Section 1

Introduction

PREAMBLE

This section introduces the proposal by Werris Creek Coal Pty Limited to extend the mining footprint of the existing Werris Creek Coal Mine to the north in order to recover the remaining coal resource within the Werris Creek Coal Measures. The proposal is referred to as the Life of Mine (LOM) Project.

This section includes:

- *an outline of the scope of the document;*
- *the format of the Environmental Assessment;*
- *details about the Proponent, Werris Creek Coal Pty Limited;*
- *relevant background information relating to the LOM Project including a review of the history of the former Werris Creek Colliery and operations at the Werris Creek Coal Mine to date;*
- *a discussion on the Proponent's current environmental management performance including current documentation used to manage environmental impacts; and*
- *identification of the personnel involved in the LOM Project design, document preparation and specialist consultant investigations.*

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1.1 SCOPE

This *Environmental Assessment* has been prepared by R.W. Corkery & Co. Pty. Limited to support an application for project approval (application number MP10_0059) by Werris Creek Coal Pty Limited ("the Proponent") to extend life of its Werris Creek Coal Mine. This would be achieved by continuing mining operations to the north of the currently approved mine footprint allowing extraction of the entire "life of mine" resource in the area (the "Life of Mine (LOM) Project"). A copy of the application for project approval is included as **Appendix 1**.

The Werris Creek Coal Mine is located within the North West Slopes and Plains of New South Wales approximately 45km southwest of Tamworth (**Figure 1.1**). The mine is currently located approximately 4km south of Werris Creek and 11km north-northwest of Quirindi (**Figure 1.2**). The existing Werris Creek Coal Mine is currently operated under Development Consent DA 172-7-2004 within Mining Lease (ML) 1563.

For the purposes of this document, the LOM Project described and assessed would involve the following component activities and operations.

- The production and rail loading of up to 2.5Mt per annum of thermal and Pulverised Coal Injection (PCI) coal for the domestic and international markets.
- An increase in the hours of operation to 24-hours a day, 7 days a week.
- A northerly extension of existing open cut mining operations and associated activities.
- There location of, and modification to, various infrastructure to accommodate the open cut mine extension and increased production including:
  - the construction of a 'turn-around' rail loop taking off from the Werris Creek Rail Siding to the immediate west of the Rail Load-out Facility;
  - the relocation of coal crushing and screening infrastructure to the north of the existing location; and
  - the construction of a new entrance and access road to the Project Site off Escott Road.
- Rehabilitation of the final landform amenable to a combination of agricultural and native vegetation conservation land uses.

The LOM Project is classified as a "Major Project" in accordance with *State Environmental Planning Policy (Major Development) 2005* and consequently, the Minister for Planning is the approval authority. An *Environmental Assessment* is required to be submitted to support the major project application. The application is possible as mining is a permissible land use with consent, in accordance with the provisions of the *State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007*,on the land on which the LOM Project is proposed.

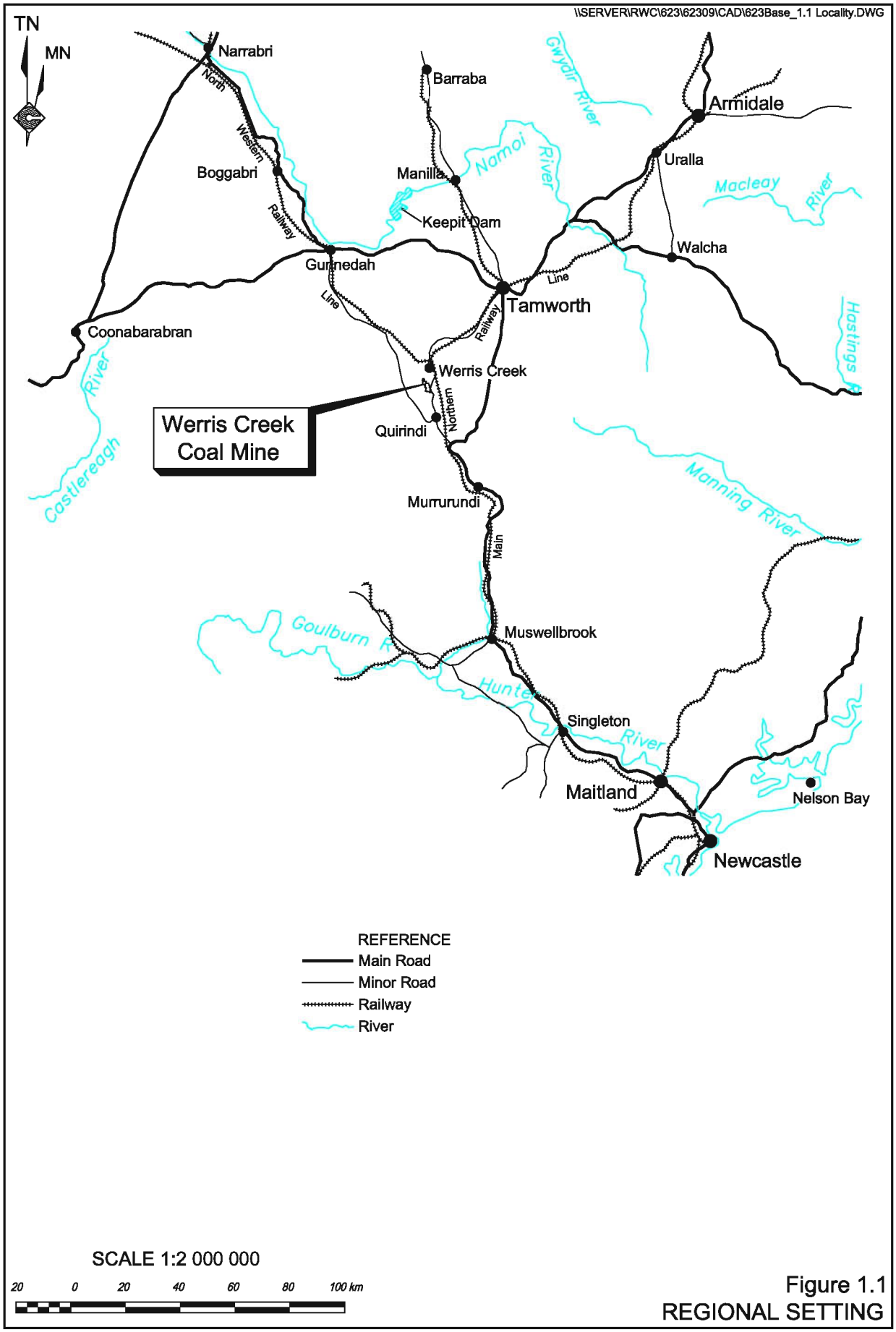


Figure 1.1
REGIONAL SETTING

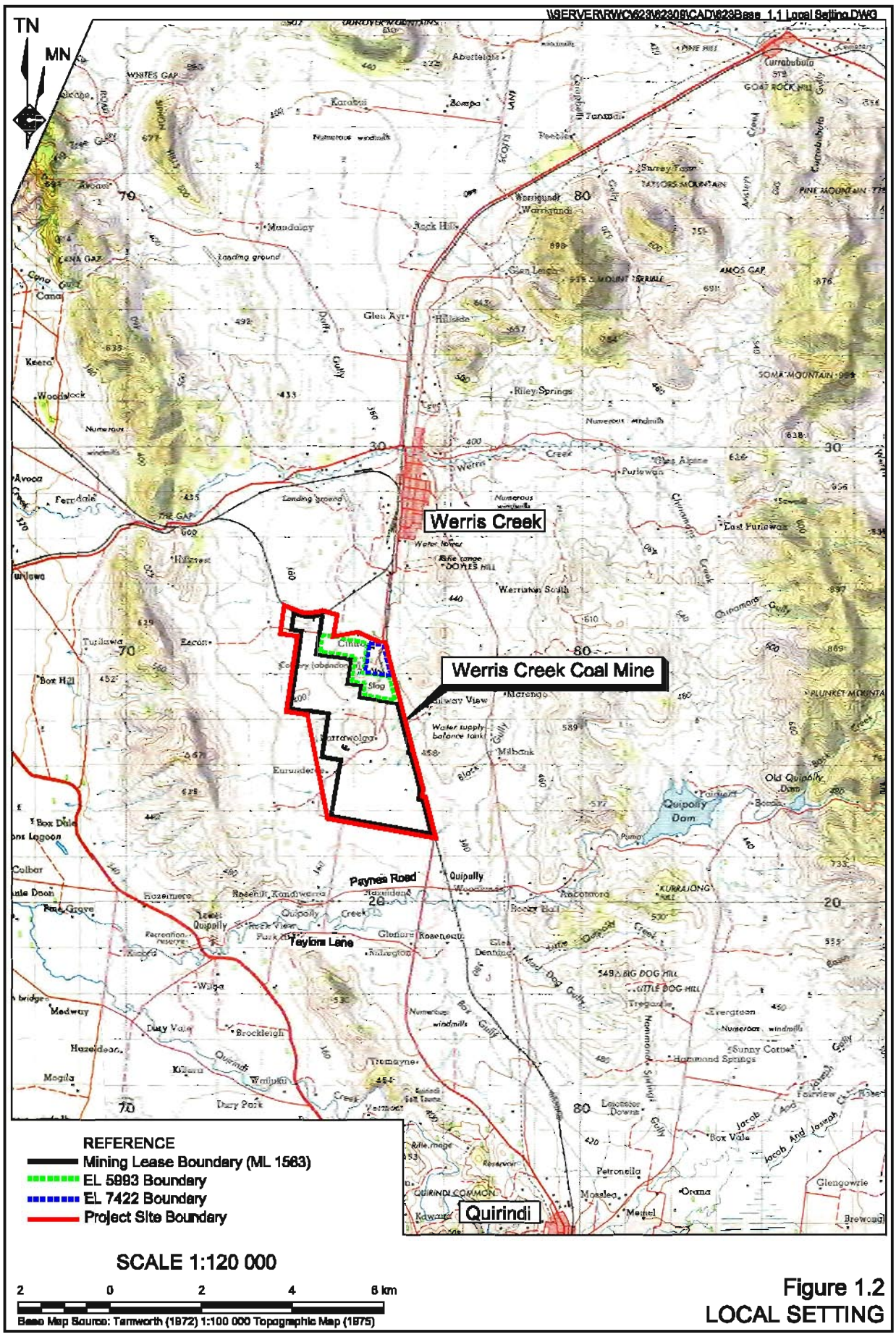


Figure 1.2
LOCAL SETTING

The information presented in this document covers all aspects of the planning, development, operation, rehabilitation and environmental management and monitoring of the LOM Project at a level of detail consistent with industry standards, the scale of the proposed operations and the potential for environmental impact. These aspects are presented in a manner that addresses the specific requirements of the Director-General of the Department of Planning (DoP) and other State and local government agencies, together with those issues raised during the community consultation process. The Director-General's Requirements (DGRs) and summarised requirements of all government agencies are presented in **Appendix 2** together with a record of where each requirement is addressed in this document.

1.2 FORMAT OF THE ENVIRONMENTAL ASSESSMENT

This *Environmental Assessment* includes six sections of text, a reference section, glossary and a set of appendices. The information presented in this document covers all aspects of the planning, development, operation, rehabilitation and environmental monitoring of the LOM Project at a level of detail reflecting the environmental risk posed by each issue. The issues and their relevant importance to the assessment of the LOM Project have been identified through consultation with government agencies, the local communities, stakeholders, surrounding landowners and specialist consultant assessments.

