



EXECUTIVE SUMMARY

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EXECUTIVE SUMMARY

ES1 BACKGROUND

The Wilpinjong Coal Mine is located approximately 40 kilometres north-east of Mudgee, near the Village of Wollar, within the Mid-Western Regional Local Government Area, in central New South Wales (NSW) (Figures ES-1 and ES-2).

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

This document is an Environmental Impact Statement (EIS) for the Wilpinjong Extension Project (the Project). The Project would involve the continuation and extension of open cut mining operations at the Wilpinjong Coal Mine. This EIS provides:

- a description of the Project;
- a summary of consultation undertaken;
- an assessment of potential impacts;
- the Project environmental management strategy, including continuation and extension of existing Wilpinjong Coal Mine environmental monitoring and mitigation measures; and
- a Project justification.

ES2 APPROVAL PROCESS

ES2.1 NEW SOUTH WALES

The Project is 'State Significant Development' to which Division 4.1 of Part 4 of the NSW *Environmental Planning and Assessment Act, 1979* applies.

This EIS has been prepared to accompany a Development Application made for the Project, in accordance with Part 4 of the *Environmental Planning and Assessment Act, 1979*.

The EIS considers the potential environmental impacts of the Project in accordance with the Secretary's Environmental Assessment Requirements issued by the NSW Department of Planning and Environment on 9 December 2014 and 22 June 2015, including input from the Commonwealth Department of the Environment.

WCPL is seeking Development Consent from the NSW Minister for Planning, which would replace the existing Wilpinjong Coal Mine Project Approval (Project Approval 05-0021).

ES2.2 COMMONWEALTH

The proposed action to extend open cut coal mining and processing operations at the Wilpinjong Coal Mine was referred to the Commonwealth Minister in February 2015 (EPBC 2015/7431) (the proposed action).

A delegate of the Commonwealth Minister determined on 12 March 2015 that the proposed action is a 'controlled action' for the purposes of the *Environment Protection and Biodiversity Conservation Act, 1999*.

This EIS provides an assessment of potential impacts to the following controlling provisions considered by the Commonwealth Minister to be relevant to the action:

- *Environment Protection and Biodiversity Conservation Act, 1999* listed threatened species and communities; and
- water resources (in relation to large coal mining developments).

The delegate of the Commonwealth Minister also determined on 12 March 2015 that the proposed action is to be assessed under an assessment bilateral agreement with the NSW Government.

ES2.3 DETERMINATION

Following public exhibition of this EIS by the NSW Department of Planning and Environment, submissions from the community and government agencies will be addressed by WCPL.

The Project will then be determined by the NSW Minister for Planning (or delegate) under the *Environmental Planning and Assessment Act, 1979*.

Following completion of the NSW assessment process, the Project will then also be determined by the Commonwealth Minister for the Environment under the *Environment Protection and Biodiversity Conservation Act, 1999*.

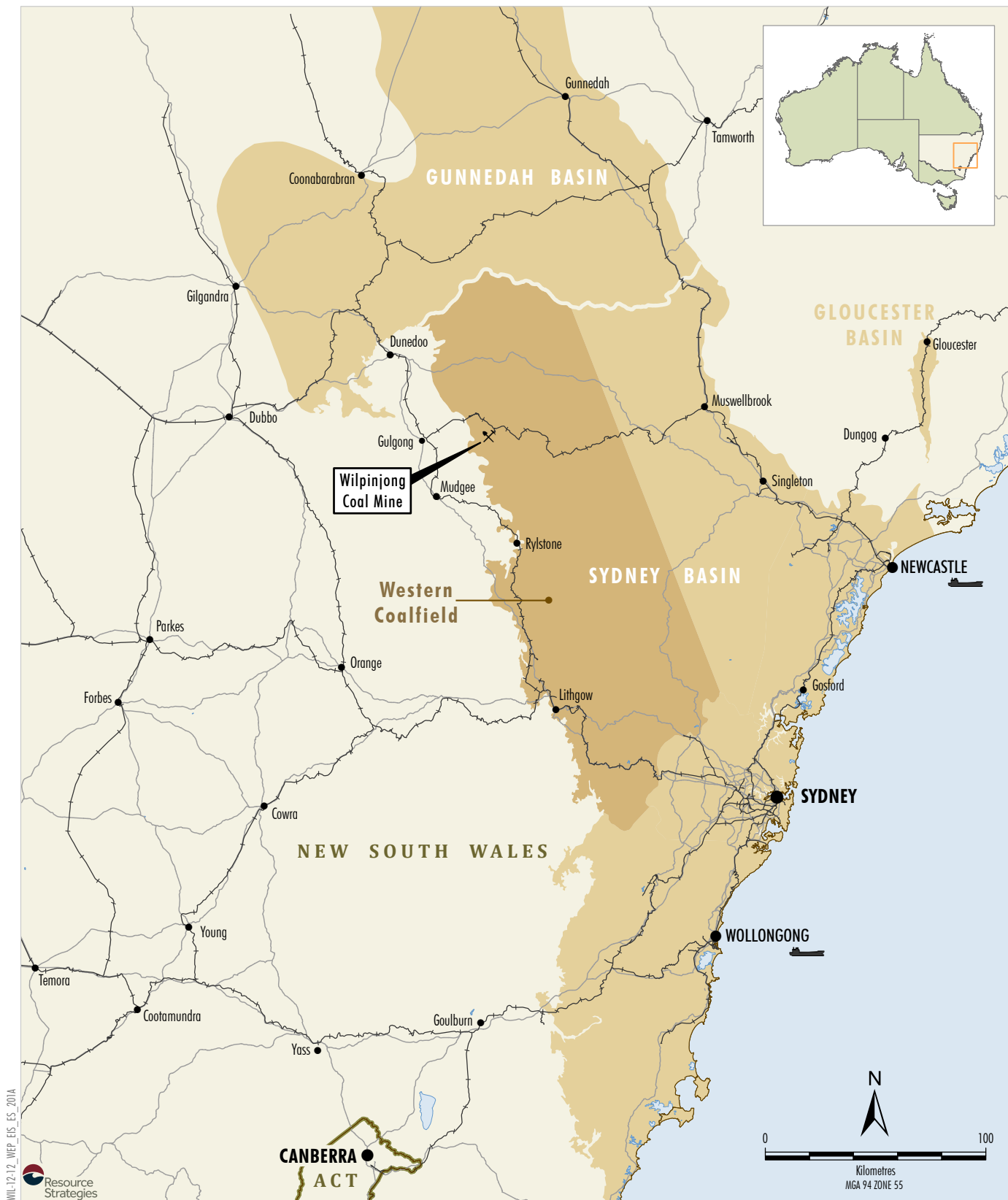
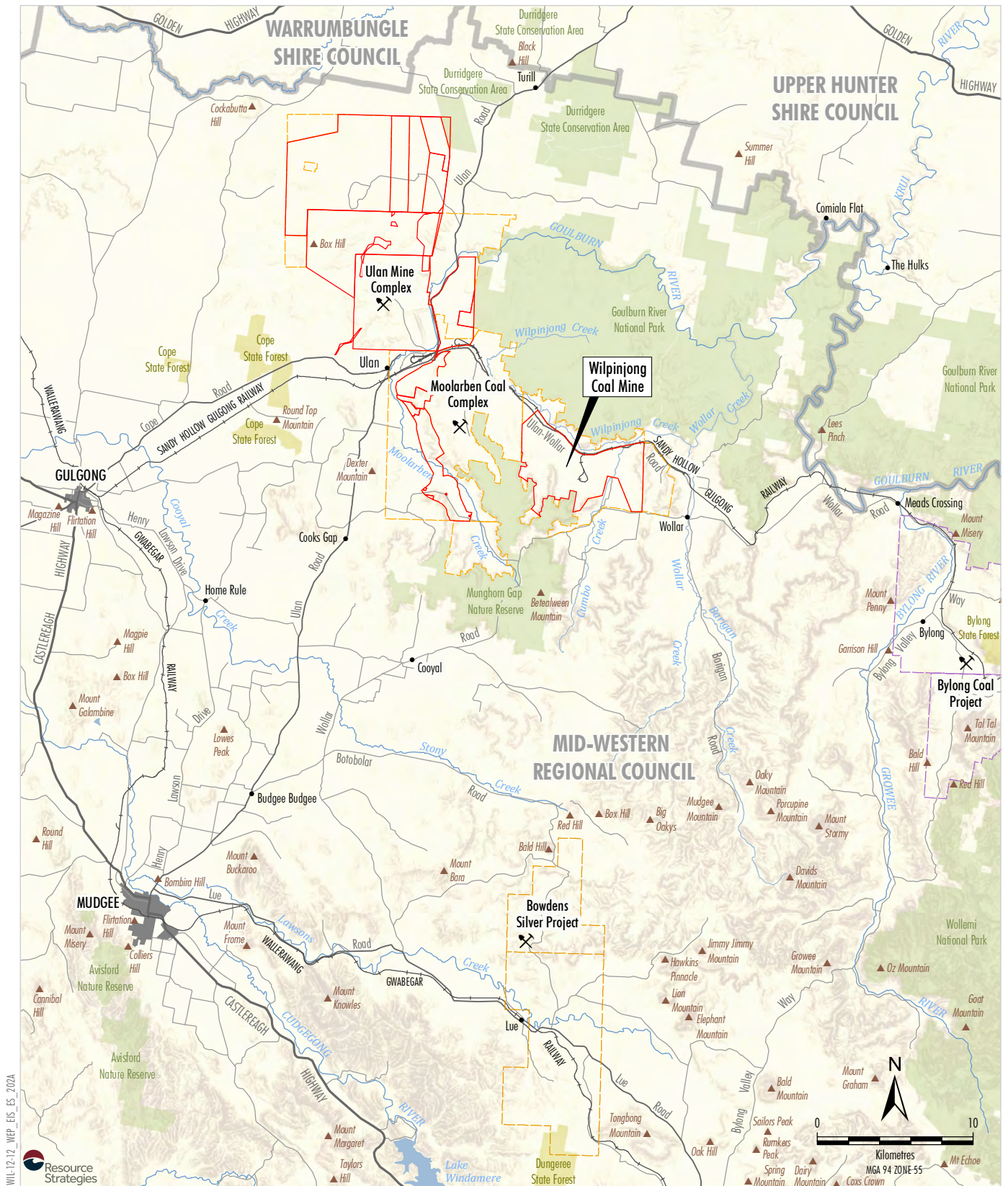


