WILPINJONG COAL MINE

2011 MODIFICATION

SEPTEMBER 2011
Project No. WIL-11-10
Document No. 00406568

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

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

1.1 OVERVIEW – 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 Council (MWRC) 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 8.5 Mtpa of ROM coal is washed in the on-site coal handling and preparation plant (CHPP), with the remaining ROM coal sized in the by-pass crusher. Product thermal coal from the CHPP and by-pass crusher is transported by rail to domestic customers for use in electricity generation and to port for export. In 2010, the Wilpinjong Coal Mine produced approximately 10.6 million tonnes (Mt) of ROM coal.

The current extent of the open pits and contained infrastructure area (as at June 2011) is shown on Figure 3.

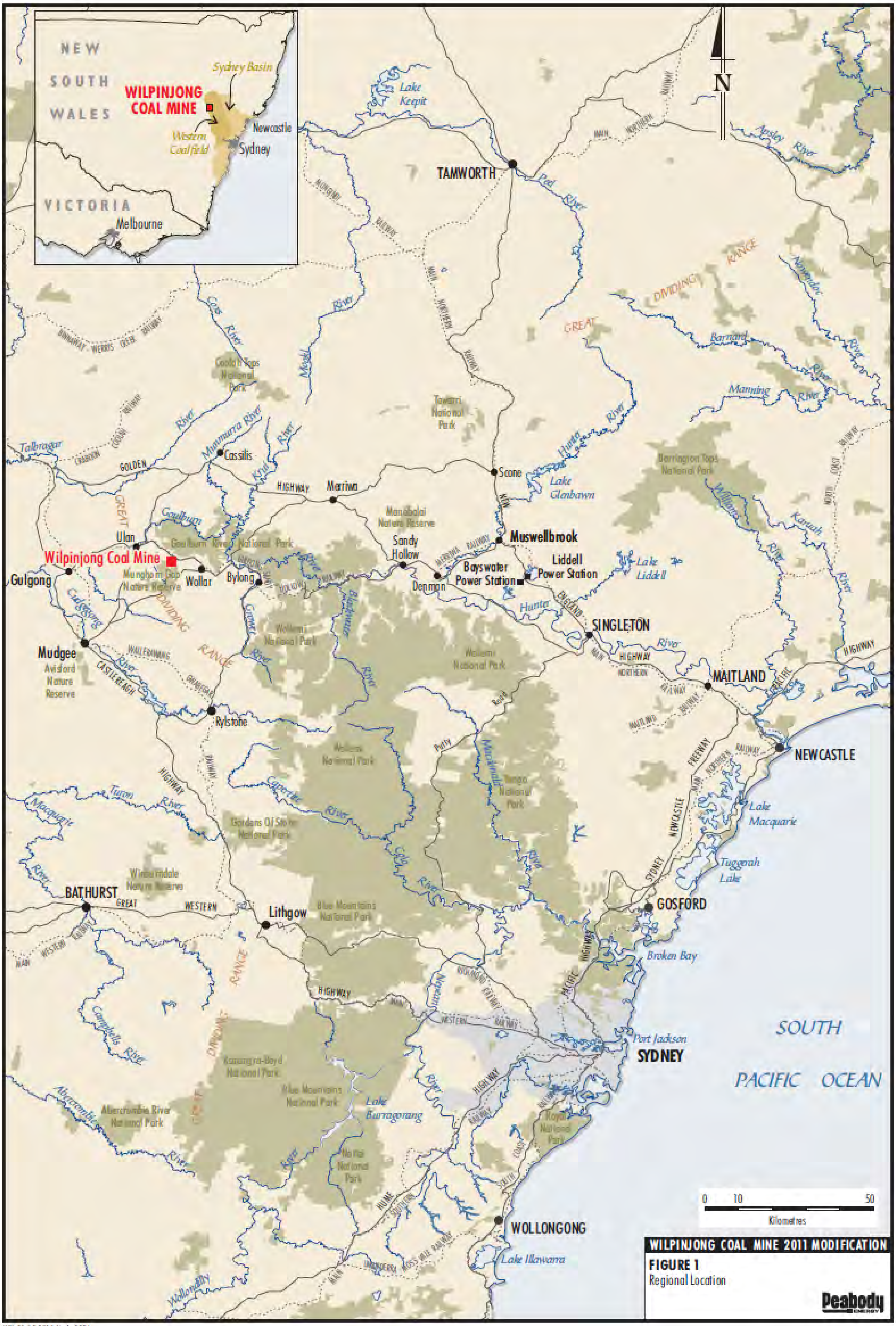
1.2 OVERVIEW – 2011 MODIFICATION

The CHPP was originally designed to produce up to 5.5 Mtpa of product coal through the beneficiation of up to 8.5 Mtpa of ROM coal plus up to 6.5 Mtpa of bypass coal. Due to improvements in the operational efficiency of the CHPP (associated with the Mining Rate Modification [WCPL, 2010a]) and changes to customer specifications for product coal, WCPL has identified that the CHPP will be able to produce approximately 6 Mtpa, while maintaining the currently approved CHPP feed rate of 8.5 Mtpa and maintaining the approved ROM coal production rate of up to 15 Mtpa. As such, the total product coal to be exported from the Wilpinjong Coal Mine would increase from the currently approved rate of 12 Mtpa to 12.5 Mtpa.

To facilitate the transportation of the proposed increase in product coal production, the average number of laden trains leaving the mine would increase from approximately five to six per day (when averaged over an annual period). In addition, to alleviate scheduling pressures on the Gulgong to Sandy Hollow Railway and the Main Northern Railway during peak demand periods and in accordance with advice from the Hunter Valley Coal Chain Coordinator (HVCCC), the maximum number of laden trains leaving the mine is proposed to increase from six to ten per day.

The 2011 Modification also seeks approval for a reverse osmosis water treatment plant (RO Plant) to be installed at the Wilpinjong Coal Mine to treat mine water before it is discharged in accordance with the Wilpinjong Coal Mine Environmental Protection Licence (EPL) 12425 to Wilpinjong Creek.

Table 1 provides a comparative summary of the currently approved and proposed modified (2011 Modification) Wilpinjong Coal Mine.

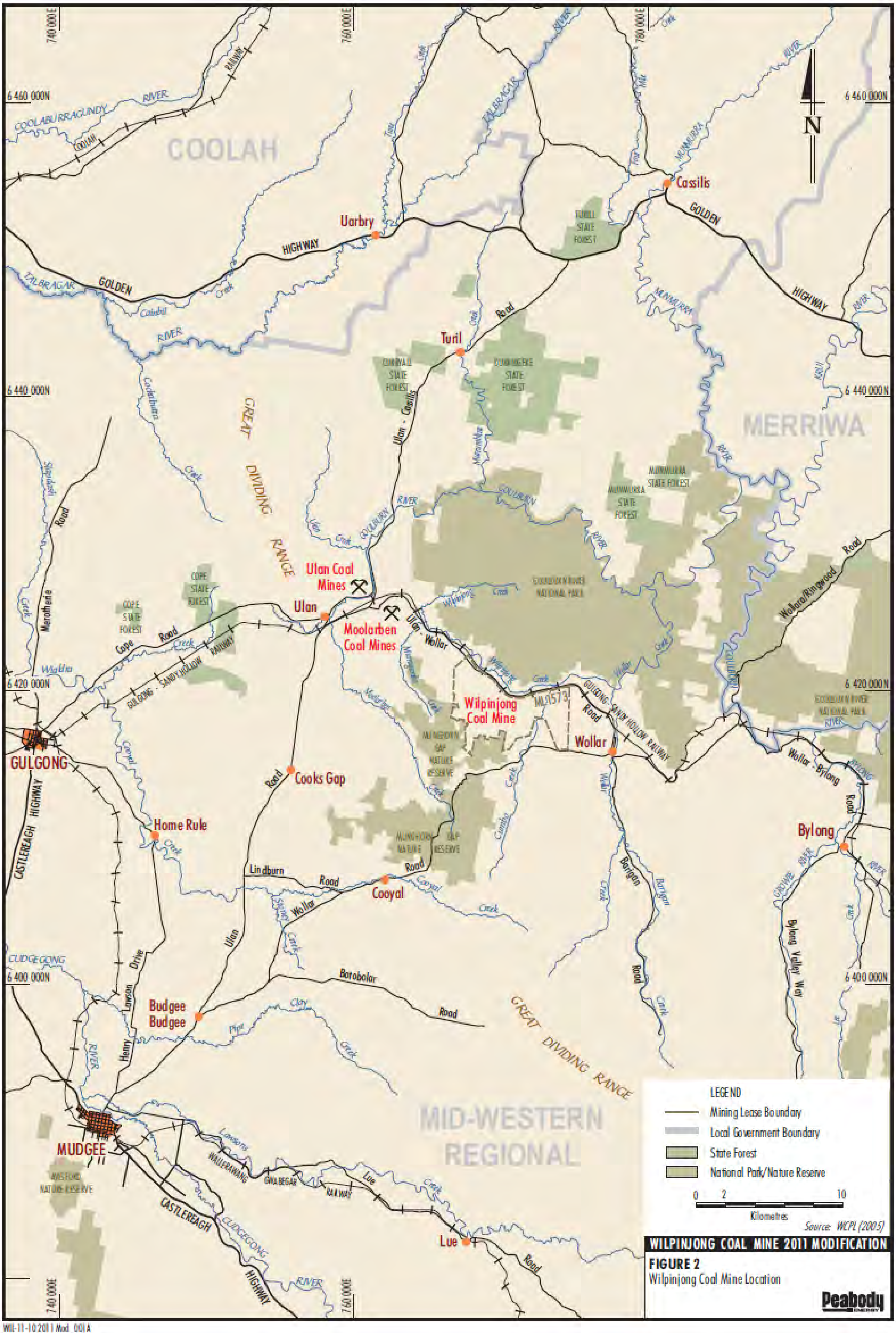


WILPINJONG COAL MINE 2011 MODIFICATION

FIGURE 1
Regional Location

Peabody

WIL-11-10 2011 Mod 002A


COOLAH
MERRIWA
MID-WESTERN REGIONAL
Uarbry
Cassilis
Turil
Ulan Coal Mines
Ulan
Moolarben Coal Mines
Wilpinjong Coal Mine
Wollar
Cooks Gap
Home Rule
Cooyal
Bylong
GULGONG
Budgee Budgee
MUDGEE
Lue
GOLDEN HIGHWAY
GREAT DIVIDING RANGE
CASTLEREAGH HIGHWAY
LEGEND
Mining Lease Boundary
Local Government Boundary
State Forest
National Park/Nature Reserve
Kilometres
Source: WCPL (2005)
WILPINJONG COAL MINE 2011 MODIFICATION
FIGURE 2
Wilpinjong Coal Mine Location
Peabody
WIL-11-10 2011 Mod 001A

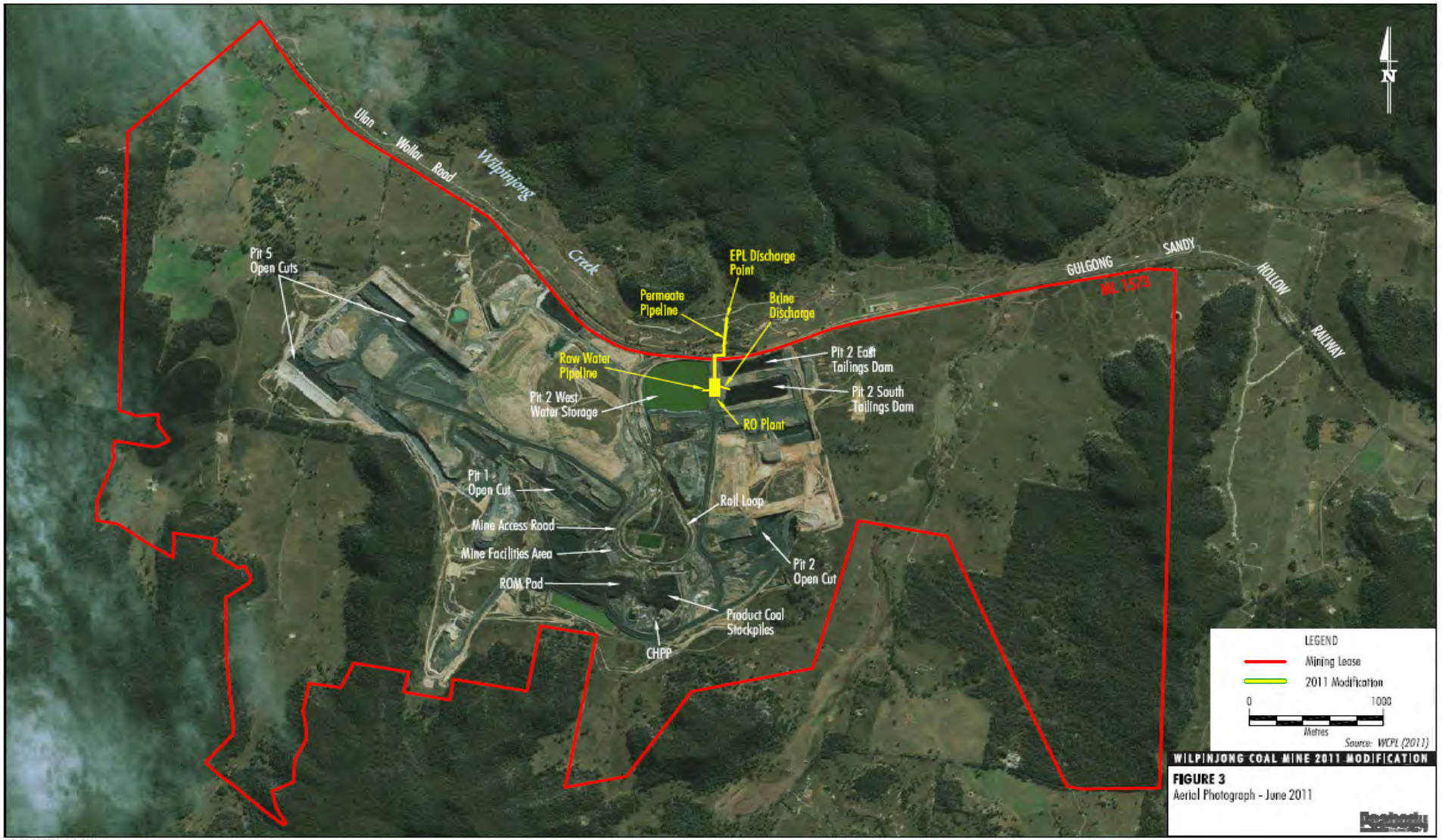

N
Ulan - Wollar Road
Wilpinjong Creek
Pit 5 Open Cuts
EPL Discharge Point
Permeate Pipeline
Brine Discharge
GULGONG
SANDY HOLLOW
RAILWAY
ML 1573
Raw Water Pipeline
Pit 2 East Tailings Dam
Pit 2 West Water Storage
Pit 2 South Tailings Dam
RO Plant
Pit 1 Open Cut
Rail Loop
Mine Access Road
Mine Facilities Area
ROM Pad
Pit 2 Open Cut
Product Coal Stockpiles
CHPP
LEGEND
Mining Lease
2011 Modification
0
1000
Metres
Source: WCPL (2011)
WILPINJONG COAL MINE 2011 MODIFICATION
FIGURE 3
Aerial Photograph - June 2011
WIL-11-10 2011 Mod_101A

Table 1
Comparative Summary of the Approved and Modified Projects

Component	Approved Wilpinjong Coal Mine	Modified Wilpinjong Coal Mine
Mining Method	• Open cut mining operation extracting ROM coal. • Six open cut pits and associated contained infrastructure area.	• Unchanged.
ROM Coal Production Rate	• Up to 15 Mtpa of ROM coal.	• Unchanged.
Overburden Production	• Maximum annual overburden production 28 Mbcm.	• Unchanged.
Total Overburden	• 366.6 Mbcm.*	• Unchanged.
Coal Washing	• Operation of a CHPP with a feed rate of up to approximately 8.5 Mtpa of ROM coal.	• Feed rate to the CHPP unchanged. • Improved CHPP efficiency and changes to customer's product coal specifications to decrease the amount of rejects and increase product coal yield.
Product Coal	• Production of up to 12 Mtpa of product coal.	• Production of up to 12.5 Mtpa of product coal.
Coal Rejects (tailings and coarse rejects)	• 3 Mtpa of coal rejects placed predominantly within mined-out voids.	• Decreased coal rejects production rate of approximately 2.5 Mtpa.
Water Management	• Make-up water demand to be met from runoff recovered from mine operational areas, recovery from tailings disposal areas, open cut dewatering, advanced dewatering of pit areas and supply from a borefield.	• Water supply unchanged. • Mine water treated in an RO Plant and discharged to Wilpinjong Creek in accordance with EPL 12425.
Project Life	• 21 years (from the date of grant of a mining lease).	• Unchanged.
Product Coal Transport	• Product coal loaded onto trains and transported via the Gulgong-Sandy Hollow railway.	• Unchanged.
Train Movements	• An average of 5 and a maximum of 6 laden trains per day leaving the mine.	• An average of 6 and a maximum of 10 laden trains per day leaving the mine.

After: WCPL (2010a).
Mbcm = million bank cubic metres.
* Includes rehandling of temporary overburden emplacements.

1.3 CONSULTATION FOR THE 2011 MODIFICATION

WCPL discussed the 2011 Modification with the NSW Department of Planning and Infrastructure (DP&I) and the NSW Office of Environment and Heritage (OEH). An outcome of these meetings was that it was agreed the RO Plant should be included as a component of the 2011 Modification.

WCPL consulted with OEH regarding the variation of EPL 12425 to allow for the discharge of treated water from the RO Plant to Wilpinjong Creek. Consultation centred on the type of water treatment, location, discharge conditions and wastewater management. The OEH issued a licence variation to EPL 12425 to allow for the discharge of waters on 5 July 2011.

The HVCCC is responsible for planning and coordinating the cooperative daily operation and long-term capacity alignment of the Hunter Valley Coal Chain and comprises the Australian Rail Track Corporation (ARTC), Rail Corp and rail freight companies. During consultation with WCPL, the HVCCC advised that the maximum number of train movements would need to increase during 2012 and 2013 to meet WCPL's product coal projections, and that this maximum number of train movements from the Wilpinjong Coal Mine could be accommodated on the Hunter Valley Coal Chain. HVCCC provided a letter of advice to WCPL which is provided as Appendix A.

1.4 STRUCTURE OF THIS DOCUMENT

Section 1 Provides an overview of the Wilpinjong Coal Mine, the 2011 Modification and the consultation undertaken in relation to the 2011 Modification.

Section 2 Provides a description of the existing Wilpinjong Coal Mine.

Section 3 Provides a description of the 2011 Modification.

Section 4 Provides an environmental assessment of the 2011 Modification.

Section 5 Describes the general statutory context of the 2011 Modification and identifies any Project Approval conditions or site management documents that would require revision in support of the 2011 Modification.

Section 6 References.

Attachment 1 and Appendices A and B provide supporting information as follows:

Attachment 1 Wilpinjong Coal Mine Consolidated Project Approval.

Appendix A Hunter Valley Coal Chain Coordinator Correspondence.

Appendix B Rail Noise Impact Assessment.

2 EXISTING WILPINJONG COAL MINE

2.1 APPROVALS HISTORY

The *Wilpinjong Coal Project Environmental Impact Statement* (the EIS) (WCPL, 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 in February 2006 (Project Approval 05-0021 – Attachment 1).

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).*
- *Changing the primary mine access route to be along Ulan Road and Ulan-Wollar Road, rather than Ulan Road and Wollar Road…*

The modification was approved by the NSW Minister for Planning in November 2007.

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 from four to five movements per day.

The Mining Rate Modification was approved by the NSW Minister for Planning in September 2010.

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

2.2 OPEN CUT MINING

Mining at the Wilpinjong Coal Mine commenced in September 2006. The following description of the existing mining operation is largely sourced from the *Wilpinjong Coal Mine Mining Operations Plan (ML 1573)* (MOP) (WCPL, 2008) and the *Wilpinjong Coal Mine Annual Environmental Management Report* (AEMR) (WCPL, 2010b).

The mining operation uses bulk push dozers and hydraulic excavators to mine coal and overburden in a strip mining configuration. 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. Mining strips are typically 70 metres (m) wide and are currently oriented east-west.

Coal and interburden are mined in a similar manner to the overburden and 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 Cat 785 haul trucks.

ROM coal is mined at a rate of up to 15 Mtpa and transported by Cat 785 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 and washed product coal.

Stockpiles located near the infrastructure area are used to stockpile ROM coal. ROM coal is crushed to produce either raw product coal or raw feed to the CHPP. Three product stockpiles with a combined capacity of approximately 390,000 tonnes are used to stockpile washed and unwashed coal products prior to reclaim and loading to trains for transport off-site.

The CHPP operates up to 24 hours per day, seven days per week and the Project Approval (Attachment 1) currently allows for the beneficiation of up to 8.5 Mt of ROM coal in the CHPP per year.

2.4 COAL REJECT MANAGEMENT

The tailings produced from the CHPP consist of fine rejects and slimes from the thickener. CHPP tailings are 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 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 reject material is dispersed throughout the overburden within the mine overburden emplacements to manage geochemical characteristics (i.e. acid generation potential). Where practicable, coarse rejects are placed 5 m below the final landform surface so there is sufficient coverage by non-acid forming overburden to reduce oxygen movement through the rehabilitated profile.

2.5 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 a product feed conveyor that runs the length of the product coal stockpile. Product coal is loaded onto trains 24 hours per day, seven days per week.

An average of five trains are loaded each day, with a maximum of six trains per day being loaded during peak coal transport periods.

2.6 WATER SUPPPLY

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 supply of this water is prioritised as follows:

1. Recycling of water from the tailings thickener overflow. Capture of incident rainfall and runoff across the mining operational areas (i.e. CHPP, mine facilities area, ROM and product coal stockpile areas).

2. Recovery of supernatant waters and seepage collected from tailings disposal areas. Dewatering of active open cut mining areas including groundwater inflows, incident rainfall and infiltration/runoff from adjacent mine overburden emplacements.
3. Dewatering of inactive open cut mining areas including groundwater inflows, incident rainfall and infiltration/runoff from adjacent mine overburden emplacements.
4. Licensed groundwater extractions from the approved water supply borefield to the north of open cut mining operations (borefield extractions have not been required since July 2007).

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 are met by dewatering of the open cut mining areas.

2.7 REHABILITATION

The disturbed land on the mine site is primarily a result of open cut operations and out-of-pit overburden emplacements. Rehabilitation occurs progressively as areas/landforms become available to minimise the area of disturbance at any one time.

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

The final landform levels and topography are to approximate the pre-mining topography. Final landform areas are designed with an allowance for the long-term settlement of mine overburden and tailings. Drainage is designed to integrate with the surrounding catchment and include some permanent creek features similar to the pre-mining topography.

The revegetation strategy recognises the alternative land uses that exist in the region, with the aim of establishing the potential for both sustainable agriculture and areas of woodland vegetation. Approximately 100 hectares of rehabilitation has been undertaken to date at the Wilpinjong Coal Mine (primarily in the northern end of Pit 1) (WCPL, 2010b).

2.8 ENVIRONMENTAL MANAGEMENT AND MONITORING

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 the Project Approval (05-0021), these plans and strategies are regularly updated, therefore the latest versions of some of these plans/strategies are currently under regulatory review (the latest versions are referenced below). These monitoring programmes and control strategies are briefly described below:

- An Air Quality Monitoring Programme (WCPL, 2011a) summarises relevant air quality criteria, identifies potential sources of dust, provides air quality monitoring locations and presents the protocols for air quality monitoring.
- An Erosion and Sediment Control Plan (WCPL, 2006a) details controls and monitoring of erosion in disturbed areas.
- A Surface Water Management and Monitoring Plan (WCPL, 2006b) details the surface water control structures, works and procedures to manage potential surface water impacts and describes the implemented monitoring programme.

- A Groundwater Monitoring Programme (WCPL, 2006c) details monitoring and management of groundwater levels and quality across a network of monitoring bores.
- A Rehabilitation Management Plan (WCPL, 2011b) describes management strategies including:
  - land management practices to minimise mine related impacts on land resources;
  - flora and fauna management strategies across the site, covering specific areas such as:
    - Vegetation Clearance Protocol;
    - Threatened Species Management Protocol;
    - Remnant Woodland Enhancement Programme;
    - Rehabilitation Programme;
    - Flora and Fauna Monitoring Programme (FFMP); and
    - FFMP review, monitoring and implementation processes.
  - weed and feral animal management strategies; and
  - bushfire management strategies.
- A Blast Management Plan and Blast Monitoring Programme (WCPL, 2011c) that provides a monitoring programme to measure ground vibration and airblast overpressure.
- A Noise Monitoring Programme (WCPL, 2011d) that details real-time noise monitoring and quarterly attended and unattended noise monitoring and operational noise performance and corrective action mechanisms.
- An Aboriginal Cultural Heritage Management Plan and North Eastern Wiradjuri Cultural Heritage Management Plan (WCPL, 2011e) to assist in the investigation, salvage and management of Aboriginal heritage sites.
- A Spontaneous Combustion Management Plan (WCPL, 2006d) which describes the management measures to minimise spontaneous combustion through the monitoring of potential causes.

Details of the monitoring undertaken and monitoring results are included in the AEMR and the Annual EPL Return and provided at regular intervals on the Wilpinjong Coal Mine website (www.peabodyenergy.com.au) in accordance with Project Approval Condition 11 of Schedule 5 (Attachment 1).

2.9 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 AEMR each year.

In 2010, a total of 138 complaints were received with the majority of complaints relating to noise, and a smaller number of complaints regarding dust, spontaneous combustion and blasting (WCPL, 2010b). Complaints were received primarily from areas to the east and south-east of the mine, including Araluen and Wollar. Complaints from the Cumbo Valley area decreased in 2009 with the completion of a number of property acquisitions by WCPL.

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

3 2011 MODIFICATION

3.1 CHPP EFFICIENCY IMPROVEMENTS

The CHPP was originally designed to produce 5.5 Mtpa of product coal from the beneficiation of 8.5 Mtpa of ROM coal. Due to improvements in the operational efficiency of the CHPP (associated with the Mining Rate Modification [WCPL, 2010a]) and changes to customer specifications for product coal, WCPL has identified that the CHPP would be able to produce approximately 6 Mtpa of product coal, while maintaining the currently approved CHPP feed rate of 8.5 Mtpa. As such, the total product coal produced at the Wilpinjong Coal Mine would increase from the currently approved rate of 12 Mtpa to 12.5 Mtpa. The increase in product coal yield would directly result in a decreased coal rejects production rate (from 3 Mtpa to 2.5 Mtpa).

The increase in the CHPP production rate would not change the approved maximum ROM coal extraction rate (15 Mtpa) or the approved maximum ROM coal beneficiation rate (8.5 Mtpa).

3.2 TRAIN MOVEMENTS

The increase in the product coal production rate as a result of the CHPP efficiency improvements described in Section 3.1 would require an increase in the current number of average train movements from five trains per day to approximately six trains per day.

In addition, WCPL is seeking approval for an increase in the maximum number of daily train departures from the Wilpinjong Coal Mine. This proposed increase is based on advice from the HVCCC that WCPL would need to significantly increase the capacity of the Wilpinjong Coal Mine rail loop above the current level to deliver the 2012 and 2013 System Assumption throughput targets for the Hunter Valley Coal Chain. Correspondence from the HVCCC relating to the increase the maximum number of trains is provided as Appendix A.

HVCCC's modelling has determined that up to ten trains per day would be required to be loaded at the Wilpinjong Coal Mine to facilitate transportation of WCPL's product coal during 2012 and 2013 (Appendix A):

> *To deliver the 2012 and 2013 System Assumptions throughput targets for the Hunter Valley Coal Chain, the Wilpinjong load point will need to improve its daily maximum loop capacity well above the 2011 performance requirement. Extensive modelling by HVCCC has shown that to meet its planned throughput targets, the Wilpinjong load point will need the ability to load up to 10 trains/day in peak demand periods.*

HVCCC's has advised that there would be sufficient track and coal terminal capacity to support a ten train per day peak rate from the Wilpinjong Coal Mine (Appendix A):

> *HVCCC's long term system capacity model indicates that there will be sufficient coal terminal and train paths available to support a 10 train per day peaking rate at the Wilpinjong load point once the infrastructure projects referred to above are completed and commissioned.*

The maximum of 10 trains per day takes into consideration the cargo build time and possible peaking capacity to meet timing of coal shipments at Port Waratah and NCIG and is a worse case scenario allowing for an uneven demand profile from other mine sites and vessel arrival patterns at port. It allows Wilpinjong to take advantage of rail opportunities when there is a low demand for train paths from other mines by sending up to 10 trains per day during the low demand times and balance this with peak demand times when there may only be 2 or 3 paths available for example. This is applicable for both domestic and export trains in relation to train paths. However, further flexibility is required to allow for fluctuations in the arrival of vessels at Port Waratah and NCIG.

