



Whitehaven Coal Mining Pty Ltd

ABN: 65 086 426 253



Environmental Assessment of the Belmont Coal Project via Gunnedah

October 2007

Prepared by:



R.W. CORKERY & CO. PTY. LIMITED

Cover Page: A view to the northeast across the proposed Belmont Coal Mine with the Kelvin Range in the far distance within Community Conservation Area Zone 2 – Kelvin and the proposed biodiversity offset area on the lower slopes in the middle distance (Ref: E584-B004).

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584/02 (Figures)



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Author's Certification

for the submission of an Environmental Assessment prepared in accordance with the
Environmental Planning and Assessment Act 1979 (Part 3A – Section 75).

(a) **EA prepared by:**

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(b) **Planning Approval application by:**

applicant name: Whitehaven Coal Mining Pty Ltd
applicant address: PO Box 600
GUNNEDAH NSW 2380

(c) **Application Number:** 05-0102

(d) **Address/land details**

properties to be developed/
(ie. surface area only) "Belmont", "Glenroc", "Roseberry", "Brentry" and "Stratford" properties

land description: Lots 1 and 2, DP 787417;
Lot 30, DP 754950;
Lots 23 and 28, DP 754929; and
Council roads and road reserve all within the Parish of Tulcumba

(e) **Project Outline:**

The Belmont Coal Project involves the development and operation of an open cut coal mine approximately 25km north of Gunnedah. The Project would include: mining by open cut (involving blasting) and potentially augering methods; placement of overburden within the excavated mine void and two out-of-pit emplacements; crushing and screening of run-of-mine coal; ancillary activities to the former activities; transportation of the crushed coal to the Whitehaven Coal Handling and Preparation Plant and Rail Loading Facility; and rehabilitation of areas disturbed by the Project. The Project also provides for a biodiversity offset of approximately 42ha of remnant native vegetation on the "Glenroc" property and habitat corridors between the Vickery State Forest and currently isolated patches of remnant vegetation.

(f) **Assessment of
Environmental Impact:**

The assessment of environmental impacts of this project includes the matters referred to in Director-General's Requirements provided to the Proponent on 20 November 2006 under Section 75F of the *Environmental Planning and Assessment Act 1979*.

(g) **Declaration:**

I, Robert William Corkery, hereby declare that I have overseen the preparation of the contents of this assessment and to the best of my knowledge:

- it has addressed the Director-General's Requirements as provided by the Department on 20 November 2006;
- the assessment contains all available information that is relevant to the environmental assessment of the project; and
- the information contained in the statement is neither false nor misleading.

Signature: _____

Name: Robert W. Corkery Date: 10 October 2007



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Summary

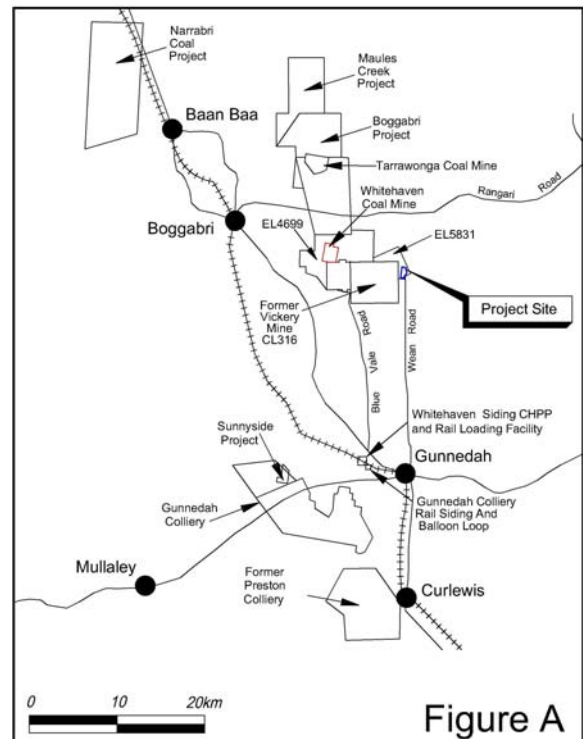
INTRODUCTION

This *Environmental Assessment* has been prepared by R.W. Corkery & Co. Pty. Limited to accompany an application for Project approval by Whitehaven Coal Mining Pty Ltd (“the Proponent”) to develop and operate a 1.5 million tonne per annum (Mtpa) open cut coal mine centred on the “Belmont” property to be known as the Belmont Coal Project (“the Project”). Additional coal that would otherwise be uneconomic to extract by open cut mining methods may be extracted using auger mining techniques.

The area that encompasses the proposed open cut mine, overburden emplacements and surface infrastructure associated with the Project is referred to as the “Project Site” and is located approximately 25km north of Gunnedah and 23km southeast of Boggabri in central northern New South Wales (see **Figure A**). The Project Site covers an area of approximately 366ha within Exploration Licence (EL) 5831 and Consolidated Lease (CL) 316. The entire area of the Project Site occurs within parts of the “Belmont”, “Glenroc” and “Roseberry” properties owned by the Proponent.

