

Tarrawonga Coal Project

Environmental Assessment

SECTION 1

INTRODUCTION

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1 INTRODUCTION

This document is an Environmental Assessment (EA) for the Tarrawonga Coal Project (the Project). The Project provides for the extension and continuation of operations at the existing Tarrawonga Coal Mine.

The Tarrawonga Coal Mine is an open cut mining operation located approximately 15 kilometres (km) north-east of Boggabri and 42 km north-northwest of Gunnedah in New South Wales (NSW) (Figure 1-1). Mining operations at the Tarrawonga Coal Mine are currently conducted in accordance with Development Consent (DA-88-4-2005) as modified by the NSW Minister for Planning on 15 October 2010 (DA-88-4-2005 MOD 1)¹.

The Tarrawonga Coal Mine is owned and operated by Tarrawonga Coal Pty Ltd (TCPL), which is a joint venture between Whitehaven Coal Mining Pty Ltd (Whitehaven) (70 percent [%] interest) and Boggabri Coal Pty Limited (BCPL) (a wholly owned subsidiary of Idemitsu Australia Resources Pty Ltd) (30% interest).

The Whitehaven Coal Handling and Preparation Plant (CHPP) is located approximately 35 km to the south of the Tarrawonga Coal Mine on the outskirts of Gunnedah (Figure 1-1). The Whitehaven CHPP currently receives and processes coal from the Tarrawonga, Rocglen and Sunnyside Coal Mines.

1.1 PROJECT OVERVIEW

1.1.1 Purpose of this Report

This EA has been prepared to accompany a Project Application made for the Project, in accordance with Part 3A of the NSW *Environmental Planning and Assessment Act, 1979* (EP&A Act).

The Project was determined to be a “Major Development” to which Part 3A of the EP&A Act applies in accordance with the *State Environmental Planning Policy (Major Development) 2005* (Major Development SEPP) by the Director-General of the NSW Department of Planning (DoP) (now NSW Department of Planning and Infrastructure [DP&I]), as delegate of the then NSW Minister for Planning on 9 March 2011 (Section 6.2).

This EA considers the potential environmental impacts of the Project in accordance with the Director-General's Environmental Assessment Requirements (EARs) issued by the DP&I on 7 July 2011 (Attachment 1).

The EARs were issued in accordance with the requirements of Part 3A of the EP&A Act and Part 1A of the NSW *Environmental Planning and Assessment Regulation, 2000* (EP&A Regulation). A summary of the EARs is provided in Section 1.2.

The Project was referred to the Commonwealth Minister for Sustainability, Environment, Water, Population and Communities (Commonwealth Minister) in April 2011, and was subsequently determined to be a “controlled action” under the Commonwealth *Environment Protection and Biodiversity Conservation Act, 1999* (EPBC Act).

The Commonwealth of Australia and the State of NSW governments have signed a Bilateral Agreement which accredits the NSW assessment regime under Part 3A of the EP&A Act for assessment purposes under the EPBC Act.

The relevant framework for EPBC Act assessment of the Project under the Bilateral Agreement is described in Section 6.3.