The format of the *Environmental Assessment* is as follows.

Section 1: introduces the LOM Project and the Proponent. Background information is provided on the LOM Project including information on the existing approved and ongoing operations of the Werris Creek Coal Mine. The section incorporates an overview of the status of the existing operations, together with the environmental management, documentation and performance since operations at the Werris Creek Coal Mine commenced. The section concludes with information on the management of investigations for the *Environmental Assessment*.

Section 2: describes the Proponent's objectives and proposed open cut mining, coal processing, transportation, waste management and rehabilitation activities. The project description focuses on the proposed open cut mining operations and the proposed modifications / additions to the currently approved infrastructure.

Section 3: provides a description of the process used to identify and prioritise the key issues for assessment with reference to the DGRs for the LOM Project, stakeholder consultation through the project planning stages and a general environmental risk analysis undertaken to establish the specific environmental risk(s) posed by the issues identified.

Section 4: commences by describing the setting of the LOM Project Site with reference to aspects of the local environment likely to influence the level of impact on other environmental aspects. The section then presents a description of a range of environmental features of the local environment that may or would be influenced by the LOM Project, i.e. the key environmental issues. The design and operational safeguards, and where appropriate, the management procedures that have been incorporated into the LOM Project designed to protect the local environment, are also presented. Each sub-section then analyses the potential impact the LOM Project would have on the physical, biological and social environment once the safeguards and procedures are adopted.

Section 5: provides a draft statement of commitments the Proponent is prepared to implement with respect to environmental management and monitoring for the LOM Project.

Section 6: provides a conclusion to the document which justifies the LOM Project in terms of biophysical, economic and social considerations. This section also discusses the consequences of not proceeding with the LOM Project.

Section 7: lists the various source documents referred to for information and data used during the preparation of the *Environmental Assessment*.

Section 8: presents a glossary of acronyms, symbols and units and technical terms, used throughout the *Environmental Assessment*.

Appendices: present the following additional information.

1. A copy of the Proponent's major project application.
2. An itemised and tabulated summary of the Director-General's Requirements, including the requirements provided by the various government agencies consulted, and reference to the section within the *Environmental Assessment* or *Specialist Consultant Studies Compendium* where each is addressed.
3. A SEPP 33 Risk Screening.
4. Preliminary Hazard Analysis completed for the explosives precursor facility (Advitech, 2008).

A two volume *Specialist Consultant Studies Compendium* has been placed on exhibition with the *Environmental Assessment*. The contents of these reports are summarised into the appropriate section(s) of the *Environmental Assessment*. A full copy of the compendium is included on the CD compiled for the LOM Project. The Project CD is available free of charge from the Department of Planning, the Proponent or R.W. Corkery &Co. Pty Limited (see inside front cover for contact details).

1.3 THE PROPONENT, PROJECT SITEAND PROJECT TERMINOLOGY

1.3.1 The Proponent

The Proponent for the LOM Project, Werris Creek Coal Pty Limited (ABN 69 107 169 102), is the current owner and operator of the Werris Creek Coal Mine. The Proponent is a wholly-owned subsidiary of Whitehaven Coal Limited (WCL) which is currently operating and developing coal projects in the Gunnedah Coalfields Region of New South Wales.

WCL acquired a 100% interest in the Werris Creek Coal Mine in December 2007. WCL has been progressively undertaking a review of operations with a view to improving the operational efficiency and environmental performance of the mine.

1.3.2 Project Site

The application area for this *Environmental Assessment* is covered by the existing Werris Creek Coal Mine and associated facilities, the proposed open cut mine extension and associated additional facilities. The application area is referred to throughout this document as the Project Site and encompasses the existing ML 1563, as well as EL 5993 and EL 7422, an area of approximately 910ha. **Figure 1.3** identifies the Project Site, the main features of the approved Werris Creek Coal Mine operations and an overview of the modified operations associated with the LOM Project.

The existing operations are located on land owned by the Proponent. **Figure 1.4** identifies the land owned by the Proponent on and surrounding the Project Site, along with the locations of Proponent owned and privately owned residences. Section 4A.3 provides further detail on the land ownership and land use of the properties on and surrounding the Project Site.

1.3.3 Project Terminology

The following component areas of the LOM Project are regularly referred to throughout this document. Each of these component areas are described as follows.

LOM Project Site	The area relevant to the application for project approval.
LOM Project open cut area	The area bound by the indicative limit of open cut mining.
Out-of-Pit Overburden Emplacement	The area outside the Open Cut Boundary where a proportion of the overburden from mining activities would be emplaced above the natural surface.
Acoustic and Visual Amenity Bund	An earthen bund to be constructed to the north and northeast of the LOM Project open cut area to assist in screening mining operations and reduce noise emissions from mining on the town of Werris Creek.
LOM Project Coal Processing Area	The proposed new location for ROM coal storage, coal processing activities and loading of product coal to trucks for road transport from the Project Site.
LOM Project Site Administration and Facilities Area	The proposed new location of all offices, workshops and associated facilities.
Product Coal Storage Area	Designated area for the stockpiling of product coal prior to loading to trains for despatch from the Project Site.
Rail Load-out Facility	Rail loading infrastructure incorporating loading bin(s) and conveyor.
Rail Load-out Road	Purpose-built road for the haulage of coal between Coal Processing Area and Product Coal Storage Area.
Coal Conveyor	A conveyor that may be constructed to replace the transport of coal by trucks from the Relocated Coal Processing Area to the Product Coal Storage Area.
Turn-around Loop	The small balloon rail loop to extend off the existing Werris Creek Rail Siding.

