FINAL REPORT

Initial Advice Statement
Ellensfield Underground Coal Mine

Prepared for

Ellensfield Coal Management Pty Ltd

Level 22 Riverside Centre
123 Eagle St
Brisbane, 4001

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42626093

URS

Project Coordinator:

Rob Storrs
Senior Environmental Scientist

Project Manager:

Chris Pigott
Senior Principal

URS Australia Pty Ltd

Level 14, 240 Queen Street
Brisbane, QLD 4000
GPO Box 302, QLD 4001
Australia
Tel: 61 7 3243 2111
Fax: 61 7 3243 2199

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Abbreviations

AHD	Australian Height Datum
BBKY#3	Barada Barna Kabalbara & Yetimarla People #3
BCM	Broadlea Coal Mine
CHMP	Cultural Heritage Management Plan
CHPP	Coal Handling and Preparation Plant
CPPC	Coal Preparation Plant Capacity
DBTC	Dalrymple Bay Coal Terminal
DME	Department of Mines and Energy
DNRW	Department Natural Resources and Water
ECM	Ellensfield Coal Management Pty Ltd
ECMP	Ellensfield Coal Mine Project
EIS	Environmental Impact Study
EMPlan	Environmental Management Plan
EMS	Environmental Management System
EPA	Environmental Protection Agency
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999*
EPC	Exploration Permit for Coal
ERA	Environmentally Relevant Activities
FY	Financial Year
HSEC	Health Safety Environment and Community
IAS	Initial Advice Statement
LOM	Life of Mine
MDL	Mineral Development Licence
MDLA	Mineral Development Licence under Application
ML	Mining Lease
MIA	Mining Infrastructure Area
Mtpa	Million tonnes per annum
NC(W)R	*Nature Conservation (Wildlife) Regulation 1994*
NNTT	National Native Title Tribunal
ROM	Run of Mine
SHMS	Safety and Health Management System
ToR	Terms of Reference
TSF	Tailings Storage Facility
UG	Underground

Section 1 Introduction

1.1 Background

The Ellensfield Coal Mine Project (ECMP) is the development of a state-of-the-art underground longwall mine in the Bowen Basin coal field in Central Queensland. Targeting the thick Leichardt seam of the Rangals Coal Measures, the mine is forecast to produce up to 4.7 Mtpa of export coking and thermal coal from 5.5 Mtpa ROM with a project life of 20 to 30 years.

1.2 The Proponent

The Ellensfield Project is managed by Ellensfield Coal Management Pty Ltd (ECM) which is a wholly-owned subsidiary of CVRD Australia Pty Ltd.

1.3 Purpose and Scope of the Initial Advice Statement

ECM is currently undertaking detailed feasibility studies into the establishment of the mine and associated infrastructure.

This Initial Advice Statement (IAS) for the project has been submitted to the Chief Executive of the Queensland Environmental Protection Agency (EPA) in accordance with Section 41 of the *Environmental Protection Act 1994* (EP Act).

This IAS has been prepared after consultation with the EPA. It has been prepared to support an application for "Approval to Prepare a Voluntary Environmental Impact Statement (EIS)". This IAS addresses the development of the new underground operation.

Section 2 Project Description

2.1 Project Site

ECMP is located within the northern region of the Bowen Basin (refer Figure 1), approximately 175 km west of the major regional coastal city of Mackay. The site lies on the northern side of the Peak Downs Highway approximately midway between the local towns of Coppabella and Moranbah (refer Figure 2). Site access is gained via the Carborough Downs and Broadlea turnoff from the Peak Downs Highway and then by travelling north along the Broadlea and Ellensfield mine access road. Mines in the near vicinity include the Burton Downs open cut to the north west, the Broadlea open cut to the south west, the South Walker Creek open cut to the east, and the Carborough Downs underground to the south.

The proposed project will occur over a total area of approximately 3,430 ha, the majority of which will involve underground operations. The area of surface disturbance associated the underground activities is anticipated to be approximately 700 ha.

The ECMP area is approximately 7 km east to west (at the widest point) and 7 km north to south. The area is situated at approximately 250 m to 350 m AHD and local relief is up to 40 m. The topography of the project area consists of low-lying gently sloping plains of generally less than 2% gradient, with steep-sided, rocky ridgelines, approximately 20 m to 40 m in height located in the far northern and south-eastern margins of the area, and smaller rocky knolls being located throughout the central parts of the project area.

The majority of the ECMP area is located within the catchment of Spade Creek. Spade Creek forms a wide, multi-channelled, high-flow corridor that drains the central and southern parts of the project area. Several smaller tributaries also branch off Spade Creek to the north and south. Bullock Creek, and a minor tributary, drain the northern and north-western sections of the project area. Both Spade Creek and Bullock Creek discharge into Teviot Brook, which then flows into the Isaac River to the south of the project area. All watercourses within the project area are ephemeral.

2.2 The Project

The intent of ECMP is to develop an underground coal mine utilising a high productivity longwall system to extract the Leichardt coal seam. The project will consist of three mining leases (ML East, ML West, and ML Wedge), which overlay EPC's 667, 722, 951 and 1036 as illustrated in Figure 2. The preferred option for the project comprises of the following components. The preferred locations of these components are shown on Figure 3.

a) A small open cut mine on ML West which will serve as the access to the underground mine.

b) An extension of the open cut mine on ML West.

c) The storage of out-of-pit spoil on ML West.

d) An underground coal mine on ML East.

e) A ROM stockpile located on ML West for the temporary storage of small amounts of ROM coal (emergency stockpile).

f) A large ROM stockpile located on ML East with live reclaim capability for the transient storage of ROM coal up to approximately 150,000 t live capacity and with the ability to expand the stockpile capacity up to approximately 300,000 t by dozer push (stockpile capacities subject to detailed simulation studies).

g) A coal washing plant located on ML East with the capacity to process up to 5.5 Mtpa of feed coal and deliver a two product (thermal and coking coal). The location of the coal washing plant is subject to further studies.

h) A product coal handling facility (product stockpiles) with the capability of handling two product types (thermal and coking) each with live capacity up to 200,000 t and connected to a truck loading bin (stockpile capacities subject to detailed simulation studies).

i) A rail loading facility consisting of loading bin and truck discharge system.

j) Development of a haul road to link the truck loading bin to the rail loadout bin.

k) Development of a new rail loop to the new rail loadout bin.

l) Development of a rejects storage facility.

m) Development of an access haul road, administration and operations buildings, and associated services.

n) Development of a site based power generation system (gas turbines).

The final layout will depend on the outcome of discussions with Peabody Resources regarding the connection between ML East and ML West. The Burton Mine haul road (Peabody Energy Australia Coal Pty Ltd) passes between ML West and ML East. The intent is that the ECMP open cut excavation be located on the western side of this haul road and the underground workings on the eastern side. The underground (UG) mine access headings will extend under the haul road from the open cut on the western side to the UG workings on the eastern side at an approximate depth of 50 m. Additionally a surface crossing of the Burton Mine haul road will be constructed (nominally a tunnel under the haul road) which will provide a transport corridor for personnel, equipment, services, coal conveyor, etc between the two sites.

Ongoing studies may determine the proposed open cut access method to the UG mine as being either uneconomic, impractical or inefficient and in this circumstance the project will consider accessing the UG from twin surface drifts located on ML East - refer Figure 2.

