

Kyoto energypark

1. Introduction



1.0 INTRODUCTION

Pamada Pty Ltd (the proponent) and HDB Town Planning and Design have prepared this Environmental Assessment for the proposed Kyoto Energy Park Scone facility and ancillary works for consideration pursuant to the provisions of Part 3A of the Environmental Planning and Assessment Act 1979 (as amended). Under NSW Planning legislation, an Environmental Assessment Report is required to support a Development Application for the project. Specific requirements for the scope and content of the Environmental Assessment have been prescribed by the Director-General of the Department of Planning.

The Director-General's requirements (see Table 1.1) also includes reference to relevant guidelines for the preparation of an Environmental Assessment. This Report addresses the Director-General's Requirements and provides:

- a description of the existing environment;
- a description of the proposed project;
- an assessment of its potential environmental impacts and the measures to mitigate those impacts;
- justification for the project;
- and the consultation undertaken or proposed to be undertaken for the project.

1.1 Background

The NSW Sustainable Energy and Development Authority (SEDA), identified the site in 1995 as one of eleven sites in NSW highly suitable for the generation of electricity from wind (SEDA is now part of the NSW Department of Energy Utilities and Sustainability DEUS). A Wind Monitoring Tower was installed on the southern site (Mountain Station) in 1999 and has been logging wind conditions for over 9 years, confirming the locations suitability for wind generation.

In 2004 EHN (Oceania) Pty Ltd initially commenced discussions with the landowner to seek approval for a 'wind farm' on the Mountain Station site. No formal agreements were reached with the landowner and discussions fell through. Pamada Pty Ltd were approached by the landowner to initiate planning feasibilities and investigations into the potential power yields for the site.

In 2005, the Upper Hunter Shire Council, with support from the NSW Department of Planning, amended the Scone Local Environmental Plan (Amendment No. 64 Scone LEP 1986) to allow consideration of eco-generating devices in the LGA and on the subject sites. Also in 2005, the Upper Hunter Shire Council approved the proposal to install an additional Wind Monitoring tower on the Mountain Station site. A second wind mast was installed on Mountain Station in October 2006 and has been recording data since November 2006.

Pamada Pty Ltd submitted a project application to the Department of Planning in December 2006 for works comprising the Kyoto Energy Park at Scone. The original application was accompanied by a Preliminary Assessment Report (dated 5 December 2006). The report essentially described a Renewable Energy Park Facility with solar, wind and hydro generating technologies.

The original application was amended based on a legal planning technicality and resubmitted to the Department in February 2007 accompanied by an amended Preliminary Assessment Report (Amendment C-dated 13 February 2007). The amended project application comprising the current application describes works as follows:

- Construction and Operation of wind turbines and associated infrastructure (including transmission lines, substation and grid connection) comprising of up to 47 turbines ranging from 2MW-4.5MW on two properties Middlebrook and Mountain Stations, Scone;
- A proposed solar thermal device (panels/array) of approximately 1 square kilometre;
- A small closed loop hydro-electric plant;
- Managers residence; and
- Construction and operation of a Visitor and Education Centre and associated facilities

The Preliminary Assessment Report identified solar thermal devices under consideration. This included a variety of solar technologies such as solar - parabolic trough, solar dish and solar central receiver

(Power Towers). In a letter submitted to the DoP (dated 14 August 2007) Pamada advised that following further investigation, solar thermal options were not considered as a feasible option for the site based on environmental requirements, plant size and current technological deficiencies for small to medium sized applications (currently for solar thermal plants with < 30MW total capacity). Solar photovoltaic technology was identified as suitable for the site based on site conditions, to supply peak demand and balance electrical output from the Park.

Scone has a population of 5,080 people and falls within the Upper Hunter Shire Council (UHSC), which was formed in 2004 from the amalgamation of the Councils of Scone, Merriwa and Murrurundi. Over the past ten years the rate of development of the coal industry has seen an increase in the number of mines, an increase in the size of the mines, the re-opening of mines that were previously closed, and mines that were underground now proposing to be open-cut. The region has changed dramatically as a result, and the Upper Hunter landscape now shows the social, economic and physical impacts (positive and negative) of the increase in coal mining activity in the area.

1.2 Overview of the Proposal

The proposed Kyoto Energy Park will be located on two separate properties referred to as Mountain Station and Middlebrook Station situated west of the Scone town.

The proposed Kyoto Energy Park will produce electricity from completely renewable generator technologies for supply to the electricity grid and eventual use by network customers. The Kyoto Energy Park will be able to produce approximately 137 mega watts (MW) of electrical energy from the combined output of wind turbine generators, a solar photovoltaic plant and a closed loop mini-hydro plant. A general description of the proposed facilities is listed below:

- Installation of wind turbine generators at specific points along the dominant ridgelines situated at Mountain Station (31 turbines) and Middlebrook Station (11 turbines), for a total of 42 wind turbine generators. Wind turbines would be a maximum height of 105m to the nacelle (i.e. hub height) plus blade length equating to a maximum height above ground level of 150m (i.e. from ground level to the tip of the blade);
- A solar photovoltaic (PV) plant generating electricity using solar cells on a commercial scale;
- A Closed-loop mini hydro electric plant utilising steep slopes for electricity generation during peak demand periods or for balancing intermittent power output;
- Electrical connections between wind turbines using underground cables;
- A site substation and adjacent control room complex for management and control of electricity generation on site;
- A managers residence for accommodation of Park Manager;
- A Maintenance Shed for on-site storage and maintenance of mainly wind turbine parts.
- A Visitor's and Education Centre to be used on a part time basis for public display, educational, conference and tourist facilities;
- Access roads to generator sites, and minor upgrades to site access at Mountain Station

A full description of the proposed development is provided in this report along with a description of all Construction, Operation and Decommissioning activities including anticipated timelines for each development phase.