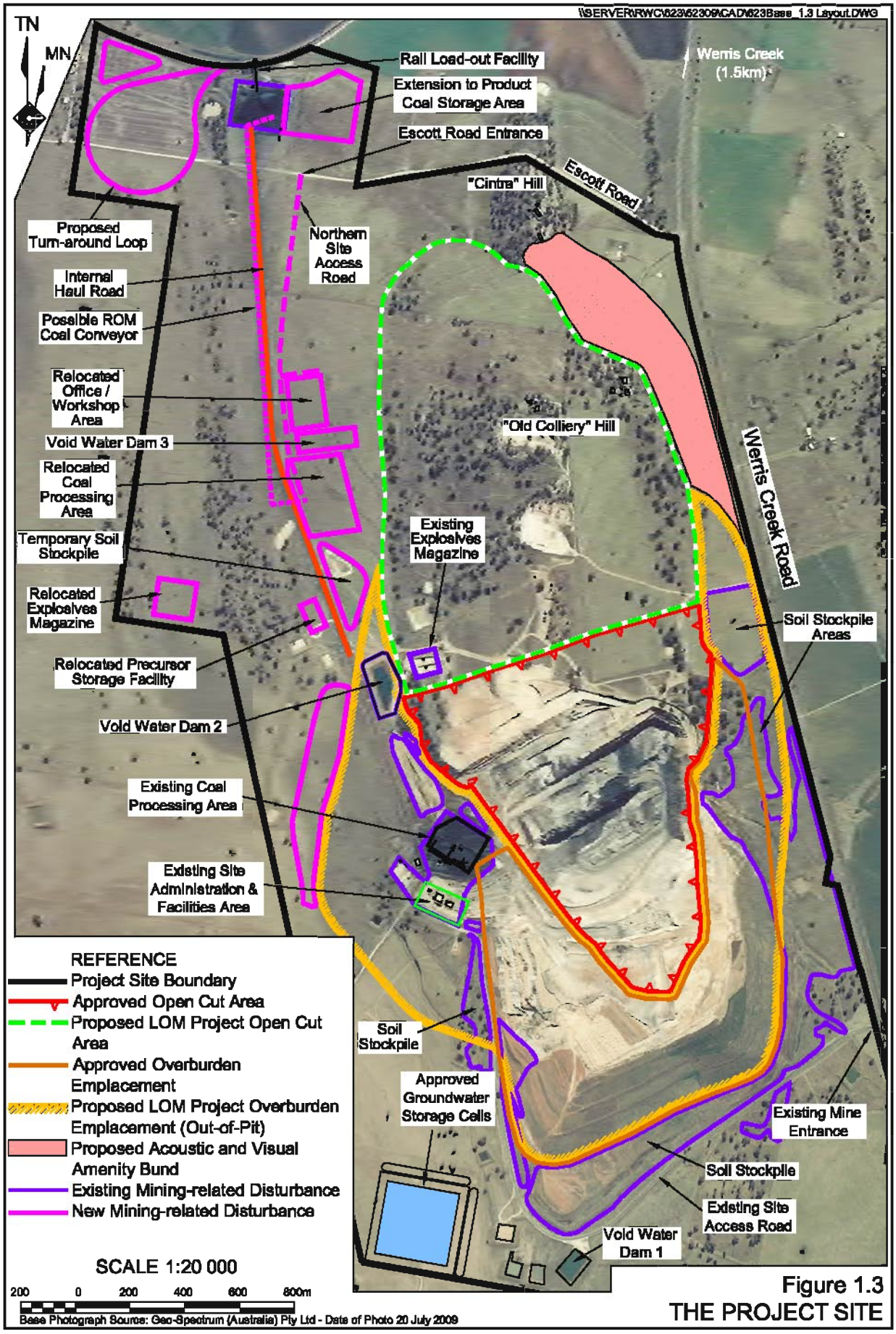


Figure 1.3
THE PROJECT SITE

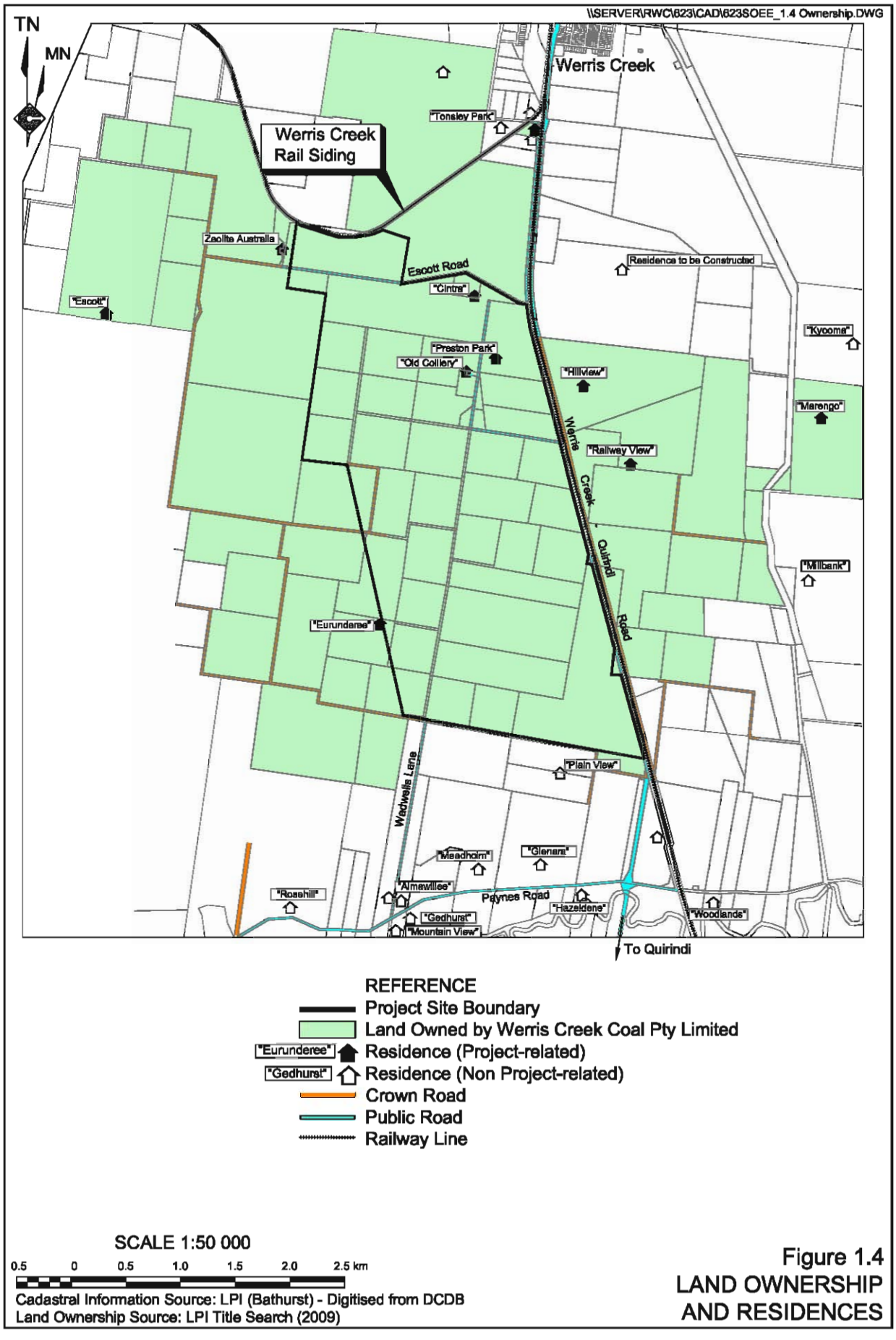


Figure 1.4
LAND OWNERSHIP AND RESIDENCES

Groundwater Storage Cells	Above ground dams constructed to store water dewatered from the underground workings of the former Werris Creek Colliery.
Void Water Dam	Dams constructed to hold water accumulated and pumped out of the open cut area.
Former Werris Creek Colliery	The former underground workings in the northern part of the LOM Project Site. These old underground workings would be mined through using open cut mining methods as part of the LOM Project.

1.4 PROJECT BACKGROUND

1.4.1 Introduction

This section considers the former and current mining activities onsite and strategic planning undertaken to develop the LOM Project.

Section 1.4.2 provides a summary of the history of the former Werris Creek Colliery. Section 1.4.3 summarises the existing approvals licences and tenements for the Werris Creek Coal Mine. Section 1.4.4 presents a summary of the studies and assessments that have been undertaken for the LOM Project that have resulted in the LOM Project being determined viable to proceed and subsequently submit a project application and this *Environmental Assessment* for approval.

1.4.2 The Former Werris Creek Colliery

Underground mining at the former Werris Creek Colliery, which was predominantly a bord and pillar underground operation in which very few of the pillars have been removed (Pratt, 1996), is understood to have commenced commercially by the Preston Coal Company in 1925, closing in 1963 due to the cancellation of railway contracts for coal. It is understood the former Werris Creek Colliery extracted the lower 2.5m of what was referred to as the "Tunnel Seam", which corresponds to the E Seam of the Werris Creek Coal Mine. **Figure 1.5** provides an illustration of the location of the underground workings of the former Werris Creek Colliery within the E Seam.

1.4.3 Werris Creek Coal Mine Approvals, Licences and Tenements

1.4.3.1 Introduction

The commencement of mining at the Werris Creek Coal Mine (in 2005) represented a return to mining within the Werrie Basin, a geological province extending from the Namoi River, near Carroll in the north, to the Liverpool Ranges in the south. The existing approval for the Werris Creek Coal Mine allows for the interception of the southern extremity of the former Werris Creek Colliery.

Table 1.1 provides a consolidated summary of all approvals held by the Proponent for the Werris Creek Coal Mine. The following sections summarise the history of these approvals.

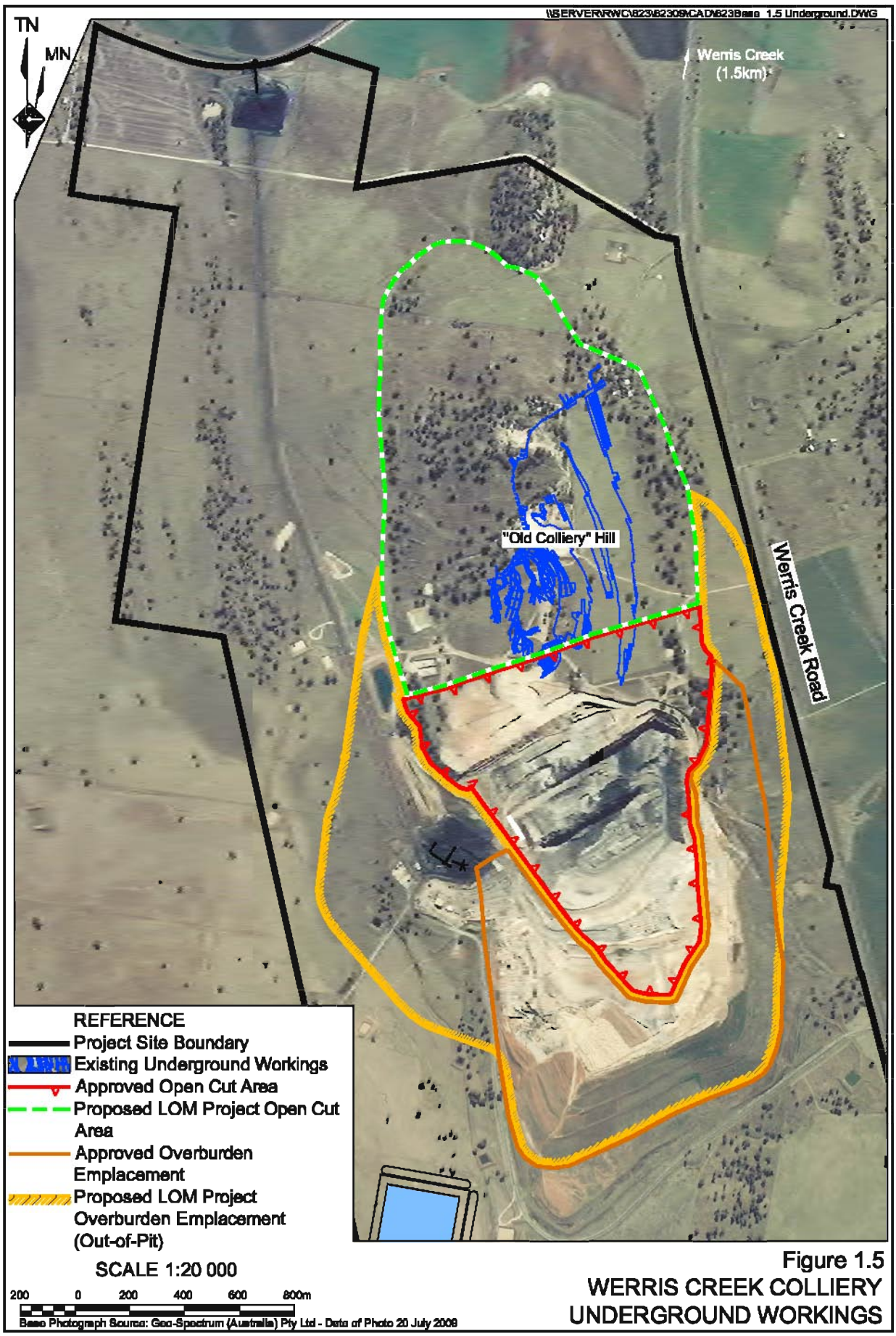


Figure 1.5
WERRIS CREEK COLLIERY
UNDERGROUND WORKINGS

Table 1.1
Werris Creek Coal Mine – Tenements, Licences and Approvals

Issuing / Responsible Authority	Type of Lease, Licence, Approval	Date of Issue	Expiry	Comments
Minister for Infrastructure and Planning [1]	Development Consent (DA 172-7-2004)	18 February 2005	7 April 2020	Expiry is 15 years after the commencement of the consent (April 2005).
Department of Mineral Resources [2]	ML 1563	23 March 2005	23 March 2026	Mining Lease granted for 21 years.
Environment Protection Authority [3]	Environment Protection Licence No. 12290	18 April 2005	Anniversary date: 01 April Review Date: 14 April 2013	
Department of Infrastructure, Planning and Natural Resources [4]	Water Licences 90BL252588 90BL253367 90BL253363 90BL253360 90BL252589 90BL252590 90BL253361	18 May 2006	In perpetuity	Industrial and Mining Bore allocation of 50 ML per year.
Minister for Infrastructure and Planning [1]	Modification MOD1	19 October 2005	7 April 2020	Approval granted to allow until 31 January 2006 for the construction of the mine access road.
	Modification MOD2	6 March 2007	7 April 2020	Approval was granted for alternative management of the Aboriginal heritage 'Narrawolga Site', as well as, mining an additional 280000 tonnes of coal and moving about 1.34 million bank cubic metres of overburden.
Minister for Planning	Modification MOD3	17 September 2008	7 April 2020	Approval was given to: • construct a 35ML dam and make other changes to the water management system; • increase to the amount of coal despatched by road to 50 000tpa; and • increase the capacity of the coal stockpile at the rail load-out facility to 100 000 tonnes and its height to 15m.
	Modification MOD4	15 April 2009	7 April 2020	Approval was given to: • construct a precursor storage facility (prill and emulsion); and • modify the biodiversity offset strategy for the mine.
	Modification MOD5	6 October 2009	7 April 2020	Approval was given to: • modify the open cut and overburden emplacement layout; • progressively construct up to four water storage dams for dewatered groundwater; and • modify the biodiversity offset strategy for the mine.

Note 1: Now, Minister for Planning
Note 2: Now, Industry and Investment NSW – Mineral Resources (I&I NSW – MR)
Note 3: Now, Department of Environment, Climate Change and Water (DECCW)
Note 4: Now, Department of Environment, Climate Change and Water – NSW Office of Water (DECCW (NOW))

1.4.3.2 Project Approval

The Werris Creek Coal Mine is currently operated under DA 172-7-2004 which was issued by the then Minister for Planning and Infrastructure on 18 February 2005 in accordance with the then Section 76(A) 7(b)(ii) of the *Environmental Planning and Assessment Act, 1979*. DA 172-7-2004 approved the mining and transportation of up to 2.0 million tonnes of run-of-mine coal per year for a period of approximately 7 years from the granting of a mining lease.

Since the initial approval, there have been five modifications to DA 172-7-2004 as follows.

- DA Modification 1 – Issued on the 19 October 2005 approving an extension to the construction period for the mine access road.
- DA Modification 2 – Issued on the 6 March 2007 approving the removal of a site of Aboriginal heritage from within the mining area footprint, increasing the open cut area and total coal resource to be mined by 280 000t.
- DA Modification 3 – Issued on the 17 September 2008 approving a variation to the mine's water management system, an increase in coal transportation by road (up to 50 000tpa) and an increase in the stockpile capacity and height at the coal load-out facility.
- DA Modification 4 – Issued on the 15 April 2009 approving the establishment of a precursor storage facility (prill and emulsion) within ML 1563 and an alternate biodiversity offset area to that originally approved under DA-172-7-2004.
- DA Modification 5 – Issued on the 6 October 2009 approving the modification to the boundary of the mining area, dewatering and storage of water from the former underground workings, as well as a further addition to the biodiversity offset area. This modified open cut layout, while designed to provide for mine closure in 2012, was also used to assist in planning for the proposed LOM Project. The modified open cut layout provides two important features critical for the proposed LOM Project.

  i) A widening of the advancing northern face of the open cut, corresponding with the limit of the basal G Seam sub-crop (the lowest of the coal seams mined at the Werris Creek Coal Mine). This has ensured that a continuation of mining to the north may proceed without any increase in the stripping ratio which would have resulted in coal sterilisation.

  ii) The dewatering, and initial extraction from the southern extremities, of the underground workings of the former Werris Creek Colliery.