2.3 Proposed Activities

2.3.1 Open Cut Mining

The open cut mine component of the project will be located solely on ML West. The open cut excavation will serve as access to the underground mine via three highwall portals located at the eastern end of the void. Dependant upon further detailed exploration and mining studies, the open cut will be extended towards the western boundary of ML West extracting the shallow coal between its subcrop and the southern boundary of ML West. The open cut operation will be of a limited life (approximately 2 years) and will provide coal during the initial years of the project prior to the commencement of longwall operations. The extended open cut excavation will also provide emergency mine water storage facilities (under high rainfall events) and an area for initial tailings disposal. The proposed open cut mine layout is shown in Figure 3.

The open cut mine will be located on the western side of the Burton Mine haul road with all other facilities on the eastern side. Consequently an access corridor will be developed linking the two sites by way of road tunnel or overpass facility, subject to agreement with the tenement holders subject to agreement.

Spoil (overburden and interburden) from the open cut operations will initially be stockpiled in adjacent spoil piles with the likely location being on the northern side of the proposed open cut excavation as

shown on Figure 3. The small open cut pit will be terrace mined, resulting in the majority of the spoil remaining within the mine void. The excavation will be rehabilitated leaving a small final void and a contoured and revegetated residual spoil stockpile.

Coal mined from the open cut will be temporarily stockpiled located on ML West prior to being hauled to the large ROM stockpile on ML East or directly to the future coal washing facility, rail loadout or other coal washing facility.

2.3.2 Underground Mining

The underground mine will be formed by developing a series of tunnels, or roadways, in the coal seam which serve to "block out" large blocks of coal (termed "panels"). Each panel is then extracted using high productivity longwall equipment. The roadways are either termed "main headings" or "gateroads".

The mine will comprise a series of longwall panels flanked by two heading gateroads and serviced by a set of main heading roadways which will provide personnel access, coal clearance and ventilation to the operation. Longwall panels will be sequentially developed on the eastern flank of the main headings, extending out towards the eastern lease boundary. The proposed mine layout is shown in Figure 3.

Main headings provide access from the surface and also provide mine services such as ventilation, coal clearance and transport to each of the panels. A sufficient number of roadways is required in the main headings to efficiently provide these services with the number typically ranging between five and seven for Australian mines. Seven roadways are currently proposed for the Ellensfield mine however this is subject to further study.

Gateroads provide services to each longwall panel and typically two roadways (headings) are sufficient, although three roadways may be used where high gas emissions are expected, or the panel length exceeds approximately 4.5 km. Initially two heading gateroads are proposed for Ellensfield with three heading gateroads being introduced in the latter years of mine life.

All roadways will be developed using the conventional method of development utilising a continuous miner, and shuttle cars. The shuttle cars convey the cut coal (in 11 tonne increments) to the panel conveyor which conveys the coal out of the mine to the surface ROM stockpile.

The longwall system consists of a series of hydraulically operated roof supports (shields) which are positioned in a line across the width of the panel (face) and afford roof support to the immediate working face area. An armoured face conveyor (AFC) is positioned underneath the shields which acts as both a track for the shearer to run on and a high capacity coal clearance system. An electric shearer (coal cutting machine) traverses up and down the face taking cuts of coal in one metre increments. The cut coal falls onto the AFC and is then transported onto the panel conveyor system and then out of the mine onto the ROM stockpile. The roof supports have the ability to incrementally move forward one metre at a time hence pushing the AFC forward following each cut and allowing the roof to fall immediately behind the supports. The area behind the supports is termed the goaf and it is this controlled collapse of roof that provides stress relief to the working area and causes subsidence of the surface.

Access to the underground mine is planned via three portal entries from the eastern end of the open cut mine on ML West (subject to detailed studies and approvals). Alternatively the underground mine will be accessed via twin drifts located within ML East.

2.3.3 Coal Processing and Handling Facilities

There will be a coal handling and preperation plant (CHPP) constructed within the ML East. The final location will be subject to the feasibility study. The coal handling system will transport coal from the underground, through a CHPP onto product stockpiles and finally into a discharge point where the product coal will be transported from site by either rail or truck. The CHPP will be scheduled to be completed before the longwall is commissioned. Any mine production before this time is proposed to be transported off site to a CHPP by truck.

Section 2 Project Description

The preferred option will have ROM coal delivered from the UG mine to the surface via a ramp conveyor and then transferred onto a surface conveyor system that will discharge onto a ROM stockpile located in the eastern mining lease. Coal from the live ROM stockpile will be fed on demand directly into the coal washing plant by conveyor.

The coal washing plant will typically comprise two modules, each of approximately 400 to 600 tph capacity and comprising crushing and screening facilities, dense medium cyclones, spirals or teeter bed separators, flotation cells and dewatering facilities. Two products will be produced, a low ash coking fraction and a high ash thermal fraction. Coarse rejects and fine tailings will be the by-products of the CHPP.

An overall yield of 85% is predicted of which 65% is expected to be coking coal and 35% thermal coal. The rejects (approximately 15%) will be initially placed within the open cut excavation and thereafter in designated emplacement areas adjacent to the CHPP area. The final design and location of these areas will be subject to further study through the feasibility process.

From the coal washing plant, the product coal will be delivered by conveyor onto one of two product stockpiles (coking or thermal) where it will be temporarily stored prior to dispatch. Assuming the plant is located in the north western corner of ML East, the product coal will be reclaimed on demand and conveyed a short distance to a truck loading facility from where it will be trucked to the rail loadout facility.

2.3.4 Transport Activities

Access to the mine will be via an extension to the existing access road servicing the Broadlea and Carborough Downs mine to the south. A purpose-built access road will be constructed for this purpose.

Coal mined in the initial open cut stages of the project (2009 to 2011) will be transported by truck off site via an access road to be toll washed at a CHPP off site. This will be when production levels are approximately 0.5 mtpa.

Construction of a CHPP and the dedicated rail loop will be commissioned before the commencement of production from the underground longwall.

Coal will transported from site by rail from the dedicated rail loop to either Dalrymple Bay Coal Terminal (DBCT) or Abbott Point. A secondary option of transport via a private road on dedicated road trains to an alternate rail loop will also be investigated.

2.3.5 Support Activities

The majority of support activities on site will take place either in the open cut mining area or the mine infrastructure area (MIA) for the underground. The support activities are anticipated to include the infrastructure below.

- Mine access roads
- Mine power supply lines
- Raw water pipelines (incoming)
- Relocatable goaf drainage plants and surface pipelines
- Mine services boreholes
- Mine dewatering boreholes
- Mine water storage dams
- Gas turbine generating plant (for conversion of seam gas to electricity)
- Mine rejects disposal area.

2.3.6 Power

The most likely option for power supply to the site is to connect into the existing Ergon infrastructure which currently transverses the lease. The anticipated power requirements (approximately 40 KVa) would be sourced from this location. Discussions with Ergon have commenced to identify final supply options.

The site is currently overlain by ATP 364 held by AGL (99%) and Arrow Energy (1%). An arrangement for the use of coal seam methane for power generation on site will be considered.

2.3.7 Water

Water allocation is available from both the Eungella pipeline (270 ML per annum) and the Broadlea borefield (400 ML annually) and will be used for industrial water in a shared arrangement with Broadlea Coal Mine (BCM). A review for further water sources will be conducted as part of the feasibility study. Potable water requirements will be obtained through a potable water treatment plant at the mining infrastructure area (MIA).

The supply system will keep separate the storage of potable and industrial water. The stored water will be pumped direct from dams or tanks to its final use via the appropriate reticulation system.

Water management on site will aim to separate clean water from contaminated sources and, through water recycling, to maximise the reuse of water to limit the demand on external sources and the need to discharge from the mine. The CHPP will be designed to separate water from the rejects (and produce dry rejects) to optimise the recovery of water required in the process.