There are periods when there are a peak number of vessels to be loaded at port, with a subsequent increase in demand for export trains, and times when demand is not as strong and therefore less trains required.

WCPL has reviewed the capacity of the Wilpinjong Coal Mine rail loop and coal handling system and confirms that no alterations are required to accommodate these additional trains at the Wilpinjong Coal Mine.

3.3 REVERSE OSMOSIS PLANT

WCPL applied to the OEH in May 2011 for water discharge provisions to be included in EPL 12425. This application followed extensive investigations into water disposal options at WCPL for managing excess mine water. The investigations included:

- accelerated evaporation using purpose built water evaporation cannons;
- pit catchment area reduction;
- irrigation of mine water to land;
- excavation of additional water storage; and
- treat and discharge.

The only effective and practical option was found to be the treat and discharge option. OEH approved the discharge provisions which were subsequently included as conditions L3, L4 and U1 of EPL12425.

One of the most widely used and accepted treatment options for treating brackish water is RO. This technology is used successfully around the world across a wide range of industries including mining and power generation providers in NSW. It is therefore proposed to install an RO Plant at the Wilpinjong Coal Mine to allow WCPL to more effectively manage mine water storages. The RO Plant will be used to treat excess mine water to a quality suitable for release to Wilpinjong and/or Cumbo Creeks (receiving waters) in accordance with conditions L3, L4 and U1 of EPL 12425. The RO Plant is proposed to be operated on a campaign basis, primarily following wet weather and will be used to significantly reduce the risk of operational interruptions and uncontrolled water discharge.

Up to 4 megalitres per day (ML/day) of mine water is proposed to be treated by the RO Plant, which will be located in the Pit 2 north area of the WCPL operation as shown in Figure 3. Mine water from the Pit 2 West water storage will be treated using a coarse screening filter, an ultra-filtration process and reverse osmosis. Treated water will be released to Wilpinjong Creek and/or Cumbo Creeks (Figure 4) in accordance with the discharge criteria stated in condition L3 of EPL 12425. The EPL states that within six months of the commissioning of the RO Plant, all water discharged from the Wilpinjong Coal Mine will have an electrical conductivity of 500 µS/cm or less. Naturally occurring water quality in Wilpinjong Creek can range up to around 4,500 µS/cm and up to around 8000uS/cm in Cumbo Creek.

The RO Plant will be designed to operate at a 75% recovery rate which means that for every 4 ML/day of mine water that is treated approximately 1 ML/day of brine (RO by product water) would be produced at the 75% recovery rate. The majority of the brine will be diluted with mine water and used for dust suppression on haul roads and coal stockpile areas with the balance to be pumped into tailings emplacement areas along with tailings material from the CHPP (Figure 3). Current dust suppression demands average 1 ML/day and up to 2 ML/day in summer. It is therefore anticipated that the brine will be consumed during dust suppression. However, brine disposal will be the subject of ongoing investigations and other options such as irrigation, passive or engineered evaporation systems may be used if found to be effective to supplement dust suppression if required.

3.3.1 Impacts on Vegetation

The key possible impacts on vegetation resulting from the installation and operation of an RO plant are associated with the laying of the discharge water pipelines. Vegetation communities were mapped pre mining as part of the development of the EIS for the Wilpinjong Coal Project. Clearing of vegetation on the mining lease area is minimised during the mining process and only carried out if absolutely necessary. All pipelines associated with the RO plant will be placed on the surface and will not require extensive excavation. This means that the pipelines can be diverted around any sensitive vegetation areas and no clearing will be necessary.

The RO plant and discharge pipeline locations in relation to existing mine disturbance and vegetation communities are shown in Figure 4. The coloured polygons in Figure 4 represent the various vegetation communities across the mining lease from the pre mining vegetation mapping. Vegetation offset areas have been established to offset all vegetation cleared as part of the mining process. Pipeline routes have been designed to avoid areas of sensitive vegetation and no clearing will be required.

3.3.2 Impacts on Aboriginal Artefacts

The key possible impacts on aboriginal artefacts are similar to vegetation (i.e. the laying of the discharge water pipeline). An extensive survey was undertaken pre mining to identify and record the locations of any artefacts on and adjacent to the mining lease area. An artefact salvage process was implemented to salvage artefacts and transfer them to a keeping place for secure storage until mining is completed. A full time Native Title Liaison Officer was employed and located at the WCPL operation to assist with the salvage process. Artefacts across an area of around 1965 hectares have been salvaged as of March 2011. This represents approximately 70% of the mining lease area. Figure 5 shows the artefact locations as part of the pre mining survey and the resultant area that has been salvaged.

The RO water discharge pipelines will be placed above ground and placed either through areas that have been salvaged of artefacts or diverted around any surveyed artefact sites. The placement of pipes will be done in consultation with the Wilpinjong Native Title Liaison Officer.

3.3.3 Impacts on Receiving Waters

Landline Consulting was engaged to carry out a review of potential impacts on receiving water quality in relation to RO plant discharges. Receiving waters are noted to be No negative impacts are anticipated on receiving waters as the water quality to be discharged from the RO plant is generally better than the water quality of the receiving waters. Discharges from the RO plant are anticipated to have a positive effect of receiving waters and macro invertebrates due to the improvement of water quality.

Channel stability is unlikely to be impacted due to releases of water from the RO plant as the receiving waters often experience flood flows well in excess of the flow increases from the proposed ROPlant.

The Landline report is included as Appendix C.

Figure 4. Location of pre mining vegetation communities RO Plant and RO discharge pipelines

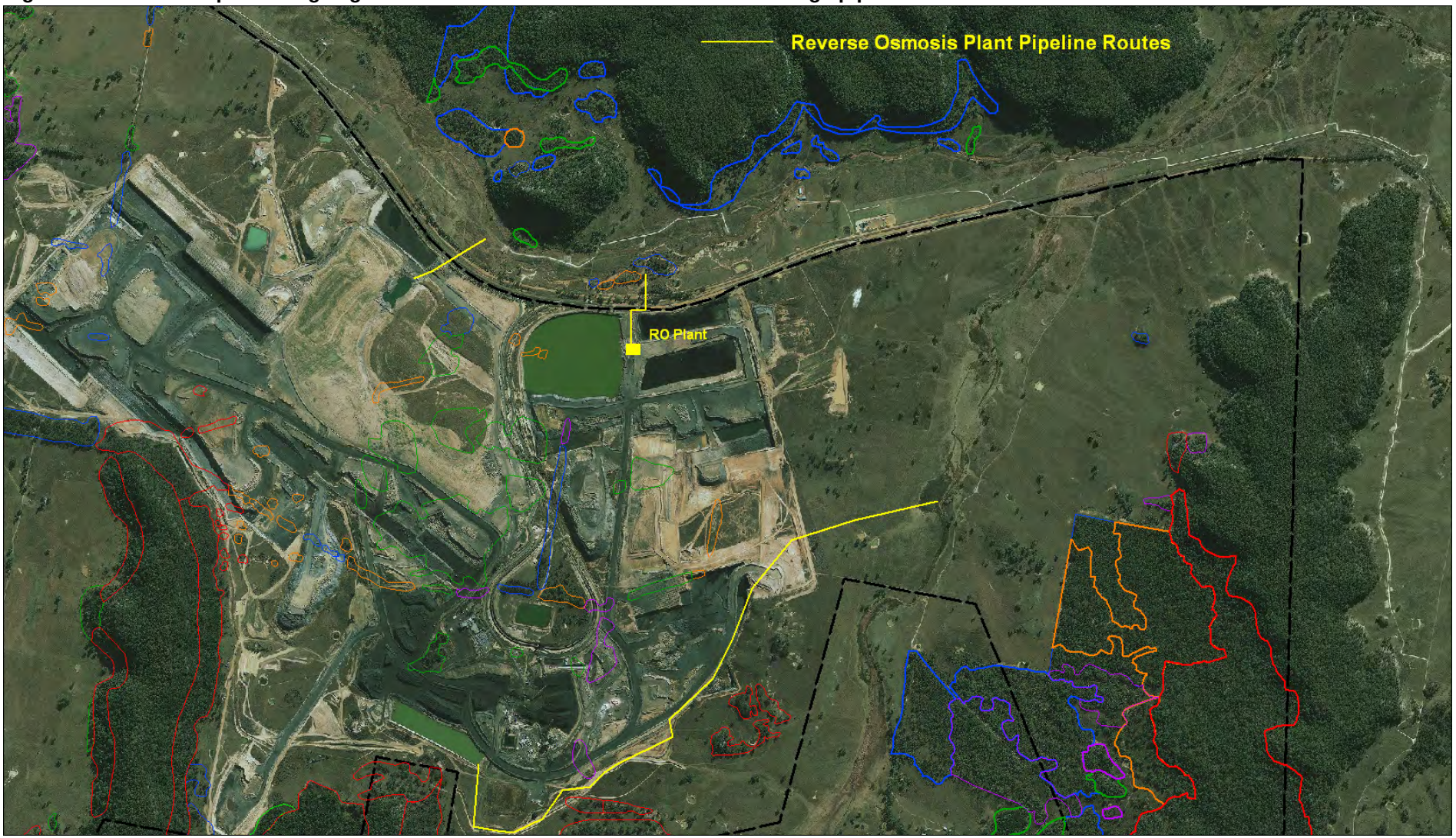
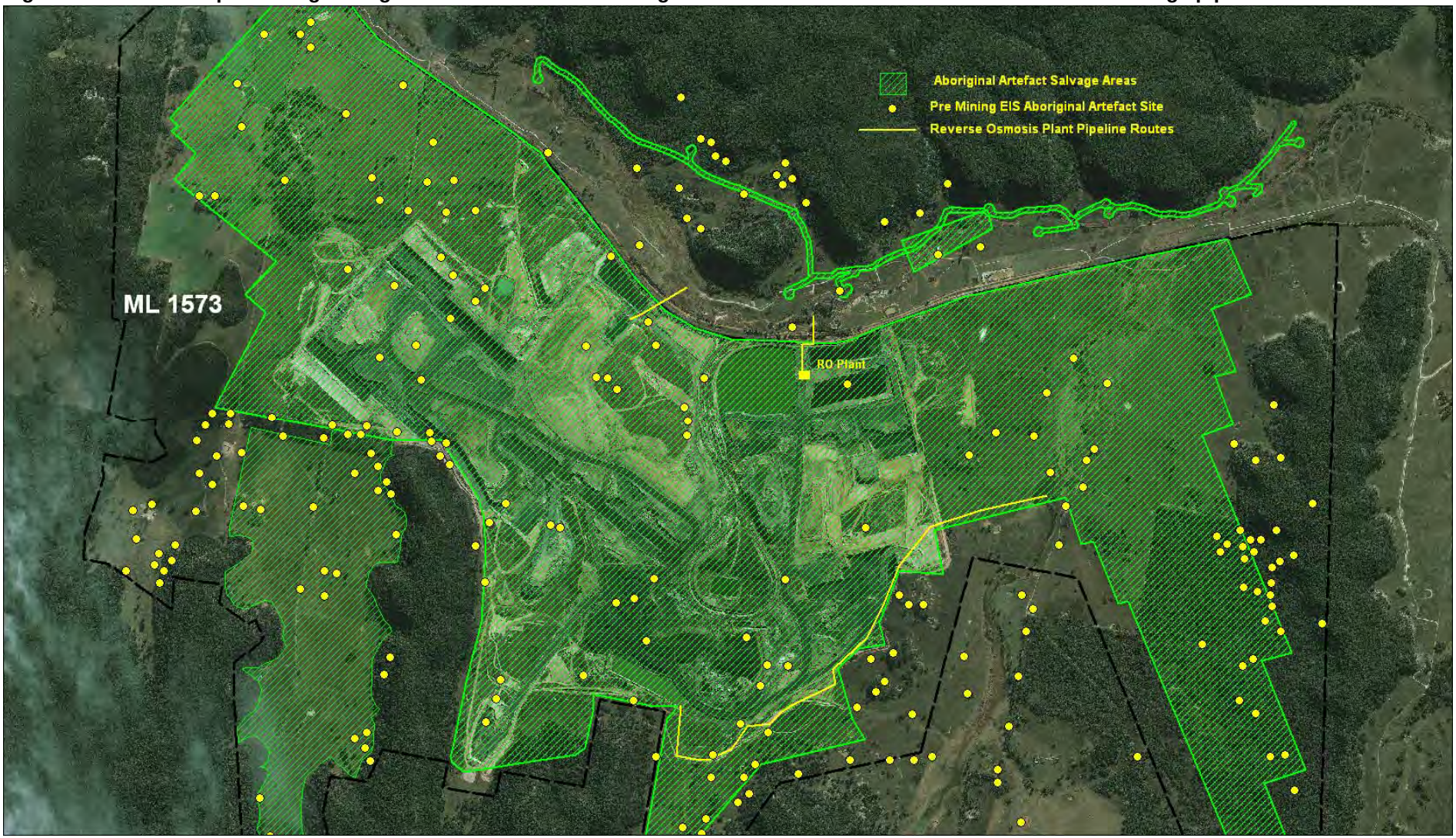


Figure 5. Location of pre mining Aboriginal artefact sites and salvaged areas in relation to the RO Plant and RO discharge pipelines



4 ENVIRONMENTAL ASSESSMENT

4.1 IDENTIFICATION OF KEY ISSUES

As the approved life of mine, ROM coal production rate, mining fleet and spatial extent and depth of mining would not change as a result of the this Modification, and negligible surface disturbance is proposed, 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;
- overburden management and geochemistry;
- flora and fauna;
- Aboriginal and non-Aboriginal heritage; and
- groundwater resources.

As there would be no change to the number of employees or contractors at the Wilpinjong Coal Mine it is not anticipated that there would be any changes to road transport impacts.

The discharge limits for the RO Plant are provided by conditions L3, L4 and U1 of EPL 12425.

The main component of this Modification that would have potential changes to the approved environmental impacts of the Wilpinjong Coal Mine relates to the increase in daily train movements. The key environmental impact associated with an increase in the number of train movements relates to noise impacts to receivers along the Gulgong-Sandy Hollow Railway. A Noise Impact Assessment was conducted by SLR Consulting Pty Ltd to assess the potential impacts to receivers as a result of increased train movements (Appendix B) and this is discussed further below.

4.2 RAIL NOISE

4.2.1 Background

Richard Heggie Associates (now SLR Consulting Pty Ltd) assessed the potential noise and vibration impacts of the Wilpinjong Coal Project in 2005 (Richard Heggie Associates, 2005). The study assessed off-site rail transport noise and cumulative mine noise effects at potentially affected receivers against applicable assessment criteria.

In relation to rail noise, the study identified that average and peak cumulative rail traffic noise levels would increase marginally as a result of the Wilpinjong Coal Project (by 1 to 2 A-weighted decibels [dBA]).

In 2010, Heggies assessed the potential noise impacts associated with the increase in the average number of train movements for the Mining Rate Modification (Heggies, 2010). The assessment found that there would be a negligible increase in average daytime/evening, night time and 24 hour rail traffic noise levels as a result of the Mining Rate Modification.

4.2.2 Environmental Review

SLR Consulting conducted a review of the potential noise impacts from the increase in train movements associated with this Modification (Appendix B).

Rail Noise Criteria

The ARTC operates the Hunter Valley Coal Rail Network in NSW including the Main North, Merriwa and Gulgong to Sandy Hollow railway lines. Noise emissions from the railways are regulated via ARTC's EPL (EPL 3142). The ARTC rail noise criteria are presented in Table 2.

Table 2
ARTC Rail Noise Criteria

Railway	Licenceholder	Descriptor	Criteria
Gulgong to Sandy Hollow and Merriwa Lines	ARTC EPL 3142	Daytime/evening $L_{Aeq(15hour)}$	65 dBA
		Night-time $L_{Aeq(9hour)}$	60 dBA
		Maximum Pass-by L_{Amax}	85 dBA

Source: Appendix B.

L_{Aeq} = equivalent continuous noise level.

In addition, the OEH rail noise guideline *Environmental Assessment Requirements for Rail Traffic Generating Developments* has been recently updated (26 February 2011) and provides alternative rail noise assessment criteria. The OEH rail noise assessment criteria are similar to the ARTC's EPL noise criteria, however the OEH criteria have an averaging period of 24 hours, rather than the daytime (15 hours) and night-time (9 hours) periods for the ARTC's criteria. The OEH rail noise criteria are presented in Table 3.

Table 3
OEH Rail Noise Criteria

Descriptor	Rail Traffic Noise Goal
$L_{Aeq(24hour)}$	60 dBA
Maximum Pass-by $L_{Amax\ (95th\ percentile)}$	85 dBA

Source: Appendix B.

The potential rail noise impacts from this Modification have been assessed against both sets of noise criteria.

The OEH rail noise guideline provides guidance in relation to the geographical extent of rail noise assessment which should be undertaken for a rail traffic generating development (such as the Wilpinjong Coal Mine):

> *Ideally, the geographical extent of the rail noise assessment should be to where project/related rail noise increases are less than 0.5dB. This roughly equates to where project/related rail traffic represents less than 10% of total line/corridor rail traffic.*

Rail Traffic Movements

The number of existing, approved and proposed rail movements along the Gulgong to Sandy Hollow Railway (Figures 1 and 2) are presented in Table 4.

Table 4
Existing, Approved and Proposed Rail Movements - Gulgong to Sandy Hollow Railway

Status	Train Type	Train Movements						Train Length (m)	Train Speed (kph)
		Daytime		Night-time		24 Hours			
		Average	Peak	Average	Peak	Average	Peak		
Existing	Passenger	0	0	0	0	0	0	-	-
	Freight	2	2	0	0	2	2	850	60
Approved	Ulan Continued Operations[1]	9	14	5	6	14	20	1543	60
	Moolarben[2]	6	6	2	2	8	8	1543	60
	Wilpinjong[3]	7	8	3	4	10	12	1543	60
Proposed	Moolarben Stage 2[2]	1	1	1	1	2	2	1543	60
	Mt Penny[4]	4	4	2	2	6	6	1543	60
Proposed Modification	Wilpinjong 2011 Modification[5]	2	6	0	2	2	8	1543	60
Cumulative Existing and Approved		24	30	10	12	34	42	-	-
Cumulative Existing, Approved and Additional Proposed		31	41	13	17	44	58	-	-

Source: Appendix B
Note: Two movements equals one arrival and departure of a single train.
[1] Ulan Coal Continued Operations Noise and Vibration Assessment, Wilkinson Murray Pty Ltd, 2009.
[2] Moolarben Coal Project Environmental Assessment Report, Wells Environmental Services, 2009.
[3] Wilpinjong Coal Mine 75W Modification Noise Impact Assessment, Heggies Pty Ltd, 2010.
[4] Assumes 3 trains per day for a 5 Mtpa operation (no data on train movements available).
[5] WCPL, 2011.
kph = kilometres per hour.

As can be seen from Table 4, WCPL's proposed additional peak rail movements would comprise greater than 10% of cumulative existing, approved and proposed movements. The Gulgong to Sandy Hollow Railway has therefore been included in the rail noise assessment (in accordance with the OEH rail noise guideline).

The number of existing, approved and proposed train movements along the Merriwa Railway (Figure 1) are presented in Table 5.

Table 5
Existing, Approved and Proposed Rail Movements - Merriwa Railway

Status	Train Type	Train Movements						Train Length (m)	Train Speed (kph)
		Daytime		Night-time		24 Hours			
		Average	Peak	Average	Peak	Average	Peak		
Existing	Passenger	0	0	0	0	0	0	-	-
	Freight	2	2	0	0	2	2	850	60
Approved	Ulan Continued Operations[1]	9	14	5	6	14	20	1543	60
	Moolarben[2]	6	6	2	2	8	8	1543	60
	Wilpinjong[3]	7	8	3	4	10	12	1543	60
	Mangoola[4]	4	4	4	4	8	8	1543	60
	Mt Pleasant[1]	4	4	2	2	6	6	1543	60
	Bengalla[1]	4	4	2	2	6	6	1543	60
Proposed	Moolarben Stage 2[2]	1	1	1	1	2	2	1543	60
	Mangoola Modification[5]	6	6	6	6	12	12	1543	60
	Mt Penny[6]	4	4	2	2	6	6	1543	60
Proposed Modification	Wilpinjong 2011 Modification[7]	2	6	0	2	2	8	1543	60
Cumulative Existing and Approved		32	38	16	18	48	56	-	-
Cumulative Existing, Approved and Additional Proposed		49	59	27	31	76	90	-	-

Source: Appendix B
Note: Two movements equals one arrival and departure of a single train.

1 Ulan Coal Continued Operations Noise and Vibration Assessment, Wilkinson Murray Pty Ltd, 2009.

2 Moolarben Coal Project Environmental Assessment Report, Wells Environmental Services, 2009.

3 Wilpinjong Coal Mine 75W Modification Noise Impact Assessment, Heggies Pty Ltd, 2010.

4 Anvil Hill Project Environmental Assessment, Umwelt (Australia) Pty Ltd, 2006.

5 Modifications to Mangoola Coal Mine Plans and Relocation of 500kV Electricity Transmission Line, Umwelt (Australia) Pty Ltd, 2010.

6 Assumes 3 trains per day for a 5 Mtpa operation (no data on train movements available).

7 WCPL, 2011.

As can be seen from Table 5, WCPL's proposed additional peak train movements would comprise greater than 10% of cumulative existing and approved, however is less than 10% when considering the additional movements from other proposed mine developments. Given that the OEH guideline states that the "*geographic extent of the rail noise assessment should be to where the project/related rail noise increases are less than 0.5dB*", rail noise levels on the Merriwa Railway were calculated by SLR Consultants Pty Ltd (Appendix B) to determine increases in rail noise levels (in accordance with the OEH rail noise guideline).

Rail Noise Assessment

The cumulative noise levels associated with the existing, approved and proposed train movements along the Gulgong to Sandy Hollow and Merriwa Railways were calculated to assess the impact the additional trains associated with this Modification would have on receivers along the railways. The predicted daytime, night-time and 24 hour noise levels at relevant distances from the railways are presented in the Rail Noise Impact Assessment (Appendix B).

The rail noise assessment predicts that the 2011 Modification related rail noise increases would be greater than 0.5 dBA along the Gulgong to Sandy Hollow Railway, but less than 0.5 dBA along the Merriwa Railway (due to the higher amount of approved rail traffic on the Merriwa Railway) (Appendix B). As such, the geographical extent of the rail noise assessment does not need to include the Merriwa Railway. Notwithstanding, predicted rail noise levels on the Merriwa Railway are presented in Appendix B.

Residential Dwelling Noise Impact Summary

Table 6 describes the predicted distances from the Gulgong to Sandy Hollow Railway at which the relevant ARTC and OEH noise criteria are met, and the number of potentially affected receivers that fall within the relevant distances.

Receivers were mapped using a desktop methodology based on aerial photographs and satellite imagery, therefore the receiver locations should be considered to be indicative.

Table 6
Potentially Affected Receivers along the Gulgong to Sandy Hollow Railway

		Distance to Meet Relevant Criteria and Number of Dwellings with Criteria Exceedances											
		Existing and Approved Trains				Cumulative Existing, Approved and Proposed Trains				Cumulative Existing, Approved, Proposed and 2011 Modification Trains			
	Criteria	Average		Peak		Average		Peak		Average		Peak	
		Dist.[1]	No.[2]	Dist.	No.	Dist.	No.	Dist.	No.	Dist.	No.	Dist.	No.
ARTC	Day	24 m	0	30 m	0	29 m	0	35 m	0	31 m	0	41 m	0
	Night	53 m	3	63 m	3	68 m	5	79 m	5	68 m	5	89 m	**7**
	Max Pass-by	N/A	N/A	61 m	3	N/A	N/A	61 m	3	N/A	N/A	61 m	3
OEH	24 hour	66 m	5	82 m	6	82 m	6	97 m	9	86 m	**7**	113 m	**11**
	Max Pass-by	N/A	N/A	61	3	N/A	N/A	61 m	3	N/A	N/A	61 m	3

Source: Appendix B
Note: Values in bold represent an increase in the number of potentially affected dwellings as a result of the 2011 Modification.
[1] Distance from the railway at which the relevant criteria are met.
[2] Number of receivers that fall within the stated distance from the railway.

Table 6 indicates that an additional two receivers would potentially exceed the ARTC peak $L_{Aeq(9hour)}$ night-time rail noise criteria, one receiver would potentially exceed the OEH average $L_{Aeq(24hour)}$ rail noise criteria (i.e. the same receiver that would exceed the ARTC peak $L_{Aeq(9hour)}$ night-time criteria), and an additional two receivers would potentially exceed the OEH peak $L_{Aeq(24hour)}$ rail noise criteria as a result of the 2011 Modification compared to the number of residential dwellings that experience exceedances of relevant criteria from the cumulative existing, approved and proposed trains.

In summary, a total of four receivers (with one being WCPL-owned) would potentially exceed the criteria (ARTC or OEH) as a result of the 2011 Modification with the increase in noise levels being up to approximately 0.7 dBA. Rail operations on the Gulgong to Sandy Hollow Railway are operated by ARTC's EPL (3142). Rail noise effects would be managed by the following:

- WCPL would continue to work with the ARTC, HVCCC and local mining operations to reduce the number of peak train movements.
- WCPL would continue to work with the rail contractor regarding rail noise issues including ensuring that locomotives and rolling stock are appropriately maintained and that driver behaviour is cognisant of potential noise effects on the amenity of residences near the rail line.

4.3 ON-SITE NOISE

The RO Plant would be housed within an enclosed building to attenuate potential noise emissions from the equipment. Given that the RO Plant would be located some 4 km from the closest privately owned receivers, it is not anticipated that noise emissions associated with the operation of the RO Plant would affect any receivers.

As stated above, the RO Plant is proposed to be operated on a campaign basis, primarily following wet periods, and may be operated up to 24 hours per day, 7 days per week, if required.

In addition, the increased train movements associated with the 2011 Modification would have the potential to increase $L_{Aeq(period)}$ noise levels from the Wilpinjong Coal Mine. These noise emissions are regulated by the Industrial Noise Policy's 'Amenity Criteria'. Heggies (2010) states that:

> *The most stringent acceptable LAeq noise amenity level is 40 dBA at the receivers surrounding the WCM.*

The Project Approval (Attachment 1) contains the more stringent $L_{Aeq(15\ min)}$ criteria, which are set generally lower than 40 dBA for the majority of receivers. Given that WCPL aims to maintain compliance with these $L_{Aeq(15\ min)}$ criteria, it therefore follows that increases in $L_{Aeq(period)}$ noise levels are unlikely to result in exceedances of the amenity criteria.

No changes to the $L_{Aeq(15\ min)}$ criteria would result from the 2011 Modification as these worst case noise levels already include a train being loaded on the Wilpinjong Coal Mine rail loop (i.e. the noise emitted from the loading of a train over 15 minutes is already accounted for).

4.4 AIR QUALITY

This Modification includes a proposed 0.5 Mtpa increase in product coal production due to efficiency improvements at the WCPL CHPP. This additional coal has the potential to increase dust emissions from the site. However, this potential increase would be negligible in comparison with overall site air quality emissions, as product coal loading (from the CHPP to product coal stockpiles, and from product coal stockpiles to trains) represents approximately 0.6% of total site emissions according to the 2010 Mining Rate Modification (PAE Holmes, 2010).

4.5 SOCIO-ECONOMICS

The increase in the product coal production rate would have a positive socio-economic benefit through an increase in revenue and royalties associated with the additional 0.5 Mtpa of product coal produced by the Wilpinjong Coal Mine.

4.6 OTHER ENVIRONMENTAL ASPECTS

The Modification would not involve any alteration to the approved extent of mining or the life of the approved Wilpinjong Coal Mine (Table 1).

Given the scale of the existing Wilpinjong Coal Mine landforms and infrastructure, negligible change to the visual amenity of the Wilpinjong Valley is expected to result from the installation of a RO Plant.

Potential impacts to flora, fauna and Aboriginal heritage would be avoided by conducting pre-clearance surveys and locating the RO Plant and associated infrastructure accordingly.

4.7 CONSIDERATION OF CUMULATIVE IMPACTS WITH OTHER NEARBY MINING OPERATIONS

4.7.1 Moolarben Coal Mines

The Moolarben Coal Mines are located approximately 5 km west of the Wilpinjong Coal Mine (Figure 2). 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 is approved to mine at a rate of up to 12 Mtpa until 2028 (Moolarben Coal Mine, 2009).

The Moolarben Coal Mines currently has a proposal before the Minister for Planning and Infrastructure (Moolarben Coal Project Stage 2) that includes one open cut mine 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. An application to modify the Stage 1 infrastructure has also been made to 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 Infrastructure and assessment of the proposal is currently being undertaken by the DP&I. Notwithstanding, as the proposal may be determined in the near future, potential cumulative impacts with the Moolarben Coal Project Stage 2 (i.e. the additional trains that would result from the approval of Stage 2) have been considered in the Rail Noise Impact Assessment (Appendix B).

