity offsets strategy for the Project in consultation with OEH.

8.1.5

Heritage

ERM prepared an addendum to the original Aboriginal heritage assessment to reflect the reduced 54 turbine layout and provide additional information to support the Responses to Submissions (RtS). A full copy of the addendum is presented as Annex I and should be read in conjunction with Jupiter Windfarm Cultural Heritage Assessment (ERM 2016) annexed to the EIS.

The revised mapping and predictive modelling is based on an updated literature review and the results of previous surveys undertaken across the PA by ERM in September 2014 and August 2015. Based on the reduced turbine layout, the proposed development will not directly impact any of the three recorded sites (JWF1, JWF2 and JWF3).

A Meteorological Monitoring Mast (WT03) and Concrete Batching Plant 1 are located within an area mapped as having the potential for subsurface archaeological deposits. These areas will be included and surveyed as part of the detailed Aboriginal Cultural Heritage Management Plan (ACHMP) that will be prepared during the detailed design phase of the Project, during which the final locations of Project infrastructure components and ground disturbance activities will be confirmed, with the Meteorological Monitoring Mast and Concrete Batching Plant 1 being micro-sited to minimise any impacts.

The ACHMP will be prepared and implemented to manage the Aboriginal heritage values within the PA and it is considered that the heritage impacts from the construction and operation of the revised Project can be appropriately managed and are acceptable.

8.1.6

Bushfire Risk

ERM prepared an addendum to the original Bushfire Hazard Assessment to reflect the reduced 54 turbine layout and provide additional information to respond to the bushfire related key issues identified in submissions. A full copy of the addendum is presented as Annex G.

In response to the public and agency submissions and in light of the updated fire history, ERM have modified its assessment of areas of grassland and pasture from 'low' hazard (low-medium fuel quantity, fuel structure facilitates easier control) to 'medium' hazard (medium level quantity, available to burn during average seasons, medium or high fire intensity expected). The updated indicative bushfire risk assessment included in Annex G shows that the revised Project (with management measures in place) will not result in any increased bushfire risk to that already present within the rural landscape. A Bushfire Management and Emergency Response Plan will be prepared in consultation with the RFS and will consider the outcome of the current Currandooley fire inquiry.

Additional commitments related to bushfire have been included in the Draft statement of commitments. In line with the current NSW Rural Fire Service (RFS) position in relation to windfarm developments, it is considered that the bushfire impacts associated with the revised Project can be managed and are not expected to pose unacceptable risks above that already present within the landscape.

8.2 **Draft Statement of Commitments**

The statement of commitments presented in the EIS has been revised following consideration of the issues raised in submissions and to reflect the revised Project. A consolidated Draft statement of commitments table is provided below and outlines the proposed commitments and mitigation measures that will be implemented as part of the construction, operational, and decommissioning phases of the Project. All environmental factors are addressed in the draft statement of commitments presented in Table 8.1 below.

As noted in Chapter 7, management measures for a range of environmental factors including but not limited to bushfire, and soil and water will be determined and then documented within the Construction and Operational Environmental Management Plans that will be prepared for the Project. These features, and others, will be addressed with due regard to these management plans and in accordance future EPL or SSD conditions of approval that are expected to be provided by the EPA and DPE.

Table 8.1 **DRAFT Statement of Commitments**

Aspect	Potential Impact	Mitigation Measures
Biodiversity	Clearing of native vegetation	- Where reasonable and feasible, infrastructure will be micro-sited to avoid native vegetation, proximity to woodland/forest edges and avoid microhabitat features, such as HBTs, surface rock and termite mounds. The micro-siting of all project infrastructures will remain within the 100m micro-siting allowance as described in section 3.3.8 of the EIS. - Where reasonable and feasible, laydown or temporary disturbance areas will be located in already disturbed areas to avoid any unnecessary clearing of native vegetation and habitat. - The area to be cleared at the site will be clearly demarcated using flagging or fencing, and mapped on construction plans, to prevent breaches of the construction boundary. - Pre-clearance surveys will be undertaken in areas of potential habitat and a chance-finds procedure will be developed to outline the appropriate actions if a threatened flora species population is identified. - Prior to commencement of construction activities in the vicinity, Tree Protection Zones will be established to prevent damage to trees to be retained in close proximity to the Development Footprint.
	Fauna mortality	- A pre-clearance protocol will be established and will define survey and management requirements for fauna during clearing. - A Bird and Bat Adaptive Management and Monitoring Program as part of the Operation Environmental Management Plan will be developed, which is to include details of techniques for monitoring, frequency of monitoring, adaptive management provisions; and reporting requirements. - Vehicle speed limits of a maximum 60 km/hour will be introduced across the construction site, to reduce the risk of vehicle strike. - Specific mitigation measures for the Eastern Bentwing-bat will be included in the BBAMP (sub-plan of the CEMP) which will be drafted in consultation with OEH.