1.4.3.3 Mining Lease

Subsequent to the approval of DA 172-7-2004, the then Department of Primary Industries issued ML 1563 on 23 March 2005 to Werris Creek Coal Pty Limited in accordance with the provisions of the *Mining Act, 1992*. A *Mining Operations Plan* (MOP) was subsequently approved on the 11 April 2005. The boundaries of ML 1563 have been defined by survey and are included on mine plans incorporated within the Mining Operations Plan for the mining lease.

1.4.3.4 Environment Protection Licence

Environment Protection Licence (EPL) 12290 was issued by the then Department of Environment and Conservation to Werris Creek Coal Pty Limited on 18 April 2005. The licence was issued in accordance with the provisions of the *Protection of the Environment Operations Act, 1997* for the scheduled activities of coal mining and coal works. EPL 12290 defines monitoring points and concentration thresholds applicable to activities on the Werris Creek Coal Mine.

EPL 12290 is due for statutory review on 14 April 2013.

1.4.3.5 Water Licences

The Proponent holds seven water licences, for use in industrial and mining purposes (see **Table 1.2**). Following consultation with the then Department of Water and Energy (DWE) in relation to licensing requirements related to the dewatering of the underground workings of the former Werris Creek Colliery, an application was lodged to amend the licence allocation from 50MLpa to 330MLpa in May 2009. In making the application, an embargo on the issuing of new licences under Part 5 of the *Water Act 1912* (Water Act) (New South Wales Inland Groundwater Shortage Zones Order No. 2, 2008) ("the Embargo Order") was noted. Justification for an exemption from the Embargo Order on the grounds that failure to supply the water would cause prohibitively high social, economic or national security cost was provided with the application. In January 2010, the Proponent enquired of the DWE as to the status of the licence application, however, no further advice has been received to date.

The remaining six licences are held by the Proponent for ongoing monitoring of water quality and groundwater levels at strategic locations surrounding the mine site.

1.4.4 LOM Project Development

It has long been recognised that the coal seams mined at the Werris Creek Coal Mine extend beyond the northern limit of the currently approved open cut. Managing the groundwater contained within the underground workings of the former Werris Creek Colliery, however, constrained the northern extent of the original open cut mine proposal. This issue was addressed as part of the recent modification to DA 172-7-2004 (MOD 5) that was approved by the Minister of Planning in October 2009, allowing the Proponent to extend the original open cut mining by approximately 11ha to the north ("the Northern Extension"). As the constraint of managing groundwater within the former Werris Creek Colliery has been addressed, the opportunity to extend mining operations to recover the "life of mine" resource has been further developed.

The Proponent has undertaken exploration drilling to the north of the approved open cut (within an area covered by Exploration Licences (EL) 5993 and 7422) and confirmed the continuation of the currently mined coal seams to the north at depths which would allow for the continuation of open cut mining at strip ratios which are economically viable. Further detail on the exploration activities and identification of the coal resource is discussed in Section 2.2.3. On the basis of the continuation of the coal seams, the Proponent has prepared mine designs to extend the mine to the north (see Section 2).

Based on the initial open cut mine design (prepared based on a geological model developed through a review of the completed mining operations and exploration activities), the Proponent undertook investigations as to the relocation of existing, and incorporation of additional mine infrastructure. These studies included assessing options for the location and configuration of the various coal processing, storage, power and transport infrastructure and have not identified any constraints on the LOM Project.

Previously conducted environmental assessments have also been reviewed to identify the critical environmental constraints on the LOM Project. The critical environmental constraints are summarised in Section 2.3.3 with it determined that none of these critically constrains the development of the LOM Project.

On the basis that a viable coal resource has been identified to the north of the approved open cut area of the Werris Creek Coal Mine, and that no critical constraints associated with the establishment of associated mine infrastructure or the local environment were identified, the Proponent has proceeded with the LOM Project proposal.

1.5 EXISTING OPERATIONS

1.5.1 Introduction

This section describes the existing approved operations for the Werris Creek Coal Mine. Section 1.5.2 discusses the mining area that is currently approved and the current site layout of the mine. Sections 1.5.3 to 1.5.9 focus on the mining activities, processing activities and transport operations currently adopted at the Werris Creek Coal Mine. Activities are described in sufficient detail to provide an overview of operations at the Werris Creek Coal Mine. Mining and associated activities are described in greater detail in Section 2, along with information on any proposed modification(s) to approved operations.

Section 1.5.10 discusses current environmental performance, including an outline of environmental monitoring results and a summary of environmental documentation that is currently used to manage impacts on the environment.

1.5.2 Approved Mining Area and Site Layout

The approved mining and associated activities on ML 1563 are identified on **Figure 1.3**.

The existing site layout of the Werris Creek Coal Mine comprises of the following components.

- Open cut mining area.
- Coal Processing Area.
- Product Coal Storage Area and Rail Load-out Facility.
- Explosives magazine.
- Overburden emplacement area.
- Administration and Facilities Area.
- Internal haul and access roads.
- Water management infrastructure including the groundwater storage cells.

1.5.3 Mining Operations

Mining at the Werris Creek Coal Mine is undertaken using a conventional haulback system. In order to facilitate the sequential development of the mine, the area of approved mining has been sub-divided into a number of east-west aligned open cut strips, each generally comprising seven to eight 60m to 70m wide mining blocks (see **Figure 1.6**). The mining sequence generally moves in a northerly direction with the emplacement of overburden subsequently occurring into the mined out strips or within the adjacent out of pit overburden emplacement area. **Figure 1.6** illustrates the status of mining operations as at August 2010.

1.5.4 ROM Coal Management

The majority of ROM coal is transported directly to the ROM Coal Pad with coal immediately adjacent to the roof and floor of each seam stockpiled separately for use in blending to produce coal products with a higher ash specification. This allows a clean coal product to continue to be mined and stockpiled from each seam as well as a diluted product.

A series of temporary ROM coal stockpiles are also used from time to time within the open cut mine area to:

- minimise the transmission of noise during night time operations; and
- limit the variability in haul truck cycle times and therefore maximise the efficiency of the excavator loading the haul trucks.

1.5.5 Coal Processing Activities

The ROM coal does not require washing to achieve the coal quality requirements of the product coal, however, the coal is crushed and screened to meet customer requirements prior to despatch. Coal crushing and screening is currently undertaken at a rate of approximately 500t/hr.

Since coal production commenced in 2005, annual coal production has typically averaged a little over 1Mtpa. Production in the current reporting period (April 2010 to March 2011) is scheduled to approach the approved maximum of 2Mtpa.

Table 1.2
Annual Production (2005 – 2010)

Reporting Period (April – March)	Production (t)
2005 – 2006	568,688
2006 – 2007	1,408,796
2007 – 2008	1,036,288
2008 – 2009	1,155,340
2009 – 2010	1,220,910
Average	**1,078,004**
Source: Werris Creek Coal Pty Limited	

1.5.6 Water Management

Groundwater contained within the rock strata and surface water runoff accumulates in the open cut as it is developed. This 'void water' is allowed to accumulate within sumps at the base of the void. The void water is then periodically pumped from these sumps to one of two Void Water Dams (see **Figure 1.3**) from where the water is used for on-site dust suppression and other operational water requirements.

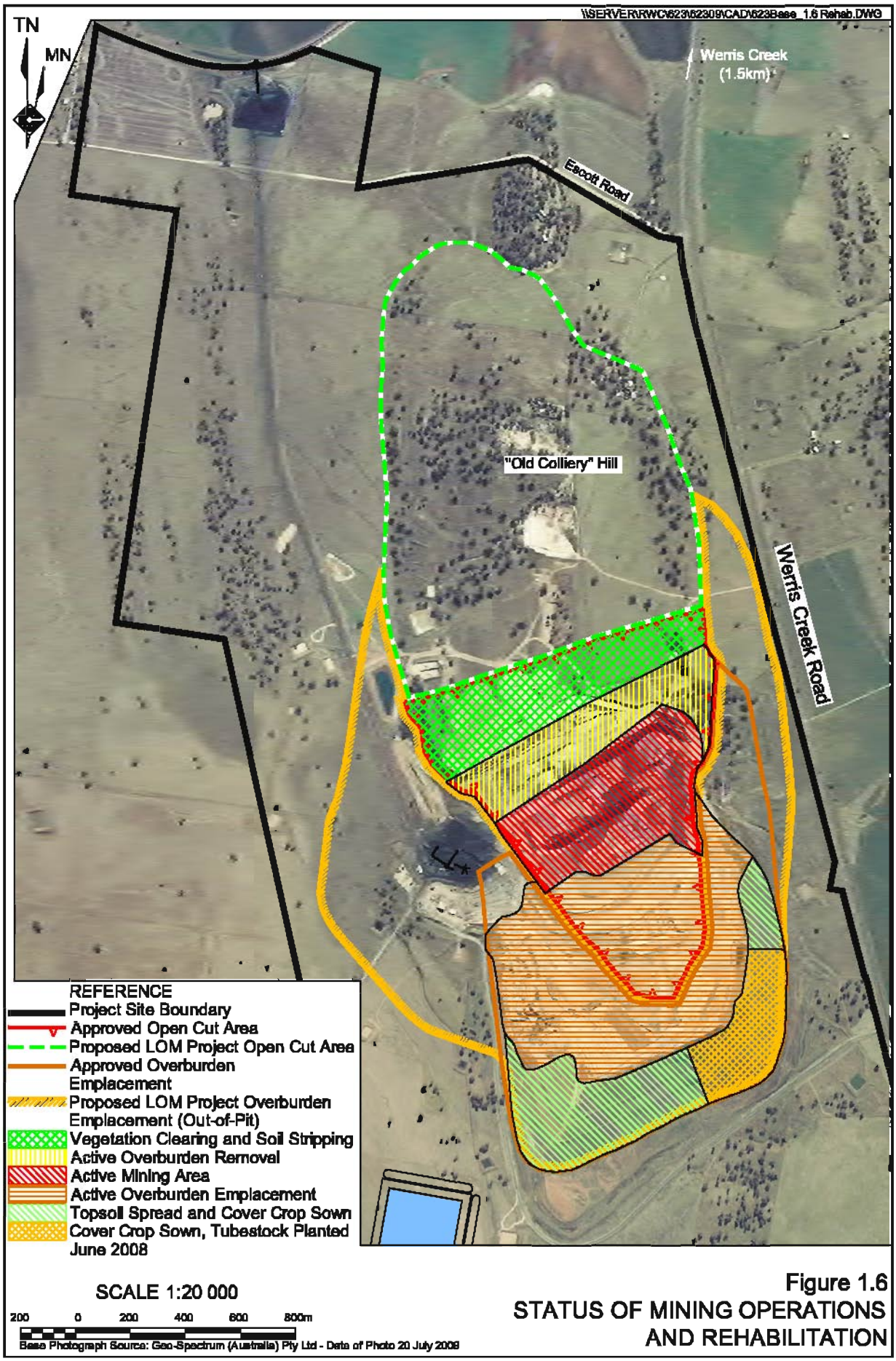


Figure 1.6
STATUS OF MINING OPERATIONS AND REHABILITATION

The Proponent has also constructed the first groundwater storage cell to store groundwater pumped from the underground workings. This cell has been constructed as an impermeable turkey's nest structure with a maximum storage capacity of 200ML. Water held within this cell is also be used for on-site dust suppression and other operational water requirements. Additional cells will be constructed on an as needs basis depending on the quantity of water encountered from initial pumping of the void spaces.