1.1.2 Background

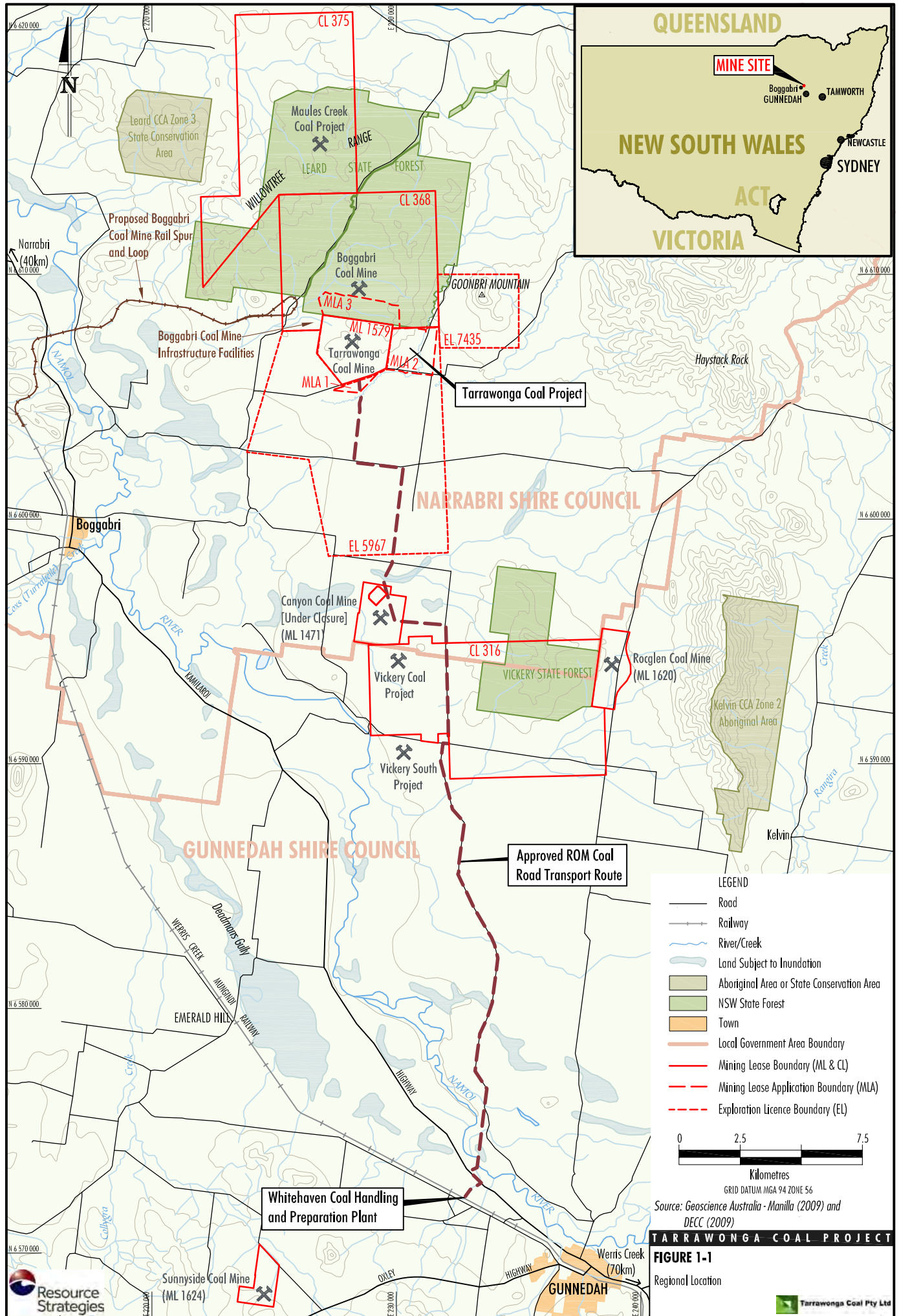
The location of the Tarrawonga Coal Mine is shown on Figure 1-1.

The Tarrawonga Coal Mine commenced operations in 2006 and currently produces up to approximately 2 million tonnes per annum (Mtpa) run-of-mine (ROM) coal and under current approvals would operate until 2017. A description of the existing/approved mining operations at the Tarrawonga Coal Mine and its history of approvals is provided in Sections 2.1 and 2.2, respectively.

Conventional open cut mining methods are used at the Tarrawonga Coal Mine. Mine waste rock (including overburden and interburden) generated from the open cut is placed in two adjoining out-of-pit mine waste rock emplacements, or emplaced as infill behind the advancing mining operations.

ROM coal is crushed and screened at the coal crushing and screening facility on-site, and the sized ROM coal is loaded to on-highway trucks for transport via road (Figure 1-1) to the Whitehaven CHPP. Some ROM coal is also sized to domestic specifications at an on-site mobile crusher for direct collection at the mine site by customers.

¹ Throughout this EA, the consolidated Development Consent is referred to as DA-88-4-2005.