Aspect	Potential Impact	Mitigation Measures
	Habitat/Ecological Community Degradation	- A Flora and Fauna Management Plan (FFMP) (incorporating a Weed Management Plan) will be developed to minimise ecological impacts during construction of the Project and will include (but is not limited to the following measures): - Clearing will be undertaken sequentially to allow fauna time to move away. If possible, clearing will be staged to direct fauna toward areas of suitable habitat. - Habitat features such as coarse woody debris (diameter >10 cm) and large surface rocks will be relocated from the clearing area to adjacent habitat in consultation with landowners. - Measures to reduce fauna mortality on access roads within the PA will be developed and implemented, including enforcing vehicle speed limits according to habitat value and road condition, and installing signage advising of high activity wildlife areas. - Vehicles will remain on formed roads designed specifically for the purposes of the wind farm construction and operation where possible to avoid unnecessary disturbance to native vegetation and habitats. - Unsealed access roads and construction areas to be regularly watered to limit dust generation, particularly in windy conditions. - Appropriate sanitation procedures will be implemented to reduce the risk of introduction of <i>Phytophthora cinnamomi</i>. If a risk of <i>Phytophthora cinnamomi</i> is suspected, boots, vehicle tyres, tools and machinery will be regularly cleaned of any soil and drenched in a 1% solution of bleach. - Imported soil and rubble will be certified as free of weeds and weed seeds. - Machinery will be clean prior to arrival onsite. - Regular weed checks will be undertaken in and around construction zones. - Existing weed infestations will be controlled with consideration to potential adverse effects of chemicals or other mechanisms on potentially occurring threatened species. - All construction staff and sub-contractors will be educated on noxious weeds within the PA and ways to prevent spread of weeds. - Watercourse crossings will be designed to avoid blockage of fish passage. - Appropriate erosion and sediment controls will be defined in the Construction Environmental Management Plan and implemented. - In-stream habitat features at watercourse crossings, such as rocks, cobbles and woody debris will be left in place. - Mitigation measures will be developed as part of the CEMP, in consultation with OEH, regarding hollow augmentation recommendations.
	Habitat Loss	- Where reasonable and feasible, moveable microhabitat features, such as large woody debris and surface rocks, will be relocated from the clearing area to adjacent habitat. - Hollows removed will be managed in consultation with relevant landholders and hollow augmentation will be implemented in consultation with OEH. - Areas will be reinstated and rehabilitated as soon as no longer required for construction (eg laydown areas following construction). - Following completion of the Project, disturbed areas should be rehabilitated in accordance with the Decommissioning and Rehabilitation Plan.

Aspect	Potential Impact	Mitigation Measures
Noise and Vibration	Construction Noise (General)	- Construction works should be limited to the recommended standards hours of construction, these are Monday to Friday 7 am to 6 pm; Saturday 8 am to 1 pm; and no work on Sundays or public holidays - Any works that are required outside the standard hours of construction should be justified and additional noise control mitigation, management measures implemented to reduce noise levels and minimise impacts to acceptable levels. These additional measures should consider the potential for sleep disturbance impacts that could occur during the night time period due peak or maximum noise level events. - Construction plant, equipment and/or machinery should be selected during the design phase to achieve the sound power level values identified in the Supplementary Acoustics Assessment report (dated October 2016). Where additional items of equipment are required for construction or where the assessed LW values cannot be achieved, additional noise control mitigation will be implemented. - Good practice noise control mitigation and management measures will be implemented during all construction activities to reduce noise levels and minimise any impacts as far as practicable. - When planning for construction and during the works associated with the transmission line construction, the Proponent should consult with the occupants of the most affected locations to discuss (as a minimum) the nature of works to be carried out, the expected noise levels and duration, contact details for any complaints and agreement of preferred construction hours. This agreement should target periods where the highest noise generating events can occur based on the occupants preference. - A Construction Noise Management Plan (CNMP) should be developed to ensure that appropriate work practices are implemented during the Project's construction to reduce noise levels and minimise impacts.
	Construction Noise (Road Traffic)	- Project vehicle movements should aim to not exceed those estimated in the GTA Consultants (2017) Transport Impact Assessment (refer Annex F), as used in this assessment to predict noise. Where additional vehicles are required for unforeseen circumstances their impact should be evaluated and additional mitigation applied if necessary. - Heavy vehicle movements have the potential to generate maximum or peak noise level events and these should be limited during the night time period, and avoided if possible. The Proponent should plan to schedule deliveries and on-site vehicle movements for the daytime period where possible. Where it is not possible for this to occur, the Proponent should instruct drivers to arrive and depart as quietly as possible. Whilst on-site the drivers should be instructed to implement good practice noise management measures to reduce peak noise levels and minimise any impacts as far as practicable. - Construction road traffic noise control mitigation and management measures should be incorporated into the CNMP to ensure that appropriate work practices are implemented during construction road traffic activities and to minimise potential impact.
	Construction Blasting	- Project related blasting (if this becomes necessary) should be designed to achieve the overpressure and ground borne vibration criteria identified in the ANZEC Guideline and AS2187.2, as presented in the Supplementary Acoustics Assessment. - Implement typical blast design mitigation and management measures including limiting any blast events to standard or approved hours, maximising the distance from the blast site to the most affected receptor, minimising the MIC value that is incorporated into the design and minimising the number of blast events that occur.
	Operational Noise (Operational (WTG) Noise)	- On finalisation of detailed design of the Project, the wind farm noise assessment will be revised to incorporate assessment of noise compliance of the final Project design, including any modified layout, WTG type(s) and operational noise control strategies if required. The revised assessment will incorporate those noise management and mitigation measures to be implemented for the Project based on the final Project design. - An Operational Noise Management Plan (ONMP) will be developed to ensure that appropriate mitigation and management measures are implemented to feasibly, effectively and reliably achieve compliance under all relevant noise circumstances, with contingencies (and/or further detailed design) accounted for.