As it is not physically possible to prevent discharges of water from the mine under extreme rainfall events, controlled discharges may be necessary from time to time to maximise overall control.

2.3.8 Stream Diversions/Subsidence

The streams located within the project area are ephemeral in nature. Modification of these existing watercourses may be required and will be completed subject to environmental studies during the feasibility study.

Subsidence will be expected to occur across the underground mine area which will potentially have some impact on the surface streams. This will be managed through a subsidence management plan to be developed during the feasibility study.

2.3.9 Tailings

Tailings from the washing of the initial production coal will be disposed of either under the management plans of the operator of the CHPP where the coal is toll washed (for coal taken from site) or within the final voids of the Ellensfield open cut mine. Once the Ellensfield CHPP is commissioned and the Ellensfield open cut is rehabilitated, tailings will be stored in a tailings area within the mine lease area. The design and location of the tailing area will be subject to a separate study and engineering design during the feasibility study and will allow for the storage of tailings for the life of mine.

2.3.10 Port and Rail

The mine will produce export coal which will be sent to end users via rail and port. The feasibility study will consider the alternate ports of DBCT and Abbott Point. While allocation is reserved for this project from DBCT from June 2009, the successful development of the "northern missing link" and upgrade of Abbott Point would provide a favourable alternative.

To provide a preferred option, a full transport option study will be undertaken to consider alternate routes to the mine area for rail loops. A second option for truck transport of product coal to a remote rail loop will also be considered.

2.4 Subsidence

Longwall mining results in the overlying strata settling behind the roof supports resulting in progressive subsidence of the surface topography. The nature, geometry and extent of subsidence is influenced by the depth and nature of the overlying strata, and the thickness of the coal seam extracted.

Subsidence from longwall mining for the ECMP will be in the order of 2.5 m to 2.7 m (to be confirmed through the subsidence study as part of the EIS) for the planned panel width of 300m and extraction height of 4.5 m. Based on monitoring of other mines in the region, full subsidence would be progressively achieved approximately 4 to 6 weeks after the active longwall face has retreated beneath a point on the surface.

Subsidence on the ground surface above a longwall panel creates a broad and very shallow sinusoidal shaped landform. The mining of successive longwall blocks can create a horizontally exaggerated 'corrugated iron effect'. However, in most cases, troughs formed by subsidence are very subtle and not easily distinguishable from the surrounding land. Subsided areas within the ECMP area would generally be difficult to detect visually because the micro-topography of the subsided areas would be consistent with the surrounding un-subsided topography, i.e. gently rolling country with low relief. Nevertheless detailed studies undertaken in conjunction with the EIS will address all relevant subsidence management issues.

2.5 Environmentally Relevant Activities

As part of the proposed mine activities the following Level 1 Environmentally Relevant Activities (ERAs) are expected to be required under the provision of an environmental authority pursuant to the *Environmental Protection Act 1994*.

1. ERA 11: Petroleum Product Storage
2. ERA 15: Sewage Treatment
3. ERA 28: Motor Vehicle Workshop
4. ERA 74: Stockpiling, loading or Unloading goods in bulk
5. ERA 84(b): Regulated Waste Storage
6. ERA 75(b)(i): Regulated Waste Disposal (Heavy Vehicle Tyres)
7. ERA 7: Chemical Storage
8. ERA 18: Power Station
9. ERA 14 (c): Mining

2.6 Land Tenure

2.6.1 Land Ownership

Table 1: Details of property affected by EPC722 (excluding ML and MDL areas).

Description	Land Tenure Type	Current Usage	Owners Name
L12 on SP147333	Leased	Grazing	Wotonga Pastoral Pty Ltd

Section 2 Project Description

Table 2: Details of property affected by EPC951 (excluding ML and MDL areas).

Description	Land Tenure Type	Current Usage	Owners Name
L12 on SP147333	Leased	Grazing	Wotonga Pastoral Pty Ltd

Table 3: Details of property affected by EPC1036 (excluding ML and MDL areas).

Description	Land Tenure Type	Current Usage	Owners Name
L3 on GV54	Freehold	Grazing	Allan G.H. Williams
L12 on SP147333	Leased	Grazing	Wotonga Pastoral Pty Ltd

Table 4: Details of property affected by EPC667 (excluding ML and MDL areas).

Description	Land Tenure Type	Current Usage	Owners Name
L4 on CP903281	State Lease	Grazing and Mining	AL Atkinson

2.6.2 Mining Tenure

The proposed Mining Lease Application area lies within four exploration tenements, namely EPC 722, EPC667, EPC951 and EPC1036. These are held by a number of companies which are all owned 100% by CVRD Australia (refer Table 5). Work is underway to consolidate these holdings.

Table 5: Exploration Tenement Ownership

Tenement	Holding Company	Owner
EPC667	CVRD Australia (CQ) Pty Ltd (60%) Nebo Central Coal Pty Ltd (40%)	CVRD Australia Pty Ltd
EPC722	CVRD Australia (CQ) Pty Ltd (60%) Nebo Central Coal Pty Ltd (40%)	CVRD Australia Pty Ltd
EPC951	Swanbank Resources Pty Ltd (100%)	CVRD Australia Pty Ltd
EPC1036	Swanbank Resources Pty Ltd (100%)	CVRD Australia Pty Ltd

2.6.3 Tenement Status and Native Title

EPC667 was granted from 31 May 2000 to 31 May 2008.

EPC951 was granted from 2 August 2006 to 2 August 2009.

EPC1036 was granted from 14 February 2007 to 13 February 2010.

EPC722 was granted from 28 September 2004 to 27 September 2006. This exploration permit is currently being renewed. The Queensland Department of Mines and Energy (DME) is proposing to renew it from 28 Sep 2006 to 27 Sep 2011 subject to the outcome of the native title process as decided by National Native Title Tribunal (NNTT).

Native title rights are extinguished over all these tenement as it is a 'pre-existing rights based act' under the *Native Title Act 1993*.

A cultural heritage claim exist over these tenements by the traditional owners Barada Barna Kabalbara and Yetimarla People #3 (BBKY#3) (QC01/013). A cultural heritage management plan (CHMP) covering these tenements will be negotiated with the BBKY#3 traditional owners during the feasibility study.

2.7 Land Use

The proposed project area is currently used for cattle grazing. The areas adjoining the project site are used for cattle grazing and coal mining. The grazing is to the east and south of the site on partially cleared land of native and buffel grass pastures. Coal mining is undertaken to the north and west of the site (Burton Coal open cut mine), refer to Figure 2.

Section 3 Community Consultation

3.1 Community Consultation

ECMP is committed to undertaking active and transparent community consultation with all stakeholders. By conducting an effective community consultation program, the requirements of both the Ellensfield Coal, and CVRD Health Safety Environment and Community (HSEC) policies and management standards will be met.

3.1.1 Community Consultation Program

The project will include an extensive and comprehensive community consultation program. The program will include consultation with all affected and interested persons as well as any other stakeholders identified during the program. The consultation will be conducted throughout the EIS process and formal avenues for stakeholder participation will be provided.

The primary objectives of the community consultation program are to:

- establish transparent communications with all stakeholders;
- identify stakeholder issues and concerns with the project;
- address all stakeholder issues through the EIS process and communications;
- provide feedback to stakeholders with regard to their issues and concerns, and the actions taken to address them; and
- facilitate stakeholder understanding of the project.

The strategies to be utilised in the community consultation program are outlined below.

