NSW GOVERNMENT
Department of Planning

DIRECTOR-GENERAL'S REPORT

Proposed Wilpinjong Coal Project

1. SUMMARY

Wilpinjong Coal Pty Limited (the Proponent), a wholly owned subsidiary of Excel Coal Limited, is proposing to establish a new open cut coal mine, approximately 40 kilometres northeast of Mudgee, NSW (see Figure 1).

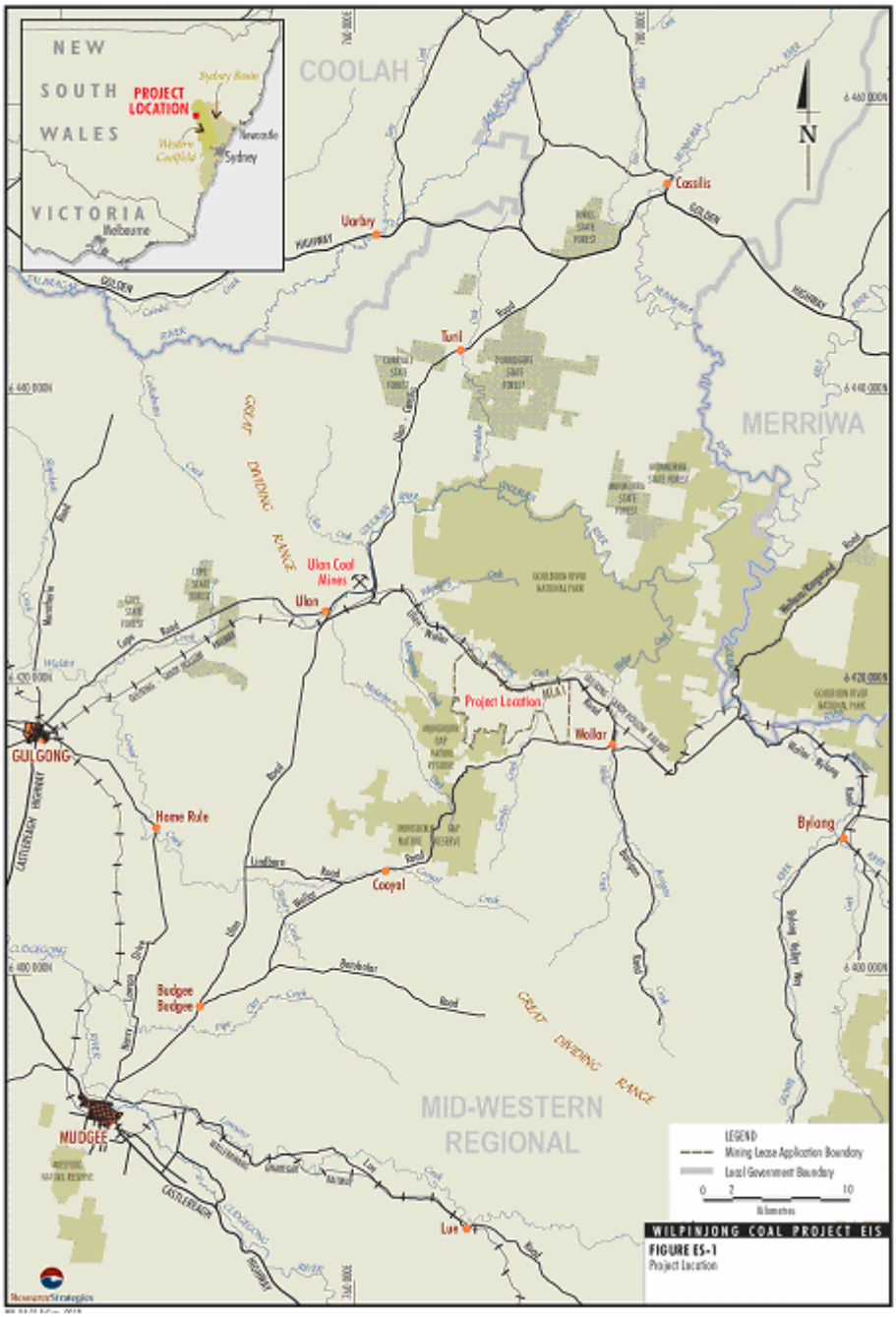

Figure 1: *Regional Context*

The project (known as the "Wilpinjong Coal Project") involves the construction and operation of an open cut mine and associated facilities, including (see Figure 2):

- extraction of up to 13 million tonnes of run-of-mine (ROM) coal a year for a period of 21 years;
- a coal handling and preparation plant (CHPP) capable of processing up to 8.5 million tonnes of coal a year;
- a rail spur and rail loop off the Gulgong-Sandy Hollow railway line;
- rail and train loading infrastructure;
- transportation of product coal to domestic and export markets via rail; and
- rehabilitation and revegetation of the site.

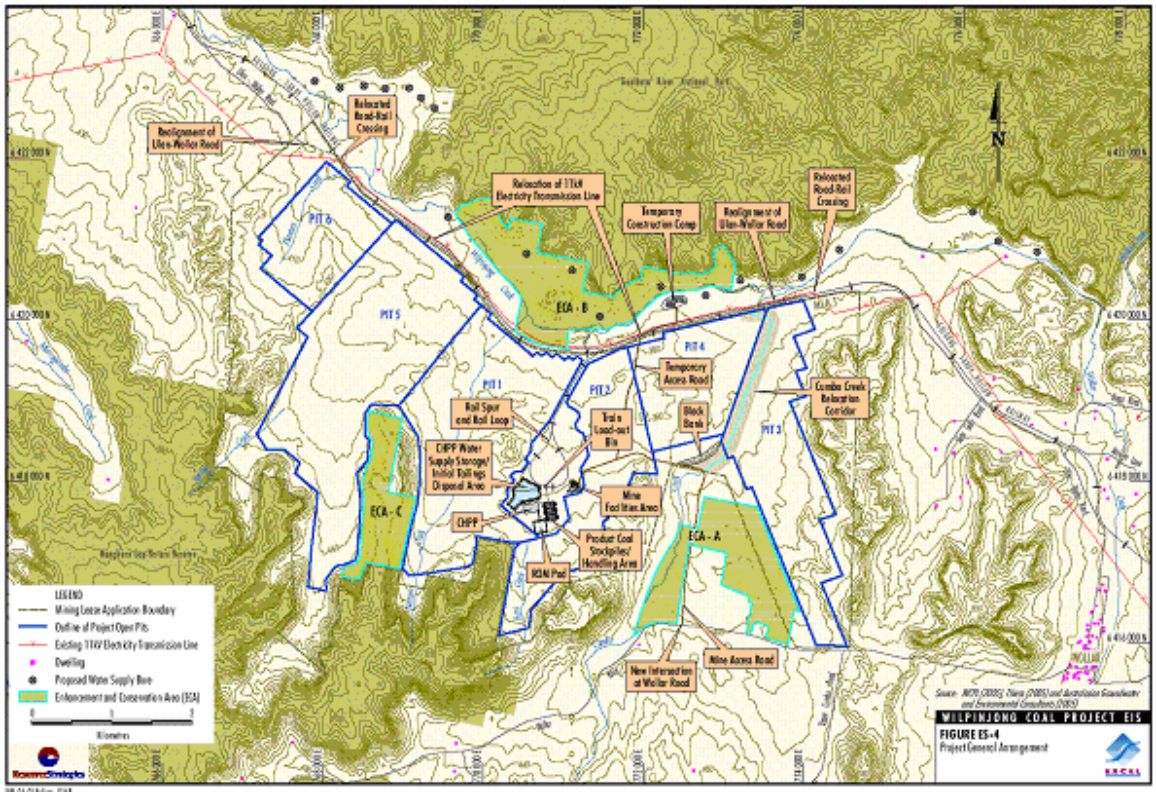

Figure 2: *Project Layout*

The Wilpinjong Coal Project has a capital investment value of $116 million, and would contribute around $360 million a year to the NSW economy, and employ around 100 people during operations.

On 13 September 2005, the Proponent lodged an application under Part 3A of the *Environmental Planning and Assessment Act 1979* (EP&A Act) for the Wilpinjong Coal Project, and the Minister for Planning is the approval authority for the project

On 27 September 2005, the Minister for Planning directed that an Independent Hearing and Assessment Panel (Panel of Experts) be constituted in accordance with section 75G of the EP&A Act to assess the following aspects of the project:

- surface water impacts;
- groundwater impacts;
- flora and fauna impacts; and
- vegetation offsets and the rehabilitation of the mine.

The Panel of Experts consisted of three independent experts and reported to the Director-General in early December 2005. The panel's report concluded that the environmental impacts of the project did not preclude approval of the project, provided a range of recommendations were implemented to minimise, control and manage residual environmental impacts and risks. The Department has considered the panel's recommendations and incorporated these into the recommended conditions of approval for the project.

The Department has assessed the project application, EIS, and the submissions on the project, and is satisfied that there is sufficient information available to determine the application and that the residual impacts of the project can be adequately mitigated, managed, offset or compensated for. The Department also believes that the project would generate significant social and economic benefits for the region and NSW. On balance, the Department is satisfied that the benefits of the project outweigh the impacts, and recommends that the project be approved, subject to strict conditions of approval.

2. PROPOSED DEVELOPMENT

The major components of the Wilpinjong Coal Project are presented in Table 1(see also Figure 2).

Table 1: Major Components of the Project

Aspect	*Description*
Project Summary	Open cut mine, extracting up to 13 million tonnes per annum of run of mine (ROM) coal for processing and supply to both domestic electricity generation and export markets. Construction and operation of rail and coal handling/train loading infrastructure to facilitate transport of product coal to market.
Mining	Open cut mining at a rate of up to 13 million tonnes per annum of ROM coal with an average stripping ratio of 1.3:1 (bank cubic metres waste rock:tonne ROM coal) and an estimated total open cut reserve of approximately 251 million tonnes.
Mine Waste Rock Management	Waste rock would be deposited predominantly within mined-out voids.
Coal Washing	Construction and operation of a Coal Handling and Preparation Plant (CHPP) capable of washing up to approximately 8.5 million tonnes per annum of ROM coal.
Water Supply	Peak make-up water demand of approximately 6.2 megalitres (ML) per day 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 Borefield and Pipeline	Up to 19 bores proposed at various locations north of the site. Water extracted from the water supply bores would be reticulated to the CHPP water supply storage.
Coarse Rejects and Tailings Management	Coarse rejects would be placed predominantly within mined-out voids. Apart from initial tailings disposal in a partitioned section of the CHPP water supply storage, all tailings would be placed within in-pit tailings disposal areas.
Cumbo Creek Relocation	A block bank would be constructed across Cumbo Creek to direct sub-surface and surface flows into a relocation corridor constructed adjacent to Cumbo Creek.
Project Life	An expected Project life of 21 years (from the date of grant of a mining lease).
Employment	Construction workforce of 200 employees on average and an average operational workforce of 100 employees (with up to 162 employees at peak production).
Construction	Construction of the rail spur and rail loop, coal stockpiling, reclaim and train loading infrastructure, CHPP and mine facilities area would be undertaken over a period of approximately 6 months.
Construction Camp	Accommodation for up to 100 employees on-site during the construction phase.
Hours of Operation	Mining operations would take place 24 hours per day, seven days per week. Construction activities would generally be undertaken between 7.00 am and 6.00 pm, up to seven days per week. Trains would operate 24 hours per day, seven days per week (expected average of four trains per day).
Product Coal	Production of up to 10 million tonnes per annum of coal predominantly for the purpose of fulfilling contractual obligations to Macquarie Generation. Approximately 147 million tonnes and 33 million tonnes of product coal would be produced for domestic use and export, respectively.
Product Coal Transport	Product coal would be loaded onto trains and transported to market via the Project rail loop and rail spur connected to the Gulgong-Sandy Hollow railway.
Roadworks	Mine access road, internal access roads, haul roads and temporary access to and from the construction camp. Closure of Wilpinjong Road and Bungulla Road. Realignment of two sections of Ulan-Wollar Road later in the Project life (including the relocation of two road-rail crossings).
Enhancement and Conservation Areas (ECAs)	The ECAs have been developed to help conserve and expand areas of remnant vegetation and protect Aboriginal cultural heritage sites, while enhancing the habitat available to flora and fauna.