4.7.2 Ulan Coal Mines

Mining in the Ulan area has been undertaken since the 1920s, with mining operations at Ulan Coal Mines Limited expanding significantly in the 1980s when an exploration program found extensive coal reserves (Ulan Coal Mines Limited, 2009). The Ulan Coal Mines are located approximately 11 km to the north-west of the Wilpinjong Coal Mine (Figure 2) and potential cumulative impacts are therefore more limited in comparison to the Moolarben Coal Mines.

The Ulan Coal – Continued Operations Project involves the recommencement and extension of open cut mining operations while concurrently mining approved underground resources at a combined open cut and underground mining rate of 20 Mtpa for the 21 year mine plan. Some upgrades to existing surface facilities will be conducted, as well as construction of additional infrastructure.

The Ulan Coal – Continued Operations Project was approved by the NSW Minister for Planning in November 2010. Potential cumulative impacts (i.e. the additional trains that would result from the project) have been considered in the Rail Noise Impact Assessment (Appendix B).

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]).

Consistent with the EP&A Act transitional arrangements announced by the DP&I in May 2011, 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.*
>
> *(a) The Minister may modify the approval (with or without conditions) or disapprove of the modification.*
>
> *….*

5.1 GENERAL STATUTORY REQUIREMENTS

Mid-Western Regional Interim Local Environmental Plan, 2008

The Wilpinjong Coal Mine is located wholly within the *Mid-Western Regional Interim Local Environmental Plan, 2008* (MWRI LEP) area.

The MWRI LEP refers throughout to "Council" in its capacity as consent authority. The Wilpinjong Coal Mine has a Project Approval under Part 3A of the EP&A Act, for which the consent authority is the NSW Minister for Planning and Infrastructure. References to "Council" in the MWRI LEP should therefore be interpreted as references to the NSW Minister for Planning and Infrastructure for the Wilpinjong Coal Mine.

Clause 12(2) of the MWRI 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.*

The Project Application area of the approved Wilpinjong Coal Mine is largely zoned "Agriculture Zone". A portion of Environmental Conservation Area C is also zoned "Conservation" under the LEP, however, no change to the management of the approved ECA areas is proposed for the 2011 Modification.

Under the MWRI LEP the objectives of the Agriculture Zone are:

- *To protect and maintain land for agriculture and other rural purposes.*
- *To avoid the fragmentation of agricultural land and conflict between land uses, and to restrict unnecessary dwellings and incompatible development.*
- *To provide for other rural land uses, such as mining, extractive industries, forestry and energy generation.*
- *To provide for the protection, enhancement and conservation of areas of significance for nature conservation, of habitat of threatened species, populations and ecological communities and of other areas of native vegetation.*
- *To maintain the scenic amenity and landscape quality of the area.*
- *To promote the sustainable management, use and development of certain land for agriculture, mining and other primary industries.*
- *To promote the conservation of productive agricultural land for agricultural purposes, particularly cropping and grazing.*
- *To preserve the area's open rural landscapes and environmental and cultural heritage values by the maintenance of large holdings accommodating both intensive and extensive forms of agriculture.*
- *To avoid development that would conflict with or unreasonably impact upon the efficient use of land for rural or other primary industries, such as small lot rural residential subdivision and hobby farms.*
- *To protect the residential and visual amenity of existing and future residents of rural areas by applying appropriate building siting and design controls.*
- *To ensure that development does not significantly detract from the existing rural character or create unreasonable or uneconomic demands for provision or extension of public amenities and services.*
- *To permit some non-agricultural land uses and agricultural support facilities, such as rural industries and tourist facilities, which are in keeping with the other zone objectives and which will not adversely affect agricultural capability or capability of the land the subject of the development (or adjoining land).*
- *To encourage high quality advertising signs in association with approved uses that provide business identification, that are appropriately integrated into the site development, and that contribute positively to the visual amenity of the surrounding area.*

Under Clause 12 of the MWRI LEP "Mines" are permissible on lands zoned Agriculture with development consent as mining use is not listed as being a prohibited use in the zoning table in Part 2.

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 – Attachment 1).

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

The *State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries)* (Mining SEPP), which commenced on 16 February 2007, regularises the various environmental planning instruments that previously controlled mining activities.

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 Projects) 2005* [Major Projects SEPP], *State Environmental Planning Policy No. 14 [Coastal Wetlands]* and *State Environmental Planning Policy No. 26 [Littoral Rainforest]*).

- ***Clause 2***

Clause 2 sets out the aims of the Mining SEPP as follows:

> *(b) to provide for the proper management and development of mineral, petroleum and extractive material resources for the purpose of promoting the social and economic welfare of the State, and*
>
> *(c) to facilitate the orderly and economic use and development of land containing mineral, petroleum and extractive material resources, and*
>
> *(d) to establish appropriate planning controls to encourage ecologically sustainable development through the environmental assessment, and sustainable management, of development of mineral, petroleum and extractive material resources.*

- ***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:

> *(e) mining carried out:*
>
> *…*
>
> *(f) 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.

- ***Clause 8***

Clause 8 of the Mining SEPP provides:

> *8 Determination of permissibility under local environmental plans*
>
> *(1) If a local environmental plan provides that development for the purposes of mining, petroleum production or extractive industry may be carried out on land with development consent if provisions of the plan are satisfied:*
>
> *(a) development for that purpose may be carried out on that land with development consent without those provisions having to be satisfied, and*
>
> *(b) those provisions have no effect in determining whether or not development for that purpose may be carried out on that land or on the determination of a development application for consent to carry out development for that purpose on that land.*
>
> *(2) Without limiting subclause (1), if a local environmental plan provides that development for the purposes of mining, petroleum production or extractive industry may be carried out on land with development consent if the consent authority is satisfied as to certain matters specified in the plan, development for that purpose may be carried out on that land with development consent without the consent authority having to be satisfied as to those specified matters.*

State Environmental Planning Policy No. 33 (Hazardous and Offensive Development)

Clause 13 of the State Environmental Planning Policy No. 33 (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 EIS in accordance with SEPP 33 to evaluate the potential hazards associated with the Wilpinjong Coal Project.

The treated water pipeline would be above ground from the RO Plant through the culvert under Ulan-Wollar Road to Wilpinjong Creek (Figure 3). Any spills from the treated water pipeline would not present any material environmental harm due to the quality of the treated water (i.e. within allowable EPL limits). Notwithstanding, should a spill from the treated water pipeline occur, the RO Plant would be immediately shut down until the fault was repaired so as to minimise the potential for erosion resulting in sediment migration.

On-line monitoring and control systems for the RO Plant would only allow water of a sufficient quality to be released to Wilpinjong Creek, in accordance with EPL No. 12425. Should on-line monitoring of the treated water indicate that the water quality is not sufficient for release to Wilpinjong Creek, discharges will immediately cease and not recommence until the treated water is of suitable quality.

Any spills of mine water or brine from the RO Plant would report to the Pit 2 West Water Storage or the Pit 2 South Tailings Dam. Spills from the RO Plant would not report to Wilpinjong Creek.

The 2011 Modification does not significantly alter the consequences or likelihood of a hazardous event occurring at the Wilpinjong Coal Mine, as the operational activities on-site would be generally unchanged.

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*.

An assessment of potential and core Koala habitat was conducted in the EIS. The assessment concluded that the land subject to the Wilpinjong Coal Project was not core Koala habitat and does not have a resident population of Koalas (Mount King Ecological Surveys, 2005). Therefore the provisions of SEPP 44 are not considered applicable to the 2011 Modification.

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.

The majority of the RO Plant components are within the existing ML 1573 and the approved extent of mining and contained infrastructure area. Only the treated water pipeline extends just outside of ML 1573 to Wilpinjong Creek. No preliminary land contamination is required for the RO Plant area inside ML 1573 as no change of use is proposed. The Land Contamination Assessment for the EIS (Australian Groundwater and Environmental, 2005) concluded that the area where the treated water pipeline would be laid is considered suitable for the landuse change from agriculture to development of the Wilpinjong Coal Project.

Water Management Act, 2000

Under the NSW *Water Management Act, 2000,* the *Water Sharing Plan for the Hunter Unregulated and Alluvial Water Sources, 2009* (Water Sharing Plan) commenced on 1 August 2009. Wollar Creek and its tributaries fall within Goulburn Extraction Management Unit of the Water Sharing Plan.

Clause 4 of the Water Sharing Plan provides that the plan applies to the following waters:

(3) Subject to subclause (4), these water sources include:

(a) all water occurring naturally on or below the surface of the ground shown on the registered plan for these water sources, and

(b) all water in rivers, lakes and wetlands in these water sources, and

(c) all water contained within all alluvial sediments below the surface of the land shown on the registered plan for these water sources (hereafter the alluvial sediments in these water sources)…

…

(4) These water sources do not include:

…

(g) any water contained in fractured rock aquifers and basement rocks in these water sources,

…

As Clause 4 of the Water Sharing Plan excludes fractured rock and basement rock aquifers and because no separate water sharing plan applicable to those aquifers has commenced, the *Water Act, 1912* remains the relevant Act for the licensed groundwater extractions from non-alluvial aquifers in the Wilpinjong Coal Mine open pits and production borefield.

Environment Protection and Biodiversity Conservation Act, 1999

The objective of the Commonwealth *Environment Protection and Biodiversity Conservation Act, 1999* (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 environmental significance are defined as a *controlled action* under the EPBC Act. Proposals that are, or may be, a controlled action are required to be referred to the Commonwealth Minister for Sustainability, Environment, Water, Population and Communities to determine whether or not the action is a controlled action.

The 2011 Modification does not involve any alteration of the approved extent of mining at the Wilpinjong Coal Mine and is not likely to have a significant impact on any protected matters listed under the EPBC Act. It has therefore not been referred to the Commonwealth Minister for Sustainability, Environment, Water, Population and Communities for consideration under the EPBC Act, as no "controlled action" is proposed.

5.2 PLANS, LICENCES AND AGREEMENTS THAT REQUIRE REVISION

5.2.1 Project Approval Conditions

Condition 6, Schedule 2 of the Project Approval (Attachment 1) stipulates limits of approval as follows:

> *The Proponent shall not export more than 12 million tonnes of product coal from the site in a calendar year.*

Condition 6, Schedule 2 of the Project Approval would require revision as a result of the Modification as follows:

> *The Proponent shall not export more than **12.5** million tonnes of product coal from the site in a calendar year.*

Condition 7, Schedule 2 of the Project Approval (Attachment 1) stipulates limits of approval as follows:

> *The Proponent shall ensure that no more than 6 laden trains leave the site each day.*

Condition 6, Schedule 2 of the Project Approval would require revision as a result of the Modification as follows:

> *The Proponent shall ensure that no more than **10** laden trains leave the site each day.*

Tables 1 and 2, Schedule 3 of the Project Approval (Attachment 1) provide land acquisition and noise impact assessment criteria. These tables would require revision to reflect recent changes in land ownership.

5.2.2 Management/Monitoring Plans

Some management plans (e.g. the Noise Monitoring Programme and Surface Water Management Plan [including the Site Water Balance, Surface Water Management and Monitoring Plan and Surface and Ground Water Response Plan]) may require revision to reflect updated environmental management measures, changes to Project Approval conditions or changes to the water management system resulting from the 2011 Modification.

5.2.3 Mining Operations Plan

The current MOP (WCPL, 2008) would require revision to reflect the revised product coal, coal reject and tailings production rates and the construction of the RO Plant as a result of the 2011 Modification.

6 REFERENCES

Australian Groundwater and Environmental (2005) *Wilpinjong Coal Project Land Contamination Assessment*.

Heggies (2010) *Wilpinjong Coal Mine - 75W Modification Noise Impact Assessment.*

Mount King Ecological Surveys (2005) *Wilpinjong Coal Project Terrestrial Fauna Assessment*. Appendix HB in Wilpinjong Coal Project Environmental Impact Statement.

PAE Holmes (2010) *Air Quality Impact Assessment Wilpinjong Coal Mine Modification.*

Richard Heggie Associates (2005) *Wilpinjong Coal Project Construction, Operation and Transportation Noise and Blasting Impact Assessment.* Appendix D in Wilpinjong Coal Pty Limited (2005) *Wilpinjong Coal Project Environmental Impact Statement.*

Umwelt (Australia) Pty Limited (2006) *Anvil hill Project Environmental Assessment.*

Unwelt (Australia) Pty Limited (2010) *Modifications to Mangoola Coal Mine Plans and Relocation of 500 kV Electricity Transmission Line.*

Wells Environmental Services (2009) *Moolarben Coal Project Environmental Assessment Report.*

Wilkinson Murray Pty Ltd (2009) *Ulan Coal Continued Operations Noise and Vibration Assessment.*

Wilpinjong Coal Pty Limited (2005) *Wilpinjong Coal Project Environmental Impact Statement.*

Wilpinjong Coal Pty Limited (2006a) *Wilpinjong Coal Mine Erosion and Sediment Control Plan.*

Wilpinjong Coal Pty Limited (2006b) *Wilpinjong Coal Mine Surface Water Management and Monitoring Plan.*

Wilpinjong Coal Pty Limited (2006c) *Wilpinjong Coal Mine Groundwater Monitoring Programme.*

Wilpinjong Coal Pty Limited (2006d) *Wilpinjong Coal Mine Spontaneous Combustion Management Plan.*

Wilpinjong Coal Pty Limited (2008) *Wilpinjong Coal Mine Mining Operations Plan (ML 1573).*

Wilpinjong Coal Pty Limited (2010a) *Wilpinjong Coal Mine Mining Rate Modification.*

Wilpinjong Coal Pty Limited (2010b) *Wilpinjong Coal Mine Annual Environmental Management Report*.

Wilpinjong Coal Pty Limited (2011a) *Wilpinjong Coal Mine Air Quality Monitoring Programme.*

Wilpinjong Coal Pty Limited (2011b) *Wilpinjong Coal Mine Rehabilitation Management Plan.*

Wilpinjong Coal Pty Limited (2011c) *Wilpinjong Coal Mine Blast Management Plan and Blast Monitoring Program.*

Wilpinjong Coal Pty Limited (2011d) *Wilpinjong Coal Mine Noise Management Plan.*

Wilpinjong Coal Pty Limited (2011e) *Wilpinjong Coal Mine Aboriginal Cultural Heritage Management Plan and North Eastern Wiradjuri Cultural Heritage Management Plan.*

ATTACHMENT 1

WILPINJONG COAL MINE CONSOLIDATED PROJECT APPROVAL (05-0021)

Project Approval

Section 75J of the *Environmental Planning and Assessment Act 1979*

I, the Minister for Planning, approve the project referred to in schedule 1, subject to the conditions in schedules 2 to 5.

These conditions are required to:
- prevent, minimise, and/or offset adverse environmental impacts;
- set standards and performance measures for acceptable environmental performance;
- require regular monitoring and reporting; and
- provide for the ongoing environmental management of the project.

SIGNED

Frank Sartor MP
Minister for Planning

Sydney 1 FEBRUARY 2006 File No: S04/00699

Red type represents November 2007 modification.
Blue type represents August 2010 modification

SCHEDULE 1

Application No:	05-0021.
Proponent:	Wilpinjong Coal Pty Limited.
Approval Authority:	Minister for Planning.
Land:	See Appendix 1.
Project:	Wilpinjong Coal Project.

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DEFINITIONS

Annual Review	The review required by condition 2 of schedule 5.
ARTC	Australian Rail Track Corporation Ltd
BCA	Building Code of Australia
CCC	Community Consultative Committee
Council	Mid-Western Regional Council
Day	The period from 7am to 6pm on Monday to Saturday, and 8am to 6pm on Sundays and Public Holidays
DECCW	Department of Environment, Climate Change and Water
Department	Department of Planning
Director-General	Director-General of Department of Planning, or delegate
EA	Environmental Impact Statement Assessment titled *Wilpinjong Coal Project EIS*, volumes 1-5, dated May 2005, and prepared by Resource Strategies Pty Ltd, as amended by the environmental assessment titled *Wilpinjong Coal Project Operational Phase Mine Access Route and Blasting Frequency Modification*, dated April 2007, and the environmental assessment titled *Wilpinjong Coal Mine Mining Rate Modification*, dated May 2010.
EEC	Endangered Ecological Community as defined under the NSW *Threatened Species Conservation Act 1995*
EP&A Act	*Environmental Planning and Assessment Act 1979*
EP&A Regulation	*Environmental Planning and Assessment Regulation 2000*
EPL	Environment Protection Licence issued by DECCW under the *Protection of the Environment Operations Act 1997*
Evening	The period from 6pm to 10pm
Feasible	Feasible relates to engineering considerations and what is practical to build
I&I NSW	Department of Industry and Investment, trading as Industry & Investment NSW
Incident	A set of circumstances that causes or threatens to cause material harm to the environment, and/or breaches or exceeds the limits or performance measures/criteria in this approval
Land	In general, the definition of land is consistent with the definition in the EP&A Act. However, in relation to the noise and air quality conditions in Schedules 3 and 4 it means the whole of a lot, or contiguous lots owned by the same landowner, in a current plan registered at the Land Titles Office at the date of this approval
Material harm to the environment	Harm to the environment is material if it involves actual or potential harm to the health or safety of human beings or to ecosystems that is not trivial
Mine Water	Water that accumulates within active mining areas, coal rejects emplacement areas, tailings dams and infrastructure areas, synonymous with dirty water
Mining operations	Includes all coal extraction, processing and transportation activities carried out on site
Minister	Minister for Planning, or delegate
Night	The period from 10pm to 7am on Monday to Saturday, and 10pm to 8am on Sundays and Public Holidays
NOW	NSW Office of Water
Offset Strategy	The enhancement and regeneration program described in the EIS for the Wilpinjong Coal Project, dated May 2005
POEO Act	*Protection of the Environment Operations Act 1997*
Privately-owned land	Land that is not owned by a public agency, or a mining company or its subsidiary
Project	The development as described in the EA
Proponent	Wilpinjong Coal Pty Limited, or its successors
Reasonable	Reasonable relates to the application of judgement in arriving at a decision, taking into account: mitigation benefits, cost of mitigation versus benefits provided, community views and the nature and extent of potential improvements
Rehabilitation	The treatment or management of land disturbed by the project for the purpose of establishing a safe, stable and non-polluting environment
ROM	Run of Mine
RTA	Roads and Traffic Authority
Site	Land to which the Project Application applies
Statement of Commitments	The Proponent's commitments in Appendix 8

SCHEDULE 2
ADMINISTRATIVE CONDITIONS

OBLIGATION TO MINIMISE HARM TO THE ENVIRONMENT

1. The Proponent shall implement all reasonable and feasible measures to prevent and/or minimise any material harm to the environment that may result from the construction, operation, or rehabilitation of the project.

TERMS OF APPROVAL

2. The Proponent shall carry out the project generally in accordance with the:
   (a) EA;
   (b) statement of commitments; and
   (c) conditions of this approval.

   Notes:
   - *The general layout of the project is shown in Appendix 2;*
   - *The statement of commitments is reproduced in Appendix 8.*

3. If there is any inconsistency between the above documents, the most recent document shall prevail to the extent of the inconsistency. However, the conditions of this approval shall prevail to the extent of any inconsistency.

4. The Proponent shall comply with any reasonable requirement/s of the Director-General arising from the Department's assessment of:
   (a) any reports, strategies, plans, programs, reviews, audits or correspondence that are submitted in accordance with this approval; and
   (b) the implementation of any actions or measures contained in these documents.

LIMITS ON APPROVAL

5. The Proponent may undertake mining operations on the site until 8 February 2027.

   Note:
   - *Under this approval, the Proponent is required to rehabilitate the site and perform additional undertakings to the satisfaction of the Director-General and I&I NSW. Consequently, this approval will continue to apply in all other respects other than the right to conduct mining operations until the site has been properly rehabilitated.*

6. The Proponent shall not:
   (a) extract more than 15 million tonnes of ROM coal from the site in a calendar year;
   (b) beneficiate more than 8.5 million tonnes of ROM coal at the Coal Handling and Preparation Plant on the site in a calendar year; and
   (c) export more than 12 million tonnes of product coal from the site in a calendar year.

7. The Proponent shall ensure that:
   (a) all product coal is transported from the site by rail;
   (b) no more than 6 laden trains leave the site each day.

STRUCTURAL ADEQUACY

8. The Proponent shall ensure that all new buildings and structures, and any alterations or additions to existing buildings and structures, are constructed in accordance with the relevant requirements of the BCA.

   Notes:
   - *Under Part 4A of the EP&A Act, the Proponent is required to obtain construction and occupation certificates for the proposed building works; and*
   - *Part 8 of the EP&A Regulation sets out the requirements for the certification of the project.*

DEMOLITION

9. The Proponent shall ensure that all demolition work is carried out in accordance with *Australian Standard AS 2601-2001: The Demolition of Structures*, or its latest version.

OPERATION OF PLANT AND EQUIPMENT

10. The Proponent shall ensure that all plant and equipment used at the site is:
    (a) maintained in a proper and efficient condition; and
    (b) operated in a proper and efficient manner.

STAGED SUBMISSION OF STRATEGIES, PLANS OR PROGRAMS

11. With the approval of the Director-General, the Proponent may submit any strategy, plan or program required by this approval on a progressive basis.

Note:

- *The conditions of this approval require certain strategies, plans, and programs to be prepared for the project. They also require these documents to be reviewed and audited on a regular basis to ensure they remain effective. However, in some instances, it will not be necessary or practicable to prepare these documents for the whole project at any one time; particularly as these documents are intended to be dynamic and improved over time. Consequently, the documents may be prepared and implemented on a progressive basis. In doing this however, the Proponent will need to demonstrate that it has suitable documents in place to manage the existing operations of the project.*

PLANNING AGREEMENT

12. By 31 December 2010, unless otherwise agreed by the Director-General, the Proponent shall use its best endeavours to enter into a planning agreement with Council, in accordance with Division 6 of Part 4 of the EP&A Act, that provides for the upgrade of Ulan-Wollar Road as described in Appendix 9.

SUPPLY OF OVERBURDEN

13. With the approval of the Director-General, the Proponent may supply small quantities of overburden material to regional infrastructure projects in the vicinity of the site.

Note:

- *The use of this material in the regional infrastructure project must be authorised prior to the supply of any material.*

SCHEDULE 3
SPECIFIC ENVIRONMENTAL CONDITIONS

ACQUISITION UPON REQUEST

1. Upon receiving a written request for acquisition from the owner of the land listed in Table 1, the Proponent shall acquire the land in accordance with the procedures in conditions 6 – 7 of schedule 4.

Table 1: Land subject to acquisition upon request

30 – Gaffney	45 – Smith
48 – Evans	50 – Thompson & Hopper
94 – McKenzie	

Note:

- *To interpret the locations referred to in Table 1, see the applicable figures in Appendix 7.*

NOISE

Noise Impact Assessment Criteria

2. Except for the land referred to in Table 1, the Proponent shall ensure that the noise generated by the project does not exceed the criteria in Table 2 at any residence on privately-owned land, or on more than 25 per cent of any privately-owned land.

Table 2: Noise Impact assessment criteria dB(A)

Location	Day	Evening	Night	
	$L_{Aeq(15\ minute)}$	$L_{Aeq(15\ minute)}$	$L_{Aeq(15\ minute)}$	$L_{A1(1\ minute)}$
58 – Maher 52A – Long 52B – Long 53 – Reynolds	35	39	39	45
23B – Bishop	35	39	37	45
25 – Pettit	35	39	36	45
31A – Conradt	35	37	37	45
31B – Conradt	35	36	36	45
100 – Rheinberger 125 – Roberts	35	37	35	45
Wollar Village – Residential	36	35	35	45
All other privately owned land	35	35	35	45
901 – Wollar School	35(internal) 45 (external) When in use			-
150A – St Luke's Anglican Church 900 – St Laurence O'Toole Catholic Church	40 (internal) When in use			-
Goulburn River National Park/Munghorn Gap Nature Reserve	50 When in use			-

However, the criteria in Table 2 do not apply if the Proponent has an agreement with the relevant owner/s to generate higher noise levels, and the Proponent has advised the Department in writing of the terms of this agreement.

Notes:

- *To interpret the locations referred to in Table 2, see the applicable figures in Appendix 7.*
- *Noise generated by the project is to be measured in accordance with the relevant procedures and exemptions (including certain meteorological conditions) of the NSW Industrial Noise Policy.*
- *For the Goulburn River National Park/Munghorn Nature Reserve noise levels are to be assessed at the most affected point at the boundary of the Goulburn River National Park/Munghorn Nature Reserve.*

Noise Acquisition Criteria

3. If the noise generated by the project exceeds the criteria in Table 3 at any residence on privately-owned land or on more than 25 per cent of any privately-owned land, the Proponent shall, upon receiving a written request for acquisition from the landowner, acquire the land in accordance with the procedures in conditions 6 – 7 of schedule 4.

Table 3: Land acquisition criteria dB(A)

Day/Evening/Night $L_{Aeq(15\ minute)}$	***Land***
40	*All privately owned land, excluding the land listed in Table 1*

Note:

- *Noise generated by the project is to be measured in accordance with the notes presented below Table 2. For the condition to apply, the exceedances must be systemic.*

Additional Noise Mitigation Measures

4. Upon receiving a written request from the owner of any residence:
   (a) on the land listed in Table 1; or
   (b) on the land listed 23B, 25, 52A, 52B, 53, or 58 in the applicable figures in Appendix 7; or
   (c) where subsequent noise monitoring shows that the noise generated by the project is greater than, or equal to, $L_{Aeq(15\ minute)}$ 38 dB(A),

   the Proponent shall implement reasonable and feasible noise mitigation measures (such as double glazing, insulation, and/or air conditioning) at the residence in consultation with the landowner.

   If within 3 months of receiving this request from the landowner, the Proponent and the landowner cannot agree on the measures to be implemented, or there is a dispute about the implementation of these measures, then either party may refer the matter to the Director-General for resolution.

5. By 30 November 2010, or within 1 month of obtaining monitoring results showing an exceedance of the relevant criteria listed in condition 4(c) above, the Proponent shall notify all applicable owners that they are entitled to ask for additional noise mitigation measures to be installed at their residence.

Operating Conditions

6. The Proponent shall:
   (a) implement all reasonable and feasible noise mitigation measures;
   (b) ensure that the real-time noise monitoring and meteorological forecasting data are assessed regularly, and that operations on site are relocated, modified, and/or stopped to ensure compliance with the relevant criteria in conditions 2 to 4 of this schedule; and
   (c) regularly investigate ways to reduce the operational, low frequency, rail, and road traffic noise generated by the project; and report on these investigations in the annual review (see condition 2 of schedule 5),

   to the satisfaction of the Director-General.

Noise Management Plan

7. The Proponent shall prepare and implement a Noise Management Plan for the project, in consultation with DECCW, and to the satisfaction of the Director-General. This plan must:
   (a) describe the noise mitigation measures that would be implemented to ensure compliance with the relevant noise impact assessment criteria in this approval, including the proposed real-time noise management system and associated meteorological forecasting; and
   (b) include a noise monitoring program, that uses a combination of real-time and supplementary attended monitoring measures to evaluate the performance of the project, and includes a protocol for determining exceedances with the relevant conditions of this approval.

BLASTING

Blast Impact Assessment Criteria

8. The Proponent shall ensure that blasting on the site does not cause exceedances of the criteria in Table 4.

Table 4: Blasting impact assessment criteria

Location	**Airblast overpressure (dB(Lin Peak))**	**Ground vibration (mm/s)**	**Allowable exceedance**
Residence on privately owned land	115	5	5% of the total number of blasts over a period of 12 months
	120	10	0%

Blasting Hours

9. The Proponent shall only carry out blasting on the site between 9am and 5pm Monday to Saturday inclusive. No blasting is allowed on Sundays, public holidays, or at any other time without the written approval of the Director-General.

Blasting Frequency

10. The Proponent shall comply with the following blasting restrictions on site:
    (a) a maximum of 2 blasts per day;
    (b) a maximum of 5 blasts per week, averaged over any 12 month period;
    (c) a maximum of 2 blasts per week where the maximum instantaneous charge (MIC) is greater than 400kg; and
    (d) a maximum of 1 blast per week where the MIC is greater than 400kg, when averaged over any 12 month period.

    However the Director-General may approve minor variations to these restrictions for short periods of time.

Property Inspections

11. If the Proponent receives a written request for a property inspection from any landowner within 3 km of the project, the Proponent shall within 2 months of receiving this request:
    (a) commission a suitably qualified, experienced and independent person, whose appointment has been approved by the Director-General, to:
        - establish the baseline condition of any building or structures on the land;
        - inspect the condition of any building or structure on the land, and recommend measures to mitigate any potential blasting impacts; and
    (b) give the landowner a copy of the property inspection report.

Property Investigations

12. If any landowner of privately-owned land claims that buildings and/or structures on his/her land have been damaged as a result of blasting associated with the project, then within 3 months of receiving this request, the Proponent shall:
    (a) commission a suitably qualified, experienced and independent person, whose appointment has been approved by the Director-General, to investigate the claim; and
    (b) give the landowner a copy of the property investigation report.