Aspect	Potential Impact	Mitigation Measures
	Operational Noise (Operational (WTG) Noise Compliance Testing)	- Noise compliance testing requirements will be confirmed with the relevant authority during the detailed design phase of the Project, to ensure that appropriate noise compliance measurement and assessment is implemented during subsequent phases of the Project. - It is recommended that the ONMP to be developed incorporates relevant features of the operational noise compliance testing, or any other noise monitoring features, to ensure that fully compliant noise levels are measured and assessed under all relevant noise circumstances, with contingencies (and/or further detailed design) accounted for.
	Operational Noise (Substation Noise)	- The substation transformer will be selected during the detailed design phase to achieve the sound power levels values identified in the Supplementary Acoustic Assessment (dated October 2016). Any additional or auxiliary equipment identified during the design phase should be mitigated so that the overall substation noise achieves the INP noise criteria. - The Proponent should plan to schedule any high noise generating activities e.g. maintenance, for the daytime period. Where it is not possible for this to occur, the Proponent should instruct site staff and personnel to work as quietly as possible. Whilst on-site, staff and personnel should be instructed to implement good practice noise management measures to reduce peak noise levels and minimise any impacts as far as practicable. - An ONMP should be developed to ensure that appropriate management measures are implemented to minimise impact.
Landscape and Visual	Project infrastructure impacts on visual amenity at sensitive receptor locations and nearby public viewpoints	- The potential significant visual impact of the Project from the specific private viewpoints could be mitigated by planting vegetation close to the view locations. For instance, tree or large shrub planting close to a dwelling can screen potential views to individual or groups of WTGs. The location and design of screen planting used as a mitigation measure is site specific and although preliminary assessment of mitigation potentials have been undertaken, this requires further and more detailed analysis of potential views, along with consultation with surrounding landowners during the detailed design phase. - Consideration has been given for significant visual impact ratings within the Voluntary Neighbour Benefit Sharing program (NBSP) (refer Chapter 7) for those non-involved landholders with existing dwellings (or DA approved) at the time of EIS between 1-3km of a proposed WTG. In recognition of the non-involved landholders between 1-3km with significant visual impact ratings a new component for the NBSP has been considered. This component takes into account the High and Moderate-High ratings as significant as well as allowing considerations for Moderate rating and allocates a one-off visual impact mitigation measure payment for those eligible. - Colour choice can provide an opportunity to reduce visual contrast between the WTG structures and the background against which they are viewed. The use of an appropriate off-white or grey colour for the WTGs where the visual contrast would be reduced when viewed against a background of landscape may be possible. The final colour selection would however, be subject to the availability of WTG models on the market at the time. - In terms of the proposed access roads, the following measures are recommended: - minimise the extent of cut and fill in the construction of the roads, following existing farm tracks and contours where possible, - re-vegetating disturbed soil areas immediately after completion of construction works with local native vegetation or pasture grasses depending on location and agreement with land owners; and - use local materials as much as possible in road construction to minimise colour contrast. - With regards to the substation, the following measures are recommended: - locating the substation to take advantage of natural topographical and vegetation screening; - ensuring materials are non-reflective and colours assist with blending facility with local context; and - planting additional screening vegetation. - With regards to the transmission line, the following measures are recommended (if it is to be constructed above ground): - considering sensitive view locations and avoidance of vegetation removal during final route selection; - selecting pole positions in strategic locations to minimise potential visual impact (e.g. avoiding skyline views);