Figure ES-1



Peabody
ENERGY

WILPINJONG EXTENSION PROJECT
Project Location

Figure ES-2

ES3 THE PROJECT

ES3.1 EXISTING APPROVED WILPINJONG COAL MINE

The Wilpinjong Coal Mine has seven approved open cut mining areas, named Pit 1 through to Pit 7 (Figure ES-3).¹ Open cut coal mining at the Wilpinjong Coal Mine has been, or is currently undertaken, in Pits 1, 2, 3, 4, 5 and 7. Open cut mining in Pit 6 is yet to commence (Figure ES-3).

The Wilpinjong Coal Mine extracts run-of-mine (ROM) coal that is either processed on site at the Coal Handling and Preparation Plant (CHPP) or bypassed directly to product stockpiles.

The current mining operations at the Wilpinjong Coal Mine are approved to produce 16 million tonnes per annum (Mtpa) of ROM coal and to rail 12.5 Mtpa of product coal.

Coal products are transported by rail on the existing Sandy Hollow Gulgong Railway to domestic energy generators and to the Port of Newcastle for export.

The approximate extent of the approved open cut and contained infrastructure area at the Wilpinjong Coal Mine is shown on Figure ES-3.

Major components include open cut pits, waste rock emplacements, ROM pads/coal stockpiles, water management infrastructure, CHPP, product coal stockpiles, and rail and other associated infrastructure areas. The Wilpinjong Coal Mine operates 24 hours per day, seven days per week.

Figures ES-4a and ES-4b illustrate that very few private landholders remain in the vicinity of the Wilpinjong Coal Mine, due to the extensive holdings of Peabody Energy and other adjoining resource companies located to the west.

ES3.2 PROJECT SUMMARY

The main activities associated with the Project would include:

- open cut mining (Plate ES-1) of ROM coal from the Ulan Coal Seam and Moolarben Coal Member in Mining Lease 1573 and in new Mining Lease Application areas in Exploration Licences 6169 and 7091;



Plate ES-1: Active Open Cut

- open cut extensions (Figure ES-3), including:
 - approximately 500 hectares of incremental extensions to the existing open cut pits in areas of Mining Lease 1573 and Exploration Licence 6169; and
 - development of a new open cut pit of approximately 300 hectares in Exploration Licence 7091 (Pit 8);
- continued production of up to 16 Mtpa of ROM coal;
- extension of the approved mine life by approximately seven years (i.e. from approximately 2026 to 2033);
- a peak operational workforce of approximately 625 people;
- continued use of the approved Wilpinjong Coal Mine CHPP and general coal handling and rail loading facilities and other existing and approved supporting mine infrastructure;

¹ For the purposes of WCPL internal mine planning Pit 3 has been divided into two separate pits (Pit 3 in the north and Pit 7 in the south).

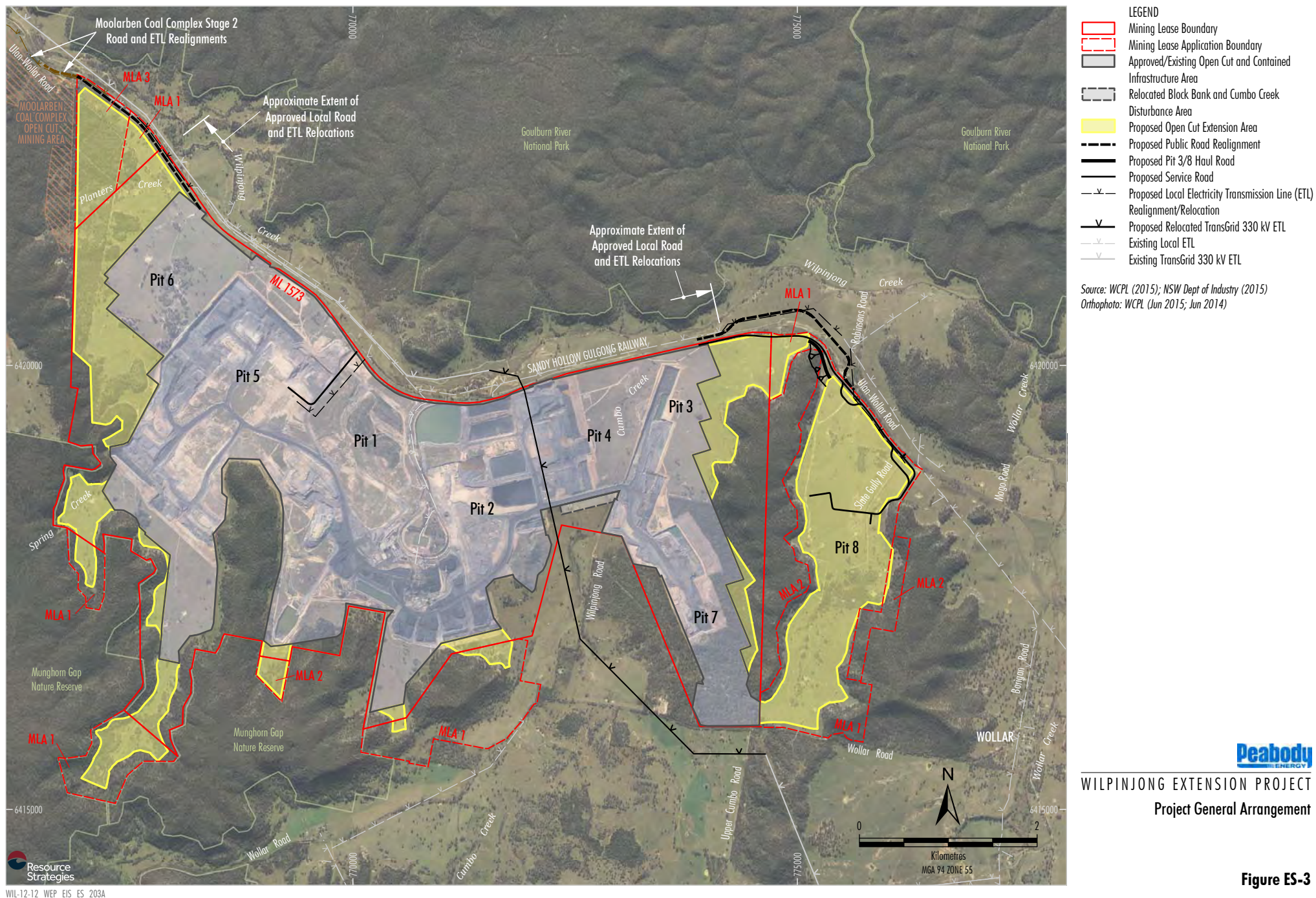
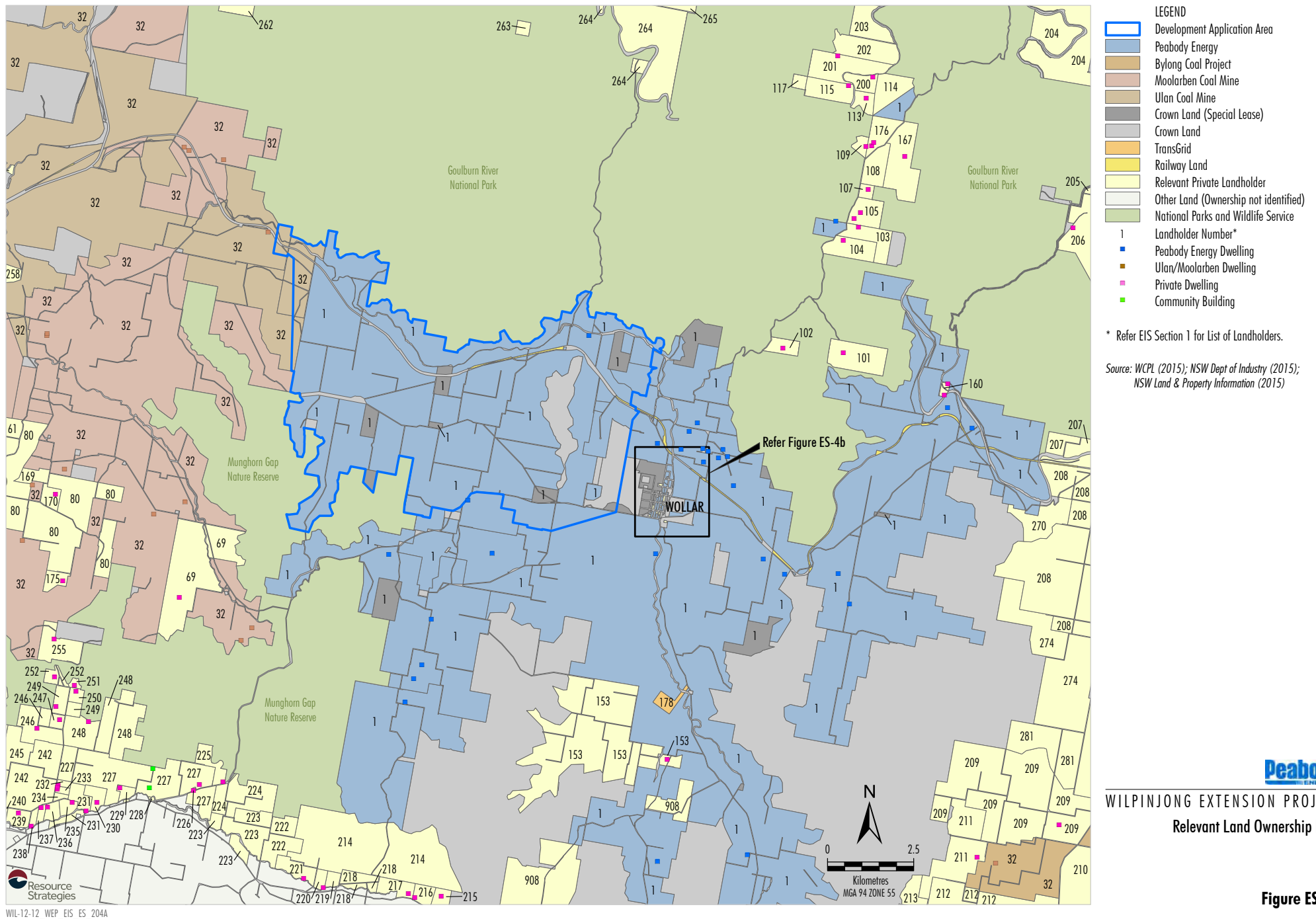