    If this independent property investigation confirms the landowner's claim, and both parties agree with these findings, then the Proponent shall repair the damages to the satisfaction of the Director-General.

    If the Proponent or landowner disagrees with the findings of the independent property investigation, then either party may refer the matter to the Director-General for resolution.

Operating Conditions

13. During mining operations on the site, the Proponent shall:
    (a) implement best blasting practice to:
        - protect the safety of people and livestock in the area surrounding blasting operations;
        - protect public or private infrastructure/property and Aboriginal cultural heritage sites in the area surrounding blasting operations from blasting damage; and
        - minimise the dust and fume emissions from blasting at the project;
    (b) limit temporary blasting-related road closures to 1 per day;
    (c) co-ordinate the timing of blasting on site with the timing of blasting at the adjoining Moolarben and Ulan coal mines to minimise the potential cumulative blasting impacts of the three mines, and
    (d) operate a suitable system to enable the public to get up-to-date information on the proposed blasting schedule on site,

    to the satisfaction of the Director-General.

14. Prior to carrying out any blasting within 500 metres of a public road or railway on the site, the Proponent shall obtain approval from Council (in respect of public roads) and ARTC (in respect of the Gulgong-Sandy Hollow railway).

Blast Management Plan

15. The Proponent shall prepare and implement a Blast Management Plan for the project, in consultation with DECCW, and to the satisfaction of the Director-General. This program must:
    (a) describe the blast mitigation measures that would be implemented to ensure compliance with the relevant conditions of this approval; and
    (b) include a blast monitoring program to evaluate the performance of the project.

AIR QUALITY

Odour

16. The Proponent shall ensure that no offensive odours are emitted from the site, as defined under the POEO Act.

Greenhouse Gas Emissions

17. The Proponent shall implement all reasonable and feasible measures to minimise the release of greenhouse gas emissions from the site to the satisfaction of the Director-General.

Air Quality Impact Assessment Criteria

18. Except for the land referred to in Table 1, the Proponent shall ensure that the dust emissions generated by the project do not cause additional exceedances of the criteria listed in Tables 5, 6, and 7 at any residence on privately-owned land, or on more than 25 percent of any privately-owned land.

Table 5: Long term impact assessment criteria for particulate matter

Pollutant	Averaging period	Criterion
Total suspended particulate (TSP) matter	Annual	90 µg/m^3
Particulate matter < 10 µm (PM_{10})	Annual	30 µg/m^3

Table 6: Short term impact assessment criterion for particulate matter

Pollutant	Averaging period	Criterion
Particulate matter < 10 µm (PM_{10})	24 hour	50 µg/m^3

Table 7: Long term impact assessment criteria for deposited dust

Pollutant	Averaging period	Maximum increase in deposited dust level	Maximum total deposited dust level
Deposited dust	Annual	2 g/m^2/month	4 g/m^2/month

Note:

- *Deposited dust is assessed as insoluble solids as defined by Standards Australia, 1991, AS 3580.10.1-1991: Methods for Sampling and Analysis of Ambient Air - Determination of Particulates - Deposited Matter - Gravimetric Method.*

Land Acquisition Criteria

19. If the dust emissions generated by the project exceed the criteria in Tables 8, 9, and 10 at any residence on, or on more than 25 percent of, any privately-owned land, the Proponent shall, upon receiving a written request for acquisition from the landowner, acquire the land in accordance with the procedures in conditions 6 – 7 of schedule 4.

Table 8: Long term land acquisition criteria for particulate matter

Pollutant	Averaging period	Criterion
Total suspended particulate (TSP) matter	Annual	90 µg/m^3
Particulate matter < 10 µm (PM_{10})	Annual	30 µg/m^3

Table 9: Short term land acquisition criteria for particulate matter

Pollutant	Averaging period	Criterion	Percentile[1]	Basis
Particulate matter < 10 µm (PM_{10})	24 hour	150 µg/m^3	99[2]	Total[3]
Particulate matter < 10 µm (PM_{10})	24 hour	50 µg/m^3	98.6	Increment[4]

[1]Based on the number of block 24 hour averages in an annual period.
[2]Excludes extraordinary events such as bushfires, prescribed burning, dust storms, sea fog, fire incidents, illegal activities or any other activity agreed by the Director-General in consultation with the DECCW.
[3]Background PM_{10} concentrations due to all other sources plus the incremental increase in PM_{10} concentrations due to the mine alone.
[4]Incremental increase in PM_{10} concentrations due to the mine alone.

Table 10: Long term land acquisition criteria for deposited dust

Pollutant	Averaging period	Maximum increase in deposited dust level	Maximum total deposited dust level
Deposited dust	Annual	2 g/m^2/month	4 g/m^2/month

Note:

- *Deposited dust is assessed as insoluble solids as defined by Standards Australia, 1991, AS 3580.10.1-1991: Methods for Sampling and Analysis of Ambient Air - Determination of Particulates - Deposited Matter - Gravimetric Method.*

Operating Conditions

20. The Proponent shall:
    (a) implement all practicable measures to minimise the off-site odour and fume emissions generated by any spontaneous combustion at the project;
    (b) ensure any visible air pollution generated by the project is assessed regularly, and that mining operations are relocated, modified, and/or stopped as required to minimise air quality impacts on privately-owned land; and
    (c) ensure real-time air quality monitoring for 24-hour average PM_{10} and the meteorological monitoring data are assessed regularly, and that mining operations are relocated, modified and/or stopped as required to ensure compliance with the relevant criteria in this approval,
    to the satisfaction of the Director-General.

Air Quality & Greenhouse Gas Management Plan

21. The Proponent shall prepare and implement an Air Quality & Greenhouse Gas Management Plan for the project, in consultation with DECCW, and to the satisfaction of the Director-General. This program must:
    (a) describe the measures that would be implemented to ensure compliance with the relevant conditions of this approval, including the proposed real-time air quality management system; and
    (b) include an air quality monitoring program, that uses a combination of real-time monitors, high volume samplers and dust deposition gauges to evaluate the performance of the project, and includes a protocol for determining exceedances with the relevant air quality impact assessment criteria.

Note:

- *The air quality monitoring program may incorporate monitoring from any relevant regional monitoring network endorsed by DECCW.*

METEOROLOGICAL MONITORING

22. During the life of the project, the Proponent shall ensure that there is a suitable meteorological station operating in the vicinity of the site that:
    (a) complies with the requirements in *Approved Methods for Sampling of Air Pollutants in New South Wales* guideline; and
    (b) is capable of continuous real-time measurement of temperature lapse rate in accordance with the *NSW Industrial Noise Policy,*

    to the satisfaction of the Director-General.

    Note:
    - *A system to measure temperature lapse rate at the site must be established in accordance with condition 22(b) by 31 December 2010, or as otherwise agreed by the Director-General.*

SOIL AND WATER

Water Supply

23. The Proponent shall ensure that it has sufficient water for all stages of the project, and if necessary, adjust the scale of mining operations to match its licensed water entitlements, to the satisfaction of the Director-General.

Discharge Limits

24. The Proponent shall not discharge any water from the site or irrigate any waste water on site except as may be expressly provided by an EPL, or in accordance with section 120 of the POEO Act.

Cumbo Creek Relocation

25. The Proponent shall design, construct, maintain, and rehabilitate the proposed relocation of Cumbo Creek, to the satisfaction of the Director-General.

26. Within one month of completing the construction of the Cumbo Creek relocation, the Proponent shall submit an as-executed report, certified by a practising registered engineer, to the Director-General.

27. Prior to destroying the original creek line, the Proponent shall demonstrate that the Cumbo Creek Relocation is operating successfully, in consultation with NOW, and to the satisfaction of the Director-General.

Site Water Management Plan

28. The Proponent shall prepare and implement a Site Water Management Plan for the project, to the satisfaction of the Director-General. This plan must:
    (a) be prepared in consultation with DECCW and NOW by suitably qualified expert/s whose appointment/s have been approved by the Director-General; and
    (b) include:
        - a Cumbo Creek Relocation Plan;
        - a Site Water Balance;
        - an Erosion and Sediment Control Plan;
        - a Surface Water Management and Monitoring Plan;
        - a Ground Water Monitoring Program; and
        - a Surface and Ground Water Response Plan.

    Note:
    - *The Department accepts that the initial Site Water Management Plan may not include the detailed plans for the proposed relocation of Cumbo Creek. However, if this occurs, the Proponent will be required to seek approval from the Director-General for an alternative timetable for completion and approval of the Cumbo Creek Relocation Plan.*

Cumbo Creek Relocation Plan

29. The Cumbo Creek Relocation Plan must include:
    (a) a vision statement for the creek relocation;
    (b) an assessment of the water quality, ecological, hydrological and geomorphic baseline conditions in Cumbo Creek;
    (c) the detailed design and specifications for the creek relocation;
    (d) a construction program for the creek relocation, describing how the work would be staged, and integrated with mining operations;
    (e) a revegetation program for the relocated creek using a range of suitable native species;
    (f) water quality, ecological, hydrological and geomorphic performance and completion criteria for the creek relocation based on the assessment of baseline conditions; and

(g) a program to monitor and maintain the water quality, ecological, hydrological and geomorphic integrity of the creek relocation.

Site Water Balance

30. The Site Water Balance must:
    (a) include details of:
        - sources of water;
        - reliability of water supply;
        - water use on site;
        - water management on site;
        - off-site water transfers;
        - reporting procedures; and
    (b) describe measures to minimise water use by the project.

Erosion and Sediment Control

31. The Erosion and Sediment Control Plan must:
    (a) be consistent with the requirements of the Department of Housing's Managing Urban Stormwater: Soils and Construction manual;
    (b) identify activities that could cause soil erosion and generate sediment;
    (c) describe measures to minimise soil erosion and the potential for the transport of sediment to downstream waters;
    (d) describe the location, function, and capacity of erosion and sediment control structures; and
    (e) describe what measures would be implemented to maintain the structures over time.

Surface Water Management and Monitoring

32. The Surface Water Management and Monitoring Plan must include:
    (a) detailed baseline data on surface water flows and quality in creeks and other waterbodies that could potentially be affected by the project;
    (b) surface water and stream health assessment criteria;
    (c) a program to monitor surface water flows, quality and impacts on water users (upstream and downstream of the project in Wilpinjong and Cumbo Creeks);
    (d) a program to assess stream health conditions in Wilpinjong and Cumbo Creeks;
    (e) a program to monitor channel stability in Wilpinjong and Cumbo Creeks;
    (f) reporting procedures; and
    (g) a protocol for the investigation, notification, and mitigation of identified exceedances of the surface water and stream health assessment criteria.

Groundwater Monitoring

33. The Groundwater Monitoring Program must include:
    (a) detailed baseline data, based on sound statistical analysis, to benchmark the pre-mining natural variation in groundwater levels, yield and quality (including privately owned groundwater bores within the predicted drawdown impact zone identified in the EA);
    (b) groundwater impact assessment criteria (including for monitoring bores and privately owned bores);
    (c) a program for accurately delineating the boundary of the Wilpinjong Creek alluvial aquifer in any areas intersected by mining;
    (d) a program to monitor:
        - impacts on the groundwater supply of potentially affected landowners;
        - impacts of the water supply borefield;
        - impacts on the Wilpinjong Creek alluvial aquifer;
        - connectivity and groundwater leakage to/from Cumbo Creek following relocation;
        - impacts on groundwater dependent ecosystems and riparian vegetation;
        - the volume of ground water seeping into the open cut mine workings;
        - regional ground water levels and quality in the alluvial, coal seam, and interburden aquifers; and
        - the groundwater pressure response in the surrounding coal measures.
    (e) procedures for the verification of the groundwater model; and
    (f) reporting procedures for the results of the monitoring program and model verification.

Surface and Ground Water Response Plan

34. The Surface and Ground Water Response Plan must include:
    (a) a protocol for the investigation, notification and mitigation of any exceedances of the surface water, stream health and groundwater impact assessment criteria;
    (b) measures to mitigate and/or compensate potentially affected landowners with privately owned groundwater bores within the predicted drawdown impact zone identified in the EA, including provision of alternative long term supply of water to the affected landowner that is equivalent to

the loss attributed to the project;

(c) measures to mitigate and/or compensate potentially affected landowners for the loss of surface water flows in Wilpinjong Creek downstream of the open cut;

(d) measures to minimise, prevent or offset groundwater leakage from the Wilpinjong Creek alluvial aquifer if the rate of leakage exceeds EA predictions;

(e) measures to mitigate any direct hydraulic connection between the backfilled open cut and the Wilpinjong Creek and Cumbo Creek alluvium if the potential for adverse impacts is detected; and

(f) the procedures that would be followed if any unforeseen impacts are detected during the project.

35. Within 6 months of the Independent Environmental Audit (see condition 7 in schedule 5), the Proponent shall update the Site Water Management Plan to the satisfaction of the Director-General.

LANDSCAPE MANAGEMENT

36. The Proponent shall:

(a) implement the Offset Strategy described in the EA and summarised in Table 11 (shown conceptually in Appendix 3) ; and

(b) progressively rehabilitate the site in a manner that is generally consistent with the final landform in the EA (shown conceptually in Appendix 4),

to the satisfaction of the Director-General.

Table 11: Offset Strategy

Area	Size
Enhancement and Conservation Areas	480 ha
Regeneration Areas	350 ha

37. The Proponent shall make suitable arrangements to provide appropriate long term security for the Enhancement and Conservation Areas, to the satisfaction of the Director-General.

38. The Proponent shall, in consultation with DECCW:

(a) secure ownership of land beyond the boundary of the site which contains sufficient areas of Yellow Box White Box Blakely's Red Gum Woodland EEC to satisfactorily offset the impacts of the project on the EEC; and

(b) make suitable arrangements to secure the long term protection of this land,

to the satisfaction of the Director-General.

Landscape Management Plan

39. The Proponent must prepare and implement a detailed Landscape Management Plan for the project, in consultation with NOW, DECCW and I&I NSW and to the satisfaction of the Director-General. This plan must be prepared by suitably qualified expert/s whose appointment/s have been approved by the Director-General, and must include a:

(a) Rehabilitation Management Plan;

(b) Final Void Management Plan; and

(c) Mine Closure Plan.

Note: The Department accepts that the initial Rehabilitation and Landscape Management Plan may not include the detailed Final Void Management Plan and Mine Closure Plan. However, if this occurs, the Proponent will be required to seek approval from the Director-General for an alternative timetable for completion and approval of the Final Void Management Plan and Mine Closure Plan.

Rehabilitation Management Plan

40. The Rehabilitation Management Plan must include:

(a) the rehabilitation objectives for the site;

(b) a description of the short, medium, and long term measures that would be implemented to:

- rehabilitate the site;
- implement the Offset Strategy; and
- manage the remnant vegetation and habitat on the site;

(c) detailed assessment and completion criteria for the rehabilitation of the site;

(d) a detailed description of how the performance of the rehabilitation of the mine would be monitored over time to achieve the stated objectives;

(e) a detailed description of what measures would be implemented over the next 3 years to rehabilitate and manage the landscape of the site including the procedures to be implemented for:

- progressively rehabilitating areas disturbed by mining;
- implementing revegetation and regeneration within the Offset Strategy;
- protecting areas outside the disturbance areas;

- rehabilitating creeks on the site (including Wilpinjong Creek);
- undertaking pre-clearance surveys;
- managing impacts on fauna;
- landscaping the site to minimise visual impacts;
- conserving and reusing topsoil;
- collecting and propagating seed for rehabilitation works;
- salvaging and reusing material from the site for habitat enhancement;
- controlling weeds and feral pests;
- controlling access;
- bushfire management;
- managing any potential conflicts between the rehabilitation of the mine and Aboriginal cultural heritage; and

(f) details of who is responsible for monitoring, reviewing, and implementing the plan.

Note: Reference to "rehabilitation" in this approval includes all works associated with the rehabilitation and restoration of the site as described in the EA, and applies to all areas within the Mining Lease, Offset Strategy, and the areas proposed to be rehabilitated along Wilpinjong Creek.

Final Void Management

41. The Final Void Management Plan must:
    (a) justify the planned final location and future use of the final void/s;
    (b) incorporate design criteria and specifications for the final void/s based on verified groundwater modelling predictions and a re-assessment of post-mining groundwater equilibration;
    (c) assess the potential interactions between creeks on the site and the final void/s; and
    (d) describe what actions and measures would be implemented to:
        - minimise any potential adverse impacts associated with the final void; and
        - manage and monitor the potential impacts of the final void until the Mining Lease for the project is relinquished.

Mine Closure Plan

42. The Mine Closure Plan must:
    (a) define the objectives and criteria for mine closure;
    (b) investigate options for the future use of the site, including any final void/s;
    (c) describe the measures that would be implemented to minimise or manage the ongoing environmental effects of the project; and
    (d) describe how the performance of these measures would be monitored over time.

43. Within 6 months of the Independent Environmental Audit (see condition 7 in schedule 5), the Proponent shall update the Rehabilitation and Landscape Management Plan to the satisfaction of the Director-General.

Conservation Bond

44. Following the Independent Environmental Audit (see condition 7 in schedule 5) at the end of year 12 of the project, the Proponent shall lodge a conservation bond with the Department to ensure that there are sufficient resources available to fully implement the Offset Strategy. The size of the bond will be set by the Director-General, in consultation with the Proponent, at that time, of fully implementing the Offset Strategy in accordance with the completion criteria set out in the approved Rehabilitation and Landscape Management Plan. The bond will be adjusted by the Director-General, in consultation with the Proponent, after each subsequent Independent Environmental Audit.

Notes:

- *If the Offset Strategy is completed to the satisfaction of the Director-General, the Director-General will release the conservation bond.*
- *If the Offset Strategy is not completed to the satisfaction of the Director-General, the Director-General will call in all or part of the conservation bond, and arrange for the satisfactory completion of the relevant works.*
- *The conservation bond does not apply to areas subject to equivalent bonding arrangements under the Mining Act 1992. If amendments to the Mining Act allow the Minister for Mineral Resources to require rehabilitation securities under a Mining Lease which apply to the implementation of rehabilitation works outside the boundary of a Mining Lease, the Proponent may transfer the conservation bond required under this approval to the Minister of Mineral Resources provided the Director-General and I&I NSW agree to the transfer.*

HERITAGE

Archaeological Salvage Program

45. The Proponent shall prepare and implement a salvage program for the project, in consultation with the DECCW and the Aboriginal communities, and to the satisfaction of the Director-General.

46. Before the commencement of salvage operations, the Proponent shall ensure that a keeping place is established to temporarily house objects recovered from the salvage program.

47. The Proponent shall temporarily house the objects recovered during the salvage program in the keeping place established for the purpose, and in consultation with the DECCW and the Aboriginal communities, replace the objects within the rehabilitated landscape.

Aboriginal Cultural Heritage Management Plan

48. The Proponent shall prepare and implement an Aboriginal Cultural Heritage Management Plan, in consultation with DECCW and the Aboriginal communities, and to the satisfaction of the Director-General. The plan must include:
    (a) a detailed description of the measures that would be implemented to protect Aboriginal sites outside the project disturbance area;
    (b) a detailed monitoring program for Aboriginal sites 72, 152 and 153 (as shown in Appendix 5);
    (c) a description of the measures that would be implemented if any new Aboriginal objects or skeletal remains are discovered during the project; and
    (d) a protocol for the ongoing consultation and involvement of the Aboriginal communities in the conservation and management of Aboriginal cultural heritage on the site.

Archival Record of Certain Heritage Sites

49. The Proponent shall prepare an archival record of the remaining heritage sites listed in Table 3-20 of the EA (shown in Appendix 6), prior to any activity associated with the project that may disturb these sites, in accordance with the requirements of the NSW Heritage Office, and to the satisfaction of the Director-General.

TRANSPORT

Monitoring of Coal Transport

50. The Proponent shall:
    (a) keep records of the:
        - amount of coal transported from the site each year; and
        - number of coal haulage train movements generated by the project (on a daily basis); and
    (b) include these records in the Annual Review.

Ulan Road Strategy

51. By the end of December 2011, unless the Director-General directs otherwise, the Proponent shall prepare a strategy for the upgrade and maintenance of Ulan Road between Mudgee and the entrance to the underground surface facilities at the Ulan mine over the next 21 years, to the satisfaction of the Director-General. This strategy must be prepared in conjunction with the owners of both the Moolarben and Ulan mines, and the cost of preparing the strategy should be shared equally between the Proponent and the owners of the Moolarben and Ulan mines. The strategy must:
    (a) be prepared by a suitably qualified, experienced and independent person whose appointment has been endorsed by the Director-General;
    (b) be prepared in consultation with both the RTA and Council;
    (c) determine the design standard of the relevant section of road (and any associated intersections) to the satisfaction of the RTA (based on the relevant road design guideline(s));
    (d) identify the works required to upgrade the road to the agreed design standard;
    (e) estimate the cost of these works and the likely annual costs for maintaining the upgraded road;
    (f) identify any measures that could be implemented to reduce the amount of mine traffic on the road, such as providing long-term parking in Mudgee to support increased car pooling, and the likely cost of implementing these measures;
    (g) identify any measures that could be implemented to minimise the traffic noise impacts of mine traffic on Ulan Road on adjoining residences, and the likely cost of implementing these measures
    (h) include a detailed program for the proposed upgrade and maintenance of the road, implementation of traffic noise mitigation measures, and implementation of any works to support efforts to reduce the amount of mine traffic on the road;
    (i) calculate what each mine and the Council shall contribute towards the implementation of the detailed program outlined in (h) above, including consideration of:
        - the likely traffic generated by each mine as a proportion of the total traffic on the road;

- any mine contributions that have been made towards the upgrading of the road in recent years; and
- any relevant planning agreements that deal with the funding or maintenance of roads in the Mid-Western LGA; and

(j) include a detailed contributions plan for the three mines and the Council to support the implementation of the detailed program described in (g) above.

If there is any dispute between the various parties involved in either the preparation or the implementation of the strategy, then any of the parties may refer the matter to the Director-General for resolution.

52. Once the Ulan Road Strategy (referred to in condition 51) has been approved by the Director-General, the Proponent shall either implement, or contribute towards the implementation of the strategy, to the satisfaction of the Director-General.

Road Traffic Management

53. The Proponent shall:
(a) implement all reasonable and feasible measures to reduce the mine traffic on Ulan Road;
(b) schedule shift changes on site to occur outside the school bus hours; and
(c) co-ordinate the shift changes on site with the shift changes of the adjoining Moolarben and Wilpinjong coal mines to minimise the potential cumulative traffic impacts of the shift changes of the three mines,
to the satisfaction of the Director-General.

VISUAL IMPACT

Visual Amenity

54. The Proponent shall minimise the visual impacts of the project to the satisfaction of the Director-General.

Lighting Emissions

55. The Proponent shall:
(a) take all practicable measures to mitigate off-site lighting impacts from the project; and
(b) ensure that all external lighting associated with the project complies with *Australian Standard AS4282 (INT) 1995 – Control of Obtrusive Effects of Outdoor Lighting*,
to the satisfaction of the Director-General.

WASTE

56. The Proponent shall:
(a) monitor the amount of waste generated by the project;
(b) investigate ways to minimise waste generated by the project;
(c) implement reasonable and feasible measures to minimise waste generated by the project;
(d) ensure irrigation of treated wastewater is undertaken in accordance with DECCW's *Environmental Guideline for the Utilisation of Treated Effluent*; and
(e) report on waste management and minimisation in the Annual Review,
to the satisfaction of the Director-General.

SCHEDULE 4
ADDITIONAL PROCEDURES FOR AIR QUALITY & NOISE MANAGEMENT

NOTIFICATION OF LANDOWNERS

1. By the end of September 2010, the Proponent shall notify the owners of the land listed in Table 1 of schedule 3 in writing that they have the right to require the Proponent to acquire their land at any stage during the project.

2. If the results of the monitoring required in schedule 3 identify that impacts generated by the project are greater than the relevant impact assessment criteria, and there is no negotiated agreement in place to allow the impact, then within 2 weeks of obtaining the monitoring results the Proponent shall:
   (a) notify the Director-General, the affected landowners and tenants (including tenants of mine-owned properties) accordingly, and provide monitoring results to each of these parties until the results show that the project is complying with the criteria in schedule 3; and
   (b) in the case of exceedances of the relevant air quality impact assessment criteria, send the affected landowners and tenants (including tenants of mine-owned properties) a copy of the NSW Health fact sheet entitled *"Mine Dust and You"* (as may be updated from time to time).

INDEPENDENT REVIEW

3. If a landowner of privately-owned land considers the project to be exceeding the relevant air quality or noise impact assessment criteria in schedule 3, then he/she may ask the Director-General in writing for an independent review of the impacts of the project on his/her land.

   If the Director-General is satisfied that an independent review is warranted, the Proponent shall within 2 months of the Director-General's decision:
   (a) commission a suitably qualified, experienced and independent expert, whose appointment has been approved by the Director-General, to:
      - consult with the landowner to determine his/her concerns;
      - conduct monitoring to determine whether the project is complying with the relevant impact assessment criteria in schedule 3; and
      - if the project is not complying with these criteria then:
         - determine if more than one mine is responsible for the exceedance, and if so the relative share of each mine towards the impact on the land;
         - identify the measures that could be implemented to ensure compliance with the relevant criteria; and
   (b) give the Director-General and landowner a copy of the independent review.

4. If the independent review determines that the project is complying with the relevant impact assessment criteria in schedule 3, then the Proponent may discontinue the independent review with the approval of the Director-General.

   If the independent review determines that the project is not complying with the relevant impact assessment criteria in schedule 3, and that the project is primarily responsible for this non-compliance, then the Proponent shall:
   (a) implement all reasonable and feasible mitigation measures, in consultation with the landowner and appointed independent expert, and conduct further monitoring until the project complies with the relevant criteria; or
   (b) secure a written agreement with the landowner to allow exceedances of the relevant impact assessment criteria,

   to the satisfaction of the Director-General.

   If the independent review determines that the project is not complying with the relevant land acquisition criteria in schedule 3, and that the project is primarily responsible for this non-compliance, then upon receiving a written request from the landowner, the Proponent shall acquire all or part of the landowner's land in accordance with the procedures in conditions 6-7 below.

5. If the independent review determines that the relevant impact assessment criteria in schedule 3 are being exceeded, but that more than one mine is responsible for this non-compliance, then the Proponent shall, together with the relevant mine/s:
   (a) implement all reasonable and feasible mitigation measures, in consultation with the landowner and appointed independent expert, and conduct further monitoring until there is compliance with the relevant criteria; or
   (b) secure a written agreement with the landowner and other relevant mines to allow exceedances of the relevant impact assessment criteria in schedule 3,

   to the satisfaction of the Director-General.

If the independent review determines that the project is not complying with the relevant land acquisition criteria in schedule 3, but that more than one mine is responsible for this non-compliance, then upon receiving a written request from the landowner, the Proponent shall acquire all or part of the landowner's land on as equitable a basis as possible with the relevant mine/s, in accordance with the procedures in conditions 6-7 below.

LAND ACQUISITION

6. Within 3 months of receiving a written request from a landowner with acquisition rights, the Proponent shall make a binding written offer to the landowner based on:
   (a) the current market value of the landowner's interest in the property at the date of this written request, as if the property was unaffected by the project, having regard to the:
      - existing and permissible use of the land, in accordance with the applicable planning instruments at the date of the written request; and
      - presence of improvements on the property and/or any approved building or structure which has been physically commenced at the date of the landowner's written request, and is due to be completed subsequent to that date, but excluding any improvements that have resulted from the implementation of the 'additional noise mitigation measures' in condition 7 of schedule 3;

   (b) the reasonable costs associated with:
      - relocating within the Mid-Western Regional local government area, or to any other local government area determined by the Director-General; and
      - obtaining legal advice and expert advice for determining the acquisition price of the land, and the terms upon which it is to be acquired; and

   (c) reasonable compensation for any disturbance caused by the land acquisition process.

   However, if at the end of this period, the Proponent and landowner cannot agree on the acquisition price of the land and/or the terms upon which the land is to be acquired, then either party may refer the matter to the Director-General for resolution.

   Upon receiving such a request, the Director-General shall request the President of the NSW Division of the Australian Property Institute to appoint a qualified independent valuer to:
   - consider submissions from both parties;
   - determine a fair and reasonable acquisition price for the land and/or the terms upon which the land is to be acquired, having regard to the matters referred to in paragraphs (a)-(c) above;
   - prepare a detailed report setting out the reasons for any determination; and
   - provide a copy of the report to both parties.

   Within 14 days of receiving the independent valuer's report, the Proponent shall make a binding written offer to the landowner to purchase the land at a price not less than the independent valuer's determination.

   However, if either party disputes the independent valuer's determination, then within 14 days of receiving the independent valuer's report, they may refer the matter to the Director-General for review. Any request for a review must be accompanied by a detailed report setting out the reasons why the party disputes the independent valuer's determination. Following consultation with the independent valuer and both parties, the Director-General shall determine a fair and reasonable acquisition price for the land, having regard to the matters referred to in paragraphs (a)-(c) above and the independent valuer's report, and the detailed report of the party that disputes the independent valuer's determination.