The Project also includes the transportation of coal between the Project Site and the Whitehaven Coal Handling and Preparation Plant (CHPP) and rail loading facility, 6km west of Gunnedah, and the backloading of a proportion of the coarse and fine reject material generated during coal washing at the Whitehaven CHPP. This would involve the construction of a purpose built road between the Project Site and Hoad Lane (which forms part of an established coal haulage route from existing coal mines in the local area), and the use of this established route to the Whitehaven CHPP.

The Project is classified as a Major Project in accordance with the State Environmental Planning Policy (Major Projects) (2005) and, consequently, the Minister for Planning is the approval authority. As a Major Project, it will be assessed under Part 3A of the *Environmental Planning and Assessment Act 1979* and an *Environmental Assessment* report is required to be submitted to support the application for Project approval.



This summary presents an overview of the Project and the predicted impacts associated with the Project.

THE PROPONENT

The Proponent for the Belmont Coal Project is Whitehaven Coal Mining Pty Ltd (WCM), a private company formed to explore and develop the coal resources in



the Gunnedah Basin. WCM currently owns and operates the Whitehaven Coal Mine and Whitehaven CHPP and rail loading facility. WCM also maintains common shareholder and directors with a number of other private mining companies which operate, or have in various stages of development, other coal mining operations including the Werris Creek Coal Mine, the Tarrawonga Coal Mine, the Narrabri Coal Project and the Sunnyside Coal Project.

Currently, the Whitehaven Coal Mine has less than 2 years of coal resources remaining and it is anticipated the Project would ultimately replace production from the Whitehaven Coal Mine in order to maintain and expand export markets for the low ash, low sulphur and high energy coal from within the Gunnedah Basin.

PLANNING CONTEXT

The Belmont Coal Project would be developed and operated in accordance with a number of State and regional planning instruments, namely:

- State Environmental Planning Policies (SEPPs) 33, 44 and SEPP (Mining, Petroleum Production and Extractive Industries) 2007; and
- Orana Regional Environmental Plan (REP) No. 1.

The Project is a permissible land use on the Project Site as defined in the Gunnedah Local Environmental Plan (LEP) 1998.

MINE PLANNING CONSIDERATIONS

The principal geological structure in the area of the proposed Belmont Coal Project, is a north-northwest oriented asymmetrical anticline which plunges and flattens to the south. This anticline is an important control on the distribution of coal resources. Between July 2001 and July 2002, the Proponent conducted several exploration drilling programs targeting the apex of the

anticline structure and identified three coal seams mineable by open cut methods, namely, the Glenroc (upper and lower) and Belmont Seams. The proposed limit of open cut mining provides for mining at an average overburden / interburden to coal ratio of 5.5 bank cubic metres (bcm) of overburden / interburden per in-situ tonne coal, while incorporating the following environmental considerations.

Agricultural Land: The final landform has been designed with slopes typically not exceeding 10° to ensure the re-establishment of comparable areas of Class III capability land to that disturbed by the Project.

Ecology: The limit of open cut mining was altered to reduce the amount of clearing along the roadside corridor of Jaeger lane along with a remnant patch of Brigalow community vegetation. The Project would require the clearing of approximately 36.3ha of native vegetation with this to be offset by rehabilitation of 84ha of the disturbed land to native vegetation. To further offset any disturbance to existing native vegetation, the Proponent has committed to excluding current and future agriculture from in excess of 50ha of remnant native vegetation on Proponent owned land.

Aboriginal Heritage: The Project transport route was aligned to avoid disturbance to four scarred trees identified on and surrounding the Project Site.