Aspect	Potential Impact	Mitigation Measures
		- selecting a pole design that has a simple and non-bulky form to minimise visual intrusion; - selecting suitable component materials with low reflective properties; - selecting suitable storage areas for materials or plant with minimum visibility from dwellings and roads with screening where necessary; and - design for strategic tree or shrub planting between view locations and the transmission line if required.
Cultural Heritage	Potential disturbance to Aboriginal and historic heritage objects or places during construction and operation of the Project.	- An Aboriginal Cultural Heritage Management Plan (ACHMP) will be prepared and implemented to manage the Aboriginal heritage values within the PA. This ACHMP will include strategies to manage any Aboriginal heritage sites identified during the additional survey of impact areas (based on the final design) and/or significant deposits found during subsurface testing. Clear, quantifiable definitions of 'significant archaeological deposits' will also be included as part of the ACHMP. - Any additional impact areas that have not been surveyed (due to project layout changes) will be included and surveyed as part of the detailed ACHMP that will be prepared during the detailed design phase of the Project, during which the final locations of Project infrastructure components and ground disturbance activities will be confirmed. - Where disturbance to any areas identified (and verified in the field) as having the potential for containing archaeological deposits cannot be avoided, a program of subsurface testing will occur. The area to be tested should be confined to the proposed areas of direct impact only, and should occur prior to ground disturbing activities in the immediate area. - If the subsurface testing program identifies significant archaeological deposits (ie high density stratified site, or site characteristics not typical of the southern tablelands which could be used to inform the archaeological record) these may be subject to a salvage excavation or avoided through detailed design. Any detailed salvage excavation program will be based on the results of the subsurface testing and will be subject to approval from OEH. - Personnel involved with ground disturbance activities in the PA will undertake a cultural heritage awareness training/induction programme in line with Section 10 of the CHA (refer Annex G of the EIS). - During works, the location of all previously recorded Aboriginal and historic heritage sites and any areas identified (and verified in the field) as having the potential for containing archaeological deposits will be clearly marked on all construction plans for the PA, and site foreman informed of their presence and the need to avoid disturbance. - If suspected Aboriginal heritage objects are found during works the Chance Find Procedures outlined in Section 10 of the CHA will be followed (refer Annex G of the EIS); - No ground disturbing activities in the location of Aboriginal heritage sites or any areas identified (and verified in the field) as having the potential for containing archaeological deposits will take place until the sub-surface archaeological investigations outlined in the ACHMP have been undertaken and reported on. - Where possible, and in consultation with registered Aboriginal stakeholders, conservation areas will be established for relocation of disturbed artefacts. An interpretive strategy may also be established that describes what the area is and the past use of the landscape by Aboriginal people.

Aspect	Potential Impact	Mitigation Measures
Traffic and Transport	Damage and disruption to local roads from heavy vehicle movements particularly during construction and decommissioning.	• A Construction Traffic Management Plan (CTMP) will be prepared prior to the commencement of construction and will include the following: • confirmation of expected traffic volumes generated by the Project for all work stages and hours of operation; • confirmation, identification and qualification of all heavy vehicle and RAV haulage routes for all work stages; • mechanism to review identified haulage route road condition; • confirmation of required upgrade works at each of the proposed site access points off Goulburn-Braidwood Road and the Kings Highway to ensure safe and functional access to the site; • traffic management measures required to facilitate RAVs, including functional plans detailing road widening/improvement works where required prior to the commencement of works; • mechanisms/agreements to maintain haulage route roads and road infrastructure during construction works and to reinstate roads to at least pre-construction conditions; • any requirements for specific work stage construction traffic control plans; • confirmation of any school bus services in the vicinity and details of measures to avoid potential interaction of RAVs and school bus traffic if required; • relevant mechanisms for RAV permits and traffic management requirements; and • any additional matters identified as required by RMS and Council. • Escorts for RAVs will be provided in accordance with RMS requirements; and • To ensure that roads utilised by traffic associated with the construction of the Project are maintained to a suitable standard commensurate with their function, a joint inspection of the road surface should be undertaken by representatives of RMS, both Councils and the Proponent prior to the commencement of construction works on the PA. Upon completion of the construction works, a final joint inspection will be undertaken by representatives of RMS, both Councils and the Proponent (and where necessary their technical expert). The purpose of this inspection will be to identify those works that will ultimately be necessary to return the roads to their pre-development condition or better.