A variety of wind turbine models have been considered as discussed in detail. The specific wind turbine selection would be carried out through a competitive tender process after development approval has been received.

The solar PV plant will be composed of photo-voltaic solar modules, supporting structures or frames, low voltage reticulation system, metering cubicles and safety protection systems. Options for solar frame design have been included in this report.

Where possible, the analysis contained within this Environmental Assessment is based on the highest impact caused by any of the wind, solar and hydro layouts. The proponent expects that the final built form shall be smaller in overall design and impact than what is assessed in this report. The detailed investigations of each layout is contained in the specialist reports attached in the Appendices (see Volume 2).

The project description is based on the current renewable technology for wind, solar and mini hydro applications. In particular, any site layouts are based on the current proposal which may change to a minor degree due to unexpected issues arising in relation to ongoing biodiversity assessment; archaeological assessment; geology; wind regime; wind turbine availability; and transmission connection design issues.

The total anticipated lifecycle of the generator equipment proposed for the Kyoto Energy Park is approximately 25-30 years. This includes a design life of 25-30 years for main wind turbine components and 25 years for solar photovoltaic modules (all of which can be replaced). The components of the Mini hydro plant are modular and fully replaceable once they have achieved their service life.

At the end of the project life of generator components options exist to replace old components with updated technology or fully decommission the Park, associated electrical infrastructure, site substation and facilities, and removed from site. Most of the components are recyclable or fully reusable.

1.3 Objectives of the Environmental Assessment

This Environmental Assessment has been prepared following consideration of the following key project factors:

- Planning framework which considers Commonwealth, State and local statutory planning considerations, renewable energy targets and mechanisms, policies and guidelines for project development and control;
- Specific requirements provided by the Director-General (DG requirements) of the DOP and consultation with key government departments, the Upper Hunter Shire Council and general requirements from other regulatory stakeholders;
- Consultation with key Community groups, local residents and local business organisations, including feedback from the Community Information Day.
- Studies undertaken by independent consultants and feedback from this work.

Specialist environmental consultants were engaged from an early stage of the project to undertake investigation into technical, environmental and social aspects of the project. Final reports have been prepared by individual consultants and included in the Appendices to this report.

The main body of this document summarises key outcomes and findings of these specialist assessments with the aim of clearly stating the potential impacts and any recommendations. The purpose of this report is to satisfy the accepted criteria for an Environmental Assessment that it be clearly understood by the general public while providing supporting studies for those that require more detail.

Specific key environmental issues are addressed in the relevant sections of this assessment as outlined below in Table 1.0

Table 1.0 – Description of report sections

Section	Description	Objective
Section 1.0	Introduction	Provides a general project introduction, background and overview of key project parameters for assessment.
Section 2.0	Project Description	Describes the main generator technologies, components and ancillary facilities.
Section 3.0	Project Development Phases	Outlines the stages of the project from anticipated approval through to construction, operation and decommissioning including likely timeframes for each phase.
Section 4.0	Statutory Planning and Consultation	Outlines the statutory planning context including local, regional, state and commonwealth planning and consultation with government stakeholders.
Section 5.0	Community Participation	Discusses the project community strategy and outcomes. Local community and stakeholders were engaged at an early stage of the project to encourage participation and feedback.
Section 6.0	Strategic Justification	Analyses the demand for electricity and particularly renewable energy technology including justification of the project based on supply and demand factors, socio-economic and environmental benefits and constraints.
Section 7.0	Existing Environment	Describes the existing local environment and surrounding landuse and development in the region and locality.
Section 8.0	Biodiversity, Flora and Fauna	Summarises key project outcomes of the Ecological Site Assessment, EPBC referral and Bird and Bat Assessment.
Section 9.0	Heritage	Summarises impacts of proposed project on Indigenous and European heritage in the area.
Section 10.0	Noise Impact	Summarises key project outcomes and noise issues associated with operations and construction activities.
Section 11.0	Visual Impact	Summarises visual impacts analysis and treatments to reduce visual effect particularly from wind turbine structures.
Section 12.0	Aviation Issues	Summarises aviation issues with the local Scone airport and other commercial and local operators in the vicinity of the project.
Section 13.0	Electromagnetic Interference (EMI)	EMI relates to potential interference with telecommunications signals from operating wind turbines within a 50km radius of the sites.

Section	Description	Objective
Section 14.0	Mineral Resource Sterilisation	Summarises existing coal and gas resources in the area and underlying the two properties, mineral licenses and potential for sterilisation of these mineral resources for future mining potential.
Section 15.0	Hydrology	Summarises any impacts on natural surface drainage (i.e. streams, creeks) and groundwater systems (i.e. aquifers) from the proposed project.
Section 16.0	Geology and Soils	Classifies the underlying geological formations and soil derivatives on the two sites and outlines sedimentation and erosion controls measures to be implemented.
Section 17.0	Transportation of Energy Park Components	Summarises transportation and traffic logistics, traffic safety and haulage routes from port of entry to the site.
Section 18.0	Bushfire Risk	Summarises the potential risk for bushfire ignition from generator components and design considerations for protection from bushfire hazard.
Section 19.0	Assessment of Transmission Line Connection to the Grid	Quantifies issues associated with electrical connection of the Kyoto Energy Park to the local electricity grid network, corresponding environmental and community issues and possible options for line routes based on final design considerations.
Section 20.0	Safety and Risk	Identifies specific hazards and safety aspects of the project and assesses these risks for possible mitigation and ongoing management.
Section 21.0	Summary and Justification	This section summarises the key project attributes and possible alternatives to the proposal including a 'do nothing' approach.
Section 22.0	References	Summary of References used in the assessment.