3. STATUTORY CONTEXT

Major Project

On 13 September 2005, the Proponent lodged a project application for the project under Part 3A of the EP&A Act. Under *State Environmental Planning Policy (Major Projects) 2005* the project is classified as a major project because it involves development for the purposes of coal mining, and consequently the Minister for Planning is the approval authority for the project.

Under clause 8J of the *Environmental Planning and Assessment Regulation 2000* (EP&A Regulation), the Director-General adopted the following processes undertaken and documents prepared for the Wilpinjong Coal Project under Part 4 of the EP&A Act for the purposes of Part 3A:

- environment assessment requirements issued by the Director-General on 10 June 2004;
- Environmental Impact Statement (EIS) prepared by Resource Strategies Pty Ltd for the project in May 2005; and
- exhibition of the development application (DA) and EIS between 6 June and 11 July 2005.

Independent Hearing and Assessment Panel

Having considered the submissions received during the exhibition of the DA, the Minister for Planning directed that an Independent Hearing and Assessment Panel (Panel of Experts) be constituted in accordance with section 75G of the EP&A Act to assess the following aspects of the project in more detail:

- surface water impacts;
- groundwater impacts;
- flora and fauna impacts; and
- vegetation offsets and the rehabilitation of the mine.

The Panel of Experts (comprised of Mr Allen Kearns (Chair), Mr Hugh Middlemis, and Mr Ross Hardie) held meetings with community representatives who had made a submission to the Panel, relevant Government agencies, and with the Proponent from 9 to 11 November 2005. The Panel has provided a report on its findings to the Director-General, and the Minister is required to consider the Panel's report in deciding whether or not to approve the project.

Permissibility

The proposed development is located on land zoned 1(a) (General Rural) under the *Mudgee Local Environmental Plan 1998*, and is permissible with development consent in the zone.

4. CONSULTATION

During the exhibition period of the DA and EIS, the Department received a total of 59 submissions on the project:

- 6 from public authorities;
- 11 from special interest groups;
- 21 from the general public; and
- 2 form letters (one with 19 signatures and the other with 2 signatures).

A summary of the issues raised in submission is provided below.

Public Authorities

The ***Department of Environment and Conservation*** (DEC) was satisfied with the information in the EIS, and indicated it can issue an Environment Protection Licence for the project under the *Protection of the Environment Operations Act 1997*. The DEC also recommended a number of conditions which it believed should be incorporated into any approval for the project, including:

- appropriate noise, air quality and blasting limits for surrounding residences and other land uses;
- management plans to minimise and control off-site noise and vibration, dust, blasting, and water quality impacts;
- an off-site biodiversity conservation offset of at least 2:1 to compensate for the destruction of 47 hectares of the Yellow Box White Box Blakely's Red Gum Woodland (listed as an endangered ecological community under the *Threatened Species Conservation Act 1995*) as a result of the project;
- salvage and appropriate storage of Aboriginal objects proposed to be destroyed by the project;
- preparation of an Aboriginal Cultural Heritage Management Plan to govern the ongoing management and protection of Aboriginal cultural heritage on the site;
- measures to ensure the ongoing involvement of the local Aboriginal community in this process;
- the need for progressive rehabilitation and revegetation of areas disturbed by mining; and
- appropriate mine closure planning.

The ***Department of Natural Resources*** (DNR) raised a number of issues about the surface water and groundwater impacts of the project and requested additional information to address its concerns. In particular, the DNR was concerned about:

- uncertainties in the operational and post-mining variability of groundwater levels, volumes and quality;
- the lack of quantification of impacts on surface water flows;
- the loss of groundwater flows into Wilpinjong Creek;
- impacts on groundwater dependent ecosystems;
- the ongoing design and management of the final voids; and
- the feasibility and ongoing functionality of the proposed relocation of Cumbo Creek.

The ***Department of Primary Industries*** (DPI) raised no objections to the project, and provided comments and recommendations from its minerals, agriculture and fisheries divisions.

The Mineral Resources division indicated that it supported the project as an appropriate use of the State's coal resources, and indicated the proposed rehabilitation strategy in the EIS was in accord with its policy requirements. It also recommended a number of standard management plans and monitoring programs be prepared by the Proponent to minimise and control the environmental impacts of the project.

The Agriculture division raised no concerns about the project provided that the land currently used for agricultural purposes be returned to agricultural production following the completion of mining.

The Fisheries division was concerned about the impacts of the project on aquatic ecosystems, fish passage, the loss of environmental flows and water quality in local creeks, and the relocation of Cumbo Creek. Fisheries did not support the retention of final voids in the landscape, and recommended that the site be rehabilitated to function as an active saline interception scheme with a final zoning aimed at environmental and water quality protection. Fisheries also recommended that the Proponent be required to undertake an off-site fisheries rehabilitation project to offset the impacts on aquatic ecosystems resulting from the relocation of Cumbo Creek.

The ***Roads and Traffic Authority*** (RTA) raised no objections to the project, and made a number of recommendations about:

- the design and safe operation of the mine access road intersection and the intersection of Wollar Road with the Ulan Road;
- further assessment of pavement conditions and potential capacity constraints on the local road network;
- signage at key intersections and at the level crossings of the Gulgong-Sandy Hollow railway;
- the need to avoid school bus travel times; and
- appropriate developer contributions for ongoing road maintenance.

The ***Mid-Western Regional Council*** (Council) generally supports the project, but raised a number of concerns about the impacts of the project on the local road network and community infrastructure.

In regard to impacts on the road network, the Council has recommended that the Proponent be required to:

- upgrade the mine access road intersection, sections of Wollar Road, and the intersection of Wollar Road with the Ulan Road, in accordance with RTA standards;
- seal and maintain the Ulan-Wollar Road through the project site as a secondary access road for the mine; and
- undertake a route assessment and road safety audit prior to construction, and carry out any recommended road works.

In regard to community infrastructure, the Council recognised the positive economic impacts associated with the project, but was concerned that the project would place additional demands on the availability of housing, rental accommodation, residential and industrial land, skilled labour, and medical and child care services, which are already in short supply in the area. The Council also noted that the existing section 94 contributions plan did not include coal mines, and indicated that appropriate developer contributions should nonetheless be levied from the Proponent to offset the impacts of the project on the provision of infrastructure and community facilities.

TransGrid raised a number of issues about the interactions between the proposed Wollar-Wellington 330kV electricity transmission line and the proposed biodiversity offset areas for the mine, particularly in relation to the ongoing maintenance of vegetation within the transmission line easement.

Community and Interest Groups

Of the 53 submissions from the community and interest groups, 49 objected to the project. The main grounds for objection from both individuals and interest groups were:

- *surface and groundwater* – almost all the submissions expressed strong concern about the potential impacts of the project on local groundwater users, the cumulative impacts of coal mining on water

resources in the region, and the adequacy and accuracy of the Applicant's surface and groundwater impact assessment;
- *flora and fauna* – most submissions expressed concern about the impact of the project on native flora and fauna (including threatened species and endangered ecological communities), the adjacent Munghorn Nature Reserve and Goulburn River National Park, the destruction of various Landcare projects on the site, and the adequacy of the Proponent's strategy to offset these impacts;
- *greenhouse gases* – many submissions raised concerns about the direct and indirect greenhouse gas emissions associated with the project, and the appropriateness of developing another non-renewable fuel source instead of investing in renewable energy alternatives; and
- *amenity impacts* – many of the submissions expressed concern about the noise, visual, air quality, and traffic impacts of the project, and the negative effect this would have on the amenity and quality of life currently enjoyed by residents, and the potential to develop ecotourism in the area.

5. ASSESSMENT

The Department has assessed the project application, EIS, and submissions on the project. The following provides a summary of the Department's assessment of the key issues associated with the project.

Surface Water

Issues

The majority of submissions raised concerns about the impacts of the project on surface water resources including:
- loss of water flow in Wilpinjong Creek and the impacts on downstream users;
- impacts on water quality from saline discharges and/or acid mine drainage;
- the capacity of on-site water storages to manage excess water on the site;
- the location and design of clean water diversions, including the proposed relocation of Cumbo Creek;
- the size and volume of final voids;
- cumulative impacts on base flow conditions in the Upper Hunter River Catchment, including Wilpinjong Creek, Wollar Creek and the Goulburn River; and
- the accuracy and adequacy of the data used in the surface water impact assessment.

Consideration

The project is located in the greater Wollar Creek catchment which drains to the Goulburn River approximately 12 kilometres to the northeast of the site. At the local level, the project lies in the Wilpinjong Creek catchment and is drained by a number of local tributaries including Cumbo Creek, Planters Creek, Spring Creek, Narrow Creek and Bens Creek. Wilpinjong Creek flows into Wollar Creek approximately 3 kilometres downstream of the project site (see Figure 3).

The creeks on the site have been degraded and highly modified by land clearing and grazing, and salinity levels are often relatively high (particularly in Cumbo Creek). There are currently no licences for extraction of water from Wilpinjong Creek, although riparian landowners are entitled to extract water for stock and domestic purposes.

A comprehensive surface water assessment was undertaken for the project. The assessment included an assessment of baseline conditions in local creeks, and water balance and hydrological modelling to assess the impacts of the project on water quality and flows, and the capacity of water supply and management infrastructure during operations.

Water Balance

A water balance for the project has been modelled for the life of the project under variable climatic conditions. The model shows that the peak make-up water demand for the project would be 6.2 megalitres (ML) per day sourced from inflows from rainfall, groundwater inflows to open cut pits, advanced dewatering of open cut pits, and extraction from a water supply borefield. The main water usage for the project would be associated with the washing of the ROM coal in the CHPP. Water would also be used for dust suppression on haul roads and stockpiles.

The water balance shows that during the first 10 years of the project water would need to be extracted from the groundwater borefield, but that after year 11 of the project demand for make-up water could be met by mine water sources alone.

However, concerns have been raised in submissions about the reliability of the water balance, particularly the potential that greater reliance may be placed on groundwater from the borefield during periods of low rainfall. Concerns have also been raised about whether the on-site water storage capacity is sufficient to cater for periods of high rainfall, and whether there are any contingency measures available to address periods of very low and/or very high rainfall if the EIS predictions are inaccurate.

Figure 3: *Local Creeks and Catchment Boundaries*

The Proponent has responded to these concerns by pointing out that the site water balance has been modelled using 116 years of rainfall data and has examined ninety-six 21 year climatic sequences. The Proponent argues that this approach is expected to cover virtually all contingencies likely to arise from the combination of the actual hydrological conditions with the actual water supply demand and dewatering demands of the project, and consequently there is no need for detailed contingency plans to address the implications of inaccurate predictions. The Proponent also notes that during very high periods of rainfall, the mine would be able to temporarily store excess mine water in inactive open cut voids.

The Department is generally satisfied with the Proponent's water balance, and believes it provides a robust basis to predict the water supply needs of the project. The Department is also satisfied that the proposed on-site water management system provides sufficient storage capacity to securely contain runoff from all areas likely to be disturbed by the project under a very broad range of expected climatic conditions, and is consistent with best practice. However, the Department believes that there remains a risk that the hydrological conditions would differ from those predicted, and agrees with the Panel of Expert's recommendations that the water balance should be subject to validation and auditing, and adaptive management to adjust to unforseen conditions.