   Within 14 days of this determination, the Proponent shall make a binding written offer to the landowner to purchase the land at a price not less than the Director-General's determination.

   If the landowner refuses to accept the Proponent's binding written offer under this condition within 6 months of the offer being made, then the Proponent's obligations to acquire the land shall cease, unless the Director-General determines otherwise.

7. The Proponent shall pay all reasonable costs associated with the land acquisition process described in condition 6 above, including the costs associated with obtaining Council approval for any plan of subdivision (where permissible), and registration of this plan at the Office of the Registrar-General.

SCHEDULE 5
ENVIRONMENTAL MANAGEMENT, REPORTING AND AUDITING

ENVIRONMENTAL MANAGEMENT

Environmental Management Strategy

1. The Proponent shall prepare and implement an Environmental Management Strategy for the project to the satisfaction of the Director-General. The strategy must:
   (a) be submitted to the Director-General for approval within 6 months of the date of this approval;
   (b) provide the strategic framework for environmental management of the project;
   (c) identify the statutory approvals that apply to the project;
   (d) describe the role, responsibility, authority and accountability of all key personnel involved in the environmental management of the project;
   (e) describe the procedures that would be implemented to:
      - keep the local community and relevant agencies informed about the operation and environmental performance of the project;
      - receive, handle, respond to, and record complaints;
      - resolve any disputes that may arise during the course of the project;
      - respond to any non-compliance;
      - respond to emergencies; and
   (f) include:
      - copies of the various strategies, plans and programs that are required under the conditions of this approval once they have been approved; and
      - a clear plan depicting all the monitoring to be carried out in relation to the project.

Management Plan Requirements

2. The Proponent shall ensure that the management plans required under this approval are prepared in accordance with any relevant guidelines, and include:
   (a) detailed baseline data;
   (b) a description of:
      - the relevant statutory requirements (including any relevant approval, licence or lease conditions);
      - any relevant limits or performance measures/criteria;
      - the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the project or any management measures;
   (c) a description of the measures that would be implemented to comply with the relevant statutory requirements, limits, or performance measures/criteria;
   (d) a program to monitor and report on the:
      - impacts and environmental performance of the project;
      - effectiveness of any management measures (see c above);
   (e) a contingency plan to manage any unpredicted impacts and their consequences;
   (f) a program to investigate and implement ways to improve the environmental performance of the project over time;
   (g) a protocol for managing and reporting any:
      - incidents;
      - complaints;
      - non-compliances with statutory requirements; and
      - exceedances of the impact assessment criteria and/or performance criteria; and
   (h) a protocol for periodic review of the plan.

Annual Review

3. By the end of December 2011, and annually thereafter, the Proponent shall review the environmental performance of the project to the satisfaction of the Director-General. This review must:
   (a) describe the development (including any rehabilitation) that was carried out in the past year, and the development that is proposed to be carried out over the next year;
   (b) include a comprehensive review of the monitoring results and complaints records of the project over the past year, which includes a comparison of these results against the:
      - relevant statutory requirements, limits or performance measures/criteria;
      - monitoring results of previous years; and
      - relevant predictions in the EA;
   (c) identify any non-compliance over the last year, and describe what actions were (or are being) taken to ensure compliance;
   (d) identify any trends in the monitoring data over the life of the project;

(e) identify any discrepancies between the predicted and actual impacts of the project, and analyse the potential cause of any significant discrepancies; and
(f) describe what measures will be implemented over the next year to improve the environmental performance of the project.

Revision of Strategies, Plans and Programs

4. Within 3 months of the submission of an:
(a) annual review under condition 3 above;
(b) incident report under condition 7 below;
(c) audit under condition 9 below; or
(d) any modification to the conditions of this approval;
the Proponent shall review, and if necessary revise, the strategies, plans, and programs required under this approval to the satisfaction of the Director-General.

Note: This is to ensure the strategies, plans and programs are updated on a regular basis, and incorporate any recommended measures to improve the environmental performance of the project.

Community Consultative Committee

5. The Proponent shall establish and operate a Community Consultative Committee (CCC) for the project to the satisfaction of the Director-General. This CCC must be established and operated in general accordance with the *Guidelines for Establishing and Operating Community Consultative Committees for Mining Projects* (Department of Planning, 2007, or its latest version).

Notes:
- *The CCC is an advisory committee. The Department and other relevant agencies are responsible for ensuring that the Proponent complies with this approval.*
- *In accordance with the Guideline, the Committee should comprise an independent chair and appropriate representation from the Proponent, affected councils and the general community.*

Management of Cumulative Impacts

6. In conjunction with the owners of the nearby Moolarben and Ulan mines, the Proponent shall use its best endeavours to minimise the cumulative impacts of the project on the surrounding area, to the satisfaction of the Director-General.

REPORTING

Incident Reporting

7. The Proponent shall notify the Director-General and any other relevant agencies of any incident associated with the project as soon as practicable after the Proponent becomes aware of the incident. Within 7 days of the date of the incident, the Proponent shall provide the Director-General and any relevant agencies with a detailed report on the incident.

Regular Reporting

8. The Proponent shall provide regular reporting on the environmental performance of the project on its website, in accordance with the reporting arrangements in any plans or programs approved under the conditions of this approval, and to the satisfaction of the Director-General.

INDEPENDENT ENVIRONMENTAL AUDIT

9. By the end of December 2011, and every 3 years thereafter, unless the Director-General directs otherwise, the Proponent shall commission and pay the full cost of an Independent Environmental Audit of the project. This audit must:
(a) be conducted by a suitably qualified, experienced and independent team of experts whose appointment has been endorsed by the Director-General;
(b) include consultation with the relevant agencies;
(c) assess the environmental performance of the project and assess whether it is complying with the requirements in this approval and any relevant EPL or Mining Lease (including any assessment, plan or program required under these approvals);
(d) review the adequacy of strategies, plans or programs required under the abovementioned approvals; and
(e) recommend appropriate measures or actions to improve the environmental performance of the project, and/or any assessment, plan or program required under the abovementioned approvals.

Note: This audit team must be led by a suitably qualified auditor and include experts in surface water, groundwater and any other fields specified by the Director-General.

10. Within 6 weeks of the completion of this audit, or as otherwise agreed by the Director-General, the Proponent shall submit a copy of the audit report to the Director-General, together with its response to any recommendations contained in the audit report.

ACCESS TO INFORMATION

11. From the end of October 2010, the Proponent shall:
    (a) make the following information publicly available on its website:
        - a copy of all current statutory approvals for the project;
        - a copy of the current environmental management strategy and associated plans and programs;
        - a summary of the monitoring results of the project, which have been reported in accordance with the various plans and programs approved under the conditions of this approval;
        - a complaints register, which is to be updated on a monthly basis;
        - a copy of the minutes of CCC meetings;
        - a copy of any Annual Reviews (over the last 5 years);
        - a copy of any Independent Environmental Audit, and the Proponent's response to the recommendations in any audit;
        - any other matter required by the Director-General; and

    (b) keep this information up to date,

    to the satisfaction of the Director-General.

APPENDIX 1
SCHEDULE OF LAND

Freehold Land

Property	Owner	Property	Owner
Lot 10 DP 703223	Cumbo Coal Pty. Ltd.	Lot 1 DP 727117	Cumbo Land Pty. Ltd.
Lot 123 DP 755425	Cumbo Coal Pty. Ltd.	Lot 100 DP 755454	Cumbo Land Pty. Ltd.
Lot 124 DP 755425	Cumbo Coal Pty. Ltd.	Lot 109 DP 755454	Cumbo Land Pty. Ltd.
Lot 2 DP 720305	Cumbo Coal Pty. Ltd.	Lot 110 DP 755454	Cumbo Land Pty. Ltd.
Lot 3 DP 583254	Cumbo Coal Pty. Ltd.	Lot 116 DP 755425	Cumbo Land Pty. Ltd.
Lot 3 DP 755425	Cumbo Coal Pty. Ltd.	Lot 12 DP 755425	Cumbo Land Pty. Ltd.
Lot 5 DP 703225	Cumbo Coal Pty. Ltd.	Lot 128 DP 755425	Cumbo Land Pty. Ltd.
Lot 90 DP 755425	Cumbo Coal Pty. Ltd.	Lot 13 DP 755425	Cumbo Land Pty. Ltd.
Lot 93 DP 755425	Cumbo Coal Pty. Ltd.	Lot 14 DP 755425	Cumbo Land Pty. Ltd.
Pt. Lot 237 DP 724588	Cumbo Coal Pty. Ltd.	Lot 142 DP 755425	Cumbo Land Pty. Ltd.
Lot 1 DP 724617	Cumbo Creek Pastoral	Lot 143 DP 755425	Cumbo Land Pty. Ltd.
Lot 1 DP 728756	Cumbo Creek Pastoral	Lot 144 DP 755425	Cumbo Land Pty. Ltd.
Lot 105 DP 755425	Cumbo Creek Pastoral	Lot 145 DP 755425	Cumbo Land Pty. Ltd.
Lot 11 DP 703223	Cumbo Creek Pastoral	Lot 146 DP 755425	Cumbo Land Pty. Ltd.
Lot 122 DP 755425	Cumbo Creek Pastoral	Lot 148 DP 755425	Cumbo Land Pty. Ltd.
Lot 125 DP 755425	Cumbo Creek Pastoral	Lot 149 DP 755425	Cumbo Land Pty. Ltd.
Lot 133 DP 755425	Cumbo Creek Pastoral	Lot 150 DP 755425	Cumbo Land Pty. Ltd.
Lot 134 DP 755425	Cumbo Creek Pastoral	Lot 151 DP 755425	Cumbo Land Pty. Ltd.
Lot 135 DP 755425	Cumbo Creek Pastoral	Lot 152 DP 755425	Cumbo Land Pty. Ltd.
Lot 136 DP 755425	Cumbo Creek Pastoral	Lot 153 DP 755425	Cumbo Land Pty. Ltd.
Lot 137 DP 755425	Cumbo Creek Pastoral	Lot 156 DP 755425	Cumbo Land Pty. Ltd.
Lot 138 DP 755425	Cumbo Creek Pastoral	Lot 157 DP 755425	Cumbo Land Pty. Ltd.
Lot 139 DP 755425	Cumbo Creek Pastoral	Lot 158 DP 755425	Cumbo Land Pty. Ltd.
Lot 140 DP 755425	Cumbo Creek Pastoral	Lot 160 DP 755425	Cumbo Land Pty. Ltd.
Lot 141 DP 755425	Cumbo Creek Pastoral	Lot 183 DP 755425	Cumbo Land Pty. Ltd.
Lot 161 DP 755425	Cumbo Creek Pastoral	Lot 184 DP 755425	Cumbo Land Pty. Ltd.
Lot 18 DP 755425	Cumbo Creek Pastoral	Lot 186 DP 755425	Cumbo Land Pty. Ltd.
Lot 25 DP 755425	Cumbo Creek Pastoral	Lot 187 DP 755425	Cumbo Land Pty. Ltd.
Lot 27 DP 755425	Cumbo Creek Pastoral	Lot 188 DP 755425	Cumbo Land Pty. Ltd.
Lot 35 DP 755425	Cumbo Creek Pastoral	Lot 194 DP 755425	Cumbo Land Pty. Ltd.
Lot 40 DP 755425	Cumbo Creek Pastoral	Lot 195 DP 755425	Cumbo Land Pty. Ltd.
Lot 50 DP 755425	Cumbo Creek Pastoral	Lot 196 DP 755425	Cumbo Land Pty. Ltd.
Lot 53 DP 755425	Cumbo Creek Pastoral	Lot 26 DP 755425	Cumbo Land Pty. Ltd.
Lot 54 DP 755425	Cumbo Creek Pastoral	Lot 31 DP 755454	Cumbo Land Pty. Ltd.
Lot 66 DP 654143	Cumbo Creek Pastoral	Lot 34 DP 755425	Cumbo Land Pty. Ltd.
Lot 71 DP 755425	Cumbo Creek Pastoral	Lot 35 DP 755454	Cumbo Land Pty. Ltd.
Lot 75 DP 755425	Cumbo Creek Pastoral	Lot 37 DP 755425	Cumbo Land Pty. Ltd.
Lot 76 DP 755425	Cumbo Creek Pastoral	Lot 41 DP 583255	Cumbo Land Pty. Ltd.
Lot 79 DP 755425	Cumbo Creek Pastoral	Lot 42 DP 583255	Cumbo Land Pty. Ltd.
Lot 9 DP 755425	Cumbo Creek Pastoral	Lot 43 DP 583255	Cumbo Land Pty. Ltd.
Lot 94 DP 755425	Cumbo Creek Pastoral	Lot 44 DP 583255	Cumbo Land Pty. Ltd.
Lot 95 DP 755425	Cumbo Creek Pastoral	Lot 44 DP 755425	Cumbo Land Pty. Ltd.
Pt. Lot 132 DP 755425	Cumbo Creek Pastoral	Lot 45 DP 755425	Cumbo Land Pty. Ltd.
Lot 1 DP 112124	Cumbo Land Pty. Ltd.	Lot 45 DP 755454	Cumbo Land Pty. Ltd.
Lot 1 DP 583254	Cumbo Land Pty. Ltd.	Lot 46 DP 755454	Cumbo Land Pty. Ltd.
Lot 49 DP 755425	Cumbo Land Pty. Ltd.	Lot 48 DP 755454	Cumbo Land Pty. Ltd.

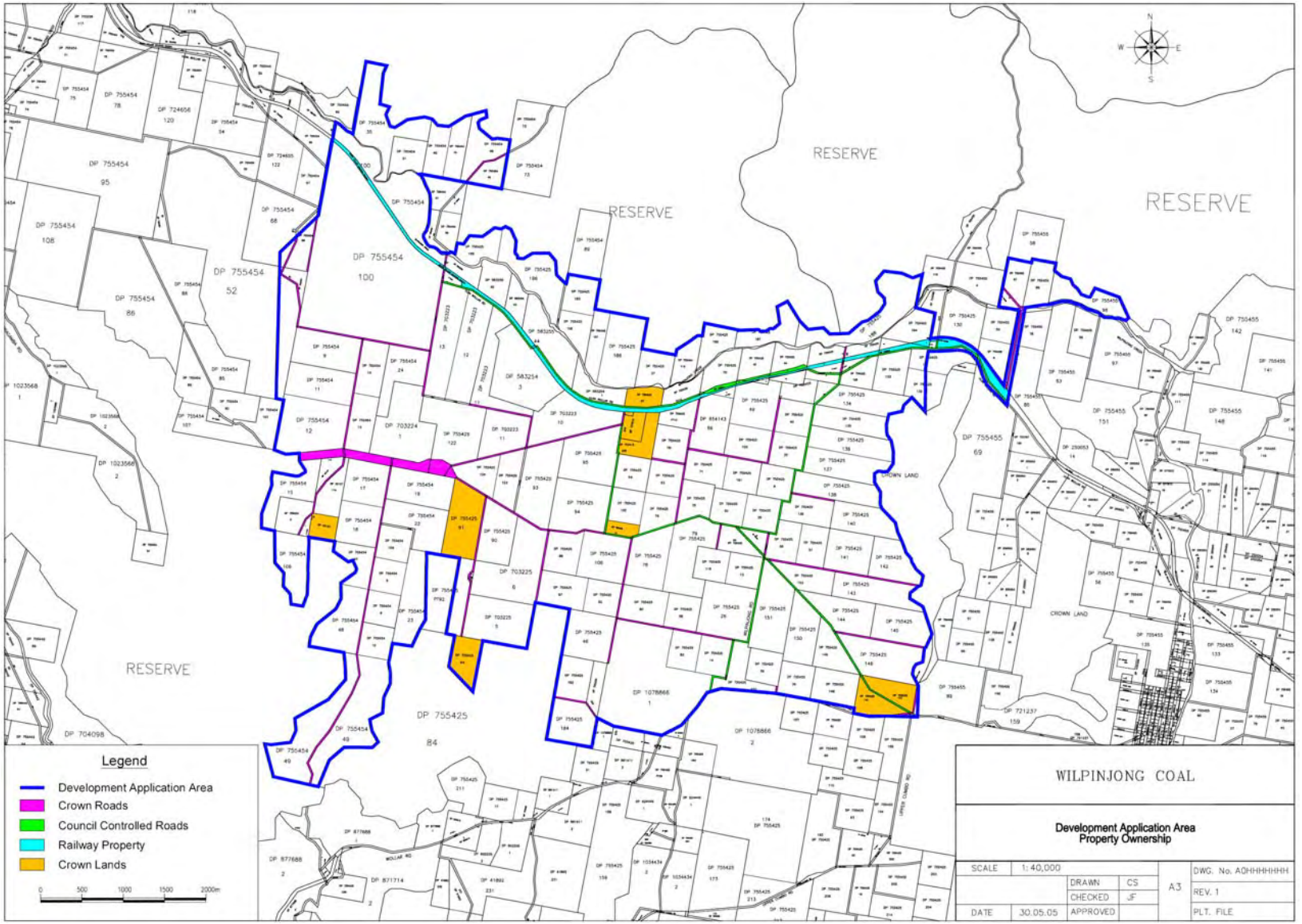
Property	Owner	Property	Owner
Lot 49 DP 755454	Cumbo Land Pty. Ltd.	Lot 14 DP 755454	Cumbo Land Pty. Ltd.
Lot 55 DP 755425	Cumbo Land Pty. Ltd.	Lot 15 DP 755454	Cumbo Land Pty. Ltd.
Lot 56 DP 755425	Cumbo Land Pty. Ltd.	Lot 17 DP 755454	Cumbo Land Pty. Ltd.
Lot 57 DP 755425	Cumbo Land Pty. Ltd.	Lot 18 DP 755454	Cumbo Land Pty. Ltd.
Lot 57 DP 755455	Cumbo Land Pty. Ltd.	Lot 182 DP 755425	Cumbo Land Pty. Ltd.
Lot 59 DP 755425	Cumbo Land Pty. Ltd.	Lot 19 DP 755454	Cumbo Land Pty. Ltd.
Lot 70 DP 755425	Cumbo Land Pty. Ltd.	Lot 22 DP 755454	Cumbo Land Pty. Ltd.
Lot 72 DP 755454	Cumbo Land Pty. Ltd.	Lot 23 DP 755454	Cumbo Land Pty. Ltd.
Lot 83 DP 755425	Cumbo Land Pty. Ltd.	Lot 24 DP 755454	Cumbo Land Pty. Ltd.
Lot 95 DP 755455	Cumbo Land Pty. Ltd.	Lot 3 DP 755454	Cumbo Land Pty. Ltd.
Lot 96 DP 755455	Cumbo Land Pty. Ltd.	Lot 46 DP 755425	Cumbo Land Pty. Ltd.
Pt. Lot 1 DP 1078866	Cumbo Land Pty. Ltd.	Lot 47 DP 755454	Cumbo Land Pty. Ltd.
Pt. Lot 131 DP 755425	Cumbo Land Pty. Ltd.	Lot 5 DP 755454	Cumbo Land Pty. Ltd.
Pt. Lot 69 DP 755455	Cumbo Land Pty. Ltd.	Lot 52 DP 755425	Cumbo Land Pty. Ltd.
Pt. Lot 89 DP 755455	Cumbo Land Pty. Ltd.	Lot 58 DP 755425	Cumbo Land Pty. Ltd.
Pt. Lot 92 DP 755425	Cumbo Land Pty. Ltd.	Lot 6 DP 703225	Cumbo Land Pty. Ltd.
Lot 1 DP 703224	Cumbo Land Pty. Ltd.	Lot 6 DP 755454	Cumbo Land Pty. Ltd.
Lot 10 DP 755454	Cumbo Land Pty. Ltd.	Lot 78 DP 755425	Cumbo Land Pty. Ltd.
Lot 104 DP 755454	Cumbo Land Pty. Ltd.	Lot 80 DP 755425	Cumbo Land Pty. Ltd.
Lot 106 DP 755425	Cumbo Land Pty. Ltd.	Lot 87 DP 755425	Cumbo Land Pty. Ltd.
Lot 11 DP 755454	Cumbo Land Pty. Ltd.	Lot 88 DP 755425	Cumbo Land Pty. Ltd.
Lot 114 DP 42127	Cumbo Land Pty. Ltd.	Lot 9 DP 755454	Cumbo Land Pty. Ltd.
Lot 12 DP 703223	Cumbo Land Pty. Ltd.	Lot 1 DP 653565	M Bloom & R Beheit
Lot 12 DP 755454	Cumbo Land Pty. Ltd.	Pt. Lot 1 DP 755455	RWB & NJ & DB Reid
Lot 13 DP 703223	Cumbo Land Pty. Ltd.	Pt. Lot 52 DP 755454	Ulan Coal Mines Limited
Lot 13 DP 755454	Cumbo Land Pty. Ltd.	Pt. Lot 68 DP 755454	Ulan Coal Mines Limited

Crown Lands

Property	Owner
Lot 115 DP 42127	Crown Land
Lot 147 DP 755425	Crown Land
Lot 233 DP 723412	Crown Land
Lot 234 DP 723412	Crown Land
Lot 235 DP 723412	Crown Land
Lot 77 DP 755425	Crown Land
Lot 84 DP 755425	Crown Land
Lot 91 DP 755425	Crown Land
Lot 97 DP 755425	Crown Land

Other Lands

Crown Roads, Council Roads and property under the control of the State Rail Authority have been identified and are shown on the attached plan (00567A).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RESERVE
RESERVE
RESERVE
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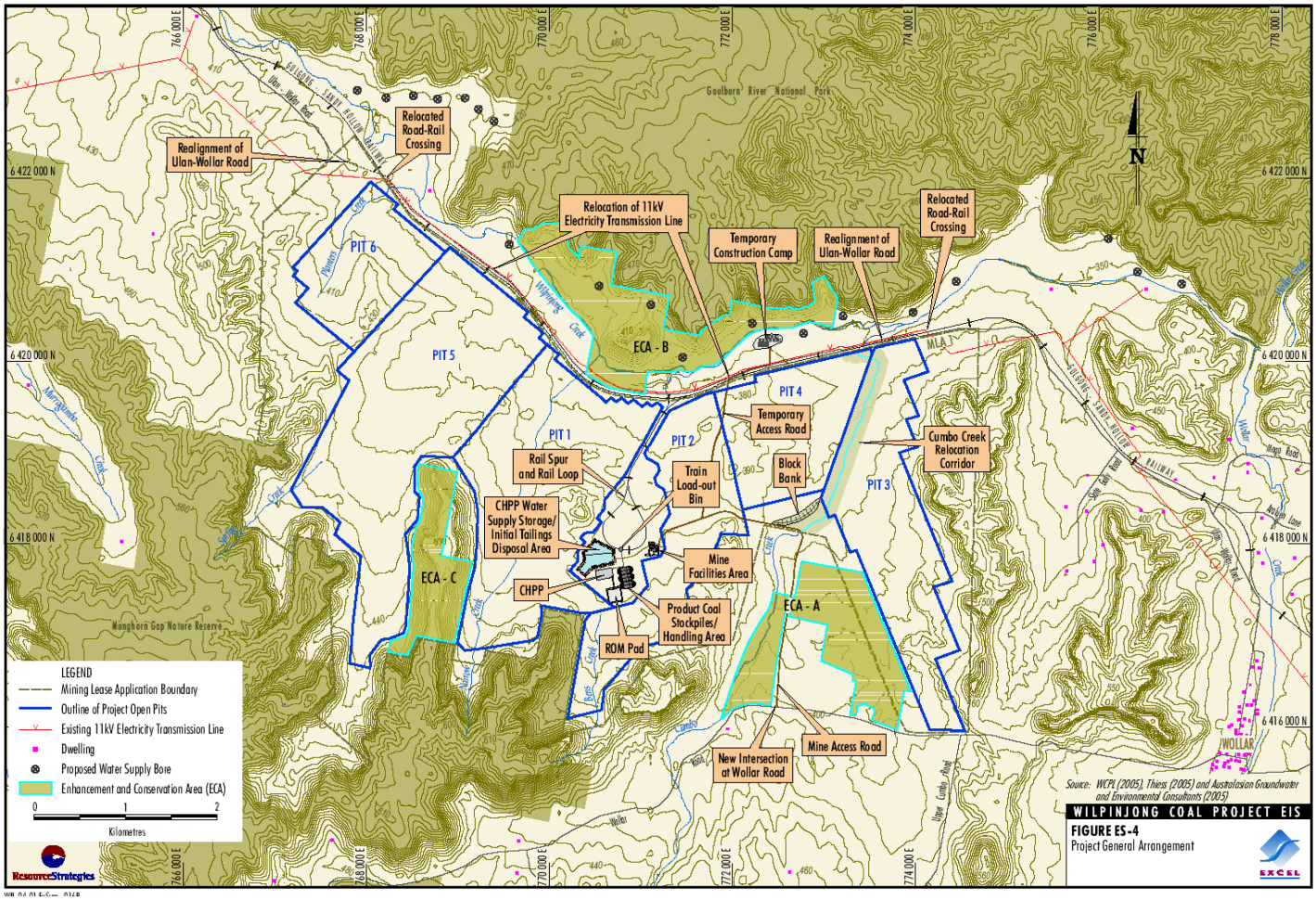
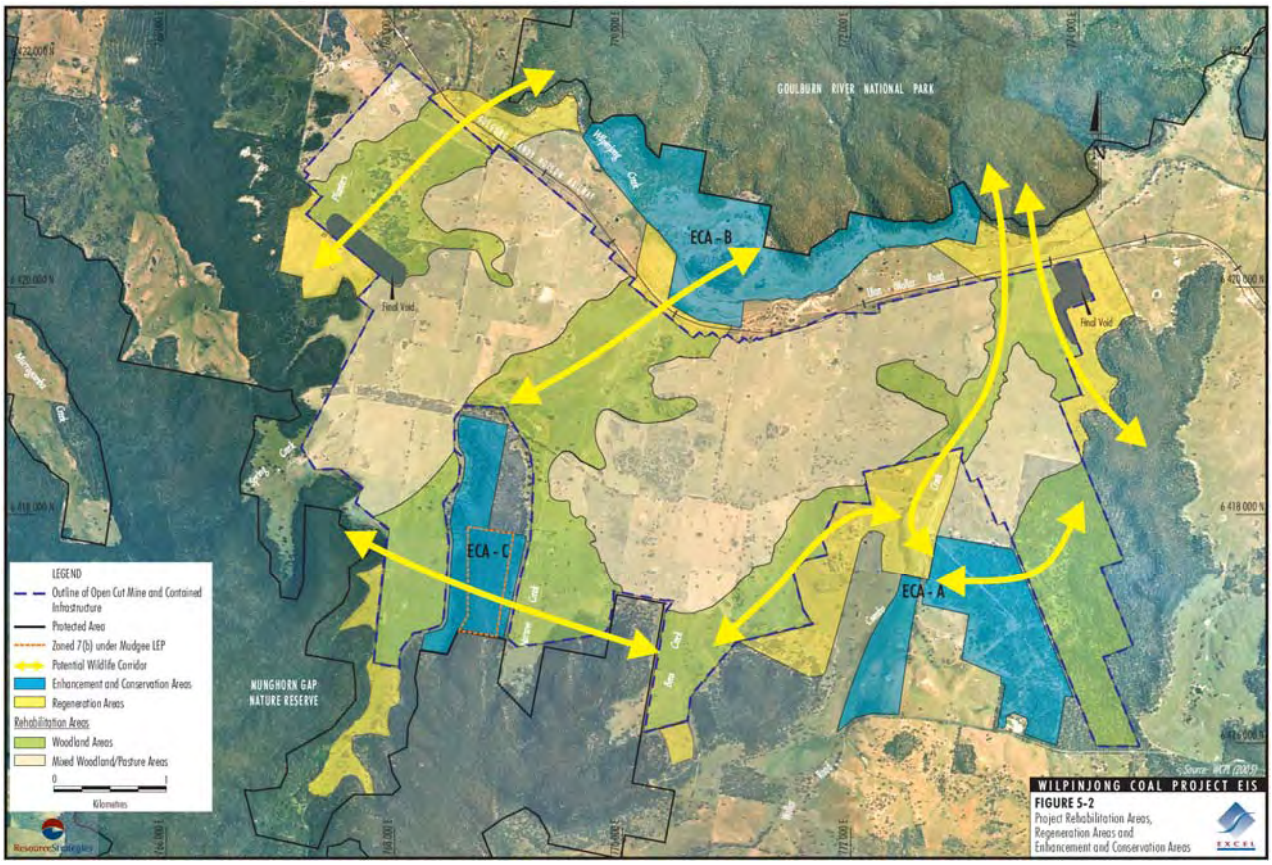
DP 755425
84
DP 755455
69
DP 703225
6
DP 703224
1
DP 1078866
1
DP 1078866
2
DP 704098
DP 721237
159
CROWN LAND
CROWN LAND
Legend
Development Application Area
Crown Roads
Council Controlled Roads
Railway Property
Crown Lands
0 500 1000 1500 2000m
WILPINJONG COAL
Development Application Area
Property Ownership
SCALE 1: 40,000
DRAWN CS
CHECKED JF
DATE 30.05.05
APPROVED
A3
DWG. No. A0HHHHHHH
REV. 1
PLT. FILE

