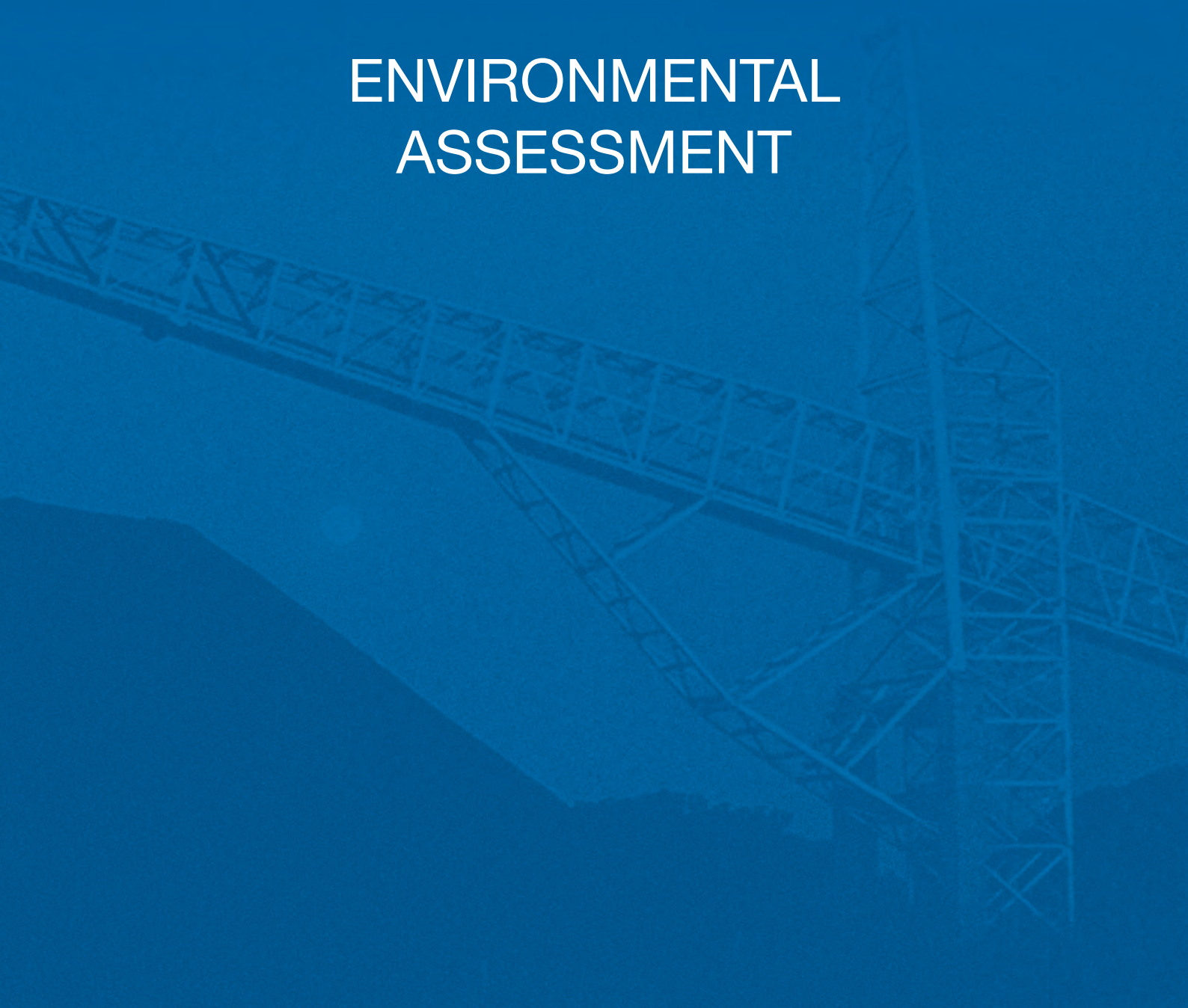




ENVIRONMENTAL ASSESSMENT



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1 INTRODUCTION

This document is an Environmental Assessment (EA) for a modification to the Wilpinjong Coal Mine which operates in accordance with Project Approval 05-0021, granted by the Minister for Planning in February 2006. The Project Approval has been modified previously (Section 2.1).

The Mine is owned and operated by Wilpinjong Coal Pty Limited (WCPL), a wholly owned subsidiary of Peabody Energy Australia Pty Limited (Peabody Energy).

A copy of the consolidated Project Approval 05-0021 is provided as Attachment 1.

1.1 OVERVIEW OF THE WILPINJONG COAL MINE

The Wilpinjong Coal Mine is an existing open cut coal mining operation situated approximately 40 kilometres (km) north-east of Mudgee, near the Village of Wollar, within the Mid-Western Regional Local Government Area (LGA), in central New South Wales (NSW) (Figures 1 and 2).

Construction of the Wilpinjong Coal Mine commenced in February 2006, and the mine is approved to produce up to 15 million tonnes per annum (Mtpa) of run-of-mine (ROM) coal. Up to 12.5 Mtpa of thermal coal products from the Wilpinjong Coal Mine are transported by rail to domestic customers for use in electricity generation and to port for export.

Two significant ridges separate the Wilpinjong Coal Mine from the Village of Wollar that is located to the east of the mine. Local topographic features, the approved project boundary and open cut and contained infrastructure area of the Wilpinjong Coal Mine are shown on Figure 3.

Current land ownership in the vicinity of the mine is shown on Figures 4a and 4b and reflects a number of recent purchases by Peabody Energy in 2013/2014.

1.2 OVERVIEW OF THE MODIFICATION

A review of mine planning, more detailed coal quality data and the range of ash contents required in potential product specifications indicates higher rates of ROM coal production will be required at times to achieve equivalent product coal targets at Wilpinjong Coal Mine (i.e. some increased washing of ROM coal may be required to achieve the same product specifications, and this would result in additional ROM coal being mined to meet the equivalent product output rate).

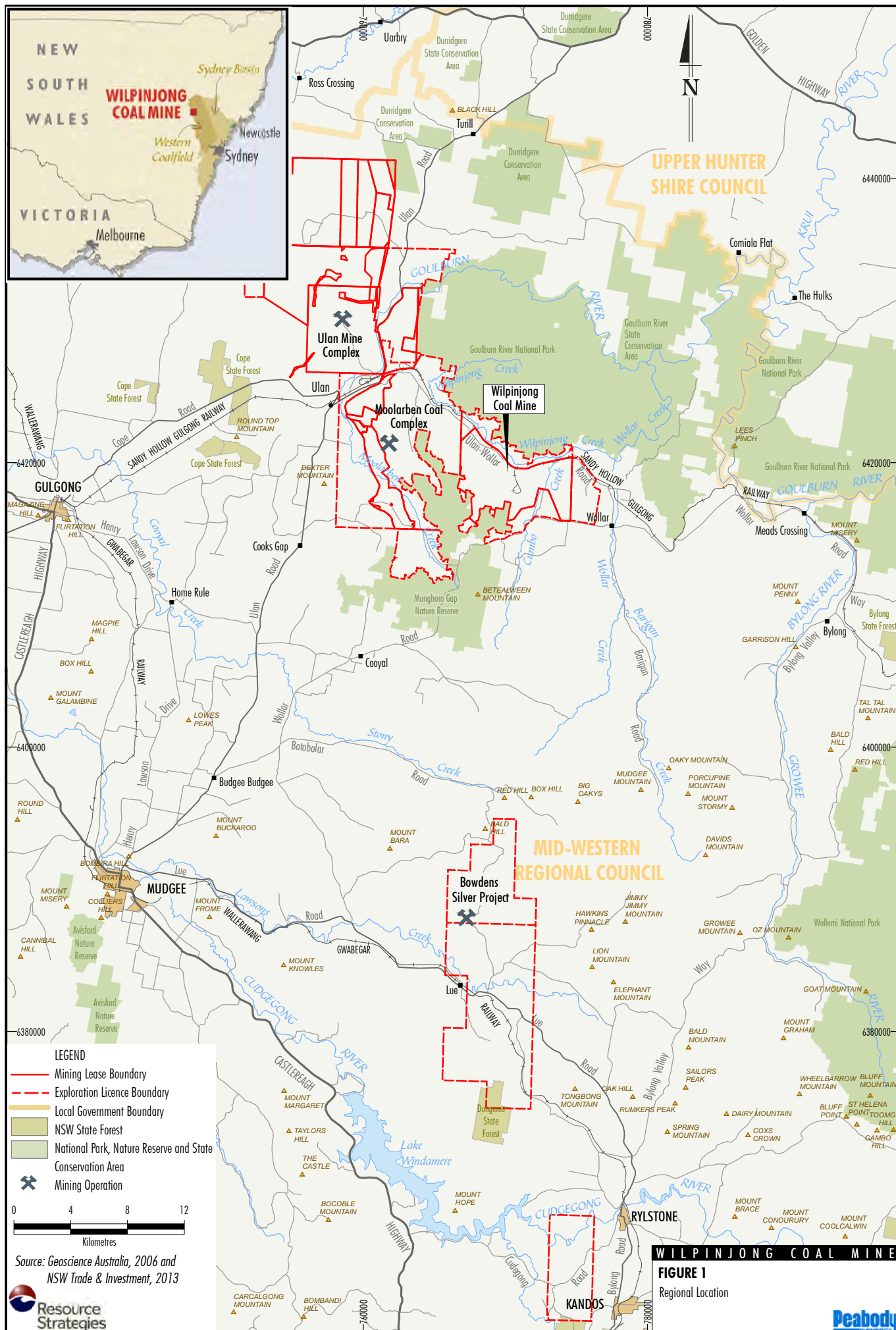
Since transitioning to an owner-operator mine in 2013, WCPL has been implementing a continuous improvement programme for materials handling/mining.

The outcomes of this programme indicate a higher ROM coal production rate (from 15 Mtpa up to approximately 16 Mtpa) could be achieved with minor augmentations to the existing mining fleet and without any increase in the approved disturbance areas.

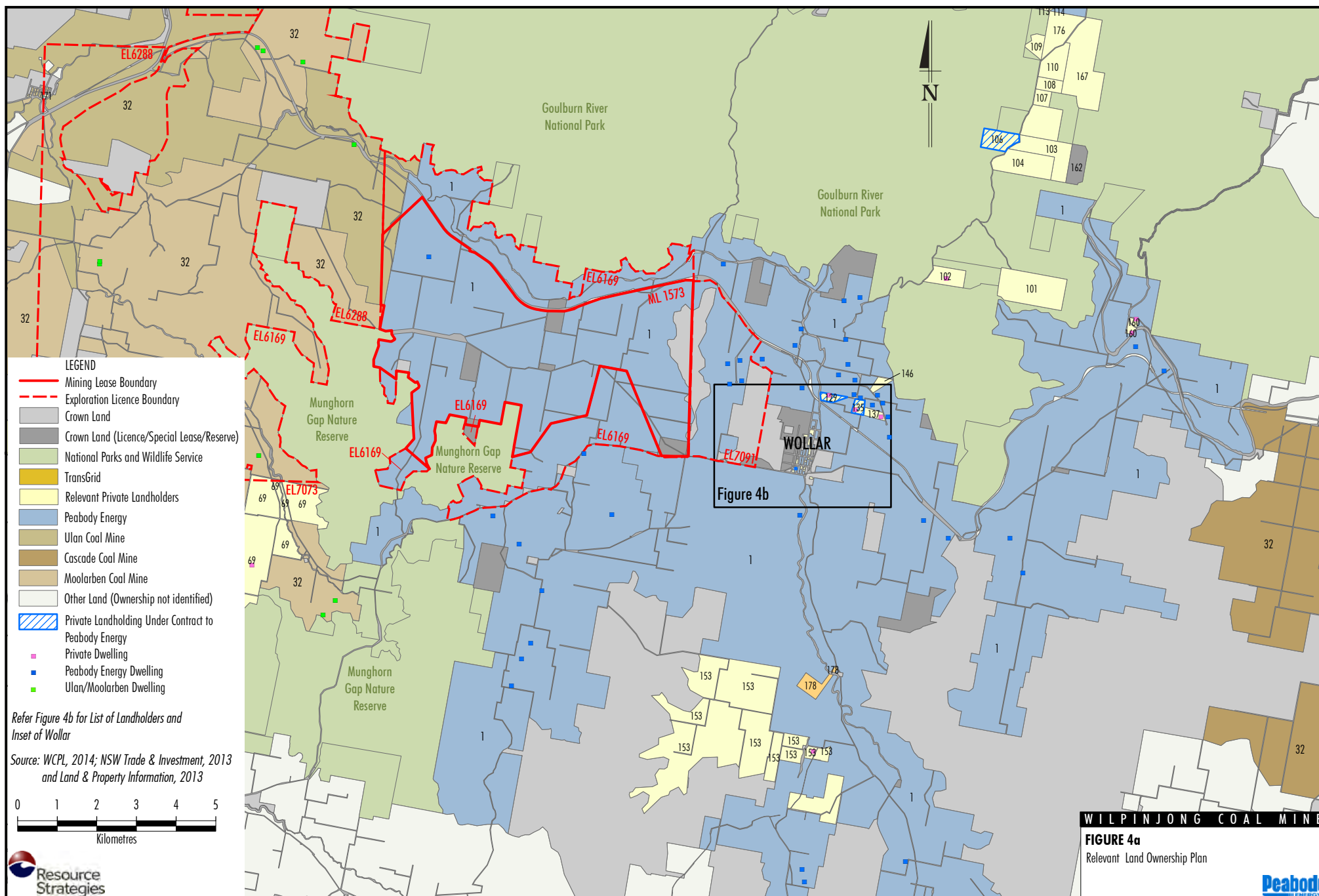
A number of aspects are contributing to the observed gains in mining efficiency, including improvements in the form of:

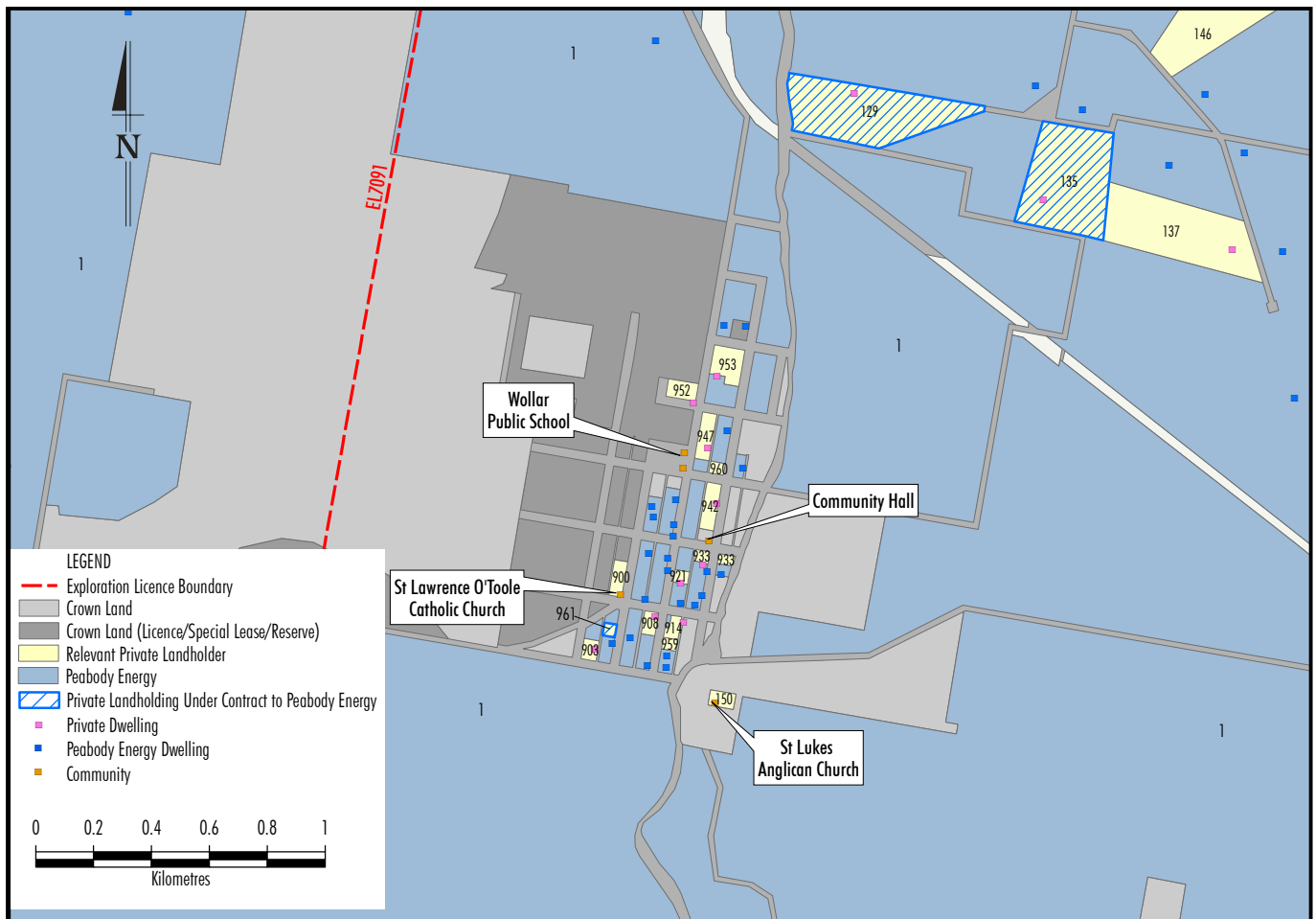
- optimisation of bucket capacity on excavators (i.e. reducing the number of passes or cycles required to fill a haul truck);
- relocated crib huts (i.e. increasing mobile fleet utilisation by reducing travel related downtime);
- relatively lower maintenance requirements with the new mining fleet (i.e. equipment availability is higher than was observed for the previous mining contractor fleet);
- optimisation of dozer push waste rock handling (i.e. the improved allocation of waste removal tasks between dozer fleets and truck/excavator fleets has improved overall mining efficiency);
- blast design and execution (i.e. increasing accuracy and efficiency of blasting); and
- optimisation of haul paths for haulage of waste material which improves equipment utilisation.

An increased rate of annual ROM coal production would provide operational flexibility to maintain WCPL's competitive advantage as a low cost thermal coal producer. There is no proposed material increase in the approved production of product coal as part of the Modification.









Ref No.	Landholder
1	Peabody Energy
32	Ulan/Moolarben/Cascade Coal Controlled Land
69	DJ & JG Stokes
80	RB Cox
101	NAB Pierce
102	W Filipczyk
103	MR Molloy
104	J & I Hartig
106	JA Sales (Under Contract to Peabody Energy)
107	RJ Lee
108	Crosse
109	MO Vaisey
113	AJ Brett & S & D Hilt
114	C Ware & N Parker
129	K & R Roser (Under Contract to Peabody Energy)
135	K & R Roser (Under Contract to Peabody Energy)
137	A & C Chetcuti
146	D & B Spearpoint
150	Edmund Tindale, Alexander McDonald, Will
153	Terrence William Marskell
160	B Smiles & A Smiles-Schmidt

Ref No.	Landholder
162	Special lease 1969/7 Daniel Ponton
167	G Jaques
169	J Asztalos
170	MB Cox
110	Patricia Ann Crosse
175	SF & MR Andrews
176	Shaun Rayner
178	TransGrid
900	Catholic Church
903	M Hardiman & D Hogan
908	A & A Lynch
914	Paul Warwick Nicod & Philip John Slade
921	EH Toombs
933	CR Faulkner
942	Robert & Susan Schneider
947	Scott & Jane Lillis
952	B & D O'Hara
953	B Marshall & R Muller
959	CJ Clarke
960	Scott Lillis
961	Jaques Family Investments P/L (Under Contract to Peabody Energy)

Source: WCPL, 2014; NSW Trade & Investment, 2013 and Land & Property Information, 2013

WILPINJONG COAL MINE
FIGURE 4b
Wollar Inset and Relevant Land Ownership List
(refer to Figure 4a for Land Ownership Plan)

WCPL has therefore determined that a number of minor alterations to the approved Wilpinjong Coal Mine are required, including:

- An increase in the upper rate of ROM coal production (from 15 Mtpa to approximately 16 Mtpa – an increase of approximately 7 percent [%]).
- A minor increase in the upper annual rate of waste rock production (from 33.3 million bank cubic metres (Mbcm) to approximately 34.1 Mbcm - an increase of approximately 2%).
- Mine sequencing revisions associated with updated geological modelling/mine planning – and the accelerated re-mining of a temporary waste rock emplacement (Figure 5).

There would also be an incidental increase in the upper annual rate of saleable coal production (from 12.5 Mtpa to 12.6 Mtpa).

There would be no change arising from the Modification to the following aspects of the approved Wilpinjong Coal Mine:

- open cut and contained infrastructure area;
- mine life;
- saleable coal transport off-site (12.5 Mtpa) or associated average or maximum rail movements; and
- operational workforce (up to approximately 550 people).