Aspect	Potential Impact	Mitigation Measures
Water Supply, Water Quality and Hydrology	Sediment run-off generated from ground disturbing activities entering existing surface water bodies within the PA.	- A detailed Soil and Water Management Plan (SWMP) will be prepared prior to construction commencing. The SWMP will be prepared by a suitably qualified person, such as a soil conservationist or Certified Professional in Erosion and Sediment Control, and will incorporate the recommended mitigation measures outlined in the Water Supply, Water Quality and Hydrology Assessment report. - Progressive Erosion and Sediment Control Plans will be prepared as the Project progresses to address management requirements at individual work sites. - The Project will be designed and constructed to minimise land disturbance and therefore reduce the erosion hazard. - Avoid construction of new vehicle watercourse crossings. Where avoidance is impossible, watercourse crossings will be designed in accordance with the relevant DPI Water guidelines to minimise impacts - Construction activities will be staged to minimise the duration and extent of land disturbance.
	Impacts to surface water flows generated from construction activities.	- Topsoil resources will be managed to minimise the risk of erosion and sedimentation, and maximize reuse of topsoil during rehabilitation. - Upslope (clean) stormwater will be diverted around the disturbed sites and capture sediment-laden runoff from within the disturbed site for diversion to sediment control devices. - The site will be rehabilitated promptly and progressively as works progress. - Erosion and sediment control devices will be inspected and maintained for the duration of the Project. - Appropriate procedures will be in place for the transport, storage and handling of fuels, oils and other hazardous substances, including availability of spill clean-up kits. - Appropriate stormwater, collection, treatment and recycling will be in place at the concrete batch plant, in accordance with relevant best practice guidelines and any requirements of the NSW EPA. - Over-extraction of surface water will be avoided to prevent adverse impacts on environmental flows and water availability for existing users.
	Impacts at watercourse crossings.	
	Accidental spills causing localised contamination to soil, groundwater or surface water bodies.	
	Increase in water demand to service the Project during construction causing changes to baseline groundwater and/or surface water levels.	Obtain any necessary water access licenses.

Aspect	Potential Impact	Mitigation Measures
	Impacts to waterways and riparian areas during project activities	• All required water licences and approvals will be obtained for any water taken from a natural water source during the construction or operation of the Project. • Micro-siting and design for crossing will be developed in consultation with DPI. • Consultation will be undertaken with DPI Fisheries (ahp.central@dpi.nsw.gov.au) on the following matters prior to works commencing: • Progressive Erosion and Sediment Control Plans (ESCP's) for works impacting on 3rd order or above waterways; • Dewatering of, or discharge into a 3rd order or above waterway; • Controls in the CEMP to manage impacts to groundwater; • Open trenching techniques should not be used for traversing waterways of 3rd order or above. Where the proposed cabling network crosses such waterways (as listed in Table 2.2 of Annex I – Water Supply, Water Quality and Hydrology Assessment Report) directional drilling or under boring methods should be undertaken wherever possible. The proponent will consult with DPI Fisheries prior to the commencement of any works in or adjacent to waterways.
Socio-Economic	Impacts on the local economy, community and infrastructure.	• Where feasible and applicable, contractors and suppliers will be sourced from the local region during the construction phase. • Where feasible and applicable, service and maintenance staff will be sourced from the local region during the operation of the Project. • The proponent proposes to establish a voluntary planning agreement (VPA) with each council and contribute \$2,500 per constructed turbine paid annually and commence upon commissioning of the project until the end of project life. The contribution shall be adjusted to take account of any increase in the Consumer Price Increase (CPI) for Sydney over time. • The proponent requests that a minimum 40% of funds be used for educational purposes and/or scholarship/internships. The remaining 60% funds will be for the community enhancement fund and its distribution be administered via a S355 committee. Details of the CEF will be finalised in discussion with councils following project approval. • A voluntary Neighbour Benefit Sharing Programme (NBSP) has been established for those non-involved landholders with existing dwellings (or DA approved) at the time of EIS between 1-3 km of a proposed WTG. Those who decide to be part of the programme will share the benefit from the wind farm for the life of the Project.