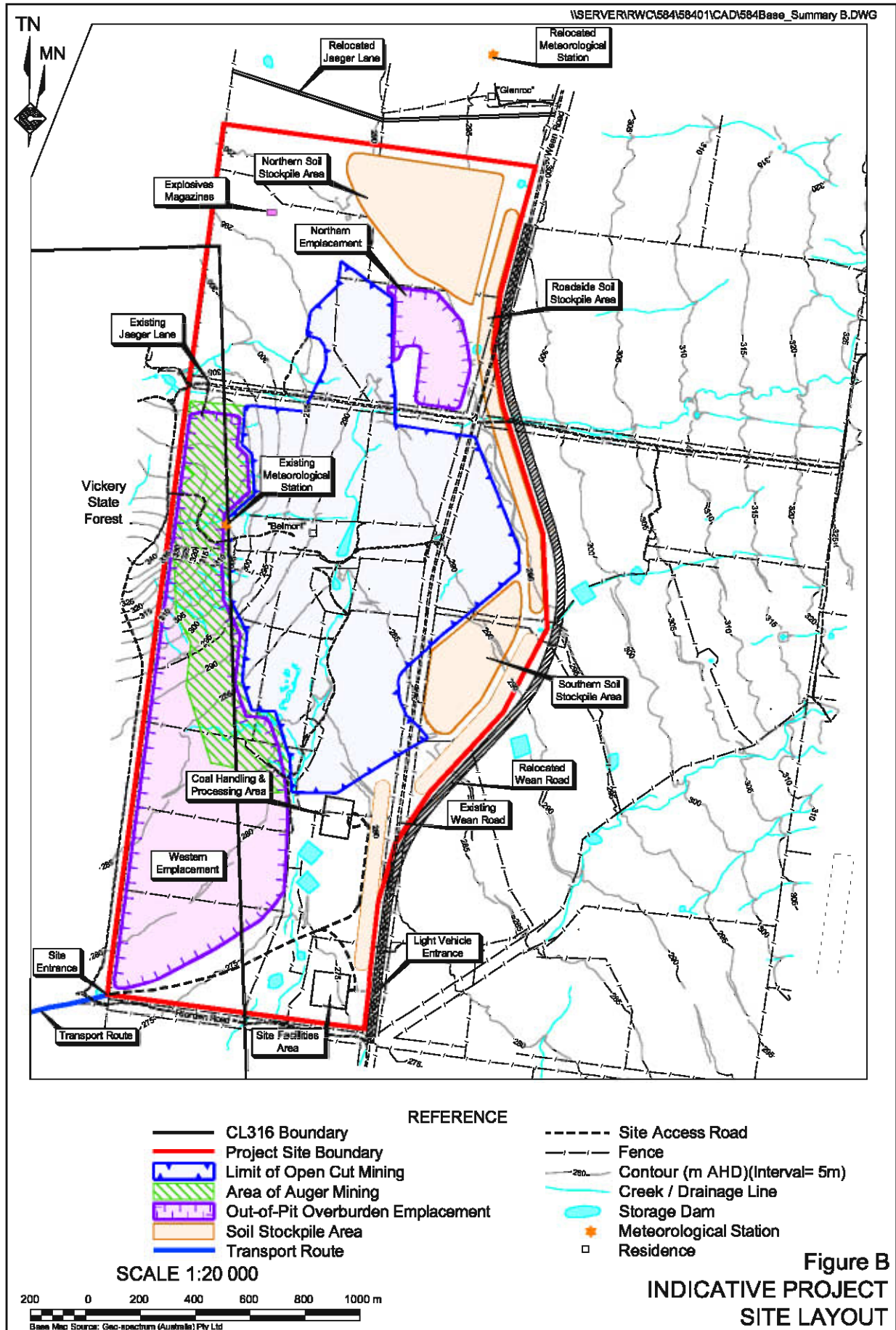
PROJECT DESCRIPTION

Figure B presents the proposed layout of the Project Site and alignment of the transport route between the Project Site and Hoad Lane. The Project, if approved, would involve the following activities.

Coal Mining by Open Cut Mining Methods

The open cut mine would be developed using haulback mining methods. This would involve the sequential removal of vegetation, soil, overburden and interburden





above and between each coal seam, coal removal and progressive backfilling and rehabilitation of mined-out areas. A bulldozer would generally be used to clear the larger vegetation with groundcover removed with the topsoil during soil removal activities. Bulldozers and open bowl scrapers would be used to strip the topsoil and subsoil over the areas of the Project Site to be disturbed. This soil would be either transferred directly to completed sections of the open cut requiring rehabilitation, or stockpiled for future use during rehabilitation. Overburden / interburden above and between the coal seams would generally be blasted and loaded to trucks for transfer and placement either out-of-pit, ie. within one of two overburden emplacements, or in-pit, ie. within a completed section of the open cut.

To remove the coal, benches would be developed along the length of coal seams by blasting and removal of overburden / interburden. As sufficient coal is exposed, it would be ripped, excavated and transported to the Run-of-Mine (ROM) pad within a coal handling and processing area.

Open Cut Mining by Auger Mining

Auger mining techniques enable coal to be mined without the need for overburden or interburden removal. The auger mining method would involve the drilling of a series of gently dipping, 1.5m diameter holes for a distance of between 60m and 200m into the Belmont Coal Seam. Each hole, drilled at right angles to the final highwall, would be separated by a web or septum pillar that would support the overlying strata.

Coal Processing

The mined coal would be transferred by haul truck to the coal handling and processing area to be located immediately south of the limit of open cut mining (see **Figure B**). ROM coal would be either loaded directly into the coal loading hopper or placed in one of several ROM coal

stockpiles (representing different quality coal). A primary crusher would reduce the size of the coal and a conveyor would transfer the crushed (and screened) coal to a product coal bin, from where B-double trucks would be loaded for the despatch of the coal to the Whitehaven CHPP.

Annual ROM coal production would increase from an initial level of approximately 0.75Mtpa to a maximum annual rate of 1.5Mtpa.