1.4 Key Planning Requirements

1.4.1 Director General's Requirements

The following table (Table 1.1), outlines the Director General's Requirements for the Environmental Assessment. These requirements have been addressed in this document. The right-hand column indicates the section/s of this document where responses to the Director General's Requirements are contained within this report.

Table 1.1 – Director General's Environmental Assessment Requirements

Requirement	Description of requirement	Relevant Section in Environmental Assessment
General Requirements	<ul style="list-style-type: none"> The Environmental Assessment must be prepared to a high technical and scientific standard and must include: 	Noted
	<ul style="list-style-type: none"> an executive summary and glossary; 	Executive Summary
	<ul style="list-style-type: none"> a description of the proposal, including construction, operation and 	1.2, 2.0
	<ul style="list-style-type: none"> a timeline which clearly identifies the proposed commencement of construction and operation of the project components, 	3.4, 3.5
	<ul style="list-style-type: none"> their envisaged lifespan and arrangements for decommissioning and staging; 	3.3
	<ul style="list-style-type: none"> Assessment against the Department's draft <i>NSW Wind Energy Draft Environmental Impact Assessment Guidelines 2002</i>; 	Included throughout report.
	<ul style="list-style-type: none"> An assessment of the environmental impacts of the project, with particular focus on the key assessment requirements specified below; 	Included throughout report.
	<ul style="list-style-type: none"> Justification of undertaking the project with consideration of the benefits and impacts of the proposal; 	6.0 - Strategic Justification 21.0 - Summary and Justification
	<ul style="list-style-type: none"> A draft Statement of Commitments detailing measures for environmental mitigation, management and monitoring for the project; and 	20.6.3
Key Assessment Requirements	<ul style="list-style-type: none"> Certification by the author of the Environmental Assessment that the information contained in the Assessment is neither false or misleading. 	Preliminaries
	The Environmental Assessment must include assessment of the following key issues:	
Strategic Justification	<ul style="list-style-type: none"> Strategic Justification (all project components) – the Environmental Assessment must include a strategic assessment of the need, scale, scope and location for the project in relation to predicted electricity demand, predicted transmission constraints and the strategic direction of the region and the State in relation to electricity supply, demand and electricity generation technologies. 	6.0 - Strategic Justification 19.2.3
	<ul style="list-style-type: none"> It must also include a clear demonstration of quantified and substantiated greenhouse gas benefits, taking into consideration sources of electricity that could realistically be replaced and the extent of their replacement. 	6.4
	<ul style="list-style-type: none"> The Environmental Assessment must include strategic planning consideration of the project and an analysis of the suitability of the proposed site with respect to potential land use conflicts particularly subdivision potential with existing and future 	6.7, 19.4.9

Requirement	Description of requirement	Relevant Section in Environmental Assessment
	surrounding land uses.	
	<ul style="list-style-type: none"> With regards to the transmission line, the Environmental Assessment must clearly identify the proposed route 	19.8 Figure 19.2
	<ul style="list-style-type: none"> and clearly describe the ownership, land use and zoning provisions for the land along the route. 	19.4.9 Figure 19.9, 19.10
Noise Impacts	<ul style="list-style-type: none"> Noise Impacts (all project components) – the Environmental Assessment must include a comprehensive assessment of the predicted noise impacts resulting from the construction and operation of the proposal. 	Appendix D 10.3
	<ul style="list-style-type: none"> The assessment must include consideration of noise impacts of the project, with a particular focus on scenarios under which meteorological conditions characteristics of the locality may exacerbate impacts (such as the van den Berg effect for wind turbines) at sensitive receivers. The probability of such occurrences must be quantified. 	10.3, 10.4 Van Den Burg 10.3.6
	<ul style="list-style-type: none"> If any noise agreements with residents are proposed for areas which noise criteria cannot be met, sufficient information must be provided to enable a clear understanding of what has been agreed and what criteria have been used to frame any such agreements. 	10.4
	<ul style="list-style-type: none"> The noise assessment must be undertaken must be undertaken accordance with: <ul style="list-style-type: none"> → Wind Turbines – The South Australian Environment Protection Authority’s Wind Farms – Environmental Noise Guidelines, 2003; → Remaining Structures – In accordance with the NSW EPA Industrial Noise Policy, January 2000; 	10.1
	<ul style="list-style-type: none"> → Construction noise – undertaken in accordance with Chapter 171 of the Environmental Noise Control Manual (EPA, 2004) for noise impacts associated with the proposal, particularly along the main access routes to the site; 	Appendix D 10.1
	<ul style="list-style-type: none"> The Environmental Assessment must clearly outline the noise mitigation, monitoring and management measures the Proponent intends to apply to the project. This must include an assessment of the feasibility, effectiveness and reliability of proposed measures and any residual impacts after these measures have been implemented. 	10.4 20.5, 20.6
Heritage Impacts	<ul style="list-style-type: none"> Heritage Impacts (all components including transmission line) – the Environmental Assessment must identify indigenous and non-indigenous cultural, archaeological and built heritage issues/items, the potential impacts activities associated with the project will have on these proposed mitigation measures. 	Appendix H – Indigenous Appendix I – European 9.1, 9.3
	<ul style="list-style-type: none"> The Environmental Assessment must include an Archaeological Assessment, Methodology and Research Design for any proposed archaeological monitoring, in consultation with the NSW Heritage Office, Aboriginal Community and DEC in accordance with the Department of Environment and Conservation’s draft <i>Guidelines for Aboriginal Heritage Impact Assessments and Community Consultation</i>. 	9.2.3, 9.2.4
Visual Amenity Impacts	<ul style="list-style-type: none"> Visual Amenity Impacts (all components) – the Environmental Assessment must fully describe all project components, locations and dimensions including wind turbines, solar thermal/array, visitor centre, transmission lines, substations etc. 	Appendix B, B(i), B(ii) 11.1.3