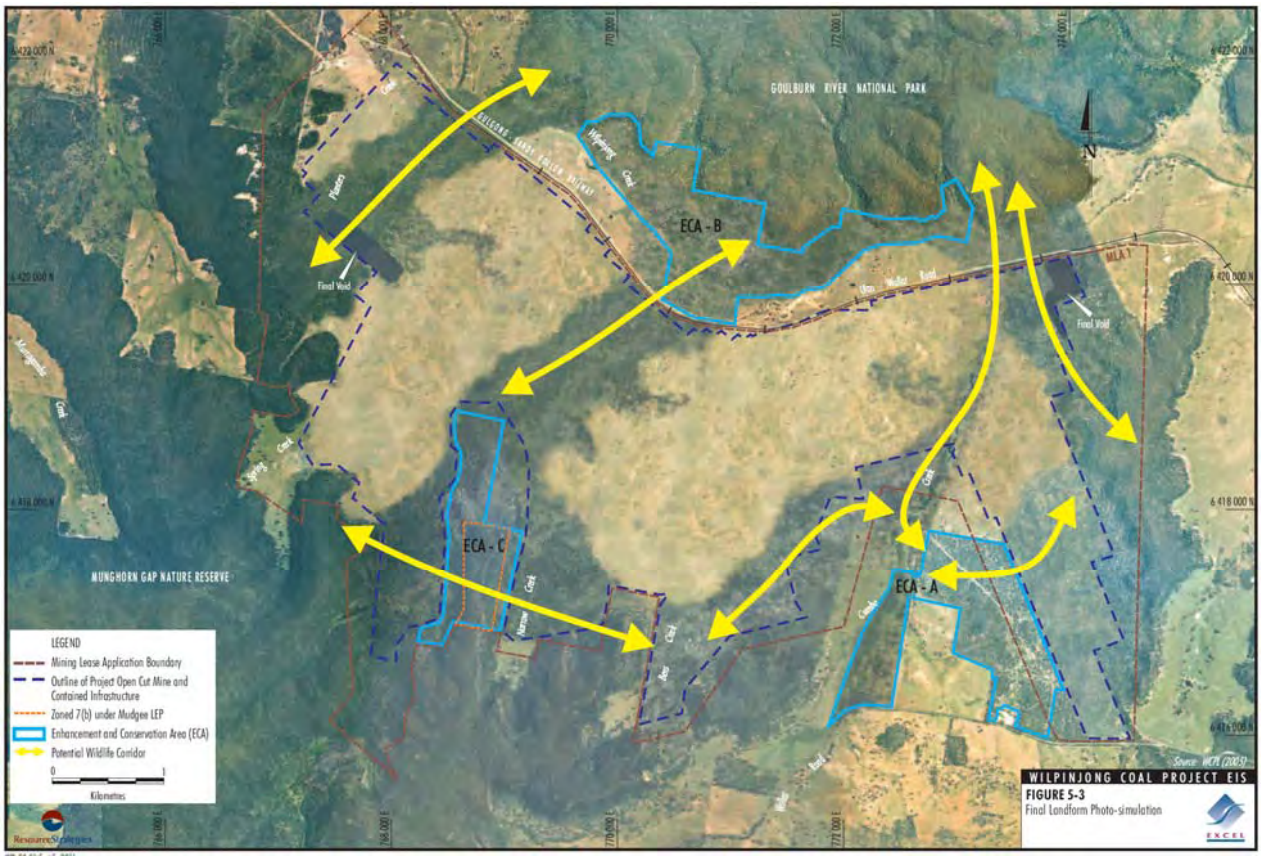
APPENDIX 2
PROJECT LAYOUT PLANS

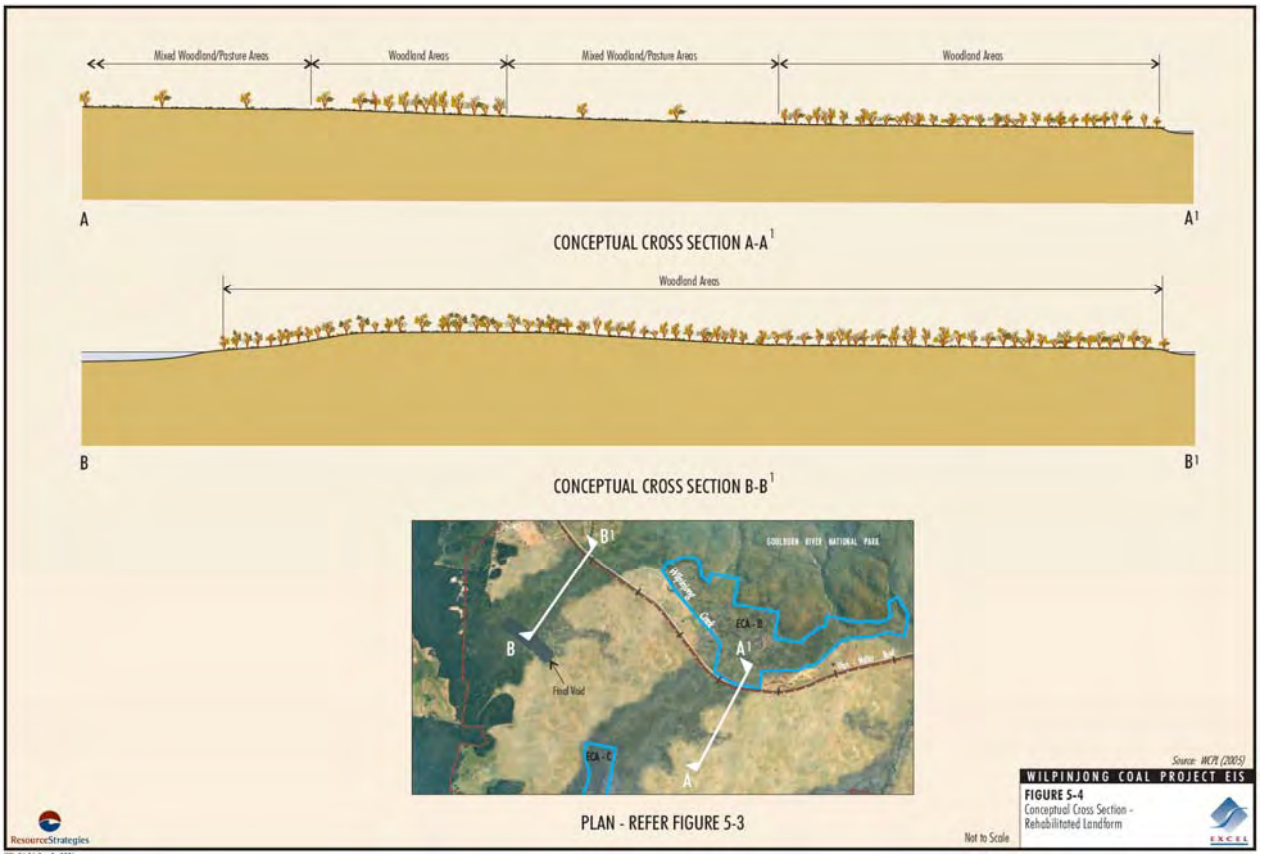


APPENDIX 3
OFFSET STRATEGY

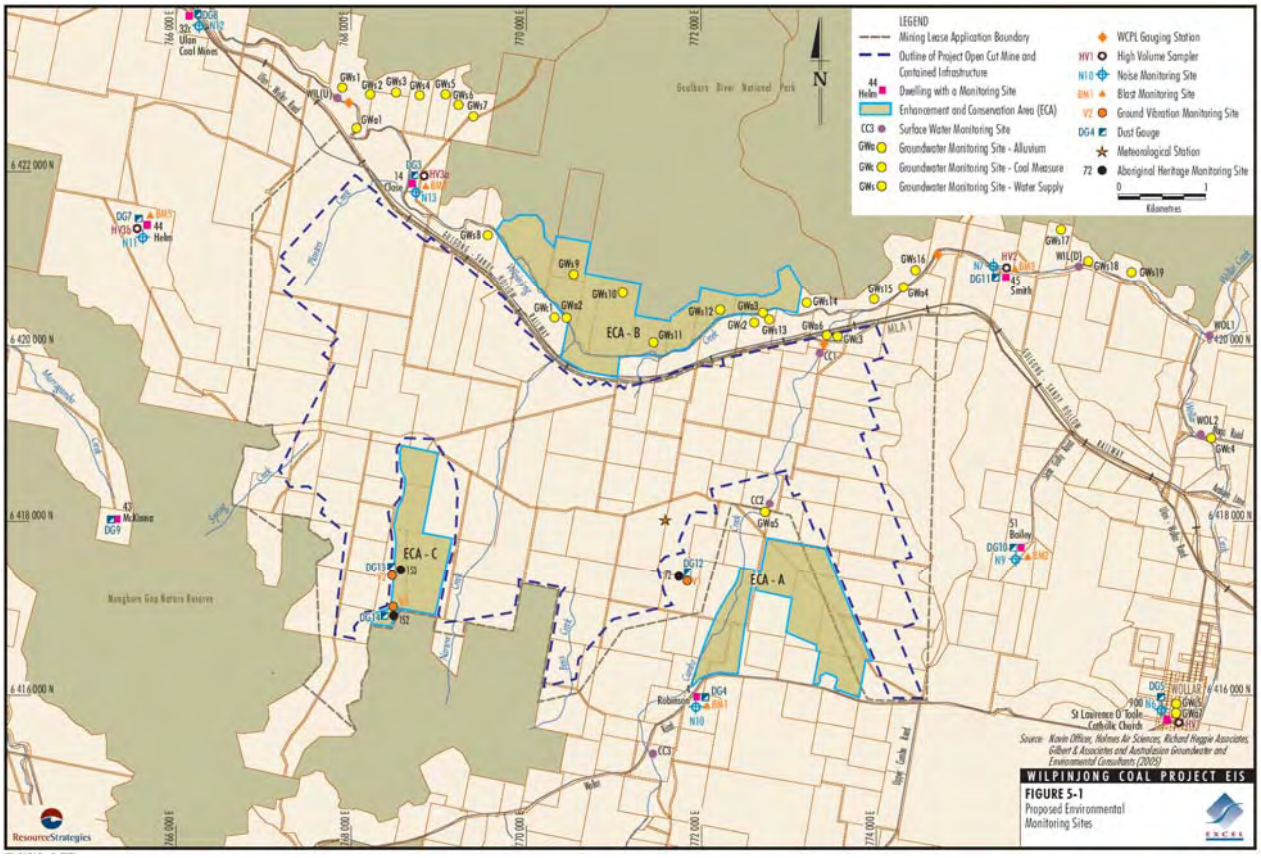


APPENDIX 4
CONCEPTUAL REHABILITATION PLAN





APPENDIX 5
ABORIGINAL SITES

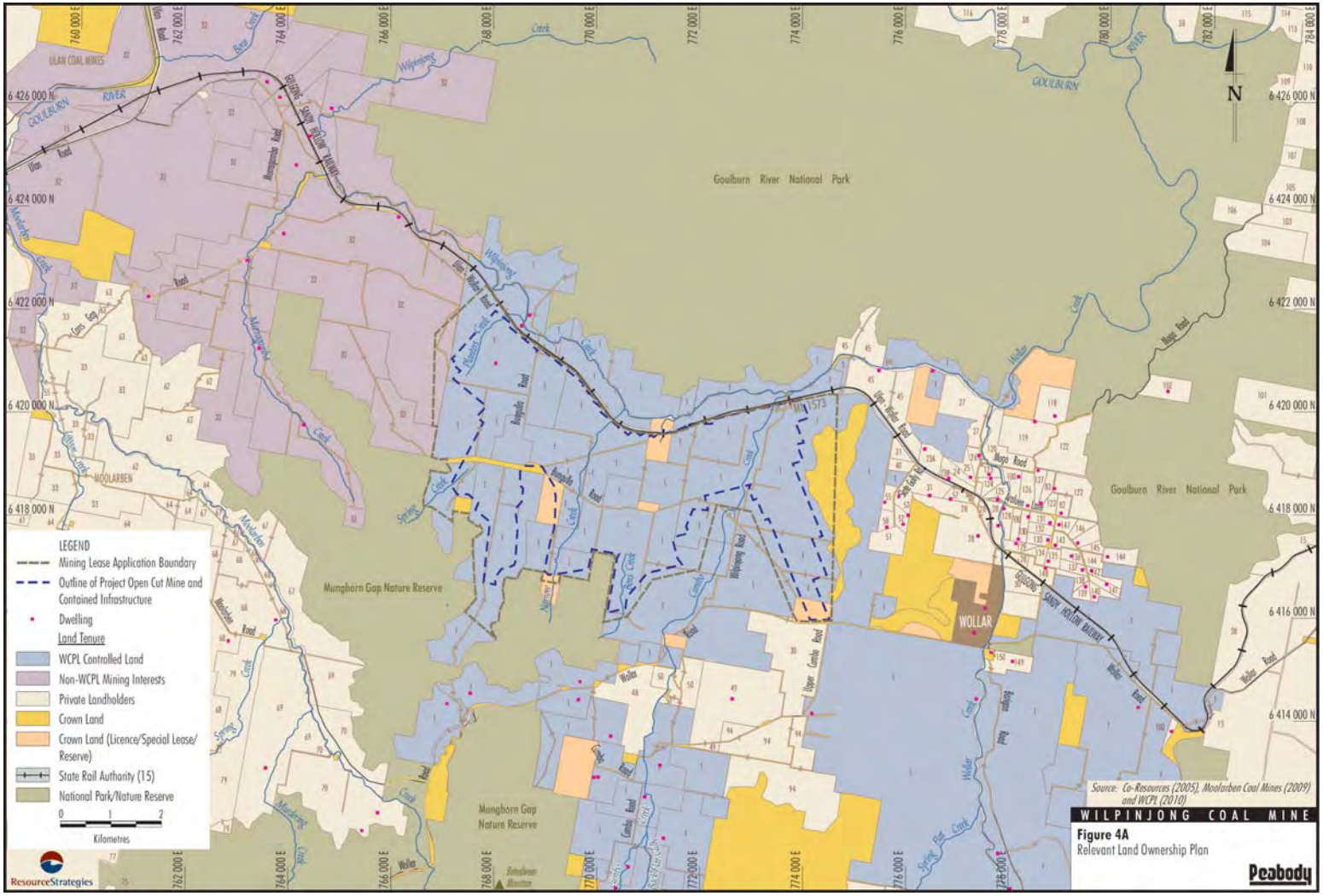


APPENDIX 6
HERITAGE SITES

Table 3-20
Sites of Local Heritage Significance Identified in the Project Survey

Site No.	Place Name	History and Description
1.	*Cumbo Creek*	Built 1912, stone cottage with later additions, now in poor condition.
2.	*Hillside*	First building possibly built 1866, and added to over time. Key early slab buildings intact, but in poor condition.
3.	*Keylah*	Slab building built 1896, stone section 1922. Intact and in good condition.
4.	*Warrawong*	Slab cottage, originally built near the junction of Wilpinjong and Cumbo Creek, moved to present site 1912.
5.	Atcheson's cottage, Wyangle Portion 19 Wilpinjong	Concrete structure, probably built 1930s now in poor condition.
6.	Loy's cottage	Slab cottage, built circa 1894, and possibly used for a time as a school room. Now in ruin.
7.	*Pine Park* woolshed	Slab woolshed built in 1930s. In good condition.
8.	Post and rail fence, Portion 106 Cumbo	Long section of post and rail fence, unknown date and in poor condition.
9.	Wilpinjong Road stone embankment, Portion 26 Cumbo	43 m long stone road embankment, possibly from 19th century. Intact.

APPENDIX 7
RECEIVER LOCATION PLANS



1 Wilpinjong Coal Controlled Land	15 State Rail Authority	23A ID Bloomfield
23B B Bishop	24 JA & TS Peach	25 SE & JE Pettit
26 K & VC Christiansen	27 BC McDermott	28 BP & FV & MJ & JM Power
30 WF Gaffney	31 DE & AM Conradt	32 Ulan Coal Mines/Moolarben Coal Mine Owned/Controlled Land
33 MJ & PM Swords	38 State Of N.S.W.	40 G & J Maher
45 JAW Smith	48 JR & BM Evans	49 RSM & LD Harkin
50 LD Thompson & RJ Hopper	51 P Bailey	52 CR Long
53 RW & JL Reynolds	55 SC & M Fox	57 F Nagy
58 FN Maher	61 J Szymkarczuk	62 MJ Swords
63 MJ & H Swords	64 DJ & Y Rayner	67 K & RE Mayberry
68 EC Mayberry	69 DJ & JG Stokes	70 JW & JG O'Sullivan
79 C Mayberry	80 RB Cox	82 RJ Jackson
83 G & DJ Hayes	94 GM & KL McKenzie	100 TJ & VE Rheinberger
101 NAB Pierce	102 W Filipczyk	103 MR Molloy
104 WB & PA Deane	105 ELM Toombs	106 JA Sales
107 RJ Lee	108 R Campbell	109 MO Vaisey
110 GS & JR Smiles	113 AJ Brett & S & D Hilt	114 BJ Hughes & CA Beinssen & K Aslett
115 E & T Schoenfelder	116 PD & JE Griffiths	118 DS & D Ponton
119 TJ & JA Peach	120 JT & JW & D Fitzpatrick	122 PN Hardiman
123 A & M Zivkovic	124 A Zivkovic	125 E & K Roberts
126 A & P Davies	127 A & D Wentzel	128 WG Pongratz
129 R & K Roser	130 L Batty & D Hirons	131 MR Field
132 SL Cook	133 P & J Harty	134 CL Ammann
135 R & K Roser	136 M & R Bryson	137 A & C Chetcuti
138 B Covel	139 P & M Woolford	140 W Stafford & M McCullough
141 C Hull	142 D & S Williams	143 R Bale & K Lawes
144 J Hibberd	145 C Bremner & M O'Neill	146 D & B Spearpoint
147 D Currington	148 O Lee	149 JD Zagarella
150 E Tindale & A McDonald & W Wilson	151 T & V Rheinberger	

APPENDIX 8
STATEMENT OF COMMITMENTS

Peabody

WILPINJONG COAL

Wilpinjong Coal Project

10 August 2007

The Director-General
c/- David Kitto
Department of Planning
Level 4
23-33 Bridge Street
SYDNEY NSW 2000

Dear Sir

RE: WILPINJONG COAL PROJECT OPERATIONAL PHASE MINE ACCESS ROUTE AND BLASTING FREQUENCY MODIFICATION – CONSOLIDATED STATEMENT OF COMMITMENTS

As requested, please find below a consolidated statement of commitments[1] incorporating the commitments made by Wilpinjong Coal Pty Limited (WCPL) in the:

- *Operational Phase Mine Access Route and Blasting Frequency Modification – Environmental Assessment* (WCPL, April 2007); and
- *Operational Phase Mine Access Route and Blasting Frequency Modification – Responses to Submissions* (WCPL, July 2007).

Blasting, Vibration and Public Safety

WCPL will:

- Undertake all additional blasting activities in accordance with the Blast Management Plan and Monitoring Programme, including:
  - Operating a free-call Blasting Hotline that provides information on the daily and proposed weekly blasting schedule. Advertisement of the contact number in local newspapers at least quarterly, via the Wilpinjong Community Newsletter.
  - Maintenance of road closure notification boards on Ulan-Wollar Road. Provision of at least three days warning of impending road closures subject to blasting demands.
  - Traffic control signs set up in accordance with the Roads and Traffic Authority (RTA)/Mid-Western Regional Council (MWRC) guidelines for all temporary road closures.
  - Modification of blast design to meet vibration and airblast limits and avoid damage to life or property from flyrock, including consideration of wind speed, direction and other meteorological factors prior to blasting to minimise impacts on neighbours.
  - Assessment of wind speed and direction immediately prior to each blast to minimise the potential for dust emissions from blasting to adversely impact on neighbouring private residencies.
  - Monitoring of blasts to determine whether airblast and ground vibration limits are met. Review of monitoring results and management practices to evaluate performance and identify responsive action, if required.

[1] This document is not provided as a Prefered Project Report.

Wilpinjong Coal Pty Ltd **ACN 104 594 694**
Registered Office:
Level 27, AMP Place, 10 Eagle Street
Brisbane Qld 4000

Postal Address:
Locked Bag 2005
Mudgee NSW 2850

Phone: +61 2 6373 4648
Fax: +61 2 8080 8170

- Establishment of a meteorological assessment protocol so that blasts are postponed during adverse weather conditions.
- Restriction of blasting activities to Monday to Saturday inclusive between 9.00 am and 5.00 pm EST, with no blasting on Sundays, public holidays, or at any other time without the written approval of the Department of Environment and Climate Change (DECC).
- Notification of private landholders within 2 km of the Project who have registered an interest in being informed of the blasting frequency via telephone, e-mail or as otherwise agreed.
- Repairing of any damage to buildings and/or structures on private residences confirmed to have been incurred as a result of blasting activities at the Project (via structural assessment process).
- Gaining approval from the MWRC (in respect of public roads) and Australian Rail Track Corporation (ARTC) (in respect of the Gulgong-Sandy Hollow railway) prior to blasting within 500 m of a public road or railway.
- Operating the complaints line and register and managing all blast related complaints in accordance with the existing complaints protocol.

- Limit the maximum Instantaneous charge of additional blasts for coal and interburden to a maximum of 400 kg.
- Update the Blast Management Plan and Monitoring Programme and the Aboriginal Cultural Heritage Management Plan to include notification of the Department of Planning and DECC (within 24 hours) following the identification of an exceedance of ground vibration levels (specified in the Blast Management Plan and Monitoring Programme i.e. 80 mm/s) at Aboriginal Rock Art Sites 72, 152 or 153 or identification of actual damage.
- Consult with Moolarben Coal Mines Pty Limited regarding management of potential cumulative blasting amenity impacts associated with road closures (should the Moolarben Coal Project be approved).
- Continue to consult with the MWRC and the ARTC (in accordance with the current legal agreement between WCPL and the ARTC) in regard to managing blasting amenity impacts.

Traffic and Public Safety

WCPL will:

- Contribute an additional $20,000 per annum to the MWRC over the next three years for the development of school bus lay-by areas along Ulan Road.
- Finance the sealing of the un-sealed section of Ulan-Wollar Road between Ulan Road and the internal mine access road.
- Continue to water the unsealed section of Ulan-Wollar Road until the section of Ulan-Wollar Road between Ulan Road and the internal mine access road is sealed.
- Finance the installation appropriate line-marking and signage along the section of Ulan-Wollar Road between Ulan Road and the internal mine access road.

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- Contribute (in consultation with the MWRC and Moolarben Coal Mines Pty Limited) to the upgrading of the Ulan Road/Ulan-Wollar Road intersection and the Ulan-Wollar Road/internal mine access road intersection.
- Continue to minimise the number of light and heavy vehicles using the local road network by promoting car pooling and/or utilising employee bus services and by limiting the number of heavy vehicle deliveries to site, where practicable.
- Assist MWRC to direct existing financial contributions made by WCPL to MWRC (in accordance with the Wilpinjong Coal Project Planning Agreement and Project Approval 05_0021) towards the following recommended improvements:
  - Upgrading of the Ulan-Wollar Road/internal mine access road intersection to include:
    - geometry and linemarking as per RTA type 'AUR Right Turn Treatment for vehicles traveling west on Ulan-Wollar Road and turning right into the Project access road; and
    - appropriate lighting at the intersection in accordance with AS 1158:2005 *Lighting for Roads and Public Spaces* (AS 1158) to Country Energy and RTA requirements.
  - Upgrading of the Ulan Road/Ulan-Wollar Road intersection to include:
    - geometry and linemarking as per RTA type 'AUR Right Turn Treatment for vehicles traveling north on the Ulan Road and turning right into Ulan-Wollar Road;
    - a separate left turn deceleration lane (for vehicles traveling southbound on Ulan Road) to improve safety and capacity for left turn traffic from Ulan Road; and
    - appropriate lighting at the intersection in accordance with AS 1158 to Country Energy and RTA requirements.
- Continue to provide MWRC with annual payments for community infrastructure and road maintenance via the Wilpinjong Coal Project Planning Agreement and Project Approval 05-0021.

A Traffic Management Plan would be prepared for any works required on Ulan-Wollar Road and works associated with the Ulan Road/Ulan-Wollar Road intersection in accordance with AS 1742.3: 2002 *Manual of Uniform Traffic Control Devices – Traffic Control Devices for Works on Roads* (AS 1742.3) and the RTA publication *Traffic Control at Work Sites*.

Road Safety and Road Surface Performance Strategy

WCPL will:

- Implement a Road Performance Strategy during the Project life to maintain an appropriate level of road safety and road surface performance on Ulan-Wollar Road and Ulan Road. The Road Performance Strategy would: be implemented in consultation with the MWRC, RTA and other local mining operators; and include the following key measures:
  - Encourage the MWRC to allocate a proportion of WCPL's (and other local mine operator's) annual financial contributions towards the cost of annual traffic count surveys to determine the relative contribution of each local mining operation to total traffic flows on the road network and for road dilapidation/safety surveys to identify any required works to maintain road safety and the road pavement surface on Ulan Road and Ulan-Wollar Road.

- Encourage employee traffic minimisation throughout the life of the Project by advocating car pooling through site inductions and regular tool box meetings and/or utilising employee bus services.
- Continue to actively promote safe driving on public roads.
- Consult with other local mining operators to identify whether the staggering of shift times could be undertaken to reduce cumulative peak hour traffic on Ulan Road and Ulan-Wollar Road if peak hour movements are identified as being excessive.
- Consult with the MWRC and other local mining operators to encourage the focussing of annual financial contributions from mining operations on road safety, road pavement improvements and general maintenance on Ulan Road and Ulan-Wollar Road.

Traffic Noise

WCPL will continue to minimise the number of light and heavy vehicles using the local road network by promoting car pooling and/or utilising employee bus services and by limiting the number of heavy vehicle deliveries to site, where practicable.

Please do not hesitate to contact me on (02) 6370 2500 should you have any queries.

Yours faithfully
Wilpinjong Coal Pty Ltd

KEITH DOWNHAM
Wilpinjong General Manager

Wilpinjong Coal Pty Ltd **ACN 104 594 694**
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Brisbane Qld 4000

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APPENDIX 9
TERMS OF PLANNING AGREEMENT

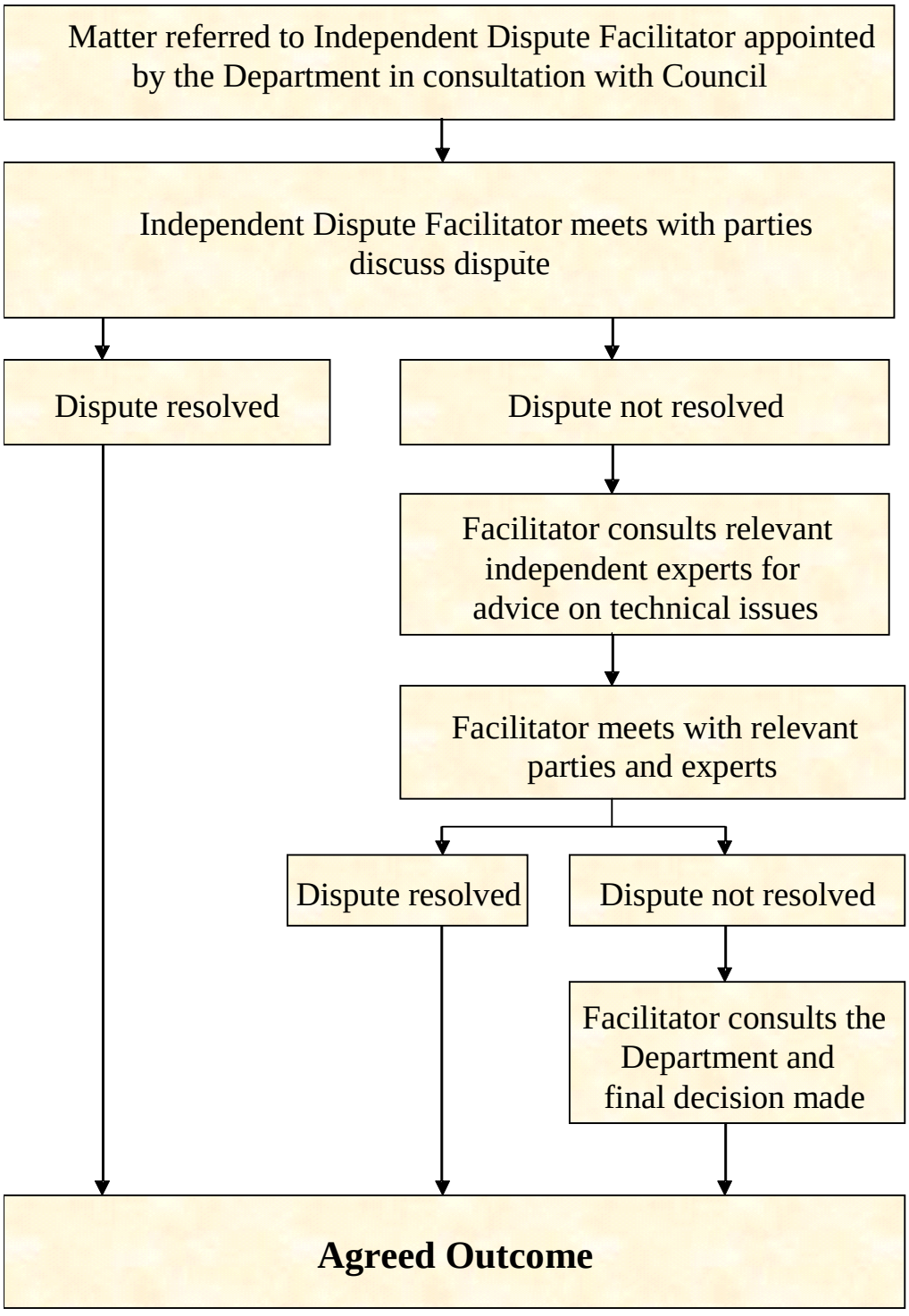
Contribution to Road Upgrades

(a) $600,000 plus GST for the widening and sealing of the section of Ulan-Wollar Road west of the Marragamba Bridge and extending for 2800 m to the point where Moolarben Coal Mines has upgraded the road from the west, with any surplus money to be spent on the Ulan Road upgrade works required under condition 50 of schedule 3; and

(b) $50,000 plus GST or equivalent value in gravel for the upgrading for the Ulan-Wollar Road.