Establishment of a Community Consultation Project Team

A community consultation project team has been established. This team comprises ECM personnel as well as specialist consultants (when required) to assist ECM by facilitating the planning and implementation of the consultation program. A comprehensive consultation database will be established. This database will document interested and affected stakeholders as identified in Section 3.2 of this IAS and will provide details on when and where these stakeholders were consulted.

The consultation program will be conducted using a number of different methods, as described in the following sections.

Meetings with Community

Community group meetings will be held at the request or initiative of ECM, the EIS project team, or community groups or individuals. The purpose of community meetings will be to provide information on the project, the EIS process, and to obtain feedback on community issues and concerns.

"Face to Face" Stakeholder Meetings

A series of stakeholder "face to face" meetings will be held throughout this consultation process. These may include both:

- Initial, informal briefings to introduce stakeholders to the project; and
- Formal presentations including slide presentations and discussion/feedback sessions.

Section 3 Community Consultation

Advertisements

Advertisements will be run in the local newspapers to provide information and updates not only on the project but also on consultation activities and information.

Newsletters

Newsletters and feedback forms will be distributed to stakeholders to provide:

- an overview of the project;
- information on the progression of the project and legislative processes;
- advice on the consultation program and activities;
- study team contact information; and
- invitations for comments.

Meetings with Referral Agencies

Meetings will be held with key referral agency representatives at specific stages of the project. The meetings may be initiated by the proponent, EIS study team or the referral agencies.

Public Displays

A public display will be setup in Nebo with the release of the EIS for public review. This display will provide stakeholders with information on the project, the EIS process, consultation activities, and the key issues identified in the EIS.

Consultation after EIS

Community consultation will be on-going, not only during the EIS process, but for the life of the project. Thus there will be ongoing consultation, monitoring, reporting and opportunities for the community to raise issues and comments.

3.1.2 EIS Consultation Program

During the EIS process there are specific times when consultation activities are to occur. These are described below.

Draft Terms of Reference

The draft Terms of Reference (ToR) will be developed to indicate the scope of the EIS. A stakeholder consultation process associated with the ToR will be undertaken with the main aims being to:

- meet the requirements of the Environmental Protection Act 1994;
- inform the stakeholders that the draft ToR have been lodged with the EPA and to provide avenues for stakeholder comments; and
- obtain input from the referral agencies.

Public Display of the EIS

- The EIS will be publicly displayed for a period of thirty business days to enable the public to make comment on the project.

Section 4 Environmental Values and Potential Impacts

4.1 Geology / Land Disturbance

The mine site is located on the eastern limb of the Bowen Basin, a 600 km long linear coal basin of Permian age that stretches from Collinsville in the north to Rolleston in the south.

Open cut mining disturbs the land surface, drainage patterns and geological sequences. Slope gradients on post-mine land will be greater than that prior to mining. This is a contributing factor to a change from the pre-mining land capability due to increased susceptibility to erosion and reduced infiltration capacity.

Underground mining has the potential to cause surface subsidence. Potential consequences of subsidence include:

- impacts on watercourses above the extraction area;
- accelerated erosion;
- impacts on Aboriginal cultural heritage sites;
- impacts on ecology; and
- impacts on infrastructure.

These impacts will be assessed in the EIS and appropriate management strategies developed.

4.2 Ecology

4.2.1 Flora

With the exception of riparian corridors, and the narrower valleys in the south east of the project area, the majority of the low slopes and plains have been extensively cleared of woody vegetation for grazing. Pasture species such as buffel grass (*Cenchrus ciliaris*) now dominate these lower areas, with minor areas of remnant eucalypt woodland and patches of low scrubby regrowth spread throughout the project area. Areas of regrowth brigalow (*Acacia harpophylla*) are observed in association with some minor areas of dark clay and along some lower plains adjacent to creeks.

Most of the rocky, steep-sided knolls and ridgelines through out the project area have retained a sparse remnant vegetation cover. These vegetation communities are dominated by narrow-leafed ironbark (*Eucalyptus crebra)* and lancewood (*Acacia shirleyi*) with native mid-storey and groundcover species.

Riparian vegetation corridors are dominated by an open poplar box (*Eucalyptus populnea*) woodland, with native grass groundcover species. A substantial area of this poplar box woodland also remains in the far south-east of the underground mining area.

Several infestations of parthenium weed (*Parthenium hysterophorus*) were observed in the project area, especially in association with the darker clay soils.

Recent (2007) vegetation surveys undertaken by AustralAsian Resource Consultants (AARC 2007) identified 132 flora species in the project area, none of which are currently listed as a significant species under either the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) or Nature Conservation (Wildlife) Regulation 1994 (NC(W)R 1994).

Seven vegetation communities were identified on the project site during the AARC field survey. Associations within the communities reflect different vegetation structures and compositions which occur on different geophysical locations. The seven vegetation communities are summarised in Table 8.

Table 8: Vegetation Communities in the Project Area

Vegetation Community	Regional Ecosystem equivalents	EPBC Status	QEPA Biodiversity Status
Forest Blue Gum Riparian Woodland	11.3.25	Not Listed	Of Concern
Brigalow Woodland	11.9.5	Endangered	Endangered
Mixed Eucalypt / Lancewood Woodland	11.9.5	Endangered	Endangered
	11.7.2	Not Listed	No concern at present
Dawson Gum / Brigalow co-dominant Woodland	11.9.1	Endangered	Endangered
Grassland community dominated by Buffel Grass	Cleared	-	-
Woodland community comprised of Brigalow, Poplar Box, White Flowered Bauhinia and Whitewood as well as shrubs including Holly Bush (Alectryon divirsifolius)	Disturbed	-	-

Changes may occur to vegetation communities in the project area as a result of the project due to:

- clearing;
- changes in weed species abundance;
- changes to the structure and species of vegetation on rehabilitated land;
- possible degradation of water quality in creeks downstream of the project; and/or
- the introduction of permanent water bodies (i.e. retention dams and final voids).

The effect of any such changes and relevant management strategies will be addressed in the EIS.

Due to the potential for Endangered listing of RE 11.9.5 (present in both the Brigalow Woodland and the Mixed Eucalypt / Lancewood Woodland) and Endangered listing of RE 11.9.1 under the EPBC Act, and the Of Concern listing of RE 11.3.25 under the Vegetation Management Act, a referral is being made to the Commonwealth Department of Environment and Water Resources for a determination of whether the Project is a Controlled Action under the EPBC Act.

4.2.2 Fauna

A fauna assessment conducted in 2007 by AARC on the project area (AARC 2007), identified 78 vertebrate fauna species comprising of 55 birds, 7 mammals (3 introduced), 11 reptiles, 4 amphibians (1 introduced) and 1 fish. Several species for the site have been identified as holding conservation significance under either the EPBC Act or the NC(W)R 1994. These are described below.

The southern Squatter Pigeon (*Geophaps scripta scripta*) was the only bird species of conservation significance recorded during the survey, with two individuals observed within non-remnant grassland habitat. This species is listed as Vulnerable under both the EPBC Act and Schedule 3 of the NCWR.

The Little Pied Bat (*Chalinolobus picatus*) (listed as Rare under Schedule 4 of the NCWR) returned a 'possible' recording on the ANABAT detector within riparian vegetation on the project site. This species, as well as Troughton's Sheathtail Bat (*Taphozous troughtoni*) (listed as Endangered under Schedule 2 of

the NCWR) have been positively identified at surrounding properties. It is considered likely that both species would access areas of the project site.