1.5.7 Coal Transportation

The majority of the crushed and screened (product) coal is transported internally from the Coal Processing Area to a Rail Load-out Facility via a purpose built rail load-out road (see **Figure 1.3**). The product coal is stockpiled within a 200m x 250m hardstand pad surrounding the Rail Load-out Facility referred to as the Product Coal Storage Area. Approximately 6 000t of coal is transported daily (Monday to Saturday) to the Product Coal Storage Area via the rail load-out road using road-registered semi-trailers. Product coal is loaded onto rail wagons via an overhead rail load-out bin positioned above the Werris Creek Rail Siding and then despatched along the Main Northern Railway to the Port of Newcastle. The loading of trains is undertaken on a schedule supplied by Pacific National and varies accordingly. This can result in a range of daily loading schedules from zero to on occasions, up to four trains per day for which the Proponent has limited control.

A small proportion of the product coal is despatched from the Coal Processing Area via public road on a modern fleet of single trailer prime movers to domestic markets. The Proponent is limited to transporting 50 000tpa by road.

1.5.8 Hours of Operation

The current hours of operation for the Werris Creek Coal Mine are as follows.

- 7:00am to midnight, midnight to 4:00am, Monday to Friday.
- Midnight to 4:00am, 7:00am to 2:00pm, Saturday.
- On-site coal processing may be undertaken for the additional hours of 2:00pm to 10:00pm Saturday.
- The Rail Load-out Facility is operated and maintenance activities are undertaken at any time from Monday to Sunday.

1.5.9 Rehabilitation

Following the completion of mining and overburden emplacement, rehabilitation of the final landform is undertaken. In accordance with DA 172-7-2004, the rehabilitation of the final landform includes both the re-instatement of approximately 31ha of Class III Land Capability / Class 2 Agricultural Suitability land on the top surface of the final overburden emplacement and the re-establishment of native woodland vegetation over the remaining landform.

Figure 1.7 provides an illustration of the approved final landform and land uses and status of rehabilitation activities completed to date.

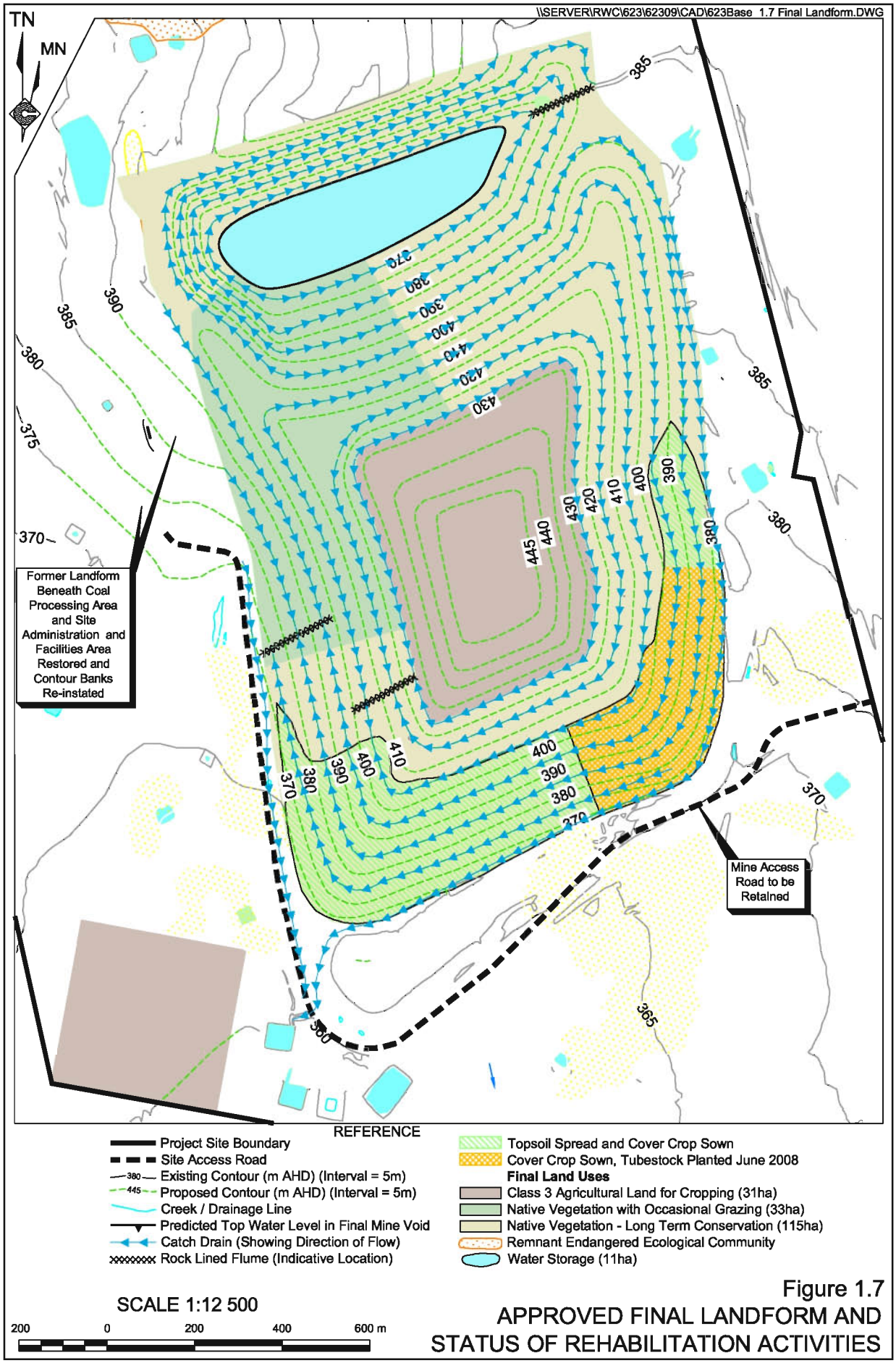


Figure 1.7
APPROVED FINAL LANDFORM AND STATUS OF REHABILITATION ACTIVITIES

1.5.10 Environmental Management, Documentation and Performance

1.5.10.1 Environmental Management and Objectives

On-going environmental management at the Werris Creek Coal Mine, including the Proponent's performance with respect to this document and the implementation of any lease, licence or development consent conditions, is the ultimate responsibility of the Proponent's General Manager. The Group Environmental Manager coordinates the day to day environmental activities on the mine site in conjunction with the site Environmental Officer and field staff within the WCL Technical Services Team. The environmental and field support staff report to the Group Environmental Manager (whose responsibilities include managing the compliance of the Werris Creek Coal Mine with the environmental conditions of the project approval and other licences and leases) in consultation with the Werris Creek Coal Project Manager. Assistance is provided by specialist consultants as and when required.

The Proponent is committed to undertaking all component activities in a responsible and pro-active manner which:

(i) adheres to all conditions of DA 172-7-2004, ML 1563 and EPL 12290;

(ii) enables the co-existence of the various land uses in the area;

(iii) is environmentally and socially responsible; and

(iv) minimises any real or perceived impacts on other members of the community.

1.5.10.2 Environmental Documentation

Successful environmental management invariably involves regular, organised documentation to ensure that, irrespective of personnel changes, all aspects of planning, environmental control, monitoring and responses to problems are properly recorded. The Proponent is committed to the Mining, Rehabilitation and Environmental Management Process (MREMP) managed by NSW Industry and Investment (I&I NSW) with input from other relevant government agencies. This process involves the preparation of the following documentation.

- *Mining Operations Plan* (MOP) – prepared to provide more detailed mining design and operational information for the mine and surface activities. The current MOP for the Werris Creek Coal Mine was prepared and submitted to I&I NSW in October 2009.
- *Annual Environmental Management Report* (AEMR) – prepared to record operational progress and all relevant environmental issues on an annual basis. AEMR's are generally submitted during May of each year to the relevant government agencies.

In accordance with various conditions of DA 172-4-2004, the following Management Plans and Monitoring Programs have been prepared, submitted to, and approved by the Department of Planning.

- *Environmental Management Strategy.*
- *Environmental Monitoring Program.*
- *Rail Spur Management Plan.*
- *Site Water Management Plan.*
- *Traffic Management Plan.*

- *Groundwater Contingency Plan.*
- *Flora and Fauna Management Plan.*
- *Archaeology and Cultural Heritage Management Plan.*
- *Bushfire Management Plan.*
- *Noise Monitoring Program.*
- *Air Quality Monitoring Program.*
- *Energy Savings Action Plan.*

In addition to the above approved plans, the Proponent has currently submitted drafts for consideration of the Department of Planning for the following plans.

- *Landscape Management Plan.*
- *Biodiversity Offset Management Plan.*
- *Mine Closure Plan.*
- *Final Void Management Plan.*

1.5.10.3 Environmental Performance and Monitoring

Since the commencement of activities on ML 1563, the Proponent has monitored noise, vibration, air quality, groundwater and surface water to determine compliance with the conditions of DA 172-7-2004 and EPL 12290. **Figure 1.8** identifies the locations of all environmental monitoring currently undertaken on and adjacent to the Werris Creek Coal Mine. The environmental performance of the operations to date can therefore be assessed using the completed monitoring data and a review of cultural heritage management and complaints received from the general public.