There would be no material construction associated with the Modification. Minor augmentations of the mobile fleet are discussed in Section 3.2.4 and Appendix A.

Table 1 provides a comparative summary of the currently approved and proposed modified Wilpinjong Coal Mine.

1.3 CONSULTATION FOR THE MODIFICATION

State Government Agencies

WCPL consults with relevant State Government agencies on a regular basis in relation to the approved Wilpinjong Coal Mine.

Department of Planning & Environment

Initial briefings of assessment officers of the NSW Department of Planning & Environment (DP&E) (formerly NSW Department of Planning and Infrastructure) on the Modification were conducted in Sydney in December 2013 and at a Wilpinjong Coal Mine site visit in February 2014.

A meeting was then held with representatives of the DP&E in March 2014 to provide an overview of the proposed Modification, discuss environmental assessment requirements and provisional timing for lodgement of the Modification application.

WCPL subsequently provided an update on the Modification and summary results of the specialist studies to representatives of the DP&E in June 2014.

Office of Environment and Heritage

The NSW Office of Environment and Heritage (OEH) is a separate agency within the DP&E.

While there is no additional land disturbance associated with the Modification, a summary overview of the Modification was provided to the OEH in June 2014.

Environment Protection Authority

A meeting was held on-site at the Wilpinjong Coal Mine with representatives of the NSW Environment Protection Authority (EPA) in March 2014 and an overview of the Modification was provided.

Further consultation with representatives of the EPA was undertaken on-site in June 2014, where WCPL provided a further update on the Modification and summary results of the specialist studies.

Division of Resources and Energy (within Department of Trade, Investment, Regional Infrastructure and Services)

In February and March 2014 briefings on the Modification were provided to representatives of the NSW Division of Resources and Energy (DRE) within the Department of Trade, Investment, Regional Infrastructure and Services in conjunction with consultation regarding the Mining Operations Plan for the approved Wilpinjong Coal Mine.

Further consultation with representatives of the DRE was undertaken on-site in June 2014, where WCPL provided a further update on the Modification.

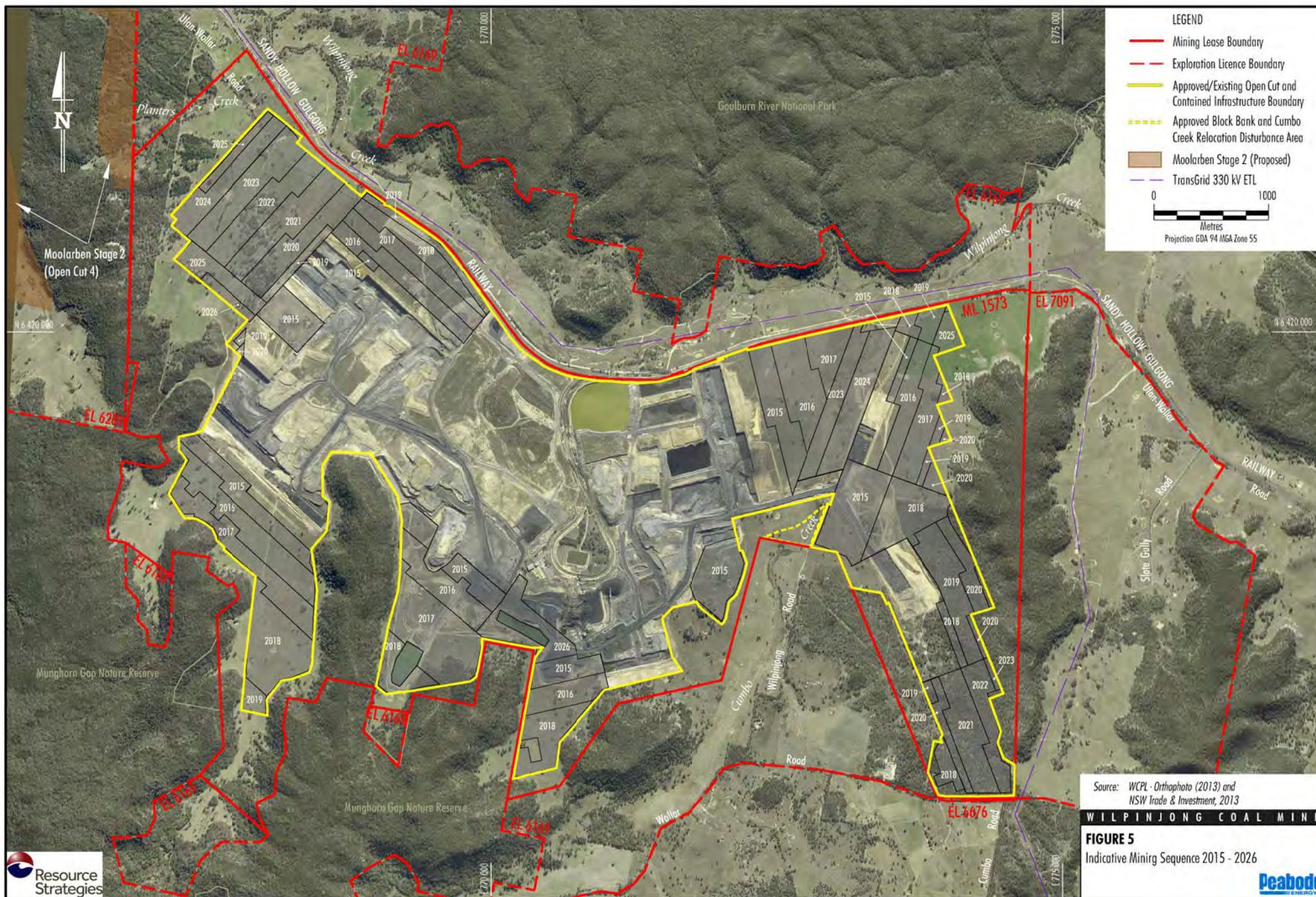


Table 1
Summary Comparison of the Approved Wilpinjong Coal Mine and the Modification

Component	Approved Wilpinjong Coal Mine	Modified Wilpinjong Coal Mine
Mining Method	<ul style="list-style-type: none"> Open cut mining operation extracting ROM coal. 	<ul style="list-style-type: none"> Unchanged.
	<ul style="list-style-type: none"> Six open cut pits and associated contained infrastructure area. 	<ul style="list-style-type: none"> Unchanged.
ROM Coal Production Rate	<ul style="list-style-type: none"> Up to 15 Mtpa of ROM coal. 	<ul style="list-style-type: none"> Up to 16 Mtpa of ROM coal.
Waste Rock Management	<ul style="list-style-type: none"> Waste rock deposited predominantly within mined-out voids. 	<ul style="list-style-type: none"> Unchanged.
Waste Rock Production	<ul style="list-style-type: none"> Annual waste rock production up to approximately 33.3 Mbcm. 	<ul style="list-style-type: none"> Annual waste rock production up to approximately 34.1 Mbcm.
Product Coal	<ul style="list-style-type: none"> Production of approximately 12.5 Mtpa of product coal. 	<ul style="list-style-type: none"> Production of approximately 12.6 Mtpa of product coal. Amount of product coal to be transported from the site per calendar year unchanged.
Product Coal Transport	<ul style="list-style-type: none"> An average of six and a maximum of 10 laden trains per day leaving the mine. Transport via the Sandy Hollow-Gulgong Railway. 12.5 Mtpa railed in any calendar year. 	<ul style="list-style-type: none"> Unchanged.
Coal Rejects (tailings and coarse rejects)	<ul style="list-style-type: none"> Coal rejects placed predominantly within mined-out voids. Tailings belt press filter to be installed to allow co-disposal of tailings with coarse reject (subject to feasibility and engineering design). 	<ul style="list-style-type: none"> Unchanged.
Water Supply	<ul style="list-style-type: none"> Make-up water demand to be met from runoff recovered from mine operational areas, recovery from tailings, open cut dewatering, advanced dewatering of pit areas and supply from a borefield. Subject to feasibility studies, recovery of water from tailings via belt press filter. 	<ul style="list-style-type: none"> Unchanged.
Water Disposal	<ul style="list-style-type: none"> Mine water treated in a reverse osmosis plant and discharged to Wilpinjong Creek in accordance with Environment Protection Licence (EPL) 12425. Upgrade of the reverse osmosis plant to a water treatment facility (include pre-filtration and flocculation/dosing facilities to improve plant efficiency). 	<ul style="list-style-type: none"> Unchanged.
Project Life	<ul style="list-style-type: none"> 21 years (from the date of grant of a Mining Lease [ML]). 	<ul style="list-style-type: none"> Unchanged.
Operational Workforce	<ul style="list-style-type: none"> Up to approximately 550 people. 	<ul style="list-style-type: none"> Unchanged.

Mid-Western Regional Council

The Wilpinjong Coal Mine is wholly located within the Mid-Western Regional LGA and WCPL regularly consults with Mid-Western Regional Council (MWRC) for the existing Wilpinjong Coal Mine in relation to mine development, infrastructure including the implementation of the Ulan Road Strategy and services to the community.

A briefing on the Modification was provided to the MWRC in February 2014. In addition, a representative of the MWRC attends the quarterly Wilpinjong Coal Mine Community Consultative Committee meetings.

Local Community

A Community Consultative Committee has been established for the Wilpinjong Coal Mine in accordance with Project Approval 05-0021 (Attachment 1). The Community Consultative Committee provides a mechanism for ongoing communication between WCPL and the local community. Consultation regarding the Modification was undertaken at the Community Consultative Committee meeting in March 2014.

WCPL has undertaken individual consultation with a number of private landholders and lessees that reside in the vicinity of the mine to discuss the Modification.

WCPL also continues to have its regular "Have a Chat" drop in session on the first Thursday of every month at the Wollar General Store. At the drop in sessions, members of the local community can meet with representatives of WCPL and discuss any concerns or issues.

Notwithstanding that there would be no additional open cut disturbance associated with the Modification, WCPL also conducted consultation with members of the Aboriginal community at Native Title Party meetings in February and May 2014.

Key environmental issues that were raised during consultation included operational noise, spontaneous combustion (odour) associated with the existing operations, and dust.

Consideration of the environmental impacts of the Modification, including these issues, is provided in Section 4.

Other Mines

WCPL works closely with the Ulan Mine Complex and Moolarben Coal Complex managing cumulative impacts associated with mining operations. The mining operations share their extensive environmental databases through a formal data sharing agreement to support relevant environmental assessments or incident investigations and co-operate in the implementation of joint programs such as the Ulan Road Strategy.

Both Moolarben Coal Operations Pty Limited and Ulan Coal Mines Limited were consulted on the Modification in May 2014.

1.4 STRUCTURE OF THIS DOCUMENT

An outline of the main text sections of this EA is presented below:

Section 1	Provides an overview of the Wilpinjong Coal Mine, the Modification and the consultation undertaken in relation to the Modification.
Section 2	Provides a description of the existing Wilpinjong Coal Mine.
Section 3	Provides a description of the Modification.
Section 4	Provides an environmental assessment of the Modification and describes the existing WCPL environmental management systems and measures that would be available to manage and monitor any potential impacts.
Section 5	Describes the general statutory context of the Modification and identifies Project Approval conditions that would require revision in support of the Modification.
Section 6	Conclusion.
Section 7	References.

Attachment 1 and Appendices A to D provide supporting information as follows:

Attachment 1 Consolidated Project Approval

Appendix A Noise and Blasting Impact Assessment

Appendix B Air Quality Impact Assessment

Appendix C Groundwater Assessment

Appendix D Surface Water Assessment

2 EXISTING WILPINJONG COAL MINE

2.1 APPROVALS HISTORY

The Wilpinjong Coal Project Environmental Impact Statement (the EIS) (Resource Strategies, 2005) was originally prepared by WCPL in accordance with Part 4 of the NSW *Environmental Planning and Assessment Act, 1979* (EP&A Act), however, it was accepted by the Director-General of the Department of Planning under clause 8J(2) of the NSW *Environmental Planning and Assessment Regulation, 2000* (EP&A Regulation) as an EA for the purpose of Part 3A of the EP&A Act.

The Wilpinjong Coal Mine was approved under Part 3A of the EP&A Act by the NSW Minister for Planning on 1 February 2006 (Project Approval 05-0021) and has been modified on four previous occasions.

In April 2007, WCPL submitted an application to modify Project Approval 05-0021 under section 75W of the EP&A Act to address the following minor modifications to the approved Wilpinjong Coal Mine:

- increasing the permitted frequency of blasting to a maximum of two blasts per day (and five blasts per week on average over any 12 month period); and
- changing the primary mine access route to be along Ulan Road and Ulan-Wollar Road, rather than Ulan Road and Wollar Road.

This modification was approved by the NSW Minister for Planning on 30 November 2007.

In May 2008, WCPL submitted an application to modify Project Approval 05-0021 under section 75W of the EP&A Act for construction of a water sharing pipeline between the Ulan Mine Complex and Wilpinjong Coal Mine. This application (Modification 2) was subsequently withdrawn and was not determined.

In May 2010, WCPL submitted an application to modify Project Approval 05-0021 under section 75W of the EP&A Act to increase the maximum ROM coal production rate from 13 Mtpa to 15 Mtpa (the Mining Rate Modification). The change in production also involved an increased mining fleet and an increase in the average number of train movements departing the site from four to five movements per day.

The Mining Rate Modification (known as 'Mod 3') was approved by a delegate of the NSW Minister for Planning on 8 September 2010.

In September 2011, WCPL submitted an application to modify Project Approval 05-0021 under section 75W of the EP&A Act to address the following modifications to the approved Wilpinjong Coal Mine (the 2011 Modification):

- increase the maximum product coal from 12 to 12.5 Mtpa;
- increase the number of laden coal trains leaving the site to six per day on average and 10 at maximum; and
- install and operate a reverse osmosis plant on-site to treat excess mine water in accordance with the site EPL 12425.

The 2011 Modification (known as 'Mod 4') was approved by the Planning Assessment Commission (as a delegate of the NSW Minister for Planning and Infrastructure) on 24 August 2012.

In July 2013, WCPL submitted an application to modify Project Approval 05-0021 under section 75W of the EP&A Act to address the following modifications to the approved Wilpinjong Coal Mine (Modification 5):

- development of incremental extensions to the open cut pits comprising approximately 70 hectares (ha);
- higher rates of annual waste rock production (from 28 Mbcm up to approximately 33.3 Mbcm);
- minor coal handling and preparation plant (CHPP) upgrades and an increase in the rate of ROM coal beneficiation in the CHPP;
- upgrade of the on-site reverse osmosis plant to a water treatment facility with the addition of pre-filtration and flocculation/dosing facilities to improve plant efficiency;

- amendment of the waste emplacement strategy to include:
 - development of an elevated waste rock emplacement landform within the footprint of Pit 2;
 - disposal of some inert building and demolition waste produced from off-site building demolition in the approved mine waste rock emplacements; and
 - co-disposal of fine coal reject material produced by the belt press filter with coarse rejects;
- operation of a WCPL light vehicle servicing workshop at an existing farm shed; and
- an increase in the frequency of larger open cut blasts.

The Modification (known as Modification 5) was approved by the Planning Assessment Commission (as a delegate of the NSW Minister for Planning and Infrastructure) on 7 February 2014.

The consolidated Project Approval, incorporating the above modifications, is provided in Attachment 1.

2.2 OPEN CUT MINING

The approved open cut and contained infrastructure area at the Wilpinjong Coal Mine (Figure 2) comprises an area of approximately 1,990 ha. Mining at the Wilpinjong Coal Mine commenced in September 2006.

The mining operation uses blasting, dozers and hydraulic excavators to mine coal and overburden in a strip mining configuration and operates 24 hours per day, seven days per week.

Steady state mining consists of a combination of truck and excavator mining and dozer bulk pushing of blasted overburden into the previous strip void, followed by the removal of coal and interburden.

Coal and interburden are mined in a similar manner to the overburden where dozers are used to rip and push the coal/interburden, followed by truck loading using excavators. Some interburden blasting is also required, depending on the thickness and hardness of the material. Overburden and interburden that is not bulk pushed with dozers is hauled into the previous strip void using haul trucks.

Open cut blasting is undertaken in accordance with the blast limits described in Conditions 9 and 10 of Schedule 3 of the Project Approval (Attachment 1) that include limitations on the days, time and frequency of blasts that can be undertaken.

ROM coal is mined at a rate of up to 15 Mtpa and transported by haul trucks along internal haul roads to the ROM pad where it is directly dumped into the ROM hopper or is temporarily stockpiled and then rehandled to the hopper.

2.3 COAL HANDLING AND PREPARATION

The Wilpinjong Coal Mine produces both washed and unwashed coal products. The coal handling and processing infrastructure has been designed to accommodate the processing of raw coal and the handling of raw (bypass) and washed product coal.

Materials handling systems and the CHPP were upgraded following the approval of the Mining Rate Modification in 2010.

Stockpiles located near the infrastructure area are used to stockpile ROM coal (Figure 2), with the ROM coal stockpiles having a capacity of over 1.5 million tonnes (Mt).

Due to previous spontaneous combustion events on ROM coal stockpiles that were held on-site for an extended period, WCPL has put in place a risk identification system, whereby coal stockpiles that have a higher propensity to spontaneously combust are closely monitored (including physical inspections at eight hour intervals and/or use of thermal probes to identify areas of heating). In addition, after select ROM coal types have been stockpiled on-site for a designated period, they are prioritised for washing in the CHPP, to reduce the risk of spontaneous combustion events occurring in ROM coal.

Following ROM coal sizing, a slewing radial stacker deposits unwashed coal directly to two high ash and mid ash unwashed product stockpiles, or to a raw coal stockpile for processing in the CHPP.

Following processing in the CHPP, two product stacking conveyors deposit washed coal to two further product stockpiles.

Wilpinjong Coal Mine has a combined capacity of approximately 500,000 tonnes for the stockpiling of washed and unwashed coal products that are reclaimed via four coal valves for loading to trains and transport off-site.

The CHPP operates up to 24 hours per day, seven days per week.

2.4 PRODUCT COAL TRANSPORT

A train loading facility capable of loading coal at a rate of 4,000 tonnes per hour is located at the head of the rail loop within the mine infrastructure area. Coal is reclaimed from two alternative product feed conveyors that run the length of the product coal stockpiles.

Product coal is loaded onto trains 24 hours per day, seven days per week. An average of six trains are loaded each day and a maximum of 10 trains per day are loaded during peak coal transport periods.

Condition 6(b), Schedule 2 of the Project Approval specifies that no more than 12.5 Mtpa of product coal can be railed from the site in a calendar year.

Coal is railed east to domestic power generation customers and the Port of Newcastle for export. No coal is railed west of the Wilpinjong Coal Mine.

2.5 WASTE ROCK MANAGEMENT

With the exception of initial boxcut development and the development of the approved elevated waste rock emplacement in Pit 2, overburden and interburden or partings material is progressively placed back in-pit once the coal has been mined.

A combination of temporary and permanent out-of-pit waste rock emplacements are located adjacent to the open cut mining operations. Mine waste rock emplacements behind the advancing open cut are constructed to approximate the pre-mining topography.

Spontaneous combustion events have been occurring in temporary waste rock emplacements that were constructed at the commencement of the Wilpinjong Coal Mine, before the higher spontaneous combustion propensity of some carbonaceous waste materials was identified.

WCPL now manages waste rock material that has elevated levels of carbonaceous material (e.g. E and G partings) to emplace this material on the floor of mining voids, and covers it with inert waste rock material as a component of general ROM operations.

In addition, WCPL is accelerating implementation of a remediation strategy for existing temporary waste rock emplacements that would see these spontaneous combustion high risk areas resolved by re-mining and deposition of the material in mine voids, or encapsulation, by the end of 2015.

2.6 COAL REJECT MANAGEMENT

The tailings produced from the CHPP consist of fine rejects and slimes from the thickener. CHPP tailings are currently pumped as a slurry and deposited in purpose-built tailings dams constructed within mined out voids. Internal walls of tailings emplacements are constructed of a combination of *in situ* and dumped overburden material.

Once tailings disposal areas are near-filled, they are progressively capped with overburden material to a minimum depth of cover of 2 metres (m) prior to final profiling and rehabilitation.

CHPP coarse coal reject material is hauled back to the mining operation and deposited below the natural surface in the mined-out voids.

Coarse rejects are placed so there is sufficient coverage by non-acid forming overburden to reduce oxygen movement through the rehabilitated profile and manage its geochemical characteristics (i.e. acid generation potential). This also assists to minimise spontaneous combustion potential within the rehabilitated waste rock emplacement landform.

As a component of Modification 5, further minor improvements to CHPP fine coal reject systems to improve coal yield and water efficiency were approved, including:

- a belt press filter and associated transfer conveyor to allow co-disposal of tailings with coarse reject and improved recovery of water from tailings; and
- a froth flotation system to improve fine coal recovery (i.e. improve CHPP coal yield and reduce tailings production).