Four Migratory species listed under the EPBC Act were observed on the project site. These included the Brown Falcon; Black Falcon; Nankeen Kestrel; and the Wedge-tailed Eagle. The distribution of these species is widespread throughout eastern Queensland, and the local populations on the project site are unlikely to constitute an 'ecologically significant proportion' of the total population of the species. Furthermore, the project site is not at the limit of these species' range, nor are these species considered to be declining within the region. Therefore, it is unlikely the project will have a significant impact on the regional populations of these species.

Marine species listed under the EPBC Act observed on the project site by AARC included the Nankeen Kestrel; Richards Pipit (*Anthus cervinus*); Spotted Nighjar (*Eurostopodus argus*); Forest Kingfisher (*Todiramphus macleayii*); Dollarbird (*Eurystomus orientalis*); Magpie-lark (*Grallina cyanoleuca*); Black-faced Cuckoo-shrike (*Coracina novaehollandiae*); Cicardabird (*Coracina tenuirostris*); and Tree Martin (*Hirundo nigricans*). The distribution of these species is widespread throughout eastern Queensland, and the local populations on the project site are unlikely to constitute an 'ecologically significant proportion' of the total population of the species. Furthermore, the project site is not at the limit of these species' range, nor are these species considered to be declining within the region. Therefore, it is unlikely the project will have a significant impact on the regional populations of these species.

Changes may occur to fauna habitats in the project area due to:

- loss of habitat through clearing;
- changes in weed species abundance;
- changes to the structure and species of vegetation on rehabilitated land;
- possible degradation of water quality in creeks downstream of the project; and/or
- the introduction of permanent water bodies (i.e. retention dams and final voids).

The effect of any such changes and relevant management strategies will be addressed in the EIS.

4.3 Surface Water

The majority of the ECMP area is located within the catchment of Spade Creek. Spade Creek forms a wide, multi-channelled, high-flow corridor that drains the central and southern parts of the project area. Several smaller tributaries also branch off Spade Creek to the north and south. Bullock Creek, and a minor tributary, drain the northern and north western sections of the project area. Both Spade Creek and Bullock Creek discharge into Teviot Brook, which then flows into the Isaac River to the south of the project area. All watercourses within the project area are ephemeral.

The main use of water in streams downstream from the ECMP is to water livestock. The natural systems associated with the streams have generally been altered as a result of land clearing, agricultural use, mining activities and the regulation of stream flows not related to mining activity.

Potential impacts from the project on surface water quality may occur from:

- suspended sediment and solutes from spoil, coal rejects, haul roads and general mine workings;
- hydrocarbons, detergents, organic solvents and other contaminants;
- fuel or oil spills from storages, supply lines or vehicles;
- overflows from mine site storages as a result of flooding;
- subsidence of the surface;

- effluent from sewerage or ablution facilities; and/or
- contamination from waste streams.

The impacts will be assessed in the EIS and relevant management strategies developed.

4.4 Groundwater

Groundwater studies have not yet been undertaken on the mining lease area and they will be carried out as part of the EIS and mining development plan.

Overall, it is expected that little impact to regional groundwater is likely from the project, although the project has the potential to impact on local alluvial aquifers (if occurring).

4.5 Noise and Air Quality

The project is in a rural setting and therefore is generally remote from noise or dust sensitive receptors.

Mining by its very nature creates noise through use of heavy equipment, processing of coal, and for open cuts blasting of the overburden and coal. The local area with the potential to be impacted from noise or vibration is very sparsely settled. The main noise and vibration sources are expected to include:

- Overburden blasting and removal in the initial open cut stages of the project;
- Mine ventilation fans;
- Coal preparation plant operations;
- Rail traffic;
- Coal haulage and loading of trains; and
- Traffic flow in and around the mine-site vicinity.

Air pollution from operations is expected to be confined to rising dust. The major dust sources include the operation of coal preparation, blasting and operation of large mobile equipment. Dust mitigation measures include watering of exposed, unsealed areas. The mitigation measures should be sufficiently effective so as not to contribute to cumulative dust generation levels.

There is also the potential for limited air pollution from ventilation fans.

Gas turbine emissions are possible.

4.6 Waste Management

The mine will generate commercial and industrial wastes commensurate with a coal mine. Apart from tailings, rejects and overburden, waste streams generated in the course of mine operations include:

- general waste suitable for disposal to landfill;
- reusable or recyclable waste such as paper, wood palettes, scrap metal, batteries and oils; and
- regulated waste such as redundant chemicals, engine coolant, blackjack gear lubricant, solvents, contaminated soil and tyres.

The potential for impact from waste streams is considered low. Minimal disposal will occur on site and all required programs/controls will be in place and conducted by professional contractors. The adoption of the principles of the waste management hierarchy will minimises the inappropriate loss of resources and ensures appropriate disposal of wastes.

Section 4 Environmental Values and Potential Impacts

4.7 Cultural Heritage

The area surrounding the mine has a history of both Aboriginal and European activity. These activities form part of the local history, some of which may be affected by mining operations. The mine and the surrounding area have been subjected to extensive land clearing and agricultural development. There is evidence of some cultural significance to the indigenous population of the area. The area of the mine and its surrounds has a history that is linked to the original exploration, opening up for agricultural uses, and the development of coal mines. This history is well documented and respected in the area.

The project has the potential to impact cultural heritage due to the land area to be disturbed during the construction and operational phases of the project. ECM has undergone a planned approach with BBKY People #3 to conduct surveys of the exploration and planned mining areas.

Cultural heritage surveys have been conducted in two stages. Initial exploration undertook surveys on a site by site basis according to planned exploration activities and site infrastructure plans. The second phase of exploration activities conducted an area and major site clearance in a concentrated survey. A diverse range of cultural heritage artifacts, artifact scatters, scarred trees and cultural plants were located on the undisturbed proposed mining lease area, generally associated with Spade Creek.

It is planned to negotiate and register a CHMP with BBKY People #3 to ensure effective management of cultural heritage on site for the life of the mine.

4.8 Socio-economics

The mining and transport of coal from the mine will generate a significant flow-on or multiplier effect to the economy regionally, statewide and nationwide. This is by way of wealth generated and employment in other sectors of the economy.

The project will benefit the local and regional areas with increased employment and the ongoing requirement for services and support. This will have an impact on the region and state in relation to water supply, electricity supply, labour supply, infrastructure, accommodation and road traffic.

The project operations will require approximately 220-240 persons (staff, operations and maintenance employees). There is currently a shortage of personnel available to fill these roles. ECM will endeavour to source labour from the local community. ECM will encourage employee diversity recognising the balance of talent, skill and experience required. The feasibility study will consider the accommodation of this staff during the operation of the mine.

There will be an impact on local community services during both the construction and operational phase of the project. With the advent of 12 hour shifts, it is becoming common for employees to house their families outside of the area and to commute as they are rostered on/off, thus reducing the demand on local community services.

The construction workforce is expected to be approximately 250-300 persons utilised over a 2 year period. They are anticipated to be accommodated at a purpose built mine camp which will subsequently be used by the operational workforce.

4.9 Health and Safety

ECM will demonstrate a leadership commitment to the safety and health of all ECM employees, contractors, and visitors. In line with this commitment, ECM will develop a common system and processes that will deliver planned business performance.

ECM is committed to the continual implementation and development of a positive culture where they are responsible and accountable for actions at all levels of the business. ECM will work actively to achieve a culture where all employees and contractors will feel like they can make a difference and want to take responsibility and ownership.

Section 4 Environmental Values and Potential Impacts

The ECM Safety & Health Management System (SHMS) will be based on AS/NZS 4801 Occupational Health and Safety Standard and will reflect CVRD Australia's belief that all injuries and environmental exposures are preventable through demonstrated leadership and the application of this system through ECM's safety policy and operating philosophy.