Noise Monitoring

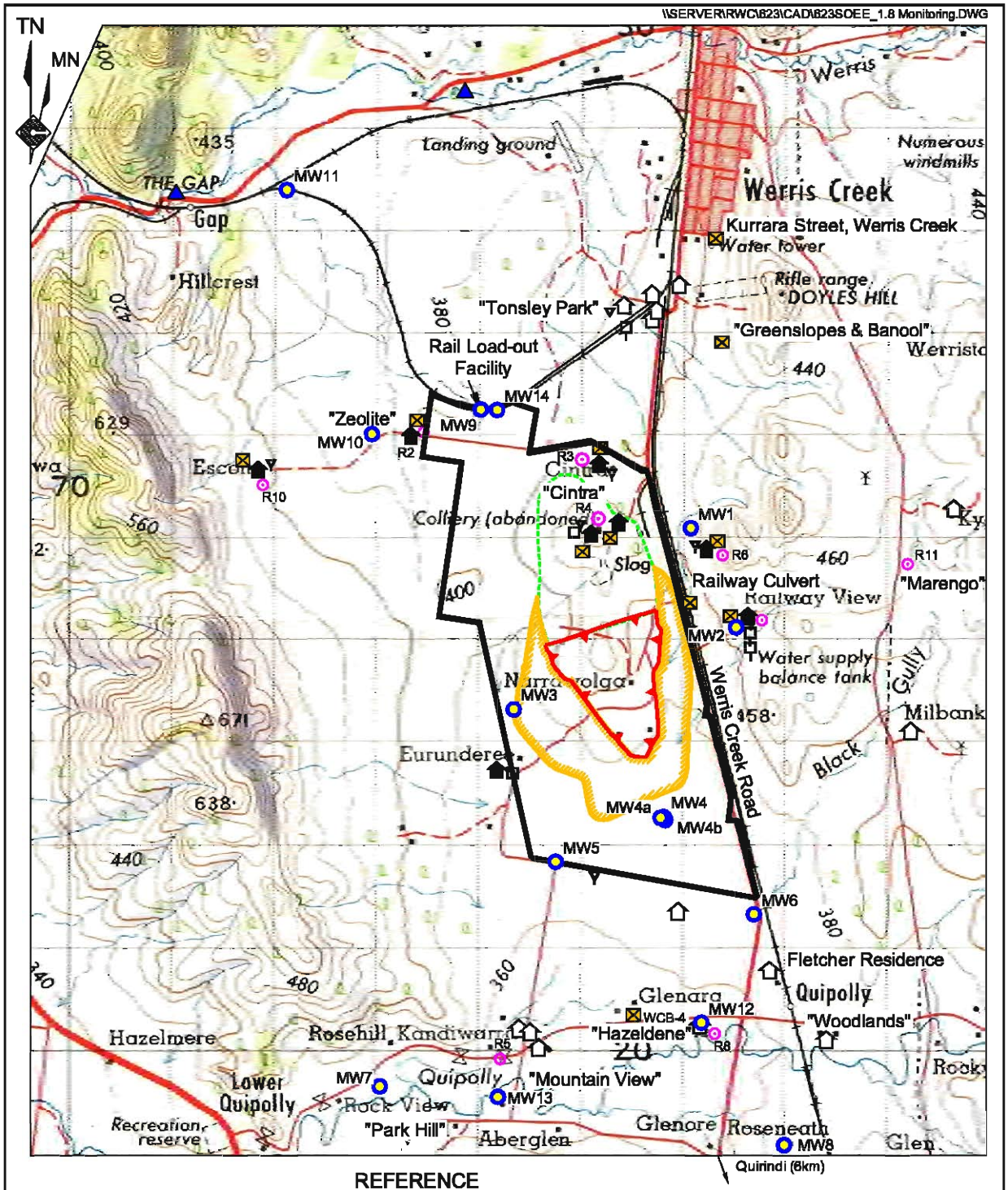
The management of operational noise at the mine is undertaken in accordance with a *Noise Management Plan* (NMP) to assess compliance against Condition 4(7) of DA 172-7-2004 which states:

> *'The Applicant shall ensure that noise generated by the development does not exceed the noise impact assessment criteria presented in Table 7 at any residence on privately-owned land.*

Day (Construction) $L_{Aeq(15\ minute)}$	Day (Operations) $L_{Aeq(15\ minute)}$	Evening ($L_{Aeq(15\ minute)}$	Night $L_{Aeq(15\ minute)}$	Night $L_{A1(1\ minute)}$
40	35	35	35	45

Table 7: Noise Impact Assessment Criteria dB (A)'

The 100% acquisition of the Werris Creek Coal Mine by WCL in December 2007 resulted in the improvement of noise performance and compliance through the implementation of the additional noise management measures.



REFERENCE

- Project Site Boundary
- Approved Open Cut Boundary
- Proposed LOM Project Open Cut Boundary
- Proposed LOM Project Out-of-Pit Overburden Emplacement Boundary
- Rail Load-out Road

- Residence (Project-related)
- Residence (Non Project-related)
- Blast Monitoring Location *
- Noise Monitoring Location
- Deposited Dust Monitoring Location
- High Volume Air Sampler Location
- Surface Water Monitoring Location
- Groundwater Monitoring Location

*** Note:** Some blast monitoring locations are no longer monitored

SCALE 1:60 000

1 0 1 2 3km

Base Map Source: Tamworth (1972) 1:100 000 Topographic Map

Figure 1.8
ENVIRONMENTAL MONITORING LOCATIONS

Table 1.3 illustrates that between April 2009 and September 2010 there was only one noise exceedance at non-mine owned properties or properties that had not entered into a noise agreement. Another five elevated noise results were recorded at non-mine owned properties during atmospheric conditions when winds speeds were greater than 3m/s and/or there was a temperature inversion of more than +3° C/100m. The operation's licence conditions indicate that compliance with noise emission criteria is not applicable under these conditions and therefore **Table 1.3** does not show these results as exceedances. The other noise exceedances summarised in **Table 1.3** relate to noise monitoring that was conducted at residences owned by the Proponent and therefore are not required to meet the noise criteria.

It is noted that an exceedance of noise criteria was identified at the "Glenara" property, to the south of the Project Site, in October 2010. The Proponent informed both the Department of Planning DoP), and Department of Environment, Climate Change and Water (DECCW) of the exceedance and actions being implemented to mitigate this exceedance and prevent further occurrences. In an email sent to the Proponent on 9 November, DECCW acknowledged the minor nature of the exceedance and the efforts being taken by the Proponent to reduce and manage noise levels. DECCW deemed it not necessary to take any further action against the Proponent.

Air Quality Monitoring

The Proponent maintains a network of deposited dust gauges and high volume air samplers (HVAS) to monitor total suspended particulate matter (TSP) and the <10µm component of airborne particulate matter (PM_{10}) (see **Figure 1.8**). **Table 1.4** provides a summary of the results of deposited dust (insoluble solids) monitoring from March 2009 to February 2010 for the Werris Creek Coal Mine.

Table 1.5 provides a summary of the results of PM_{10} and TSP monitoring completed for the Werris Creek Coal Mine over the last 12 months.

Dust and airborne particulate matter monitoring results for the last 12 months indicate that at the closest neighbouring properties, dust emissions directly related with Werris Creek Coal Mine did not exceed the operation's development consent conditions. Although **Table 1.3** indicates some dust deposition results above the relevant criteria, these results have been excluded as it has been determined based on laboratory analysis, visual inspection of the sample and/or records of naturally occurring events that these results do not reflect dust emissions from the Werris Creek Coal Mine operations and are a result of organic contamination such as insects or a natural event such as a bushfire.

Table 1.4 shows that a small number of airborne particulate matter results were above the 24 hour limit for PM_{10} of 50µg/m^3. All of these elevated results were recorded at Project related properties only. No privately owned properties have recorded airborne particulate levels exceeding the development consent conditions within the last 12 months.

Surface Water Monitoring

Monitoring of surface water has been undertaken from SB2, SB6, SB9, SB10 and void water dams VWD1 and VWD2 (see **Figure 1.8**) at quarterly intervals. In addition, water discharged from the licensed discharge points SB2, SB9 and SB10, as well as water within Werris and Quipolly Creeks upstream and downstream of the mine, are sampled within 12 hours of the commencement of any discharge.

Table 1.3
Werris Creek Coal Mine – Noise Monitoring Results April 09 to September 10

Monitoring Location	Period	Noise Criteria (dB(A),Leq)	Measured Noise Levels (dB(A),Leq) – All Noise Sources including Werris Creek Coal Mine
*^Zeolite Australia	Day	35	*39, 39, 42, 37, 48, 41*
#Cintra		35	*38*, **38(36)**, *45, 50, 47,* **42(38)**, *35,* **41(40)**, *45, 43, 44*
*%Old Colliery		35	*39*, 35, *45,* **44(44)**, *46*
^Mountain View		35	*43*, 35, *42,* 35, *51, 36*
*^Hillview		35	**55(37)**, **57(36)**, *65,* **49(43)**, *48*
*^Railway View		35	*46*, **46(42)**, *52,* **50(49)**, **47(43)**
^Hazeldene		35	*37*, *42, 40, 38, 35, 42*
*^Escott		35	*35*, 35, *38,* 35, *48,* 29
*+Marengo		35	*41*, 32, **42(40)**, 33, *46,* 33, *35*
**Almawillee		35	*35, 42, 37, 42, 36, 33*
**Glenara		35	*39, 41, 45, 45, 43, 35*
**Tonsley Park		35	*48, 38, 39, 43, 45, 36*
**Fletcher		35	*39, 32, 45, 43, 38, 43*
*Zeolite Australia	Evening	35	*30*, 33, *38, 42, 38, 29*
#Cintra		35	*29*, 34, *41, 42, 39, 39, 33, 39, 41, 37, 40, 38*
*%Old Colliery		35	*35*, *40, 40, 53, 49*
^Mountain View		35	*30*, 30, *40, 37, 32, 29*
*Hillview		35	*50*, *56, 43, 60, 74, 50*
*Railway View		35	**51(46)**, **47(47)**, *52, 48, 56, 50*
^Hazeldene		35	31, 30, *43, 43, 29, 35*
*^Escott		35	*32*, 32, *33, 43, 30, 32*
*+Marengo		35	*40, 35, 33, 35, 35, 36, 35, 37*
**Almawillee		35	*35, 38, 38, 44, 49, 40*
**Glenara		35	*30, 40, 35, 36, 37, 37*
**TonsleyPark		35	*31, 49, 32, 49, 39, 47*
**Fletcher		35	*30, 38, 43, 44, 48, 44*
*Zeolite Australia	Night	35	*26*, *35, 38, 42, 41, 33*
#Cintra		35	*33*, *33,* 35, *41, 44, 35, 32, 33, 34, 31,* **38(37)**, *34*
*%Old Colliery		35	*35*, *44, 38, 47, 47*
^Mountain View		35	*28*, *35, 38, 34, 31, 34*
*Hillview		35	*42*, *43, 46, 50, 52, 54*
*Railway View		35	*44*, *46, 50, 52, 57, 55*
^Hazeldene		35	*38*, *47, 41, 45, 36, 37*
*^Escott		35	*26*, *35, 33, 36, 37, 30*
*+Marengo		35	*40, 32, 34, 40, 39, 40*, 31
**Almawillee		35	*26, 37, 38, 31, 37, 34*
**Glenara		35	*26, 35, 35, 33, 38, 36*
**TonsleyPark		35	*30, 44, 39, 35, 40, 32*
**Fletcher		35	*56, 36, 37, 32,* 32, *34*

**Company Related Property* *#Under a noise agreement at the time of monitoring*
^Ceased monitoring October 2009 *+ Commenced monitoring September 2009*
%Ceased monitoring September 2009 ***Commenced monitoring October 2009*
Italics – Measurement taken when wind speed greater than 3m/s and/or temperature inversion of +3°C/100m present or noise level not attributed to mining operations
Bold – Noise measurement recorded noise emissions from mining operations above licence criteria.
Numbers in brackets represent the contribution to the noise environment by Werris Creek Coal Mine only when the noise emissions from mining operations were measured above the licence criteria.