While fine coal reject augmentations are still subject to detailed engineering design, it is expected that a tailings belt press filter will be installed at the CHPP and become operational in late 2014. This will allow the co-disposal of tailings with coarse reject as a component of general ROM waste emplacement operations.

In accordance with Project Approval conditions arising from the approval of Modification 5, WCPL is currently revising the Wilpinjong Coal Mine life of mine tailings strategy. This strategy will describe management provisions for reject emplacements over the life of the mine.

2.7 WATER MANAGEMENT

The water management strategy for the Wilpinjong Coal Mine is based on the containment and re-use of mine water as well as the control of sediment that may be potentially carried with runoff from disturbed areas such as the waste rock emplacements or areas cleared in advance of mining. Undisturbed area runoff is separated from disturbed area runoff by upslope diversions.

Water is required to operate the CHPP, for washdown of mobile equipment, dust suppression on haul roads and for dust emission control sprays in the ROM and product coal stockpile areas. The main water sources for the operation are:

- recovery from tailings (as return water or from the belt press filter);
- groundwater inflows into the open cut voids;
- catchment runoff and infiltration;
- groundwater extraction from licensed bores; and
- potable water imported to site.

Process water used to wash coal is recycled from the current tailings emplacement/water storage via the recycled water dam with any necessary make-up water obtained from the raw water dam located within the rail loop.

The majority of the Wilpinjong Coal Mine make-up water supply requirements to date have been met by dewatering of the open cut mining areas. The installation of the approved belt press filter will significantly reduce the make-up water demand of the CHPP.

In accordance with EPL 12425, the Wilpinjong Coal Mine is permitted to discharge up to 5 megalitres per day (ML/day) of excess mine water to Wilpinjong Creek, providing the discharge meets certain requirements, including an upper limit on electrical conductivity (EC) of 500 microSiemens per centimetre ($\mu\text{S}/\text{cm}$).

The water balance of the system fluctuates with climatic conditions and as the extent of the mining operations changes over time. The water management system is progressively developed as water management requirements evolve in accordance with the Site Water Management Plan.

2.8 GENERAL INFRASTRUCTURE

2.8.1 Site Access

The primary route from Mudgee to the site is via Ulan Road and Ulan-Wollar Road (Figures 1 and 2). Primary access to the site from Ulan-Wollar Road is via an internal sealed mine access road connecting the mine facilities area to the Ulan-Wollar Road.

For environmental monitoring, general land management, exploration activities and other ancillary activities, alternative access points to the Project area are also used as required.

2.8.2 Mine Facilities Area

The mine facilities area is constructed on a hardstand located to the south-west of the rail loop (Figure 2). The mine facilities area includes a workshop, storage building, office buildings (including a crib shed, bath house and first aid room), muster area and a range of service facilities (i.e. potable water, sewerage, electricity, fire services and hydrocarbon management). Car parking areas in the mine facilities area are sealed.

2.8.3 Light Vehicle Workshop

A light vehicle workshop is approved to the north of Ulan-Wollar Road (Figure 2) where contractors will service WCPL light vehicles. This facility will operate independently to the mine facilities area with its own hydrocarbon management and waste storage facilities.

2.8.4 Dangerous Goods/Wastes

Hydrocarbon Storages

Hydrocarbons used on-site include fuels (i.e. diesel and petrol), oils, coolant, greases, degreaser and kerosene.

Two self-bunded 88,000 litre (L), two self-bunded 110,000 L and one self-bunded 70,000 L diesel storage tanks are located on-site. Oil is stored in two 55,000 L single-skinned dual compartment oil storage tanks, these tanks are stored in a bunded area. Coolant is stored in a 20,000 L dual-skinned poly tank. A 25,000 L hydrocarbon storage tank is also maintained for storage of waste coolant and oil. Concrete between Bays 2 and 3 of the workshop is used for the storage of oil and grease pods. Flammable paints are stored on a containment pallet in a fenced compound, as well as in a locked cabinet inside the workshop.

Hydrocarbon storage facilities are constructed and operated in accordance with Australian Standard (AS) 1940:2004 *The Storage and Handling of Flammable and Combustible Liquids* and the NSW *Work Health and Safety Regulation, 2011*.

The workshop infrastructure includes waste oil extraction pumps and reels. An oil/water separator is located downslope of the workshop area to capture hydrocarbons from workshop aprons and the workshop floor.

An oil/water separator is also located at the mine facilities area to capture hydrocarbons from lubricant/oil/coolant unloading and dispensing concrete slabs. An oil skimmer is located at the washdown bay to capture hydrocarbons from washing vehicles. All waste hydrocarbons collected in the separators reports to collection tanks prior to being collected and disposed of by a licensed contractor.

The hydrocarbon storage and management facilities include storage and refuelling areas and a fuel and oil dispensing facility south of the workshop.

Explosives Storage

Explosives required for the Wilpinjong Coal Mine include initiating products and detonators, ammonium nitrate fuel oil and emulsion explosives. The explosives storage and blast reload facilities are currently located in the south-west of Pit 1.

Explosives on-site are stored and used in accordance with AS 2187.2:2006 *Explosives – Storage, Transport and Use – Use of Explosives*. AS 2187.2:2006 details the requirements for the safe storage, handling and land transport of explosives, safe storage distances from other activities and bunding requirements.

Liquid and Non-Liquid Wastes

Solid and hazardous waste generated by the mine is removed from the site and disposed of by a licensed contractor. Any hydrocarbon affected soil or absorbent materials (e.g. sawdust) are treated at a dedicated bioremediation area.

In accordance with EPL 12425, waste tyres are disposed of on-site in the waste rock emplacements.

Renovation and building and demolition works at residences and buildings located on Peabody Energy owned lands in the vicinity of Wilpinjong Coal Mine produce a range of building and demolition waste materials that require disposal. Inert waste components will be disposed of on-site in accordance with the Waste Management Plan, when approved.

Sewage is treated in an on-site sewage treatment plant which is serviced by a licensed contractor on a monthly basis. The treated effluent is used for irrigation within the rail loop and/or the CHPP area.

Waste materials are collected and sorted for recycling of paper, cardboard, metals, glass, air filters and oil filters.

2.8.5 Haul Roads

All coal is hauled on internal roads, and all product coal is transported by rail. Internal haul roads are progressively constructed between the open cut operations, mine waste rock emplacements and ROM coal stockpiles as required.

As mining advances, the coal haul road is re-established to optimise the haul distance from the open cut operation to the ROM coal stockpile. Haul roads are regularly watered to minimise dust generation.

2.8.6 Electricity Supply and Distribution

The Wilpinjong Coal Mine receives electricity from a 66 kilovolt supply system. Power is distributed by overhead cable or underground cable where necessary.

2.8.7 Potable Water

Potable water is provided by dedicated storage tanks located in the mine facilities area and remote facilities (i.e. crib huts). Potable water is delivered by truck to the storage tanks. A potable water supply reticulation system services the main mine facilities areas (e.g. office buildings and maintenance areas).

2.8.8 Ancillary Infrastructure

The Wilpinjong Coal Mine is supported by a range of ancillary infrastructure that are periodically relocated, modified or expanded as mining operations progress. Such components include light vehicle roads, water management features (e.g. bores, pipelines, pumps, drains and dams), environmental monitoring equipment, electricity supply, equipment such as communication towers, in-pit facilities including bulk fuel handling and personnel crib huts/ablution facilities.

2.9 WORKFORCE

The current total combined WCPL employee and full-time equivalent on-site contractor workforce is approximately 550 people.

2.10 REHABILITATION AND FINAL LANDFORM

Rehabilitation occurs progressively at the Wilpinjong Coal Mine as ancillary disturbance areas and final mine landforms become available for revegetation, to minimise the area of disturbance at any one time.

Completed tailings disposal areas are decommissioned through a capping process to create a final landform that is stable and can be rehabilitated and revegetated.

The final landform levels and topography of the backfilled mine landforms are to generally approximate the pre-mining topography, with some variations, and are designed with an allowance for the long-term settlement of mine overburden and tailings.

A review of the final landform design and mine sequence conducted by WCPL in early 2013 identified that alterations to the final landform would be required to accommodate the increased bulk of the mined waste rock material.

This included an elevated waste rock emplacement landform located in the south of Pit 2 that will be constructed to a temporary elevation of up to 450 m Australian Height Datum (AHD) and would be temporarily rehabilitated, before being reshaped and pushed down to a maximum elevation of approximately 430 m AHD at the end of the mine life as a component of finalising site landforms.

Appendix 4 of Project Approval 05-0021 (Attachment 1) provides a conceptual rehabilitation plan and final landform for the approved Wilpinjong Coal Mine.

In accordance with Condition 29 of Schedule 3 of Project Approval 05-0021, WCPL is preparing a Cumbo Creek Relocation Plan that outlines the vision for the approved creek relocation, hydrological and ecological baseline conditions, design specifications, a construction programme, as well as revegetation, performance and completion criteria and associated environmental monitoring. WCPL's current conceptual (but not yet final) design for the realignment of Cumbo Creek is shown on Appendix 4 of Project Approval 05-0021 (Attachment 1).

Two final voids are located in the north-east of Pit 3 and south of Pit 6 and are shown on Appendix 4 of Project Approval 05-0021 (Attachment 1). In accordance with Condition 58 of Schedule 3 of Project Approval 05-0021, WCPL is required to design the size and depth of final voids having regard for their function as groundwater sinks and minimise flood interaction and highwall instability risk.

Final drainage is designed to generally integrate with the surrounding catchment and includes some permanent drainage features similar to the pre-mining topography.

Condition 58, Schedule 3 of the Project Approval (Attachment 1) and the Wilpinjong Coal Mine Mining Operations Plan (Rehabilitation Management Plan) and Biodiversity Management Plan (Section 2.14) outline the rehabilitation objectives for the Wilpinjong Coal Mine.

Rehabilitation objectives for the mine site include:

- that it should be safe, stable and non-polluting;
- constructed landforms are to drain to the natural environment (excluding final voids);
- visual impact of final landforms is to be minimized as far as is reasonable and feasible; and

- to ensure the final landforms are generally consistent with the surrounding topography of the area, taking into account relief patterns and principles.

The current revegetation strategy recognises the alternative land uses that exist in the region, with the aim of establishing the potential for both sustainable agriculture and the continuity of woodland vegetation.

To December 2013, approximately 221 ha of rehabilitation had been undertaken at the Wilpinjong Coal Mine (WCPL, 2014a).

2.11 ENHANCEMENT AND CONSERVATION AREAS

Wilpinjong Coal Mine has established three Enhancement and Conservation Areas (ECAs) that are managed under a voluntary conservation agreement with the NSW Minister administering the *NSW National Parks and Wildlife Act, 1974* (NPW Act) and comprise approximately 514 ha of land.

These ECAs (namely, ECA-A, ECA-B and ECA-C) are situated on land which contains remnant vegetation and proximal grazing land, as well as known and potential Aboriginal cultural heritage sites and have recognised conservation values including an endangered ecological community.

Management measures implemented within the ECAs include enhancement strategies such as fencing, selective planting, weed and animal pest control and fire management.

Existing ECAs are shown on Appendix 4 of Project Approval 05-0021 (Attachment 1).

2.12 REGENERATION AREAS

Regeneration Areas (which at the commencement of mining predominantly comprised cleared agricultural land) have been established on areas of land that will be proximal to the Wilpinjong Coal Mine rehabilitation.

The Regeneration Areas have been set aside to establish woodland vegetation and to link the mine rehabilitation areas to remnant vegetation associated with the Goulburn River National Park, Munghorn Gap Nature Reserve and ECAs.

Existing Regeneration Areas are shown on Appendix 4 of Project Approval 05-0021 (Attachment 1).

2.13 OFFSITE BIODIVERSITY OFFSET AREAS

As a component of the open cut extensions for Modification 5 WCPL identified a biodiversity offset comprising two parcels of freehold land owned by Peabody Energy, approximately 3 km east and 12 km north-east of ML 1573.

These offsite biodiversity offset areas are shown on Appendix 3 of Project Approval 05-0021 (Attachment 1).

Management measures proposed to enhance the flora and fauna values of the biodiversity offset will be detailed in the Biodiversity Management Plan (in preparation by WCPL) and will include:

- promotion of natural regeneration and revegetation;
- stock control;
- selective active revegetation and habitat enhancement;
- control of weeds; and
- pest management.

WCPL intends to use its best endeavours to reach an agreement with the NSW Government so that the biodiversity offset areas can be permanently added to the adjoining Goulburn River National Park.

2.14 ENVIRONMENTAL MANAGEMENT AND MONITORING

Wilpinjong Coal Mine has an Environmental Management Strategy in place that has been developed to minimise environmental impacts by providing the strategic context for environmental management of the site. Wilpinjong Coal Mine also places great emphasis on building strong relationships with its neighbours.

The Environmental Management Strategy was formulated from the requirements of Project Approval 05-0021 and sets out to:

- Identify the statutory requirements that apply to the Wilpinjong Coal Mine.
- Describe how:
 - environmental performance is monitored and managed;

- the local community and relevant agencies will be kept informed about the operation and environmental performance;
- complaints will be received, handled, responded to and recorded;
- disputes will be resolved;
- non-compliance issues will be responded to; and
- emergencies will be responded to.
- Describe the roles, responsibilities, authority and accountability of all the key personnel involved in environmental management of the Wilpinjong Coal Mine.

Management and monitoring plans and control strategies have been developed in consultation with relevant agencies as part of the Wilpinjong Coal Mine's Environmental Management Strategy. In accordance with Condition 4, Schedule 5 of Project Approval 05-0021, these plans and strategies are periodically updated. These monitoring programmes and control strategies are briefly described below:

- A Noise Management Plan (NMP) that details real-time noise monitoring, attended and unattended noise monitoring, operational noise performance and corrective action mechanisms.
- A Blast Management Plan that provides blasting management measures and a monitoring programme to measure ground vibration and airblast overpressure.
- An Air Quality Management Plan that summarises relevant air quality criteria, identifies potential sources of dust, provides air quality monitoring locations, presents the protocols for air quality monitoring and greenhouse gas management measures.
- A Site Water Management Plan and associated appendices that addresses the management and monitoring of surface water and groundwater resources comprising:
 - a Site Water Balance;
 - an Erosion and Sediment Control Plan;
 - a Surface Water Management and Monitoring Plan;
 - a Groundwater Monitoring Programme; and
 - a Surface and Groundwater Response Plan.

- A Biodiversity Management Plan that describes the short, medium, and long term measures that would be implemented to manage the remnant vegetation and fauna habitat on the site, implement the biodiversity offset strategy and integration of the implementation of the biodiversity offset strategy with the rehabilitation of the site and the adjacent regeneration areas.
- An Aboriginal Cultural Heritage Management Plan to assist in the investigation, salvage and management of Aboriginal heritage sites.
- A Waste Management Plan that incorporates a life of mine tailings strategy, general management measures for waste as well as the prevention and management of spontaneous combustion.
- A Rehabilitation Management Plan (incorporated in the Mining Operations Plan) that describes how the rehabilitation of the site is integrated with the implementation the biodiversity offset strategy, provides rehabilitation performance and completion criteria and addresses all aspects of rehabilitation including mine closure, final landforms and final land use.
- A Pollution Incident Response Management Plan that details incident response and notification/communication measures, potential pollutants, a risk assessment and potential contingency measures.

As a result of the approval of Modification 5, WCPL is currently revising and updating Environmental Management Plans for the Wilpinjong Coal Mine in accordance with the conditions of Project Approval 05-0021 (Attachment 1).

Some currently approved Environmental Management Plans as referred to in this report may therefore be superseded or revised during the exhibition and assessment of this Modification.

2.15 COMMUNITY CONTRIBUTIONS

WCPL financial contributions to the MWRC in accordance with Wilpinjong Coal Mine Planning Agreements and the Project Approval include:

- an initial payment of \$450,000 prior to the first shipment of coal from the site;

- an annual payment of \$70,000 per year for community infrastructure and road maintenance contributions;
- \$20,000 per year for the period 2007 to 2009 to assist with the development of school bus lay-by areas along Ulan Road;
- a \$600,000 contribution to road upgrades that was negotiated as a component of the Mining Rate Modification (Attachment 1);
- either \$50,000 cash or the equivalent value in gravel to be used by MWRC for the upgrading of Ulan-Wollar Road; and
- additional annual community infrastructure and amenity contributions that are calculated using a formula in the Project Approval that correlates the relative monetary contribution to the total site workforce (currently 550 people) (Attachment 1) (WCPL 2013 and 2014 contributions under this formula totalled approximately \$525,000).

Ulan Coal Mines Limited, Moolarben Coal Mines Pty Limited, MWRC and WCPL are also co-funding implementation of the Ulan Road Strategy that will result in significant upgrades to Ulan Road.

WCPL also makes financial and in-kind contributions to a number of non-government and community organisations in the region. WCPL financial contributions (in the form of sponsorships, donations and in kind support) to various education, community development, health, environmental, arts, culture, and youth services causes in the region in 2013 totalled over \$100,000 and in 2014 is also expected to total a similar amount.

Examples of recent financial contributions have included support for local emergency services (i.e. Rural Fire Brigades), contributions to regional schools, support to local health services and national medical research programs, promotion initiatives with the local tourism industry and disability services support.

2.16 COMPLAINTS

In accordance with the requirements of the Environmental Management Strategy and Project Approval (Attachment 1), WCPL records and responds to all complaints and provides a complaints register summary in the Annual Review each year.

In 2013, a total of 138 complaints were received (WCPL, 2014a) from some 28 complainants. The majority of complaints received were related to noise, blasting, odour/spontaneous combustion and dust.

Mine-related complaints are managed in accordance with the Complaints Response Procedure as outlined in the Environmental Management Strategy.

3 MODIFICATION

The Modification would not require any significant alteration to the existing approved Wilpinjong Coal Mine operations and general supporting infrastructure.

A description of the Modification is provided below.

3.1 CONSTRUCTION

There would be no specific construction activities associated with the Modification.

3.2 OPERATIONS

3.2.1 Open Cut Extent

The Modification does not include any alteration to the approved extent of open cut mining (Figure 2).

3.2.2 Mine Schedule

The indicative modified mine schedule and comparison to the production rates from Modification 5 from 2014 onwards are provided in Table 2. The mine schedule would continue to be subject to periodic revision over the life of the mine and updated if required in the Mining Operations Plan.

Table 2 indicates there would be an increase in the upper rate of ROM coal production (from 15 Mtpa to approximately 16 Mtpa) and a small increase in the rate of waste rock production (from approximately 33.3 Mbcm up to approximately 34.1 Mbcm).

There would be no material alteration to the approved final landforms (Section 2.10) incorporating the elevated waste rock emplacement in the south of Pit 2 (Figure 2).

Table 2
Indicative Modified Mine Schedule 2014 to 2026

Year		Waste Rock (Mbcm)		ROM Coal (Mt)		Product Coal (Mt)	
		Mod 5	Proposed	Mod 5	Proposed ¹	Mod 5	Proposed ²
2014	9	31.9	31.6	14.9	15.8	12.2	12.6
2015	10	29.3	34.1	15.0	16.0	12.5	12.5
2016	11	28.0	32.4	15.0	15.9	11.9	12.5
2017	12	27.0	32.2	15.0	14.5	11.3	12.5
2018	13	33.3	24.2	14.7	12.5	11.0	12.2
2019	14	18.4	18.2	7.8	7.7	5.9	8.2
2020	15	17.4	19.1	7.3	6.5	5.5	6.2
2021	16	18.6	20.0	7.6	6.6	5.7	6.3
2022	17	21.0	18.7	8.0	5.6	5.8	5.3
2023	18	20.7	16.9	7.2	7.1	5.2	6.7
2024	19	20.2	12.5	7.1	6.7	5.1	6.4
2025	20	10.1	7.6	4.7	2.4	3.4	2.2
2026	21	4.7	3.7	3.2	3.1	2.3	2.8

¹ Some ROM coal would report to on-site stockpiles and would not contribute to product totals in that year.

² Some product coal would report to on-site stockpiles and would not increase calendar year railings above 12.5 Mtpa.

The mining sequence and rate of mining would continue to be subject to review on the basis of market conditions and customer demand, coal quality or unforeseen changes to mining conditions.

An indicative mining sequence for the period 2015 to 2026 is provided on Figure 5 that incorporates current open cut planning. The mining sequence within the approved open cut extents will continue to be subject to periodic revision over the life of the mine and will be updated if required in future revisions of the Mining Operations Plan in consultation with DRE.

The Modification does not include any extension to the approved 21 year mine life of the Wilpinjong Coal Mine.

3.2.3 Blasting Parameters and Frequency

No change is proposed to the current blasting parameters or the blasting frequency limits described in the Project Approval (Attachment 1).