Rehabilitation

The out-of-pit and in-pit overburden emplacements would be progressively shaped to recreate a landform comparable to that of the pre-mining environment. The stripped and/or stockpiled soil resources would be placed over the shaped landform and the area seeded either with pasture species or native woodland vegetation dependent on the nominated final land use. Approximately 84ha of the final landform would be designated for long-term nature conservation, with the remaining area returned to agricultural land.

Transportation

The crushed and screened coal would be transported to the Whitehaven CHPP via a purpose built section of road between the Project Site and Hoad Lane, and from Hoad Lane via an established coal haulage route, already used by the Tarrawonga and Whitehaven Coal Mines. The section of the road to be constructed would traverse the "Brentry" property, along the southern edge of Vickery State Forest (1.1km) with a further section of private road constructed across the "Stratford" property (2.5km) to link with Shannon Harbour Road (SR 93). The transport route would then incorporate a 2.5km length of an upgraded Shannon Harbour Road before intersecting with Hoad Lane (SR 95) approximately 0.2km north of the intersection between Hoad Lane and Braymont Road. The transport route would then join an established transport route along Hoad Lane (0.2km), Blue Vale Road (17.2km) and Kamilaroi



Highway (0.5km) before entering the Whitehaven CHPP.

The bulk of the coal would be processed at the Whitehaven CHPP before the washed coal is loaded to trains at the Whitehaven Rail Loading Facility and despatched to Newcastle. A proportion of the coarse and fine reject material from the Whitehaven CHPP would be backloaded to the Project Site for placement in the mined-out areas of the open cut.

Hours of Operation and Project Life

The standard hours of operation for the Project would be as follows:

Activity	Normal	
	Monday to Saturday	Sunday
Construction		
On-site Establishment	6:00am to 8:00pm	8:00am to 5:00pm
Transport Route Construction	7:00am to 8:00pm	8:00am to 5:00pm
Open Cut Mining		
Vegetation clearing / soil removal	7:00am to 6:00pm	-
Drilling	7:00am to 10:00pm	-
Blasting	9:00am to 5:00pm	-
Overburden / Interburden removal and placement	24 hour	-
Internal transport of coal product to ROM coal stockpiles	24 hour	-
Auger Mining		
Auger drill Operation	7:00am to 10:00pm	-
Internal transport of coal product to ROM coal stockpiles	24 hour	-
On-site processing	24 hour	-
Coal transport to Whitehaven CHPP and reject backloading	24 hour	-
Maintenance	24 hour	24 hour
Rehabilitation	7:00am to 6:00pm	-

Based on an initial (Year 1) production rate of 0.75Mtpa, increasing to 1.5Mtpa (Year 2 onwards), it is anticipated the Belmont Coal Project would have a life of seven years. Over the life of the Project, up to 56 full-time and 13 part-time equivalent jobs would be created for on-site operations, with additional indirect employment.

Other Project Related Works

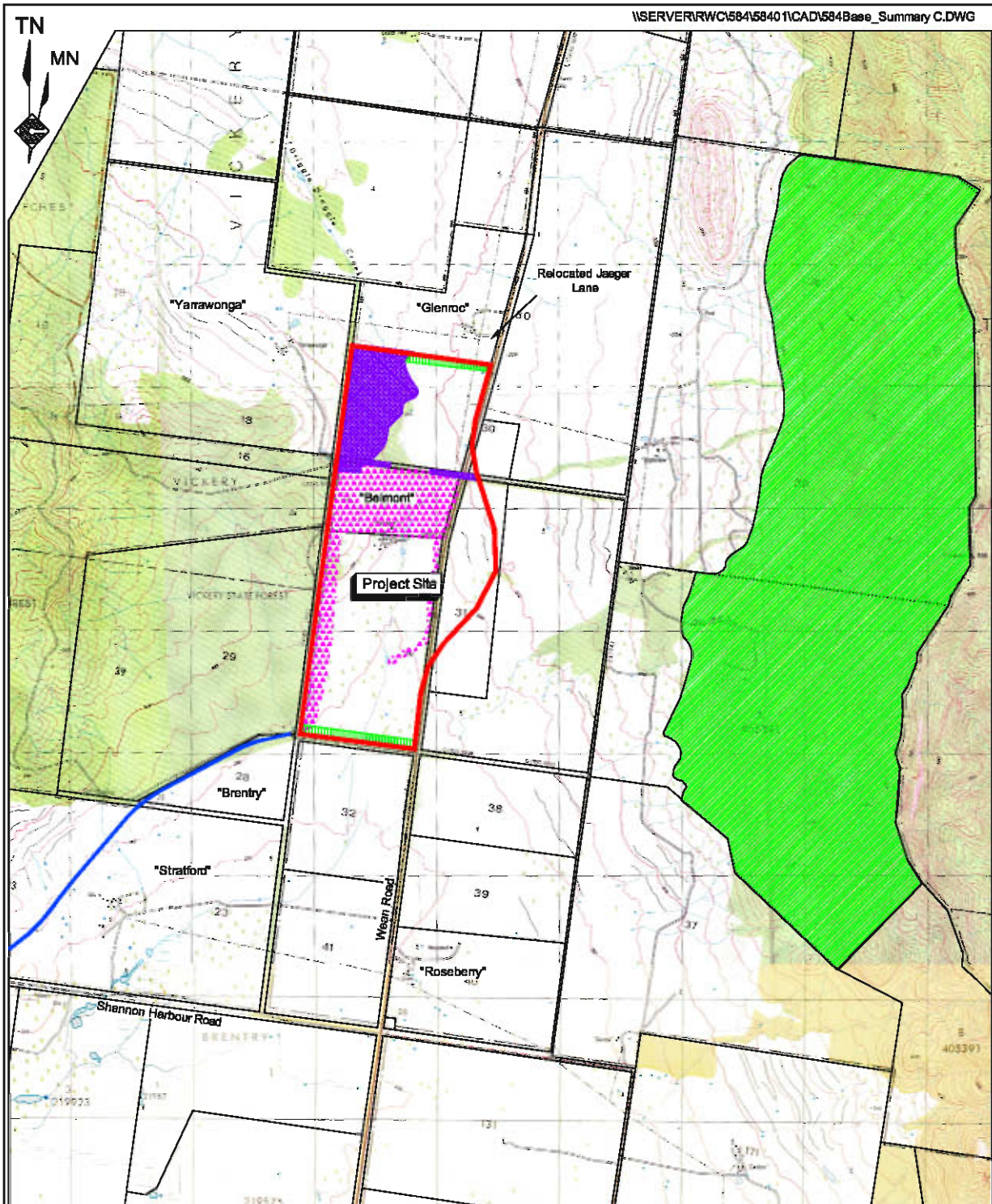
The proposed limit of open cut mining requires the relocation of sections of Wean Road and Jaeger Lane. These relocations would be undertaken prior to mining through the existing alignment of these roads. The original alignment of Wean Road would be reinstated following the completion of the Project, while the realigned Jaeger lane would be retained.

