



DENDROBIUM MINE -
PLAN FOR THE
FUTURE:
COAL FOR
STEELMAKING

DECEMBER 2016



PRELIMINARY ENVIRONMENTAL ASSESSMENT



EXECUTIVE SUMMARY

The Dendrobium Mine (the Mine) is an existing underground coal mine situated in the Southern Coalfield of New South Wales (NSW) approximately 15 kilometres west of Wollongong.

Illawarra Coal Holdings Pty Ltd (Illawarra Coal), a wholly owned subsidiary of South32 Limited, is the owner and operator of the Mine.

The Mine extracts coal from the Wongawilli Seam using underground longwall mining methods. The Mine primarily produces hard coking coal and has an approved operational capacity of up to 5.2 million tonnes per annum of run-of-mine (ROM) coal until 31 December 2030.

The extraction of underground coal from the Mine provides benefits at national, state and local levels.

Local benefits are realised through:

- local employment with economic flow-on benefits in the Illawarra and Wollondilly regions;
- greater than 400 local businesses directly engaged to provide goods and services; and
- providing approximately 60% of BlueScope Steel's coking coal requirements.

Overview of the Project

Illawarra Coal is seeking a new Development Consent to extend the underground mining areas at the Mine to gain access to additional areas within Consolidated Coal Lease 768. This would be supported by development of supporting infrastructure and an extension to the approved surface operations by approximately 18 years.

This proposal is referred to as the Dendrobium Mine – Plan for the Future: Coal for Steelmaking (the Project).

The implementation of the Project would facilitate the continuation of benefits derived from the Mine, including the 270 direct jobs produced through longwall coal extraction at the Mine.

Purpose of this Document

This document and the statements therein are provided for the purposes of meeting the regulatory requirements of a Preliminary Environmental Assessment and not for the purpose of informing investors or potential investors on Exploration results, Mineral Resources or Ore Reserves.

This document has been prepared to provide a description of the Project to key State regulatory agencies to initiate the preparation of the Secretary's Environmental Assessment Requirements (SEARs). The SEARs will identify any further matters that will need to be addressed in the Environmental Impact Statement (EIS) for the Project.

Separately, the Project will also be referred to the Commonwealth Minister for the Environment and Energy for consideration as to whether the Project meets the criteria of a 'Controlled Action' and requires approval under the Commonwealth *Environment Protection and Biodiversity Conservation Act, 1999*.

Assessment of the potential environmental issues in the EIS would include consideration of:

- existing environment using sufficient baseline data;
- potential impacts of all stages of the Project including relevant cumulative impacts;
- measures that could be implemented to avoid, mitigate, rehabilitate/remediate, monitor and/or offset the potential impacts of the Project; and
- contingency plans and/or adaptive management for managing any potentially significant residual risks to the environment.

Assessments for the EIS would consider applicable policies, guidelines and plans included in the NSW Government's *Indicative Secretary's Environmental Assessment Requirements for State Significant Mining Developments*.

The Project is State Significant Development, and therefore Development Consent will be sought under the NSW *Environmental Planning and Assessment Act, 1979* from the NSW Minister for Planning (or delegate).

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1 INTRODUCTION

1.1 PURPOSE AND STRUCTURE OF THIS DOCUMENT

The Dendrobium Mine (the Mine), owned and operated by Illawarra Coal Holdings Pty Ltd (Illawarra Coal), a wholly owned subsidiary of South32 Limited (South32), is an existing underground coal mine situated in the Southern Coalfield of New South Wales (NSW) approximately 8 kilometres (km) west of Wollongong (Figure 1).

The existing mining operations are undertaken in accordance with Development Consent DA 60-03-2001 (as modified), as well as the Approval Decision (EPBC 2001/214) under the Commonwealth *Environment Protection and Biodiversity Conservation Act, 1999* (EPBC Act).

Illawarra Coal¹ is seeking a new Development Consent to extend the underground mining areas at the Mine to gain access to additional areas within Consolidated Coal Lease (CCL) 768. This would be supported by development of supporting infrastructure and an extension to the approved surface operations. The proposal is herein referred to as the Dendrobium Mine – Plan for the Future: Coal for Steelmaking (the Project).

This document has been prepared to provide a description of the Project to key State regulatory agencies to initiate the preparation of the Secretary's Environmental Assessment Requirements (SEARs) in accordance with clause 3 of Schedule 2 of the NSW *Environmental Planning and Assessment Regulation, 2000* (EP&A Regulation). The SEARs will identify any further matters that will need to be addressed in the Environmental Impact Statement (EIS).