3.2.4 Mobile Fleet

The current owner operator mobile fleet would continue to be used for the Modification with some minor augmentations. Expected augmentations would include an additional three D11 dozers that would operate 24-hours a day, plus supporting daytime-only contractor equipment (e.g. water carts) to maximise dozer push efficiency and associated equipment availability.

Consideration of the potential sound power level implications of the expected additional mobile fleet items is provided in Section 4.2 and Appendix A.

The expected mobile fleet may be subject to change over the life of the mine based on operational requirements and the findings of efficiency studies. The management of operational noise emissions associated with the mobile fleet would therefore be adjusted as necessary to reflect the specifications and spatial distribution of the mobile fleet (and the locations of the nearest private residences) that are relevant at the time in order to maintain compliance with the relevant noise criteria (Section 4.2.2.).

3.2.5 Coal Handling and Preparation

Coal beneficiation rates would continue to vary over the life of the mine based on market conditions and customer demand, coal quality or unforeseen changes to mining conditions.

3.2.6 Product Coal Transport

The Modification would not change approved rates of maximum product transport (12.5 Mtpa) or the approved number of average (six) and maximum (10) daily trains dispatched from site.

3.2.7 Workforce

The existing Wilpinjong Coal Mine operational workforce of approximately 550 WCPL employees and full-time equivalent on-site contractors (Section 2.9) would not require any augmentation for the Modification.

3.2.8 Deliveries

No material variation to daily light or heavy vehicle delivery movements on roads in the vicinity of the Wilpinjong Coal Mine are anticipated to arise as a result of the proposed minor increases in annual waste rock production and increased ROM coal production associated with the Modification.

3.3 WATER MANAGEMENT

The Modification would not include any significant changes to the approved water management system at the site.

A review of the water balance of the Wilpinjong Coal Mine incorporating the modified mine schedule was conducted by Gilbert & Associates (2014) (Appendix D).

The water balance model simulates future changes in stored volumes of water on-site in response to inflows (e.g. rainfall-runoff, groundwater inflows), outflows (evaporation, CHPP make-up, dust suppression usage, licensed discharge) and pumped transfers. The modelling is completed over a large number of different daily climate “realisations” compiled from the available rainfall record and includes historical climate events in the water balance model, including high, low and median rainfall periods.

The water balance review indicates that, incorporating the proposed Modification, the average water supply reliability for CHPP supply over the remaining mine life would be >99.9% and the corresponding average water supply reliability for haul road dust suppression would also be 98.8% (Appendix D).

WCPL will continue to undertake regular reviews of the water balance, which is inherently highly influenced by site rainfall. If stored water volume falls, WCPL can implement sourcing of water from licensed water supply bores to maintain a storage reserve.

3.4 FINAL LANDFORM

The Modification does not include any alteration to the approved extent of open cut mining or final landform.

3.5 ENHANCEMENT AND CONSERVATION AREAS

No change is proposed to the existing Wilpinjong Coal Mine ECAs that are subject to a Voluntary Conservation Agreement with the NSW Minister administering the NPW Act.

Existing ECAs are shown on Appendix 3 of Project Approval 05-0021 (Attachment 1).

3.6 REGENERATION AREAS

No change is proposed to the existing Wilpinjong Coal Mine Regeneration Areas that WCPL has previously set aside for linking woodland regeneration adjacent to the open cut mine.

Existing Regeneration Areas are shown on Appendix 4 of Project Approval 05-0021 (Attachment 1).

3.7 OFFSITE BIODIVERSITY OFFSET AREAS

No change is proposed to the existing Wilpinjong Coal Mine offsite biodiversity offset areas as shown on Appendix 3 of Project Approval 05-0021 (Attachment 1).

4 ENVIRONMENTAL ASSESSMENT

4.1 IDENTIFICATION OF KEY ISSUES

The approved life of the mine and the footprint and depth of mining at the Wilpinjong Coal Mine would be unchanged by the Modification (Section 3). There would also be no increases to the site workforce.

Therefore there would be no material alteration to the approved impacts of the Wilpinjong Coal Mine on the following environmental aspects:

- land resources, rehabilitation and final landforms;
- waste rock management and geochemistry;
- terrestrial flora and fauna;
- non-Aboriginal heritage;
- Aboriginal heritage;
- groundwater resources (i.e. total groundwater inflows over the life of the mine);
- surface water resources (i.e. disturbance to natural catchment areas);
- population; and
- road or rail traffic.

Open cut blasting would also continue to be undertaken in accordance with the existing blast management conditions of the Project Approval (Section 3.2.3). A review of recent blasting compliance is provided in Appendix A.

The Modification changes to the approved Wilpinjong Coal Mine that may have some material effect on the approved environmental impacts of the mine comprise some increases in the:

- number of mobile fleet items (e.g. dozers) utilised at site;
- maximum annual ROM coal production rate; and
- maximum annual waste rock production rate.

On the basis of the above, it can be concluded that potential environmental impacts of the modification are largely restricted to the following key potential issues:

- off-site noise emissions associated with the minor augmentation of the mobile fleet; and
- off-site air quality emissions associated with the increased rates of coal and waste rock production.

Potential noise and air quality emissions associated with the Modification were discussed with Planning and Infrastructure in March 2014 and are addressed in supporting Appendices A and B, and the results summarised below.

As spontaneous combustion events at the Wilpinjong Coal Mine have been a recent source of community complaints, existing and proposed spontaneous combustion management measures that would be applied to the Modification are also discussed below.

In addition, potential alteration of the annual groundwater inflows, operational water balance and site water demand as a result of the expected open cut mining sequence and modified materials schedule is described in Section 3.3, Appendices C and D and below.

4.2 OPERATIONAL NOISE

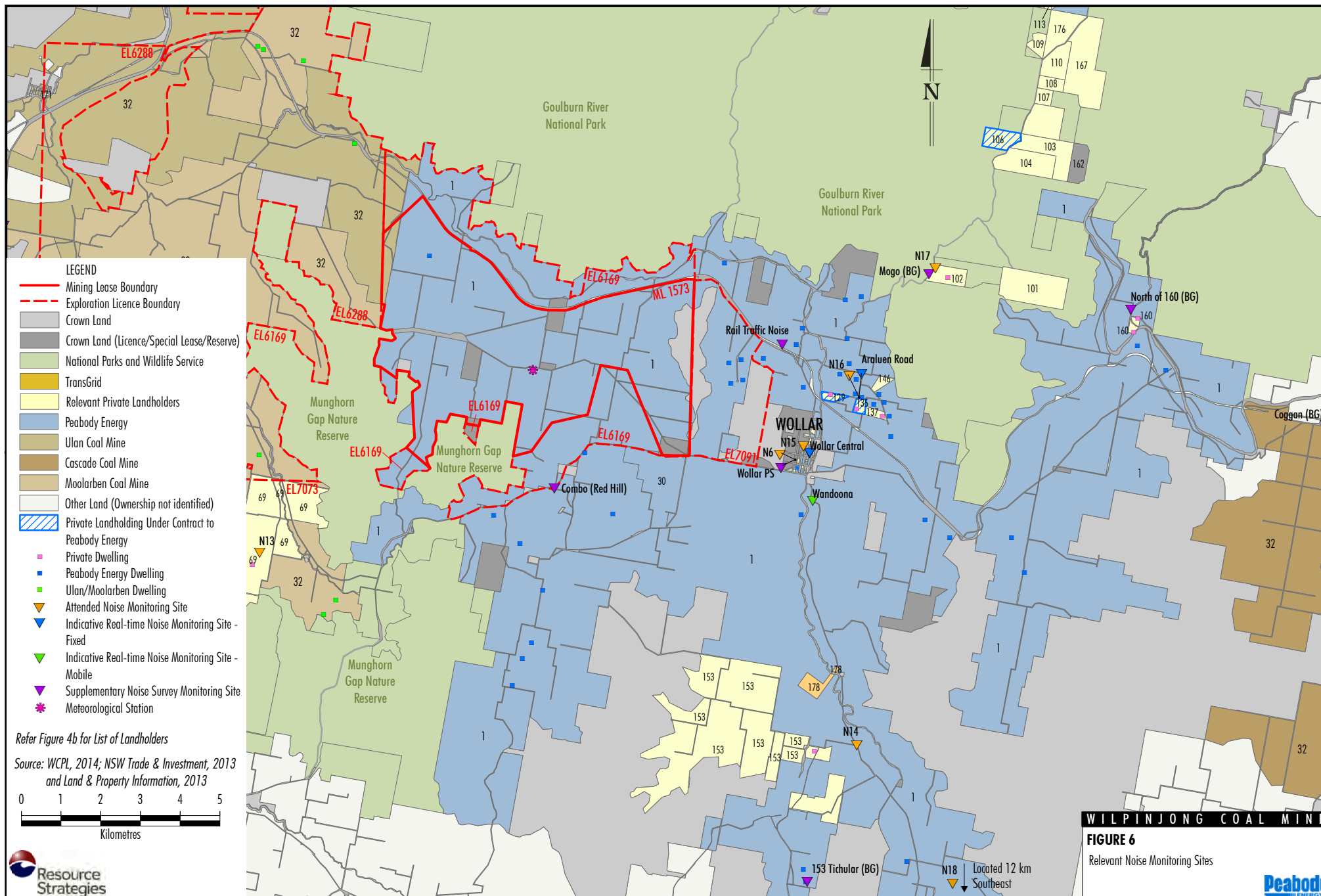
A Noise and Blasting Impact Assessment for the Modification was undertaken by SLR Consulting (2014) (Appendix A).

4.2.1 Background

Operational noise assessment of the approved Wilpinjong Coal Mine incorporating Modification 5 (Section 2.1) was conducted by SLR Consulting (2013).

As a component of this assessment SLR Consulting conducted a noise investigation survey in December 2012 to update and validate the existing Wilpinjong Coal Mine noise model, reflect as-built features including upgraded facilities at the CHPP and materials handling areas, and to review the model calibration.

December 2012 supplementary noise monitoring locations are shown on Figure 6.



Assessable Meteorological Conditions

Based on analysis of available data, SLR Consulting (2013) identified that noise impacts during temperature gradients up to 5.5 degrees Celsius (°C) per 100 m were assessable at the Wilpinjong Coal Mine.

The NSW *Industrial Noise Policy* assessable meteorological noise modelling parameters are presented in Appendix A.

Operational Noise Levels

SLR Consulting (2013) identified that for the approved Wilpinjong Coal Mine:

- four private dwellings would be within the Noise Management Zone (1 to 5 decibels [dB] above the applicable project specific noise criteria); and
- no private dwellings would be within the Noise Affection Zone (greater than 5 dB above the applicable project specific noise criteria).

Table 3 summarises the four private dwellings identified in the noise management zone for the approved Wilpinjong Coal Mine.

Three of the identified private dwellings (129, 135 and 137) are located to the east of the mine in a locality know as Araluen, the fourth (69) is located to the south-west of the mine. The locations of these private residences are shown on Figures 4a and 4b.

Under the Project Approval (Attachment 1), specific noise impact assessment criteria are provided in Condition 2, Schedule 3 for each of these dwellings in accordance with the predictions of SLR Consulting, 2013.

In addition, in Condition 3, Schedule 3 of the Project Approval (Attachment 1) these residences are entitled to reasonable and feasible additional noise mitigation measures (such as double-glazing, insulation and/or air conditioning) upon request.

It is noted that two of the three residences in the Araluen locality are under contract of sale to Peabody Energy (i.e. contracts have been exchanged for sale of the property) (Table 3).

Noise Management Plan

The NMP describes the noise monitoring programme for the Wilpinjong Coal Mine, which consists of a combination of off-site operator-attended monitoring sites and continuous real-time monitors. Recent attended and real-time noise monitoring locations are shown on Figure 6.

Figure 6 highlights that recent noise monitoring has continued to be focussed to the east of the Mine in the vicinity of the nearest private receivers (e.g. Village of Wollar and Araluen).

In accordance with the NMP, operator-attended noise monitoring is used for demonstrating compliance with noise impact assessment criteria, whilst continuous real-time monitoring (which measures both mine and other noise sources) is used as a noise management tool to assist WCPL with implementing pre-emptive noise management actions, to minimise potential noise impacts from the Wilpinjong Coal Mine.

Attended noise monitoring results show that Wilpinjong Coal Mine operations were in compliance with relevant Project Approval noise criteria during 2013 (Appendix A). In addition, environmental noise monitoring in early 2014 indicates compliance with relevant Project Approval noise criteria up until April 2014 (Appendix A).

Table 3
Private Dwellings in Noise Management Zones
for the Approved Wilpinjong Coal Mine

Noise Management Zone	
1 to 2 dBA above Project Specific Noise Limit	3 to 5 dBA above Project Specific Noise Limit
69 – DJ & JG Stokes 129 – K & R Roser* 137 – A & C Chetcuti	135 – K & R Roser*

After: SLR Consulting, 2013.

* Private Araluen residence - under contract of sale to Peabody Energy.

Noise Management Strategy

WCPL is obligated to manage noise levels from the Wilpinjong Coal Mine in accordance with the noise limits specified in Project Approval 05-0021, using reasonable and feasible mitigation measures.

In the Statement of Commitments included in the current Project Approval, WCPL has committed to implement real-time noise monitoring and associated operational controls to maintain Wilpinjong Coal Mine compliance with relevant Project Approval noise criteria (i.e. noise impact assessment criteria – Attachment 1, Table 2). WCPL is required to carry out the project in accordance with the statement of commitments as a condition of its Project Approval.

The obligation to meet the noise limits specified in Project Approval 05-0021 for privately owned receivers has been achieved by WCPL through a combination of the following:

- Property acquisition, which has had the effect of reducing the number of privately owned receivers that could potentially be affected by noise impacts from the mine.
- For remaining privately owned receivers, the implementation of the noise management strategy as per the NMP, including the use of real-time noise monitoring to manage noise levels during the night.

Real-time monitors are located adjacent to the mine at points indicative of local rural residential areas (Figure 6) and are periodically relocated.

The real-time system records 15 minute statistical noise data, continuous audio files and meteorological data. The continuous audio recording can be downloaded, so that a listener can consider whether the noise being recorded is mine-related.

WCPL real-time noise investigation triggers are set at levels designed to maintain compliance with Project Approval noise limits at the nearest private receivers and are implemented between 8.00 pm and 10.00 am (i.e. when adverse weather conditions such as temperature inversions are likely to occur, and sources of extraneous noise are less prevalent).

The protocol for responding to real-time noise investigation triggers is described in the NMP and includes the implementation of suitable management measures, including the temporary standing-down of components of mobile fleet, if required.

During the second half of 2013 a total of approximately 43 excavator hours (as well as associated support machinery) were lost as a direct response of noise investigation triggers being exceeded. The majority of excavator hours were lost during the cooler months (Appendix A).

In 2013 some 46 noise complaints were received (WCPL, 2014a). The number of noise related complaints recorded at the Wilpinjong Coal Mine has diminished significantly in recent years from a peak recorded in 2009/2010. The reduction in noise-related complaints coincides with the continued implementation of WCPL's proactive noise management strategy (Appendix A).

4.2.2 Environmental Review

The proposed Modification would not vary the approved extent of the open cut (Figure 2) and therefore would not bring the mining operations any closer to potential private receivers (Figure 4a).

Mobile Fleet Sound Power Levels

The provision of the additional mobile fleet items (Section 3.2.4) (i.e. expected to be three D11 dozers and additional daytime only contractor equipment such as water carts) would be anticipated to increase total site sound power levels of the Wilpinjong Coal Mine by some 0.6 A-weighted decibels (dBA) in the daytime and some 0.3 dBA during the evening and night-time (Appendix A). An increase in the total sound power of the site of this magnitude (i.e. <1 dBA) would not be noticeable (Appendix A).

Modelling Scenarios

SLR Consulting (2014) (Appendix A) modelled two key scenarios (i.e. 2015 and 2018) to assess potential noise impacts associated with the modified Wilpinjong Coal Mine incorporating the mobile fleet augmentations and the expected spatial distribution of the fleet.

These years were selected as potentially representing worst case noise impacts at private receivers to the east in the short to medium term period, when ROM coal production is predicted to be higher than current approved levels, and total mobile fleet sound power levels are also expected to be marginally higher.

Identification of Reasonable and Feasible Mitigation Measures

Noise modelling conducted by SLR Consulting (Appendix A) for the modified Wilpinjong Coal Mine operations indicated that under the modelled adverse meteorological conditions the 15 minute equivalent continuous noise level ($L_{Aeq}(15 \text{ minute})$) could potentially increase by 1 dBA to 2 dBA above the currently consented noise limits at three private residences that are currently in the approved Wilpinjong Coal Mine noise management zone in Araluen (i.e. receivers 129, 135, and 137) (Table 3).

The noise modelling also indicated that in the absence of real-time noise controls, a marginal exceedance (of 1 dBA) of the applicable project specific noise level would also potentially occur at one private dwelling (102) to the north of Araluen (Figure 4a) under adverse weather conditions at night.

However, the modelling also indicated that compliance with the noise limits specified in Project Approval 05-0021 could be achieved at all private receivers with the stand-down of some mobile fleet during adverse weather conditions at night.

Alternative measures for any private dwellings where a 2 dBA reduction may be required could include (Appendix A):

- stand-down of operations in either of the two nearest operating open cut areas, plus an additional D11 dozer in the other corresponding nearest operating open cut area; or
- stand-down of various mobile fleet combinations from the two nearest operating open cut areas (i.e. a number of combinations of haul truck and dozer stand-downs).

Stand-downs to achieve a lesser (1 dBA) reduction as required at any private dwellings could be readily achieved with a wide range of alternative measures (Appendix A) typically commencing with mobile fleet items located in the most exposed positions.

The stand-down of fleet items by WCPL during operations to achieve the approved Wilpinjong Coal Mine noise impact assessment criteria as specified in the Project Approval (Attachment 1) at private dwellings under adverse weather conditions would be determined, as required, in accordance with the NMP response protocol and relevant operational priorities at the time.

WCPL incorporates allowances for environmental downtime in its forward mine planning and budgeting. The operational cost associated with the stand-down of equipment during relevant adverse weather conditions to achieve compliance with the noise limits specified in Project Approval 05-0021 is feasible and is considered to be reasonable to WCPL.

Potential Impacts

The noise assessment results incorporate allowance for real-time noise controls (e.g. equipment stand-downs) under relevant adverse night-time meteorological conditions to achieve continued compliance with the noise impact assessment criteria specified in Project Approval 05-0021 (Attachment 1) at a number of private residences.

With the incorporation of real-time noise controls no exceedances of the current Project Approval noise impact assessment criteria are predicted to occur.

The same private dwellings that currently have specific noise impact assessment criteria in the Project Approval would remain in the Noise Management Zone (1 to 5 dB above the applicable project specific criteria) for the Wilpinjong Coal Mine incorporating the Modification (Table 4).

It is noted that two of the three private residences remaining in the Araluen locality (i.e. 129 and 135) as identified in the Project Approval are under contract of sale to Peabody Energy (i.e. contracts have been exchanged for sale of the properties) (Table 4).

No private dwellings were identified as being in the Noise Affection Zone for the Wilpinjong Coal Mine incorporating the Modification (Appendix A).

In addition, no exceedances of applicable project only or cumulative amenity criteria are predicted at private receivers, or the two churches, community hall and public school in the Village of Wollar when the predicted cumulative noise emissions of the Moolarben Coal Complex (including the proposed Stage 2) and Ulan Mine Complex were considered (Appendix A).

Table 4
Night-Time Intrusive Noise Levels for the
Currently Approved Wilpinjong Coal Mine and Predictions Incorporating the Modification

Receiver	Project Specific Noise Level	Existing Project Approval Noise Impact Assessment Criteria ¹	Predicted Noise Level – for the Modification ²
	(dBA L _{Aeq} (15minute))		
Relevant Privately Owned Dwellings (excluding Wollar Village)			
69 (DJ & JG Stokes)	35	36	35
102 (W Filipczyk)	35	35	35
129 (K & R Roser)*	35	37	37
135 (K & R Roser)*	35	38	38
137 (A & C Chetcuti)	35	37	37
153 (Terrence William Marskell)	35	35	32
160A (B Smiles & A Smiles-Schmidt)	35	35	28
160B (B Smiles & A Smiles-Schmidt)	35	35	28
Privately Owned Dwellings Wollar Village			
903 (M Hardiman & D Hogan)	35	35	35
908 (A & A Lynch)	35	35	33
914 (Paul Warwick Nicod & Philip John Slade)	35	35	34
921 (EH Toombs)	35	35	34
933 (CR Faulkner)	35	35	35
942 (Robert & Susan Schneider)	35	35	35
947 (Scott & Jane Lillis)	35	35	35
952 (B & D O'Hara)	35	35	35
953 (B Marshall & R Muller)	35	35	35

Source: After Appendix A.