Biodiversity Offset Strategy

In addition to the 84ha of the final landform to be rehabilitated as native vegetation, the Proponent proposes to further offset any disturbance to remnant native vegetation through the exclusion of agriculture from, and the long-term conservation of the following areas (see **Figure C**).

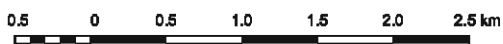
- (i) 42.3ha of remnant Ironbark – White Box vegetation in the northwestern corner of the Project Site (“Glenroc” property). This area is directly linked to the vegetation of Vickery State Forest.
- (ii) Establishment of a habitat corridor between offset area (i) and Wean Road along the northern boundary of the Project Site (2.6ha).
- (iii) Establishment of a habitat corridor within a fenced reserve around the relocated Jaeger lane (2.6ha).
- (iv) Establishment of a habitat corridor along the southern boundary of the Project Site (3.8ha).





- REFERENCE
- Project Site Boundary
 - Transport Route
 - Proposed Biodiversity Offset Area
 - Rehabilitated Woodland
 - Additional Habitat Enhancement through Replanting
 - Whitehaven Regional Biodiversity Offset Area

SCALE 1:50 000



Source: Geoff Cunningham Natural Resource Consultants Pty Ltd (2007) - Figure 5

Figure C
RECOMMENDED
BIODIVERSITY OFFSETS



Disturbance to native vegetation would be further offset through the Whitehaven Regional Biodiversity Offset Strategy which is being developed by the Proponent in conjunction with the Department of Planning and Department of Environment and Climate Change and is close to finalisation. The Whitehaven Regional Biodiversity Offset Strategy provides for the long-term conservation of approximately 1 000ha of Proponent-owned land through allocation to the adjacent Community Conservation Area (CCA) Zone 2 – Kelvin or creation of a covenant with succession in title over the land (under the *Conveyancing Act, 1919*) (see **Figure C**).

ISSUE IDENTIFICATION AND PRIORITISATION

In order to undertake a comprehensive *Environmental Assessment* of the Belmont Coal Project, appropriate emphasis needs to be placed on those issues likely to be of greatest significance to the local environment, neighbouring landowners and the wider community. These issues (and their potential impacts) were identified through a program of community and government consultation, preliminary environmental studies and literature review. This was followed by an analysis of the risk posed by each potential impact in order to prioritise the assessment of the identified environmental issues within the *Environmental Assessment*.

Consultation

Consultation with the local community involved:

- individual discussions with the landowners / residents of properties surrounding the Project Site;
- newspaper articles and community newsletters;

- advertising the “Application for the Project Approval” with the associated Project Description Report in the local press (also available on the websites of the Department of Planning and Whitehaven Coal Mining for public viewing).

