

**Narrabri Underground Mine
Stage 3 Extension Project**

Environmental Impact Statement

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1 INTRODUCTION

The Narrabri Mine is an existing underground coal mining operation situated in the Gunnedah Coalfield. The Narrabri Mine is located approximately 25 kilometres (km) south-east of Narrabri and approximately 60 km north-west of Gunnedah, within the Narrabri Shire Council (NSC) Local Government Area (LGA), in the North West Slopes and Plains region of New South Wales (NSW) (Figure 1-1).

The Narrabri Mine is operated by Narrabri Coal Operations Pty Ltd (NCOPL), on behalf of the Narrabri Mine Joint Venture, which consists of Whitehaven Coal Limited's (Whitehaven's) wholly owned subsidiaries Narrabri Coal Pty Ltd (NCPL) (70 per cent [%]) and Narrabri Coal Australia Pty Ltd (7.5%), Upper Horn Investments (Australia) Pty Ltd (7.5%), J-Power Australia Pty Limited (7.5%), Posco International Narrabri Investment Pty Ltd (5%) and Kores Narrabri Pty Limited (2.5%).

This document is an Environmental Impact Statement (EIS) for the Narrabri Underground Mine Stage 3 Extension Project (the Project).

The Project would involve the extension of the underground mining areas at the Narrabri Mine to gain access to additional areas of run-of-mine (ROM) coal reserves within Mining Lease Applications (MLAs) 1 and 2, which are located within Exploration Licence (EL) 6243. This extension would also include an extension to the mine life, development of additional supporting infrastructure and continued use of existing infrastructure.

A detailed description of the Project is provided in Section 2.

1.1 PROJECT SUMMARY

1.1.1 Purpose of This Report

This EIS has been prepared to accompany a Development Application made for the Project, in accordance with Part 4 of the NSW *Environmental Planning and Assessment Act 1979* (the EP&A Act).

This EIS considers the potential environmental impacts of the Project in accordance with the Secretary's Environmental Assessment Requirements (SEARs) and clauses 6 and 7 of Schedule 2 of the NSW *Environmental Planning and Assessment Regulation 2000* (EP&A Regulation) (Attachment 1).

The SEARs were first issued by the Secretary of the NSW Department of Planning and Environment (DP&E) (now the NSW Department of Planning, Industry and Environment [DPIE]) on 28 May 2019, in accordance with the requirements of clause 3 of Schedule 2 of the EP&A Regulation.

A delegate of the Commonwealth Minister for the Environment (the Commonwealth Minister) determined on 30 September 2019 that the proposed action is a "controlled action" and, therefore, the action also requires approval under section 133 of the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

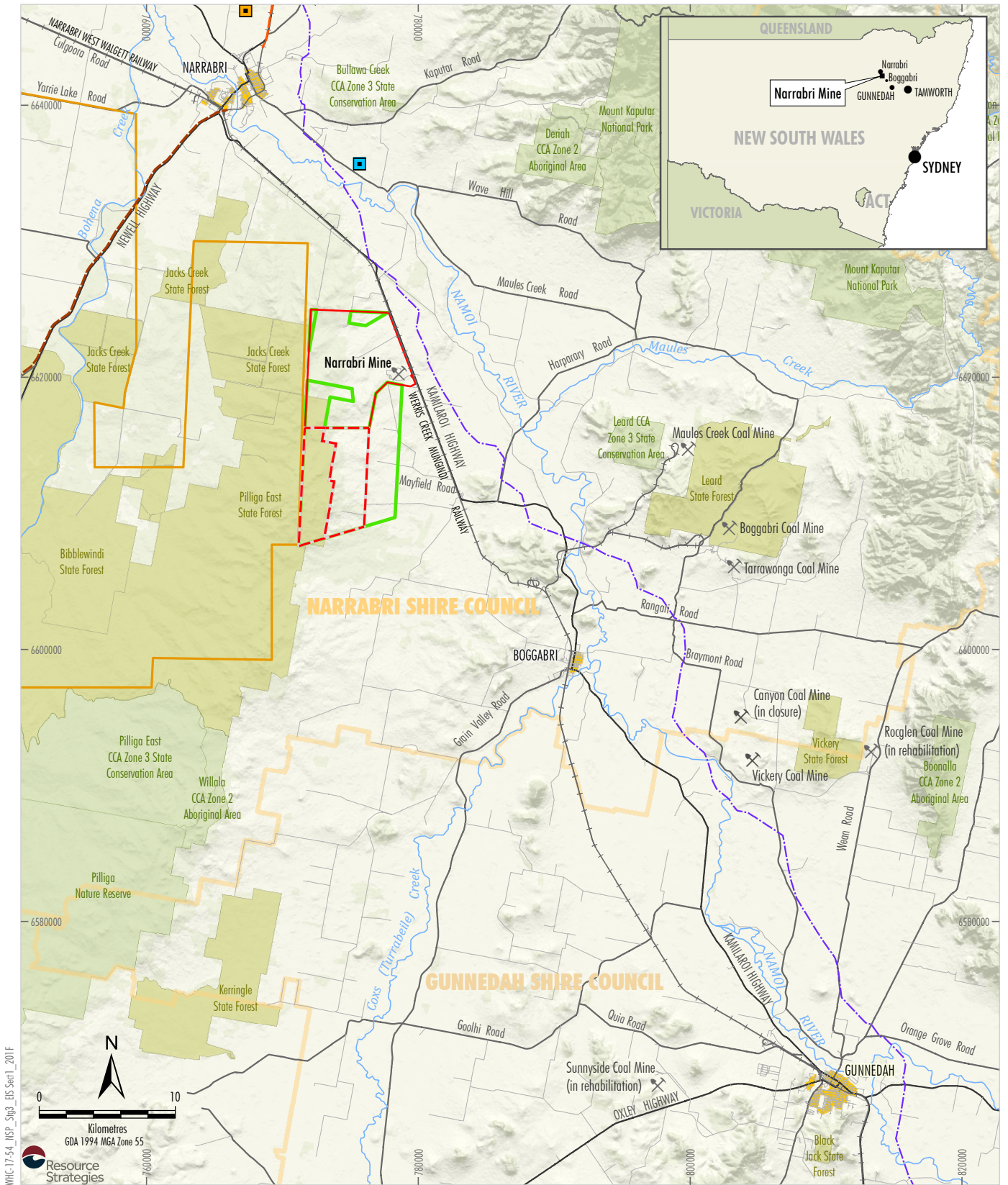
A delegate of the Commonwealth Minister also determined on 30 September 2019 that, pursuant to section 87 of the EPBC Act, the proposed action is to be assessed under the NSW accredited assessment process under Part 4 of the EP&A Act. SEARs were issued on 20 November 2019 to incorporate the assessment by the Commonwealth Department of Environment and Energy (DEE) (now the Commonwealth Department of Agriculture, Water and the Environment [DAWE]). A summary of the SEARs is provided in Section 1.4.