At the Whitehaven CHPP, the sized ROM coal is either directly loaded onto trains (i.e. bypasses the washery) or is crushed, screened, washed and loaded onto trains for dispatch to the Port of Newcastle via the Werris Creek Mungindi Railway as low ash, thermal and/or semi-soft coking coal products.

1.1.3 Project Summary

The proposed life of the Project is 17 years, commencing 1 January 2013, or when necessary approvals are in place.

Table 1-1 provides a summary comparison of the existing Tarrawonga Coal Mine and the Project components.

The main activities associated with the development of the Project would include:

- continued development of mining operations in the Maules Creek Formation to facilitate a Project ROM coal production rate of up to 3 Mtpa, including open cut extensions:
 - to the east within Mining Lease (ML) 1579 and Mining Lease Application (MLA) 2; and
 - to the north within Coal Lease (CL) 368 (MLA 3) which adjoins ML 1579;
- ongoing exploration activities;
- construction and use of a services corridor (including haul road link) directly from the Project open cut mining operation to the upgraded Boggabri Coal Mine Infrastructure Facilities²;
- use of upgraded Boggabri Coal Mine Infrastructure Facilities for the handling and processing of Project coal and the loading of Project product coal to trains for transport on the Boggabri Coal Mine private rail spur to the Werris Creek Mungindi Railway¹;
- construction and use of a new mine facilities area including relocation of existing mine facilities infrastructure and service facilities;
- use of an existing on-site mobile crusher for coal crushing and screening of up to 150,000 tonnes (t) of domestic specification coal per annum for direct collection by customers at the mine site;

- use an existing on-site mobile crusher to produce up to approximately 90,000 cubic metres (m³) of gravel materials per annum for direct collection by customers at the mine site;
- progressive backfilling of the mine void behind the advancing open cut mining operation with waste rock and minor quantities of coarse reject material;
- continued and expanded placement of waste rock in the Northern Emplacement (including integration with the Boggabri Coal Mine emplacement) and Southern Emplacement, as mining develops;
- progressive development of new haul roads and internal roads, as mining develops;
- realignment of sections of Goonbri Road and construction of new intersections;
- construction of an engineered low permeability barrier to the east and south-east of the open cut to reduce the potential for local drainage of alluvial groundwater into the open cut;
- removal of a section of Goonbri Creek within the Project open cut and the establishment of a permanent Goonbri Creek alignment and associated flood bund to the east and south-east of the open cut;
- progressive development of sediment basins and storage dams, pumps, pipelines and other water management equipment and structures;
- continued development of soil stockpiles, laydown areas and gravel/borrow areas;
- ongoing monitoring and rehabilitation; and
- other associated minor infrastructure, plant, equipment and activities.

Approximately 50.5 million tonnes (Mt) of ROM coal would be mined from the open cut during the life of the Project.

In Project Year 1 only, or until approvals and upgrades are in place for the transfer of Project ROM coal to the Boggabri Coal Mine Infrastructure Facilities (Section 2.5.1), the Project would make continued use of the existing on-site ROM coal handling areas, coal crushing, screening and loadout facilities. Road transport of sized ROM coal to the Whitehaven CHPP would also continue in this initial period (with no increase in the current maximum off-site coal trucking rate).

² Subject to approvals and upgrades being in place for the transfer of Project ROM coal to the Boggabri Coal Mine Infrastructure Facilities (Section 2.5.1).