Figure ES-3





* Refer to EIS Section 1 for List of Landholders.

Source: WCPL (2015); NSW Dept of Industry (2015);
NSW Land & Property Information (2015)

Peabody
WILPINJONG EXTENSION PROJECT
Relevant Land Ownership Plan
Wollar Inset

Figure ES-4b

- rail transport of approximately 13 Mtpa of thermal product coal to domestic and export customers (within existing maximum and annual average daily rail limits);
- relocation of a section of the TransGrid Wollar to Wellington 330 kilovolt electricity transmission line to facilitate mining in Pit 8;
- various local infrastructure relocations to facilitate the mining extensions (e.g. realignment of Ulan-Wollar Road and associated rail level crossing, relocation of local electricity transmission lines and services);
- construction and operation of additional mine access roads to service new mining facilities located in Pits 5 and 8;
- construction and operation of new ancillary infrastructure in support of mining including mine infrastructure areas, ROM pads, haul roads, electricity supply, communications installations, light vehicle roads, access tracks, remote crib huts, up-catchment diversions, dams, pipelines and other water management structures;
- ongoing exploration activities; and
- other associated minor infrastructure, plant and activities.

Table ES-1 provides a summary comparison of the approved Wilpinjong Coal Mine and Project components.

ES3.3 PROJECT CONSTRUCTION ACTIVITIES

The Project would largely comprise open cut extensions that would extend the life of the Wilpinjong Coal Mine by seven years. These open cut extensions would require the relocation of some existing public and private infrastructure and the development of general facilities and infrastructure in support of mining.

The following provides a summary of the main construction activities associated with the Project:

- extension of Ulan-Wollar Road relocations and associated rail crossing;
- extension to relocations of local electricity transmission lines and services;

- relocation of the TransGrid Wollar to Wellington 330 kilovolt electricity transmission line;
- extension/construction of the Pit 3/8 haul road;
- development of satellite ROM pads; and
- development of satellite mine infrastructure areas and assembly of mobile equipment.

Construction/development activities would generally be restricted to daylight hours up to seven days a week and would be undertaken at various times over the life of the Project.

ES3.4 MINING OPERATIONS

Open cut mining activities and associated mobile equipment operations would continue to be undertaken 24 hours per day, seven days per week subject to compliance with real-time environmental management criteria.

The existing/approved mobile equipment used at the Wilpinjong Coal Mine would continue to be used, with some replacement and additional fleet items as new mining areas are developed.

Each of the open cut mining areas for the Project would continue to be mined using conventional open cut methods.

The mining areas would involve supporting infrastructure such as haul roads, bunding, hardstands, soil stockpiles and water management structures. The Project extensions have been designed to integrate with the existing Wilpinjong Coal Mine operations and minimise the amount of additional infrastructure required.

ES3.5 COAL PROCESSING AND TRANSPORT

The approved Wilpinjong Coal Mine coal processing and handling fixed infrastructure would be adequate to meet the Project processing rates. No major upgrades to the CHPP and coal handling fixed infrastructure are anticipated for the Project.

Product coal produced would continue to be stockpiled prior to being reclaimed and loaded to trains with the existing train loading infrastructure for transport on the Sandy Hollow Gulgon Railway to domestic customers or the Port of Newcastle.

Table ES-1
Summary Comparison of the Approved Wilpinjong Coal Mine and the Wilpinjong Extension Project

Project Component	Summary of Existing/Approved Wilpinjong Coal Mine	Summary of the Project
Mining Method	<ul style="list-style-type: none"> Open cut mining operation extracting ROM coal. 	<ul style="list-style-type: none"> Unchanged.
Open Cut Extent	<ul style="list-style-type: none"> Seven¹ contiguous open cut pits and associated contained infrastructure area comprising approximately 1,990 hectares. 	<ul style="list-style-type: none"> Eight open cut pits, including a new open cut pit in Slate Gully (Pit 8).
Annual ROM Coal Production	<ul style="list-style-type: none"> 16 Mtpa of ROM coal. 	<ul style="list-style-type: none"> Unchanged.
Waste Rock Management	<ul style="list-style-type: none"> Waste rock is placed predominantly within mine voids. 	<ul style="list-style-type: none"> Unchanged.
Annual Waste Rock Production	<ul style="list-style-type: none"> Annual waste rock production of approximately 34.1 million bank cubic metres. 	<ul style="list-style-type: none"> Approximately 43 million bank cubic metres.
Coal Washing and Handling	<ul style="list-style-type: none"> Beneficiation of ROM coal in the CHPP. Facilities for the handling and stockpiling of both washed and unwashed (bypass) coal. 	<ul style="list-style-type: none"> Unchanged.
Product Coal	<ul style="list-style-type: none"> Approximately 12.6 Mtpa of thermal product coal for domestic electricity generation and export. 	<ul style="list-style-type: none"> Approximately 13 Mtpa.
Coal Transport	<ul style="list-style-type: none"> An average of six and a maximum of 10 laden trains per day leaving the mine. 	<ul style="list-style-type: none"> Unchanged (WCPL intends to retain current daily train movement limits but remove the current annual limit for total product coal railed).
	<ul style="list-style-type: none"> Transport via the Sandy Hollow Gulgong Railway. 	<ul style="list-style-type: none"> Unchanged.
Coal Rejects (tailings and coarse rejects)	<ul style="list-style-type: none"> Coal rejects placed predominantly within mine voids. Tailings filter press to allow co-disposal of the tailings with coarse rejects. 	<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. Recovery of water from tailings via tailings filter press. 	<ul style="list-style-type: none"> No change to key sources of water supply.
Water Disposal	<ul style="list-style-type: none"> Mine water treated in a reverse osmosis plant/water treatment facility and discharged to Wilpinjong Creek in accordance with Environment Protection Licence 12425. 	<ul style="list-style-type: none"> No change to key aspects of water disposal.
Mine Life	<ul style="list-style-type: none"> 21 years (from the date of grant of Mining Lease 1573). 	<ul style="list-style-type: none"> 28 years (seven year extension).