Attachment 3 of the revised SEARs provides guidelines for preparing assessment documentation relevant to the EPBC Act under the NSW accredited assessment process.














Therefore, this EIS provides an assessment of potential impacts (in accordance with the revised SEARs) with respect to the following EPBC Act controlling provisions for the Project:

- EPBC Act listed threatened species and communities; and
- water resources.

A Gateway Application for the Project was submitted to the NSW Government Mining and Petroleum Gateway Panel, and a gateway certificate was issued on 5 June 2019. The revised SEARs (Attachment 1) incorporates advice from the Gateway Panel (Attachment 4 of the revised SEARs).



Source: Geoscience Australia (2011); NSW Spatial Services (2019)

- | | | | |
|---|---|---|--|
|  | LEGEND
Mine Site |  | Other Major Projects
Narrabri South Solar Farm |
|  | Exploration Licence (EL 6243) |  | Proposed Silverleaf Solar Farm |
|  | Mining Lease (ML 1609) |  | Proposed Narrabri Gas Project (Santos NSW [Eastern] Pty Ltd) |
|  | Provisional Mining Lease Application Area |  | Inland Rail (Narrabri to North Star - Phase 1) |
|  | Local Government Boundary |  | Proposed Inland Rail (Narramine to Narrabri) |
|  | State Forest |  | Queensland Hunter Gas Pipeline |
|  | State Conservation Area, Aboriginal Area | | |


NARRABRI STAGE 3 PROJECT
 Regional Location

Figure 1-1

A summary indicating where the revised SEARs have been addressed in the EIS is provided in Attachment 2.

1.1.2 Project Objectives

The Project would facilitate the additional extraction of approximately 82 million tonnes (Mt) of ROM coal relative to the currently approved limit. This ROM coal would be processed at the existing Pit Top Area to primarily produce thermal coal for export markets.

The Project would allow the extension of approved longwall operations and facilitate the continuation of benefits derived from the existing approved Narrabri Mine.

NCOPL has elected to proceed with the Project as proposed due to:

- substantial capital savings associated with the use of the existing infrastructure at the Pit Top Area (compared to a scenario where a new pit top would be constructed to the south);
- the extensive geological and geotechnical data available within the target area in EL 6243; and
- extraction of a significant coal resource that provides an attractive return on investment and can operate as a sustainable long-term enterprise.

The Project would deliver the following benefits:

- additional ROM coal production of 107 Mt compared to the currently approved Narrabri Mine (or 82 Mt relative to the approved limit) (Section 2.6);
- continued employment of the existing operational workforce (up to approximately 520 full-time equivalent personnel) at the Narrabri Mine;
- additional short-term increases in employment associated with development activity throughout the Project life;
- substantial royalty payments (\$259 million in net present value [NPV] terms) paid to the NSW Government;
- positive indirect economic impacts, including employment and business opportunities in the region; and
- continuation of the NCOPL's proposed ongoing community contributions.

A number of alternatives to the Project have been considered by NCOPL (Section 7.2). This EIS presents and assesses NCOPL's preferred indicative design and staging for the Project.

Details of how the Project addresses the principles of Ecologically Sustainable Development (ESD) are provided in Section 7.4.3.

1.1.3 Site Location and Tenure

Table 1-1 provides details of the existing mining and exploration tenements relevant to the Project.

Table 1-1
Mining and Exploration Tenements

Tenement Reference	Expiry
Mining Tenement	
ML 1609	18 January 2029
Exploration Tenement	
EL 6243	20 May 2019 (application for renewal lodged 17 May 2019)

ML = Mining Lease.