Requirement	Description of requirement	Relevant Section in Environmental Assessment
	A photographic assessment clearly demonstrating the potential visual amenity impacts of the proposal must be provided	Photomontages Appendix B(ii)
	along with clear description of visual amenity mitigation and management measures that the Proponent intends to apply to the project.	11.10, 20.6.3
	An assessment of the feasibility, effectiveness and reliability of proposed measures and any residual impacts after these measures have been implemented must be included in this regard with a 'zone of visual influence map' provided covering the towns of Scone and Aberdeen.	ZVI – 11.3
	The Environmental Assessment must specifically address the following matters with respect to individual project components:	-
	→ Solar Thermal/Solar Voltaic Array – the Environmental Assessment should provide an analysis of reflectivity on surrounding residents;	11.8,11.9
	→ Visitor Centre – the Environmental Assessment must identify that the height, scale and lighting of the building responds and contributes to its context and that the design has an appropriate scale of built form (including roof form and building height);	11.1.3 Figure 17.1, 17.1(i)
	→ Transmission Line/Grid Connection – the Environmental Assessment must describe the proposed corridors, likely route alignments and location of energy storage devices, proximity to other infrastructure and urban and rural residential development;	19.0, 6.75,6.7.6 Figures19.2,19.3, 19.4,19.5,19.9, 19.10.
	→ Wind Turbines – the Environmental Assessment must assess the visual impact of the proposal on this landscape (including existing and approved dwellings) for a distance of at least 10 kilometres for the turbines, taking into consideration the impact of shadow "flicker" and blade "glint"	11.7, 11.10 Shadow Flicker11.8 Blade Glint 11.9
	• The visual impact assessment should be prepared with regard to the Australian Wind Energy Association and Australian Council of National Trust's Wind Farms and Landscape Values: Stage 1 Final Report – Identifying Issues, March 2005, Appendix B: Wind Farms and Landscape Values: Final Issues Paper.	11.1.4
Flora and Fauna	• Flora and Fauna (all components) – the Environmental Assessment must include a flora and fauna impact assessment identifying and considering any critical habitats, threatened species, populations or ecological communities listed under both State and Commonwealth legislation recorded on the site, along the transmission line route or the surrounding area.	Appendix A(i),A(ii), A(iii), A(iv). Section 8.0 Section 19.4.1
	• The Environmental Assessment must also detail measures to avoid or mitigate impacts associated with the siting and construction of any access roads and other infrastructure.	Section 8.0
	• Additional it must address:	
	→ the impact of the proposal on birds and bats from strikes and alteration to movement patters resulting from the turbines and transmission lines. An outline of an adaptive management program must be included;	8.5 8.12.2
	→ vegetation clearing during construction and maintenance, including details on the location, composition and quantity and likelihood of disturbance to the White Box Yellow Box Blakely's Red Gum Woodland (Endangered Ecological Community);	8.2,8.4
	→ identification of any regional corridors; and	8.7

Requirement	Description of requirement	Relevant Section in Environmental Assessment
	→ an assessment of any potential impacts associated with the proposal on the Towarri National Park	8.8
	and the Hunter-Central Rivers Catchment Action Plan;	8.9,8.10
	The flora and fauna assessment must be prepared in accordance with the Department's of Environment and Conservation and Primary Industries' draft <i>Guidelines for Threatened Species Assessment, Auswind's Wind Farms and Birds: Interim Standards for Risk Assessment</i> , July 2005 and have regard to the Commonwealth Department of Environment and Heritage's <i>Cumulative Risk for Threatened and Migratory Species</i> , March 2006.	8.1
Water Quantity and Quality Impacts	• Water Quantity and Quality Impacts – the Environmental Assessment must include an assessment of the water quantity and quality impacts of the proposal (including on stream and drainage lines),	15.1 15.2
	with particular reference to the water needs of the project, the proposed source of water,	2.5.7
	and the implementation of water saving measures (including use of treated effluent or rainwater)	2.5.7
Bushfire Risk	• Bushfire Risk – the site is identified as bush fire prone land and the Environmental Assessment must meet requirements of <i>Planning for Bush Fire Protection 2006</i> by complying with standards regarding setbacks,	Appendix C 3.1/3.2
	• provision of water supply, access, supply of services,	18.4.2
	• fuel management and evacuation planning in consultation with the NSW Rural Fire Service and Upper Hunter Council.	18.4.2,18.5
Infrastructure and Services	• Infrastructure and Services – the Environmental Assessment must assess the potential impact of the proposal on telecommunications, aircraft and electric and magnetic fields.	Appendix F Section 13.0
	• In reference to aircraft, the assessment must consider any impacts on the operation of Scone Airport and private landing fields and any restrictions on aerial spraying and emergency landing capabilities arising from the project	Appendix E Section 12.0
	• in addition to the Civil Aviation Safety Authority's draft advisory circular AC 139-18(0) Obstacle Making and Lighting of Wind Farms, December 2005.	12.2
	• Consideration of electric and magnetic fields must address potential impacts and the means of minimizing such impacts.	13.6
	• A demonstration of compliance with 'prudent avoidance principles' should be provided, and consideration given to the ARPANSA draft Radiation Protection Standards for exposure limits to Electric and Magnetic Fields (or more recent update).	19.4.8,19.7.3
Geotechnical and Resource Issues	• Geotechnical and Resource Issues – the Environmental Assessment must consider the presence of mineral/gas and gravel resources and the potential impact the project may have with respect to mining/extraction potential and land sterilization.	Section 14.0
General Environmental Risk Analysis	• General Environmental Risk Analysis – notwithstanding the above key assessment requirements, the Environmental Assessment must include an environmental risk analysis to identify potential environmental impacts associated with the	20.2