4.10 Post-Mining Rehabilitation

Rehabilitation, decommissioning and closure work will be undertaken as part of the overall rehabilitation of the project area.

Surface subsidence will be an impact of underground mining within the project footprint. ECMP will operate in compliance with an agreed environmental management plan (EMP) to incorporate monitoring and management measures to ensure the integrity of the land and to allow the return of the agreed land use(s). To achieve this, the ECMP EMP will address the following issues.

- Regular liaison with the local stakeholders.
- Land management practices that take into account soil erosion, seasonal factors and climatic conditions.
- Repair of damage caused by subsidence.
- Construction of new soil erosion control structures (where required).

A land resource assessment is currently being undertaken to investigate the soil and landuse capabilities of the land within the ECMP area. To date this study has identified no good quality agricultural land within the project area. The majority of the alluvial soils, yellow duplex and brown clays situated on low slopes and plains, and flatter areas of shallow gradational clays, are considered Class C – suitable for improved or native pastures due to limitations that preclude cultivation for crop production. The rocky hills and ridgelines, along with the highly eroded and rocky soils, are considered to be Class D - land not suitable for agricultural uses due to extreme limitations.

The soils in the local area are predominantly cracking clays which are prone to erosion and are not suitable for regular cultivation given the topography and the region's climate (evaporation exceeds rainfall).

The soil and landuse suitability assessment for the proposed project areas will include the following:

- the assessment of the pre-mining soils and land capability;
- predicting the post-mine landuse;
- investigating the extent and depth of the topsoil resources in any additional infrastructure areas, i.e. for stripping and storage;
- mapping the soils in the proposed project areas, and areas which are to be disturbed for infrastructure; and
- investigation of the nutrient levels, sodicity and the salinity of soils.

Section 5 EIS Assessment Criteria

5.1 EIS Assessment Criteria

Triggers for deciding whether a non-standard mining application requires an EIS are outlined in the EPA Guideline 4: *Deciding the level of impact assessment for the mining industry*. These triggers are reproduced below in Table 9 with commentary provided on how the guideline criteria apply to the ECMP.

Table 9: EIS Trigger Criteria

EPA Trigger	Y/N/U	Comment
Have a significant impact on Category A and Category B environmentally sensitive areas (ESAs).	N	While Category B ESAs occur in the project area (ie Brigalow), given that mining is underground, there are not likely to be any significant impacts on Brigalow.
Involve mining in a marine area.	N	The proposal does not involve mining in a marine area.
Involve mining less than 500 m landward from the highest astronomical tide (HAT).	N	The project location is in central western Queensland; therefore the proposal will not involve mining within 500 m of HAT.
Require construction of more than 150 new dwellings.	N	Possible
Include an ERA that would otherwise be a Level 1 ERA with an annual fee of greater than $4,000.	N	Possible
Involve the mining of more than 2 million tonnes of mineral or ROM ore per year.	Y	The project seeks to mine and process approximately 5.5 Mtpa, which exceeds the 2 Mtpa threshold.
Involve the abstraction of more than 2 million m^3 of water per year from natural surface and/or groundwater.	N	Water demands for the ECMP are estimated as less than 470 ML/annum, which is less than 2 million m^3 per annum (or 2,000 ML/annum).
Result in more than 25 ha remaining post-mining in a non-beneficial land capability where an acceptable alternative may be feasible.	N	No more than 25 ha of a non-beneficial land capability, where an acceptable alternative may be feasible, will remain.
Involve any non-standard mining activity less than 2 km from a town.	N	N/A. The site is located approximately 15 km west of Coppabella.
Contain a dam which requires a dam failure assessment under the *Water Act 2000*.	N	The proposal is not likely to involve a dam that requires a dam failure assessment under the *Water Act 2000*.
Include Mining for uranium or asbestos.	N	N/A. The proposal is for the mining of coal.

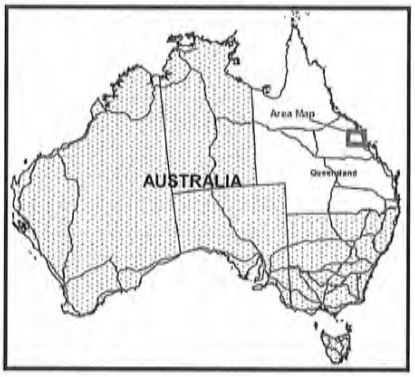
Based on the assessment of EIS triggers in Table 9 above, the project triggers the 2 Mtpa threshold criteria and accordingly, an EIS is required.

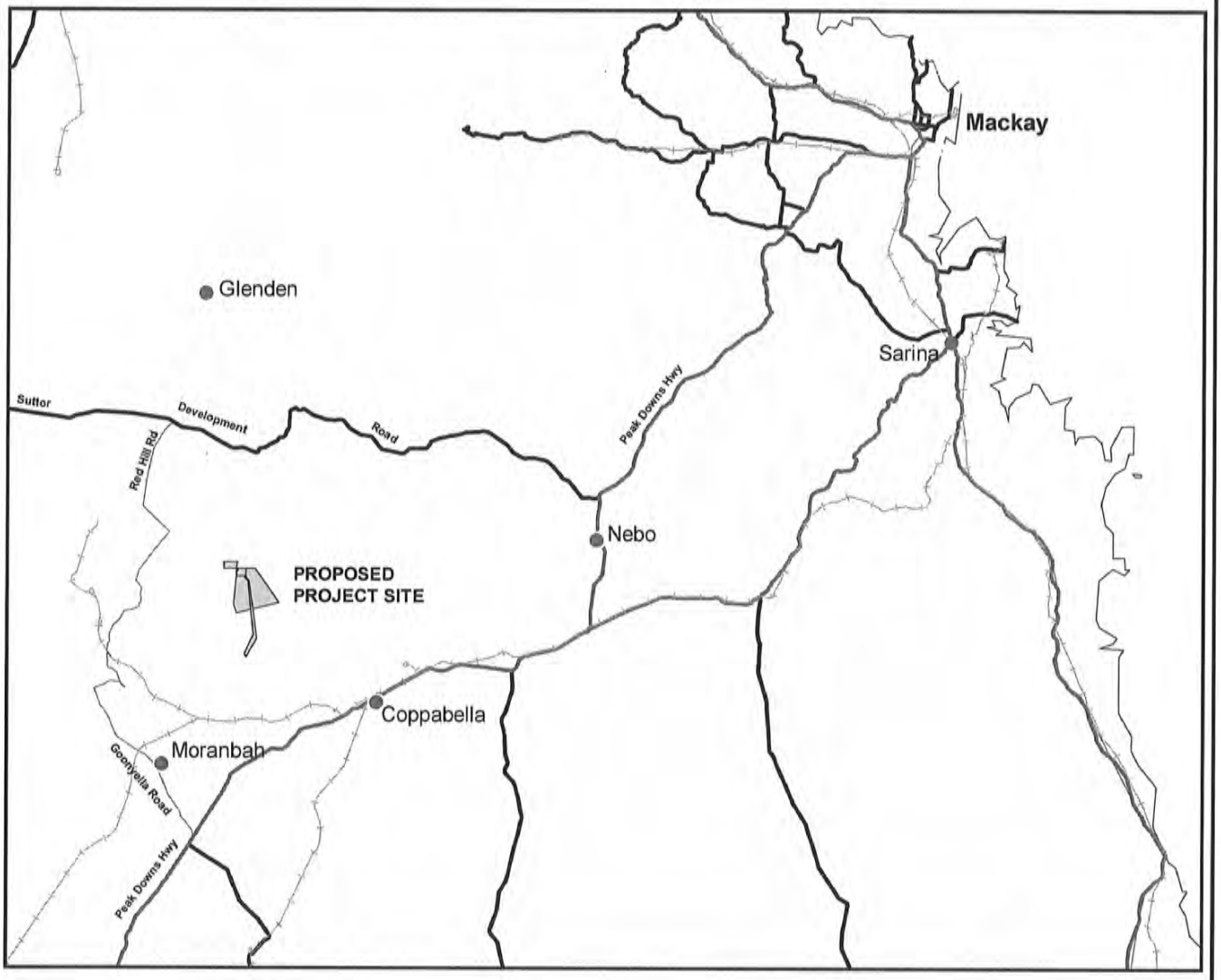
Section 6 Bibliography and References

EPA (2000).*Guideline 4 – Deciding the Level of Impact Assessment for the Mining Industry.* EPA.