¹ For the purposes of WCPL internal mine planning, Pit 3 has been divided into two separate pits (Pit 3 in the north and Pit 7 in the south) (Figure ES-3).

Table ES-1 (Continued)
Summary Comparison of the Approved Wilpinjong Coal Mine and the Wilpinjong Extension Project

Project Component	Summary of Existing/Approved Wilpinjong Coal Mine	Summary of the Project
Hours of Operation	<ul style="list-style-type: none"> Open cut mining, handling and processing of ROM coal at the CHPP and train loading at the Wilpinjong Coal Mine is currently undertaken 24 hours per day, seven days per week. 	<ul style="list-style-type: none"> Unchanged.
General Infrastructure	<ul style="list-style-type: none"> Access roads, electricity supply and distribution, rail loop, CHPP, train loading infrastructure, ROM coal stockpiles, coal handling equipment, diesel storage, administration, workshop, ablution buildings, stores, heavy vehicle workshop, and parking and washdown facilities. 	<ul style="list-style-type: none"> Continued use of existing approved infrastructure and modifications/extensions to support the Project as required. Realignment of a 330 kilovolt electricity transmission line, Ulan-Wollar Road and associated rail level crossing and local electricity transmission lines and services.
Operational Workforce	<ul style="list-style-type: none"> Approximately 550 people. 	<ul style="list-style-type: none"> Approximately 625 people at peak.

No changes to existing rail transport routes or daily rail movement limits are proposed for the Project.

ES3.6 WATER MANAGEMENT

The existing water management strategy at 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.

Water is required to operate the CHPP, for dust suppression on haul roads, washdown of mobile equipment, and for fixed dust emission control sprays. The majority of the Wilpinjong Coal Mine water supply requirements to date have been met by dewatering of the open cut mining areas.

The water balance of the system fluctuates with climatic conditions and the changing extent of the mining operations over time.

In accordance with Environment Protection Licence 12425, the Wilpinjong Coal Mine is permitted to discharge up to 5 megalitres per day of excess mine water to Wilpinjong Creek, providing the discharge meets certain requirements.

The objectives of the Project water management system would be generally consistent with the existing water management system at the Wilpinjong Coal Mine, specifically:

- to protect the integrity of local and regional water sources;
- to operate such that there are no contained water storage overflows;
- to maintain separation between runoff from areas undisturbed by mining and water generated within active mining areas; and
- to provide a reliable source of water to meet Project requirements (e.g. dust suppression).

To meet these objectives, the Project water management system would generally be based on the existing water management system with augmentations (e.g. additional up-catchment diversion structures, sediment dams and contained water storages) undertaken progressively over the life of the Project. Discharges in accordance with the Wilpinjong Coal Mine Environment Protection Licence would also continue for the Project.

ES3.7 WORKFORCE

The Wilpinjong Coal Mine has an approved operational workforce of approximately 550 people.

At full development, the proposed Project operational workforce would be in the order of 625 on-site personnel. This would occur in the period between Year 2² and Year 8 and would comprise a combination of direct WCPL employees and on-site contractor's personnel.

Construction and development activities (e.g. mine infrastructure extensions and public road realignments) would require up to approximately 100 personnel in the first 12 months of the Project.

Construction activities would be undertaken at various times over the life of the Project, with smaller peaks of up to 40 personnel anticipated in Year 2 and Year 8.

ES3.8 PROJECT BENEFITS

The Project provides for the continuation and extension of open cut coal mining and processing activities at the Wilpinjong Coal Mine to 2033, including continuation of employment for members of the existing Wilpinjong Coal Mine workforce and expansion of this workforce.

The continued development of coal resources in close proximity to WCPL's existing CHPP and other supporting facilities maximises the use of existing infrastructure and associated returns on existing financial investments.

Cost benefit analysis by Deloitte Access Economics indicates a net benefit of approximately \$735 million (in net present value terms) would be foregone if the Project is not implemented.

Further, Project coal production would contribute to NSW export income, State royalties and State and Commonwealth tax revenue, as well as contributing to electricity supply in Australia and in other countries that purchase Project coal.

In net present value terms, Deloitte Access Economics estimates that the Project would increase gross product in the NSW economy by some \$2.2 billion over the 17 year Project life.

ES4 CONSULTATION

Consultation conducted during the preparation of this EIS has provided the opportunity to explain the Project and identify issues of concern or interest to stakeholders.

ES4.1 COMMUNITY CONSULTATION

Peabody Energy's corporate stewardship approach with respect to community relations is as follows:

The communities in which Peabody operates are critical to the successful management of our mines and the welfare of our employees across Australia. We take a proactive approach to communicating with community groups and we support their efforts to improve local facilities and services.

...

Since 2012 and throughout the development of this EIS, WCPL consulted with the local community through monthly 'Have A Chat' sessions held at the Wollar general store. Local residents have been and are encouraged to use the sessions to voice any questions or concerns they have in relation to the existing Wilpinjong Coal Mine or the Project.

During the preparation of this EIS, Project-specific newsletters were distributed by WCPL in December 2014, May 2015 and September 2015 to inform the local community about the Project, and to provide updates on the progress of the EIS and specialist studies.

In addition, WCPL has continued to liaise with the local community through the established Wilpinjong Coal Mine Community Consultative Committee.

A community information session for the Project was held in September 2015 at the Wollar general store. Six community members attended the information session.

Community Survey

In February and March 2015 a community survey was conducted as part of the Project Social Impact Assessment.

The local and wider regional community was encouraged to participate through the distribution of approximately 100 reply-paid surveys to local residents, and the advertising of an online survey in the Mudgee Guardian with an accompanying editorial article.

² Assumed Project open cut extension Year 1 is 2017.

Aboriginal Community

Aboriginal community consultation was undertaken in accordance with the NSW Office of Environment and Heritage's *Aboriginal cultural heritage consultation requirements for proponents 2010* and the *Draft Guidelines for Aboriginal Cultural Heritage Impact Assessment and Community Consultation*.

All stakeholders who registered were invited to participate in the Aboriginal Cultural Heritage Assessment for the Project.

Staff and Contractors

An employee survey was conducted as part of the Project Social Impact Assessment, with 325 employee responses obtained.

Community Groups

WCPL has consulted with a range of community groups in regard to the Project, including, but not limited to:

- the Mudgee Historical Society;
- the Anglican Church (Bathurst Diocese);
- the Catholic Church (Bathurst Diocese);
- the NSW Rural Fire Service; and
- the Mudgee and Gulgong Chambers of Commerce.

ES4.2 GOVERNMENT AND INFRASTRUCTURE OWNERS

Peabody Energy consults with relevant NSW State Government agencies on a regular basis in relation to the current operation of the Wilpinjong Coal Mine.

Consultation with key NSW State Government agencies in relation to the Project commenced in 2012.

During the preparation of this EIS, a wide range of meetings and briefings were held with Commonwealth, State and local government agencies to ascertain and discuss issues of potential relevance to the Project.

WCPL also consulted with owners of infrastructure located proximal to the Wilpinjong Coal Mine (e.g. Essential Energy) and the owners of other local mining developments (e.g. Moolarben Coal).

ES5 ENVIRONMENTAL ASSESSMENT

ES5.1 ENVIRONMENTAL MANAGEMENT AND MONITORING

Wilpinjong Coal Mine has an Environmental Management Strategy in place that has been developed to minimise environmental impacts and provides the strategic context for environmental management of the site.

Existing management plans, monitoring programmes and control strategies include:

- a Noise Management Plan;
- a Blast Management Plan (including a Blast Fume Management Strategy);
- an Air Quality Management Plan;
- a Water Management Plan (including a Site Water Balance, an Erosion and Sediment Control Plan, a Surface Water Management and Monitoring Plan, a Groundwater Monitoring Program and a Surface and Groundwater Response Plan);
- a Biodiversity Management Plan;
- an Aboriginal Cultural Heritage Management Plan;
- a Waste Management Plan (including a Life of Mine Tailings Strategy);
- a Mining Operations Plan (incorporating a Rehabilitation Management Plan);
- a Spontaneous Combustion Management Plan;
- a Pollution Incident Response Management Plan;
- a Bushfire Management Plan; and
- an Environmental Monitoring Program.