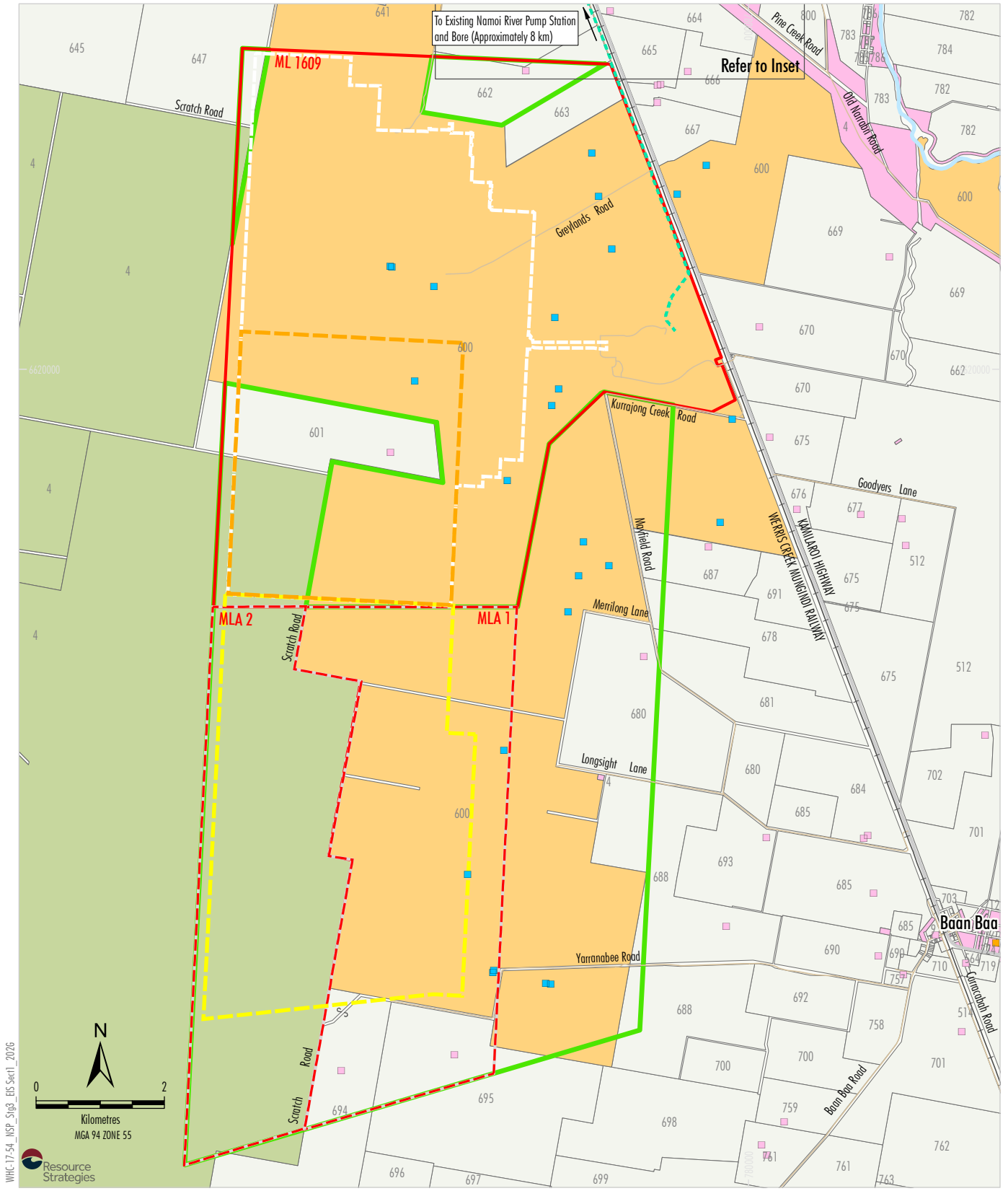
Relevant land ownership information for land parcels within the immediate vicinity of the Project is provided on Figures 1-2a and 1-2b. The Project Development Application Area includes those lands listed in the real property description provided in support of the Development Application (Attachment 3).

The Project is located in the Narrabri LGA (Figure 1-1). A description of land zoning in the Project Development Application area under the *Narrabri Local Environmental Plan 2012* (Narrabri LEP) is provided in Attachment 7.

1.1.4 Applicant

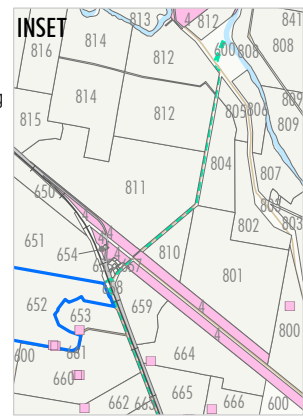
NCOPL (ABN 15 129 850 139) is the proponent for the Project. The contact details for NCOPL are:

Narrabri Coal Operations Pty Ltd
 Locked Bag 1002
 Narrabri NSW 2390
 Phone: (02) 6794 4755



WHC-17-54_MSP_Sig3_EIS_Sect1_2026
 Resource Strategies

LEGEND	
	Mining Lease (ML 1609)
	Exploration Licence (EL 6243)
	Provisional Mining Lease Application Area
	Existing Water Supply Pipeline (Buried)
	Approved Underground Mine Footprint
	Underground Mine Footprint to be Extended for Project
	Project Underground Mine Footprint
	State Forest
	Crown Land
	NCOPL Owned Land
	Privately Owned Land - Under Contract with NCOPL
	Privately Owned Land and Other Land
	Private Dwelling
	Crown Land Dwelling
	NCOPL Owned Dwelling