**Table 1-1
Project Summary**

Project Component	Summary of Existing Tarrawonga Coal Mine	Summary of the Project
ROM Coal Production	ROM coal production of up to approximately 2 Mtpa.	ROM coal production of up to approximately 3 Mtpa.
Mine Life	Mining operations until 9 November 2017.	A 17 year Project providing approximately 12 years of further operational life (i.e. until 2029).
ROM Coal Handling and Transport	On-site ROM coal crushing and screening facility produces sized ROM coal. Sized ROM coal transported off-site by road to the Whitehaven CHPP.	Continued use of the on-site coal crushing and screening facility and continued transport of sized ROM coal by road to the Whitehaven CHPP in Year 1 ¹ . Project ROM coal would then be hauled directly from the Project open cut to the upgraded Boggabri Coal Mine Infrastructure Facilities.
Coal Processing and Product Coal Loadout	At the Whitehaven CHPP sized ROM coal is either directly loaded to trains or processed in the CHPP prior to being loaded onto trains for transport on the Werris Creek Mungindi Line.	Continuation of the current handling and processing of coal at the Whitehaven CHPP for Year 1 ¹ . Project ROM coal would then be crushed, screened, washed and product coal loaded onto trains at the upgraded Boggabri Coal Mine Infrastructure Facilities.
Waste Rock Management	Placement of mine waste rock to in-pit and out-of-pit waste rock emplacements including: <ul style="list-style-type: none"> Northern Emplacement up to a maximum height of approximately 370 metres (m) Australian Height Datum (AHD). Southern Emplacement up to a maximum height of approximately 340 m AHD. 	Continued placement of mine waste rock to in-pit and out-of-pit waste rock emplacements including: <ul style="list-style-type: none"> Extension of the Northern Emplacement and integration with the Boggabri Coal Mine emplacement landform to the north. No change to the maximum height of the Northern Extension. Extension of the Southern Emplacement and increase in height to approximately 360 m AHD.
Domestic Coal Production	Use of a mobile crusher for the crushing and screening of up to 450,000 t of ROM coal per annum to produce domestic specification coal.	Continued use of the mobile crusher for the crushing and screening of up to 150,000 t of ROM coal per annum to produce domestic specification coal.
Water Supply	Mine water supply obtained from surface water and groundwater inflows to pit area, sediment basins and storage dams, and licensed groundwater extraction.	No change to key sources of water supply.
Water Management	On-site water management system comprises of water management storages and collection drains, runoff diversions, sediment control and open cut dewatering. Disposal of excess water stored on-site through licensed discharge points.	Extensions to the site water management system as required. Construction of the permanent Goonbri Creek alignment, low permeability barrier and permanent flood bund associated with the eastern extension of the open cut. Continued disposal of excess water via licensed discharge points.
Mine Facilities Area	Crib hut, offices, hardstand, first aid building, maintenance workshop, toilets, wash bay, and light vehicle parking area.	Construction of a new mine facilities area including relocation of existing infrastructure and service facilities.
Mining Operation Hours	Monday to Friday, 7.00 am to 3.30 am the following morning (i.e. 20.5 hours per 24 hour period). Saturday 7.00 am to 6.00 pm.	24 hours per day, seven days per week.
Electricity Supply	On-site diesel-powered generators.	No change.
Employment	Approximately 86 full-time on-site personnel.	At full development, the Project operational workforce would be in the order of 120 on-site personnel. Construction/development activities during the life of the Project would require up to approximately 20 additional people for short periods.

¹ Project Year 1 only, or until approvals and upgrades are in place for the transfer of Project ROM coal to the Boggabri Coal Mine Infrastructure Facilities.

1.1.4 Site Location and Tenure

The Tarrawonga Coal Mine is primarily located within the existing mining tenement ML 1579, however, the Project would extend into two new MLA areas (MLA 1 and MLA 2) (Figure 1-2a) within the existing Exploration Licence (EL) 5967 (Figure 1-1) and also CL 368 (southern portion only).

For the portion of land associated with the Project mining operations within CL 368, Whitehaven and BCPL will lodge a MLA (MLA 3) (Figure 1-2a) or BCPL will apply for the transfer of part of CL 368 to TCPL.

TCPL will lodge relevant MLAs with the NSW Division of Resources and Energy (DRE) (within the NSW Department of Trade and Investment, Regional Infrastructure and Services [DTIRIS]).

Relevant land ownership information for parcels of land associated with the Project and surrounds is provided on Figures 1-2a and 1-2b.

The real property descriptions provided in support of the Project Application are provided in Attachment 2.

The Project is located within the Narrabri Local Government Area (LGA). A description of the land zoning which applies to the Project is provided in Section 6.5.2.