WCPL would continue to implement the existing strategies, plans and programmes. Where necessary, WCPL would review and revise these for the Project in consultation with the relevant regulatory authorities.

ES5.2 OPERATIONAL NOISE

A Noise and Blasting Assessment for the Project was undertaken by SLR Consulting in accordance with the NSW *Industrial Noise Policy*.

Consideration was also given to the NSW Government *Voluntary Land Acquisition and Mitigation Policy For State Significant Mining, Petroleum and Extractive Industry Developments* (Voluntary Land Acquisition and Mitigation Policy).

Background

To date, the obligation to meet the noise criteria specified in the Wilpinjong Coal Mine Project Approval for privately-owned receivers has been achieved by WCPL through a combination of:

- Property acquisition, which has reduced the number of privately-owned receivers that could potentially be affected by noise impacts from the mine.
- For the remaining privately-owned receivers, the implementation of the Wilpinjong Coal Mine noise management strategy as per the Noise Management Plan, which includes the use of real-time noise monitoring to manage noise levels.

The Wilpinjong Coal Mine Noise Management Plan describes general noise management and mitigation measures including:

- the training of contractors and staff on environmental noise control and awareness;
- the communication of noise levels for the previous 24 hours to key WCPL personnel at operational and management meetings;
- periodic noise emission test work on mobile mining equipment;
- consideration of sound power levels in equipment selection and maintaining equipment in good order;
- management of complaints received;
- real-time monitoring and an associated protocol for real-time management of noise emissions;
- monitoring for adverse meteorological conditions and adjusting mining operations where necessary;

- predictive meteorological forecasting to guide day to day planning of mining operations; and
- attended monitoring to verify ongoing compliance with noise criteria.

The continuous real-time monitors (Plate ES-2) utilised in the Wilpinjong Coal Mine noise monitoring programme provide real-time access to noise data and the capacity to set a real-time target noise level.



Plate ES-2: Wilpinjong Coal Mine Real-time Noise Monitor

Upon noise emissions reaching the identified target level, an automated SMS and email message is sent to the Control Room Operator and relevant WCPL management, who then implement the response protocol described in the Noise Management Plan as required.

The Wilpinjong Coal Mine real-time noise management system is consistent with best practice in the mining industry.

Potential Impacts

An acoustic model was developed by SLR Consulting to simulate the Project components and predict noise levels at relevant receiver locations.

The development of Pit 8 would reduce the distance from the mine to private landholders located east of the Wilpinjong Coal Mine.

A particular focus of the selection of the five noise modelling scenarios was therefore to evaluate potential operational noise impacts from operations at different stages of development of Pit 8.

SLR Consulting and WCPL conducted an investigation of potential reasonable and feasible noise mitigation measures for the Project, particularly in relation to evening and night-time operations.

With the implementation of reasonable and feasible noise management measures, residual noise levels of 36 dBA or 37 dBA were predicted at seven privately-owned receivers. These levels are only 1 dBA to 2 dBA above the applicable evening and night-time Project-specific noise level of 35 dBA.

A potential exceedance of the Project-specific noise level of this magnitude is characterised as negligible in the Voluntary Land Acquisition and Mitigation Policy. The Voluntary Land Acquisition and Mitigation Policy indicates this level of potential exceedance cannot be discerned by the average listener.

At one isolated rural receiver, a maximum intrusive noise level of 38 dBA was predicted. A residual exceedance of the Project-specific noise level of this magnitude is marginal to moderate based on the characterisation of residual noise impacts described in the Voluntary Land Acquisition and Mitigation Policy.

WCPL considers the proposed EIS noise management strategy (inclusive of the exceedances at a number of privately-owned receivers described above) to be the optimal outcome for Project noise management, as it provides a balance between the competing factors of capital and operating noise management costs incurred by WCPL and environmental benefits to nearby private landholders (i.e. noise reductions).

Mitigation Measures, Management and Monitoring

WCPL would continue to validate the noise model predictions with attended and unattended noise monitoring as mining progresses south in Pit 8 before selecting the most cost-effective mitigation strategy to achieve the outcome of compliance with consent conditions.

An adaptive management approach to Project noise emissions would continue to be implemented and would include real-time noise monitoring and management in accordance with the Noise Management Plan.

Plate ES-3 shows the control room where real-time noise monitoring and associated operational shutdowns are managed.

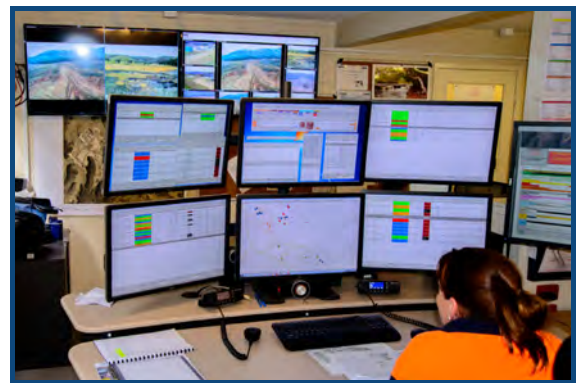


Plate ES-3: Wilpinjong Coal Mine Operational Control Room

Peabody Energy would also continue to pursue opportunities for further property acquisitions or compensatory outcomes for the nearest privately-owned receivers where noise levels above the Project-specific noise level are predicted.

ES5.3 AIR QUALITY

An Air Quality and Greenhouse Gas Assessment for the Project was undertaken by Todoroski Air Sciences in accordance with the NSW Environment Protection Authority's *Approved Methods for the Modelling and Assessment of Air Pollutants in NSW*.

Consideration was also given to the Voluntary Land Acquisition and Mitigation Policy.

Background

Current ambient air quality monitoring at the Wilpinjong Coal Mine shows that existing operations have a minimal impact on local air quality.

Air quality management at the Wilpinjong Coal Mine is currently undertaken in accordance with the Air Quality Management Plan which outlines:

- air quality mitigation measures and controls (including real-time monitoring and controls);
- the air quality monitoring and reporting regimes; and
- procedures for the management of exceedances and complaints.

Potential Impacts

Five operational air quality scenarios based on the indicative progressive development of the Project were selected to evaluate the potential impacts at the nearest private receivers over the life of the Project.

A particular focus of the selection of the scenarios was to evaluate potential air quality impacts from operations at different stages of the development of Pit 8.

For the Project-only scenarios evaluated, all privately-owned receivers were predicted to comply with the NSW Environment Protection Authority's criteria for:

- concentrations of particulate matter with an equivalent aerodynamic diameter of 10 micrometres or less (PM₁₀) (24-hour and annual average);
- concentrations of total suspended particulate matter (annual average); and
- dust deposition (annual average).

All privately-owned receivers were also predicted to comply with the Ambient Air National Environment Protection Measure reporting standards for concentrations of particulate matter with an equivalent aerodynamic diameter of 2.5 micrometres or less (24-hour and annual average) for the Project-only scenarios evaluated.

Potential cumulative 24-hour PM₁₀ impacts were also considered. The assessment indicated only low potential for any cumulative 24-hour average PM₁₀ impacts (i.e. up to two additional days per annum above the 24-hour average criterion at a small number of the nearest privately-owned receivers) as a result of the Project.

Additional analysis was then undertaken that indicated that by temporarily pausing Project activities in Pit 8 during adverse weather conditions, the predicted potential incremental exceedances would be averted.

Mitigation Measures, Management and Monitoring

Air quality management measures in place at the Wilpinjong Coal Mine in accordance with the Air Quality Management Plan would continue to be implemented for the Project.

The existing real-time monitoring and management system (Plate ES-4) would continue to enable WCPL to proactively and reactively manage the potential short-term particulate matter emissions from the Project, to minimise potential impacts at privately-owned receivers.



Plate ES-4: Wilpinjong Coal Mine Air Quality Monitor

ES5.4 BLASTING

A Noise and Blasting Assessment for the Project was undertaken by SLR Consulting. The blasting assessment was conducted in accordance with the Australian and New Zealand Environment Council's *Technical Basis for Guidelines to Minimise Annoyance due to Blasting Overpressure and Ground Vibration*.

Background

Between 2012 and August 2015, no airblast or vibration results exceeding the blast criteria were recorded at privately-owned receivers.

Blast management at the Wilpinjong Coal Mine is undertaken in accordance with the Blast Management Plan.

Blast management measures used at the Wilpinjong Coal Mine include:

- public notification of upcoming blasts;
- co-ordinating the time of blasts with the timing of blasts at the Moolarben Coal Complex and Ulan Mine Complex to minimise the potential for cumulative blasting impacts;
- enforcing a minimum exclusion zone of 500 metres;
- conducting pre-blast inspections;
- training relevant personnel in environmental obligations and safe handling of explosives;
- designing blasts to ensure that vibration and airblast limits are compliant, including consideration of meteorological conditions and management of blast maximum instantaneous charge;
- flyrock management;
- use of adequate stemming, a delay detonation system and careful drilling and hole loading;
- monitoring of blasts at a location representative of the closest privately-owned receivers;
- ongoing review of site based prediction equations; and
- visual monitoring of all blasts.