Source: NCOPL (2019); NSW Spatial Services (2019)

WHITEHAVEN COAL
 NARRABRI STAGE 3 PROJECT
 Land Ownership

Figure 1-2a

Reference No	Landholder
4	The State Of New South Wales
9	Country Rail Infrastructure Authority
512	Oakey Point Pty Limited
514	NA Palmer and SA Shannon
564	Narrabri Shire Council
600	Narrabri Coal Operations Pty Ltd
601	B & D & N & P Grncarski
639	BW & PJ & SL Irvine and CJ Irvine-Mahady
641	S Smith
644	KE Newcombe
645	CP & NE Foley
647	J & T Bautista
650	P Bussell
651	DA & TL Farr
652	AR & JS Collins
653	KA & PE Kidcaff
654	Narrabri Local Aboriginal Land Council
655	CE Allison
656	T Bell and GL Jackson
657	RJ & SO Hallett
658	CR & GE Richardson
659	JR Pattison
660	AL & LM Grumley
661	AL Grumley and LM Mann
662	JF & KL Scott
663	RM Chandler
664	JA & SG Holman
665	BR & MJ O'Connor
666	NE Hobson and TM Willemse
667	PJ Smart
669	CH & RL Melbourne
670	JME & R Stieger
675	PC Webb
676	RR McClung & EF Webster
677	AD & IH Moulds
678	MJ Thomas
680	GR & L Stuart
681	CR & LM Starkey
684	AJ & BA Mainey
685	DL & L Petty
687	CS & DL Kirkby
688	PA & PT Wall
690	BD Nicholson
691	SM & TM & WJ Tapscott
692	J Dixon
693	ZMD Engineering Pty Limited

Reference No	Landholder
694	RK Martin II
695	DP & SW Murray
696	JA Richards
697	HG & SH Hunter
698	AA & CD & CJ Jaeger
699	SA & T Broadhead
700	AJ Bell
701	RPC & WE Wannan
702	RJ Dixon
703	WL Eddington
710	JR Wallace
719	JF & PD & TJ Kennedy
722	SM Shields
724	JJ Shields
757	CP Paterson
758	LF & RA Andrews
759	PL Anderson
761	CD Ervine and SM Kirby
762	CA Gleeson and RW Murray
763	SC Budd and DJ Offerman
782	DE Eather
783	KD & LJJ Hatton
784	Bellquin Pty Limited
785	W Kerrigan
786	R Turner
787	FE Ludlow
790	JC Lloyd
791	T Ramsey
800	DE & JR Zimmerman
801	JA & SA McGowan
802	BJ & JM Morley
804	AN & JT Gordon
805	BM Graham
806	CF & WS Van Lill
807	MH Mead
808	AG & NE Hamblin
809	Wallavista Pty Limited
810	DJ & EL Robinson
811	BA & D Danson
812	BJ Eather
813	EN & JT Manchee
814	MC & ML Hann
815	GO & TW Hall
816	RN Ison
840	W Pratt
841	Glenerin Farming Pty Limited

Source: LPI (2018)

The Narrabri Mine is located at 10 Kurrajong Creek Road, Baan Baa, NSW, 2390.

Whitehaven is the parent company of NCPL which has 70% ownership of NCOPL. Further information on Whitehaven and its mining operations can be found at:

<http://www.whitehavencoal.com.au/>

1.2 OVERVIEW OF THE APPROVED NARRABRI MINE

Stage 1 of the Narrabri Mine was approved under Part 3A of the EP&A Act in 2007 and involved initial site establishment activities and continuous miner mining operations.

Project Approval 08_0144 for Stage 2 of the Narrabri Mine was issued under Part 3A of the EP&A Act in 2010 and allowed the Narrabri Mine to convert to a longwall mining operation.

The Narrabri Mine, incorporating Stages 1 and 2, extracts coal from the Hoskissons Coal Seam. Project Approval 08_0144 allows for the production and processing of up to 11 million tonnes per annum (Mtpa) of ROM coal until July 2031. The approved Narrabri Mine comprises 20 longwall panels, Longwalls 101 to 120.

ROM coal is processed at the Narrabri Mine coal handling and preparation plant (CHPP) to produce thermal and pulverised coal injection (PCI) product coal (i.e. coal that can be used for steel production). Product coal is then transported from site by rail.

CHPP rejects are placed in a dedicated rejects emplacement area.

The Pit Top Area incorporates the majority of the Narrabri Mine surface infrastructure, including the box cut, CHPP, ROM and product coal stockpiles, rail loop and product coal load-out infrastructure (Plate 1-1).