The Project will also be referred to the Commonwealth Minister for the Environment and Energy for consideration as to whether the Project meets the criteria of a 'Controlled Action' and requires approval under the EPBC Act.

The SEARs will be prepared by the NSW Department of Planning and Environment (DP&E) in consideration of:

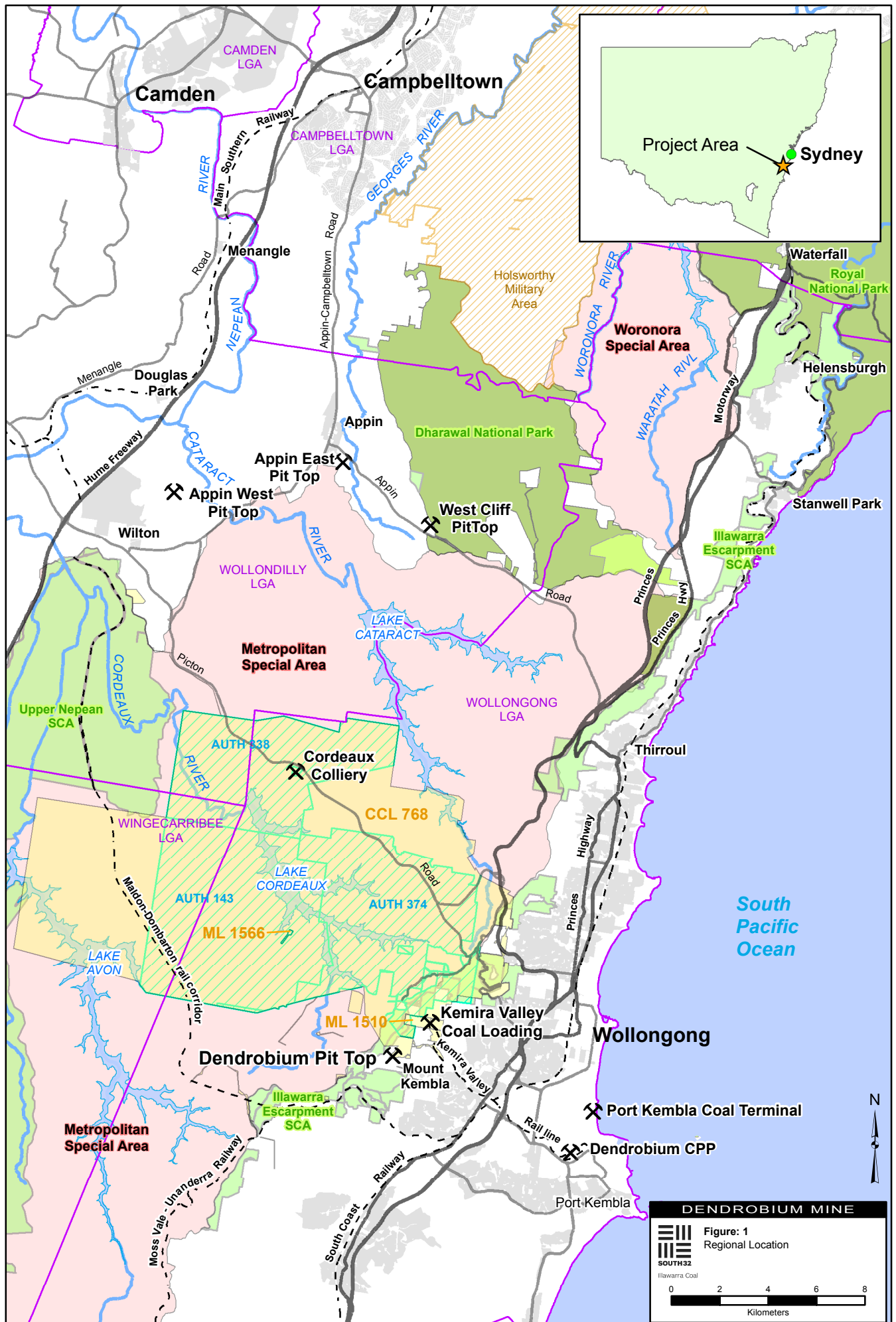
- this document;
- key issues raised by relevant regulatory agencies;

- *Indicative Secretary's Environmental Assessment Requirements for State Significant Mining Developments* (NSW Government, 2015a);
- the decision of the Commonwealth Minister for the Environment and Energy regarding the referral of the relevant 'Action' under the EPBC Act; and
- applicable guidelines and statutory considerations.