Requirement	Description of requirement	Relevant Section in Environmental Assessment
	project (construction and operation),	
	<ul style="list-style-type: none"> proposed mitigation measures 	20.4
	<ul style="list-style-type: none"> and potentially significant residual environmental impacts after the application of proposed mitigation measures. 	20.5
	<ul style="list-style-type: none"> Where additional key environmental impacts are identified through this environmental risk analysis, an appropriately detailed impact assessment of the additional key environmental impact(s) must be included in the Environmental Assessment. 	20.6
Consultation Requirements	You must undertake an appropriate and justified level of consultation with the following parties during preparation of the Environmental Assessment:	-
	<ul style="list-style-type: none"> Department of Environment and Conservation; 	Appendix A and D 4.6
	<ul style="list-style-type: none"> Road and Traffic Authority; 	Appendix J 4.6, 17.3
	<ul style="list-style-type: none"> Department of Primary Industries (Mineral, Fisheries and Agriculture); 	4.6
	<ul style="list-style-type: none"> Department of Natural Resources; 	4.6, 14.5
	<ul style="list-style-type: none"> Hunter-Central Rivers Catchment Management Authority; 	Appendix A 4.6,8.9
	<ul style="list-style-type: none"> Upper Hunter Council; 	Appendix N Section 5.0
	<ul style="list-style-type: none"> Energy Australia/Trans Grid; 	Appendix L 4.6,19.1.1,19.1.2
	<ul style="list-style-type: none"> NSW Rural Fire Service; 	Appendix C 4.6,18.4.2,18.5
	<ul style="list-style-type: none"> Civil Aviation Safety Authority (CASA); 	Appendix E 4.6, 12.2
	<ul style="list-style-type: none"> Woonarua Local Aboriginal Land Council; and 	Appendix H 4.6,9.1
	<ul style="list-style-type: none"> The local community. 	Appendix N Section 5.0 19.3,21.4,21.8
	The Environmental Assessment must clearly describe the consultation process and indicate the issues raised by stakeholders during consultation and how these matters have been addressed.	Appendix N and Appendix K–Attachment A 5.1, 5.4,5.5
+Deemed refusal period	Under clause 8E(2) of the <i>Environmental Planning and Assessment Regulations 2000</i> , the application deemed refusal period is 60 days from the end of the Proponent's environmental assessment period for the project.	Noted

1.4.2 Requirements from Other Authorities

In addition to the comprehensive list of requirements from the Director General of the Department of Planning, a number of other authorities emphasised a number of issues of particular interest to them as follows: (These issues have been included as considerations in the required Environmental Assessment process.)

Table 1.2 – Requirements from other authorities.

Requirement	Description of requirement	Relevant Section in Environmental Assessment
NSW Department of Environment and Climate Change	Noise impacts on the surrounding community	Appendix D Section 10.0
	Impacts on threatened flora and fauna, populations or endangered ecological communities	Appendix A, A(i),A(ii), A(iii), A(iv) Section 8.0
	Impacts on Aboriginal cultural heritage	Appendix H 9.1
NSW Department of Natural Resources	Groundwater Interception	15.2
	Riparian Protection	Section 15.0 16.4
Upper Hunter Catchment Management Authority	Native Vegetation	Appendix A 8.2,8.7,8.9,8.10
	Biodiversity impacts	Section 8.0
Upper Hunter Shire Council	Community involvement	Appendix N Section 5.0
	Visual assessment	Appendix B Section 11.0
	Acoustic issues	Appendix D Section 10.0
	Flora and fauna including regional corridors	8.2,8.3,8.7
	Transport and erosion and sedimentation controls	Appendix J Section 17.0,16.0
	Electro-magnetic interference and mitigation	Appendix F Section 13.0
	Geotechnical	Section 16.0
	Flicker assessment	Appendix G 11.8
	Archaeological – Aboriginal and European	Appendix H,I Section 9.0
	Aviation	Appendix E Section 12.0
	Grid Upgrade	Appendix L Section 19.0
	Bushfire	Appendix C Section 18.0
	Climate Change	6.1,6.4
	Geological resources	Section 14.0
	Impact on property values	Appendix K 6.7.7
	Education and community access	Appendix N Section 5.0 19.3,21.4,21.8

1.5 Project Team

This Project Application is made by Pamada Pty Limited (the Proponent), an Australian property advisory and boutique development company based in Sydney, on behalf of Kyoto Energy Park Scone Pty Ltd, (the developer). The principle activities of the Proponent are as an advisor in the property industry, with a key focus on community development and projects which seek to achieve a renewable and sustainable world.

Pamada has a high commitment to the development of projects focusing on reducing impacts of a carbon climate and reducing overall lifecycle environmental impacts of projects. Other companies which have had input into the preparation of this Environmental Assessment are:

Table 1.3 – Kyoto Scone Project Team

HDB Town Planning & Design	Co-Author Environmental Assessment and response to the Director General's Requirements Strategic Planning/Geotechnical
Pamada	Co-Author Environmental Assessment and response to the Director General's Requirements
BBC Planners	Statutory Planning
Conacher Environmental Group	Ecological Assessment
Conacher Environmental Group	EPBC Referral
Conacher Environmental Group	Bushfire Risk and Management
Garrad Hassan	Wind Speed Assessment and Layout Optimisation
Garrad Hassan	Blade Flicker and Glint
Garrad Hassan	Electro Magnetic Interference
Garrad Hassan	Aviation
Key Insights Pty Ltd	Socio-Economic Study
Key Insights Pty Ltd	Community Information Day Report
Myall Coast Archaeological Services	Indigenous Heritage
Myall Coast Archaeological Services	European Heritage
Wilkinson Murray	Acoustic
Integral	Visual and Landscape Planning
Bob Dupont Pty Ltd	Property Research
Senergy Econnect	Electrical Grid Connection/Innovative Integrated Design
Vemtec Utility Infrastructure Services	Transmission Line Route Study
Snowy Mountains Energy Corporation	Mineral Resources/Closed loop hydro