AARC (2007).*BLJV- Ellensfield, Flora and Fauna Survey Report.* Prepared for McCollum Environmental Management Services.

Figures





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Source: This product incorporates data which is: ©Commonwealth of Australia (Geoscience Australia) 2004.

Client	Project	Title
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URS	Drawn: VH | Approved: RS | Date: 06-08-2007	Figure: 1 | Rev: A
	Job No: 42626093 | File No: 42626093-g-101wor	A4

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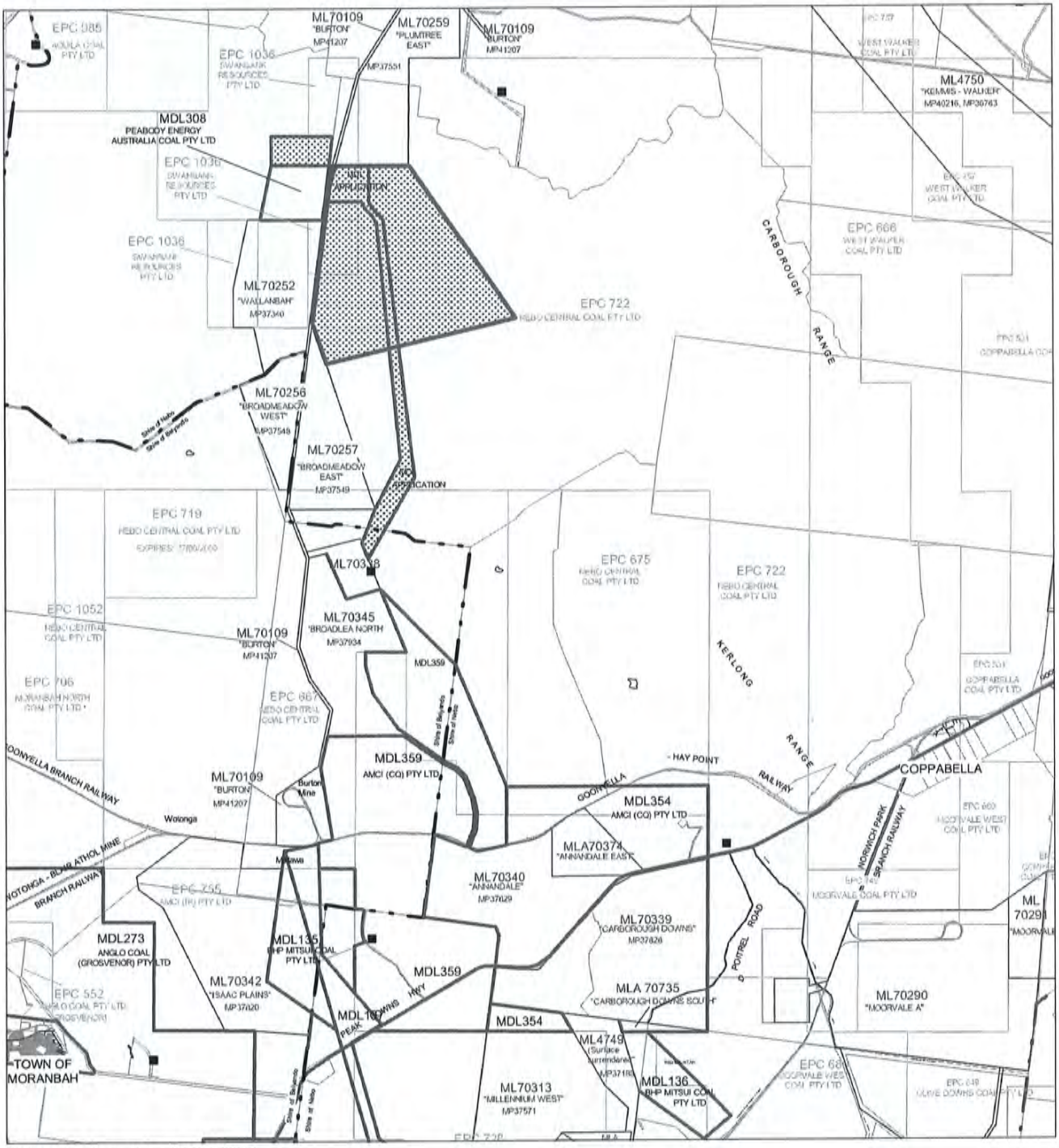

(Information Current as at 9 May 2007)

N

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LEGEND

- Potential Mining Lease Application
- Cadastre
- Exploration Permit Coal (EPC)
- Mining Lease (ML)
- Mineral Development Licence (MDL)
- Shire Boundary

Source: Client supplier data set

Client	Project	Title
ELLENSFIELD COAL MANAGEMENT PTY LTD	ELLENSFIELD COAL MINE INITIAL ADVICE STATEMENT	**PROJECT LOCATION, TENEMENTS AND LEASES**

URS

Drawn: VH	Approved: RS	Date: 06-08-2007	Figure: 2	Rev: A
Job No: **42626093**	File No: 42626093-g-103.wor			**A4**