APPENDIX 10
INDEPENDENT DISPUTE RESOLUTION PROCESS

Independent Dispute Resolution Process (Indicative only)



APPENDIX A

HUNTER VALLEY COAL CHAIN CO-ORDINATOR CORRESPONDENCE

HVCCC
HUNTER VALLEY
COAL CHAIN
COORDINATOR

Selwyn Street (PO Box 101)
Carrington NSW 2294

P: 02 4910 3500
F: 02 4910 3558

20 July 2011

Mr Ian Humphris
Vice President, Infrastructure
Peabody Energy Australia

[By email: ihumphris@peabodyenergy.com]

Dear Ian

I refer to your request for supporting information relating to Peabody Energy Australia's application for planning approvals to increase the daily train limit for its Wilpinjong load point from 6 to 10 trains per day.

I believe the information that follows will be relevant to your application.

Background

The Hunter Valley Coal Chain Coordinator Limited ('HVCCC') is a company limited by guarantee and its membership is constituted by the coal producers and service providers operating in the Hunter Valley.

The objects of HVCCC are to plan and coordinate the cooperative alignment of the Hunter Valley Coal Chain, in order to maximise the volume of coal transported through the Coal Chain, at minimum total logistics cost and in accordance with the agreed collective needs and contractual obligations of its Members.

In carrying out these objects, HVCCC undertakes long term capacity modelling of the Coal Chain and provides advice to its Members on the infrastructure and operational improvements that are required to meet the throughput target for the Coal Chain each year (the System Assumptions). The throughput target reflects expected demand for Hunter Valley coal.

Given the nature and interdependencies of the Coal Chain, it is critical to the achievement of the target throughput that each Service Provider and Producer delivers their improvements as identified in the System Assumptions.

System Assumptions for the Wilpinjong load point

To deliver the 2012 and 2013 System Assumptions throughput targets for the Hunter Valley Coal Chain, the Wilpinjong load point will need to improve its daily maximum loop capacity well above the 2011 performance requirement. Extensive modelling by HVCCC has shown that to meet its planned throughput targets, the Wilpinjong load point will need the ability to load up to 10 trains/day in peak demand periods.

HVCCC
HUNTER VALLEY
COAL CHAIN
COORDINATOR

Selwyn Street (PO Box 101)
Carrington NSW 2294

P: 02 4910 3500
F: 02 4910 3558

There are significant Coal Chain drivers that contribute to the need for Wilpinjong (and other Hunter Valley coal producers' load points) to increase load point performance in order to meet 2012 and 2013 throughput targets, which include that:

- both Port Waratah Coal Services (PWCS) and Newcastle Coal Infrastructure Group (NCIG) are currently well advanced with coal terminal expansion activities, in particular:
  - as part of its overall Project 145 Expansion, PWCS is on track to commission its upgrade of its KCT Terminal by December 2011, lifting KCT from a nominal capacity of 105Mtpa to 118Mtpa; and
  - NCIG's Stage 2AA expansion is currently around 60% complete and remains on track for completion by Q4 of 2011. This expansion will lift NCIG nominal capacity from 30Mtpa to around 53Mtpa; and
- Australian Rail Track Corporation (ARTC) has a number of major capacity expansion projects underway to ensure that track capacity exceeds terminal requirement in 2012, including:
  - the Minimbah to Maitland 3rd Track infrastructure project; and
  - the Nundah Bank 3rd Road project.

Capacity of coal terminals and rail network to cater for additional proposed trains

HVCCC's long term system capacity model indicates that there will be sufficient coal terminal and train paths available to support a 10 train per day peaking rate at the Wilpinjong load point once the infrastructure projects referred to above are completed and commissioned.

Please do not hesitate to contact Ms Shanthi Herd, Commercial Manager (ph. 02 4910 3525 or email shanthi.herd@hvccc.com.au) if HVCCC can assist Peabody with further supporting information in relation to its Wilpinjoing load point.

Yours faithfully

Jonathan Vandervoort
Chief Executive Officer

APPENDIX B

RAIL NOISE IMPACT ASSESSMENT

16 September 2011

630.01313.40400 Rail Noise Assessment 20110916

Wilpinjong Coal Pty Ltd
Level 9, 1 York Street
SYDNEY NSW 2000

Attention: Mr Shaun Cleary

Dear Shaun

Wilpinjong Coal Mine
Rail Traffic Noise Impact Assessment

Please find attached a copy of our Finalised Rail Noise Impact Assessment for your review.

This assessment relates to Wilpinjong Coal Pty Ltd's (WCPL's) proposal to increase average train departures associated with the Wilpinjong Coal Mine (WCM) from five to six per day, and increase in the maximum train departures from six to ten per day.

The report also includes a description of the proposed on-site reverse osmosis plant based on available project information.

Please contact me or Clemence Terraz should you have any queries.

Yours sincerely

GLENN THOMAS

SLR Consulting Australia Pty Ltd 2 Lincoln Street Lane Cove NSW 2066 Australia
(PO Box 176 Lane Cove NSW 1595 Australia)
T: 61 2 9428 8100 F: 61 2 9427 8200 E: sydney@slrconsulting.com www.slrconsulting.com
ABN 29 001 584 612

RAIL NOISE IMPACT ASSESSMENT

1 Railway Noise Criteria

The Australian Rail Track Corporation Ltd (ARTC) operates the Hunter Valley Coal Rail Network in NSW including the Main North, Merriwa and Gulgong to Sandy Hollow railway lines. Noise emissions from the railways are regulated via ARTC's Environmental Protection Licence (EPL) No 3142, review date 7 November 2013 refer to **Attachment A**. In addition, the NSW Office of Environment and Heritage (OEH) rail noise guideline "*Environmental Assessment Requirements for Rail Traffic Generating Developments*" has been recently updated (26 February 2011) and provides alternative rail noise assessment criteria refer to **Attachment B**. The potential rail noise impact from the Wilpinjong Coal Mine (WCM) 2011 Modification has been assessed against both sets of noise criteria.

1.1 ARTC Environmental Protection Licence

The intent of the relevant EPL conditions is to control airborne noise by two principal means:

- Noise Limits.
- Management of noise via Pollution Reduction Programmes (PRPs).

Maximum locomotive source noise levels and tonality criteria for stationary and in-service test conditions are specified in EPL Condition L6 *Noise Limits.* EPL 3142 Section L6 nominates general airborne noise limits at residential receivers as follows:

> *L6.1.1 General Noise Limits*
>
> *It is an objective of this Licence to progressively reduce noise levels of to the goals of 65 dB(A) Leq, (daytime from 7.00 am - 10.00 pm), 60 dB(A) Leq, (night-time from 10.00 pm - 7.00 am) and 85dB(A) (24 hr) max pass-by noise, at one metre from the façade of affected residential properties through the implementation of the Pollution Reduction Program.*

The goals do not represent unobtrusive noise levels. Rather, the objectives recognise that railway operations are inherently noisy and represent a compromise between what may be desirable from a community point of view (ie maintaining amenity) and what is necessary to enable trains to continue to operate.

It should be noted that the subject railways do not currently have a Pollution Reduction Program (PRP), however the stated objectives of the PRP provide guidance for noise regulation for the Hunter Valley rail network. Based on the foregoing, the general noise goals for the Main North, Merriwa and Gulgong to Sandy Hollow lines are presented in **Table 1**.

Table 1 ARTC Guideline Rail Noise Objectives

Railway	Licence Holder	Descriptor	Rail Traffic Noise Goal
Main North, Merriwa and Gulgong to Sandy Hollow lines	ARTC EPL 3142	Daytime/evening $L_{Aeq(15hour)}$	65 dBA
		Night-time $L_{Aeq(9hour)}$	60 dBA
		Maximum Pass-by L_{Amax}	85 dBA

1.2 Office of Environment and Heritage (OEH)

The NSW OEH's rail noise guideline "*Environment Assessment Requirements for Rail Traffic - Generating Developments"* has been recently updated and provides alternative rail noise assessment criteria. Rail noise assessment trigger levels are presented in **Table 2**.

Table 2 OEH Rail Noise Assessment Trigger Levels

Descriptor	Rail Traffic Noise Goal
LAeq(24hour)	60 dBA
Maximum Pass-by LAmax (95th percentile)	85 dBA

Note: 95th percentile equates to the 5% exceedance value.

The OEH rail noise assessment trigger levels are similar to the ARTC's EPL noise goals; however the OEH trigger levels have an averaging period of 24 hours, rather than daytime (15 hours) and night-time (9 hours) for the ARTC's goals. The OEH guideline states that where the cumulative noise level exceeds the noise assessment trigger levels and where the LAeq noise level increases are more than 2 dBA, strong justification should be provided why it is not reasonable and feasible to reduce noise.

In addition, the OEH rail noise guideline (**Attachment B**) also provides guidance in relation to the geographical extent of rail noise assessment which should be undertaken for a rail traffic generating development (such as the Wilpinjong Coal Mine):

> *Ideally, the geographical extent of the rail noise assessment should be to where project/related rail noise increases are less than 0.5dB. This roughly equates to where project/related rail traffic represents less than 10% of total line/corridor rail traffic.*

2 Rail Traffic Movements

2.1 Gulgong to Sandy Hollow Railway - Mt Penny

The existing, additional and cumulative daytime, night-time and 24 hour train movements are presented in **Table 3** together with the estimated operating conditions whilst travelling on the Gulgong to Sandy Hollow line in the vicinity of the proposed Mt Penny project.

Table 3 Existing, Additional and Cumulative Train Movements - Gulgong to Sandy Hollow Railway "Mt Penny"

Status	Train Type	Train Movements						Train Length (m)	Train Speed (kph)
		Daytime		Night-time		24 Hours			
		Average	Peak	Average	Peak	Average	Peak		
Existing	Passenger	0	0	0	0	0	0	-	-
	Freight	2	2	0	0	2	2	850	60
Approved	Ulan Continued Operations [1]	9	14	5	6	14	20	1543	60
	Moolarben [2]	6	6	2	2	8	8	1543	60
	Wilpinjong [3]	7	8	3	4	10	12	1543	60
Proposed	Moolarben Stage 2 [2]	1	1	1	1	2	2	1543	60
	Mt Penny [4]	4	4	2	2	6	6	1543	60
Proposed Modification	Wilpinjong Mod [5]	2	6	0	2	2	8	1543	60
Cumulative Existing and Approved		24	30	10	12	34	42		
Cumulative Existing, Approved and Proposed		29	35	13	15	42	50		
Cumulative Existing, Approved, Proposed and Modification		31	41	13	17	44	58		

Note: Two movements equals one arrival and departure of a single train.
Note 1: Ulan Coal Continued Operations Noise and Vibration Assessment, Wilkinson Murray Pty Ltd, 2009.
Note 2: Moolarben Coal Project Environmental Assessment Report, Wells Environmental Services, 2009.
Note 3: Wilpinjong Coal Mine 75W Modification Noise Impact Assessment, Heggies Pty Ltd, 2010.
Note 4: Assumes 3 trains per day for a 5 Mtpa operation (no data on train movements available).
Note 5: WCPL, 2011.

As can be seen from Table 3, WCPL's proposed additional train movements would comprise greater than 10% of cumulative existing, approved and proposed movements. The Gulgong to Sandy Hollow Railway has therefore been included in the rail noise assessment (in accordance with the OEH rail noise guideline [**Attachment B**]).

2.2 Merriwa Railway - Bengalla

The existing, additional and cumulative daytime, night-time and 24 hour train movements are presented **Table 4** together with the estimated operating conditions whilst travelling on the Merriwa Railway in the vicinity of the Bengalla rail spur.

Table 4 Existing, Additional and Cumulative Train Movements - Merriwa Railway "Bengalla"

Status	Train Type	Train Movements						Train Length (m)	Train Speed (kph)
		Daytime		Night-time		24 Hours			
		Average	Peak	Average	Peak	Average	Peak		
Existing	Passenger	0	0	0	0	0	0	-	-
	Freight	2	2	0	0	2	2	850	60
Approved	Ulan Continued Operations [1]	9	14	5	6	14	20	1543	60
	Moolarben [2]	6	6	2	2	8	8	1543	60
	Wilpinjong [3]	7	8	3	4	10	12	1543	60
	Mangoola [4]	4	4	4	4	8	8	1543	60
	Bengalla [1]	4	4	2	2	6	6	1543	60
Proposed	Moolarben Stage 2 [2]	1	1	1	1	2	2	1543	60
	Mangoola Mod [5]	6	6	6	6	12	12	1543	60
	Mt Pleasant [1]	4	4	2	2	6	6	1543	60
	Mt Penny [6]	4	4	2	2	6	6	1543	60
Proposed Modification	Wilpinjong Mod [7]	2	6	0	2	2	8	1543	60
Cumulative Existing and Approved		32	38	16	18	48	56		
Cumulative Existing, Approved and Proposed		47	53	27	29	74	82		
Cumulative Existing, Approved, Proposed and Modification		49	59	27	31	76	90		

Note: Two movements equals one arrival and departure of a single train.
Note 1: Ulan Coal Continued Operations Noise and Vibration Assessment, Wilkinson Murray Pty Ltd, 2009.
Note 2: Moolarben Coal Project Environmental Assessment Report, Wells Environmental Services, 2009.
Note 3: Wilpinjong Coal Mine 75W Modification Noise Impact Assessment, Heggies Pty Ltd, 2010.
Note 4: Anvil Hill Project Environmental Assessment, Umwelt (Australia) Pty Ltd, 2006.
Note 5: Modifications to Mangoola Coal Mine Plans and Relocation of 500kV Electricity Transmission Line, Umwelt (Australia) Pty Ltd, 2010.
Note 6: Assumes 3 trains per day for a 5 Mtpa operation (no data on train movements available).
Note 7: WCPL, 2011.

As can be seen from Table 4, WCPL's proposed additional peak train movements would comprise greater than 10% of cumulative existing and approved movements, but less than 10% of cumulative existing, approved and proposed movements. Noise level calculations were preformed on the Merriwa Railway to determine the increase in noise levels associated with the 2011 Modification.

2.3 Noise Modelling Methodology

The calculation of the daytime, night-time and 24 hour equivalent continuous noise levels and the maximum pass-by levels have been conducted using the Nordic Rail Prediction Method (1994) with corrections for NSW trains (SLR Consulting Australia Pty Ltd, 2007).

The prediction model uses characteristic noise levels for the various sources (locomotive engine and exhaust noise as a function of throttle notch, wheel/rail noise as a function of train speed, and wagon type, etc) at a fixed reference distance. The model then makes adjustments for the train length, distance from the track (assuming no barriers), angle of view (assuming 180 degrees) and facade reflection. Parameters including the daytime $L_{Aeq(15hour)}$, night-time $L_{Aeq(9hour)}$ and maximum pass-by level (L_{Amax}) can then be determined by summing the effects of the individual noise sources and by incorporating the number of train events.

3 Rail Traffic Noise Assessment - Gulgong to Sandy Hollow Railway "Mt Penny"

3.1 ARTC Daytime Criteria

The daytime $L_{Aeq(15hour)}$ and maximum (5% exceedance) pass-by noise levels for the existing and approved rail traffic are presented in **Table 5** together with the cumulative existing, approved, proposed and the 2011 Modification. Train movements are considered on an average and peak basis.

Table 5 Daytime Predicted Rail Traffic Noise (dBA re 20 µPa)

Distance to Receiver	Existing and Approved Trains			Cumulative Existing, Approved and Proposed Trains			Cumulative Existing, Approved, Proposed and WCM Mod Trains		
	Average $L_{Aeq(15hour)}$	Peak $L_{Aeq(15hour)}$	Pass-by Maximum	Average $L_{Aeq(15hour)}$	Peak $L_{Aeq(15hour)}$	Pass-by Maximum	Average $L_{Aeq(15hour)}$	Peak $L_{Aeq(15hour)}$	Pass-by Maximum
30 m	64	65	89	65	66	89	66	67	89
60 m	61	62	86	62	63	86	63	64	86
90 m	60	61	84	60	61	84	61	62	84
120 m	58	59	82	59	60	82	60	61	82
150 m	57	58	81	58	59	81	59	60	81
180 m	57	58	80	57	58	80	58	59	80
210 m	56	57	79	57	58	79	57	58	79
240 m	55	56	78	56	57	78	57	58	78

The following assessments are derived from the predicted rail traffic noise levels:

- A comparison of the existing/approved average $L_{Aeq(15hour)}$ rail noise with the cumulative existing/approved and proposed levels indicates that the daytime rail noise would increase by up to 0.8 dBA. A comparison of the cumulative existing/approved and proposed average $L_{Aeq(15hour)}$ rail noise with the cumulative existing/approved, proposed and proposed WCM Modification levels indicates that the daytime rail noise would increase by up to 0.3 dBA.
- The existing/approved average $L_{Aeq(15hour)}$ rail noise meets the 65 dBA criterion at a distance of 24 m (and greater). The cumulative existing/approved and proposed average $L_{Aeq(15hour)}$ rail noise level meets the 65 dBA criterion at a distance of 29 m (and greater). The cumulative existing/approved, proposed and WCM Modification average $L_{Aeq(15hour)}$ rail noise meets the 65 dBA criterion at a distance of 31 m (and greater).
- A comparison of the existing/approved peak $L_{Aeq(15hour)}$ rail noise with the cumulative existing/approved and proposed levels indicates that the daytime rail noise would increase by up to 0.7 dBA. A comparison of the cumulative existing/approved and proposed peak $L_{Aeq(15hour)}$ rail noise with the cumulative existing/approved, proposed and WCM Modification levels indicates that the daytime rail noise would increase by up to 0.7 dBA.
- The existing/approved peak $L_{Aeq(15hour)}$ rail noise meets the 65 dBA criterion at a distance of 30 m (and greater). The cumulative existing/approved and proposed peak $L_{Aeq(15hour)}$ rail noise meets the 65 dBA criterion at a distance of 35 m (and greater). The cumulative existing/approved, proposed and WCM Modification peak $L_{Aeq(15hour)}$ rail noise meets the 65 dBA criterion at a distance of 41 m (and greater).

- The existing/approved maximum pass-by noise level would remain unchanged due to the WCM Modification and other proposed trains and would continue to meet the criterion of 85 dBA at a distance of 61 m (and greater).

3.2 ARTC Night-time Criteria

The night-time $L_{Aeq(9hour)}$ and maximum (5% exceedance) pass-by noise levels for the existing and approved rail traffic are presented in **Table 6** together with the cumulative existing, approved, proposed and the 2011 Modification. Train movements are considered on an average and peak basis.

Table 6 Night-time Predicted Rail Traffic Noise (dBA re 20 µPa)

Distance to Receiver	Existing and Approved Trains			Cumulative Existing, Approved and Proposed Trains			Cumulative Existing, Approved, Proposed and WCM Mod Trains		
	Average $L_{Aeq(9hour)}$	Peak $L_{Aeq(9hour)}$	Pass-by Maximum	Average $L_{Aeq(9hour)}$	Peak $L_{Aeq(9hour)}$	Pass-by Maximum	Average $L_{Aeq(9hour)}$	Peak $L_{Aeq(9hour)}$	Pass-by Maximum
30 m	63	64	87	64	65	87	64	65	87
60 m	60	61	84	61	62	84	61	62	84
90 m	58	59	82	59	60	82	59	60	82
120 m	57	58	80	58	59	80	58	59	80
150 m	56	57	79	57	58	79	57	58	79
180 m	55	56	78	56	57	78	56	57	78
210 m	54	55	77	56	56	77	56	57	77
240 m	54	55	76	55	56	76	55	56	76

The following assessments are derived from the predicted rail traffic noise levels:

- A comparison of the existing/approved average $L_{Aeq(9hour)}$ rail noise with the cumulative existing/approved and proposed levels indicates that the night-time rail noise would increase by up to 1.1 dBA. A comparison of the cumulative existing/approved and proposed average $L_{Aeq(9hour)}$ rail noise with the cumulative existing/approved, proposed and WCM Modification levels indicates that the night-time rail noise would remain the same.
- The existing/approved average $L_{Aeq(9hour)}$ rail noise meets the 60 dBA criterion at a distance of 53 m (and greater). The cumulative existing/approved and proposed average $L_{Aeq(9hour)}$ rail noise level meets the 60 dBA criterion at a distance of 68 m (and greater). The cumulative existing/approved, proposed and WCM Modification average $L_{Aeq(9hour)}$ rail noise meets the 60 dBA criterion at a distance of 68 m (and greater).
- A comparison of the existing/approved peak $L_{Aeq(9hour)}$ rail noise with the cumulative existing/approved and proposed levels indicates that the night-time rail noise would increase by up to 1 dBA. A comparison of the cumulative existing/approved and proposed peak $L_{Aeq(9hour)}$ rail noise with the cumulative existing/approved, proposed and WCM Modification levels indicates that the night-time rail noise would increase by up to 0.5 dBA.
- The existing/approved peak $L_{Aeq(9hour)}$ rail noise meets the 60 dBA criterion at a distance of 63 m (and greater). The cumulative existing/approved and proposed peak $L_{Aeq(9hour)}$ rail noise meets the 60 dBA criterion at a distance of 79 m (and greater). The cumulative existing/approved, proposed and WCM Modification peak $L_{Aeq(9hour)}$ rail noise meets the 60 dBA criterion at a distance of 89 m (and greater).
- The existing/approved maximum pass-by noise level would remain unchanged due to the WCM Modification and other proposed trains and would continue to meet the criterion of 85 dBA at a distance of 40 m (and greater).

3.3 OEH 24 Hour Criteria

The $L_{Aeq(24hour)}$ and maximum (5% exceedance) pass-by noise levels for the existing and approved rail traffic are presented in **Table 7** together with the cumulative existing, approved, proposed and the 2011 Modification. Train movements are considered on an average and peak basis.

Table 7 24 hour Predicted Rail Traffic Noise (dBA re 20 µPa)

Distance to Receiver	Existing and Approved Trains			Cumulative Existing, Approved and Proposed Trains			Cumulative Existing, Approved, Proposed and WCM Mod Trains		
	Average $L_{Aeq(24hour)}$	Peak $L_{Aeq(24hour)}$	Pass-by Maximum	Average $L_{Aeq(24hour)}$	Peak $L_{Aeq(24hour)}$	Pass-by Maximum	Average $L_{Aeq(24hour)}$	Peak $L_{Aeq(24hour)}$	Pass-by Maximum
30 m	64	65	89	65	66	89	65	66	89
60 m	61	62	86	62	63	86	62	63	86
90 m	59	60	84	60	61	84	60	61	84
120 m	58	59	82	59	60	82	59	60	82
150 m	57	58	81	58	59	81	58	59	81
180 m	56	57	80	57	58	80	57	58	80
210 m	55	56	79	56	57	79	57	58	79
240 m	55	56	78	56	57	78	56	57	78

The following assessments are derived from the predicted rail traffic noise levels:

- A comparison of the existing/approved average $L_{Aeq(24hour)}$ rail noise with the cumulative existing/approved and proposed levels indicates that the 24 hour rail noise would increase by up to 0.9 dBA. A comparison of the cumulative existing/approved and proposed average $L_{Aeq(24hour)}$ rail noise with the cumulative existing/approved, proposed and WCM Modification levels indicates that the 24 hour rail noise levels would increase by up to 0.2 dBA.
- The existing/approved average $L_{Aeq(24hour)}$ rail noise meets the 60 dBA criterion at a distance of 66 m (and greater). The cumulative existing/approved and proposed average $L_{Aeq(24hour)}$ rail noise meets the 60 dBA criterion at a distance of 82 m (and greater). The cumulative existing/approved, proposed and WCM Modification average $L_{Aeq(24hour)}$ rail noise meets the 60 dBA criterion at a distance of 86 m (and greater).
- A comparison of the existing/approved peak $L_{Aeq(24hour)}$ rail noise with the cumulative existing/approved and proposed levels indicates that the 24 hour rail noise would increase by up to 0.8 dBA. A comparison of the cumulative existing/approved and proposed peak $L_{Aeq(24hour)}$ rail noise with the cumulative existing/approved, proposed and WCM Modification levels indicates that the 24 hour rail noise would increase by up to 0.6 dBA.
- The existing/approved peak $L_{Aeq(24hour)}$ rail noise meets the 60 dBA criterion at a distance of 82 m (and greater). The cumulative existing/approved and proposed peak $L_{Aeq(24hour)}$ rail noise meets the 60 dBA criterion at a distance of 97 m (and greater). The cumulative existing/approved, proposed and proposed WCM Modification peak $L_{Aeq(24hour)}$ rail noise meets the 60 dBA criterion at a distance of 113 m (and greater).
- The existing/approved maximum pass-by noise level would remain unchanged due to the WCM Modification and other proposed trains and would continue to meet the criterion of 85 dBA at a distance of 61 m (and greater).

3.4 Indicative Residential Dwelling Noise Impact Summary - Gulgong to Sandy Hollow Railway "Mt Penny"

Table 8 presents the distances at which the relevant ARTC and OEH noise criteria are met under the three scenarios and the number of potentially affected residential dwellings that fall within the relevant distances.

Residential dwellings were mapped using a desktop methodology based on aerial photographs and satellite imagery, therefore the dwelling locations should be considered indicative.

Table 8 Gulgong to Sandy Hollow Railway "Mt Penny"- Potentially Affected Residential Dwellings

		Distance to Meet Relevant Criteria and Number of Dwellings with Criteria Exceedances											
		Existing and Approved Trains				Cumulative Existing, Approved and Proposed Trains				Cumulative Existing, Approved, Proposed and WCM Mod Trains			
	Criteria	Average		Peak		Average		Peak		Average		Peak	
		Dist.[1]	No.[2]	Dist.	No.	Dist.	No.	Dist.	No.	Dist.	No.	Dist.	No.
ARTC	Day	24 m	0	30 m	0	29 m	0	35 m	0	31 m	0	41 m	0
	Night	53 m	3	63 m	3	68 m	5	79 m	5	68 m	5	89 m	**7**
	Max Pass-by	N/A	N/A	61 m	N/A	N/A	N/A	61 m	N/A	N/A	N/A	61 m	N/A
OEH	24 hour	66 m	5	82 m	6	82 m	6	97 m	9	86 m	**7**	113 m	**11**
	Max Pass-by	N/A	N/A	61	3	N/A	N/A	61 m	3	N/A	N/A	61 m	3

Note: Values in bold represent an increase in the number of potentially affected dwellings as a result of the 2011 Modification.

Note 1: Distance from the railway at which the relevant criteria are met.
Note 2: Number of dwellings that fall within the stated distance from the railway.

Table 8 indicates that an additional two residential dwellings will potentially exceed the ARTC peak $L_{Aeq(9hour)}$ night-time rail noise criteria, one residential dwelling will potentially exceed the ARTC average $L_{Aeq(9hour)}$ night-time rail noise criteria, and an additional two residential dwellings will potentially exceed the OEH peak $L_{Aeq(24hour)}$ rail noise criteria as a result of the 2011 Modification compared the number of residential dwellings that experience exceedances of relevant criteria from the cumulative existing, approved and proposed trains.