Issue Prioritisation

Based on the environmental issues raised throughout the consultation process, a review of the Project design and local environmental features was undertaken to identify risk sources and potential environmental impacts for each environmental issue. An analysis of risk for each potential environmental impact was then completed, with a risk rating assigned to each impact based on likelihood and consequence of occurrence in the absence of any mitigation measures. Through a review of the allocated risk ratings and the frequency with which each issue was identified, the relative priority of each issue was determined, with this priority used to provide an order of assessment and depth of coverage within the *Environmental Assessment*.

Based on the issues identified and the risk ratings allocated, the following order of priority has been determined.

1. Groundwater.
2. Flora and Fauna.
3. Aboriginal Heritage.
4. Noise.
5. Surface Water / Flooding.
6. Traffic and Transport.
7. Visual Amenity.
8. Soils and Land Capability.
9. Air Quality.

Other issues have been addressed to the level considered appropriate given their reduced risk level.



ENVIRONMENTAL SAFEGUARDS AND IMPACTS

The components and features of the existing environment on and around the Project Site have been studied in detail and the Project designed to avoid or minimise impacts on that environment. A brief overview of the main components of the surrounding environment, the proposed safeguards and the assessed level of impact are set out below.

Groundwater

Groundwater modelling by RCA Australia (2007) predicts a modest localised level of groundwater drawdown as a consequence of the Project to be largely limited to the Project Site and immediate surrounds. Only two registered groundwater bores on non Project-related properties would suffer a reduction in saturated thickness of greater than 10%. Should this predicted drawdown have an impact on the availability of water to owners of these bores, the Proponent is committed to implementing contingent measures to reinstate the pre-mining availability of groundwater. The modelling also predicts a 75% recovery in groundwater levels beneath the Project Site within seven years of Project completion.

Dewatering requirements would be minimal as the modelling predicts maximum seepage rates into the open cut void would only exceed evaporative rates by 130kL/day. As such, it is expected the Belmont Coal Project would operate as a dry mine, similar to the other open cut mines of the local area.

The potential for contamination of groundwater is limited due to the restricted use of potentially polluting materials such as diesel fuel and relatively benign properties of the overburden and coarse and fine reject material that would be used to backfill the open cut.

While the predicted impact of the Project on groundwater levels, quality and availability

is anticipated to be minor, the Proponent would establish a comprehensive monitoring program on and surrounding the Project Site and prepare a Groundwater Contingency Plan in the event impacts greater than those predicted are experienced.

Flora

A total of eight vegetation communities were identified within and surrounding the Project Site and the transport route. One of these was considered a highly modified remnant of the Brigalow within the Brigalow Belt South, Nandewar and Darling Riverine Plains Bioregions Community, listed as an Endangered Ecological Community (EEC) under the NSW *Threatened Species and Conservation Act 1995* (TSC Act). The Northern Emplacement was designed to avoid disturbance to this community and a seven part test of significance determined there was likely to be no significant impact on this EEC.

No threatened flora species were identified within the Project Site or along the transport route. Similarly, no areas of critical habitat were identified on, nearby or associated with the Project Site or the transport route.

Approximately 36.3ha of remnant and regenerating native vegetation would be disturbed as a consequence of the Project. This would be adequately offset by the rehabilitation of 84ha of the final landform to native vegetation and long term conservation of an additional 51.3ha of remnant and regenerating native vegetation within and adjacent to the Project Site (see **Figure C**).

Fauna

A total of 103 fauna species were identified within the Project Site and surrounds, including 28 mammal, 6 frog, 10 reptile and 59 bird species. Eight of these species were introduced species, including farm animals.

Three threatened species, as listed under the TSC Act were identified on, or in the



vicinity of, the Project Site and transport route. A further four such species are considered to have the potential to occur or utilise resources within or in the vicinity of the Project Site and transport route.

The Project Site layout has been designed to minimise the clearing of native vegetation (which forms important remnant fauna habitat) and seven part tests of significance for the threatened species identified or considered to have the potential to occur within the Project Site. The seven part tests considered the proposed mitigation measures and offset strategy of the Proponent and it was concluded that the Project was unlikely to have any significant impact on the species considered.

Aboriginal Heritage

A field survey of the Project Site, transport route and surrounds conducted by ASR (2007) identified seven Aboriginal sites. Four of these were scarred trees and would not be disturbed by the Project. These sites would be fenced and Project personnel informed of their significance.

Three further sites, namely two artefact scatters and an isolated artefact, occur within the limit of open cut mining and therefore would be disturbed by the Project. In accordance with the recommendations of local Aboriginal stakeholders, it is proposed that the Aboriginal artefacts would be salvaged and transferred to the Cumbo Gunerah Keeping Place.

To prevent disturbance to sites that may be present but have not been identified, the Proponent would allow monitors from local Aboriginal representative groups on-site during topsoil stripping campaigns. Should additional Aboriginal sites be discovered, they would be managed through salvage and transfer to the Cumbo Gunerah Keeping Place, unless an alternative management procedure is agreed to by all stakeholders.