Plate 1-1 Existing Pit Top Layout

1.3 PROJECT INTERACTION WITH THE APPROVED NARRABRI MINE

Surface Facilities and Infrastructure

The Project would involve the continued use of existing and approved surface infrastructure at the Narrabri Mine for the life of the Project, including:

- box cut;
- CHPP;
- ROM and product coal stockpiles and associated coal handling infrastructure;
- reject emplacement area;
- rail loop and product coal load-out infrastructure;
- site water management infrastructure (water storages, water treatment facilities, brine storage area, sediment dams and associated pumps, pipelines and drainage infrastructure);
- administration, workshop, store and bathhouse buildings;
- range of service facilities (i.e. potable water, sewerage, electricity, waste management);
- longwall unit assembly area;
- access roads;
- car parking;
- amenity bunds; and
- other minor infrastructure.

The Project would also involve the continued use of some existing/approved underground mine surface infrastructure, such as:

- ventilation shafts;
- pre-drainage and goaf gas drainage sites;
- mine safety pre-conditioning sites;
- access roads;
- electricity transmission lines; and
- other minor infrastructure.

The Project would not require significant changes or augmentation of these components given that the maximum ROM coal processing rate for the Project would be unchanged relative to the approved Narrabri Mine. The continued use of existing and approved infrastructure is described further in Section 2.

Underground Mining Areas

The Project would include longwall mining of the approved Narrabri Mine underground mine footprint shown in Figure 1-3. For Longwalls 203 to 209 (formerly Longwalls 118 to 112), this would include changes to the underground mine layout to allow for the extension of mining beyond the currently approved mine footprint. Changes to the approved underground mine layout proposed for the Project are described in Section 2. The Project would also include an additional longwall (Longwall 210).

At the time of writing, longwall mining is currently being undertaken in Longwall 109, with extraction of Longwalls 101 to 108a complete. Longwall mining of Longwalls 109 to 111 will occur as described in Project Approval 08_0144 (subject to approval of the relevant future Extraction Plans).

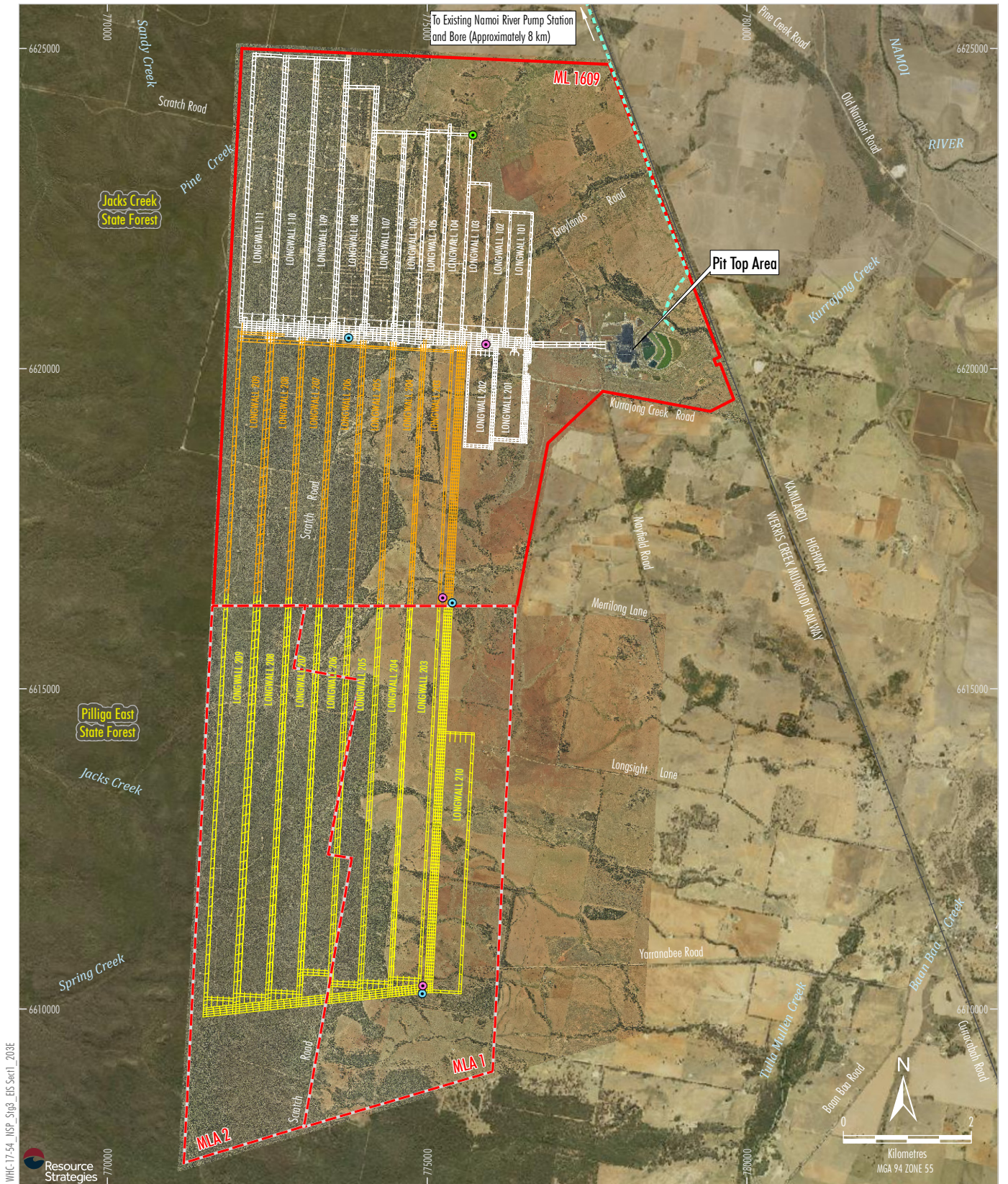
The Project would involve the continued use of existing/approved drifts and underground main roads.