In addition, Ulan-Wollar Road and the Sandy Hollow Gulgong Railway are temporarily closed when blasting is carried out within a certain distance (e.g. 500 metres), in accordance with the Blast Management Plan.

The Blast Management Plan also includes a Blast Fume Management Strategy to minimise the occurrence of blast fumes associated with blasting at the Wilpinjong Coal Mine.

Potential Impacts

The Noise and Blasting Assessment included an assessment of the potential impacts of on-site blasting and indicates that no exceedances of relevant airblast or vibration criteria would occur at any privately-owned receivers, community facilities or historical heritage sites in the Village of Wollar.

Mitigation Measures, Management and Monitoring

Blast management measures for the Wilpinjong Coal Mine, including the Blast Fume Management Strategy would continue to be implemented for the Project.

WCPL would continue to vary the maximum instantaneous charge (or other relevant blasting parameters) of blasts over the life of the Project according to the location of the blast and the proximity of nearby sensitive receivers, to minimise blasting effects at nearby private receivers and relevant proximal infrastructure.

Temporary closures of Ulan-Wollar Road and the Sandy Hollow Gulgong Railway would continue to be conducted when blasting is carried out in proximity to them (e.g. within 500 metres), in accordance with the Blast Management Plan.

ES5.5 SPONTANEOUS COMBUSTION

Background

The temporary Keylah waste rock emplacement at the Wilpinjong Coal Mine has been a key source of spontaneous combustion events.

These combustion events have at times resulted in perceptible odour and/or associated environmental complaints from nearby private receivers and/or users of Ulan-Wollar Road. To address this issue, staged removal of the Keylah emplacement commenced in October 2014 and is scheduled for completion in mid 2016 in consultation with relevant government agencies and the local community.

The Wilpinjong Coal Mine Spontaneous Combustion Management Plan has been developed to prevent spontaneous combustion outbreaks. Measures for preventing outbreaks include mine planning, spontaneous combustion propensity testing, risk identification and assessment, and identification of potential hot spots.

Mine planning considerations include:

- placement and capping of carbonaceous material to minimise the potential for spontaneous combustion outbreaks;
- placing higher-risk materials as low as practical in the backfilled mine voids and elevated waste rock emplacement profiles;
- sealing exposed seams of non-active highwall faces with inert material (where exposed for an extended period); and
- stockpile management.

Risk identification and assessment involves identifying and closely monitoring coal stockpiles that have a higher propensity to spontaneously combust.

In addition, selected ROM coal types (that are showing signs of heating or have been stockpiled on-site for an extended period) are prioritised for washing in the CHPP.

Potential Impacts

The material to be excavated in ROM operations at the Project is expected to have similar propensity for spontaneous combustion as the material currently being handled and managed on-site.

There would, therefore, continue to be some potential for spontaneous combustion events to occur in coal or other carbonaceous materials over the life of the Project.

Management, Mitigation and Monitoring

The mitigation measures, management and monitoring currently implemented at the Wilpinjong Coal Mine to minimise the risk of spontaneous combustion events would continue to be implemented for the Project, in accordance with the Spontaneous Combustion Management Plan.

Spontaneous combustion propensity testing would be undertaken in Pit 8 to inform the management of materials to suitably reduce the risk of future spontaneous combustion events.

ES5.6 BIODIVERSITY

A terrestrial ecology assessment (i.e. the Biodiversity Assessment Report and Biodiversity Offset Strategy) was prepared for the Project by Dr Colin Driscoll (Hunter Eco). A separate aquatic ecology assessment was prepared by Bio-Analysis. The biodiversity assessments generally applied the recently released *Biodiversity Offset Policy for Major Projects* (the NSW Offset Policy) (and supporting *Framework for Biodiversity Assessment*).

The NSW Offset Policy commenced in October 2014 and has a 12 to 18 month transitional period.

Background

Hunter Eco surveyed the vegetation within the Project open cut extension and infrastructure areas and surrounds.

The Project open cut extension and infrastructure areas are mostly (65%) cleared land although 354 hectares of native vegetation is present which comprises dry sclerophyll forests and grassy woodlands in moderate to good condition. Some forest/woodland areas were previously cleared for past agricultural land use and now contain regeneration.

A total of 12 native vegetation communities were identified in the Project open cut extension and infrastructure areas. Of these, three are listed threatened ecological communities.

Riparian and instream habitats in the vicinity of the Wilpinjong Coal Mine and the Project have been substantially altered by agricultural land use practices.

One threatened flora species occurs within the Project open cut extension and infrastructure areas, being *Ozothamnus tessellatus*.

A total of 20 threatened fauna species have been recorded within the Project open cut extension and infrastructure areas during current and previous surveys, comprising 13 birds and seven bats.

No threatened aquatic flora species are likely to occur in the Project open cut extension and infrastructure areas or downstream creeks and no threatened aquatic fauna species were recorded in the vicinity of the Project.

A range of existing measures to avoid and minimise impacts on biodiversity are implemented at the Wilpinjong Coal Mine, including an existing Biodiversity Strategy. A Biodiversity Management Plan has been prepared for the Wilpinjong Coal Mine that provides a description of measures that will be implemented in the existing offset areas, such as grazing and stock management, habitat augmentation, revegetation, weed management, vertebrate pest management and bushfire management.

Potential Impacts

The Project would require clearance of approximately 354 hectares of native vegetation in the Project open cut extension and infrastructure areas. This would include the clearance of 9.5 hectares of Box-Gum Woodland listed as a threatened ecological community.

The *Framework for Biodiversity Assessment* requires the use of an online program (the *Credit Calculator for Major Projects and BioBanking*) to assess biodiversity impacts and determine the biodiversity offset requirements for those impacts.

The result of running the Credit Calculator is that the Project requires a Biodiversity Offset Strategy which accounts for a total of 15,314 ecosystem credits and species credits for *Ozothamnus tessellatus*, Regent Honeyeater (*Anthochaera phrygia*) and Koala (*Phascolarctos cinereus*).

Assessments of significance under section 5A of the *Environmental Planning and Assessment Act, 1979* were undertaken for one threatened ecological community, one threatened flora species and a total of 32 threatened fauna species. Hunter Eco concluded the Project would not significantly impact any of these threatened species or communities.

In addition, the significance of potential residual impacts on protected matters under the *Environment Protection and Biodiversity Conservation Act, 1999* have been evaluated and it is concluded that none of the protected matters would be significantly impacted.

Avoidance, Management, Mitigation and Monitoring

A number of measures to avoid and minimise impacts on biodiversity are currently implemented at the Wilpinjong Coal Mine and these would be continued for the Project (e.g. vegetation clearance protocols and weed management).

To avoid and minimise impacts on *Ozothamnus tessellatus*, clearance areas would be clearly delineated and temporary fencing would be installed during vegetation clearance near the known occurrences of this species to minimise the potential for accidental disturbance.

A number of other biodiversity management measures have also been identified for the Project and are described in this EIS.