Aspect	Potential Impact	Mitigation Measures
Aviation Safety	Impacts to flight paths for commercial and recreational aircraft. WTGs impacting on the safe operation of aircraft in the region for agricultural purposes and the aerial-based water application for fighting bushfires.	- WTG and meteorological monitoring mast heights and co-ordinates will be notified to CASA, DoD, ASA, AAAA and RFS as well as other aircraft operators in the region for inclusion in databases and navigational charts of the area. This will include publication of details of the Project and associated obstacles in En Route Supplement Australia (ERSA) for surrounding aerodromes, such as Canberra and Goulburn airports. - CASA will be notified of any cranes utilised during construction of WTGs that exceed 110 m AGL, prior to commencement of construction works involving these cranes. - Consideration will be given to marking the wind monitoring towers with bands of contrasting colour according to the requirements set out in MOS 139 Section 8.10 - Obstacle Markings. - Obstacle lighting will be designed in accordance with the relevant standards, and to reduce visual impact. - A monitoring, reporting and maintenance program for obstacle lighting will be established in accordance with the relevant standards. - If it is identified during the detailed design that overhead transmission lines and / or supporting poles are located such that they could adversely impact aerial application operators in the area, these structures will be marked in accordance with relevant standards. - Should potential impacts to the PSR facility at Mt. Majura be identified through further consultation with Airservices Australia, these will be incorporated in the final design and mitigation measures will be coordinated with Airservices Australia and implemented as required. - If LED obstacle lighting is used, the light emitted will fall within the wavelength range of 655 to 930 nanometres so as to be visible to pilots using night vision devices in accordance with the CASA Manual of Standards 139 and as requested by the Department of Defence. - The wind farm will be lit with steady red low intensity lighting at night as per Section 9.4 of the CASA Manual of Standards Part 139. WTGs that are to be lit are those identified in Figure 6.14 of this Rts. . The use of radar activated night lighting would be investigated further in consultation with CASA.
Electromagnetic Interference	Potential for WTGs to cause electromagnetic interference (EMI) by blocking, scattering or reflecting waves between transmitters and receivers. This may include television, radar and radio transmissions.	- Following construction and at the request of the landholder, EPHYC will commit to undertake an assessment of potentially affected dwellings to determine the extent of EMI impacts caused by the Project and identify appropriate mitigation measures. Mitigation options will be tailored to the specific concern (i.e. radio, TV, mobile or internet) and may include the following: - installation of new mobile communications infrastructure to improve mobile coverage - installation of a television repeater - If required, the potentially impacted point-to-point link operated by the former Palerang Council will be re-routed at the expense of the Proponent.
Shadow Flicker	Impacts on human health related to shadow flicker.	- The following mitigation measures will be investigated and implemented in consultation with landholders affected by shadow flicker: - installation of screening structures or the planting of trees to block shadows cast by the WTGs; and - the use of WTG control shut down strategies.

Aspect	Potential Impact	Mitigation Measures
Bushfire Risk	Impacts to/from the Project on bushfire risk (accidental ignition of bushfire during construction and operation of the Project), and on bushfire management capabilities	- A Bushfire Management and Emergency Response Plan will be prepared in consultation with the RFS and other relevant stakeholders prior to the commencement of any construction works. This plan will be reviewed annually and must be a fluid document in that commitments may change based on the operational requirements of the RFS, the availability of fuels within (and surround) the site each season, updated fire history, lessons learnt from any fires within the landscape and consultation with surround property owners. This plan will include: - measures aimed at ensuring preparedness and property maintenance for bushfires including maintenance of fuel reduced zones around project infrastructure (and under all overhead powerlines); and - ongoing consultation with RFS and property owners regarding ongoing bushfire hazard maintenance. - Fire weather to be monitored daily on the RFS website and activities modified accordingly. - Locate electricity services to limit the possibility of ignition of surrounding bushland or the fabric of buildings and undertake regular inspections of lines to ensure they are not fouled by branches, as per the performance criteria and acceptable solutions of PBP (NSW RFS 2006). - Maintain fuel reduced zones for all overhead transmission lines in consultation with TransGrid. Implementation and maintenance of fuel free zones, insulating sleeves, bird deterrents and/or auto-reclose systems will also be considered and implemented if required by TransGrid. - Maintain a reduced fuel zone (asset protection zone (APZ) or defendable space) around each WTG to ensure adequate defendable space in accordance with the performance criteria and acceptable solutions of PBP 2006. - Safe working procedures and emergency response procedures should be developed and strictly implemented for all work tasks, with all employees and visitors involved in the operation and maintenance of the wind farm routinely trained in the safe operating procedures and emergency response, including: - maintain a 10 m wide fuel reduced zones around construction activities that may result in ignition of a fire i.e. welding, and - ignition creating activities such as welding should not be undertaken outside on days of total fire ban. - Construction and maintenance staff should be trained in the basic first response firefighting techniques including: - communication and reporting requirements such as alerting emergency crews (000) and reporting details of location, size, proximity to assets and access capabilities. Reporting procedures and mechanisms should be efficient and simple to ensure that potential issues are identified, inspected and rectified in a timely manner; - operation of on-site water storage facilities (the form of which will be agreed with RFS); - maintaining provision for mobile telephone and UHF radio communications; - use of 4WD striker unit (to be available on-site daily during the construction and maintenance phases of the development, particularly during the bushfire season); and - use and location of extinguishers, knap-sacks and hoses. - Maintain roads to 8 m wide (4 m either side of the centre line), with a 4 m vertical clearance to provide all weather access for heavy fire fighting vehicles, including RFS Category 1 fire tankers. Signs should be installed where a fire or access road is not accessible by a Category 1 tanker. - Appropriate location of water access points will assist safe, effective and timely fire suppression activities. To ensure adequate access to water for RFS and firefighting crews, the allocation of static water supplies is necessary and will be further detailed in the Bushfire Management and Emergency Response Plan. A water supply reserve dedicated to firefighting purposes should be installed and maintained as per the performance criteria and acceptable solutions of PBP 2006. It is recommended that as a minimum 30,000 litre water tanks, dams or other static water supplies are to be provided across the Project Area. The exact number and location will be confirmed in consultation with the local RFS. - All site vehicles during the construction phase will have diesel engines and will use the site access roads to minimise the likelihood of igniting dry grass. - Provide and maintain firefighting equipment capable of controlling and suppressing small initial outbreaks of fire. Equipment should include (but not be