1.1.5 Interaction with other Mining Operations in the Vicinity of the Site

Whitehaven also has interests in a number of other Gunnedah Basin coal mining operations of potential relevance to Project interactions. These include:

- the Rocglen Coal Mine (100% interest) located approximately 17 km south-east of the Project;
- the Sunnyside Coal Mine (100% interest) located approximately 40 km south of the Project;
- the Narrabri Coal Mine (70% interest) located some 26 km west-northwest of the Project; and
- the Canyon Coal Mine site (100% interest) located approximately 10 km south of the Project (operations at this mine ceased in 2009).

In addition, Whitehaven is preparing a development application for the Vickery Coal Project, located approximately 12 km south of the Project (Figure 1-1).

Existing and proposed coal mining and processing operations in the vicinity of the Tarrawonga Coal Mine that may interact with the Project include (Figure 1-1):

- the existing Boggabri Coal Mine and proposed Continuation of Boggabri Coal Mine (CL 368);
- the Whitehaven CHPP; and
- the proposed Maules Creek Coal Project (CL 375).

Descriptions of Project potential interactions and potential cumulative impacts with these and other nearby mining operations are provided in Section 2.5, Attachment 3, and where relevant, Section 4.

1.1.6 Proponent

The Project is being developed by TCPL, which is a joint venture between Whitehaven (70% interest) and BCPL (30% interest). The contact details for TCPL are:

Tarrawonga Coal Pty Ltd
Post Office Box 600
GUNNEDAH NSW 2380
Telephone: (02) 6742 4337

The registered and principal office for Whitehaven is:

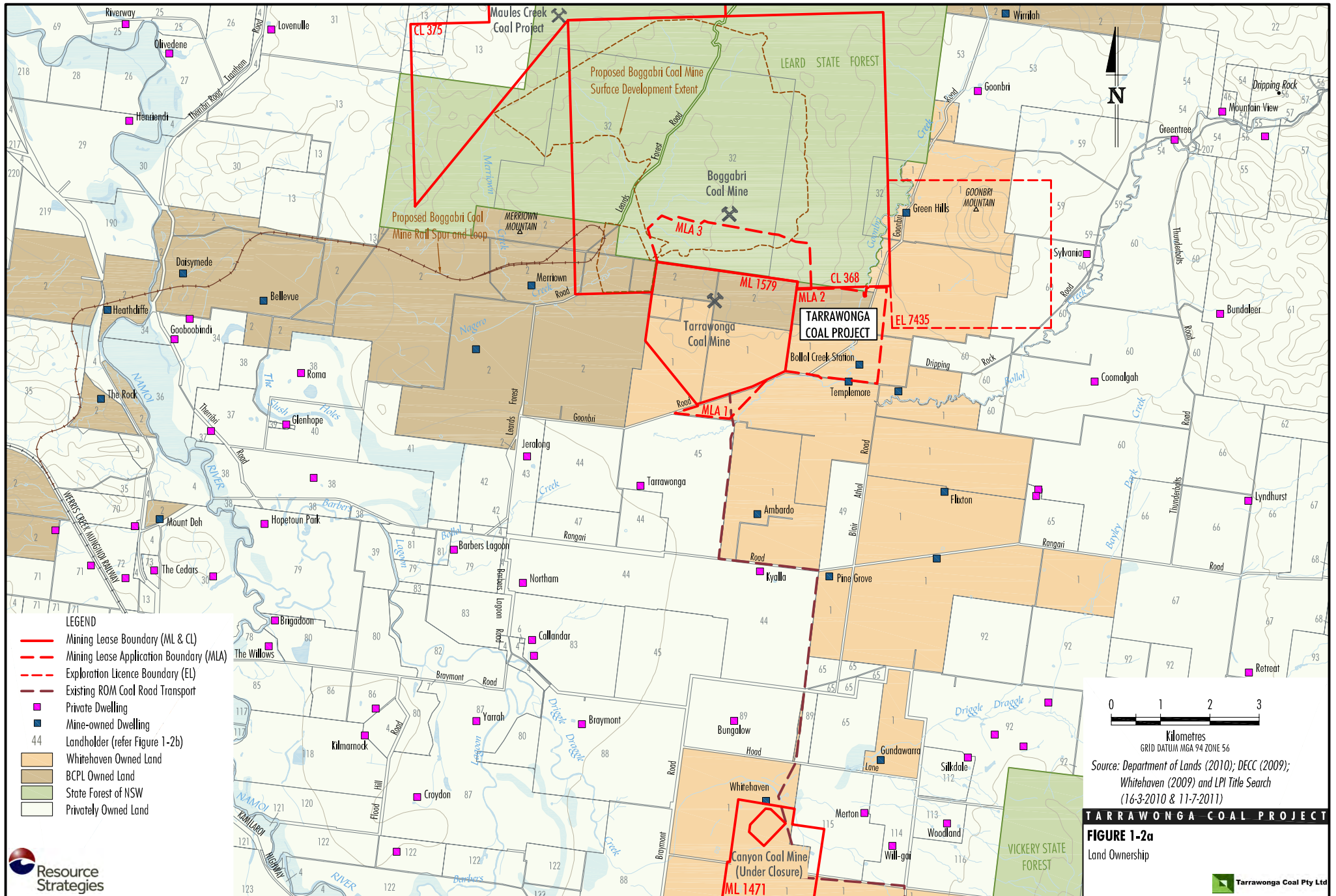
Whitehaven Coal Mining Pty Ltd
Level 25, 259 George Street
SYDNEY NSW 2000
Telephone: (02) 8507 9700