1.4 SECRETARY'S ENVIRONMENTAL ASSESSMENT REQUIREMENTS

The SEARs for the Project were originally issued by the DP&E on 28 May 2019, with revised SEARs issued on 20 November 2019 (Attachment 1).

A summary of the SEARs is provided in Tables 1-2 and 1-3, as well as in the relevant section of the EIS where the SEARs are addressed.

A summary indicating where the revised SEARs (relating to EPBC Act requirements) have been addressed in the EIS is provided in Attachment 2.



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- LEGEND**
- Mining Lease (ML 1609)
 - Provisional Mining Lease Application Area
 - Existing Namoi River Pipeline (Buried)
 - Approved Underground Mining Layout
 - Indicative Underground Mining Layout to be Extended for Project
 - Indicative Underground Project Mining Layout
 - Indicative Ventilation Complex (Downcast)
 - Indicative Ventilation Complex (Upcast)
 - Indicative Ventilation Complex (Upcast - Decommissioned)

Source: NCOPL (2019); NSW Spatial Services (2019)

WHITEHAVEN COAL
NARRABRI STAGE 3 PROJECT
Approved and Project
General Arrangement

Figure 1-3

Table 1-2
Secretary's Environmental Assessment Requirements – Reference Summary¹

Summary of EIS Requirements	EIS Reference
General Requirements	
The EIS for the Project must comply with the requirements of Schedule 2 of the EP&A Regulation.	Table 1-3
The EIS must include:	-
<ul style="list-style-type: none"> ▪ consideration of alternatives, including the development of a mine plan which avoids impacts on key sensitive surface features, and the 'do nothing' option; 	Section 7
<ul style="list-style-type: none"> ▪ a full description of the development, including: <ul style="list-style-type: none"> - historical mining operations at the Narrabri Mine and in the region; - resource to be extracted; - the mine layout and development scheduling; - production rates; - coal processing and transportation; - infrastructure and facilities; - workforce requirements; - surface disturbance footprint; - a waste management strategy; - a water management strategy; - a rehabilitation strategy; - a landscape management plan; and - the likely interactions between the proposed development and the approved Narrabri Mine; 	-
<ul style="list-style-type: none"> - historical mining operations at the Narrabri Mine and in the region; 	Section 2.1
<ul style="list-style-type: none"> - resource to be extracted; 	Section 2.3
<ul style="list-style-type: none"> - the mine layout and development scheduling; 	Section 2.6
<ul style="list-style-type: none"> - production rates; 	Section 2.6
<ul style="list-style-type: none"> - coal processing and transportation; 	Sections 2.7 and 2.8
<ul style="list-style-type: none"> - infrastructure and facilities; 	Section 2.11
<ul style="list-style-type: none"> - workforce requirements; 	Section 2.16
<ul style="list-style-type: none"> - surface disturbance footprint; 	Sections 2.1 and 2.5
<ul style="list-style-type: none"> - a waste management strategy; 	Section 2.12
<ul style="list-style-type: none"> - a water management strategy; 	Section 2.10
<ul style="list-style-type: none"> - a rehabilitation strategy; 	Section 2.14 and Attachment 5
<ul style="list-style-type: none"> - a landscape management plan; and 	Appendix G
<ul style="list-style-type: none"> - the likely interactions between the proposed development and the approved Narrabri Mine; 	Section 1.3
<ul style="list-style-type: none"> ▪ a list of any approvals that must be obtained before the Project may commence; 	Section 4
<ul style="list-style-type: none"> ▪ a risk assessment of the potential environmental impacts of the development, identifying key assessment issues; 	Section 6.1 and Appendix O
<ul style="list-style-type: none"> ▪ an assessment of the likely impacts of the development on the environment, noting that under Section 4.63 of the EP&A Act, the likely impacts of the continued development of approved aspects of the project do not need to be reassessed. This assessment must focus on the specific issues identified below, including: <ul style="list-style-type: none"> - a description of the existing environment; - an assessment of the likely impacts of all stages of the Project, including appropriate worst-case scenarios and consideration of any cumulative impacts; - a description of the measures that would be implemented to mitigate and/or offset the likely impacts of the development, and an assessment of: <ul style="list-style-type: none"> ▪ whether these measures are consistent with industry best practice, and represent the full range of reasonable and feasible mitigation measures that could be implemented; ▪ the likely effectiveness of these measures, including performance measures where relevant; ▪ whether contingency plans would be necessary to manage any residual risks; and ▪ a description of the measures that would be implemented to monitor and report on the environmental performance of the development if it is approved; 	-
<ul style="list-style-type: none"> - a description of the existing environment; 	Section 6
<ul style="list-style-type: none"> - an assessment of the likely impacts of all stages of the Project, including appropriate worst-case scenarios and consideration of any cumulative impacts; 	Section 6
<ul style="list-style-type: none"> - a description of the measures that would be implemented to mitigate and/or offset the likely impacts of the development, and an assessment of: <ul style="list-style-type: none"> ▪ whether these measures are consistent with industry best practice, and represent the full range of reasonable and feasible mitigation measures that could be implemented; ▪ the likely effectiveness of these measures, including performance measures where relevant; ▪ whether contingency plans would be necessary to manage any residual risks; and 	Sections 6 and 7
<ul style="list-style-type: none"> ▪ a description of the measures that would be implemented to monitor and report on the environmental performance of the development if it is approved; 	Section 6