Water Flows

The potential effects of the project on flows in Wilpinjong Creek and downstream watercourses have been assessed using a catchment model calibrated on data from 2 adjoining catchments. Under worst case conditions (i.e. with the maximum area of catchment excised and maximum predicted reduction in groundwater flows), the model predicts that the maximum reduction in annual average flows in Wilpinjong Creek and Wollar Creek would occur in year 14 of the project and be 11% and 4.8% respectively (see Table 2).

Table 2: Predicted Maximum Reduction in Annual Average Flow in Downstream Watercourses

Catchment	Location	Max. Reduction in Annual Average Flow
Wilpinjong Creek	Upstream of Wollar Creek confluence	11%
Wollar Creek	At Goulburn River National Park boundary	4.8%

The assessment indicates that in Wilpinjong Creek the predicted changes would be most noticeable in low flow conditions between rainfall events as reduced flow persistence, but that the magnitude of the predicted effect is comparable to other land use changes that occur in the catchment such as changes to stocking rates, or increase in water harvesting through the construction of farm dams.

Downstream of the confluence of Wilpinjong and Wollar Creeks, the assessment indicates that the magnitude and duration of any impacts would reduce significantly due to the unaffected inflows from Wollar Creek, and that effects of flow reduction downstream in Wollar Creek or the Goulburn River would not be discernible from other fluctuations resulting from land use changes in the catchment.

However, concerns have been raised about the impacts of the reduced flow conditions on landowners immediately downstream of the project, as well as in-stream and riparian ecosystems which rely on surface water flows. Concerns have also been raised about the potential increase in "cease to flow" conditions in Wilpinjong Creek, the uncertainties of using calibrations based on adjoining catchments, and the absence of any firm commitments from the Proponent to address any loss of surface water supply for downstream users.

The Proponent advises there are currently no licences for extraction of water from Wilpinjong Creek, but that there are 3 privately owned properties with frontage onto Wilpinjong Creek who are entitled to extract water for stock and domestic purposes. The Proponent believes that it is unlikely that there would be any significant impact on these landowners as a result of the project because the predicted reduction in flow is relatively minor, and that the actual magnitude of potential flow reductions in Wilpinjong Creek would vary with time and would be less than the maximum predictions in the EIS for the majority of the project life. The Proponent also notes that the proposed riparian revegetation works and stock exclusion along Wilpinjong Creek within the project area would enhance the quality of the water in the creek and restore stream health. However, it is less clear what effect these works would have on maintaining or enhancing flow persistence.

In recognition of the uncertainties associated with the modelling results based on calibrations on adjacent catchments, the Proponent has established stream flow gauges on Wilpinjong and Cumbo Creeks to inform the validation of the model calibration parameters over time. The Proponent has also committed to implementing a surface water monitoring program and developing trigger levels and contingency plans to address potential impacts on downstream users as part of a Site Water Management Plan.

The Department is generally satisfied that the assessment of likely stream flow reductions, and accepts that the project is unlikely to reduce flows in any significant way beyond the confluence of Wilpinjong and Wollar Creeks. However, the Department believes that uncertainties remain about the magnitude and duration of flow reductions in Wilpinjong Creek, and the implications this may have on downstream users and stream

health. The Department therefore recommends that the Proponent be required to verify and revise its catchment model as more data becomes available, and formalise its commitments for investigation, notification, and mitigation of potential unforseen impacts on surface water flows, including measures to compensate potentially affected landowners, as part of a Surface and Ground Water Response Plan.

Flooding

The Proponent has undertaken a qualitative assessment of flooding risk for the project as no flood data exists for Wilpinjong Creek. This assessment indicates that the Gulgong-Sandy Hollow railway embankment acts as a barrier between Wilpinjong Creek and the areas proposed to be mined as part of the project, and that there is no record (anecdotal or otherwise) that the rail embankment has ever been overtopped by flood waters. The Australian Rail Track Corporation has also indicated that the design of the culverts underneath the railway have been designed with sufficient capacity for a 1 in 100 year flood event.

Some concerns were raised by local residents about the increase in risk of flooding to the Ulan-Wollar Road once additional sections of the road are relocated to the north of the railway by the Proponent. However, the Department believes the increased risk of flooding to the road is negligible given that the existing road is already located on the same side of the rail embankment for much of its length through the project area.

The Department is satisfied with the Proponent's assessment of flooding risk, and believes the project would not impede active flood flows and would have a negligible impact of flood storage levels of the Wilpinjong Creek floodplain. The Department is also satisfied that the realignment of sections of the Ulan-Wollar Road would not appreciably increase the risk of flooding of the road.

Surface Water Quality

The Proponent proposes to implement a comprehensive water management system to minimise surface water quality impacts. The management system would be designed to ensure that clean water runoff from undisturbed, rehabilitated and stabilised areas remains uncontaminated and is diverted to Wilpinjong and Cumbo Creeks, and runoff from disturbed areas is diverted to a range of on-site detention storages for use as process water for the project. The Proponent also proposes to prepare and implement a detailed Erosion and Sediment Control Plan for the project to control soil erosion and sediment generation across the site.

An assessment of the potential for saline and acid drainage has been undertaken by the Proponent. The assessment indicates that the mine waste rock is expected to be non-saline and non-acid forming, but that the coarse rejects and tailings materials are expected to have some capacity for acid generation, and the tailings material is expected to be moderately saline.

The Proponent is proposing to implement a range of management measures to limit the potential for saline or acid drainage from these materials. These measures include:

- dispersing coarse rejects throughout the overburden dumps;
- keeping tailings saturated where practicable;
- ensuring appropriate capping of coarse rejects and tailings dams; and
- a program to monitor the effectiveness of these measures.

The Department is generally satisfied that the proposed management strategies are consistent with standard practice for coal mines in the Hunter Valley, and would minimise the risk of off-site saline or acid drainage occurring. The DPI has also indicated that it supports the proposed measures, and will review the performance of these management strategies over time.

Cumbo Creek Relocation

The development of the mine would require the permanent relocation of Cumbo Creek across previously mined and backfilled mine waste rock emplacement in Pit 3. The EIS provided a conceptual design for the proposed creek relocation which would be designed with a low and high flow path. The low flow path would be designed to convey flows up to the 1 in 10 year peak flood discharge. Larger flows would be allowed to flow over the adjacent land surface within the high flow path, and mine workings would be protected by containment levees.

Fundamentally, however, the Proponent is relying on further detailed geotechnical, hydrological and hydraulic design to confirm the detailed geometry, functionality and stability of the final creek relocation.

This approach raised concerns with the DNR who questioned the lack of information in the EIS about the proposed relocation. In particular, the DNR was concerned about the lack of information on the character and behaviour of the existing Cumbo Creek, and how this would be used to inform the design of the relocated creek to achieve a sustainable and stable feature in the landscape. The timing of the creek diversion was also questioned by the DNR, who believed that 12 months of stabilisation and revegetation prior to the commissioning of the diversion was not sufficient to provide appropriate channel stability.

The Proponent has provided additional information to address these issues, and the DNR has indicated it is satisfied with this information. However, it has made a number of recommendations about the design criteria

that should be applied during the detailed design of the proposed relocation which have been incorporated into the Department's draft conditions of approval.

The Panel of Experts examined the proposed relocation under its terms of reference, and based on its previous experience with similar diversions, the Panel was satisfied that the proposed relocation was technically feasible, and pointed to a similar example of a stream diversion over mined overburden which has recently been completed in Victoria.

The Department accepts that creek relocations are a necessary aspect of open cut mining, and that if the relocation of Cumbo Creek were not to proceed it would sterilise a significant proportion of the coal resource, and would fundamentally alter the mine plan for the project. The Department also accepts the conclusion of the Panel of Experts that the proposed relocation is technically feasible. However, both the Department and the Panel of Experts believe there remains a lack of detail about the final design, and how this would achieve appropriate geotechnical, hydrological and ecological objectives for the relocation.

To address these uncertainties, the Panel recommended that a phased program of conceptual, functional, and detailed designs be developed for the construction and operation of the proposed relocation. The Department has incorporated these measures into the draft conditions of approval which requires the Proponent to prepare a Cumbo Creek Relocation Plan in consultation with relevant agencies. The relocation plan must include:

- a vision statement for the creek relocation;
- an assessment of baseline conditions in the existing creek line;
- detailed design and specifications for the relocation;
- a program to revegetate the relocated creek line;
- performance and completion criteria; and
- a program to monitor and maintain the relocated creek to achieve the agreed vision.

The Proponent must also independently audit the performance of the relocation plan every 3 years, and prior to mining the original creek line, is required to demonstrate that the relocation is geotechnically stable, and is functioning successfully from a hydrological and ecological point of view.

Final Voids

The Proponent plans to retain 2 final voids at the completion of mining. The surface water assessment shows that these voids would collect surface water runoff and groundwater seepage, and gradually fill with water. The long term water balance of the final voids indicates that the salinity of void waters would slowly increase with time, as a result of ongoing migration of saline groundwater and evapo-concentration. However, additional modelling completed by the Proponent shows that the water quality status in the voids would remain suitable for stock watering purposes for at least 200 years.

As part of the mine closure process, the Proponent plans to prepare a Final Void Management Plan which would re-examine the hydrological behaviour and geotechnical stability of the final voids, and address ongoing access, public safety and water quality monitoring requirements.

Some concerns were raised in submissions about the size and volume of the final voids, and whether the mine plan could be altered to remove the voids altogether. During the Panel hearing, the Proponent indicated that it was possible to eliminate the voids from the mine plan, but that this would require substantial double handling of overburden material, and may result in geotechnical stability issues for the highwall. The Proponent also indicated that it has sought to minimise the size, volume and number of pit voids through the mine planning process with the DPI, and that some final voids were an inevitable consequence of a large open cut coal mine. The DPI has confirmed that given the extent of mining, the low strip ratio and pit depth that some final voids are inevitable, and that the size and volume of the proposed final voids for this project are relatively small. The Panel of Experts accepted the need for final voids to be incorporated into the mine plan, and was satisfied that the voids would develop as stable hydrological sinks which would suitable for stock watering purposes in the long term.

The Department is satisfied that some final voids are necessary for the project, and that if the voids were to be eliminated from the mine plan, it would require a significant amount of double handling of overburden material and may result in other ongoing geotechnical issues for the mine. The Department is also satisfied that provided the design and management of the final voids is carefully planned, the voids can provide some long term beneficial use for agricultural purposes such as stock watering. However, the Department believes it is not appropriate to leave the design and planning for the final voids until near the end of mining operations. Consequently, the Department believes the Proponent should be required to prepare the initial Final Void Management Plan in the first year of operations, and that this plan should be subject to ongoing review and revision, in consultation with the community and relevant government agencies, for the duration of the project.

Cumulative Impacts

A key concern of the community and interest groups is the potential for cumulative impacts on surface water resources of coal mining in the region.

The Ulan coal mine is the only other existing coal mining operation in the area, and is located approximately 10 kilometres to the west of the project site (see Figure 1). The Ulan coal mine consists of underground and open cut mining operations, and is currently generating significant quantities of groundwater make in its underground operations. The excess water is used in a local irrigation scheme and some mine water is discharged under a DEC licence into the Goulburn River. The mine has also constructed a diversion of the Goulburn River around its operations.

There have been long standing community concerns about loss of flows and higher levels of salinity in the Goulburn River as a result of the Ulan coal mining operations, and concerns have also been expressed about the stability of the Goulburn River diversion.

The Proponent has assessed the potential for cumulative impacts with the existing operations at the Ulan coal mine together with the potential expansion of underground mining operations to the east of the existing operations, and has concluded that there would be no discernable cumulative impacts on the Goulburn River as a result of the project. This conclusion is based on the fact that the Ulan coal mine is located in the Moolarben Creek/Goulburn River catchment which is hydrologically separated from the Wilpinjong Creek catchment area, and that the only potential for cumulative impacts on surface water would relate to the Goulburn River downstream of its confluence with Wollar Creek. Because the Proponent's predictions indicate that there would be no discernable impact on surface water flows and quality in this location, it believes the potential for cumulative impacts is negligible.