Biodiversity Offset Strategy

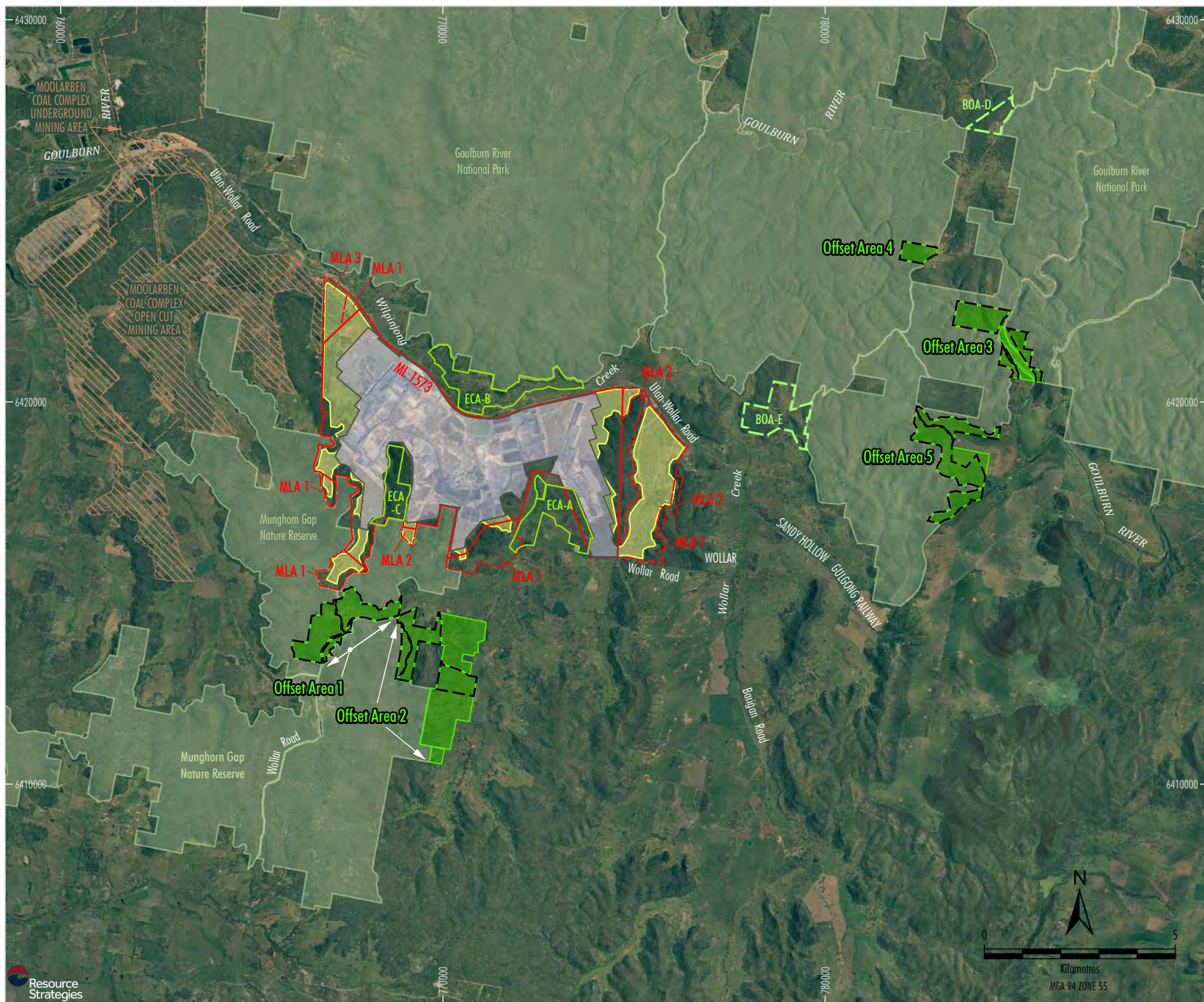
A Project Biodiversity Offset Strategy has been developed to address the potential residual impacts on biodiversity values associated with the proposal, such that biodiversity values of the region are maintained and improved in the medium to long-term.

This Biodiversity Offset Strategy addresses both Commonwealth and NSW biodiversity offset requirements.

The NSW offset requirements would be addressed by offsetting through land based offset areas and rehabilitation of the additional disturbance associated with the Project, consistent with the NSW Offset Policy.

The *Biobanking Assessment Methodology 2014* and Credit Calculator were used to assess the biodiversity values of five land-based offset areas (Offset Areas 1 to 5). Figure ES-5 shows the location of the offset areas relative to the Project.

The offset areas are strategically located next to Goulburn River National Park and Munghorn Gap Nature Reserve, with the potential to increase the extent of these existing protected areas. The offset areas are 1,100 hectares in size, comprising approximately 996 hectares of native vegetation.



- LEGEND**
- Mining Lease Boundary
 - Mining Lease Application Boundary
 - Approved/Existing Open Cut and Contained Infrastructure Area
 - Proposed Open Cut Extension Area
 - Enhancement and Conservation Area
 - Existing Biodiversity Offset Area
 - Proposed Biodiversity Offset Area
 - Commonwealth Offset Area
 - National Park/Nature Reserve

Source: WCPL (2015); NSW Dept of Industry (2015)
 Orthophoto: WCPL (Jun 2015, 2011)

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WILPINJONG EXTENSION PROJECT

Existing and Proposed
 Biodiversity Offset Areas

Figure ES-5

Plate ES-5 shows an example of a native vegetation community in Offset Area 2.



Plate ES-5: Yellow Box Woodland in Offset Area 2

Ozothamnus tessellatus occurs in the area to be cleared for the Project and was also recorded in Offset Area 5. Offset Area 5 also contains two other threatened species not recorded in the Project open cut extension and infrastructure areas. Some 24 threatened fauna species have also been identified within Offset Areas 1 to 5.

Some limitations with the new the NSW Offset Policy were identified by Hunter Eco as there are a number of positive values associated with the Project Biodiversity Offset Strategy that are not recognised or considered under the *Framework for Biodiversity Assessment*. Notwithstanding these limitations, the offset areas and rehabilitation satisfy ecosystem credit requirements for the Project (inclusive of offset requirements for threatened ecological communities).

All species credit requirements would also be met by the proposed Project Biodiversity Offset Strategy except the credit requirements for the Regent Honeyeater.

Hunter Eco concluded that, with the implementation of the proposed Biodiversity Offset Strategy, the Project would improve the biodiversity values of the region in the medium to long-term.

A Commonwealth offset package comprising land-based offset areas which are a subset of the NSW Offset Areas 1 to 5 was also defined. The Commonwealth offset package is consistent with the principles of the *Environment Protection and Biodiversity Conservation Act Environmental Offsets Policy*. The *Environment Protection and Biodiversity Conservation Act Offsets Assessment Guide* was used to confirm the Offset Areas met the applicable requirements for the relevant threatened species and community, including the Regent Honeyeater.

Notwithstanding the conclusions above, the offset areas do not generate enough credits for the Regent Honeyeater according to the *Framework for Biodiversity Assessment*. However, the Project species credit requirement for this species is very large (due to the current calculator factors) considering the area of potential habitat to be disturbed by the Project.

ES5.7 WATER RESOURCES

A Surface Water Assessment for the Project was undertaken by WRM Water & Environment.

A Groundwater Assessment for the Project was undertaken by HydroSimulations.

Background

The Wilpinjong Coal Mine Water Management Plan describes the operational site water management system and includes provisions for review of the site water balance, erosion and sediment controls, surface water and groundwater monitoring and management.

The Wilpinjong Coal Mine is located within the Wollar Creek Water Source under the *Water Sharing Plan for the Hunter Unregulated and Alluvial Sources, 2009*.

The Wilpinjong Coal Mine is located directly south of Wilpinjong Creek, a headwater tributary of Wollar Creek which joins the Goulburn River approximately 8 kilometres to the north-east.

A number of local watercourses are tributaries of Wilpinjong Creek including Cumbo Creek, Planters Creek, Spring Creek and Bens Creek.

Wilpinjong Creek is incised into the valley floor and forms a series of semi-permanent soaks fed primarily from drainage from the surrounding alluvial plain and colluvium which is recharged by runoff.

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

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

None of the identified groundwater systems are significant aquifers.

NSW Department of Primary Industries Water, within the NSW Department of Industry, Skills and Regional Development, has identified a portion of the alluvial aquifer associated with Wilpinjong Creek and lower Wollar Creek as 'highly productive'. It is noted that in the vicinity of the Project this 'highly productive' aquifer is largely confined to Peabody Energy-owned land.

The number of privately-owned bores in the vicinity of the Project is low due to the limited private ownership and variable groundwater yields and quality (particularly in the alluvium).

Bores on private or public land in the vicinity of the Project include:

- one bore at Wollar Public School that is used for watering recreational areas and gardens; and
- one privately-owned bore to the south-west of the Wilpinjong Coal Mine for stock and domestic use.

There are no privately-owned lands and no private surface water users on Wilpinjong or Wollar Creeks downstream of the Wilpinjong Coal Mine.

Potential Impacts

The potential effects of the Project on surface water and groundwater systems are generally consistent with the potential effects of the existing/approved Wilpinjong Coal Mine.

Groundwater modelling completed for the Project concludes:

- negligible impact on access to water in known registered production bores licensed to external parties;
- no privately-owned bores are predicted to experience greater than 2 metre drawdown related to the activities of the Project; and
- there is one state-owned registered bore, located at the Wollar Public School, predicted to experience greater than 2 metre drawdown related to the activities of the Project.

During mining, flow reductions in Wilpinjong Creek are counteracted to varying extents by the approved water discharges from the water treatment facility in accordance with Environment Protection Licence 12425. The Project would have no measurable incremental impact on flow in Wilpinjong Creek post-mining.

Management, Mitigation and Monitoring

WCPL currently hold licences sufficient to cover the modelled groundwater inflows from the alluvial and porous rock groundwater sources.

Consistent with the requirements of the NSW *Aquifer Interference Policy*, WCPL would continue to implement appropriate contingency measures for Project related drawdown greater than 2 metres at a groundwater bore located on private or Crown land.

Appropriate contingency measures for an impact on a groundwater supply user are described in the Surface and Groundwater Response Plan and may include:

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

The existing Water Management Plan would be reviewed and revised to incorporate the Project. This plan describes the operational site water management system and would include provisions for review of the site water balance, erosion and sediment controls, surface water and groundwater monitoring and management.