1.6 Location of the proposed Kyoto Energy Park

The proposal is located on two private landholdings Mountain Station and Middlebrook Station which are two landholdings located west and north-west of Scone town centre respectively. Scone is a rural township located on the New England Highway in the Upper Hunter Valley of New South Wales approximately 150 kilometres north-west of Newcastle. The proposed sites are owned by a single landholder and completely within the Upper Hunter Shire Council Local Government Area (LGA). Middlebrook Station and Mountain Station properties are dissected by Bunnan Road which is an arterial rural road linking Scone to the Bunnan township located to the west.

Both Mountain and Middlebrook Station are characterised by undulating to hilly terrain, with broken, generally north-south oriented ridgelines. There are no major watercourses present on the subject sites. Several small or intermittent watercourses drain the site to nearby secondary creeks and streams. There is little natural tree cover on site with the larger proportion of the site cleared for pastoral and commercial grazing of sheep and cattle.

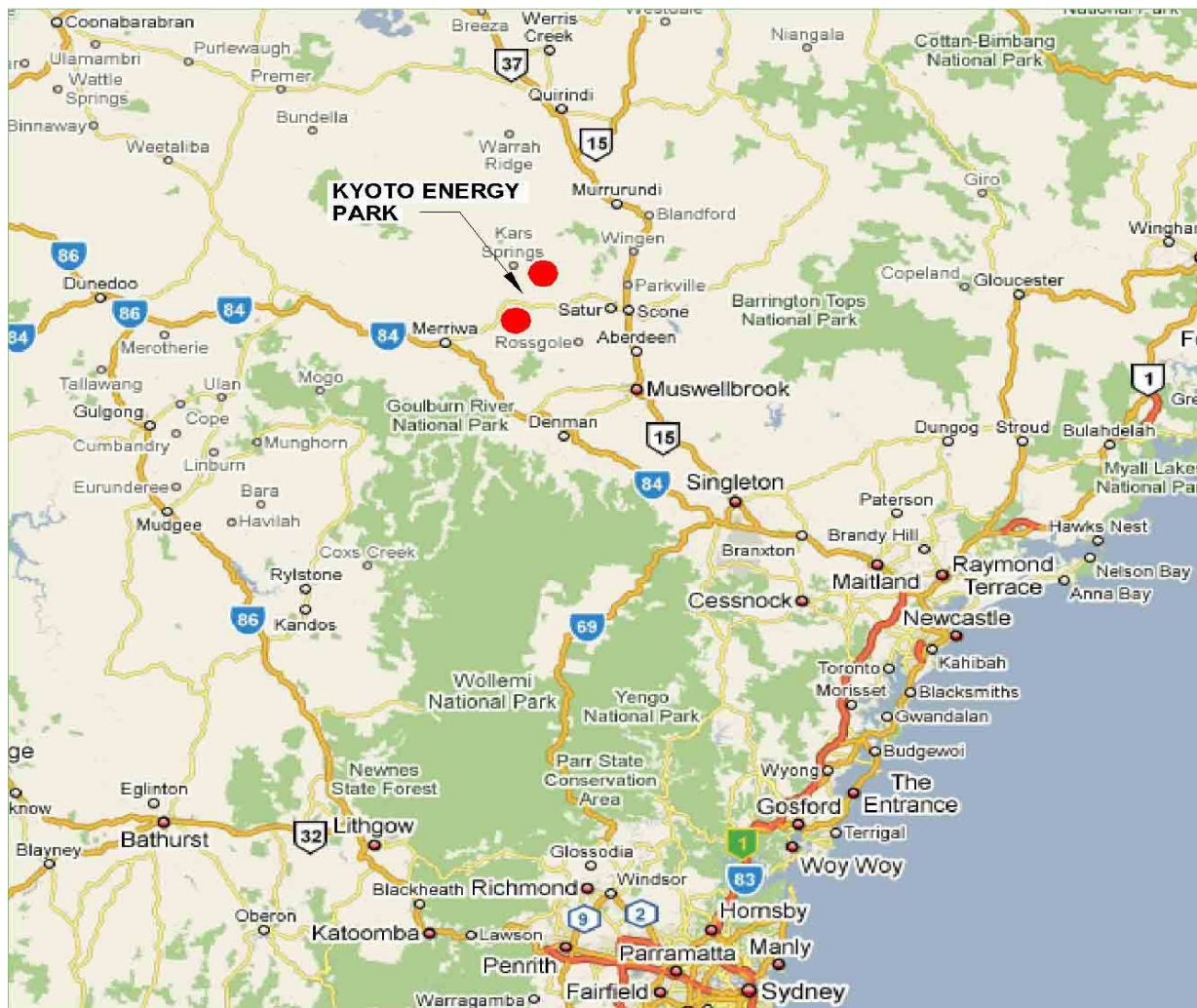


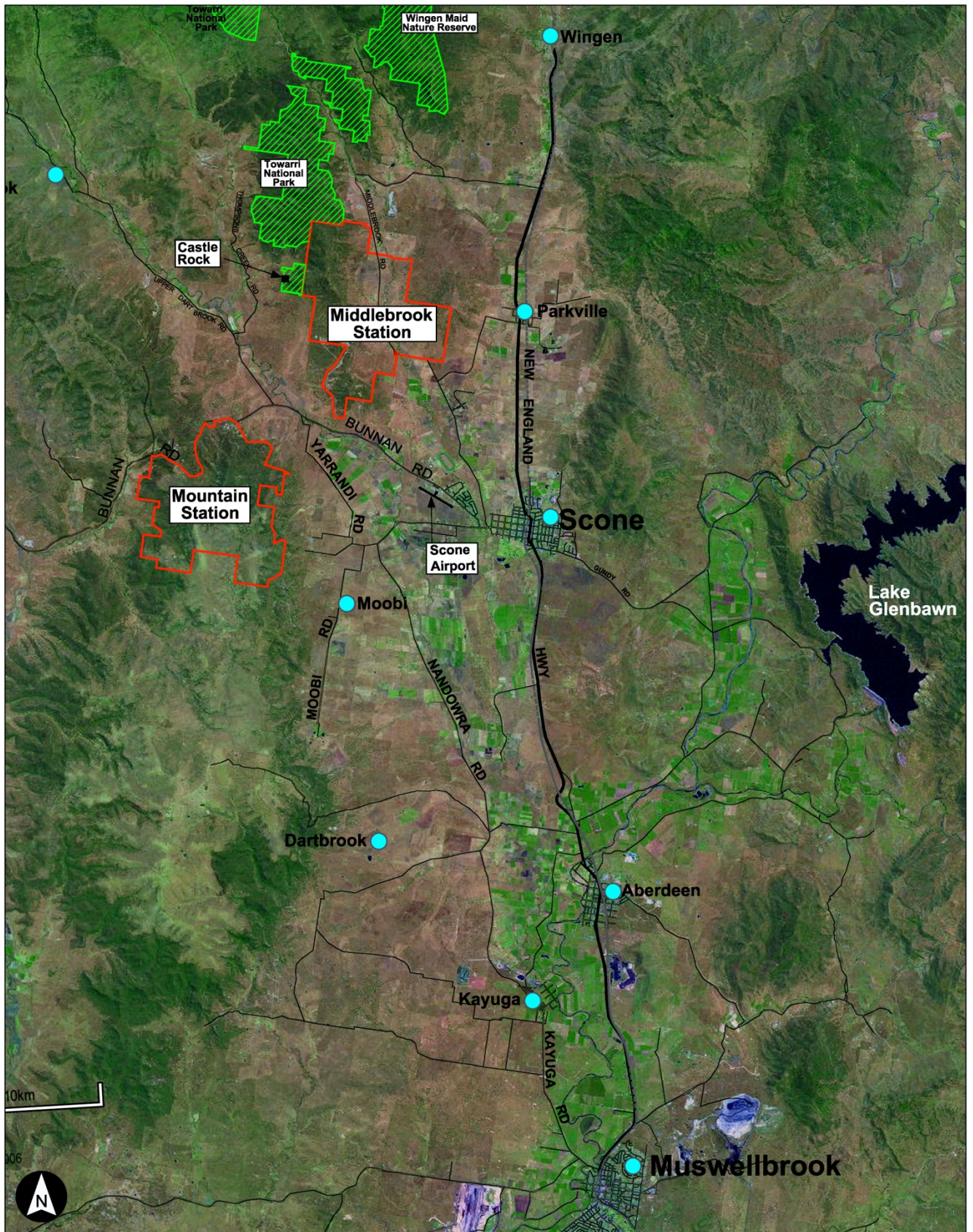
Figure 1.0 Locality Plan (Source: Google Maps)

1.6.1 Middlebrook Station

The Middlebrook Station property is located approximately 8 to 13 kilometres north-west of the Scone town centre (Refer to Figure 1.1 below). This site is part of the Glen Range (part of the Great Dividing Range), and has a relatively flat single ridgeline which runs approximately north-south. Middlebrook Station has an elevation of between 580m and 620m. Middlebrook Station comprises an area of approximately 2032 ha. The energy park components will represent only a small portion of the total area of the site. A 'Trig' station is located on the 'Robertson's Knob' towards the southern portion of the site. The Trig station is accessed via a Crown road and is at considerable distance from any proposed works or facilities.