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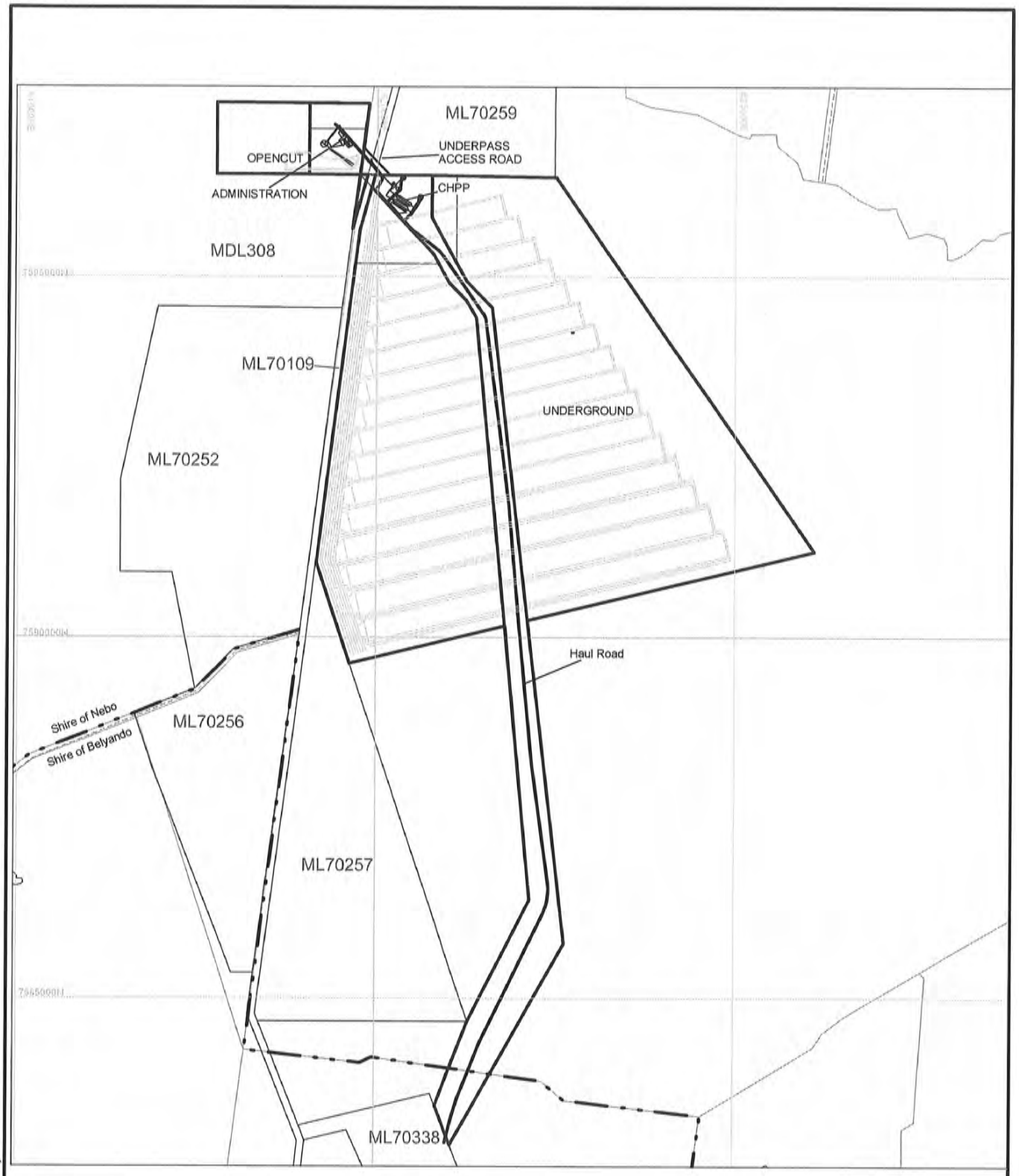

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Horizontal Datum: AMG84, Zone 55

LEGEND

- Potential Mining Lease Application
- Cadastre
- Mining Lease (ML)
- Shire Boundary

Source: Client supplier data set

Client	Project	Title
ELLENSFIELD COAL MANAGEMENT PTY LTD	ELLENSFIELD COAL MINE INITIAL ADVICE STATEMENT	**PREFERRED OPTION LAYOUT**

URS

Drawn: VH	Approved: RS	Date: 06-08-2007	Figure: **3a**	Rev: A
Job No: **42626093**	File No: 42626093-g-102.wor			**A4**

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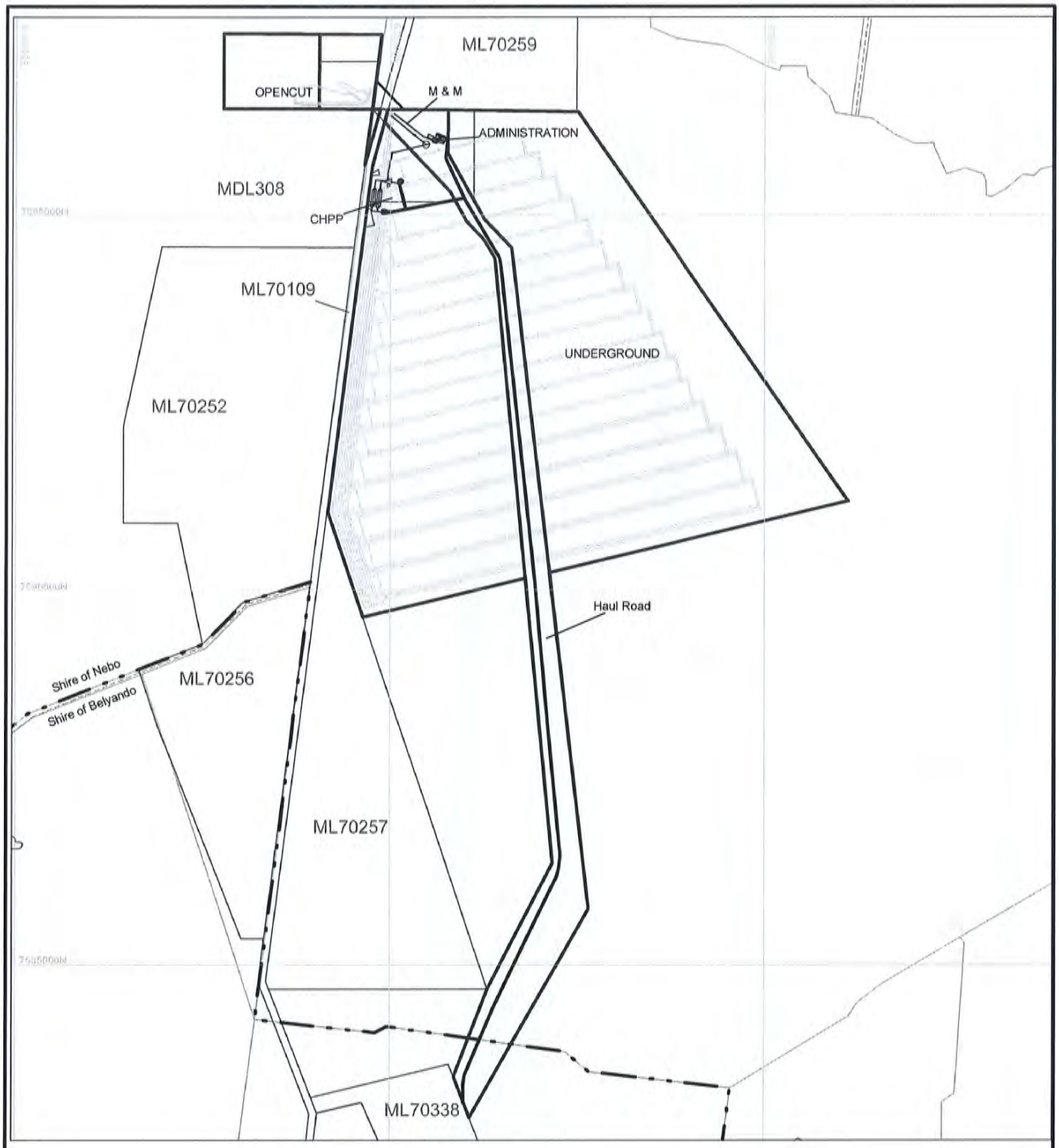

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Horizontal Datum: AMG84, Zone 55

LEGEND

- Potential Mining Lease Application
- Cadastre
- Mining Lease (ML)
- Shire Boundary

Source: Client supplier data set

Client: ELLENSFIELD COAL MANAGEMENT PTY LTD	Project: ELLENSFIELD COAL MINE INITIAL ADVICE STATEMENT		Title: **SECONDARY OPTION LAYOUT**
URS	Drawn: VH	Approved: RS	Date: 06-08-2007
	Job No: **42626093**	File No: 42626093-g-102.wor	Figure: **3b**
			Rev: A **A4**

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URS Australia Pty Ltd
ABN 46 000 691 690
Level 14, 240 Queen Street
Brisbane, QLD 4000 Australia
GPO Box 302, Queensland 4001
Tel: 61 7 3243 2111 • Fax: 61 7 3243 2199