Table 1-2 (Continued)
Secretary's Environmental Assessment Requirements – Reference Summary¹

Summary of EIS Requirements	EIS Reference
<ul style="list-style-type: none"> ▪ consideration of the development against all relevant environmental planning instruments (including Part 3 of the <i>State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries 2007)</i>); 	Section 4 and Attachment 7
<ul style="list-style-type: none"> ▪ a consolidated summary of all the proposed environmental management and monitoring measures, identifying all the commitments in the EIS; 	Section 6 and Attachment 4
<ul style="list-style-type: none"> ▪ the reasons why the development should be approved, having regard to; <ul style="list-style-type: none"> – relevant matters for consideration under the <i>Environmental Planning and Assessment Act 1979</i>, including the objects of the Act; – the biophysical, economic and social impacts of the development, including the principles of ecologically sustainable development; – the suitability of the site with respect to potential land use conflicts with existing and future surrounding land uses; and – feasible alternatives to the development (and its key components), including the consequences of not carrying out the development; 	Section 7
<ul style="list-style-type: none"> – relevant matters for consideration under the <i>Environmental Planning and Assessment Act 1979</i>, including the objects of the Act; 	Section 4
<ul style="list-style-type: none"> – the biophysical, economic and social impacts of the development, including the principles of ecologically sustainable development; 	Sections 3 and 7
<ul style="list-style-type: none"> – the suitability of the site with respect to potential land use conflicts with existing and future surrounding land uses; and 	Sections 3, 6 and 7.1.4
<ul style="list-style-type: none"> – feasible alternatives to the development (and its key components), including the consequences of not carrying out the development; 	Section 7.2
<ul style="list-style-type: none"> ▪ a conclusion evaluating the merits of the project as a whole, having regard to the requirements in Section 4.15 of the <i>Environmental Planning and Assessment Act 1979</i>; 	Section 7
<ul style="list-style-type: none"> ▪ a signed statement from the author of the EIS, certifying that the information contained within the document is neither false nor misleading; and 	Front of EIS
<ul style="list-style-type: none"> ▪ an accurate estimate of the capital investment value. 	Attachment 8
Specific Issues	
<ul style="list-style-type: none"> ▪ Subsidence. 	Section 6.3 and Appendix A
<ul style="list-style-type: none"> ▪ Land. 	Section 6.6, Attachment 5 and Appendix G
<ul style="list-style-type: none"> ▪ Water. 	Sections 6.4 and 6.5, Appendixes B and C
<ul style="list-style-type: none"> ▪ Biodiversity. 	Section 6.7 and Appendix D
<ul style="list-style-type: none"> ▪ Heritage. 	Sections 6.11 and 6.12, Appendixes E and F
<ul style="list-style-type: none"> ▪ Noise and Vibration. 	Sections 6.8 and 6.14, Appendix H
<ul style="list-style-type: none"> ▪ Air. 	Section 6.9 and Appendix I
<ul style="list-style-type: none"> ▪ Transport. 	Section 6.13 and Appendix J
<ul style="list-style-type: none"> ▪ Visual and Light. 	Section 6.10
<ul style="list-style-type: none"> ▪ Hazards. 	Section 6.18 and Appendix P
<ul style="list-style-type: none"> ▪ Social. 	Section 6.16 and Appendix K
<ul style="list-style-type: none"> ▪ Economic. 	Section 6.15 and Appendix L
<ul style="list-style-type: none"> ▪ Rehabilitation and Final Landform. 	Attachment 5
<ul style="list-style-type: none"> ▪ Waste. 	Section 2.12
Consultation	
The EIS must describe the consultation that was carried out with relevant local, State or Commonwealth Government authorities, service providers, community groups and affected landowners; identify the issues raised during this consultation; and explain how these issues have been addressed in the EIS.	Section 5

¹ The complete version of the SEARs is presented in Attachment 1.

Table 1-3
Content Requirements of an EIS – Clause 7 of Schedule 2 of the EP&A Regulation

Summary of Clause 7 of Schedule 2 of the EP&A Regulation	EIS Reference
The EIS must include:	-
<ul style="list-style-type: none"> ▪ Summary of the EIS. 	Executive Summary
<ul style="list-style-type: none"> ▪ Objectives of the Project. 	Sections 1.1.2 and 7
<ul style="list-style-type: none"> ▪ Analysis of any feasible alternatives to the Project, including the consequences of not carrying out the Project. 	Section 7
<ul style="list-style-type: none"> ▪ Description of the Project. 	Section 2
<ul style="list-style-type: none"> ▪ Description of the environment likely to be affected by the Project. 	Section 6
<ul style="list-style-type: none"> ▪ The likely impacts on the environment of the Project. 	Section 6
<ul style="list-style-type: none"> ▪ Description of the measures proposed to mitigate any adverse effects of the Project on the environment. 	Section 6 and Attachment 4
<ul style="list-style-type: none"> ▪ A list of any approvals that must be obtained under any other Act or law before the Project may lawfully be carried out. 	Section 4
<ul style="list-style-type: none"> ▪ Compilation (in a single section of the EIS) of the measures proposed to mitigate any adverse effects of the Project on the environment. 	Attachment 4
<ul style="list-style-type: none"> ▪ The reasons justifying the carrying out of the development, activity or infrastructure in the manner proposed, having regard to biophysical, economic and social considerations, including the principles of ESD. 	Section 7