Aspect	Potential Impact	Mitigation Measures
		limited to) a 4WD Striker with slip on water unit equipped with diesel pump, hoses, extinguishers, knap sacks and hand tools • Provide and maintain public and property access roads as per the performance criteria and acceptable solutions of PBP 2006. This includes, but is not limited to ensuring that fire fighters are provided with safe all weather access to structures, that public road widths, design and capacity allow for fire fighter access and resident evacuation, and that roads are clearly signposted. • Ensure that property maintenance is undertaken, especially in advance of the bushfire season, as per the bushfire provisions in PBP 2006; • Include internal response planning in the Bushfire Management and Emergency Response Plan to be prepared prior to construction. • Maintain a construction works schedule. • As part of the Bushfire Management and Emergency Response Plan, the RFS will be provided with the following information to assist with their internal response planning: • a construction works schedule; • maps of the final WTG layout and identification information for individual WTG sites; • on-site access road plans and locations of access gates; • security information such as location of locked gates and restricted access areas; and • location of any additional water supplies installed for construction activities. • Liaise with the Civil Aviation Safety Authority (CASA) and the RAAF Aeronautical Information Service, which maintains a database of structures on behalf of CASA. • Ensure adequate insurance and Public Liability Insurance Policies. • A detailed monitoring and review process will be included within the Bushfire Management and Emergency Response Plan to be prepared and approved prior to any vegetation clearing or construction works and will include as a minimum: • monitor against the aims and objectives of the Bushfire Hazard and Risk Assessment; • update the assessment based on current best practice guidelines; • assess the risk, obligations and management measures against any new legislative changes; • ensure the reporting of any fires including ignition source, location, size, properties or assets impacted, response and suppression activities and if RFS or other emergency services attended is captured in the updated fire history; and • Review and update of the risk register and management actions should be undertaken annually at the end of each bushfire season (April-May).
Blade Throw	Accidental release of WTG blades during operation.	• The WTG model selected for the Project will be certified to the relevant international standards and has an adequate lightning protection system and shutdown system. • An ongoing operation and maintenance program will be implemented throughout the operational life of the Project.
Health	Impacts on human health pertaining to audible and inaudible noise, blade glint, shadow flicker and electromagnetic fields.	• WTG blades will be coated with a non-reflective finish to avoid the occurrence of blade glint. • The WTG model ultimately selected for the Project will meet the relevant Australian design and safety standards. • The mitigation measures pertaining to potential noise and shadow flicker impacts will be implemented.

Aspect	Potential Impact	Mitigation Measures
Decommissioning and Rehabilitation Plan		A Preliminary Decommissioning and Rehabilitation Plan (DRP) for Jupiter Wind Farm have already been prepared and were provided in Annex O of the EIS. This plan will be reviewed and updated as per the requirements of the DRP. Based on the submissions received and discussion provided in Chapter 7 of this RtS report a fund to cover the costs of decommissioning the Project infrastructure and rehabilitating the Project Area will be established during operation and prior to decommissioning of the wind farm. The size of the decommissioning fund will be based on the estimated cost of decommissioning and the value of the WTGs and associated infrastructure at the time of the fund's establishment. The amount set aside for the decommissioning fund will have consideration for two cost scenarios (re-uses of WTG or scrap metal as described in the plan) and will be first estimated prior to commencement of construction of the Project, and then during detailed design when turbine make and capacity is known. These funds may be held by a legal firm or an authorised appointed trustee corporation. The estimated decommissioning costs will be re-evaluated every five years with each review of the DRP (refer to Chapter 7 of the existing DRP provided in Annex O of the EIS) and prior to decommissioning. The rehabilitation and monitoring of the Project decommissioning will remain the responsibility of the Proponent (EPYC), or any subsequent owners of the wind farm.

8.3

Conclusion

This RtS report has been prepared to respond to the submissions made during public exhibition of the EIS and to assess the changes made to the Jupiter Wind Farm Project and further reduce the environmental impacts of the Project.

Each of the submissions received has been comprehensively reviewed and considered. For the purposes of this RTS, submissions were separated into government, special interest groups, and public and each submission was further divided into the individual issues raised within each. A detailed response has been provided for each government submission and these are presented in Annexure A. Similarly, the issues raised in the special interest group and public submissions, many of which related to common issues, have been summarised and responded to in detail in Annexures B and C. In cases where the submissions related to common issues, a single response has been provided with a reference to each individual submission identification number.