1.2 DIRECTOR-GENERAL'S ENVIRONMENTAL ASSESSMENT REQUIREMENTS

The EARs for the Project were issued by the DP&I on 7 July 2011 (Attachment 1).

A summary of the EARs is provided in Table 1-2. Table 1-2 also provides the relevant section of the EA where the EARs are addressed.

In addition, a summary and index indicating where EPBC Act matters have been addressed in the EA is provided in Appendix G.



REFERENCE No.	LANDHOLDER	REFERENCE No.	LANDHOLDER
1	Whitehaven Coal Mining Pty Limited	62	I. and B. Doshen
2	Boggabri Coal Pty Limited	65	T.R. Hall and A.I. Myers Johnson
4	The State of New South Wales	66	M.G. and F.J. Farquhar
6	Narrabri Shire Council	67	R.L. and K.A. Penrose
7	The Council of the Shire of Namoi	68	P.G. and I.L. Capel
13	Aston Coal 2 Pty Ltd	69	B.G. and K.M. Bomford
22	C.D. and C.A. Baldwin	70	D.W. and A.M. Keys
25	Riverway Boggabri Pty Ltd	71	R.A. and C.M. Collyer
26	Bresrow Pty Ltd	72	R.W. and E.J. Kemp
27	J.A. Bastardo	73	L.W. and M.D. Hunt
28	D.B. Hudson	78	J.M. and N.M. McKechnie
29	P.J. Watson and G. Parkin	79	K.D. Gillham
30	M.F., S.T. and S.L. Hart and P.F. Rice	80	A.D. Watson Holdings Pty Ltd
31	Estate: Perpetual Lease M.J. and M.L. Nott	81	K.L. Grover
32	State Forests of NSW	82	E.C. and J.E. Clarke
34	R.W., A. and R.W. Grover	83	R.P. McGregor
35	Aston Coal 2 Pty Ltd and Boggabri Coal Pty Ltd	85	Kilmarnock (Boggabri) Pty Ltd
36	G.P., L.F. and W.P. Clarke	86	Peter J Watson Holdings Pty Ltd
37	R.J. and E.J. Browning	87	D.S. Riley
38	R.J. Heiler	88	M.J. and J.H. Maunder
39	D.V. Gillham	89	K.A. and C. Blanch
40	D.V. and R.J. Gillham	92	I. Macleod Hall
41	L.E. James and K.E. Woodward	93	G.A. and M.E. Geddes
42	K.R. and K.A. Pryor	112	N.P. and S.A. Jackson
43	G., L.S. and J.A. Suey	113	J.R. and K.L. Fletcher
44	R.R. and P.L. Crosby	114	L.P. and T.G. Mainey
45	R.P. and R.D. McGregor	115	R.D. Mitchell and C.T. Palmer
46	H.J. Lynch	116	C.R. and C.P. Stewart Investments Pty Limited
47	B.J. Crosby	117	J.L. and K. Davis
49	P. and A.C. Laird	118	A.D. Watson
53	V.P. and S.M. McAuliffe	120	Nambarloo Pty Limited
54	P.A. Devine	121	D.M. and C.A. Kirkbride
55	P.J. Brien and D.M. Austin	122	Nandewar Pty Limited
56	F. Agsten	123	Primeag Australia Limited
57	P.N. Bet	190	L.E. Christie-Rockliff
59	P.M. and M.I. Mainey	207	J. and T. Milosevski
60	J.E. and R.J. Picton	217	F.J. Maunder
61	P.W.J. Pritchard and M.E. McDonald Pritchard	218	P.A. Maunder