This document has been prepared in consideration of the *Mine Application Guideline* (NSW Government, 2015b). The document is structured as follows:

- | | |
|-----------|--|
| Section 1 | Introduction – provides background to the approved Mine and a summary of the Project. |
| Section 2 | Strategic Context – summarises the characteristics of the target Coal Resource, describes the local and regional context of the Project and outlines the permissibility of the Project and potential relevant statutory planning instruments and strategic planning documents. |
| Section 3 | Project Description and Project Rationale – provides a concise description of the Project, indicates the types of activities that would be undertaken and includes a description of the rationale for the Project. |
| Section 4 | Preliminary Environmental Impact Assessment – identifies key environmental issues of particular relevance to the Project, outlines the proposed level and scope of environmental assessment, and identifies strategies to address the impacts identified. |
| Section 5 | Stakeholder Consultation – outlines consultation with relevant stakeholders which has already been undertaken and is proposed to be carried out for the Project. |
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¹ At all relevant times in relation to the Project, Illawarra Coal Holdings Pty Ltd will be acting as agent for and on behalf of Dendrobium Coal Pty Ltd in respect of all mining and exploration tenements held by Dendrobium Coal Pty Ltd.



1.2 OVERVIEW OF THE DENDROBIUM MINE

The Mine was approved by the NSW Minister for Urban Affairs and Planning on 20 November 2001 under the NSW *Environmental Planning and Assessment Act, 1979* (EP&A Act). The Mine was approved under the EPBC Act on 20 December 2001.

Construction for the Mine commenced in January 2002, with longwall mining commencing in April 2005.

The Mine extracts coal from the Wongawilli Seam. The Mine primarily produces hard coking coal and has an approved operational capacity of up to 5.2 million tonnes per annum (Mtpa) of run-of-mine (ROM) coal until 31 December 2030.

The Mine includes five approved underground mining areas, named Areas 1, 2, 3A, 3B and 3C (Figure 2). Longwall mining is currently being undertaken in Area 3B, with extraction largely complete in Areas 1, 2 and 3A.

Key surface infrastructure at the Mine (Figure 2) includes the:

- Dendrobium Pit Top;
- Kemira Valley Coal Loading Facility;
- Kemira Valley Rail Line;
- Dendrobium Coal Preparation Plant (CPP) (located within the Port Kembla Steelworks precinct); and
- Dendrobium Shafts Nos 1, 2 and 3.

A further description of the existing approved Mine is provided in Section 3.