This RTS also outlines how the Project has been reviewed and revised in response to the community and government feedback received during consultation efforts throughout, and subsequent, to the public exhibition of the EIS. The Project as exhibited in the EIS comprised a total of 88 WTGs. The Project has now been significantly revised (as outlined within Chapter 6) to now comprise a maximum of 54 WTGs. In particular, the entire southern precinct has been removed in response to community and governmental agency feedback and concerns about potential impacts associated with locating WTGs in that area. Accordingly, there will be no WTGs constructed south of the Kings Highway within the PA. In addition a number of turbines have also been relocated to further reduce environmental impacts. As a result of the changes made to the Project, as before there are now non-participating landholders within 1km and a proposed WTG and the number of non-participating landholders within 1-2km of a proposed WTG has reduced by 46% to a total of 34.

This RTS sets out the findings of the updated assessment undertaken in relation to the revised Project, including the detailed technical assessments relating to the key issues of visual, traffic, noise, biodiversity, heritage and bushfire impacts. The updated assessment confirms that the revised Project has significantly reduced the environmental impacts associated with the proposed wind farm in comparison with the exhibited Project. This RTS also updates the measures that will be taken to address the residual environmental impacts of the revised Project and includes a Draft Statement of Commitments which outlines the key measures proposed to be implemented during the construction, operation and decommissioning stages.

This RTS also provides an update on the community consultation undertaken to date and since the public exhibition of the EIS. EPHYC will continue to carry out consultation throughout the assessment, detailed design, construction and operational phases of the Project.

The revised Project will deliver the following strong local, regional and global benefits:

- It will generate up to 240MW of 100% renewable electricity which equates to 754 GWh per year and is sufficient to power 103,000 homes.
- It will contribute to growing energy demand in NSW, and improving security of supply through diversification of generation sources and locations. This will assist NSW in transitioning as coal fired power generators are progressively decommissioned and help avoid of reliance on electricity supply from other States.
- It will contribute towards State and Federal Government energy targets.
- It will contribute to the NSW Government's target of reducing greenhouse gas emissions by 60% by the year 2050;

- It will provide full time employment for up to 230 during construction and up to 22 permanent regional jobs during its operational life.
- It will provide significant direct investment in the local economy and generating additional economic stimulus associated with direct and indirect employment and payments to host landholders. In addition, the Neighbour Benefit Sharing Program (NBSP) and Community Enhancement Fund (CEF) will ensure that the local community surrounding the Project is able to directly benefit over the life of the Project.

The Proponent is committed to deliver the best outcome for both the Project and the community. This RtS Report concludes that the Project is able to deliver significant benefits with minimal impact to the existing environment which are capable of being appropriately managed by the measures summarised in the Draft Statement of Commitments and in line with all applicable regulatory requirements.

KEY REFERENCES

Biala Wind Farm Project – Response to Submissions (2016) report, prepared by ERM for Newtricity

Jupiter Wind Farm Project – Environmental Impact Statement (EIS, 2016), report prepared by ERM on behalf of EPYC Pty Ltd

Jupiter Wind Farm Project – Landscape Character and Visual Impact Assessment (2016), report prepared by Clouston Associates (S14-0147, Issue H, 21/9/2016) for ERM on behalf of EPYC Pty Ltd

Jupiter Wind Farm Project – Wind Farm Noise Impact Assessment (2016), report prepared by DNV GL (Ref: 170338-AUME-R-03) for ERM on behalf of EPYC Pty Ltd

Jupiter Wind Farm Project – State Significant Development Transport Impact Assessment (2016), report prepared by GTA Consultants for ERM on behalf of EPYC Pty Ltd

Jupiter Wind Farm Project – Supplementary Acoustics Assessment (2016), report prepared by ERM on behalf of EPYC Pty Ltd

National Health and Medical Research Council (NHMRC) Statement: Evidence on Wind Farms and Human Health released on Wednesday, 11 February 2015, and associated supporting documentation

NSW Department of Environment and Heritage (OEH) Wind Farm Greenhouse Gas Savings Tool (WFGGT), from OEH 2015 and available at: <http://www.environment.nsw.gov.au/communities/greenhouse-gas-savings-tool.htm>

NSW Department of Planning and Environment (DPE) **Responding to Submissions – Draft Environmental Impact Assessment Guidance Series, Guideline 5** (the draft DPE RtS guideline), released for community consultation during the preparation of the Jupiter response to submissions and preferred project report, in June 2017

Rye Park Wind Farm Project – Response to Submissions (2016) report, prepared by Epuron for Rye Park Renewable Energy Pty Ltd, a wholly owned subsidiary of Trustpower Australia (New Zealand) Limited, an Australian renewable energy company.

Sinclair, Knight and Merz (SKM) **Wind Farm Investment, Employment and Carbon Abatement in Australia** (2012), report prepared for the Clean Energy Council, July 2012