Noise

The sources of noise around the Project Site are typical of a rural environment, with contributions from farming activities, insect noise, livestock, wind through vegetation and vehicles on local roads. The criteria for noise generated by the Project have been established by Spectrum (2007) as:

- an $L_{Aeq(15min)}$ of 5dB(A) above the assumed 30dB(A) background level for mine operations, ie. 35dB(A);
- an $L_{Aeq(15min)}$ of 10dB(A) above the assumed 30dB(A) background levels during the site establishment phase, ie. 40dB(A);
- an L_{Amax} of 15dB(A) above the assumed 30dB(A) background level for night-time sleep disturbance, ie. 45dB(A);
- an $L_{Aeq(1hr)}$ of 60dB(A) for daytime and evening transportation activities and an $L_{Aeq(1hr)}$ of 55dB(A) for night time transportation activities; and
- $L_{eq, (15 \text{ hour}), \text{ day}}$ of 65dB(A), $L_{eq, (9 \text{ hour}), \text{ night}}$ of 60dB(A), and $L_{max (24 \text{ hour})}$ of 85dB(A) for rail noise on the Main Northern Railway.

No exceedances of the nominated criteria were predicted. Notwithstanding the predicted compliance with the noise criteria, noise controls including the positioning of soil stockpiles around the Project Site perimeter and scheduling of noisier construction activities for times when noise enhancement due to temperature inversions is unlikely, would further ensure all criteria are met.

The Proponent would monitor noise levels at the nearest non Project-related residences and maintain dialogue with surrounding residents to ensure that the impacts of noise generated by the Project are minimised.

Vibration

A conservative predictive blasting model was used to predict the ground vibration and airblast overpressure associated with the proposed blasting within the open cut



mine. ANZEC blast criteria would be satisfied throughout the entire life of the mine at all surrounding non-Project related residences. Compliance would be achieved through blast design and containment of levels of maximum instantaneous charge. Regular blast monitoring would validate the levels experienced at surrounding residences.

Monitoring of existing rail vibration levels by Spectrum (2007) has determined that currently, the nominated criteria of 2.83mm/s is easily met. Spectrum (2007) conclude that the additional train movements associated with the Project would not lead to an exceedance of this criterion.

Surface Water

Two surface water catchments exist within the Project Site, namely the Driggle Draggle Creek Catchment and the southern catchment, which drains into an unnamed ephemeral, often ill-defined, south to southwesterly flowing drainage line.

A consequence of the proposed open cut and overburden placement activities would be the temporary diversion of approximately 67ha of the southern catchment to the Driggle Draggle Creek catchment. This represents less than 5% of the southern catchment within which the Project Site. The existing area of the southern catchment would be largely reinstated in the final landform.

A Surface Water Management Plan (SWMP) has been prepared for the Project which includes the capture and use of sediment-laden (“dirty”) water, diversion of all but the maximum harvestable right of “clean” water away from the proposed activities, and ensuring only water that meets the relevant criteria of total suspended solids is discharged from the Project Site.

The Project would be unlikely to have a significant impact on either the quality or quantity of surface water available to

downstream landholders and the local environment.

This notwithstanding, the Proponent would undertake a monitoring program to regularly assess the quality of water captured within and discharged from the Project Site.

Visual Amenity

The Project Site is located in excess of 3km from the nearest non Project-related residence. While the distance from the Project Site would reduce impacts on visual amenity, the design of the final landform to replicate the existing topography and vegetation, progressive rehabilitation and placement of vegetated soil stockpiles around the northern and eastern perimeter of the Project Site would further reduce the visibility of the Project activities from these vantage points.

Therefore, while the changes in the landform on the Project Site would be noticeable, they represent only a minor and acceptable impact.

Transportation Aspects

The Project Site would be accessed via an existing coal transport route (for the Tarrawonga and Whitehaven Coal Mines) between the Kamilaroi Highway and Shannon Harbour Road, from where a purpose built section of road would be constructed within the road reserve of Shannon Harbour Road and across the Proponent owned properties of “Brentry” and “Stratford”.

Currently, coal haulage traffic on the existing coal transport route represents approximately 68% of all traffic and 82% of heavy traffic (based on traffic counts conducted by Gunnedah Shire Council in February – March 2007). Between 7:00am and 10:00pm Monday to Saturday, an average of 15.5 coal truck movements occur each hour, with a total of 19 movements per hour for all heavy vehicles. The introduction of traffic from the Belmont Coal Project would increase the



contribution of coal traffic to total heavy vehicle traffic to almost 90%. However, by commencing 24 hour transport operations, the increase in hourly truck movements (from all sources) would only increase by approximately 8 per hour (27 truck movements), with a maximum of 8 hourly movements between 10:00pm and 7:00am.