1.6.2 Mountain Station

The Mountain Station Site is located approximately 9 to 14 kilometres west of the Scone town centre (Refer to Figure 1.1 below). This site is an area of escarpments and ridges on the western side of the Hunter Valley. The proposed facilities are to be located on a prominent escarpment called Mount Moobi and on nearby prominent ridgelines that generally aligned in a north-south direction. Mount Moobi has an elevation of between 600m and 640m. A 'Trig' station is located on the Mount Moobi escarpment (Refer Section 7.11). Mountain Station has an area of approximately 1995ha.

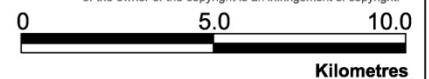


Legend:

- | | |
|--|---|
| ● Major & Minor Rural Town Centres | Property Boundary |
| — Highway/main road | National Park/Nature Reserve |
| — Minor road | Railway |
| ~ Watercourse | |

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Figure 1.1 - Location Plan

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1.7 Land Tenure and legal description

Both Middlebrook and Mountain Station sites are located on private freehold tenure owned by a single landowner. Both properties are owned by Middlebrook Scone Pty Ltd (the landowner) and are wholly within the Upper Hunter LGA. The Kyoto Energy Park Company Pty Ltd have entered into a long term lease agreement with the landowner to seek approval for, construct, own and operate the Kyoto Energy Park throughout the life of the facility.

The land parcels that comprise both Mountain Station and Middlebrook Station are listed in Table 1.4 below.