Source: LPI (2010 & 2011)

TARRAWONGA COAL PROJECT

FIGURE 1-2b
Relevant Land Ownership List

**Table 1-2
Director-General's Environmental Assessment Requirements – Reference Summary***

Summary of Environmental Assessment Requirements	EA Reference
General Requirements	
The EA must include:	
• Executive Summary.	Front of EA
• Description of the Project (including existing and approved development).	Section 2
• Likely interactions between the Project and existing, approved and proposed mining operations in the vicinity of the site.	Section 2.5 and Attachment 3
• Project justification and alternatives considered.	Section 6.9
• Risk assessment of the potential environmental impacts of the Project.	Section 4 and Appendices O and P
• Description of the existing environment.	Section 4
• Assessment of the potential environmental impacts of all stages of the Project, including cumulative impacts.	Section 4
• Consideration of relevant policies, guidelines, plans and statutory provisions.	Section 6 and wherever relevant in the Main EA and Appendices
• Description of the measures to avoid, minimise and, if necessary, offset the potential impacts of the Project including contingency plans.	Sections 4, 5 and 7
• Statement of Commitments.	Section 7
• A conclusion justifying the Project on economic, social and environmental grounds, taking into consideration whether the Project is consistent with the objects of the EP&A Act.	Section 6.9 and Appendix M
• Certification by the author of the EA.	Front of EA
Key Issues	
• Biodiversity.	Sections 4.9 and 4.10 and Appendices E and F
• Water Resources.	Sections 4.4 and 4.5, and Appendices A and B
• Agricultural Productivity.	Sections 4.3 and 4.15 and Appendices I and M
• Air Quality.	Section 4.7 and Appendix D
• Noise and Blasting.	Section 4.6 and Appendix C
• Traffic and Transport.	Section 4.11 and Appendix H
• Heritage.	Sections 4.13 and 4.14 and Appendices K and L
• Greenhouse Gases.	Section 4.8 and Appendix D
• Visual.	Section 4.12 and Appendix J
• Hazard.	Section 4.17 and Appendix P
• Waste.	Section 2.12 and Appendix N
• Rehabilitation.	Section 5 and Appendix I
• Social and Economic.	Sections 4.15, 4.16 and 6.9 and Appendix M
Consultation Requirements	
• Describe consultation with relevant local, State or Commonwealth government agencies, service providers, community groups or affected landowners.	Section 3.1
• The consultation process, and the issues raised during this process, must be described in the EA.	Section 3.1

* The complete version of the EARs is presented in Attachment 1.

1.3 PROJECT CONSULTANTS

This EA was prepared by Resource Strategies Pty Ltd with specialist input provided by the following organisations:

- Whitehaven (*project design, alternatives and justification, preliminary hazard analysis, background data, resource economics, consultation, rehabilitation, final landform, agricultural impact assessment and Statement of Commitments*);
- Minarco-MineConsult (*mine scheduling*);
- Heritage Computing Pty Ltd (*groundwater assessment*);
- RPS-Aquaterra (*groundwater testwork*);
- Gilbert & Associates Pty Ltd (*surface water assessment and permanent Goonbri Creek alignment design*);
- Allan Watson Associates Pty Ltd (*low permeability barrier and final void/highwall design*);
- Fluvial Systems Pty Ltd (*geomorphologic review and permanent Goonbri Creek alignment design*);
- Wilkinson Murray (Sydney) Pty Limited (*noise and blasting assessment*);
- PAEHolmes (*air quality assessment and greenhouse gas assessment*);
- FloraSearch (*flora assessment*);
- Cenwest Environmental Services (*vertebrate and aquatic fauna assessment*);
- Niche Environment and Heritage Pty Ltd (*offset flora surveys*);
- Halcrow Pacific Pty Ltd (*road transport assessment*);
- McKenzie Soil Management Pty Ltd (*agricultural resource assessment and agricultural impact assessment*);
- Urbis Pty Ltd (*visual assessment*);
- Kayandel Archaeological Services (*Aboriginal cultural heritage assessment*);
- Heritage Management Consultants Pty Ltd (*non-Aboriginal heritage assessment*);
- Gillespie Economics (*socio-economic assessment and agricultural impact assessment*);
- Geo-Environmental Management Pty Ltd (*geochemistry assessment*);

- Safe Production Solutions Pty Ltd (*environmental risk assessment*);
- Lloyd Consulting Pty Ltd (*land contamination assessment*); and
- Blake Dawson (*legal review*).

In addition to the above, peer review of the Groundwater Assessment and the two dimensional modelling of the low permeability barrier design was undertaken by Dr Frans Kalf.

1.4 DOCUMENT STRUCTURE

This EA comprises a main text component and supporting studies. The main text component consists of:

- | | |
|-----------|--|
| Section 1 | Provides an introduction to the Project and the EA. |
| Section 2 | Describes the components of the Project (and potential interactions of the Project with other mining operations in the vicinity of the Tarrawonga Coal Mine). |
| Section 3 | Describes the consultation undertaken in relation to the EA and ongoing community involvement. |
| Section 4 | Details the environmental assessment for the Project including a description of the existing environment, an assessment of potential impacts and a description of measures that would be implemented to avoid, minimise, mitigate, offset, manage and/or monitor the potential impacts of the Project. |
| Section 5 | Describes the rehabilitation and landscape management strategy for the Project. |
| Section 6 | Outlines the planning framework and statutory provisions relevant to the Project, describes the Project alternatives, details ecologically sustainable development (ESD) considerations and provides a Project justification. |
| Section 7 | Provides TCPL's Statement of Commitments including a summary of the proposed environmental management, monitoring and reporting and specific environmental commitments in relation to the Project. |

Section 8	Lists documents referenced in Sections 1 to 7 of this EA.	Appendix R	Concept Design for Low Permeability Barrier and Permanent Goonbri Creek Alignment
Section 9	Defines abbreviations, acronyms and terms used in Sections 1 to 7 of this EA.		

Attachments to the main text are also provided as follows:

Attachment 1	Director-General's Environmental Assessment Requirements
Attachment 2	Project Application Area and Real Property Descriptions
Attachment 3	Potential Interactions between the Project and Other Major Projects
Attachment 4	Peer Review Letters
Attachment 5	Community Information

Appendices A to R contain supporting documentation, including a number of specialist reports:

Appendix A	Groundwater Assessment
Appendix B	Surface Water Assessment
Appendix C	Noise and Blasting Assessment
Appendix D	Air Quality and Greenhouse Gas Assessment
Appendix E	Fauna Assessment (incorporating aquatic fauna)
Appendix F	Flora Assessment
Appendix G	Controlling Provisions of the EPBC Act Relevant to the Tarrawonga Coal Project Environmental Assessment
Appendix H	Road Transport Assessment
Appendix I	Agricultural Resources and Productivity Assessment
Appendix J	Visual Assessment
Appendix K	Aboriginal Cultural Heritage Assessment
Appendix L	Non-Aboriginal Heritage Assessment
Appendix M	Socio-Economic Assessment
Appendix N	Geochemistry Assessment
Appendix O	Environmental Risk Assessment
Appendix P	Preliminary Hazard Analysis
Appendix Q	Land Contamination Assessment