Notes: Refer to Figures 4a and 4b for receiver locations.

Receivers in the Noise Management Zone. **Receivers at or below project specific noise level.**

¹ Refer to Attachment 1 – Table 2.

² Maximum predicted noise level for Modification 6 scenarios, adverse weather conditions, incorporating operational controls as required.

* Private Araluen residence - under contract of sale to Peabody Energy.

Indicative contour diagrams of the predicted night time noise emissions of the modified Wilpinjong Coal Mine operations for 2015 and 2018 under adverse meteorological conditions are presented on Figures 7 and 8, respectively.

Operational noise levels in the Goulburn River National Park and Munghorn Gap Nature Reserve from the Wilpinjong Coal Mine incorporating the Modification would be generally comparable to the approved mine (Appendix A).

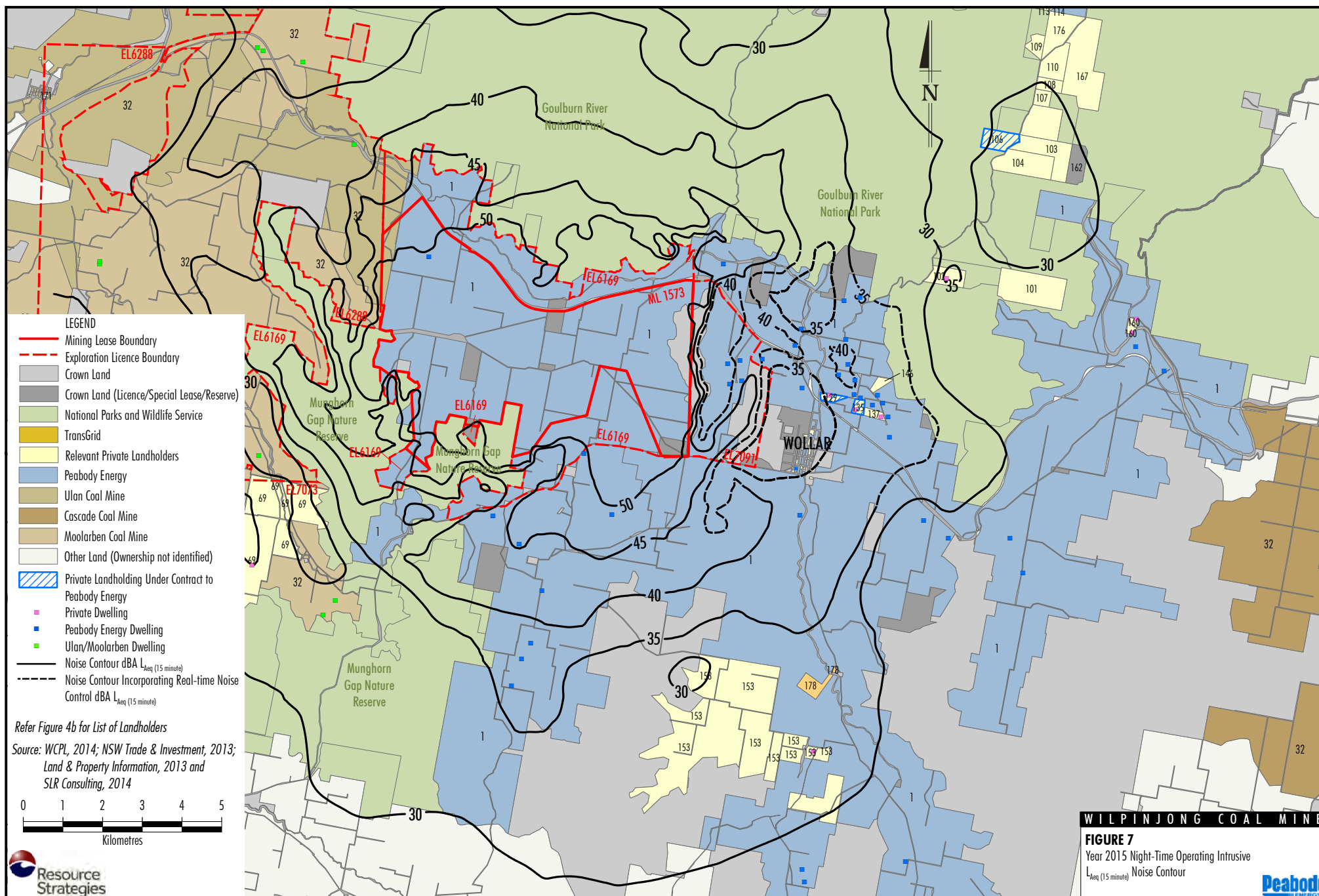
4.2.3 Mitigation Measures, Management and Monitoring

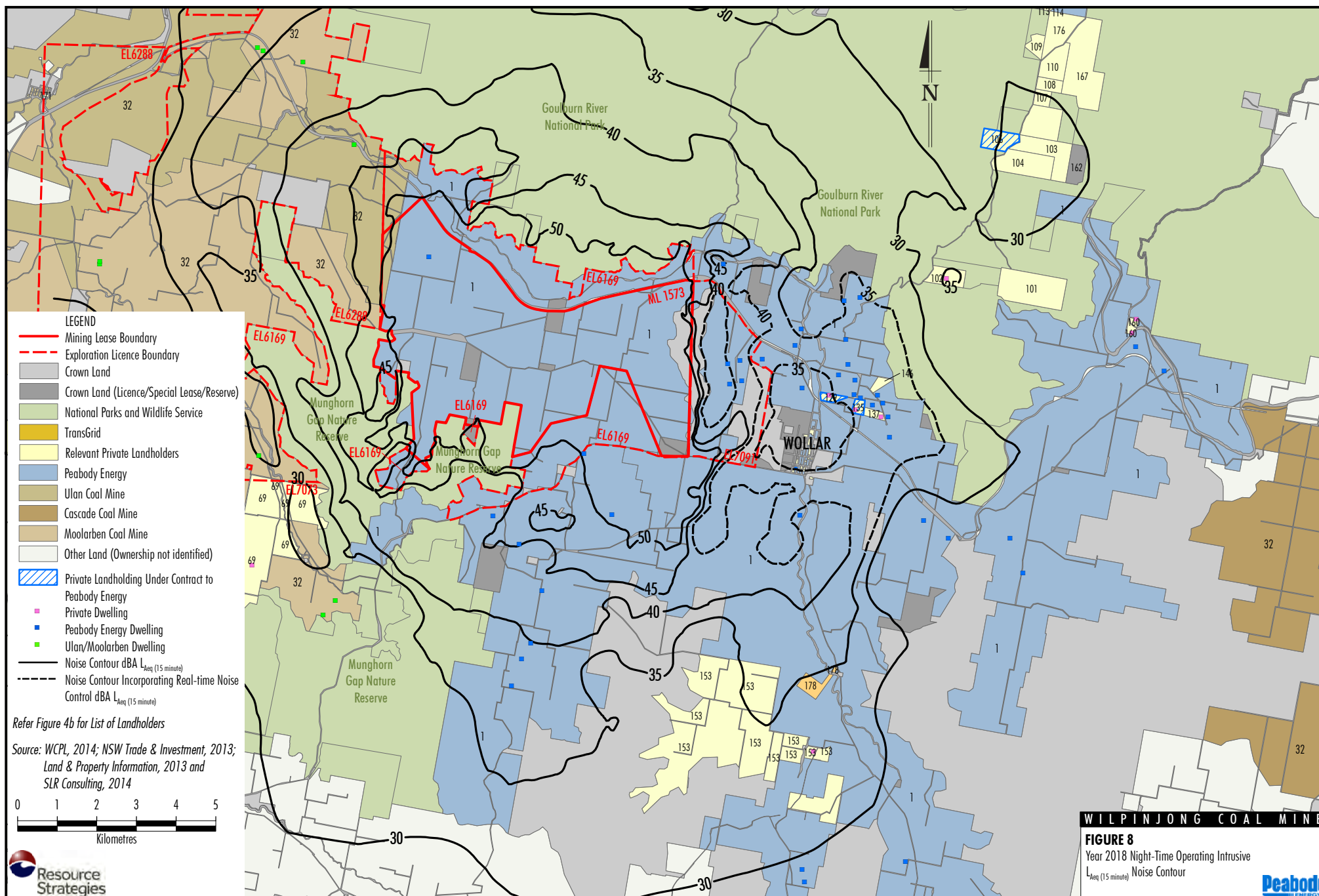
WCPL would continue to implement the noise mitigation measures and real-time noise management system, and associated response protocols, detailed in the NMP for the Wilpinjong Coal Mine incorporating the Modification.

The NMP is currently being reviewed and revised by WCPL as a result of the approval of Modification 5.

4.3 DUST AND PARTICULATE MATTER

Todoroski Air Sciences (2014) has completed a review of the potential air quality impacts of the Wilpinjong Coal Mine incorporating the Modification (Appendix B).





4.3.1 Background

An air quality assessment for the approved Wilpinjong Coal Mine incorporating Modification 5 was undertaken by Todoroski Air Sciences (2013). No exceedances of the applicable annual dust deposition or suspended particulate matter (i.e. dust) air quality assessment criteria were predicted at the nearest private receivers (Todoroski Air Sciences, 2013).

In addition, no private dwellings were predicted to experience exceedances of the 24-hour average particulate matter with diameter less than 10 micrometres (μm) (PM_{10}) assessment criteria due to impacts from the Wilpinjong Coal Mine alone or when considered cumulatively with other nearby mining operations (Todoroski Air Sciences, 2013).

Air Quality Monitoring Programme

An air quality monitoring programme commenced in 2004 prior to the commencement of mining, which included the measurement of dust deposition (grams per square metre [g/m^2]) and concentrations of PM_{10} and total suspended particles (TSP) (micrograms per cubic metre [$\mu\text{g}/\text{m}^3$]). Recent air quality monitoring sites are shown on Figure 9 and include a combination of monitoring of PM_{10} concentrations using High Volume Air Samplers (HVAS) and Tapered Element Oscillating Microbalances (TEOMs) as well as dust gauges.

Figure 9 illustrates that recent particulate monitoring has been focussed to the east of the Mine in the vicinity of the nearest private receivers (e.g. Village of Wollar).

Annual average PM_{10} concentrations have been below the assessment criterion of $30 \mu\text{g}/\text{m}^3$ at all PM_{10} monitoring sites for all years (Appendix B).

There have been isolated instances where 24-hour average PM_{10} concentrations have exceeded the assessment criterion of $50 \mu\text{g}/\text{m}^3$, however, these instances have generally coincided with widespread dust events (e.g. the 2013 bushfires) or other local dust generating activities (e.g. dust generated from the unsealed Araluen Road) indicating the exceedances may not have been caused by Wilpinjong Coal Mine operations (Appendix B).

Appendix B provides a detailed summary of PM_{10} , TSP and dust deposition monitoring data.

Air Quality Management

Project Approval 05-0021 requires WCPL to regularly assess real-time air quality monitoring and meteorological monitoring data such that Wilpinjong Coal Mine mining operations are relocated, modified and/or stopped as required to maintain compliance with relevant air quality criteria.

WCPL currently implements general dust mitigation measures (e.g. haul road watering) as part of operations to minimise potential dust emissions in accordance with the Wilpinjong Coal Mine Air Quality Management Plan and pollution reduction programme requirements under EPL 12425.

In addition, WCPL implements a real-time air quality management system to assist in the implementation of pre-emptive management actions and to avoid potential non-compliances.

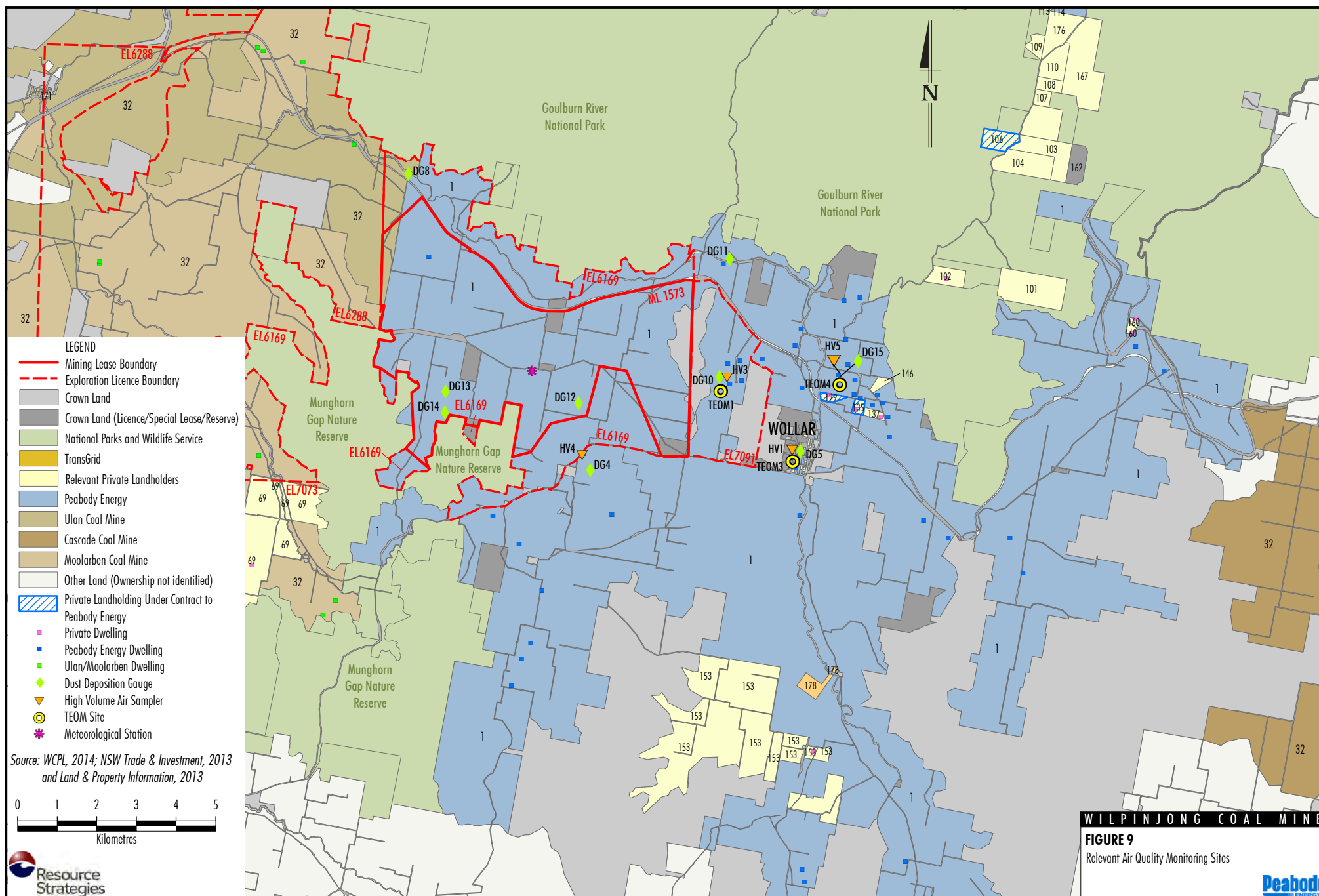
This involves monitoring of instantaneous (i.e. 5 minute) and 24-hour average PM_{10} concentrations, and the implementation of a response protocol in the event that internal performance indicators are exceeded. The response protocol includes the modification or cessation of dust generating activities (i.e. excavation of material) as required.

During the second half of 2013, a total of approximately 41 excavator hours (as well as associated support machinery) were lost as a result of the implementation of the air quality response protocols.

4.3.2 Environmental Review

Dust concentrations and deposition rates have been modelled using the EPA approved CALPUFF/CALMET modelling system for two key periods of the modified mining operations representing the estimated maximum year of mining operations (2015) and a later year where mining operations are predicted to occur in areas closer to private dwellings (2018).

The potential impacts for the modified Wilpinjong Coal Mine alone (i.e. project only impacts) were considered, as well as the potential cumulative impacts of the modified Wilpinjong Coal Mine and other sources (including potential emissions from the Ulan Mine Complex and Moolarben Coal Complex and non-mining emissions) (Appendix B).



Relative to the existing operations, the proposed modifications to the mining activities at the Wilpinjong Coal Mine are unlikely to lead to any significant change in dust levels at receptors (Appendix B). Air quality modelling results for the modified Wilpinjong Coal Mine indicate (Appendix B):

- The annual average dust deposition assessment criteria of 2 g/m² per month (project only) and the 4 g/m² per month (cumulative) would not be exceeded at any private receiver in either 2015 or 2018.
- The annual average PM₁₀ assessment criterion of 30 µg/m³ would not be exceeded at any private receiver in either 2015 or 2018, when considering potential project only and cumulative impacts.
- The annual average TSP assessment criterion of 90 µg/m³ would not be exceeded at any private receiver in either 2015 or 2018, when considering potential project only and cumulative impacts.
- The 24-hour average PM₁₀ criterion of 50 µg/m³ would not be exceeded at any private receiver in either 2015 or 2018 due to potential impacts from the project only.

Figures 10 and 11 show predicted maximum project only 24-hour average PM₁₀ concentrations for 2015 and 2018, respectively.

In accordance with the Approved Methods a *Level 2 Assessment - Contemporaneous impact and background approach* was used to assess potential cumulative 24-hour PM₁₀ impacts in the Village of Wollar (Appendix B).

The Level 2 Assessment indicated that private receivers would not experience any additional exceedances of the 24-hour average assessment criterion of 50 µg/m³ as a result of the Modification (Appendix B).

Notwithstanding the above, it is noted that there is the potential for elevated background dust from regional events such as bushfires and dust storms.

During periods of elevated background dust levels (i.e. exceeding WCPL internal performance indicators) the real-time air quality management system and response protocols described above would be implemented to target compliance with 24-hour average air quality criteria at privately owned receivers, as per existing operations at the Wilpinjong Coal Mine and as outlined in the Air Quality Management Plan. This may include, as required, the shutdown of mobile fleet.

4.3.3 Mitigation Measures, Management and Monitoring

The Air Quality Management Plan and pollution reduction programme in accordance with EPL 12425 would continue to be implemented for the Wilpinjong Coal Mine incorporating Modification. This would include the continued implementation of the real-time air quality monitoring system and response protocols.

The Air Quality Management Plan is currently being reviewed and revised by WCPL as a result of the approval of Modification 5.

4.4 SPONTANEOUS COMBUSTION

4.4.1 Background

Spontaneous combustion events at the Wilpinjong Coal Mine have historically been associated with both ROM coal stockpiles and carbonaceous material located in temporary waste rock emplacements (Sections 2.3 and 2.5).

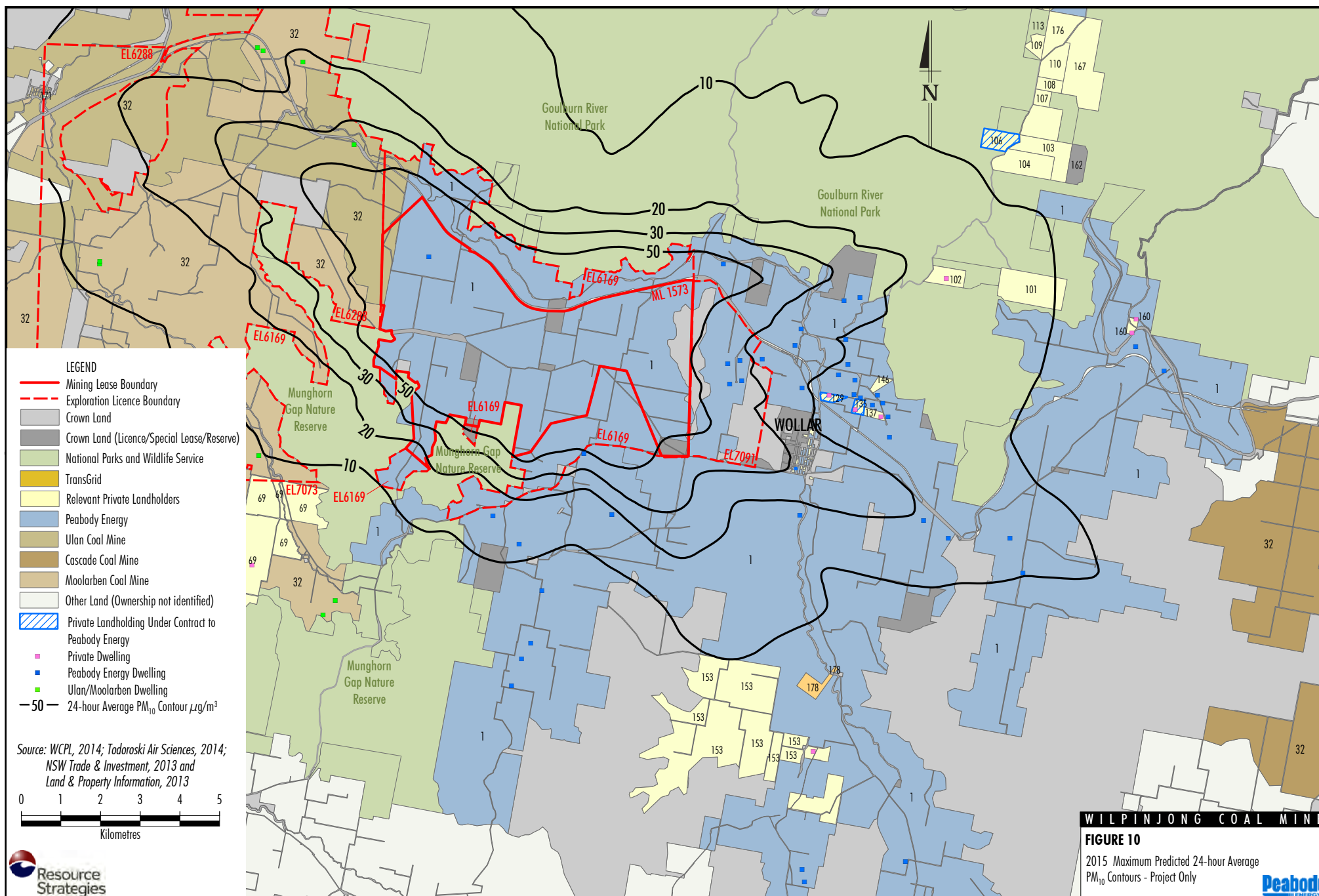
While these events have been managed in accordance with the Spontaneous Combustion Management Plan, they have at times resulted in perceptible odour and/or associated environmental complaints from nearby private receivers (Figure 4a) and/or users of Ulan-Wollar Road.