1.5 PROJECT CONSULTANTS

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

- NCOPL (project design, alternatives and justification, background data, resource economics, consultation, preliminary hazard analysis, rehabilitation and environmental monitoring and management);
- Ditton Geotechnical Services Pty Ltd (subsidence predictions and impact assessment);
- Australasian Groundwater and Environmental Consultants Pty Ltd (AGE) (*groundwater assessment and numerical groundwater modelling*);
- Environment and Natural Resource Solutions Pty Ltd (ENRS) (*bore census*);
- WRM Water & Environment Pty Ltd (WRM) (*surface water assessment and site water balance*);
- AMBS Ecology and Heritage Pty Ltd (AMBS) (*baseline flora study and baseline fauna study*);
- Resource Strategies Pty Ltd (*biodiversity development assessment and strategy to offset residual biodiversity impacts*);
- Whincop Archaeology Pty Ltd (Whincop) (*Aboriginal cultural heritage assessment*);
- Niche Environment and Heritage (*historic heritage assessment*);
- Geo-Environmental Management Pty Ltd (GEM) (*geochemistry assessment*);
- Wilkinson Murray Pty Ltd (Wilkinson Murray) (*noise assessment*);
- Jacobs Group (Australia) Pty Ltd (Jacobs) (*air quality and greenhouse gas assessment*);
- The Transport Planning Partnership (TTPP) (*road transport assessment*);
- CDM Smith Australia Pty Ltd (CDM Smith) (*social impact assessment*);
- AnalytEcon Pty Ltd (AnalytEcon) (*economic assessment*);
- Ground Doctor Pty Ltd (Ground Doctor) (*land contamination assessment*);
- 2rog Consulting Pty Ltd (2rog) (*agricultural impact statement*);
- GT Environmental Pty Ltd (GT Environmental) (*land and soil capability and verification of biophysical strategic agricultural land*);

- Soil Management Designs Pty Ltd (Soil Management Designs) (*land and soil capability and verification of biophysical strategic agricultural land*);
- Operational Risk Mentoring (OpRM) (*facilitation of environmental risk assessment*); and
- Ashurst (*legal input*).

In addition to the above, peer reviews were undertaken by the following specialists (Attachment 6):

- Professor Bruce Hebblewhite (*subsidence assessment*);
- Brian Barnett (*groundwater assessment*);
- Emeritus Professor Thomas McMahon (*surface water assessment*); and
- Doctor Colin Driscoll (*biodiversity development assessment report*).

1.6 DOCUMENT STRUCTURE

This EIS comprises a main text component and supporting studies, Appendices A through to P. An overview of the main text is presented below:

Section 1	Provides an introduction to the Project and this EIS, and a history of the approved Narrabri Mine.
Section 2	Describes the various components and stages of the Narrabri Mine, and the Project.
Section 3	Outlines the strategic planning context of the Project.
Section 4	Outlines the statutory provisions relevant to the Project.
Section 5	Describes the consultation and engagement undertaken in relation to the EIS and ongoing community involvement.
Section 6	Details the assessment of impacts of 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 7	Describes how the Project (in comparison to alternatives) is in the public interest and balances impact, strategic needs and benefits.
Section 8	Lists the documents referenced in the main text of the EIS.
Section 9	Defines the abbreviations, acronyms and terms used in the main text of the EIS.

Attachments to the main text are also provided as follows:

Attachment 1	Secretary's Environmental Assessment Requirements.
Attachment 2	Cross Reference of Assessment Requirements.
Attachment 3	Development Application Area and Real Property Descriptions.
Attachment 4	Summary of Mitigation Measures.
Attachment 5	Rehabilitation and Mine Closure.
Attachment 6	Peer Review Letters.
Attachment 7	Relevant Statutory Considerations.
Attachment 8	Capital Investment Value Report.
Attachment 9	Consent Under Section 380AA of the Mining Act.
Attachment 10	Public Notification.
Attachment 11	Indicative Alternative Underground Mining Layout Review.

Appendices A through to P contain supporting information, including a number of specialist reports:

Appendix A	Subsidence Assessment.
Appendix B	Groundwater Assessment.
Appendix C	Surface Water Assessment.
Appendix D	Biodiversity Development Assessment Report (BDAR).
Appendix E	Aboriginal Cultural Heritage Assessment (ACHA).
Appendix F	Historical Heritage Assessment.
Appendix G	Agricultural Impact Statement.
Appendix H	Noise and Blasting Assessment.

Appendix I	Air Quality and Greenhouse Gas Assessment.
Appendix J	Road Transport Assessment.
Appendix K	Social Impact Assessment (SIA).
Appendix L	Economic Assessment.
Appendix M	Land Contamination Assessment.
Appendix N	Environmental Geochemistry Assessment.
Appendix O	Environmental Risk Assessment (ERA).
Appendix P	Preliminary Hazard Analysis (PHA).