The Department is generally satisfied with the Proponent's assessment, and agrees that the potential for cumulative surface water impacts with the Ulan coal mine is unlikely. However, as noted above, because uncertainties remain about the magnitude and duration of flow reductions in Wilpinjong Creek, the Proponent should be required to verify and revise its catchment model as more data becomes available, and to develop contingency strategies to address any unforseen impacts on surface water flows.

The Department notes, however, that it has received a project application from Moolarben Coal Pty Ltd to undertake further open cut and underground mining operations in the area between the Ulan coal mine and the project site. This project has the potential to generate cumulative surface water (and groundwater) impacts with the Wilpinjong project. However, the Moolarben coal project would need to assess its interactions and impacts with any existing or approved coal mining projects in the area as part of the assessment process under the EP&A Act.

Conclusion

The Department is generally satisfied with the Proponent's surface water assessment, and agrees that the project is unlikely to result in any significant impacts on surface water quality, provided the measures proposed by the Proponent are implemented effectively.

In regard to the predicted reduction in surface water flows, the Department accepts that it is unlikely there would be any significant impacts on flows in the Goulburn River, and hence the potential for cumulative impacts with the Ulan coal mine is low. However, the Department believes that the potential impacts associated with the alterations to the flow regime in Wilpinjong and Cumbo Creeks is less certain, and agrees with the Panel of Experts that these impacts must be carefully monitored and appropriate contingency planning put in place to protect stream health and the water supply for local downstream users.

The project would result in the destruction of several local creeks, and require the relocation of Cumbo Creek. The Department accepts the Panel of Experts' conclusion that the proposed relocation is technically achievable, and that the details of the relocation will be subject to further detailed design.

However, to ensure that surface water impacts are appropriately managed and monitored the Department believes the Proponent should be required to prepare and maintain an integrated Site Water Management Plan for the project that includes:

- a site water balance;
- a comprehensive surface water monitoring program;
- an erosion and sediment control plan;
- a detailed plan for the relocation of Cumbo Creek; and
- a contingency plan to address any unforseen impacts.

The Department also believes the Proponent should be required to commission suitably qualified and independent experts to review the performance of the Site Water Management Plan every 3 years as part of the Independent Environmental Audit for the project.

A plan to address the design, management and monitoring of the final voids should also be prepared by the Proponent as part of the Rehabilitation and Landscape Management Plan (see flora and fauna section below).

Groundwater

Issues
The majority of submissions raised concerns about the impacts of the project on groundwater resources including:

- loss of groundwater supply to local landowners;
- provision of alternative water supply to compensate for any loss of groundwater;
- impacts of groundwater drawdown on Wilpinjong Creek and surrounding National Parks;
- cumulative impacts on regional groundwater resources; and
- the validity of the groundwater modelling.

Consideration
A comprehensive groundwater assessment was undertaken for the project. The assessment included an assessment of existing geological and hydrogeological data, additional hydrogeological investigations and groundwater monitoring, a bore census to identify local groundwater users, and a numerical groundwater model to simulate the potential effects of the project on local groundwater aquifers, the expected inflows into the open cut pits, and the expected yields from the proposed water supply borefield.

Groundwater Drawdown
The results of the groundwater modelling indicate the aquifer drawdown as a result of the project would create a cone of depression which would extend approximately 2.5 kilometres to the east, 5 kilometres to the west and 6.5 kilometres to the north of the open cut pits, with the majority of the predicted drawdown being within the range of natural groundwater fluctuation (i.e. less than 5 metres) (see Figure 4). The modelling also showed only a limited effect on water levels within the alluvium/colluvium aquifer beneath Wilpinjong Creek, with large sections of this aquifer remaining saturated for the 21 year life of the mine, and no discernable effect on groundwater regimes in the sandstone plateau that forms the Goulburn River National Park. Following the completion of mining, the model indicated that the groundwater levels in all aquifers would gradually recover.

Of the 68 registered groundwater bores identified by the Proponent in the area, only 14 are located within the year 21 cone of depression (as determined by the 1 metre drawdown contour in Figure 4). Only 1 of these bores is privately owned, and 1 bore is owned by another mining company. The remainder are located on land owned by the Proponent. Bores to the south of the site are either beyond the cone of depression or are located within a different aquifer system. There are also approximately 3 bores to the east of the site which have been installed in the Wilpinjong and Wollar Creek alluvial aquifers. Modelling indicates these bores should not be affected by the predicted drawdown. The assessment also indicates that all identified groundwater springs in the area are located beyond the cone of depression or rely on a different aquifer system.

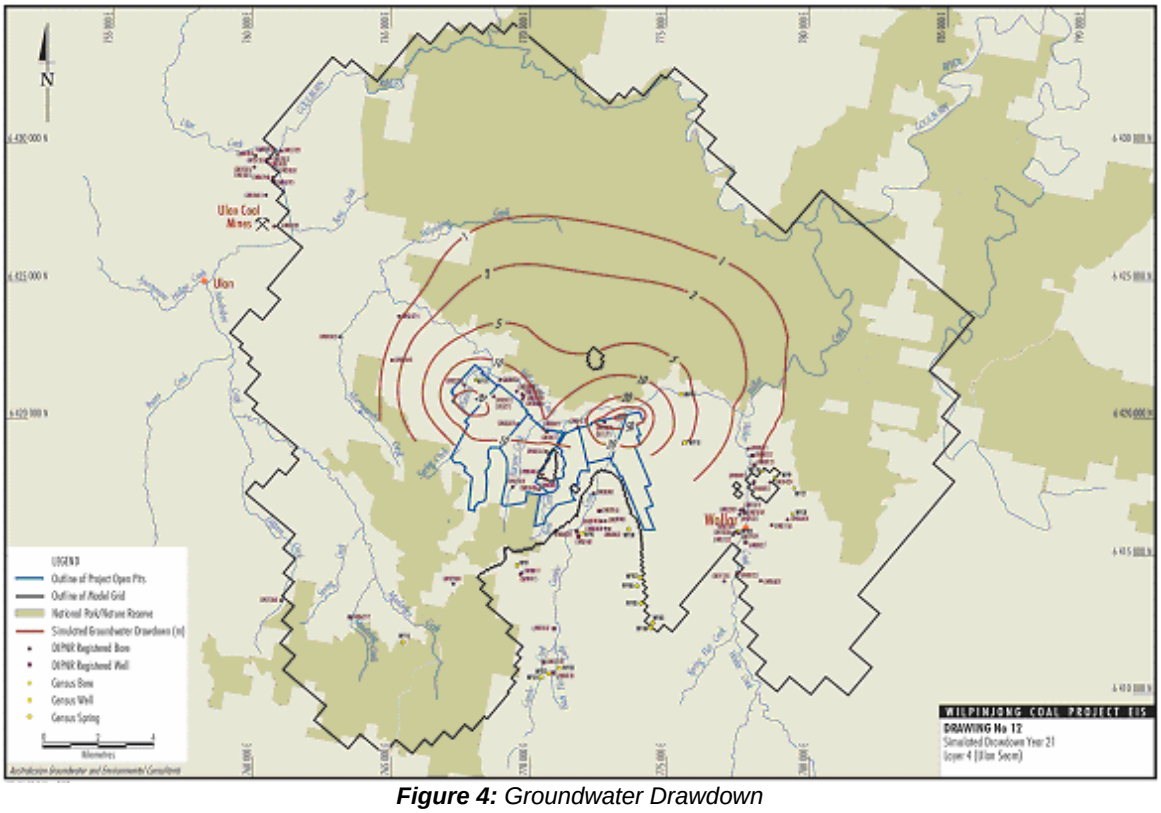

Figure 4: *Groundwater Drawdown*

To mitigate groundwater drawdown impacts, the Proponent has proposed a monitoring strategy that includes:

- establishing a borehole monitoring network;
- regular (monthly) monitoring of groundwater level and yields in the water supply borefield;
- quarterly monitoring of groundwater levels at bores along Wollar Creek and within Wollar village;
- monitoring of selected existing bores in consultation with relevant landowners; and
- implementation of contingency measures for local groundwater users if reductions in yield are identified as a result of the project.

The Proponent's proposed contingency measures would include:

- deepening of existing bores to increase saturated thickness;
- installation of replacement bores; or
- provision of an alternative water supply.

Groundwater Flows to Creeks

Modelling indicated that the project would result in a maximum annual average reduction in upward groundwater leakage to Wilpinjong Creek of approximately 0.66 ML/day in year 14 of the project. This reduction can be attributed to a combination of drawdown impacts from the proposed water supply borefield and the open cut pits, and represents a reduction in groundwater contributions to baseflow in Wilpinjong Creek of almost 30%. However, when taken with other contributors to baseflow in the creek, it represents a maximum predicted annual average reduction of 11% (as discussed above).

Following a request from the Panel of Experts, the Proponent conducted a pumping test from a bore adjacent to Wilpinjong Creek to provide additional information on the level of connectivity between the deeper aquifers and the alluvial aquifer. The results of this test showed that there is a low degree of connectivity between the aquifers, and confirmed that the Proponent's predictions of groundwater losses from the Wilpinjong Creek alluvial aquifer are likely to be conservative.

Cumulative Impacts

Cumulative impacts on groundwater have also been assessed by the Proponent. This assessment showed that the expected drawdown from the Ulan coal mine would be at least 4 kilometres further west than the limit of drawdown expected as a result of the project, and hence there would be no overlap in groundwater drawdown impacts with the Ulan coal mine. The assessment also indicated that because there would be negligible impact on groundwater discharges to Wollar Creek, and no impact on discharges to the Goulburn River, there would be no appreciable cumulative impacts on the regional Upper Hunter River catchment area from loss of groundwater flows.

The Panel of Experts reviewed the Proponent's groundwater impact assessment and concluded that the approach used in the assessment has been well designed, consistent with best practice, and provides a sound basis to assess the potential groundwater impacts of the project. However, the Panel noted the uncertainties inherent with any predictive modelling, and recommended a process of performance review and model refinement for the duration of the project. It also recommended the adoption of trigger levels to better identify unacceptable groundwater impacts and appropriate contingency responses to protect groundwater users. The Department has adopted these recommendations in its draft conditions of approval.

Conclusion

The Department is satisfied that the Proponent has adequately considered the potential impacts of the project on groundwater resources, and agrees with the Panel of Experts that the groundwater impact assessment provides a sound basis to assess these impacts. The Department also agrees with the Panel's recommendations regarding the need for ongoing review and refinement of the groundwater model, and the need to develop appropriate trigger levels to initiate mitigation and corrective action. However, the Department believes that the measures to identify and compensate potentially affected groundwater users needs to be clarified and strengthened.

In summary, as part of the Site Water Management Plan, the Department believes the Proponent should be required to:

- implement a comprehensive groundwater monitoring program, providing for:
  - establishment of a groundwater monitoring network that provides advance warning of impact; and
  - impact assessment criteria for triggering groundwater contingency measures;
- prepare, and if necessary implement, a groundwater response plan, providing for;
  - prompt investigation of any exceedances of the groundwater impact assessment criteria;
  - measures to mitigate, prevent or offset groundwater leakage from the WIlpinjong Creek alluvial aquifer if the rate of leakage exceeds EIS predictions; and
  - procedures for water supply compensatory measures including deepening of existing bores, installation of new bores, and/or other compensatory water supply measures.

The Department also believes the Proponent should be required to commission suitably qualified and independent experts to review the adequacy of the groundwater monitoring program and the groundwater response plan every 3 years as part of the Independent Environmental Audit for the project.

With the implementation of these measures, the Department is satisfied that the impacts on groundwater can be adequately managed and mitigated, and the groundwater supply of existing users in the surrounding areas can be appropriately protected.