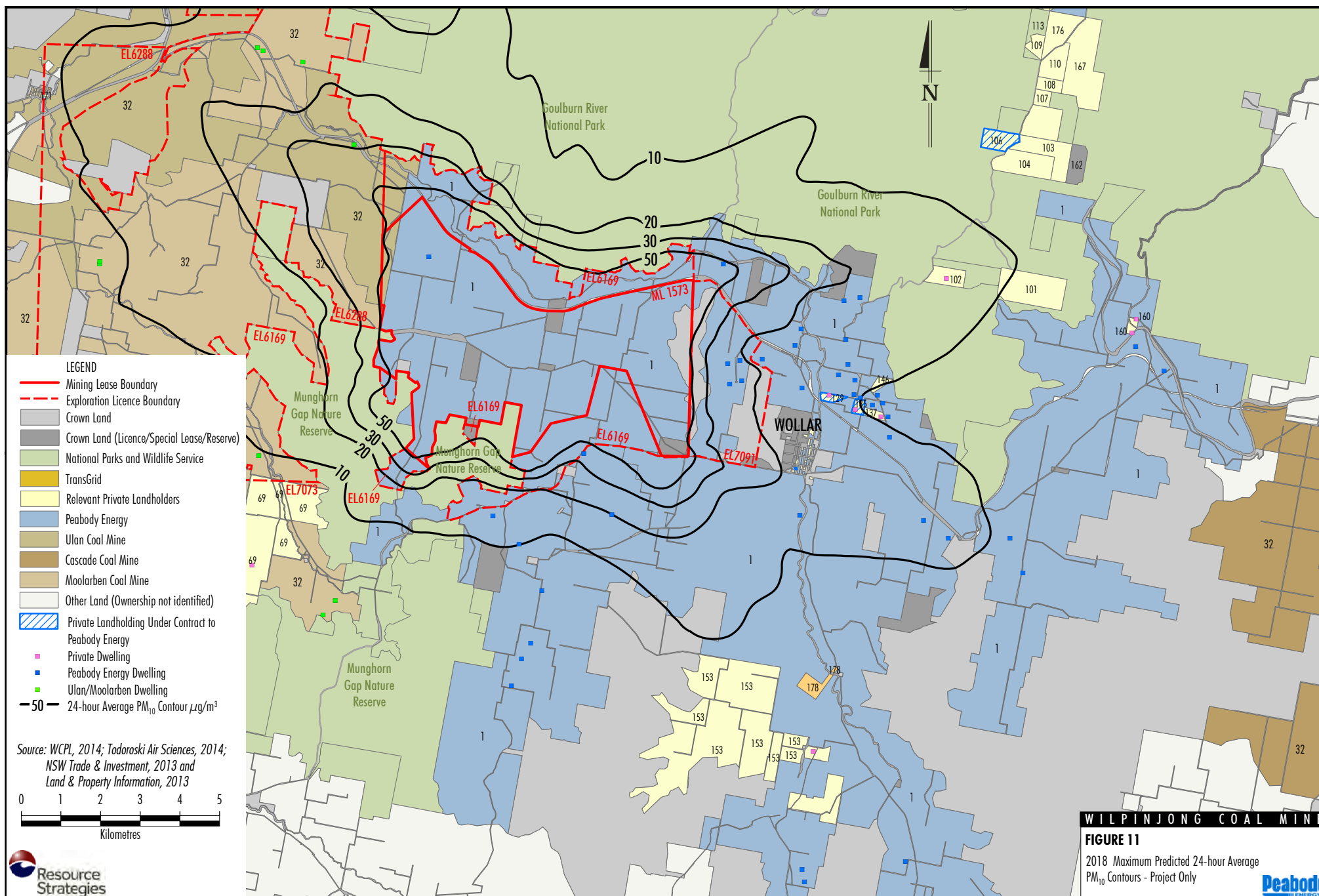
The coal stockpile spontaneous combustion events arose due to stockpiling of ROM coal for an extended period, and this is now avoided by close monitoring and priority washing of select ROM coal types after they have been stockpiled on-site for a designated period (Section 2.3).

For the management of carbonaceous waste rock material on-site a comprehensive remediation strategy is being applied to existing temporary waste rock emplacements that would see the spontaneous combustion high risk materials in these landforms managed by re-mining and deposition of the material at depth in mine voids, or encapsulation, by the end of 2015.

4.4.2 Environmental Review

The Modification would not significantly alter the potential for spontaneous combustion events to occur at the Wilpinjong Coal Mine, as the open cut extent would be unchanged.





Notwithstanding, there would be some potential for increased duration of the stockpiling of ROM coal due to increased production in the period 2014 to 2016 (Table 2). However, the existing spontaneous combustion management measures for ROM coal would continue to be implemented.

4.4.3 Mitigation Measures, Management and Monitoring

The existing spontaneous combustion management measures for ROM coal would continue to be implemented in accordance with the Spontaneous Combustion Management Plan to minimise the risk of spontaneous combustion occurring.

In addition, in mid-2014 WCPL plans to commence a detailed spontaneous combustion coal and partings testwork programme that would continue to be implemented over approximately six months.

The testwork programme will comprise:

- collection of representative coal and parting plies from key working sections that will be taken from each of the working faces of the Wilpinjong Coal Mine;
- conduct of R_{70} tests¹ on the samples to evaluate the relative reactivity of the selected samples to oxygen in a specialised laboratory;
- evaluate the R_{70} test results in consideration of coal rank, ash content and moisture content of the coal (when in-situ and when stockpiled); and
- identify coal plies, partings or working sections that have materially increased propensity for spontaneous combustion and hence require additional monitoring or specific management measures.

Any improvements to site coal monitoring and management that arise from results of the test programme would be applied to the stockpiling of coal at the Wilpinjong Coal Mine, including the Modification.

¹ The R_{70} test evaluates the time taken for a coal sample dried in nitrogen to self heat from 40 to 70°C in a flow of oxygen in an adiabatic oven.

4.5 GROUNDWATER

A Groundwater Assessment for the Wilpinjong Coal Mine, incorporating the Modification, has been prepared by HydroSimulations (2014) and is presented in Appendix C.

4.5.1 Background

A groundwater assessment of the approved Wilpinjong Coal Mine incorporating Modification 5 was prepared by HydroSimulations (2013).

Hydrogeological Regime

The Wilpinjong Coal Mine area and surrounds contain sedimentary rocks, including coal measures, of Permian and Triassic age.

HydroSimulations has identified two distinct groundwater systems in the Wilpinjong Coal Mine area:

- Alluvial groundwater system – associated primarily with Wilpinjong Creek.
- Porous rock groundwater system - primarily the Illawarra Coal Measures.

Alluvial Aquifers

Alluvial deposits are associated with Wilpinjong and Cumbo Creeks in the Wilpinjong Coal Mine area.

The NSW Office of Water (NOW) has identified a portion of the alluvial aquifer associated with Wilpinjong Creek downstream of the Wilpinjong Coal Mine as 'highly productive'.

Porous Rock Aquifers

The porous rock aquifers consist of the Narrabeen Group sandstones and the Illawarra Coal Measures, consisting of coal seams, conglomerate, mudstones and siltstones.

Pit Inflows

WCPL and Peabody Energy hold adequate licence entitlements to account for the potential take of water associated with the approved operations.

Average pit inflows are estimated to be about 974 ML/annum and peak inflows estimated at some 2,038 ML/annum in 2015 for the approved Wilpinjong Coal Mine (HydroSimulations, 2013).

Groundwater Users

Potential end of mining drawdown from the approved Wilpinjong Coal Mine is not expected to exceed 1 m at any privately owned land (HydroSimulations, 2013). Therefore there would be negligible effect on other groundwater users from the approved mine.

Aquifer Interference Policy

An assessment of Modification 5 against the minimal impact considerations in the NSW *Aquifer Interference Policy* (the AIP) was conducted as part of HydroSimulations, 2013, which concluded that it was within the 'Level 1' minimal impact considerations outlined in the AIP.

Groundwater Monitoring and Management

WCPL implements a Site Water Management Plan, including a Groundwater Monitoring Programme and Surface and Groundwater Response Plan to monitor and manage groundwater on-site.

4.5.2 Environmental Review

From a groundwater perspective, the Modification would not result in any material changes to the approved total volume of water withdrawn from the groundwater system, or the average impacts on bore drawdowns, stream fluxes or takes from the alluvium associated with Wilpinjong Creek (Appendix C).

The key findings of the Groundwater Assessment (Appendix C) are:

- The Modification would have no discernible impact on stream baseflows, beyond the effects of the approved mine. Only the timing of any baseflow capture would change.
- The Modification would have no discernible impact on groundwater upflow from the Permian sediments to overlying alluvium, beyond the effects of approved mining.
- The Modification would have no discernible additional drawdown at any of the alluvium or coal bores in the monitoring network. Only the timing of any drawdown would change.
- The Modification would not contribute to any measurable incremental cumulative effect.
- The Modification could not be considered to have a significant impact on the recovery of groundwater levels, beyond the effects of approved mining.

- The Modification could not be considered to have a significant impact on groundwater quality, beyond the effects of approved mining.

Pit Inflows

WCPL and Peabody Energy hold adequate licence entitlement to account for the potential take of water associated with the approved operations and there would be no increase in peak or average annual inflows associated with the Modification.

Aquifer Interference Policy

The Groundwater Assessment concluded that the Modification is within the 'Level 1' minimal impact considerations outlined in the AIP, as impacts would largely be unchanged from the approved mine (Appendix C).

Further discussion on the AIP is provided in Section 5.2.

Consideration of impacts on water resources required by the Commonwealth *Environment Protection and Biodiversity Conservation Act, 1999* (EPBC Act) is provided in Section 5.1.3.

4.5.3 Mitigation Measures, Management and Monitoring

Groundwater monitoring and management for the Wilpinjong Coal Mine incorporating the Modification would continue to be conducted in accordance with the Groundwater Monitoring Programme and Surface and Groundwater Response Plan.

The Site Water Management Plan, incorporating the Groundwater Monitoring Programme and Surface and Groundwater Response Plan is currently being reviewed and revised by WCPL as a result of the approval of Modification 5.

4.6 SURFACE WATER

A Surface Water Assessment for the Modification was undertaken by Gilbert & Associates (2014). The Surface Water Assessment is presented in Appendix D.

4.6.1 Background

A surface water assessment of the approved Wilpinjong Coal Mine incorporating Modification 5 was undertaken by Gilbert & Associates (2013).

Hydrology

The Wilpinjong Coal Mine is located in the greater Wollar Creek catchment which drains to the Goulburn River approximately 12 km to the north-east of the Wilpinjong Coal Mine area. The greater Wollar Creek catchment consists of a number of tributaries including Wilpinjong Creek, Spring Flat Creek and Barigan Creek.

At a local level, the Wilpinjong Coal Mine lies in the Wilpinjong Creek catchment and is drained by a number of local tributary watercourses. Wilpinjong Creek flows into Wollar Creek approximately 4 km downstream of the confluence of Cumbo and Wilpinjong Creeks. The approved Wilpinjong Coal Mine includes the relocation of Cumbo Creek, a tributary of Wilpinjong Creek.

On the basis of available recorded data, Gilbert & Associates (2013) concluded there has been no discernible change in Wilpinjong Creek, Cumbo Creek or Wollar Creek pH, EC and sulphate concentrations since the commencement of mining at the Wilpinjong Coal Mine.

Stream Flows

The approved Wilpinjong Coal Mine results in changes to flows in local creeks due to:

- progressive extension of the open cut and associated capture and re-use of drainage from operational disturbance areas;
- changes to groundwater baseflow contributions to local creeks; and
- controlled releases from the licensed discharge point under EPL 12425.

Surface Water Quality

In accordance with EPL 12425, the Wilpinjong Coal Mine is permitted to discharge up to 5 ML/day of excess mine water to Wilpinjong Creek, providing the discharge meets certain requirements, including an upper limit on EC of 500 $\mu\text{S}/\text{cm}$.

Surface Water Users

There are no known water access licences on, or privately owned land bordering, Wilpinjong and Wollar Creeks downstream of the Wilpinjong Coal Mine area.

Site Water Management and Monitoring

Surface water monitoring and management at the Wilpinjong Coal Mine is conducted in accordance with the Site Water Management Plan, including the Erosion and Sediment Control Plan, Surface Water Management and Monitoring Plan and Surface and Groundwater Response Plan.

4.6.2 Environmental Review

Site Water Management

The existing Wilpinjong Coal Mine and proposed Modification water management systems are described in Sections 2.7 and 3.3, respectively. A site water balance has been conducted for the Wilpinjong Coal Mine, including the Modification, that demonstrates the site water management system would continue to operate effectively (Section 3.3 and Appendix D).

Potential Impacts of the Modification

The key findings of the Surface Water Assessment were that, provided water management measures consistent with the existing design objectives of the water management system are implemented, the Modification would not pose any additional environmental risks with respect to surface water management of the approved mine, as (Appendix D):

- There would be no change to the approved disturbance of natural catchments.
- There would continue to be a low risk of water supply shortfalls occurring over the remaining life.
- It is expected that there would be sufficient containment capacity within existing and proposed water management storages on site to contain mine water and other potentially contaminated water on site.
- There would be no expected material change to the rates of licensed discharge to Wilpinjong Creek for the median rainfall sequence.
- There would be no change to the catchment area reporting to the final voids and hence no change to the final void water balance.
- There would be no additional implications with respect to flood management and mitigation.

4.6.3 Mitigation Measures, Management and Monitoring

Surface water monitoring and management for the Wilpinjong Coal Mine incorporating the Modification, would continue to be conducted in accordance with the Erosion and Sediment Control Plan, Surface Water Management and Monitoring Plan and Surface and Groundwater Response Plan.

The Site Water Management Plan, incorporating the above sub-plans is currently being reviewed and revised by WCPL as a result of the approval of Modification 5.

4.7 OTHER ENVIRONMENTAL ASPECTS

4.7.1 Greenhouse Gas Emissions

A greenhouse gas emissions inventory for the approved Wilpinjong Coal Mine incorporating Modification 5 was prepared by Todoroski Air Sciences (2013). Annual average Scope 1 emissions for the approved Wilpinjong Coal Mine are estimated to be approximately 88,890 tonnes of carbon dioxide equivalent (CO₂-e), which was approximately 0.02% of Australia's estimated annual greenhouse gas emissions for October 2011 to September 2012 (Todoroski Air Sciences, 2013).

As the Modification does not involve any expansion of the approved footprint of mining or the extraction of additional coal at the Wilpinjong Coal Mine (when measured over the life of the mine), there would be no material change to the total greenhouse gas emissions of the Wilpinjong Coal Mine. The only change to emissions would be in regard to the timing of emissions (i.e. greenhouse gas emission rates are expected to rise or fall in any given year with changes in the annual production, however annual average emissions over the life of the mine would be unchanged).

Greenhouse gas emissions from the Wilpinjong Coal Mine would continue to be monitored and reported annually in accordance with Peabody Energy's obligations under the Commonwealth Government National Greenhouse and Energy Reporting System. Peabody Energy and WCPL will also comply with any obligations under the Commonwealth *Clean Energy Act, 2011*.

4.7.2 Aquatic Ecology

An aquatic ecosystem assessment was conducted over the Wilpinjong Coal Mine area (Bio-Analysis, 2005) and identified aquatic habitat within Planters Creek, Spring Creek, Cumbo Creek, Wilpinjong Creek and Wollar Creek. In general, the aquatic habitats in the Wilpinjong Coal Mine disturbance area were found to be in poor condition, which reflected the degraded nature of their immediate catchments that have been adversely affected by loss of riparian vegetation, physical damage to banks, and erosion of watersheds over a long period (Bio-Analysis, 2005; Landline Consulting, 2012).

The Modification would not result in any additional disturbance of creeks that provide aquatic habitat within the Wilpinjong Coal Mine area.

In accordance with EPL 12425, the Wilpinjong Coal Mine is permitted to discharge up to 5 ML/day of excess mine water to Wilpinjong Creek, providing the discharge meets certain requirements, including an upper limit on EC of 500 µS/cm.

The Surface Water Assessment (Appendix D) concluded the Modification would not pose any additional environmental risks with respect to surface water management of the approved mine.

In consideration of the above, the Modification is not anticipated to have any additional impact on aquatic ecology compared to the approved Wilpinjong Coal Mine.

WCPL undertakes stream health monitoring on Wilpinjong Creek, Cumbo Creek and Wollar Creek in accordance with the Surface Water Management and Monitoring Plan that would continue for the Wilpinjong Coal Mine incorporating the Modification.

The Site Water Management Plan, incorporating the Surface Water Management and Monitoring Plan and Surface and Groundwater Response Plan is currently being reviewed and revised by WCPL as a result of the approval of Modification 5.

4.8 CONSIDERATION OF CUMULATIVE IMPACTS WITH OTHER NEARBY MINING OPERATIONS

4.8.1 Moolarben Coal Complex

The Moolarben Coal Complex is located immediately to the west of the Wilpinjong Coal Mine (Figure 1).

Stage 1 of the Moolarben Coal Project was approved on the 6 September 2007 and involves mining of three open cut mines and one underground mine. Stage 1 has been modified a number of times and is currently approved to mine until 2028 at a rate of up to 8 Mtpa ROM coal from the three open cuts and 4 Mtpa ROM coal from the underground mine (Yancoal Australia, 2013).

Moolarben Coal Mines Pty Limited currently has a major proposal before the Minister for Planning (Moolarben Coal Project Stage 2) that includes one open cut mine (Open Cut 4) that would be located to the immediate west of the Wilpinjong Coal Mine (Figure 2) that is proposed to be mined at a maximum rate of 12 Mtpa, as well as two underground mines with a combined maximum mining rate of 4 Mtpa.

Additional coal handling facilities are proposed to be constructed to transfer the ROM coal to the existing Stage 1 CHPP and increase the capacity of approved Stage 1 processing facilities to process Stage 2 ROM coal.

The Moolarben Coal Project Stage 2 is not yet approved by the NSW Minister for Planning and assessment of the proposal continues to be undertaken by DP&E. Notwithstanding, as the proposal may be determined in the near future, potential cumulative impacts with this proposal as described in the Moolarben Coal Project Stage 2 Preferred Project Report (Moolarben Coal Mines Pty Limited, 2012) have been considered where relevant in the environmental reviews conducted for this EA.

Moolarben Coal Mines Pty Limited also currently has a separate proposal before the Minister for Planning for Modification 9 to Stage 1 (the Stage 1 Optimisation Modification) that was publicly exhibited in May/June 2013.

The Stage 1 Optimisation Modification Environmental Assessment indicates that the modification would include extension of mining in open cuts 1 and 2, additional water management infrastructure, minor changes to the rehabilitation sequencing and final landform and would extend the life of Stage 1 to 2033 (Yancoal Australia, 2013).

The Stage 1 Optimisation Modification would not require any material changes to the approved Stage 1 rates of coal production, mining method, employees or general operations and environmental impacts would be similar to the existing operation (Yancoal Australia, 2013). If approved, Stage 1 as modified would operate concurrently with Stage 2 (if approved).

At full production, the Moolarben Coal Complex would have the capacity to produce 17 Mtpa of ROM coal and employ approximately 450 personnel (Yancoal Australia, 2013).