Source – Spectrum Acoustics

Table 1.4
Deposited Dust Monitoring Results

	WC1	WC2	WC3	WC4	WC5	WC6	WC7	WC8	WC9	WC10	DA
	Escott	Cintra	The Colliery	Hillview	Railway View	Southern Boundary	Tonsley Park	Plain View	Marengo	Mountain View	Limit
Oct 2009	1.7*	3.3	2.9*	2.5*	2.4	37.5 [c]*	2.1				**3.6**
Nov 2009		2.8			0.9		0.9	0.7**	0.6**		**3.6**
Dec 2009		1.4			1.0		1.5	1.4	1.4		**3.6**
Jan 2010		2.1			0.9		2.0	2.1	1.2		**3.6**
Feb 2010		2.0			1.5		1.5	2.1	3.3		**3.6**
Mar 2010		1.7			1.2		50.0[#]	3.1	1.1		**3.6**
Apr 2010		2.0			1.6		0.9	0.7	0.4		**3.6**
May 2010		1.2			1.0		1.0	5.1[#]	0.4		**3.6**
June 2010		2.1			1.6		1.2	2.0	2.0		**3.6**
July 2010		0.7			0.8		0.7	0.5	0.4		**3.6**
Aug 2010		0.5			0.9		0.6	0.9	0.3	0.7**	**3.6**
Sept 2010		1.4			0.6		0.5	0.8	0.5	0.7	**3.6**
MEAN	1.7	1.8	2.9	2.5	1.2	-	1.2	1.4	1.1	0.7	**3.6**
MIN	1.7	0.5	2.9	2.5	0.6	-	0.5	0.5	0.3	0.7	**NA**
MAX	1.7	3.3	2.9	2.5	2.4	-	2.1	3.1	3.3	0.7	**3.6**

* Dust deposition monitoring gauges decommissioned during the period as no longer non-mine owned properties due to Werris Creek Coal Pty Limited acquisition
** Dust deposition monitoring gauges commissioned during the period
[#] Sample contaminated from local dust source non-mining-related (i.e. fire)
Source: Werris Creek Coal Pty Limited

Table 1.5
PM_{10} and TSP Monitoring Results

Month	Monitoring Location[1]				
	WCHV1[2] (µg/m3)	WCHV2[2] (µg/m3)	WCHV3[2] (µg/m3)	WCHV4[2] (µg/m3)	WCTSP (µg/m3)
October 09	33,18,11,28,5	37,3,7,29,3	31,5,17,***55***,1	29,1,<1,5,<1	71,33,79,134,6
November 09	28,6,22,***59***,38	12,8,18,33,32	17,6,10,32,28	3,2,4	40,12,24,52,44
December 09	17,***70***,***51***,21,15	7,46,43,19,14	7,***58***,40,19,14	-	49,54,58,63,68
January 10	10,15,27,20,33	12,15,24,18,31	10,14,24,26,29	-	11,23,44,72,47
February 10	18,8,26,14,19	16,11,23,13,16	14,11,21,10,12	16,22,23,***73***,17	23,16,45,21,28
March 10	16,24,8,26,29	12,13,5,26,25	8,12,5,28,50	15,19,8,25,27	16,38,12,59, 131
April 10	23,6,36,8,6	9,5,17.2,4	9,3,22,4,3	8,7,12,14,4	17,10,63,14,12
May 10	13,25,33,34,5	10,13,17,16,6	9,14,15,12,5	9,15,19,6,11	25,45,42,57,13
June 10	1,6,5,9,19	0,6,9,8,8	6,8,4,7,11	1,3,4,5,8	1,8,11,17,22
July 10	21,14,11,17,13	16,13,11,20,15	15,9,7,9,10	14,13,8,10,23	30,19,12,14,15
August 10	14,17,16,22,16	16,19,17,21,16	13,25,16,23,17	14,14,15,17,14	15,56,19,41,21
September 10	6,4,2,6,21	9,5,1,3,14	5,4,2,7,17	5,3,2,5,11	10,12,14,25,48
Annual Average	19.1	14.8	14.8	13.5	34.7

Note 1:see **Figure 1.8** **bold identifies exceedance of associated criterion**
Note 2: PM_{10} Results
Source: Werris Creek Coal Pty Limited

Monitoring is undertaken to assess compliance with Condition L3.1 and L3.4 of EPL12290 which state:

L3.1 'For each monitoring/discharge point or utilisation area specified in the table below (by a point number), the concentration of a pollutant discharged at that point, or applied to that area, must not exceed concentration limits specified for that pollutant in the table'.

Pollutant	Units of Measure	50 Percentile Concentration Limit	90 Percentile Concentration Limit	3DGM Concentration Limit	100 Percentile Concentration Limit
pH		-	-	-	6.5 ≤ pH ≥ 8.5
TSS	mg/L	20	35	-	50
Grease & Oil	mg/L	-	-	-	10

(for points 10, 12 and 14 as specified in the EPL)

L3.4 'The Total Suspended Solids concentration limits for Points 10, 12 and 14 may be exceeded for water discharged from the sediment basins provided that:

a) the discharge occurs solely as a result of rainfall measured at the premises that exceeds 32.9mm over any consecutive 5 day period immediately prior to the discharge occurring; and

b) all practical measures have been implemented to dewater all sediment dams within 5 days of rainfall such that they have sufficient capacity to store run off from a 39.2mm, 5 day rainfall event'.

Since alterations to the water management system in 2008, there have been a total of six discharges from the existing operations to Quipolly Creek, via either SB2 or SB9 (to September 2010). No discharges have occurred from SB10 which reports to Werris Creek. Following each discharge, water samples were taken from the discharge point, as well as the receiving waters upstream and downstream of where discharged water from the site enters the creek, and tested for a range of water quality parameters. The results of water quality monitoring following each discharge between October 2008 and September 2010 are summarised in **Table 1.6**. Discharge data collected prior to 2008 is not representative of the current environment, so is not presented. While there have been three discharge events with elevated TSS levels (refer to **Table 1.6**), five day rainfall levels prior to each discharge were greater than 39.2mm and therefore were in accordance with EPL 12290.

Groundwater Monitoring

In accordance with a groundwater monitoring program contained within the mine's *Site Water Management Plan* (SWMP), groundwater levels are monitored quarterly at the 16groundwater monitoring bores on and surrounding the Project Site (see **Figure 1.8**). In accordance with *Condition 4(36)* of DA 172-7-2004, the collected groundwater data is independently reviewed on an annual basis by an approved consultant. **Figure 1.9** provides a summary of groundwater levels that has been collected since 2005 with the levels reflecting the specific aquifer monitored and position within the catchment.

Figure 1.9 shows that monitored groundwater levels around the Werris Creek coal mine have remained relatively stable since the commencement of mining in 2005. A chemical analysis of the water within these bores is also undertaken quarterly. **Tables 1.7** and **1.8** summarises the groundwater monitoring results for the last 12 months.

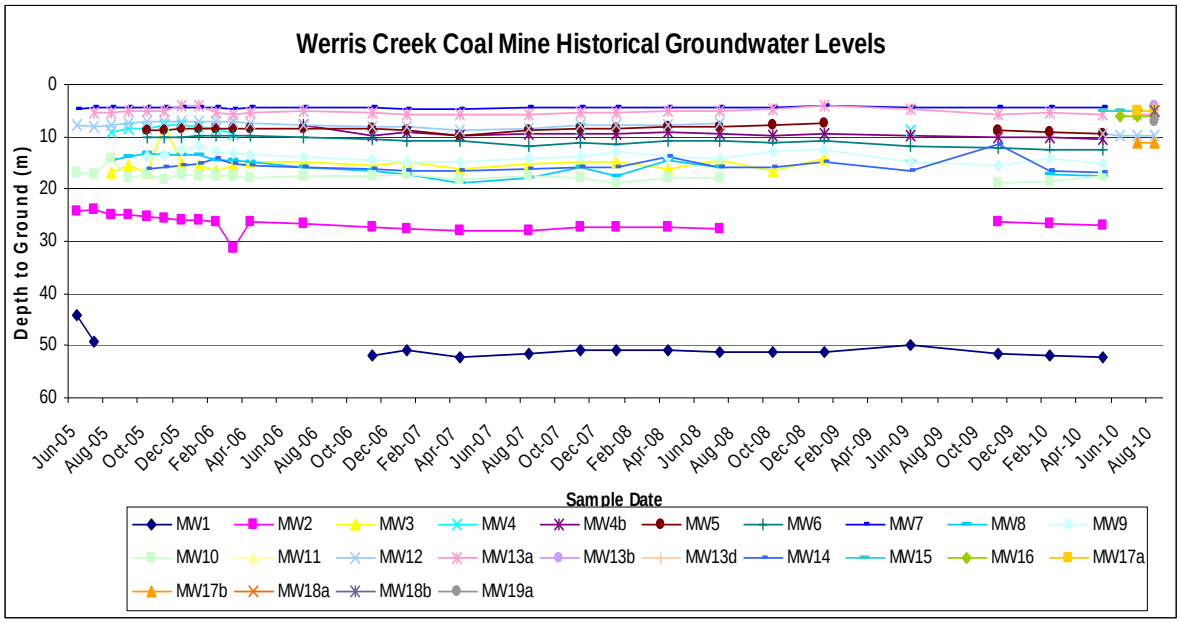
Table 1.6
Discharge Point Monitoring Results

Sample Location	EC (µS/cm)	Nitrate Nitrogen (mg/L)	Oil and Grease (mg/L)	pH	Reactive P (mg/L)	Total N (mg/L)	Total P (mg/L)	TSS (mg/L)
EPL 12290 CRITERIA			10	6.5-8.5				50
Discharge – 7 October 2008								
SB2 (reports to QC[1])	375	-	<2	7.5	-	-	-	22
QC-UP	400	-	<2	7.9	-	-	-	21
QC-Down	380	-	<2	7.5	-	-	-	41
Discharge – 28 November 2008								
SB9 (reports to QC)	50	<0.1	<5	7.0	0.74	1.3	0.85	**69**
SB2 (reports to QC)	360	<0.1	<5	8.5	0.02	0.38	0.05	8
QC-UP	60	0.8	<5	7.4	0.26	2	0.64	2740
QC-Down	890	<0.1	<5	7.8	0.1	0.11	0.14	10
Discharge –13 December 2008								
SB9 (reports to QC)	50	<0.1	10	6.9	0.53	0.85	0.69	**68**
SB2 (reports to QC)	280	0.5	7	7.5	0.29	1.9	0.47	**154**
QC-UP	220	0.4	7	7.1	0.23	0.6	0.61	466
QC-Down	790	<0.1	6	7.8	0.18	0.38	0.22	13
Discharge[2] – 4 & 6 January 2010								
SB9 (reports to QC)	122		<5	7.41				30
QC-UP	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
QC-Down	687	-	<5	7.71	-	-	-	10
Discharge – 15 February 2010								
SB9 (reports to QC)	129	0.1	<5	7.9	<0.01	1.5	0.18	**138**
QC-UP	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
QC-Down	861	0.02	<5	7.82	0.1	0.3	0.1	10
Discharge – 5 May 2010								
SB9 (reports to QC)	173	<0.01	<5	7.98	0.04	1.6	0.35	46
QC-UP	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
QC-Down	1010	0.3	<5	7.99	0.02	0.3	0.15	8

Bold – data exceeds EPL12290 100 percentile criteria
Note 1 - QC = Quipolly Creek
Note 2 - SB9 sample was taken on 4/1/10 while sampling in Quipolly Creek was completed on the 6/1/2010

Source: GSSE (2010) – Table 7

During the last 12 months, the pH of the groundwater in all the bores has remained near neutral (**Table 1.7**).The electrical conductivity (EC) in the water in the bores ranged between approximately 500µS/cm in MW7 and MW12 up to around 4000µS/cm in MW5 dependent of the aquifer, with the Quipolly alluvium having the less saline (fresh) water quality. EC and pH levels in all monitoring bores have generally remained stable since the commencement of monitoring.