Flora and Fauna

Issues
The project would disturb almost 2000 hectares of land, and would require 290 hectares of remnant vegetation to be cleared which has the potential to impact threatened species, populations and ecological communities and their habitats. The White Box, Yellow Box, Blakely's Red Gum Woodland Endangered Ecological Community is located on the project site, and up to 47 hectares of this community would be cleared as a result of the project.

Consideration
The site has been predominantly cleared for agricultural purposes and is used primarily for grazing (see Figure 5). Most natural vegetation of the site is restricted to steep hills and slopes outside the disturbance areas, with the exception of the remnant vegetation in Pit 3. There are also some uncleared areas of remnant vegetation scattered throughout the site which are mainly associated with watercourses or stony outcrops. The Goulburn River National Park is situated directly to the north of the site, and the Munghorn Gap Nature Reserve to the south.

The Proponent has undertaken a flora and fauna assessment of the potential ecological impacts of the project using database searches, literature reviews, consultation with government agencies and ecologists, and field survey work.

Flora
Approximately 290 hectares of remnant vegetation would be cleared as a result of the project. The impacts of the project on each vegetation type are summarised in Table 3 (also see Figure 5).

Table 3: Impacts on Vegetation Communities

	Community	***Area to be Cleared (ha)***
1	Yellow Box and Blakely's Red Gum Woodlands	38
2	Coast Grey Box Woodlands	88
3	Rough-barked Apple Woodlands	63
4	Narrow-leaved Ironbark Forest	30
5a	Grassy White Box Woodlands	9
5b	Shrubby White Box Woodlands	60
8	Secondary shrubland	2
	TOTAL	**290**

A comprehensive flora survey and assessment was undertaken for the project in autumn, winter and spring. The survey and assessment targeted threatened flora species and endangered ecological communities known to, or with potential to, occur in the area. Only 1 threatened flora species was identified during the surveys (Cannon's Stringybark – listed as Vulnerable under the NSW *Threatened Species Conservation Act 1995* (TSC Act)). However, the population was located outside the areas to be directly disturbed by the project.

Eight part tests were prepared for 15 threatened species considered to possibly occur within the project area and surrounds, and it was determined that the project is unlikely to significantly affect any threatened flora species.

The project would result in the clearing of approximately 38 hectares of the Yellow Box/Blakely's Red Gum Woodlands (Community 1) and 9 hectares of the Grassy White Box Woodlands (Community 5a) which have been identified as the White Box, Yellow Box, Blakely's Red Gum Woodland Endangered Ecological Community (White Box EEC) listed under the TSC Act. The Proponent has prepared an Eight Part Test to assess the significance of the impacts on this EEC, and has determined that the project would not significantly affect the White Box EEC because of the:

- localised nature of the proposed disturbance area;
- occurrence of other areas of the White Box EEC in the areas surrounding the mine, including 130 hectares of White Box EEC in the immediate vicinity of the project, and additional areas of White Box EEC within the Goulburn River National Park;
- the progressive nature of the disturbance and rehabilitation of the site, including species characteristic of the White Box EEC; and

- proposal to protect about 80 hectares of existing White Box EEC, and re-establish a further 50 hectares, as part of the proposed Enhancement and Conservations Areas (ECAs) in areas adjacent to the mining operations (see below).

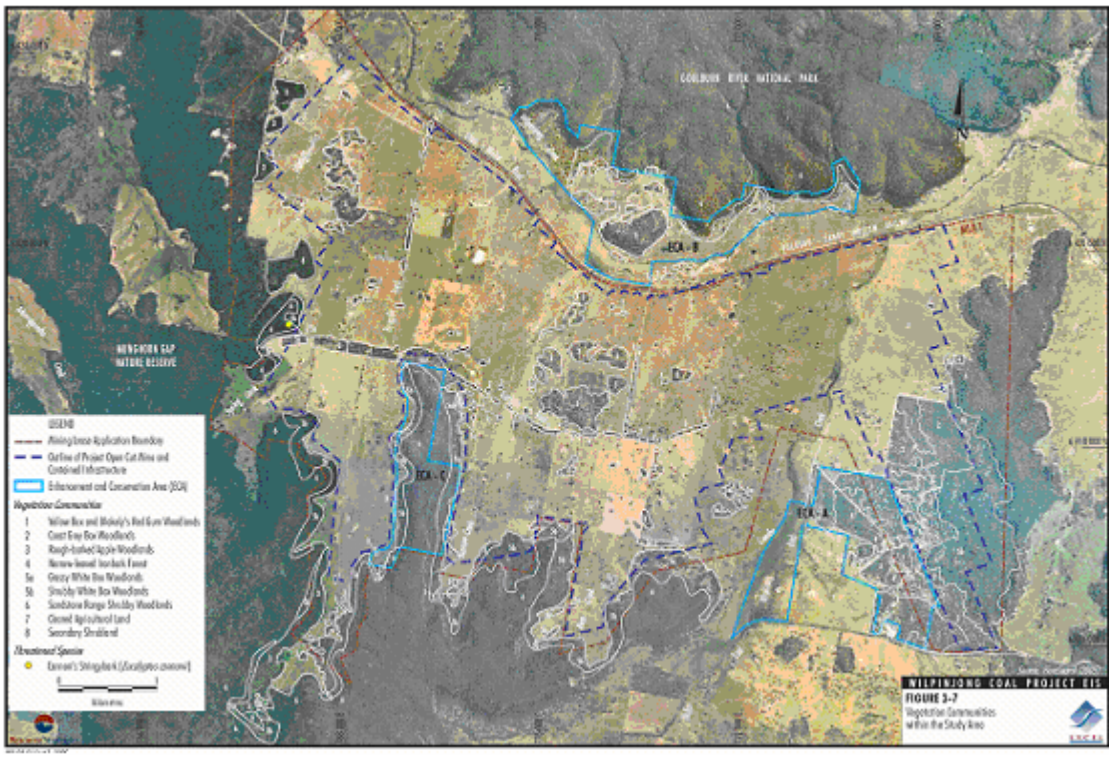

Figure 5: *Vegetation Communities*

Fauna

The project has the potential to impact fauna through direct destruction of habitat from vegetation clearance, loss of habitat connectivity, introduction of introduced species, and other impacts including noise, lighting and increased traffic on local roads.

The fauna assessment identified 186 different species, including 10 threatened bird species, 1 threatened mammal and 6 threatened bat species listed under the TSC Act. Eight Part Tests were completed for 36 threatened species considered to possibly occur within the project area, and it was determined that the project is unlikely to significantly affect any threatened fauna species.

To minimise the impacts on fauna, the Proponent proposes to implement a range of standard management strategies including a fauna monitoring program, pre-clearance surveys, a feral animal management strategy, and speed limits and signage on local roads and internal roads to reduce the incidence of vehicle strike. However, the key mitigation and compensatory measures proposed by the Proponent to address the impacts of the project on fauna relate to the proposed biodiversity offset and rehabilitation strategy for the mine (as discussion below).

Aquatic Ecosystems

The project would result in the disturbance of aquatic habitat through the relocation of Cumbo Creek, and the destruction of several smaller creeks in the mining area. Changes to water flows and water quality in creeks outside the disturbance area also has the potential to impact aquatic ecosystems.

However, the assessment of aquatic habitat in the area showed that the habitat was generally in poor condition and significantly degraded by agricultural land uses and infested with various pest species. This was reflected in a low abundance and diversity of aquatic assemblages of fish and macroinvertebrates identified during the aquatic surveys. Four species of native fish species were identified in the area, with 1 species identified in the areas to be disturbed during mining operations.

The assessment found that the predicted flow reduction in Wilpinjong Creek as a result of mining operations was unlikely to significantly impact aquatic ecosystems because the changes to flow would be small and the project would not alter the physical structure of the habitats. It was also found that, provided appropriate controls were implemented to protect water quality, the risk to aquatic ecosystems could be effectively minimised. The predicted reduction in salt loads to Wilpinjong Creek from a reduction in groundwater discharges was also seen to be a beneficial outcome for aquatic ecosystems.

The potential impact of the project on groundwater dependent ecosystems was also assessed by the Proponent. The assessment found that the project was unlikely to have any significant impact on these ecosystems. In particular, it was concluded that the changes to the groundwater regime in the aulluvial areas along Wilpinjong Creek would be limited and there would be no discernable effect on shallow groundwater seepages within the Goulburn River National Park.

To offset the impacts of the project on aquatic ecosystems the Proponent proposes to:

- revegetate approximately 10 kilometres of creek line along Wilpinjong and Cumbo Creeks through natural regeneration, selective planting and stock exclusion; and
- implement a comprehensive revegetation program for the Cumbo Creek relocation to create sustainable in-stream and riparian zone habitat.

The Proponent believes that these measures would significantly improve aquatic habitat in the medium to long term. However, the DPI considers that the Proponent should be required to undertake an off-site project to rehabilitate an artificial barrier to fish passage within the Goulburn River catchment to offset the disruptions to aquatic ecosystems resulting from the relocation of Cumbo Creek.

The Department does not believe that such an offset is warranted because the value of the aquatic habitat in Cumbo Creek has been assessed as being poor, and the Proponent would be required to ensure that the Cumbo Creek relocation is functioning successfully from a hydrological and ecological perspective prior to destroying the original creek line. The Department would also require the Proponent to prepare a Cumbo Creek Relocation Plan which would include detailed measures to create sustainable in-stream and riparian habitat, and with the project to revegetate approximately 10 kilometres of creek line in the area (including upstream and downstream of the proposed relocation along Cumbo Creek), the Department considers the project is likely to result in an overall improvement in aquatic habitat in the long term.

Biodiversity Offset and Rehabilitation Strategy

The Proponent is proposing to implement a comprehensive biodiversity offset and rehabilitation strategy to compensate for the 290 hectares of remnant woodland which would be cleared as a result of the project. The key components of the strategy are shown in Table 4 (also see Figure 6).

The offset strategy and progressive rehabilitation of the site has been designed to protect existing areas of remnant vegetation in the areas surrounding the mining operations, and through progressive rehabilitation create habitat corridors between the Munghorn Gap Nature Reserve and the Goulburn River National Park in the long term.

Once the strategy is fully implemented it would result in a total of approximately 1385 hectares of woodland to replace the 290 hectares to be cleared as a result of the project – an increase of 1090 hectares in the medium to long term.