Due to the relative proximity of Open Cut 4 to the Wilpinjong Coal Mine (Figure 2) the potential cumulative impacts of Stage 2, if approved, are likely to be greater than Stage 1 incorporating the Stage 1 Optimisation Modification.

The potential cumulative impacts of the Moolarben Coal Complex incorporating the Stage 1 Optimisation Modification and the Moolarben Coal Project Stage 2 have been considered in the environmental studies where potentially relevant in this EA (e.g. air quality and operational noise).

4.8.2 Ulan Mine Complex

Mining in the Ulan area has been undertaken since the 1920s. The Ulan Mine Complex is located approximately 11 km to the north-west of the Wilpinjong Coal Mine (Figure 1) and potential cumulative impacts are therefore more limited in comparison to the adjacent Moolarben Coal Complex.

A major extension (the Ulan Coal Continued Operations Project) was approved by the NSW Minister for Planning in November 2010. The Ulan Coal Continued Operations Project (as modified) involves concurrently mining open cut and underground resources at a combined rate of 20 Mtpa product coal over a 21 year mine plan.

Potential cumulative impacts of the Ulan Mine Complex have been considered in the environmental studies where relevant to this EA (e.g. air quality and operational noise).

4.8.3 Cobbora Coal Project

Cobbora Holding Company Pty Limited (a public trading enterprise owned by the NSW Government) received Project Approval in May 2014 from the Planning Assessment Commission (as a delegate for the Minister for Planning) for the development of a 20 Mtpa ROM open cut coal mine and associated facilities (the Cobbora Coal Project) approximately 58 km north-west of Mudgee.

The approved Cobbora Coal Project, if developed, would result in additional rail transport movements on the Sandy Hollow-Gulgong Railway. However, as the project is located some 40 km to the west of Wilpinjong and the Modification does not involve any changes in regional population, increases in approved rail movements or extension to the life of the approved Wilpinjong Coal Mine (Section 3), no cumulative impacts with the approved Cobbora Coal Project are anticipated.

The NSW Government has announced its intention to sell or lease the Cobbora Coal Project following approval (Department of Planning and Infrastructure, 2014).

4.8.4 Bowdens Silver Project

The proposed Bowdens Silver Project is located approximately 30 km south of the Wilpinjong Coal Mine (Figure 1).

An Environmental Impact Statement for the Bowdens Silver Project is not yet publicly available. However, the documentation supporting an application for Director-General's Requirements for the Bowdens Silver Project (Kingsgate Bowdens Pty Limited, 2012) indicates that the project would include development of a 4 Mtpa open cut silver mine and associated facilities, a construction workforce of 300 people an operational workforce of approximately 200 people.

As the Modification does not involve any alteration to the population or accommodation demand in Mudgee or changes to road transport, it is not anticipated that there would be any potential cumulative impacts.

5 STATUTORY CONTEXT

The Wilpinjong Coal Mine was approved under Part 3A of the EP&A Act by the NSW Minister for Planning in February 2006 (Project Approval 05-0021 [Attachment 1]).

The Wilpinjong Coal Mine is a 'transitional Part 3A project' under clause 2 of Schedule 6A of the EP&A Act and therefore section 75W of the EP&A Act continues to apply to modifications to Project Approval 05-0021, notwithstanding its repeal².

As outlined in Section 1.3, WCPL consulted with the DP&E (formerly Department of Planning and Infrastructure) in December 2013 and March 2014 with regards to seeking the necessary approvals for the Modification and based on this consultation, this EA has been prepared under section 75W of the EP&A Act.

Section 75W of the EP&A Act states:

75W Modification of Minister's approval

(1) *In this section:*

Minister's approval means an approval to carry out a project under this Part, and includes an approval of a concept plan.

Modification of approval means changing the terms of a Minister's approval, including:

- (a) *revoking or varying a condition of the approval or imposing an additional condition of the approval, and*
- (b) *changing the terms of any determination made by the Minister under Division 3 in connection with the approval.*

(2) *The proponent may request the Minister to modify the Minister's approval for a project. The Minister's approval for a modification is not required if the project as modified will be consistent with the existing approval under this Part.*

(3) *The request for the Minister's approval is to be lodged with the Director-General. The Director-General may notify the proponent of environmental assessment requirements with respect to the proposed modification that the proponent must comply with before the matter will be considered by the Minister.*

² Part 3A of the EP&A Act (as in force immediately before its repeal) continues to apply for the Wilpinjong Coal Mine. The description and quotations of relevant references to clauses of Part 3A in this document are as if Part 3A of the EP&A Act is still in force.

- (4) *The Minister may modify the approval (with or without conditions) or disapprove of the modification.*

....

5.1 GENERAL STATUTORY CONSIDERATIONS

5.1.1 State Legislation

Environmental Planning and Assessment Act, 1979

The EP&A Act and EP&A Regulation set the framework for planning and environmental assessment in NSW. As noted above, the Modification is to be assessed under section 75W (Part 3A) of the EP&A Act.

Section 5 of the EP&A Act describes the objects of the EP&A Act as follows:

- (a) *to encourage:*
- (i) *the proper management, development and conservation of natural and artificial resources, including agricultural land, natural areas, forests, minerals, water, cities, towns and villages for the purpose of promoting the social and economic welfare of the community and a better environment,*
 - (ii) *the promotion and co-ordination of the orderly and economic use and development of land,*
 - (iii) *the protection, provision and co-ordination of communication and utility services,*
 - (iv) *the provision of land for public purposes,*
 - (v) *the provision and co-ordination of community services and facilities, and*
 - (vi) *the protection of the environment, including the protection and conservation of native animals and plants, including threatened species, populations and ecological communities, and their habitats, and*
 - (vii) *ecologically sustainable development, and*
 - (viii) *the provision and maintenance of affordable housing, and*
- (b) *to promote the sharing of the responsibility for environmental planning between the different levels of government in the State, and*

- (c) *to provide increased opportunity for public involvement and participation in environmental planning and assessment.*

The Modification is considered to be generally consistent with the objects of the EP&A Act, because it is a Modification which:

- incorporates:
 - measures for the management and conservation of natural resources, including water resources (Section 4);
 - continued development of the State's mineral resources (i.e. coal resources) in a manner that minimises environmental impacts through the implementation of the Wilpinjong Coal Mine Environmental Management Strategy (Section 2.14) and other measures (Section 4);
 - measures to minimise potential amenity impacts associated with noise and air on surrounding land uses (Sections 4.2 and 4.3); and
 - continued employment and other socio-economic benefits to the community;
- involves the orderly economic use and development of land as the Modification is improving efficiency of mining and would not extend the approved open cut limits within ML 1573 and the approved project boundary (Figure 3);
- would continue to be conducted in accordance with relevant lease/licence/reserve conditions over Crown Land within ML 1573;
- would not affect the ongoing provision of community services and facilities;
- does not incorporate any additional clearing or associated impacts on native plants and animals, threatened species, and their habitats;
- incorporates relevant ecologically sustainable development considerations through:
 - implementation of an adaptive management approach by implementing real-time noise and air quality controls; and
 - adoption of high standards for environmental and occupational health and safety performance;

- is an application under section 75W of the EP&A Act that would be determined by the Minister for Planning, however consultation with the MWRC and a range of stakeholders has been undertaken and issues raised have been considered and addressed where relevant (Section 1.3); and
- involves public involvement and participation through Wilpinjong Coal Mine consultation activities (Section 1.3), which would be ongoing following the public exhibition of this EA document and the DP&E assessment of the Modification in accordance with the requirements of the EP&A Act.

Other State Legislation

In addition to the EP&A Act, the following NSW Acts may be applicable to the Wilpinjong Coal Mine, incorporating the Modification:

- *Coal Mine Health and Safety Act, 2002;*
- *Contaminated Land Management Act, 1997;*
- *Crown Lands Act, 1989;*
- *Dams Safety Act, 1978;*
- *Dangerous Goods (Road and Rail Transport) Act, 2008;*
- *Fisheries Management Act, 1994;*
- *Heritage Act, 1977;*
- *Mining Act, 1992;*
- NPW Act;
- *Native Vegetation Act, 2003;*
- *Noxious Weeds Act, 1993;*
- *Protection of the Environment Operations Act, 1997 (PoEO Act);*
- *Roads Act, 1993;*
- *Threatened Species Conservation Act, 1995;*
- *Water Act, 1912;*
- *Water Management Act, 2000;* and
- *Work Health and Safety Act, 2011.*

Relevant licences or approvals required under these Acts would continue to be obtained for the Wilpinjong Coal Mine as required. Key plans that may require revision to incorporate the Modification are outlined in Section 5.3.

Additional detail on the likely requirements under the some of the key Acts is provided in the sub-sections below.

Mining Act, 1992

Under the *Mining Act, 1992*, environmental protection and rehabilitation are regulated by conditions of MLs, including requirements for the submission of a Mining Operations Plan prior to the commencement of operations, and subsequent Annual Environmental Management Reports (or Annual Reviews).

The current Mining Operations Plan (WCPL, 2014b) would require revision to reflect the increased rate of annual ROM coal production and waste rock production as a result of the Modification (Section 5.3).

Protection of the Environment Operations Act, 1997

The PoEO Act establishes the State's environmental regulatory framework and requires (sections 43(b), 48 and 55) that an EPL be issued prior to carrying out a scheduled activity.

The existing Wilpinjong Coal Mine is currently licensed under EPL 12425 to conduct "mining for coal" and "coal works" as defined in Schedule 1 of the PoEO Act.

EPL 12425 would not require any variations as a result of the Modification.

Water Management Act, 2000 and Water Act, 1912

The *Water Management Act, 2000* and the *Water Act, 1912* contain provisions for the licensing, allocation, capture and use of water resources. Under the *Water Management Act, 2000*, water sharing plans are being introduced for water sources. Water sharing plans establish rules for sharing water between different users and between the various environmental sources (namely rivers or aquifers).

Licensing requirements under the *Water Management Act, 2000* and *Water Act, 1912* were evaluated as a component of the assessment of the open cut extensions associated with Modification 5.

This Modification would not involve any variations to the approved extent and depth of mining at the Wilpinjong Coal Mine and hence no additional impacts on groundwater resources are anticipated (i.e. groundwater inflows over the life of the mine would be unchanged as the life of the mine and the approved mine footprint would be unchanged).

Potential variations in annual inflow rates as a result of the expected mine sequence have been considered by HydroSimulations and are documented in Appendix C.

Dams Safety Act, 1978

The *Dams Safety Act, 1978* regulates dam safety in NSW. A number of tailings dams at the Wilpinjong Coal Mine (TD1 East, TD1 West and TD2) are 'Prescribed Dams' under the *Dams Safety Act, 1978*. There are no changes to Prescribed Dams proposed as part of the Modification.

WCPL would continue to comply with its design, construction, operation and maintenance requirements under the *Dams Safety Act, 1978*.

Roads Act, 1993

The approved Wilpinjong Coal Mine involves realignment of sections of Ulan-Wollar Road. The Modification would not involve any additional realignment of public roads.

Coal Mine Health and Safety Act, 2002

WCPL holds necessary approvals under the *Coal Mine Health and Safety Act, 2002* for the Wilpinjong Coal Mine. These approvals would be reviewed and revised, where necessary throughout the life of the Wilpinjong Coal Mine.

5.1.2 Environmental Planning Instruments

State environmental planning policies and local environmental plans that may be relevant to the Modification are discussed below.

State Environmental Planning Policies

State Environmental Planning Policy (Major Development) 2005

As outlined above, the Wilpinjong Coal Mine was approved under Part 3A of the EP&A Act by the NSW Minister for Planning in February 2006 (Project Approval 05-0021). The Modification activities are wholly contained within the approved project boundary of the Wilpinjong Coal Mine (Figure 3).

State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007

The *State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) (Mining SEPP)* regularises the various environmental planning instruments that previously controlled mining activities and aims to provide for the proper management of and development of mineral resources.

Clause 5(3) of the Mining SEPP gives it primacy where there is an inconsistency between the provisions of the Mining SEPP and the provisions of any other environmental planning instrument (except the *State Environmental Planning Policy (Major Development) 2005*, *State Environmental Planning Policy No. 14 [Coastal Wetlands]* and *State Environmental Planning Policy No. 26 [Littoral Rainforest]*).

Clause 7

Clause 7(1) of the Mining SEPP states that development for any of the following purposes may be carried out only with development consent:

- (a) *underground mining carried out on any land,*
- (b) *mining carried out:*
 - (i) *on land where development for the purposes of agriculture or industry may be carried out (with or without development consent), or*
 - (ii) *on land that is, immediately before the commencement of this clause, the subject of a mining lease under the Mining Act 1992 or a mining licence under the Offshore Minerals Act 1999.*

The modified Wilpinjong Coal Mine comprises mining within ML 1573 (granted on 8 February 2006 prior to commencement of the Mining SEPP) and does not include any extension to the open cut and contained infrastructure areas of the approved Wilpinjong Coal Mine. Therefore the Modification activities are permissible with development consent.

Part 3 of the Mining SEPP outlines the matters to be considered when determining development applications. Relevant clauses are discussed further below.

Clause 12

Clause 12 of the Mining SEPP requires that, before determining an application for consent for development for the purposes of mining, petroleum production or extractive industry, the consent authority must:

- (a) *consider:*
 - (i) *the existing uses and approved uses of land in the vicinity of the development, and*
 - (ii) *whether or not the development is likely to have a significant impact on the uses that, in the opinion of the consent authority having regard to land use trends, are likely to be the preferred uses of land in the vicinity of the development, and*
 - (iii) *any ways in which the development may be incompatible with any of those existing, approved or likely preferred uses, and*
- (b) *evaluate and compare the respective public benefits of the development and the land uses referred to in paragraph (a) (i) and (ii), and*
- (c) *evaluate any measures proposed by the applicant to avoid or minimise any incompatibility, as referred to in paragraph (a) (iii).*

Land use in the vicinity of the Wilpinjong Coal Mine is characterised by a combination of coal mining operations, conservation areas, agricultural land uses and the Village of Wollar.

The Modification would not include any extension to the approved open cut and contained infrastructure area of the Wilpinjong Coal Mine. The Modification would allow for the improved efficiency of extraction of coal reserves in the Wilpinjong Coal Mine. The potential benefits of the Modification are described in Section 6.

WCPL would implement a range of measures to avoid or minimise incompatibility of the Modification with existing and future land uses in the area. This would be achieved through the implementation of the existing Wilpinjong Coal Mine Environmental Management Strategy (Section 2.14) and relevant updates to the management of air quality and noise emissions as described in Sections 4.2 and 4.3.

Clause 12AA

Clause 12AA(1) of the Mining SEPP requires that, in determining an application for consent for development for the purposes of mining, the consent authority must consider the significance of the resource that is the subject of the application, having regard to:

- (a) *the economic benefits, both to the State and the region in which the development is proposed to be carried out, of developing the resource, and*
- (b) *any advice by the Director-General of the Department of Trade and Investment, Regional Infrastructure and Services as to the relative significance of the resource in comparison with other mineral resources across the State.*

In accordance with subclause 12AA(6) of the Mining SEPP this obligation extends to any application to modify a development consent.

The Wilpinjong Coal Mine employs up to approximately 550 direct employees and full-time equivalent on-site contractors in the Mid-Western Regional LGA and is a low cost producer of thermal coal products for a combination of domestic (NSW) electricity generation and export markets. The Modification would improve the efficiency of extraction of existing ROM coal reserves and hence the productivity of the current workforce and return on capital associated with the existing fixed plant and mobile fleet. It would also introduce additional flexibility in meeting relevant product coal specifications. The Modification would therefore be expected to improve the financial position of the Mine in the current market downturn.

Clause 14

Clause 14(1) of the Mining SEPP requires that, before granting consent for development for the purposes of mining, petroleum production or extractive industry, the consent authority must consider whether or not the approval should be issued subject to conditions aimed at ensuring that the development is undertaken in an environmentally responsible manner, including conditions to ensure the following:

- (a) *that impacts on significant water resources, including surface and groundwater resources, are avoided, or are minimised to the greatest extent practicable,*
- (b) *that impacts on threatened species and biodiversity, are avoided, or are minimised to the greatest extent practicable,*
- (c) *that greenhouse gas emissions are minimised to the greatest extent practicable.*

In addition, clause 14(2) requires that, without limiting clause 14(1), in determining a development application for development for the purposes of mining, petroleum production or extractive industry, the consent authority must consider an assessment of the greenhouse gas emissions (including downstream emissions) of the development, and must do so having regard to any applicable State or national policies, programmes or guidelines concerning greenhouse gas emissions.

A greenhouse gas emissions inventory for the approved Wilpinjong Coal Mine incorporating Modification 5 was prepared by Todoroski Air Sciences (2013). Annual average Scope 1 emissions for the approved Wilpinjong Coal Mine are estimated to be approximately 88,890 tonnes of carbon dioxide equivalent (CO₂-e), which was approximately 0.02% of Australia's estimated annual greenhouse gas emissions for October 2011 to September 2012 (Todoroski Air Sciences, 2013).

As the Modification does not involve any expansion of the approved extent of mining or the extraction of additional coal at the Wilpinjong Coal Mine (when measured over the life of the mine), there would be no material change to the total greenhouse gas emissions of the Wilpinjong Coal Mine. The only change to emissions would be in regard to the timing of emissions (i.e. greenhouse gas emission rates are expected to rise or fall in any given year with changes in the annual production, however annual average emissions over the life of the mine would be unchanged).

The potential impacts of the Modification on groundwater and surface water resources are largely unchanged from the impacts of the approved mine as the extent and duration of mining would be the same (Sections 4.5 and 4.6). Existing measures to minimise potential impacts are also described in Sections 4.5.3 and 4.6.3.

The Modification does not include any potential impacts on threatened species and biodiversity as no open cut extensions are proposed.

Clause 15

Clause 15 of the Mining SEPP requires that:

- (1) *Before granting consent for development for the purposes of mining, petroleum production or extractive industry, the consent authority must consider the efficiency or otherwise of the development in terms of resource recovery.*
- (2) *Before granting consent for the development, the consent authority must consider whether or not the consent should be issued subject to conditions aimed at optimising the efficiency of resource recovery and the reuse or recycling of material.*
- (3) *The consent authority may refuse to grant consent to development if it is not satisfied that the development will be carried out in such a way as to optimise the efficiency of recovery of minerals, petroleum or extractive materials and to minimise the creation of waste in association with the extraction, recovery or processing of minerals, petroleum or extractive materials.*

The Modification would allow for the more rapid extraction of existing coal reserves in the Wilpinjong Coal Mine to manage the range of ash contents required in potential product specifications and meet equivalent product coal targets.

WCPL has presented information on the Modification to the DRE during the development of this EA (Section 1.3). It is in the financial interest of WCPL to maximise the efficiency of coal recovery.

Clause 16

Clause 16(1) of the Mining SEPP requires that, before granting consent for development for the purposes of mining or extractive industry that involves the transport of materials, the consent authority must consider whether or not the consent should be issued subject to conditions that do any one or more of the following:

- (a) *require that some or all of the transport of materials in connection with the development is not to be by public road,*
- (b) *limit or preclude truck movements, in connection with the development, that occur on roads in residential areas or on roads near to schools,*
- (c) *require the preparation and implementation, in relation to the development, of a code of conduct relating to the transport of materials on public roads.*

The primary public road network transport routes to and from Wilpinjong Coal Mine include routes that are adjacent to rural areas, industrial/commercial areas, residential areas and schools.

Wilpinjong Coal Mine generates road traffic relating to the movement of employees and consumables/deliveries. The Modification would not result in any material alteration to the existing daily transport movements to and from the site.

Wilpinjong Coal Mine product coal would continue to be transported from site by rail.

Clause 17

Clause 17 of the Mining SEPP requires that before granting consent for development for the purposes of mining, petroleum production or extractive industry, the consent authority must consider whether or not the approval should be issued subject to conditions aimed at ensuring the rehabilitation of land that will be affected by the development.

In particular, the consent authority must consider whether conditions of the consent should:

- (a) *require the preparation of a plan that identifies the proposed end use and landform of the land once rehabilitated, or*
- (b) *require waste generated by the development or the rehabilitation to be dealt with appropriately, or*
- (c) *require any soil contaminated as a result of the development to be remediated in accordance with relevant guidelines (including guidelines under section 145C of the Act and the Contaminated Land Management Act 1997), or*
- (d) *require steps to be taken to ensure that the state of the land, while being rehabilitated and at the completion of the rehabilitation, does not jeopardize public safety.*

WCPL implements a Rehabilitation Management Plan (Mining Operations Plan) and Biodiversity Management Plan (in preparation by WCPL) that describes management strategies including landform design, topsoil management, rehabilitation management measures, management of flora and fauna, rehabilitation monitoring programme and completion criteria.