Source: Werris Creek Coal Pty Limited

FIGURE 1.9
HISTORICAL GROUNDWATER LEVELS

Table 1.7
Groundwater Monitoring Results

Date	Analyte	MW1	MW2	MW3	MW4	MW4b	MW5	MW6	MW7
Jun-09	pH	6.80	7.20	-	7.20	7.90	-	7.00	6.90
	EC(µS/cm)	1280	930	-	4110	990	-	2060	510
Aug-09	pH	7.00	7.50	8.10	c	7.50	7.40	7.20	7.70
	EC(µS/cm)	1230	980	890	c	1070	2150	1930	520
Nov-09	pH	6.86	6.70	8.04	c	7.42	7.00	7.61	7.91
	EC(µS/cm)	1254	1020	840	c	1080	2660	1973	590
Feb-10	pH	7.65	7.57	8.36	c	7.70	7.41	7.54	7.79
	EC(µS/cm)	1289	1027	1742	c	1078	2440	1990	561
May-10	pH	7.56	8.27	7.81	c	8.06	7.50	8.08	-
	EC(µS/cm)	1880	1470	760	c	950	4080	2920	-

Date	Analyte	MW8	MW9	MW10	MW11	MW12	MW13	MW14	
Jun-09	pH	7.20	7.20	7.50	7.50	7.10	6.80	7.10	
	EC(µS/cm)	1250	860	1670	1270	500	1050	1140	
Aug-09	pH	7.60	7.20	7.30	7.70	7.60	7.30	7.20	
	EC(µS/cm)	1240	900	1940	1580	570	880	1140	
Nov-09	pH	7.04	7.17	7.30	7.50	7.56	7.46	7.04	
	EC(µS/cm)	1402	905	2007	1365	529	912	1260	
Feb-10	pH	7.64	7.78	7.48	7.62	7.78	7.79	7.74	
	EC(µS/cm)	1467	885	1875	1410	602	840	1310	
	pH	8.05	7.79	8.50	8.45	8.20	7.92	8.10	
	EC(µS/cm)	2190	873	2860	2000	488	676	1830	

Source: Werris Creek Coal Pty Limited

A further three piezometers (P1, P2 and P3) to the north and south of the open cut area are monitored with continuous data loggers (see **Figure 1.8**). The 2009-2010 groundwater report (Geoterra, 2010) noted that the results of the loggers to March 2010 do not show depressurisation within the Werrie Basalt aquifer as a result of mining operations at the Werris Creek Coal Mine. Piezometer P3 was removed at the end of December 2009 following approval to Modification 5 due to its close proximity to the working area of the mine. A replacement location will be established in the near future for ongoing monitoring purposes.

Blast Monitoring

All blasts at the mine are monitored in accordance with a *Blast Monitoring Program* (BMP) to assess compliance against Conditions 4(18) and 4(19) of DA 172-7-2004 which state:

> *'The Applicant shall ensure that the airblast overpressure level from blasting at the development does not exceed the criteria in Table 10 at any residence on privately-owned land.*

Airblast Overpressure Level (dB(LinPeak))	Allowable Exceedance
115	5% of the total number of blasts over a 12 month period
120	0%

Source: DA 172-7-2004 Table 10Airblast Overpressure Impact Assessment Criteria

> *The Applicant shall ensure that the ground vibration level from blasting at the development does not exceed the criteria in Table 11 at any residence on privately owned land or noise sensitive location as defined in the DECCW's Industrial Noise Policy.*

Peak Particle Velocity (mm/s)	Allowable Exceedance
5	5% of the total number of blasts over a 12 month period
10	0%

Source: DA 172-7-2004 Table 11 Ground Vibration Impact Assessment Criteria

With limited exceptions, all blasts have achieved the airblast overpressure and ground vibration criteria nominated in the above conditions. During the last 12 months there have been no exceedances of blast criteria at residences on privately owned land. Two examples of elevated overpressure were recorded at the "Railway View" and "Old Colliery" properties, both of which are now owned by Werris Creek Coal Pty Limited.

1.5.10.4 Aboriginal Cultural Heritage Management

A single site of Aboriginal heritage significance, a set of axe grinding grooves, has been identified at the Werris Creek Coal Mine. In consultation with the local Aboriginal community, this site was relocated on 30 March 2007 to enable mining to be undertaken through the original site, whilst maintaining the heritage values provided by the site.

In accordance with an *Archaeological and Cultural Heritage Management Plan* for the mine approved by the Department of Planning in July 2007, the Proponent retains responsibility for managing the site which, at the completion of mining will be replaced back in a location within the vicinity of its original location in consultation with the relevant Aboriginal stakeholders.

1.5.10.5 Flora and Fauna Management

A biodiversity offset strategy and management plan has been developed based on the approval conditions contained within DA 172-7-2004. The plan includes the offset and management of 362ha of land.

No threatened fauna have been encountered during vegetation clearing campaigns and monitoring has not identified any species or population likely to be significantly impacted by the mining activities.

The Proponent undertakes annual weed eradication campaigns for environmental and noxious weeds, particularly targeting St John's Wort and Bathurst Burr using boom and spot spraying methods.

1.5.10.6 Socio-Economic Contribution

Werris Creek Coal Pty Limited has contributed to the local and regional communities, through the provision of permanent employment (including training opportunities) for residents within the Liverpool Plains Shire (Werris Creek, Quipolly and Quirindi) and within the wider region (local government areas of Tamworth and Gunnedah). Current records show that 36% of all employees reside in the Liverpool Plains Shire LGA, with a further 60% residing in the surrounding LGAs of Tamworth and Gunnedah.

Werris Creek Coal Pty Limited has also continued to support local events and services within the local area. Within the last 12 months, Werris Creek Coal Pty Limited has contributed to events and services including:

- Westpac Rescue Helicopter Service;
- Werris Creek Community Shed;
- Werris Creek Swimming Club;
- Werris Creek Country Women's Association;
- Werris Creek Railway Museum;
- Werris Creek Boy Scouts;
- Quirindi Show, 2009; and
- Currabubula Art Show.

A more detailed analysis of the contribution of the Proponent to the local community is provided in Section 4B.14.3.2.

1.5.10.7 Complaints Management

The Proponent maintains a dedicated community enquiries hotline 24 hours a day for the purpose of complaint registration or community enquiries since operations commenced in 2005. All complaints are investigated to identify the cause, and mitigation measures implemented where necessary and follow-up with the complainant undertaken. **Table 1.8** summarises the complaints that have been received between July 2009 and October 2010.

Table 1.8 illustrates that between July 2009 and October 2010, the complaints to Werris Creek Coal Mine have predominantly related to either noise or blasting.

Table 1.8
Complaints Summary

Month	Complaint Type
July 2009	Noise (1)
August 2009	Blasting Fumes (1)
September 2009	Noise and Blasting (1)
October 2009	Blasting (2)*, Dust from Blasting (1)
November 2009	Blasting (2)*
December 2009	-
January 2010	Noise (1)
February 2010	-
March 2010	Noise (1), Blasting (1)
April 10	Clearing (1), Blasting (2)#, Lights (2)#
May 10	Groundwater Levels (1)
June 10	Blasting (1)
July 10	-
August 10	Noise (1), Blasting (1), Lights (1)
September 10	Dust (2)
October 10	Lighting (3)#, Blasting (2)#
*Complaint related to a time when no blasting had occurred # One complaint combined blasting and lights	
Source – Werris Creek Coal Pty Limited	

1.6 APPROVALS PROCESS

Table 1.9 presents the component stages of the overall approvals process for a major project and provides an indicative Project timetable currently being followed by the Proponent. Based upon the submission of an adequate *Environmental Assessment* in October 2010, and exhibition in December 2010 and January 2011, the determination of the Application by the Minister for Planning (*Stage 12* of **Table 1.9**) could possibly occur by May 2011.

Table 1.9
Approvals Process for a Major Project and the Proponent's Indicative Timing

Stage	Activity	Indicative Timing
1	A draft "*Preliminary Environmental Assessment*" for the Project is prepared and submitted to the Department of Planning for distribution to relevant government agencies.	Completed
2	A Planning Focus Meeting is convened for all relevant government agencies to attend a briefing about the Project and a site inspection.	Not Required
3	The Proponent writes to the Department of Planning lodging its Application for Project Approval and the final *Preliminary Environmental Assessment*.	Completed
4	The Department of Planning receives the written requirements of the government agencies consulted and issues the Director-General's requirements for the Project.	Completed
5	The Proponent commences consultation with the local and wider community – which continues throughout the entire process.	Commenced April 2010 and ongoing
6	An *Environmental Assessment* is provided to the Department of Planning for consideration and assessment of adequacy by the Department and other government agencies (prior to it being placed on public exhibition).	October 2010

Table 1.9 (cont'd)
Approvals Process for a Major Project and the Proponent's Indicative Timing

Stage	Activity	Indicative Timing
7	The *Environmental Assessment* is lodged with modifications reflecting the comments provided by the various government agencies. The Department of Planning will place all documents on public exhibition and notify neighbours and other stakeholders about the Project and the exhibition period.	December 2010*
8	Review of the *Environmental Assessment* during the exhibition period by the community and government agencies.	December 2010 / January 2011*
9	The Department of Planning seeks from the Proponent a response/clarification of issues raised in the submissions from government agencies and the community.	February / March 2011*
10	The Proponent provides a response to the issues raised and, if necessary, a revised Statement of Commitments and if necessary a Preferred Project Report.	March / April2011*
11	The Department of Planning prepares its assessment report based on all documentation submitted by the Proponent, government agencies and the community. If considered appropriate by the Minister, the application will be referred to a Planning Assessment Commission.	April / May 2011*
12	Determination by the Minister for Planning, i.e. either approval or refusal.	May / June 2011*
Note: * Estimated timing only		

1.7 MANAGEMENT OF INVESTIGATIONS

This *Environmental Assessment* has been prepared by Mr Alex Irwin (B.Sc (Hons)), and Mrs Alexandra Mayes (B.Appl.Sc) both Senior Consultants with R.W. Corkery & Co Pty. Limited. Mr Rob Corkery M.Appl.ScB.Appl.Sc (Hons) undertook a peer review of the *Environmental Assessment*. Project information has been supplied by Messrs Danny Young, Andrew Wright and Brian Cullen, Whitehaven Coal Environmental Manager, Werris Creek Coal Mine Environmental Officer and Whitehaven Coal General Manager - Technical Services respectively. Mr Brian Francis of MMG Civil Pty Ltd prepared the mine design for the LOM Project.

Strong emphasis has been placed upon a multi-disciplinary team approach to the design of the LOM Project, the description of the existing environment and resultant impact assessment. The following consultancy firms were commissioned by the Proponent to prepare nominated specialist consultant studies for the LOM Project.

- Groundwater Assessment: RCA Australia.
  (Ms *Fiona Robinson – BEng Env (Hons) MEng).*
- Surface Water and Soils Assessment: GSS Environmental.
  (Mr *Chad Stockham – BEng Env (Hons)).*
- Flora and Fauna Assessment: Eco Logical Australia Pty Ltd.
  (Mr *Lucas McKinnon – BEnvSc (Hons)*).
  (*Mr Robert Humphries – MApSci, BApSc*).
- Aboriginal and Non-indigenous Heritage Assessments: Landskape.
  (*Dr Matt Cupper – PhD, BA Arch/Hist, BSc (Hons)*).

- Noise and Vibration Assessment: Spectrum Acoustics Pty Ltd.
  (*Dr Neil Pennington –PhD, BSc (Physics), B.Math (Hons)*).
- Air Quality Assessment: Heggies Pty Ltd.
  (*Dr Martin Doyle – PhD, BSc (Hons)*).
- Traffic Impact Assessment: Constructive Solutions.
  (*Mr Ben Rossiter –BEng Env*).
  (Mr Jeremy Bartlett – BEng Civil).