ES5.8 HERITAGE

An Aboriginal Cultural Heritage Assessment was undertaken for the Project in accordance with relevant guidelines by South East Archaeology.

A Historical Heritage Assessment for the Project was undertaken by Niche Environment and Heritage.

Background

A total of 293 tangible Aboriginal heritage sites are located within the Project open cut extension and infrastructure areas and surrounds, including 137 newly recorded sites identified during the Project surveys. In addition, members of the Registered Aboriginal Parties identified three key cultural areas/values.

No registered historical sites of state significance are listed within, or adjacent to, the Project open cut extension and infrastructure areas.

Four sites of local historical heritage significance were documented as having some potential to be impacted by the Project.

Potential Impacts

The key direct impact on cultural and archaeological values would be to the rocky hill in Pit 8 (one of the cultural areas/values), which hosts a rock shelter with artefacts and art, a rock shelter with artefacts and ochre quarry, a rock shelter with potential archaeological deposit, a waterhole/well and an artefact scatter.

A Historical Shale Oil Mine Complex is located in the vicinity of Pit 8 and comprises multiple components including the possible location of the historical Caretaker's Cottage.

A Road Embankment historical site would also potentially experience impacts associated with the relocation of the TransGrid Wollar to Wellington 330 kilovolt electricity transmission line.

Management and Mitigation

Project ancillary development would be subject to final design, and where practicable, would be located to avoid historical heritage items and specific Aboriginal sites.

The existing Aboriginal Cultural Heritage Management Plan would be revised in consultation with the Aboriginal community to reflect the Project.

In relation to Aboriginal heritage sites, a number of mitigation measures and strategies have been developed in consultation with the Registered Aboriginal Parties, including:

- avoidance where practicable;
- surface collection of artefacts from open artefact sites;
- subsurface investigations within a sample of areas of moderate to high heritage potential;
- salvage excavation and detailed recording of two sites; and
- additional surveys for potential direct disturbance areas that have not yet been subject to systematic survey sampling.

A Heritage Management Plan would also be developed for the Project and would include specific management measures for historical heritage sites, including:

- archival recording of the features of the Historical Shale Oil Mine Complex;
- test excavation at the possible location of the Caretaker's Cottage; and
- consideration of avoidance of the Road Embankment.

ES5.9 CONSIDERATION OF STRATEGIC AGRICULTURAL LAND

The *State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries)*, 2007 includes mapping of lands identified as Biophysical Strategic Agricultural Land.

The closest regionally mapped Biophysical Strategic Agricultural Land in the *State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries)*, 2007 is located approximately 18 kilometres south-east of the Project.

WCPL lodged an application for a Site Verification Certificate for the Project with the NSW Department of Planning and Environment in August 2014.

A Site Verification Certificate was subsequently issued by the Secretary of the NSW Department of Planning and Environment on 17 October 2014, certifying that the land within the application area is not Biophysical Strategic Agricultural Land.

Adjoining Peabody Energy-owned lands and the five Project biodiversity offset areas also do not comprise Biophysical Strategic Agricultural Land, based on the available mapping information.

ES5.10 OTHER ENVIRONMENTAL SPECIALIST STUDIES

A range of other environmental specialist studies have been undertaken for the Project. These include:

- Land and Soil Assessment;
- Road Transport Assessment;
- Geochemistry Assessment;
- Land Contamination Assessment;
- Economic Assessment;
- Social Impact Assessment; and
- Visual Assessment.

These assessments and their key findings are presented in this EIS.

ES6 REHABILITATION AND MINE CLOSURE

The disturbance areas associated with the Project would be progressively rehabilitated with species characteristic of native woodland and mixed woodland/pasture (Plate ES-6). Figure ES-6 illustrates the proposed Project final land use and revegetation of the Wilpinjong Coal Mine.

Rehabilitation would be subject to regular review, including annual surveys by an appropriately qualified and experienced person to review progress and identify any additional measures required to assist progression towards the achievement of rehabilitation criteria.

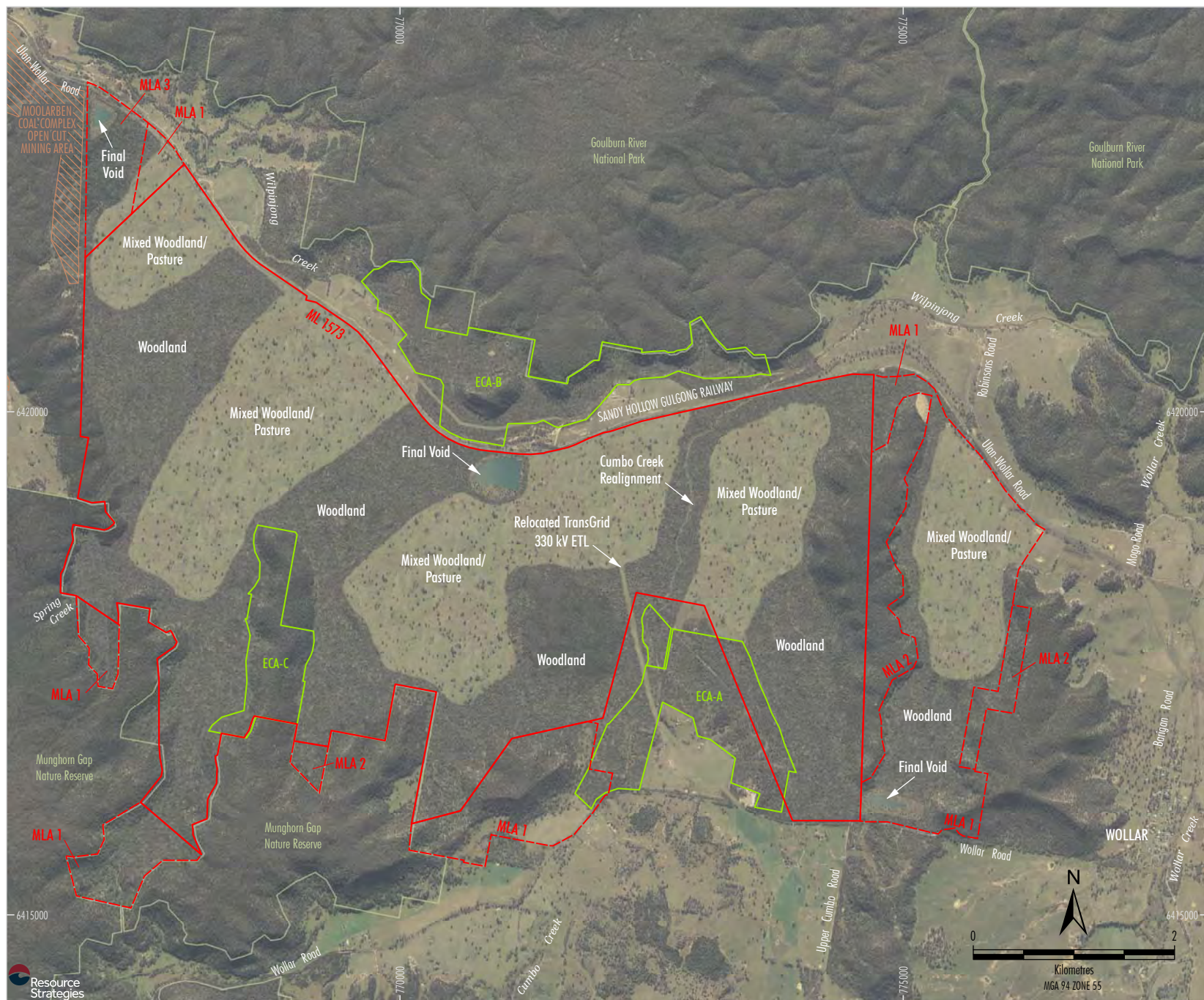
Specific rehabilitation parameters and completion criteria would be determined in consultation with relevant government agencies and documented in the Wilpinjong Coal Mine Mining Operations Plan.

The Mining Operations Plan would be updated to include the Project in consultation with the relevant government agencies, and in accordance with the relevant rehabilitation and mine closure guidelines.

A Mine Closure Plan would also be developed for the Project in consultation with the Mid-Western Regional Council, the NSW Department of Planning and Environment and the local community.



Plate ES-6: Existing Rehabilitation (Mixed Woodland/Pasture) (August 2015)



LEGEND

- Mining Lease Boundary
- Mining Lease Application Boundary
- Enhancement and Conservation Area

Source: WCPL (2015); NSW Dept of Industry (2015)
 Orthophoto: WCPL (Jun 2015; Jun 2014)

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Conceptual Project Final Rehabilitation and Regeneration

Figure ES-6