3.5 Gulgong to Sandy Hollow Railway "Mt Penny" Summary

This assessment shows that the maximum increase in noise levels associated with the 2011 Modification for either criteria is approximately 0.7 dBA. From a desktop review of the relevant receiver locations proximate to the railway, up to approximately four receivers would exceed the criteria as a result of the 2011 Modification (ie one receiver approximately 85 m from the railway would be expected to experience exceedances of both the ARTC night-time and OEH 24 hour criteria as a result of the increase in WCM trains).

4 Rail Traffic Noise Assessment - Merriwa Railway "Bengalla"

4.1 ARTC Daytime and Night-time and OEH 24 hour Criteria

The daytime LAeq(15hour) and maximum (5% exceedance) pass-by noise levels for the existing and approved rail traffic are presented in **Table 9** together with the cumulative existing, approved, proposed and the 2011 Modification.

The night-time $L_{Aeq(9hour)}$ and maximum (5% exceedance) pass-by noise levels for the existing and approved rail traffic are presented in **Table 10** together with the cumulative existing, approved, proposed and the 2011 Modification.

The $L_{Aeq(24hour)}$ and maximum (5% exceedance) pass-by noise levels for the existing and approved rail traffic are presented in **Table 11** together with the cumulative existing, approved, proposed and the 2011 Modification.

Train movements are considered on an average and peak basis.

The increase in noise levels associated with the addition of the 2011 Modification trains is **less than 0.5 dBA in all cases** (**Tables 10, 11** and **12**). Therefore, in accordance with the OEH rail noise guideline (**Attachment B**), as the increase is less than 0.5 dBA, the geographical extent of the rail noise assessment does not need to include the Merriwa Railway. Notwithstanding, predicted rail noise levels are presented in **Tables 9**, **10** and **11**.

Table 9 ARTC Daytime Predicted Rail Traffic Noise (dBA re 20 µPa)

Distance to Receiver	Existing and Approved Trains			Cumulative Existing, Approved and Proposed Trains			Cumulative Existing, Approved, Proposed and WCM Mod Trains		
	Average $L_{Aeq(15hour)}$	Peak $L_{Aeq(15hour)}$	Pass-by Maximum	Average $L_{Aeq(15hour)}$	Peak $L_{Aeq(15hour)}$	Pass-by Maximum	Average $L_{Aeq(15hour)}$	Peak $L_{Aeq(15hour)}$	Pass-by Maximum
30 m	66	66	89	67	68	89	68	68	89
60 m	63	63	86	64	65	86	65	65	86
90 m	61	62	84	63	63	84	63	64	84
120 m	60	60	82	61	62	82	62	62	82
150 m	59	59	81	60	61	81	61	61	81
180 m	58	59	80	60	60	80	60	61	80
210 m	57	58	79	59	59	79	59	60	79
240 m	57	57	78	58	59	78	59	59	78

Table 10 ARTC Night-time Predicted Rail Traffic Noise (dBA re 20 µPa)

Distance to Receiver	Existing and Approved Trains			Cumulative Existing, Approved and Proposed Trains			Cumulative Existing, Approved, Proposed and WCM Mod Trains		
	Average $L_{Aeq(9hour)}$	Peak $L_{Aeq(9hour)}$	Pass-by Maximum	Average $L_{Aeq(9hour)}$	Peak $L_{Aeq(9hour)}$	Pass-by Maximum	Average $L_{Aeq(9hour)}$	Peak $L_{Aeq(9hour)}$	Pass-by Maximum
30 m	65	65	87	67	68	87	67	68	87
60 m	62	62	84	64	65	84	64	65	84
90 m	60	61	82	62	63	82	62	63	82
120 m	59	59	80	61	62	80	61	62	80
150 m	58	58	79	60	61	79	60	61	79
180 m	57	58	78	59	60	78	59	60	78
210 m	56	57	77	59	59	77	59	59	77
240 m	56	56	76	58	58	76	58	59	76

Table 11 OEH 24 Hour Predicted Rail Traffic Noise (dBA re 20 µPa)

Distance to Receiver	Existing and Approved Trains			Cumulative Existing, Approved and Proposed Trains			Cumulative Existing, Approved, Proposed and WCM Mod Trains		
	Average $L_{Aeq(24hour)}$	Peak $L_{Aeq(24hour)}$	Pass-by Maximum	Average $L_{Aeq(24hour)}$	Peak $L_{Aeq(24hour)}$	Pass-by Maximum	Average $L_{Aeq(24hour)}$	Peak $L_{Aeq(24hour)}$	Pass-by Maximum
30 m	65	66	89	67	68	89	67	68	89
60 m	62	63	86	64	65	86	64	65	86
90 m	61	61	84	63	63	84	63	63	84
120 m	59	60	82	61	62	82	61	62	82
150 m	58	59	81	60	61	81	60	61	81
180 m	58	58	80	60	60	80	60	60	80
210 m	57	58	79	59	59	79	59	60	79
240 m	56	57	78	58	59	78	58	59	78

ON-SITE OPERATIONS REVIEW OF NOISE EFFECTS

5 Reverse Osmosis Plant

WCPL proposes to install a Reverse Osmosis (RO) plant to treat excess mine water prior to discharge off-site. The RO plant will be located to the north of the CHPP, with the nearest privately owned residential dwellings located some 4 km to the east of the project site. In order to achieve a negligible difference to the existing mine noise levels at the nearest receivers, the potential noise from the proposed RO plant will be limited by housing the RO plant and equipment within an enclosed building designed to operate with a total sound power level of 100 dBA (re 10ρW) or less.

ARTC ENVIRONMENT PROTECTION LICENCE

L6 Noise Limits

L6.1 Approvals for Locomotives

The licensee must seek approval from the EPA prior to permitting operation on the "premises" of:

1. a class or type of locomotive, whether new or existing, that has not been operated on the NSW rail network; or
2. a locomotive that has been substantially modified since it was last used on the NSW rail network

EPA approval will be on the basis of compliance with the locomotive noise limits in Condition L6.2.

This condition L6 does not apply to the operation of a locomotive solely for the purposes of conducting noise or other tests that are required for the locomotive's acceptance by the EPA, the licensee or any person concerned with the design, manufacture, supply or acquisition of the locomotive, provided that multiple pass bys do not occur adjacent to residential premises in the course of the testing.

Note: EPA approval for a class or type of locomotive will require noise test results from a representative number of locomotives from that class or type.

L6.1 General Noise Limits

L6.1.1 General Noise Limits

It is an objective of this Licence to progressively reduce noise levels to the goals of 65 dB(A)Leq, (day time from 7am – 10pm), 60 dB(A)Leq, (night time from 10pm – 7am) and 85dB(A) (24 hr) max pass-by noise, at one metre from the façade of affected residential properties through the implementation of the Pollution Reduction Programs.

L6.2 EPA Locomotive Noise Limits

L6.2.1 General Noise Limits

Operating Condition	Speed & Location of Measurement	Noise Limit at a microphone height of 1.5 metres above ground level
Idle with compressor radiator fans and air conditioning operating at maximum load occurring at idle	Stationary 15 metre contour	70 dB(A) $_{Max}$
All other throttle settings under self load with compressor radiator fans and air conditioning operating	Stationary 15 metre contour	87 dB(A) $_{Max}$ 95 dB Linear $_{Max}$
All service conditions	As per Australian Standard AS2377-2002 (Acoustics – Methods for the measurement of railbound vehicle noise) except as otherwise approved by the EPA	87 dB(A) $_{Max}$ 95 dB Linear $_{Max}$

L6.2.2 Limits for Tonality

All external noise must be non-tonal. For the purpose of this condition, external noise is non-tonal if the sound pressure level in each unweighted (linear) one-third octave band does not exceed the level of the adjacent bands on both sides by:

a) 5 dB if the centre frequency of the band containing the tone is above 400 Hz; and

b) 8 dB if the centre frequency of the band containing the tone is between 160 and 400 Hz, inclusively; and

c) 15 dB if the centre frequency of the band containing the tone is below 160 Hz.

L6.2.3 Limits for Low-Frequency Noise

All external noise must not exhibit an undue low-frequency component. To comply with this requirement, linear noise levels must not exceed the A-weighted noise levels by more than 15 dB.

L6.3 Locomotive Noise Emission Test Methods

Application for approval as required by L6.1 must be supported by type testing of the locomotive using procedures that are consistent with the requirements of Australian Standard AS2377-2002 (Acoustics – Methods for the measurement of railbound vehicle noise) except as otherwise approved by the EPA. The type testing must provide all necessary measurement parameters for demonstrating compliance with the locomotive noise limits in L6.2.

Information supplied to the EPA as part of the application for approval must fulfil the requirements of Section 11 of AS2377-2002 for reporting.

Note: The measurement parameters required in L6.2 differ in some cases from those identified in AS2377-2002. The test procedures, measurement equipment and environmental conditions applied in supporting the application to the EPA for approval are to yield all parameters identified in L6.2 but are otherwise to be applied in a manner that is consistent with the requirements of AS2377-2002. The 15 metre contour specified in L6.2.1 is to be represented by the 12 measurement points shown in AS2377-2002, Figure 1.

L6.4 Approval of Locomotives Not Meeting All EPA Limits

The EPA may approve locomotives that do not comply with all limits prescribed by L6.2, provided that the application for approval demonstrates that:

a) the noise emission performance of the locomotive is consistent with current best practice; and

b) all measures for minimising the extent of any non-compliance have been investigated and those that are identified as reasonable and feasible have been implemented; and

c) none of the non-compliances will result in unacceptable environmental impacts.

OFFICE OF ENVIRONMENT AND HERITAGE RAIL NOISE

Rail noise

The NSW Government is developing a comprehensive approach to managing the environmental impacts of noise and vibration from the NSW rail system. Effective management of rail noise will require the combined efforts of rail infrastructure owners and developers, rail operators, train manufacturers, regulatory and planning authorities, and the community. The key parts of this approach include:

release of **Interim Guidelines for the Assessment of Noise from Rail Infrastructure Projects**

preparation of a noise management manual on best practices to mitigate rail noise and vibration

implementation of a rail noise abatement program, which aims to mitigate noise for those acutely affected by it by taking into account the results of a current trial by the rail agencies

release of environmental **planning guidelines for new residential developments along rail lines** (pdf format, 4.42MB)

development of rolling stock noise/emission standards.

The Department of Environment, Climate Change and Water is participating in the development of all of these components.

Environmental assessment requirements for rail traffic-generating developments

Land/use developments that are likely to generate additional rail traffic were previously assessed with reference to the Environmental Noise Control Manual. This manual is no longer in print and does not represent current government policy.

When reviewing the Environmental Assessments, Environmental Impact Statements, Statements of Environmental Effects, or Reviews of Environmental Factors for land/use developments, DECCW will assess these developments against the following requirements:

The typical offset distance/s of sensitive receivers from the rail line/s that are likely to be affected by increased rail movements should be identified.

The existing level of rail noise at the offset distance/s identified in point one above should be quantified using the noise descriptors LAeq,24hr and LAmax (95th percentile) dB(A).

The cumulative rail noise level (i.e. from existing, plus proposed, rail movements) should be predicted using a calibrated noise model (based on predicted increased rail movements) at the offset distances identified above.

The cumulative noise level should be compared with the rail noise assessment trigger levels: LAeq,24hr 60dB(A) and LAmax (95th percentile) 85dB(A).

Where the cumulative noise level exceeds the noise assessment trigger levels, and project/related noise increases are predicted, all feasible and reasonable noise mitigation measures should be implemented. As a general principle, where the reduction of existing noise levels can be achieved through feasible and reasonable measures, a reduction in noise levels to meet the noise assessment trigger levels is the primary objective. In all cases where the LAeq noise level increases are more than 2dB(A), strong justification should be provided as to why it is not feasible or reasonable to reduce the increase.

Notes:

1. A project/related noise increase is an increase of more than 0.5dB.
2. Ideally, the geographical extent of the rail noise assessment should be to where project /related rail noise increases are less than 0.5dB. This roughly equates to where project/related rail traffic represents less than 10% of total line/corridor rail traffic.
3. General guidance on the concept of 'feasible and reasonable' can be obtained from DECCW's **Interim Construction Noise Guideline**. However, in the context of rail noise, consideration of feasible and reasonable noise mitigation measures should extend, but not necessarily be limited, to:

   the use of best practice rolling stock, including only locomotives that have received an 'approval to operate on the NSW rail network' in accordance with the noise limits L6.1 to L6.4 in **RailCorp** (L12208.pdf, 309KB) and **Australian Rail Track Corporation Ltd** (L3142.pdf, 259KB) Environment Protection Licences or a Pollution Control Approval issued pursuant to the former Pollution Control Act 1970

   scheduling / limit movements during more sensitive times, to the extent practicable

   using noise barriers and acoustic treatments.

APPENDIX C

ASSESSMENT OF REVERSE OSMOSIS DISCHARGE IMPACTS TO RECEIVING WATERS

WILPINJONG COAL PTY LTD

Assessment of Probable Effects of Proposed Licensed Discharge on Downstream Aquatic Environment

9 September 2011

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Introduction

Wilpinjong Coal Pty Ltd proposes a licensed discharge of water into Wilpinjong Creek and/or Cumbo Creeks. Electrical conductivity of the discharge water would initially be 1500µS/cm for six months and then 500µS/cm for the life of the mine. The proposed discharge water comprises surface runoff and groundwater which is stored on the mine site and is partially treated by reverse osmosis to reduce ionic concentrations. Landline Consulting has been engaged to provide an assessment of the likely impacts of this discharge on downstream aquatic ecosystems and creek channel stability.

Climatic context

The period since mining activities commenced at Wilpinjong has been characterized by extremely variable rainfall. Total annual rainfall at the Bureau of Meteorology rainfall station 513062032 (Wollar -Barrigan Street) was approximately equivalent to the 5th percentile value in 2006, above the 90th percentile in 2007, well above the median in 2008, well below the median in 2009, and above the 95th percentile in 2010. Rainfall in 2011 to date has been close to the median. Table 1 shows monthly rainfall totals for the period 2006-2010 inclusive and long term rainfall statistics. Figure 1 shows the departure of monthly rainfall totals from the long term monthly median values over the same period.

Table 1. Monthly rainfall totals at rainfall station 513062032, Wollar, period Jan 2006 – August 2011 and long term monthly rainfall statistics for the station (Source: Bureau of Meteorology)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
2006	51.4	39.4	3	21.7	1	34.8	53.2	9.6	17.1	5.6	53.7	40.4	330.9
2007	9	41.2	42.4	33.8	49.8	238	10.2	37.8	2	47	144.4	185	840.6
2008	60.4	130.6	13	14.2	9	72	30.2	70	70	80.4	103.3	132.4	785.5
2009	12.6	73.6	57.6	36.2	13.8	39.6	51.2	8.2	38.6	34	29.8	86	481.2
2010	86	103.4	71.6	51.4	56.4	37.6	87	70.2	66	76	175.5	203.2	1084.3
2011	33	44	58.8	41.2	40	16.8	5.6	52.8					

Summary statistics for all years

Statistic	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Mean	66.3	63.1	51	38.9	38	44.2	42.9	41.8	40.5	52.3	55.1	59.2	588.9
Lowest	0	0	0	0	0	0	0	0	0	0	0	0	128.8
5th %ile	2.4	0.4	0	0	0	1.5	0.2	3.3	0	2.2	0	0.8	327.6
10th %ile	10.3	3.5	1	0.6	1.2	5.6	4.9	9.4	3.9	6.5	3.3	7.2	364.5
Median	60.4	47.2	37.9	28.7	26.5	33.5	36.6	38.7	36.4	47.8	51.4	45	596.8
90th %ile	134	145	109.9	78.5	100.6	87.4	93.7	78.9	83.4	101.3	117.8	131.7	835.2
95th %ile	150.1	177.7	132.2	107.3	111.8	112.4	111.1	93.8	99.6	129.1	144.9	150.1	871.7
Highest	209.6	391.5	224.5	221.9	182.5	263.9	175.2	146.4	135.9	228.5	278	229.8	1205.3

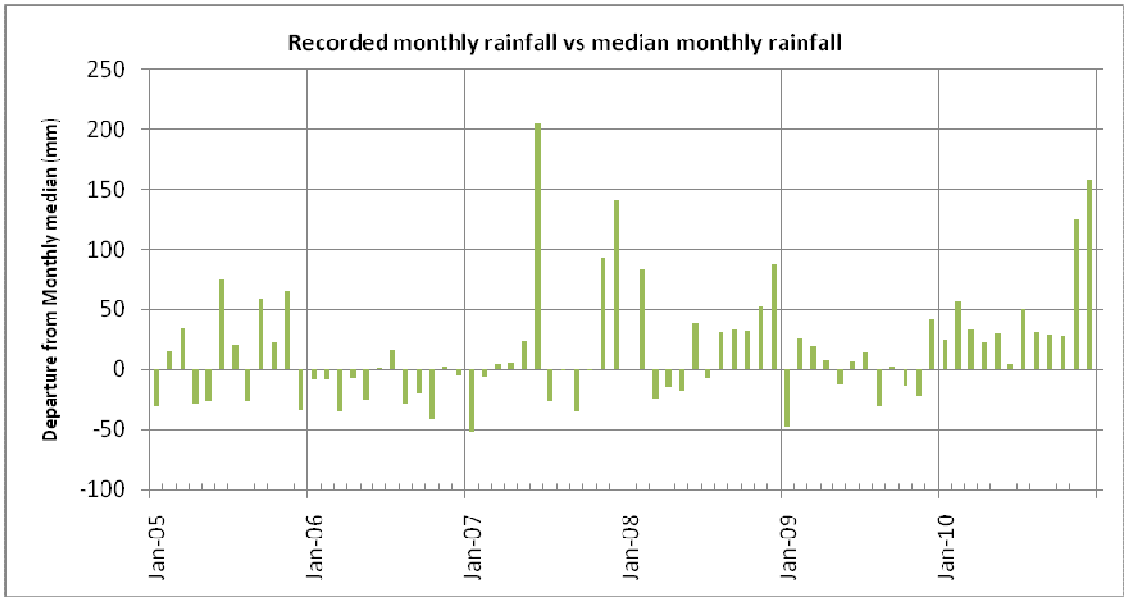

Figure 1 Departure of monthly rainfall at Wollar from long term monthly median values

While the wet period experienced in 2010 is remarkable it is certainly not unprecedented. Analysis of long term rainfall data for Wollar using Rainman© version 4.3 software shows that there have been several twelve-month periods (as opposed to calendar year periods) which are equivalent to the recent wet period. These periods are summarised in Table 2 below.

Table 2. Previous severe wet periods of 12 months duration or more at Wollar (source: Rainman© 4.3 software)

Period	Duration (months)	Severity*	Total rainfall (mm)	Wettest 12 months (mm)	Ave. SOI
Sep 1903 to Aug 1904	12	severe	933	933	8
Jan 1916 to Jan 1917	13	severe	947	935	7.2
Apr 1947 to Sep 1948	18	severe	1,173	993	0.3
Feb 1949 to Mar 1951	26	severe	2,163	1,272	7.8
Oct 1954 to Sep 1955	12	severe	927	927	8.8
Dec 1954 to Dec 1955	13	severe	932	926	10.8
Jun 1955 to Oct 1956	17	severe	1,157	1,037	13
Dec 1968 to Nov 1969	12	severe	902	902	-5.5
Feb 1969 to Jan 1970	12	severe	942	942	-5.1
Nov 1972 to May 1974	19	severe	1,447	1,137	7.9
Jul 1988 to Jul 1989	13	severe	1,009	961	13.4
Mar 1989 to Feb 1990	12	severe	953	953	3.4
Nov 1995 to Oct 1996	12	severe	880	880	4.8
May 1999 to Dec 2000	20	severe	1,455	997	6.9
Mar 2007 to Apr 2008	14	severe	1,011	981	5.7
Dec 2009 to May2011	18	severe	1397	1,096	11.2

*severe wet = wettest 5% of years for each 12-month period.

Flow regime

Wilpinjong and Cumbo Creeks are intermittent streams with highly variable flow regimes. In drier years flow periods may be restricted to a few days following significant rainfall events while, in wetter periods when the catchment soils and shallow aquifers are fully saturated, flow may continue for several months at a time. This variability has been recorded since gauging stations were installed on Wilpinjong Creek in 2006. Figure 2 shows recorded flow periods in Wilpinjong Creek since that time.

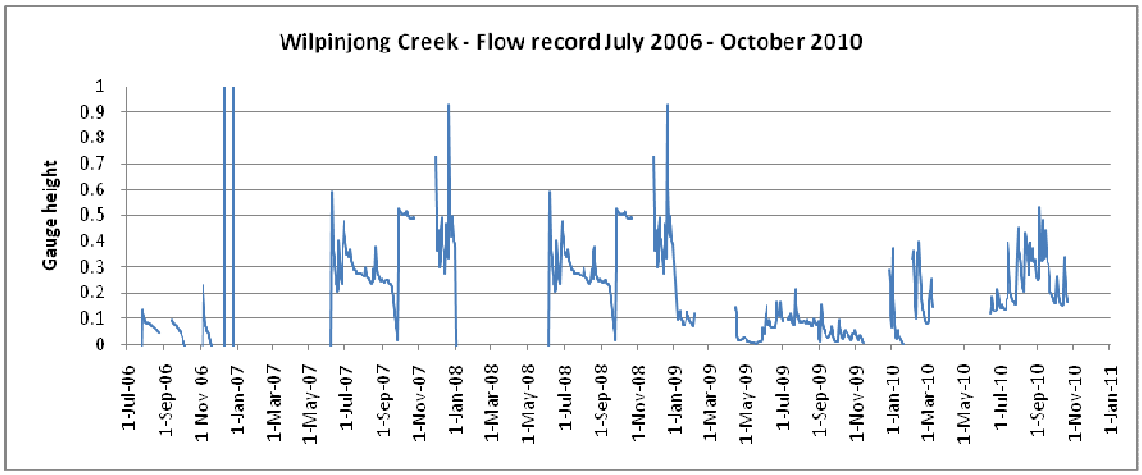

Figure 2 Daily records from gauging station WILPC007, July 2006-October 2010. Flow occurs at values exceeding zero.

The data are incomplete where gaps in the trace exist at values exceeding zero. Nonetheless it is obvious that flow occurred only sporadically and for brief periods during the 2006 dry period, but continuous flow occurred for periods of six months or more in 2007, 2008, and 2009, and flow has probably been continuous from the start of 2010 to the present time.

While all watercourses that frequently cease to flow are regarded as ephemeral there is a continuum of flow regimes which progresses from transient to intermittent to seasonal to near perennial. There are relatively few truly perennial streams in most parts of Australia. When considered together with the rainfall statistics it seems that the flow in Wilpinjong and Cumbo Creeks can be regarded as transient in extremely dry periods, intermittent to seasonal in most years and near-perennial to perennial in wet periods.

Cumbo Creek flows into Wilpinjong Creek which then flows into Wollar Creek downstream of Wollar and then into the Goulburn River above Coggan. The project EIS states that mean daily flow (21 year period) in Wollar Creek at Wollar is 9.9Ml/day and the mean flow in the Goulburn River at Coggan is 192 Ml/day.

Stream Health and Aquatic Communites

Virtually all of the middle and lower reaches of Wilpinjong Creek and its tributaries such as Cumbo Creek are extremely degraded through past bank clearing, grazing and pest animal activity. The natural channel form is greatly modified and the fish and macro invertebrate communities are depauperate. Surveys of aquatic macro invertebrates have been conducted in 2006, 2008, 2009 and 2010. Taxon richness at all sites was much greater in the 2010 samples (taken when continuous flow had been occurring for several months) than it was in all other surveys. While no raw data was included in the first three survey reports it would appear from examination of graphs that SIGNAL biotic index values at most sites were higher in the 2010 survey than in the earlier surveys. There were no taxa collected in any of the surveys that are especially characteristic of, or dependent on, transient aquatic habitats and the families recorded from the creek are all commonly found in watercourses over most of eastern Australia. The taxa that are present in the creek systems are therefore adapted to transient low flow conditions as well as perennial higher flow regimes.

Water Chemistry

There are no major problems with metals, metalloids or nutrients in the Wilpinjong Creek system. The major stressor factor in the creek system is salinity as measured by electrical conductivity. The project EIS states that average conductivity levels in Wilpinjong Creek downstream of the confluence with Cumbo Creek are approximately 3900µS/cm.

Water quality data for onsite water storages from which water releases will be made are shown in Table 3 below. The data show that electrical conductivity of raw onsite water prior to reverse osmosis treatment water is lower than in natural pre-mine flows in Wilpinjong Creek.

Effects of proposed discharge

The available data suggests that proposed licensed discharges to Wilpinjong and/or Cumbo Creeks will have no significant deleterious impact on the downstream ecology and may even be beneficial to aquatic ecosystems. It should be emphasised that Wilpinjong Creek, Cumbo Creek and streams over much of the Wollar Creek catchment are highly degraded waterways suffering from many years of overgrazing and removal of riparian vegetation with the resultant bank erosion exacerbated by rabbits, kangaroos and wombats.

Releases under the conditions of the licence will be of considerably better quality than the water currently flowing in downstream water courses. The onsite waters are of higher quality than the natural pre-mining flows in Wilpinjong /Cumbo Creeks and the licensed quality of the reverse osmosis-treated discharge (maximum 1500µS/cm) is lower than quoted in the project EIS for Wollar Creek upstream of the junction with Wilpinjong Creek. The discharge is therefore likely to significantly enhance water quality in areas downstream of the mine at least as far as the entry into the Wollar Creek.

The proposed maximum rates of discharge will be well within the normal flow range of the downstream systems and well within the capacity of the existing flow channels. Long term continuous flow events are not particularly rare in the creeks and the expected discharge flow rates are within the range of flow rates naturally experienced in the stream. It is most unlikely that there

will be any appreciable changes to the bed or banks. The proposed discharge volume is well below the average stream flow of approximately 10Ml/day in Wollar Creek upstream of the Wilpinjong inflow and only 1-2% of the mean flow rate in the Goulburn River at Coggan.

Table 3 Water quality of onsite water storages at Wilpinjong

Analyte	Unit	Recycle Water Dam	Pit 2 West	Ed's Lake
pH		7.41	6.75	7.16
EC	µS/cm	3180	3270	2890
Temp	°C	27	27	25.5
TSS	mg/L	5	<2	2
Carbonate	mg CaCO3/L	<2	<2	<2
Bicarbonate	mg CaCO3/L	30	15	320
Chloride	mg/L	248	241	220
Sulfates	mg/L	1340	1410	920
Calcium	mg/L	131	131	135
Magnesium	mg/L	148	163	155
Sodium	mg/L	325	304	234
Potassium	mg/L	31	30	31
Hardness	mg/L	937	970	680
Carbon Dioxide	mg/L	1.5	-	-
TDS	mg/L	2060	2050	1150
Iodide	mg/L	<0.010	<0.010	<0.01
Manganese (Filterable)	mg/L	3.65	6.58	2.51
Aluminium	mg/L	0.08	0.14	0.12
Barium	mg/L	0.048	0.051	0.128
Manganese	mg/L	4.08	7.16	2.59
Strontium	mg/L	1.02	1	0.74
Iron	mg/L	0.06	4	1.3
Silica	mg/L	7.7	10.1	8.1
Fluoride	mg/L	1.1	1	0.8
Nitrates	mg/L	1.03	0.78	1.61
Phosphorus (reactive)	mg/L	<0.01	<0.01	<0.01
TOC	mg/L	1	1	3
Total Coliforms	cols/100mL	120	220	130
Turbidity	NTU	-	7.2	21.4

Most deleterious effects on stream ecosystems as a result of altered flow regimes involve a reduction in flow volumes, flow duration or interruption to natural flood flows. The proposed discharge will not disrupt the life cycle of any organisms dependent on ephemeral water bodies and the increase volume and duration of flow will, on balance, be beneficial to in stream ecosystems and riparian vegetation.

Annual biomonitoring surveys of aquatic ecosystems suggests an increase in taxon richness of the aquatic macro invertebrate assemblage during periods of extended flow and the expected improvement in water quality could even see an expansion in the diversity of the food web for vertebrate predators.

Fish studies carried out as part of the project EIS recorded only three native fish species (long finned eel, striped gudgeon and Australian smelt) and two introduced fish (mosquito fish and gold fish). During the 2010 aquatic ecosystem monitoring program observations suggested that mosquito fish was the only species present in areas of Wilpinjong Creek downstream of the mine. It is possible that the improved water quality might result in increased utilisation of lower Wilpinjong Creek by the native species.

In summary the effects of the licensed discharge are likely to be beneficial to aquatic ecosystems in lower Wilpinjong Creek and Wollar Creek downstream of the junction of the two. Any effects on the Goulburn River downstream of the inflow of Wollar Creek are likely to be negligible to slightly beneficial.

Annual assessment of aquatic ecosystems will continue and will document any significant changes in stream biodiversity resulting from the licensed discharge.

Malcolm R Mackinnon

LANDLINE CONSULTING