Table 4: Biodiversity Offset and Rehabilitation Strategy

	Area of Woodland Immediately Protected (ha)	**Area of Woodland to be Established (ha)**	**Key Attributes**
Enhancement and Conservation Areas (ECAs)	295	185	• 480 ha in total • 3 ECAs to be established on the site • woodland established through natural regeneration/selective planting • 80 ha of existing White Box EEC to be protected • 50 ha of White Box EEC to be re-established • conservation through rezoning
Regeneration Areas	30	350	• 380 ha in total • woodland established through natural regeneration/selective planting
Rehabilitation	-	850	• 1920 ha in total • 850 ha woodland & 1070 ha of woodland/pasture • progressive rehabilitation with mining to minimise disturbance and reduce time for establishment of habitat
Total	**325**	**1385**	

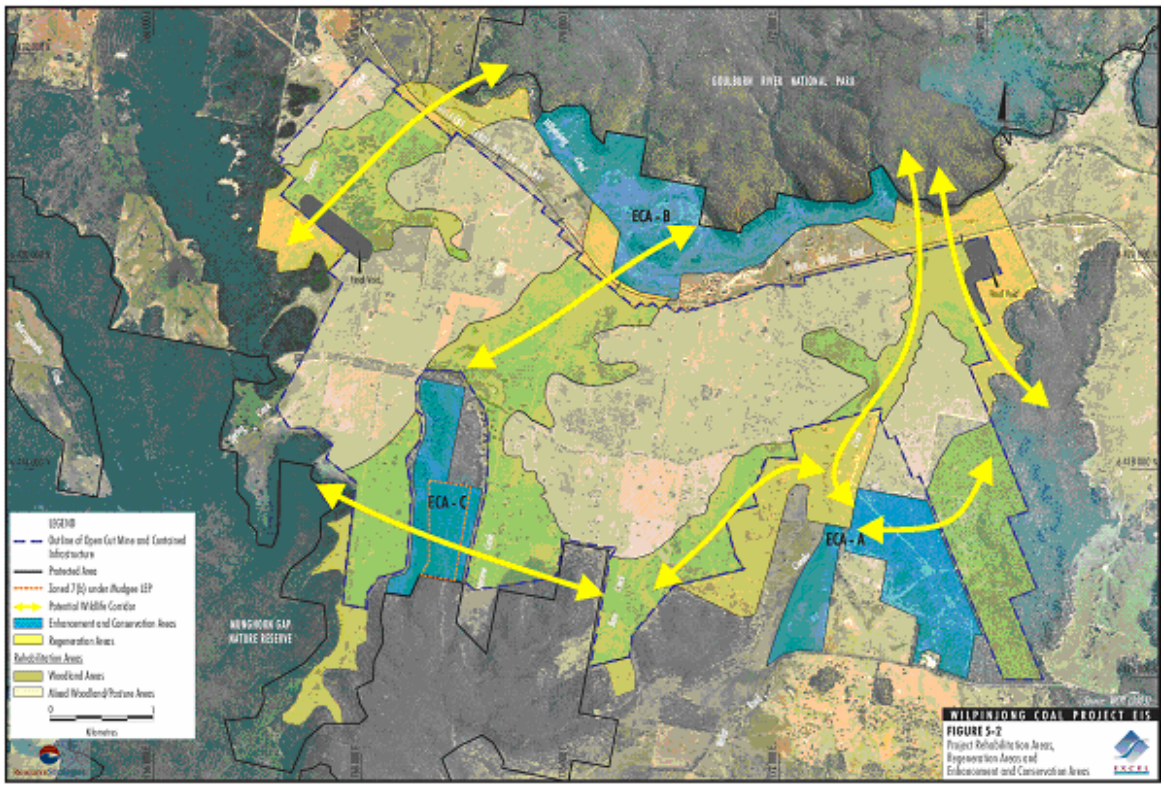

Figure 5: *Biodiversity Offset and Rehabilitation Strategy*

The on-site measures would include the immediate protection of 80 hectares of existing White Box EEC through incorporation in the ECAs, and a further 50 hectares of the White Box EEC to be re-established through natural regeneration and selective planting. In the medium to long term this would result in the protection and re-establishment of up to 130 hectares of the White Box EEC on the site, providing more than a 2:1 offset for the clearing of 47 hectares of the woodland as a result of the mining operations.

However, the DEC was concerned about the immediate loss of up to 47 hectares of the White Box EEC and the considerable time and inherent risks involved with re-establishing native woodland of this kind. Consequently, the DEC recommended that some form of additional biodiversity offset was justified to compensate for the impacts of the project on the White Box EEC.

In response to these concerns, the Proponent has agreed to purchase an additional off-site area of remnant native woodland approximately 70 kilometres southeast of the project site. The proposed site is a privately owned in-holding within the Wollemi National Park comprising 395 hectares of Shrubby White Box Woodland, of which 99 hectares is classified as the White Box EEC. It is understood that the Proponent has reached agreement with the DEC to include the area in the Wollemi National Park and associated World Heritage Area.

With the inclusion of this off-site biodiversity offset, the overall area of additional White Box which would be re-established amounts to about 150 hectares – more than 3 times the area of White Box EEC to be cleared as a result of the project. Both the DEC and the Panel of Experts were satisfied with this outcome, and believed the additional area of White Box EEC proposed to be protected through inclusion in the Wollemi National Park provided an important regional conservation outcome for this community.

Some concerns were raised in public submissions about the survey effort undertaken for the project to assess flora and fauna, and the adequacy of the proposed measures to offset the flora and fauna impacts of the project. However, the Panel of Experts has indicated that it is satisfied with the flora and fauna assessment undertaken for the project, and believes it provides a sound basis for assessing the flora and fauna impacts of the project. The Panel has also indicated that it is satisfied with the Proponent's offset and rehabilitation strategy for the project, and believes the combination of on-site and off-site measures would effectively compensate for the potential flora and fauna impacts of the project provided the implementation is appropriately informed by relevant scientific and local knowledge.

The Panel of Experts is also satisfied with the vision presented in the EIS for the final landform, and believes it is consistent with best practice for mine site ecosystem rehabilitation, and once implemented would provide important regional connectivity between the Munghorn Gap Nature Reserve and the Goulburn River National Park. However, the Panel noted that the revegetation and rehabilitation of the site will need to be carefully managed and researched with appropriate input from relevant experts.

Conclusion
The Department is satisfied that the Proponent has adequately considered the potential flora and fauna impacts of the project, and agrees with the Panel of Experts that the flora and fauna impact assessment provides a sound basis to assess these impacts.

The Department considers that the proposed biodiversity offset and rehabilitation strategy represents a well defined and comprehensive package that is commensurate with the impacts of the project, and in the medium to long term, would provide a net biodiversity benefit at both the local and regional level.

To minimise the flora and fauna impacts of the project the Department believes the Proponent should be required to prepare a comprehensive Rehabilitation and Landscape Management Plan for the project which includes:

- a description of the short, medium and long term measures that would be implemented to rehabilitate the site, implement the offset strategy, and manage remnant vegetation and habitat on the site;
- detailed assessment and completion criteria for the offset strategy and the rehabilitation of the site;
- a program to monitor the performance of the rehabilitation over time; and
- the measures that would be implemented to minimise and manage impacts on flora and fauna.

In addition, to ensure that the biodiversity offset strategy and rehabilitation of the site is satisfactorily completed the Department believes that the Proponent should be required to lodge an environmental security with the Department that is commensurate with the cost of fully implementing the elements of the offset strategy that are situated outside the Mining Lease for the project, and hence which cannot be secured by the DPI through its rehabilitation bond under the *Mining Act 1992*. The Department also believes that the proposed rezoning of the ECAs does not provide sufficient long term security for these areas, and the Proponent should be required to investigate and subsequently implement alternative protection measures to ensure the long term protection of the ECAs (such as through a Voluntary Conservation Agreement with the DEC).

Noise

Issue
The project has the potential to generate operational and road/rail traffic noise impacts.

Consideration
The comprehensive noise assessment has been undertaken for the project in accordance with the DEC's *Industrial Noise Policy*.

Operational Noise
The noise modelling predicted that the project would comply with the project specific noise levels during calm conditions, but that these criteria would be exceeded at 27 properties (including 18 privately owned residences) during adverse weather conditions (see Tables 5 and 6).

These predictions are based on the assumption that the Proponent would implement a range of mitigation measures, including:

- modifications to mine equipment to reduce noise levels;
- designing the project to eliminate out-of-pit overburden emplacements; and
- limiting the construction activities to daylight hours.

The Department is satisfied that there is probably limited opportunity to reduce levels further, although it may be possible to reduce noise levels marginally at some receptors by, for instance, providing double-glazing, insulating residences, and installing air conditioning.

Typically, the Department considers an exceedance of the project specific noise level of up to 2 dB(A) to be minor, an exceedance of between 3dB(A) to 5 dB(A) to be marginal, and an exceedance of greater than 5 dB(A) to be significant.

Using this as a guide, the Department believes the project would cause significant exceedances (> than 5dB(A)) of the project specific noise levels at 2 privately owned residences (45-Smith & 14-Close) and 1 privately owned parcel of vacant land (30-Gaffney). However, the Department understands that the Proponent has recently purchased property 14, and consequently only 1 privately owned residence is predicted to experience significant noise impacts as a result of the project.

Table 5: Noise Exceedances – Private Residences

Locality (Figure 3-1)	Period	Noise Management Zone		Noise Affectation Zone
		1 dBA to 2 dBA above Project-Specific Criteria	3 dBA to 5 dBA above Project-Specific Criteria	>5 dBA above Project-Specific Criteria
Cumbo	Evening/Night-time	59 Langshaw 90 Pattullo 29 Kattau	4 Robinson 49 Harkin 60A Reid	Nil
Araluen	Evening/Night-time	23B Bloomfield	23A Bloomfield	Nil
Slate Gully	Evening/Night-time	31A Conradt 31B Conradt	51 Bailey 52A Long 52B Long 53 Reynolds 55 Fox 56 Roger	Nil
Wilpinjong (north-east of the Project area)	Evening/Night-time	Nil	Nil	45 Smith
Wilpinjong	Evening/Night-time	Nil	Nil	14 Close

Table 6: Noise Exceedances – Vacant Land

Locality (Figure 3-1)	Noise Management Zone		Noise Affectation Zone
	1 dBA to 2 dBA above Project-Specific Criteria	3 dBA to 5 dBA above Project-Specific Criteria	>5 dBA above Project-Specific Criteria
Cumbo	94 McKenzie 91 Gordon 48 Evans	Nil	30 Gaffney
Araluen	24 Peach	Nil	Nil
Slate Gully	Nil	31 Conradt 40 Plummer 58 Maher	Nil
Murragamba	Nil	5 Power	Nil

Note: Refer to Figures 1-5 and 1-6 of the Wilpinjong Coal Project EIS for information about the numbering of properties in these tables.

Due to the significant noise impacts of the project on properties 45-Smith and 30-Gaffney, the Department believes that the Proponent should be required to acquire these properties, at the request of the landowner, in accordance with the Department's land acquisition procedures.

In accordance with current practice, the Department proposes to set noise limits for the remaining properties in Tables 5 and 6, which would lie somewhere between 35dB(A) and 40dB(A), and incorporate these levels into any conditions of approval. Exceedances of these levels would trigger a process of implementing strategies to mitigate noise levels; and, if at some stage these noise levels were to exceed 40dB(A), then the Proponent would be required to acquire the property at the owner's request.

Road Noise

The Proponent assessed the road noise along Wollar Road between the mine access road and the Ulan Road in accordance with the DEC's *Environmental Criteria for Road Traffic Noise*. Based on these criteria, Wollar Road is classified as a "collector road" and the applicable criteria are 60 dB(A) $L_{Aeq(1\ hour)}$ during the day time and 55 dB(A) $L_{Aeq(1\ hour)}$ during the night time. The Proponent has not assessed noise levels along the Ulan Road because the traffic generated by the project would make up such a small proportion (i.e. less than 6%) of the traffic on this road. The Department accepts this argument.

The results of the assessment predicted that the road traffic generated by the project would increase noise levels on Wollar Road during the morning and evening peak hours by up to 11 dB(A) in the day time and up to 6 dB(A) at night time. These increases would result in exceedances of the night time road noise criteria of up to 2 dB(A) within 25 metres of the road, but would remain below the day time road noise criteria at this distance.

The Proponent has provided additional information to the Department which indicates that there would be approximately 12 privately owned residences adjacent to the Wollar Road that may experience exceedances of the night time road noise criteria. However, the Proponent argues that these exceedances are likely to be minor and would only occur between 6 am and 7 am in the morning (which is defined as "night" under the DEC guidelines) when the majority of the mine's workforce would be travelling to the site. The Proponent also argues that many of the residences may already be experiencing road noise levels above the relevant

criteria. In addition, the Proponent is investigating options to reduce the vehicle movements to the site further through car pooling and using mini-buses to transport workers to/from regional centres such as Mudgee.

The Department acknowledges the Proponent's arguments, and accepts that the predicted exceedances are relatively minor and that the peak road noise impacts would be short in duration. However, the Department believes that the significant increase in traffic generated by the project along Wollar Road would give rise to increases in road traffic that have the potential to affect the amenity of some residences, particularly those whose residences are close to the road. Consequently, the Department believes that the Proponent should be required to investigate ways to reduce traffic noise levels along Wollar Road (such as car pooling and use of mini-bus transport), and report on the implementation and effectiveness of these measures.