The proposed Modification would not result in any material alteration to the approved final landform or rehabilitation of the Wilpinjong Coal Mine, as the extent of mining would be unchanged.

State Environmental Planning Policy No. 33 – Hazardous and Offensive Development

Clause 13 of the *State Environmental Planning Policy No. 33 (Hazardous and Offensive Development)* (SEPP 33) requires the consent authority, in considering a Development Application for a potentially hazardous or a potentially offensive industry, to take into account:

- (c) *in the case of development for the purpose of a potentially hazardous industry—a preliminary hazard analysis prepared by or on behalf of the applicant, and*
- (d) *any feasible alternatives to the carrying out of the development and the reasons for choosing the development the subject of the application (including any feasible alternatives for the location of the development and the reasons for choosing the location the subject of the application)...*

A Preliminary Hazard Analysis was conducted for the Wilpinjong Coal Mine in accordance with SEPP 33 (WCPL, 2005).

The Modification would not significantly alter the consequences or likelihood of a hazardous event occurring at the approved Wilpinjong Coal Mine, as the operational activities on-site and the extent of mining would be generally unchanged.

State Environmental Planning Policy No. 44 – Koala Habitat Protection

State Environmental Planning Policy No. 44 (Koala Habitat Protection) (SEPP 44) requires the consent authority for any Development Application in certain LGAs (including the former Mudgee LGA) to consider whether land subject to a Development Application is “potential Koala habitat” or “core Koala habitat”.

The provisions of SEPP 44 are not considered applicable to the Modification as no open cut extensions are proposed.

State Environmental Planning Policy No. 55 – Remediation of Land

SEPP 55 aims to provide a State-wide planning approach to the remediation of contaminated land. Under SEPP 55, planning authorities are required to consider the potential for contamination to adversely affect the suitability of the site for its proposed use.

A consent authority must consider the following under Clause 7(1):

- (a) *whether the land is contaminated, and*
- (b) *if the land is contaminated, it is satisfied that the land is suitable in its contaminated state (or will be suitable, after remediation) for the purpose for which the development is proposed to be carried out, and*
- (c) *if the land requires remediation to be made suitable for the purpose for which the development is proposed to be carried out, it is satisfied that the land will be remediated before the land is used for that purpose.*

Further, under Clause 7(2), before determining an application for consent to carry out development that would involve a change of use of land, the consent authority must consider a report specifying the findings of a preliminary investigation of the land concerned, carried out in accordance with the contaminated land planning guidelines.

A Land Contamination Assessment has been conducted within the approved project boundary of the Wilpinjong Coal Mine (AGE, 2005). The Land Contamination Assessment concluded that the land was suitable for the land use change from agriculture to the development of the Wilpinjong Coal Mine.

The Modification activities are wholly contained within the approved project boundary of the Wilpinjong Coal Mine and the extent of the open cuts would be unchanged.

Mid-Western Regional Local Environmental Plan 2012

The Wilpinjong Coal Mine is located wholly within the Mid-Western Regional LGA and is covered by the *Mid-Western Regional Local Environmental Plan 2012* (MWR LEP).

Clause 2.3(2) of the MWR LEP relevantly provides:

The consent authority must have regard to the objectives for development in a zone when determining a development application in respect of land within the zone.

As outlined above, the consent authority for transitional Part 3A projects is the Minister for Planning.

Under the MWR LEP, the Project area of the approved Wilpinjong Coal Mine includes land zoned as RU1 – Primary Production (across the majority of the Project Area) and SP2 – Special Infrastructure (along the Sandy Hollow-Gulgong Railway).

SP2 – Special Infrastructure

As indicated above, the Sandy Hollow-Gulgong Railway is zoned SP2 – Special Infrastructure. Product coal transport along the Sandy Hollow-Gulgong Railway would be unchanged by the Modification.

RU1 – Primary Production

Under the MWR LEP “open cut mining” is permissible with consent on lands zoned RU1 – Primary Production.

“Open cut mining” is defined under the MWR LEP as:

open cut mining means mining carried out on, and by excavating, the earth’s surface, but does not include underground mining.

“Mining” is defined under the MWR LEP as:

mining means mining carried out under the Mining Act 1992 or the recovery of minerals under the Offshore Minerals Act 1999, and includes:

- (a) *the construction, operation and decommissioning of associated works, and*
- (b) *the rehabilitation of land affected by mining.*

Under the MWR LEP the objectives of the RU1 – Primary Production zone are:

- *To encourage sustainable primary industry based production by maintaining and enhancing the natural resource base.*
- *To encourage diversity in primary industry enterprises and systems appropriate for the area.*
- *To minimise the fragmentation and alienation of resource lands.*
- *To minimise conflict between land uses within this zone and land uses within adjoining zones.*
- *To maintain the visual amenity and landscape quality of Mid-Western Regional by preserving the area’s open rural landscapes and environmental and cultural heritage values.*
- *To promote the unique rural character of Mid-Western Regional and facilitate a variety of tourist land uses.*

The Modification is consistent with the general objectives of RU1 – Primary Production zone as mining is a primary industry and the Modification would enhance the productivity of the Wilpinjong Coal Mine.

The Modification would not significantly alter the compatibility of the Wilpinjong Coal Mine with adjoining land uses and would not alter the visual impacts of the approved mine.

5.1.3 Commonwealth Legislation

Environment Protection and Biodiversity Conservation Act, 1999

The objective of the EPBC Act is to provide for the protection of those aspects of the environment that are of *national environmental significance*. Proposals that are likely to have a significant impact on a matter of national environmental significance are defined as a controlled action under the EPBC Act.

The nine matters of national environmental significance are:

- world heritage properties;
- national heritage places;
- wetlands of international importance (also called 'Ramsar' wetlands);
- nationally threatened species and ecological communities;
- migratory species;
- Commonwealth marine areas;
- the Great Barrier Reef Marine Park;
- nuclear actions; and
- a water resource, in relation to coal seam gas development and large coal mining development.

Proposals that are, or may be, a controlled action are required to be referred to the Commonwealth Minister for the Environment to determine whether the proposal requires assessment and approval under the EPBC Act.

The Wilpinjong Coal Project (disturbance of approximately 290 ha of native woodland/forest/shrubland) was determined not to be a controlled action under the EPBC Act (EPBC 2005/2309) on 16 December 2005.

There are no world heritage properties, national heritage places, wetlands of international importance or Commonwealth marine areas of relevance to the Modification. The Modification is not located in or near the Great Barrier Reef Marine Park and does not constitute a nuclear action.

The Modification does not involve any alterations to the approved extent of mining at the Wilpinjong Coal Mine and hence would have no significant impact on nationally threatened species and ecological communities, migratory species. It is also unlikely to have a significant impact on water resources as described below.

Potential Impacts on Water Resources

The Department of the Environment released the *Significant impact guidelines 1.3: Coal seam gas and large coal mining developments—impacts on water resources* (Australian Government, 2013) in December 2013.

An action is likely to have a significant impact on a water resource if there is a real, or not remote chance, or possibility that it will directly or indirectly result in a change to the hydrology or the water quality of a water resource that is of sufficient scale or intensity as to reduce the current or future utility of the water resource for third party users, including environmental and other public benefit outcomes, or to create a material risk of such reduction in utility occurring (Australian Government, 2013).

The approved Wilpinjong Coal Mine has an open cut and contained infrastructure area of approximately 1,990 ha. The Modification would not involve any extension to this area.

Anticipated minor variations in the timing of groundwater effects of the approved Wilpinjong Coal Mine that would arise from the currently planned mining sequence are described in Appendix C.

The key findings of the Groundwater Assessment (Section 4.5) relating to hydrogeology are:

- The Modification would have no discernible impact on stream baseflows, beyond the effects of the approved mine. Only the timing of any baseflow capture would change.
- The Modification would have no discernible impact on groundwater upflow from the Permian sediments to overlying alluvium, beyond the effects of approved mining.
- The Modification would have no discernible additional drawdown at any of the alluvium or coal bores in the monitoring network. Only the timing of any drawdown would change.
- The Modification would not contribute to any measurable incremental cumulative effect.

- The Modification could not be considered to have a significant impact on the recovery of groundwater levels, beyond the effects of approved mining.
- The Modification could not be considered to have a significant impact on groundwater quality, beyond the effects of approved mining.

In addition, WCPL and Peabody Energy hold adequate licence entitlement under a state water resource plan to account for the potential take of water associated with the approved operations.

Therefore, it is unlikely that the Modification would directly or indirectly result in a substantial change in the hydrology or water quality of groundwater resources that is of sufficient scale or intensity as to reduce the current or future utility of the water resource for third party users, including environmental and other public benefit outcomes, or to create a material risk of such reduction in utility occurring.

On the basis of available recorded data, Gilbert & Associates (2013) concluded there has been no discernible change in Wilpinjong Creek, Cumbo Creek or Wollar Creek pH, EC and sulphate concentrations since the commencement of mining at the Wilpinjong Coal Mine.

The key findings of the Surface Water Assessment (Section 4.6) relating to surface water resources were that, provided water management measures consistent with the existing design objectives of the water management system are implemented, the Modification would not pose any additional environmental risks with respect to surface water management of the approved mine, as:

- There would be no change to the approved disturbance of natural catchments.
- There would continue to be a low risk of water supply shortfalls occurring over the remaining life.
- It is expected that there would be sufficient containment capacity within existing and proposed water management storages on site to contain mine water and other potentially contaminated water on site.
- There would be no expected material change to the rates of licensed discharge to Wilpinjong Creek for the median rainfall sequence.
- There would be no change to the catchment area reporting to the final voids and hence no change to the final void water balance.

- There would be no additional implications with respect to flood management and mitigation.

Therefore, it is unlikely that the Modification would directly or indirectly result in a substantial change in the hydrology or water quality of surface water resources that is of sufficient scale or intensity as to reduce the current or future utility of the water resource for third party users, including environmental and other public benefit outcomes, or to create a material risk of such reduction in utility occurring.

Conclusion

Based on the above, there would be no significant impact on matters of national environmental significance as a result of the Modification.

It is therefore considered that there is no need to refer the Modification to the Commonwealth Minister for the Environment.

National Greenhouse and Energy Reporting Act, 2007

The *National Greenhouse and Energy Reporting Act, 2007* (NGER Act) introduced a single national reporting framework for the reporting and dissemination of corporations' greenhouse gas emissions and energy use. The NGER Act makes registration and reporting mandatory for corporations whose energy production, energy use or greenhouse gas emissions meet specified thresholds.

Peabody Energy triggers the threshold for reporting under the NGER Act, and reports energy use and greenhouse gas emissions from its enterprises, including the Wilpinjong Coal Mine.

5.2 NSW GOVERNMENT POLICY

Strategic Regional Land Use Plan

As part of the Strategic Regional Land Use Policy, the NSW Government introduced a Gateway Process for the upfront assessment of the impacts of State Significant mining and coal seam gas proposals on Strategic Agricultural Land (NSW Government, 2012a).

The Strategic Regional Land Use Policy and the Gateway Process only applied to new State Significant Development applications or modifications for mining projects located outside of existing ML areas (NSW Government, 2012a).

The Modification is wholly contained within ML 1573 and does not involve any open cut extensions, therefore the Gateway Process does not apply to the assessment of the Modification.

Aquifer Interference Policy

The AIP (NSW Government, 2012b) has been developed by the NSW Government as a component of the NSW Government's Strategic Regional Land Use Policy. The AIP applies State-wide and details water licence and impact assessment requirements.

The AIP has been developed to ensure equitable water sharing between various water users and proper licensing of water taken by aquifer interference activities such that the take is accounted for in the water budget and water sharing arrangements. The AIP will also enhance existing regulation, contributing to a comprehensive framework to protect the rights of all water users and the environment in NSW.

The *Water Management Act, 2000* defines an aquifer interference activity as that which involves any of the following:

- *the penetration of an aquifer;*
- *the interference with water in an aquifer;*
- *the obstruction of the flow of water in an aquifer;*
- *the taking of water from an aquifer in the course of carrying out mining or any other activity prescribed by the regulations; and*
- *the disposal of water taken from an aquifer in the course of carrying out mining or any other activity prescribed by the regulations.*

The AIP requires all water taken by aquifer interference activities to be accounted for within the extraction limits set by the relevant Water Sharing Plan.

The Water Sharing Plan relevant to the Wilpinjong Coal Mine is the *Water Sharing Plan for the Hunter Unregulated and Alluvial Water Sources 2009*. Licensing to account for water taken from the coal seams and adjacent hardrock under the NSW *Water Act, 1912* at the Wilpinjong Coal Mine is also required from the porous rock aquifer.

A groundwater assessment (HydroSimulations, 2013) was prepared in consideration of the AIP to assess the impacts of the open cut extensions associated with Modification 5 (now approved).

This assessment of Modification 5 considered:

- water sources;
- baseline groundwater conditions;
- modelling of potential impacts;
- licensing requirements; and
- AIP minimal impact considerations for highly productive and less productive groundwater.

HydroSimulations (2013) concluded that the impacts of Modification 5 were within the 'Level 1' minimal impact considerations outlined in the AIP. It was also concluded that WCPL and Peabody Energy currently hold adequate licenses to account for the potential take of water associated with the Wilpinjong Coal Mine operations incorporating Modification 5.

HydroSimulations (Appendix C) concluded that Modification 6 would also be within the 'Level 1' minimal impact considerations outlined in the AIP, as impacts would largely be unchanged (Section 4.5).

Relevant Mitigation and Contingency Measures

Other Groundwater Users

Predicted end of mining drawdown is not expected to exceed 1 m at any privately owned land (HydroSimulations, 2013) and therefore meets the 'Level 1' minimal impact considerations outlined in the AIP.

Notwithstanding that no impacts on privately owned bores are predicted, WCPL implements an approved Surface and Groundwater Response Plan.

The Surface and Groundwater Response Plan includes:

- processes to deal with a groundwater-related complaint;
- groundwater impact investigation protocol; and
- response plan, in the event that an investigation conclusively attributes an adverse impact to an existing groundwater supply user to Wilpinjong Coal Mine operations.

Appropriate contingency measures for an impact on a groundwater supply user may include:

- deepening the affected groundwater supply;
- construction of a new groundwater supply; or
- provision of a new alternative water supply.

Floodplain Water Management

As part of the EIS, WCPL committed to assess the requirement for flood bunds to mitigate against inflows from major flooding in Wilpinjong Creek and backflow up tributary drainages (e.g. Cumbo Creek).

WCPL has undertaken flood modelling studies to examine a range of average recurrence interval flood levels to assess the requirement for flood bunds adjacent to the various Wilpinjong Coal Mine open cut pits, including the modified pit extents associated with Modification 5.

The Modification does not include any extension to the approved pit extents.

Interception of Alluvial Groundwater

WCPL implements an approved Surface and Groundwater Response Plan that includes a response plan for any direct groundwater inflows from Wilpinjong or Cumbo Creek alluvium exposed in the final highwall of the open cut during mining operations.

Monitoring and Reporting of Water Make

WCPL monitors groundwater extraction as required under the conditions of its water licences.

In accordance with WCPL's groundwater extraction licences, WCPL will provide the NOW with an annual compliance report, which:

- assesses compliance with the licences;
- provides a summary of new bores or pits constructed during that year;
- provides statistics for the monitoring data collated for each bore for the last water year;
- summarises contingency events that impacted on groundwater during the last water year, including actions taken to remedy the situation and extra monitoring results; and
- any recommendations for improvements for the new water year.

5.3 PLANS, LICENCES AND AGREEMENTS THAT REQUIRE REVISION

Project Approval Conditions

Condition 6(a), Schedule 2 of Project Approval 05-0021 (Attachment 1) stipulates limits of approval as follows:

The Proponent shall not extract more than 15 million tonnes of ROM coal from the site in a calendar year...

WCPL is seeking to amend Condition 6(a), Schedule 2 of the Project Approval as a component of the Modification to read:

*The Proponent shall not extract more than **16** million tonnes of ROM coal from the site in a calendar year...*

Tables 1, 2 and 3 of Schedule 3 of Project Approval 05-0021 (Attachment 1) provide land acquisition, noise impact assessment criteria and a list of residences that may request noise mitigation measures. These tables would require revision to reflect recent changes in land ownership.

Appendix 7 (Receiver Location Plans) of the Project Approval would also require revision to reflect changes to land ownership.

Wilpinjong Coal Project Planning Agreement

The life of the Wilpinjong Coal Mine would be unchanged by the Modification. In addition, the existing Wilpinjong Coal Mine operational workforce would not require any augmentation for the Modification (Section 3.2.7).

As a result, no changes to the Wilpinjong Coal Mine Planning Agreement are considered warranted.

Management/Monitoring Plans

Some management plans (e.g. the NMP and Air Quality Management Plan) may require revision to reflect changes to land ownership, updated environmental management measures or any changes to Project Approval conditions resulting from the Modification.

Mining Operations Plan (Rehabilitation Management Plan)

The current Mining Operations Plan (WCPL, 2014b) would require revision to reflect the increased annual ROM Coal and waste rock production rates as a result of the Modification.

6 CONCLUSION

A review of mine planning, more detailed coal quality data and the range of ash contents required in potential product specifications indicates higher rates of ROM coal production will be required at times to achieve equivalent product coal targets at Wilpinjong Coal Mine.

The WCPL continuous improvement programme for materials handling/mining has identified opportunities to improve efficiencies and resource utilisation and indicates a higher ROM coal production rate (from 15 Mtpa up to approximately 16 Mtpa) could be achieved with only minor augmentations to the existing mining operation.

An increased rate of annual ROM coal production would provide operational flexibility to maintain WCPL's competitive advantage as a low cost thermal coal producer.

The Modification would not alter the approved open cut and contained infrastructure area (Figure 2) or the mine life of the approved Wilpinjong Coal Mine. It would however, improve the efficiency of extraction of existing ROM coal reserves and hence the productivity of the current workforce and return on capital associated with the existing fixed plant and mobile fleet. The Modification would therefore be expected to improve the financial position of the Mine in the current market downturn.

In order to assess the potential environmental impacts of the proposed Modification, a number of environmental reviews were completed. A summary of the key findings of these environmental reviews and key commitments with respect to managing potential impacts is provided in Table 5.

These reviews indicate that the existing environmental management and monitoring measures would continue to be applied to minimise the potential impacts of the Wilpinjong Coal Mine on existing environmental values and the nearest private dwellings. The Modification therefore would not significantly increase potential environmental impacts in comparison to the approved Wilpinjong Coal Mine.

**Table 5
Key Outcomes of the Environmental Review**

Environmental Aspect	Summary of Environmental Assessment Conclusions	Key Management, Mitigation or Monitoring Measures for the Modification
Operational Noise	Generally consistent with operational noise predictions for the approved mine, noise modelling identified three private dwellings outside of the Village of Wollar would have potential exceedances of project specific noise criteria for the Wilpinjong Coal Mine operations incorporating the Modification. Two of these private dwellings are under contract of sale to Peabody Energy.	Real-time noise controls (e.g. mobile fleet stand-downs) would continue to be implemented under relevant adverse meteorological conditions to achieve continued compliance with existing Project Approval noise impact assessment criteria in the Village of Wollar and other private dwellings. WCPL would continue to implement the real-time noise management system and associated response protocols in the Noise Management Plan. Recent compliance monitoring demonstrates that these controls continue to be effective.
Dust and Particulate Matter	Air quality modelling indicates that no additional exceedances of applicable air quality criteria are predicted at private dwellings.	The real-time air quality monitoring system and response protocols detailed in the Air Quality Management Plan would continue to be implemented.
Spontaneous Combustion	The Modification would not significantly alter the potential for spontaneous combustion events at the Wilpinjong Coal Mine, as the extent of mining would be unchanged.	WCPL has developed a detailed coal and partings spontaneous combustion testwork programme that will be implemented over approximately six months. Any improvements to coal monitoring and management that arise from results of the test programme would be applied to the stockpiling of coal at the Wilpinjong Coal Mine.

Table 5 (Continued)
Key Outcomes of the Environmental Review

Environmental Aspect	Summary of Environmental Assessment Conclusions	Key Management, Mitigation or Monitoring Measures for the Modification
Groundwater	<p>WCPL and Peabody Energy hold adequate licence entitlements to account for the potential take of water associated with the approved operations.</p> <p>The Modification would not result in any material changes to the approved total volume of water withdrawn from the groundwater system, or the average impacts on bore drawdowns, stream fluxes or takes from the alluvium associated with Wilpinjong Creek.</p>	Groundwater monitoring and management would continue to be conducted in accordance with the Groundwater Monitoring Programme and Surface and Groundwater Response Plan.
Surface Water	The Modification would not pose any additional environmental risks with respect to surface water management of the approved mine.	Surface water monitoring and management would continue to be conducted in accordance with the Erosion and Sediment Control Plan, Surface Water Management and Monitoring Plan and Surface and Groundwater Response Plan.

7 REFERENCES

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