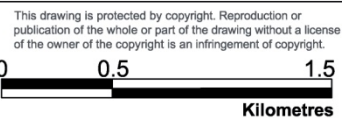
Table 1.4 Land Portions affected by the proposal

Property	Registered Proprietor	Land Description	
Mountain Station	<i>Middlebrook Scone Pty Ltd</i>	DP	Lot
		DP 740074	Lots A and B
		DP 750939	Lots 20, 21, 23, 24, 30 – 39, 43, 50, 51, 53-56, 58, 60, 63,64,65 –71, 74, 85–87,89-92, 102,105,106,109, 114 –116 and 118.
		DP 830351	2
		DP 199598	1
Middlebrook Station	<i>AAG & SA Henderson AAG Henderson</i>	DP 750941	Lots 17,24,7004 59,60,62-63,65 71-74,76,78,79,87,88 102-109 115-120 126,127,129
		DP 82248	2
		DP 978019	3,4
		DP 1099334	1-3
		DP 1100370	10
		DP 1123467	1,2

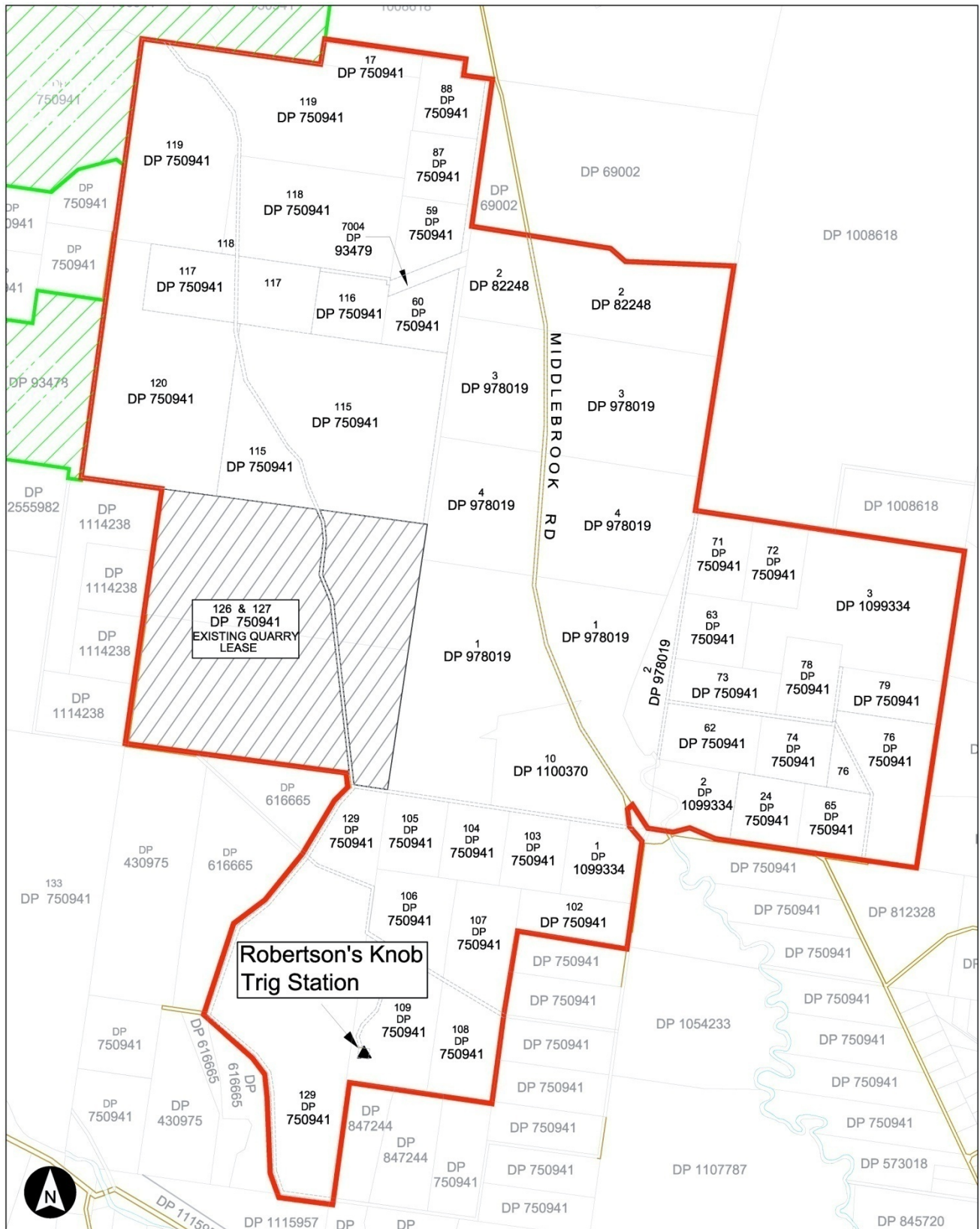
These land descriptions for both properties are illustrated in Figure 1.2 and Figure 1.3.

Lot 118 (DP 750939) on Mountain Station is NSW Crown Lands 'prickly pear' lease in favour of Middlebrook Scone Pty Ltd (the lessee). No wind turbines or other structures are located on portion 118. An existing access road shall be upgraded to a 5m width solely for access over this portion.


There are Trigonometric (Trig) Stations located on Mountain Station (Myall) and on Middlebrook Station (Robertson's). The NSW Department of Lands were consulted in relation to potential impacts on these permanent survey marks which is discussed in Section 7.11



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Legend:

-  Property Boundary
-  Crown Land (Paper Roads)
-  National Park/Nature Reserve
-  Minor road

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0 0.5 1.5
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**Figure 1.3 - Land Tenure and Legal Information
(Middlebrook Station)**

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