Rail Noise

Product coal would be loaded onto 8,500 tonne trains at the site 24 hours a day, 7 days a week via the train loading infrastructure on the site. It is expected that the project would generate up to 6 trains per day (12 movements), with an average of 4 trains (8 movements) per day. The coal would then be transported via the Gulgong-Sandy Hollow railway and the Main Northern railway to domestic and export markets. The Proponent has undertaken an assessment of the potential off-site rail noise impacts of the project along both these rail lines.

Both the Gulgong-Sandy Hollow and Main Northern railways are operated by the Australian Rail Track Corporation (ARTC) under a DEC Environment Protection Licence. There are no specific noise criteria in the DEC licence for the Gulgong-Sandy Hollow and Main Northern railways, but the Proponent has adopted the following noise goals which have been applied by DEC during Pollution Reduction Programs on other railways in NSW:

- day time - 65 dB(A) $L_{Aeq(15\ hour)}$
- night time - 60 dB(A) $L_{Aeq(9\ hour)}$
- maximum - 85 dB(A) L_{Amax}

The rail noise assessment shows that the additional train movements generated by the project would increase noise levels along both the Gulgong-Sandy Hollow and Main Northern railways by about 1 or 2 dB(A). The assessment also shows that the resulting noise would exceed the adopted noise goals by up to 5 dB(A) during the night time on both railway lines, and up to 3 dB(A) during the day time. However, the Proponent argues that the project is unlikely to have a significant impact on the amenity of residents along the rail lines because increases of 1 to 2 dB(A) in noise levels are generally not able to be distinguished by the human ear, and the rail noise generated by existing train movements is currently either at, or above, the relevant rail noise goals.

However, some submissions raised concerns about the significant proportional increase in daily train movements along the Gulgong-Sandy Hollow railway as a result of the project and the associated increase in noise levels. The Gulgong-Sandy Hollow railway currently has around 8 to 10 train movements per day, and the project would generate an additional 8 train movements along this section of the line each day.

To minimise rail noise from the project, the Proponent proposes to liaise with the relevant rail service provider and ARTC to establish appropriate timetabling with the objective of reducing the number of night time train movements from the project. The Department supports this initiative, but believes the measures proposed to reduce noise levels, particularly night time train movements along the Gulgong-Sandy Hollow railway, should be strengthened and formalised by the Proponent in a similar manner to the requirements for reducing off-site road noise.

Cumulative Noise

The Proponent has assessed the cumulative noise impacts of the project in accordance with the DEC's *Industrial Noise Policy*. The assessment shows that the cumulative noise levels of the project, combined with the noise generated by the Ulan coal mine (including the potential expansion of surface facilities under a 1985 development consent to the east of the Ulan coal mine), comply with the relevant amenity criteria.

However, as discussed earlier, Moolarben Coal Pty Ltd propose to undertake further open cut and underground mining operations in the area between the Ulan coal mine and the project site. This project has the potential to generate cumulative noise impacts with the Wilpinjong project, and consequently, the Department believes it is appropriate to include cumulative noise assessment and acquisition criteria for the project to protect the amenity of the community should further mining developments proceed in the area.

Conclusion

The Department and the DEC are satisfied that the Proponent has assessed the potential noise impacts of the project in accordance with relevant DEC guidelines.

However, even after the implementation of best practice mitigation, the project would result in exceedances of the noise criteria at up to 27 properties (including 18 residences) during adverse weather conditions. The noise exceedances at 2 of these properties (1 residence and 1 vacant land) would be significant, and the

Department believes these landowners should be entitled to have their properties purchased by the Proponent should they wish to do so.

To minimise and manage the residual noise impacts of the project, the Department believes the Proponent should be required to:

- comply with operational and cumulative noise criteria;
- establish an ongoing noise monitoring program, to assess compliance with the noise criteria;
- notify potentially affected landowners about their rights under the project approval;
- implement additional noise mitigation measures (at the request of the landowner) at residences in the acquisition zone, and for those properties where subsequent noise monitoring demonstrates the project is exceeding operational criteria by 3 dB(A) or more; and
- acquire affected properties if the subsequent noise monitoring demonstrates that the project is exceeding the operational noise criteria by more than 5 dBA, unless there is a valid noise agreement between the Proponent and the affected landowner.

Blasting

Issue

The project has the potential to result in blasting impacts on nearby residences, infrastructure and Aboriginal rock shelters, and may require the temporary closure of local roads and the Gulgong-Sandy Hollow railway.

Consideration

The Proponent used a model and conservative assumptions to predict overpressure levels and ground vibration levels at the closest privately owned residences and at Aboriginal rock shelters which have been identified in areas adjacent to active mining areas.

The initial assessment indicated that the relevant DEC criteria for ground vibration would be satisfied at all privately owned residences for the life of the mine. However, the assessment predicted that the overpressure criteria would be exceeded at up to 10 residences to the south, west and east of the project.

To address this issue, the Proponent proposes to modify the blast design to minimise the predicted overpressure, and with these measures in place, predicts that the relevant DEC overpressure criteria would be achieved at all privately owned residences.

To assess the potential impacts of the project on the Aboriginal rock shelters, the Proponent used a criteria of 80 mm/s which is based on a German Standard for evaluating vibration impacts on structures. The Proponent believes the application of these criteria provides a very conservative approach to the assessment of potential impacts on the rock shelters, and cites research from the United States which indicates actual damage to geological structures would not occur until the vibration levels exceed 460 mm/s. The assessment indicated that the vibration at the rock shelters would comply with the criteria, and hence it would be unlikely that the project would result in any damage to the rock shelters as a result of vibration from blasting.

Blasting at the project has the potential to generate flyrock which may impact the Ulan-Wollar Road, the Gulgong-Sandy Hollow railway, and potentially the Aboriginal rock shelters. To manage these impacts and protect public safety, the Proponent proposes to temporarily close the Ulan-Wollar Road and the Gulgong-Sandy Hollow railway when blasting occurs within 500 metres, and implement appropriate blast design to limit the potential for flyrock impacts in these areas.

Additional information has been provided to the Department to assess the potential vibration impacts on the Gulgong-Sandy Hollow railway. This information indicates that the project would be unlikely to damage the railway, and would comply with the appropriate vibration criteria for the railway.

Conclusion

The Department is satisfied with the Proponent's assessment of blasting impacts, and believes that with the implementation of appropriate blast management and design procedures, the blasting impacts of the project can comply the relevant overpressure and ground vibration criteria at all privately owned residences surrounding the mine, at the Gulgong-Sandy Hollow railway, and is unlikely to damage Aboriginal rock shelters in the vicinity of the mine.

Nevertheless, to ensure the blasting impacts of the project are appropriately managed and monitored, the Department believes the Proponent should be required to:

- comply with appropriate blasting criteria at residences and public infrastructure;
- implement best practice blast management procedures to protect the safety of people, property, public infrastructure, livestock and the Aboriginal rock shelters;
- limit blasts to a maximum of 1 per day, and an average of 1 per week;
- restrict blasting to the day time, and avoid blasting on Sundays and public holidays;
- obtain approval from the Council or ARTC prior to blasting within 500 metres of any local roads or the Gulgong-Sandy Hollow railway;

- conduct property inspections at any residences within 2 kilometres of blasting operations if requested by the landowner, and implement any recommended repairs;
- monitor the potential blasting impacts of the project; and
- establish a blast notification procedure to ensure local residents are appropriately informed about planned blasts and road closures.

Air Quality

Issue
The project could generate dust from mining, processing and transportation activities.

Consideration
The Proponent has undertaken an air quality assessment for the project, which modelled total suspended particulates (TSP), particulate matter (PM_{10}) and dust deposition.

The results of the modelling are based on the assumption that the Proponent would implement a range of measures to control dust generation, including water sprays on coal stockpiles, use of dust suppressants on haul roads, keeping exposed areas to a minimum, and progressive rehabilitation of disturbed areas. The modelling is also based on meteorological data generated using the CSIRO Air Pollution Model due to a lack of long term meteorological data for the site. Both the Department and the DEC accept this approach, and are satisfied with the level of assessment carried out in the EIS for air quality.

The air quality assessment found that the dust emissions from the project would comply with the relevant DEC dust criteria at all privately owned properties, except for 1 privately owned residence (14-Close) and 1 parcel of vacant land (5-Power). However, the Department understands that the Proponent has recently purchased property 14, and consequently only 1 parcel of private vacant land is predicted to experience dust levels above the DEC criteria as a result of the project. The predictions on this property show only minor exceedances of the annual average and 24-hour PM_{10} criteria across about 50% of the property in the last year of mining operations.

However, despite the relatively minor exceedances, the Department believes that the landowner should be entitled to land acquisition rights in accordance with the Department's policy of granting acquisition rights where dust criteria are exceeded on more than 25% of any contiguous parcel of vacant land.

The air quality assessment also considered cumulative impacts of the project with the Ulan coal mine, and concluded that because the mines are more than 10 kilometres apart, any cumulative dust impacts would be negligible and would not lead to any additional exceedances of the DEC dust criteria.

A greenhouse gas assessment was also undertaken by the Proponent in accordance with Australian Greenhouse Office requirements. The assessment indicates that the project would result in almost 2 million tonnes of CO_2 equivalent emissions sourced mainly from the combustion of diesel fuel in the mining fleet and emissions from the coal seam itself. The Proponent is proposing to minimise its greenhouse emissions primarily through appropriate mine planning to reduce the distance the mining fleet needs to travel, and regular maintenance of plant and equipment. The Proponent also argues that the extensive planting of woodland proposed to be undertaken as part of the biodiversity offset and rehabilitation strategy would offset the greenhouse emissions from the project to some extent.

The Department is generally satisfied that the Proponent's assessment of greenhouse emissions appropriately assesses the greenhouse gas impacts of the project in a manner which is consistent with standard practice for coal mines, and which is consistent with relevant Australian Greenhouse Office's greenhouse accounting procedures. Notwithstanding, the Department believes the Proponent should be required to monitor greenhouse emissions generated by the project, investigate ways of reducing these emissions, and regularly report on the results of the monitoring and greenhouse abatement measures.

Conclusion
The Department and the DEC are satisfied with the Proponent's air quality assessment, and believe that it provides a sound basis upon which to assess the air quality impacts of the project.

However, even after the implementation of best practice mitigation, the project would result an exceedance of the DEC air quality criteria at 1 parcel of private vacant land, and the Department believes the Proponent should be required to acquire this property, at the request of the landowner, in accordance with the Department's land acquisition procedures.

To minimise and manage the residual air quality impacts of the project, the Department believes the Proponent should be required to:
- comply with the relevant DEC air quality criteria;
- establish and maintain an air quality monitoring program; and
- implement the mitigation measures proposed in the EIS.

Aboriginal Cultural Heritage

Issue
The project would destroy 144 known Aboriginal sites, and has the potential to impact other sites of Aboriginal cultural significance.

Consideration
The Proponent has undertaken a comprehensive Aboriginal cultural heritage survey and assessment in accordance with DEC guidelines and in consultation with local Aboriginal groups.

A total of 235 Aboriginal cultural heritage sites were identified during the surveys, including:
- isolated finds and artefact scatters;
- scarred trees;
- rock shelters with archaeological deposits and rock art; and
- reported places of Aboriginal cultural significance.

Of the 235 sites, approximately 144 are likely to be destroyed by the project. The vast majority of these sites consist of isolated finds and artefact scatters together with several scarred trees, and only 1 artefact scatter (site 134) has been assessed as having high archaeological significance. All rock shelters identified during the surveys are located outside the project disturbance area, and consequently are unlikely to be directly impacted by the project. Two places of Aboriginal cultural significance were identified within the project disturbance area by some members of the local Aboriginal community (sites 58 and 59). Site 58 consists of a low knoll which was identified as a place of special importance to women, and the proposed removal of this feature would be unacceptable to certain members of the Aboriginal community. Site 59 is a smaller knoll which has been identified as a place of special significance to men. However, the cultural significance of both sites was strongly disputed by some Aboriginal groups, although it was generally agreed that the more important site was site 58. In response to these concerns, the Proponent has modified its mine plan to avoid site 58, but believes it cannot avoid site 59 because it is located in the area where the surface facilities for the mine are proposed.