A conceptual intersection design has been prepared for the intersection of Shannon Harbour Road and Hoad Lane with a BAL type intersection provided for vehicles turning south from Shannon Harbour Road onto Hoad Lane and an AUR type intersection for vehicles turning east onto Shannon Harbour Road from Hoad Lane. The Proponent proposes to maintain its 90% contribution to the maintenance of roads incorporated into the coal transport route and would enforce a driver code of conduct similar to that in place at the Tarrawonga and Whitehaven Coal Mines. A further safety procedure that would be implemented would be the two-way radio contact between truck drivers and the local school bus with speeds reduced to 40km/hr on approach of the bus.

Based on the proposed intersection upgrade, ongoing management, proposed traffic safeguards and relatively minor increase in hourly traffic on an established coal haul route, the impact on the local road network, traffic levels and safety is considered to be minor and acceptable.

Soils and Land Capability

Four separate soil types were identified on the Project Site and along the transport route between the Project Site and Shannon Harbour Road. All were moderately to highly erosive but none required particular stripping or stockpiling procedures and none were precluded from use in the progressive rehabilitation of the Project Site.

The capability of land to be disturbed on the Project Site and transport route range from Class III (approximately 121ha) to Class VI (approximately 35ha). The agricultural

suitabilities of the Project Site and the transport route land reflect these land capabilities. While emphasis has been placed on reinstating areas of native vegetation in the final landform, comparable areas of higher class (Class III) land would be created in the final landform for future agricultural use.

Based on the appropriate management of the stripped, stockpiled and replaced soils and the reinstatement of a similar area of Class III lands on the Project Site to that disturbed, the impacts on soils and land capability are considered to be relatively minor.

Air Quality

The air quality assessment concluded that the adoption of air quality control measures including the sealing of the transport route and 0.8km of the mine access road, dust suppression, progressive rehabilitation and minimisation of clearing in advance of operational activities would ensure any increases to PM_{2.5}, PM₁₀, and dust deposition would satisfy Department of Environment and Climate Change (DECC) and other government agency environmental and health criteria. Based on previous research, the predicted dust levels would not have any significant impact on either local livestock or pasture.

Emissions of nitrogen dioxide and sulphur dioxide would also be well within the air quality goals.

Greenhouse gas emissions, including those emissions produced by the burning of the product coal, would be equivalent to 0.02% of the 1990 Australian greenhouse gas emission level and 0.014% of total baseline international emissions, and therefore represent a negligible increase in greenhouse gas emission levels.

Socio-economic Setting

The workforce required for the Project would be largely transferred from the Whitehaven Coal Mine as production from that operation decreases and eventually



ceases. The bulk of any additional employees (over and above those transferring from Whitehaven) would be sourced from the local area.

This would provide the maximum benefit to the local community through the provision of long term, well paid employment, with flow-on benefits to other ancillary and service businesses, while minimising pressure on local infrastructure that could occur if a large number of employees were to be sourced from outside the region.

PROJECT EVALUATION AND JUSTIFICATION

The Belmont Coal Project has been evaluated and justified principally through consideration of its potential impacts on the environment and potential benefits to the local and wider community.

An evaluation of the Project has been undertaken by firstly reassessing the risks posed to the local environment by Project-related activities following the implementation of all operational controls, safeguards and/or mitigation measures, and secondly through consideration of the principles of ecologically sustainable development. This evaluation has found that with the implementation of the proposed operational controls, safeguards and/or mitigation measures, the residual risk posed by each possible environmental incident or impact was reduced from its original level, and with limited exception, classified as either moderate or low, and therefore acceptable. Further, the design of the Project has addressed each of the sustainable development principles, and on balance, it is concluded that the Belmont Coal Project achieves a sustainable outcome for the local and wider environment.

The Belmont Coal Project and associated activities have been assessed in terms of a wide range of biophysical, social and economic issues. These impacts can be justified in terms of the positive economic and social benefits to Gunnedah, the local

government area, Narrabri Shire and NSW and Australia, the market opportunities for export quality coal and the principles of ecologically sustainable development.

CONCLUSION

The Project has, to the extent feasible, been designed to address the issues identified through consultation and risk analysis, as well as the principles of ecologically sustainable development. The Project provides for a continuation of an industry which currently, and would continue to, be significant in maintaining and expanding employment opportunities and boosting the local economies of Gunnedah and Gunnedah LGA. The post-mining landform would provide for the substantial re-establishment of native vegetation whilst retaining areas of land suitable for future agricultural use.

In light of the conclusions included throughout the *Environmental Assessment*, it is assessed that the Belmont Coal Project could be developed and operated in a manner that would satisfy all relevant statutory goals and criteria, environmental objectives and reasonable community expectations.

The *Environmental Assessment* has established that if the Belmont Coal Project proceeds, it would:

- (i) contribute to satisfying the demand for export quality coal;
- (ii) satisfy sustainable development principles;
- (iii) have a minimal and manageable impact on the biophysical environment;
- (iv) address the perceived social impacts; and
- (v) contribute to the continued economic activity of Gunnedah and the LGA.