The Proponent proposes to prepare an Aboriginal Cultural Heritage Management Plan, in consultation with local Aboriginal groups, for the ongoing management and conservation of Aboriginal cultural heritage on the site. The measures proposed include:
- a salvage program for sites of significance likely to be disturbed by the project;
- a keeping place to document and temporarily store salvaged Aboriginal objects;
- replacing selected Aboriginal objects onto rehabilitated landforms;
- measures to protect Aboriginal sites outside the project disturbance areas;
- further identification, management and monitoring of Aboriginal rock art sites;
- a protocol for monitoring earthworks in areas where there is the potential for Aboriginal burials to exist; and
- a protocol for the ongoing involvement of the local Aboriginal community in the conservation and management of Aboriginal cultural heritage on the site.

Conclusion
The Department acknowledges that a significant number of Aboriginal cultural heritage sites would be destroyed by the project. However, the Department accepts that due to the location and depth of the coal resource there are no viable alternatives to the extraction of the coal via open cut mining methods, and notes that the vast majority of these sites have been assessed as not having a high level of cultural heritage significance.

Both the Department and the DEC are satisfied that the Proponent has comprehensively assessed the Aboriginal cultural heritage impacts of the project, and has consulted extensively and fully with the local Aboriginal community. The Department and DEC are also satisfied with the ongoing conservation and management measures proposed by the Proponent, and the Department believes these measures would provide adequate protection to sites of Aboriginal heritage significance outside the disturbance footprint, including rock shelters.

Traffic and Transport

Issue
The project would generate about 312 vehicle movements a day during construction, and about 236 once mining operations commence. Of these, there would be an average of about 20 heavy vehicle movements per day.

Consideration
The traffic expected to be generated by the project during construction and operations has been predicted by the Proponent, and the potential impacts of the expected traffic volumes on the local road network have been assessed.

During operations, the assessment shows that the most significant increases in local traffic volumes would occur on the Wollar Road (Main Road 208) with increases in daily traffic flows of more than 100% along sections of the road between the project site and the intersection with the Ulan Road (Main Road 214) (see Table 7). During construction, it is expected there would also be significant increases of up to 72% on the Ulan-Wollar Road.

Table 7: Traffic Impacts During Operations

Road	Station Number	Location	Current Traffic Volume *	Project Workforce/ Visitors	Project Deliveries/ Trucks	Project Total Increase	New Traffic Volume with Project	% Change
Main Road 208	5474	West of Golden Highway	300	6	2	8	**308**	2.7%
	99286	East of Bylong	141	6	2	8	**149**	5.7%
	Survey Site 4	Wollar Road - West of Wollar (near Wilpinjong Road)	166	180	12	192	**358**	115.7%
	Survey Site 3	Wollar Road - West of Cooyal	352	180	12	192	**544**	54.5%
	99222	Wollar Road - East of Ulan Road	613	180	12	192	**805**	31.3%
	99906	Ulan Road - North of Mudgee	3,482	180	12	192	**3,674**	5.5%
Main Road 214	92268	Ulan-Cassilis Road - North of Ulan	597	4	-	4	**601**	0.7%
	Survey Site 2	Ulan Road - South of Ulan	790	-	-	-	**790**	0.0%
	99221	Ulan Road - North of Wollar Road/Budgee Budgee	1,321	-	-	-	**1,321**	0.0%
Main Road 598	99510	Cope Road - East of Gulgong	1,119	20	2	22	**1,141**	2.0%
Henry Lawson Drive	Survey Site 1	North of Main Road 208	953	-	-	-	**953**	0.0%
Main Road 215	99301	Bylong Road - North of Rylstone	359	4	-	4	**363**	1.1%
Wollara/ Ringwood Road	-	North of Wollar Road	100	6	-	6	**106**	6.0%
Ulan-Wollar Road	-	East of Main Road 214	175	24	2	26	**201**	14.9%

The assessment of road conditions undertaken by the Proponent indicates that the existing road conditions generally meet relevant RTA standards, and are adequate for the expected increases in traffic from the project, except for a 2.3 kilometre section of Wollar Road which would require widening to meet RTA standards. The assessment also indicated that the project is not expected to change the existing good level of intersection performance on the local road network, and levels of road safety are not expected to change significantly as a result of the project. However, the assessment does highlight the need for a right turn the Ulan Road – Wollar Road intersection to be upgraded to cater for existing traffic flows.

Both the RTA and the Council have raised a number of concerns about the traffic impacts of the project. In particular, the RTA and Council believe the Proponent should be required to upgrade the Ulan Road – Wollar Road intersection, and pay contributions to Council for the ongoing maintenance of the local road network that would be impacted by traffic generated by the project. The Council also believes the Proponent should be required to seal the Ulan-Wollar Road through the project site and maintain this road as a secondary access to the mine during operations. Concerns were also expressed about the suitability of a timber bridge on Wollar Road to cater for heavy vehicles.

To address these concerns, the Proponent has agreed to conduct an independent route assessment study for the Ulan Road, Wollar Road and the Ulan-Wollar Road to identify whether the traffic generated by the project requires any road works to be undertaken to comply with relevant RTA standards. This assessment would include an assessment of road pavement conditions and a road safety audit, and form part of a planning agreement between the Council and the Proponent. The planning agreement would be prepared in accordance with Division 6 of Part 4 of the EP&A Act, and require the Proponent to undertake any road improvements recommended by the study which are needed as a result of the additional traffic generated by the project. The agreement would also require the Proponent to pay Council a road maintenance contribution of $30,000 per year for the duration of the project.

The Council has indicated that it is satisfied with this approach, and has advised the Department that the terms of the proposed planning agreement are acceptable. The terms of the planning agreement have been incorporated into the Department's recommended conditions of approval.

Conclusion
The Department believes that the project would result in a significant increase in traffic on some local roads (particularly Wollar Road and Ulan-Wollar Road), but that the existing road network is generally capable of catering for this increase without resulting in any significant impacts on existing road users.

The Department also believes that the project by the Proponent to enter into a planning agreement with the Council is an appropriate mechanism to ensure that the roads (and intersections) likely to be most affected by project-related traffic meet relevant RTA standards, and are properly maintained for the duration of the project.

However, in addition to the road assessment and maintenance requirements under the planning agreement, the Department believes that prior to heavy vehicles using Wollar Road to access the site, the Proponent should be required to submit a report from a suitably qualified structural engineer to certify that the timber bridge on Wollar Road is suitable for the type and number of heavy vehicles expected during construction of the project.

Community Infrastructure

Issue
The project has the potential to place additional demands on existing community infrastructure and services.

Consideration
The Proponent has assessed the potential impacts of the project on community infrastructure and services.

This assessment indicates that it is expected that the majority of the non-local workforce associated with the project would settle in Mudgee and Gulgong, and that the additional demand for housing in these areas as a result of the project could be met without significant pressure being placed on the existing housing market. The assessment also indicated that the community infrastructure and services such as education, health, and community and recreational services have sufficient excess capacity to accommodate the increase in population and housing/land demand that would be created by the project, although some potential shortages in the availability of General Practitioners and childcare services was acknowledged by the Proponent.

The Council did not accept the Proponent's assessment of these issues, and was concerned that the project would place additional demands on the availability of housing, rental accommodation, residential and industrial land, skilled labour, and medical and child care services, which are already in short supply in the area. The Council also noted that the existing section 94 contributions plan did not include coal mines, and indicated that appropriate developer contributions should nonetheless be levied from the Proponent to offset the impacts of the project on the provision of infrastructure and community facilities.

In response to these concerns, the Proponent has offered to provide an annual community infrastructure contribution of $40,000 plus a one off payment of $450,000 to assist the Council is meeting costs associated with the provision of public amenities and services. These contributions would form part of the planning agreement between the Council and the Proponent.

Conclusion
The Department and the Council are satisfied that the potential impacts of the project on community infrastructure and services can be offset and compensated for through the contributions proposed to be included in the planning agreement between the Council and the Proponent. The agreed terms of the planning agreement have been included in the Department's conditions of approval.

Other Issues

The project is likely to generate a range of other environmental impacts – including visual and non-Aboriginal heritage impacts. However, these impacts are not predicted to be significant, and the Department is satisfied that they can be controlled, mitigated or managed through appropriate conditions of approval.

6. RECOMMENDED CONDITIONS OF APPROVAL

The Department has prepared recommended conditions of approval for the project. These conditions are required to:

- prevent, minimise, and/or offset adverse environmental impacts;
- set standards and performance measures for acceptable environmental performance;
- ensure regular monitoring and reporting; and
- provide for the ongoing environmental management of the project.

The Department has provided the draft conditions of approval for the project to relevant government agencies for comment, and has incorporated these comments into the conditions of approval where appropriate.

The Proponent has indicated that it has no objections to the recommended conditions of approval.

7. CONCLUSION

The Department has assessed the project application, EIS, and the submissions on the project, and is satisfied that the assessment is realistically conservative, appropriately incorporates consideration of cumulative impacts and provides a sound basis upon which to assess the potential impacts of the project.

The key issues identified in submissions related to surface water, groundwater, flora and fauna, and the rehabilitation of the mine. These issues were considered by a Panel of Experts, who concluded that the environmental impacts of the project considered under its terms of reference did not preclude the approval of the project provided certain measures were implemented to minimise, control and manage the residual environmental impacts and risks associated with the project. The measures recommended by the Panel of Experts have been incorporated into the Department's recommended conditions of approval.

The Department recognises that the project would result in surface and groundwater impacts in areas surrounding the mine, and that these impacts have the potential to affect a small number of land users who utilise these water resources for domestic and agricultural purposes. However, with the implementation of appropriate mitigation measures, including requiring the Proponent to monitor and regularly audit the surface and groundwater impacts of the project and implement suitable compensation measures if any significant impacts are detected, the Department is confident that the surface and groundwater impacts would not significantly affect surrounding land users or the environment.

The Department also recognises that the project would result in the removal of a significant amount of remnant native vegetation within the mining footprint. However, the Department believes that with the on-site and off-site biodiversity offset and rehabilitation strategy would, in the medium to long term, provide a net biodiversity benefit at both the local and regional level.

Importantly, the project would generate significant social and economic benefits for NSW, and for the Mudgee region in particular. Over the life of the mine (about 21 years), it is expected that the project would:

- generate at least $1.65 billion in export revenue;
- provide employment for about 100 people;
- provide indirect employment for up to 400 people, including around 150 people in the Mudgee region;
- contribute at least $116 million in capital expenditure;
- generate around $360 million each year in business turnover in the region; and
- provide revenue to the Government through royalties, taxes, and a range of charges.

The project would also provide an important long term supply of coal for NSW's domestic power generators, and facilitate the continuation of a reliable, low cost electricity supply for NSW consumers.

In summary, the Department believes the residual impacts of the project can be adequately mitigated, managed, offset or compensated for, and on balance, the benefits of the project outweigh its potential costs. Consequently, the Department believes that the project is in the public interest, and should be approved subject to strict conditions of approval which are consistent with the recommendations of the Panel of Experts.

8. RECOMMENDATION

It is RECOMMENDED that the Minister:

- consider the findings and recommendations of this report;
- consider the Panel of Expert's report (Tag C);
- approve the project application, subject to conditions, under section 75J of the *Environmental Planning and Assessment Act 1979*; and
- sign the attached project approval (Tag A).

SIGNED

Mike Young
Manager
Mining & Extractive Industries

SIGNED

Yolande Stone
A/Executive Director