1.3 PROJECT SUMMARY

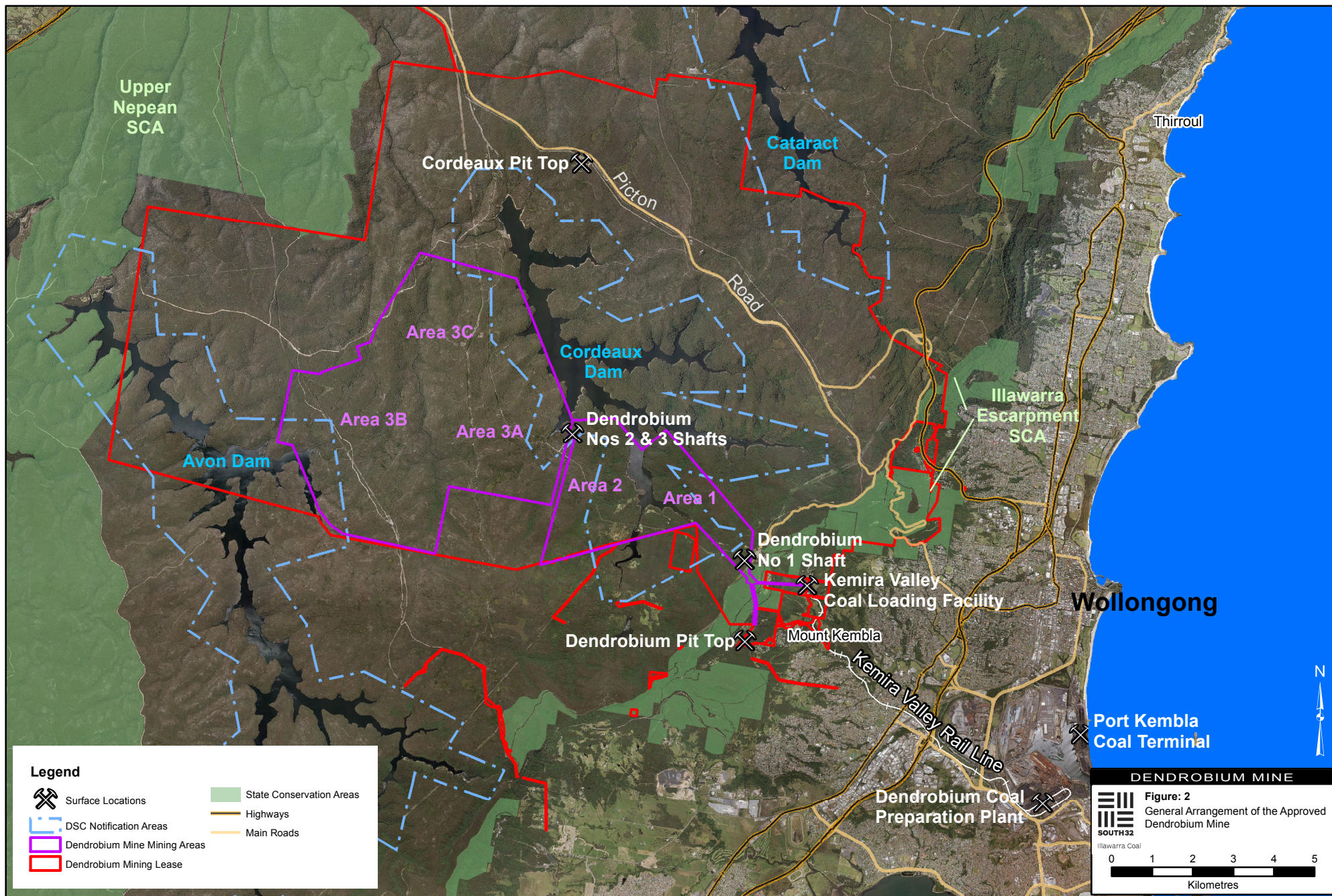
The Project includes an extension of the underground mining areas at the Mine to gain access to additional coal within CCL 768 in two proposed future mining areas, namely Area 5 and Area 6 (Figure 3). This extension would be supported by development of supporting infrastructure and an extension to the approved surface operations.

The Project would provide continued employment of the existing Mine workforce, with increases for Project construction and additional development requirements.

The Project would include the following activities:

- longwall mining of the Bulli Seam in a new underground mining area (Area 5);
- longwall mining of the Wongawilli Seam in a new underground mining area (Area 6);
- development of roadways within the Bulli Seam, Wongawilli Seam and adjacent strata to access mining areas;
- use of existing roadways and drifts for personnel and materials access, ventilation, dewatering and other ancillary activities related to Areas 5 and 6;
- production of up to 5.2 Mtpa of ROM coal;
- development of surface infrastructure associated with mine ventilation and gas management and abatement and other ancillary infrastructure;
- augmentation of mine access arrangements, which may include upgrades to, and the use of, the Cordeaux Pit Top (currently under care and maintenance);
- use of the existing Dendrobium Pit Top, Kemira Valley Coal Loading Facility, Dendrobium CPP and Dendrobium Shafts with minor upgrades and extensions;
- transport of sized ROM coal from the Kemira Valley Coal Loading Facility to the Dendrobium CPP via the Kemira Valley Rail Line;
- delivery of product coal from the Dendrobium CPP to the Port Kembla steelworks or Port Kembla Coal Terminal for export;
- transport of coal wash by road to customers for engineering purposes (e.g. civil construction fill), other beneficial uses and/or for emplacement at the West Cliff Colliery Stage 3 and Stage 4 Coal Wash Emplacement;
- development and rehabilitation of the West Cliff Stage 3 Coal Wash Emplacement;
- progressive development of sumps, pumps, pipelines, water storages and other water management infrastructure;
- monitoring, rehabilitation and remediation of subsidence and other mining effects;
- development associated with exploration in Areas 5 and 6; and
- other associated minor infrastructure, plant, equipment and activities.

Table 1 provides a comparative summary of activities associated with the Project compared to the existing approved Mine.



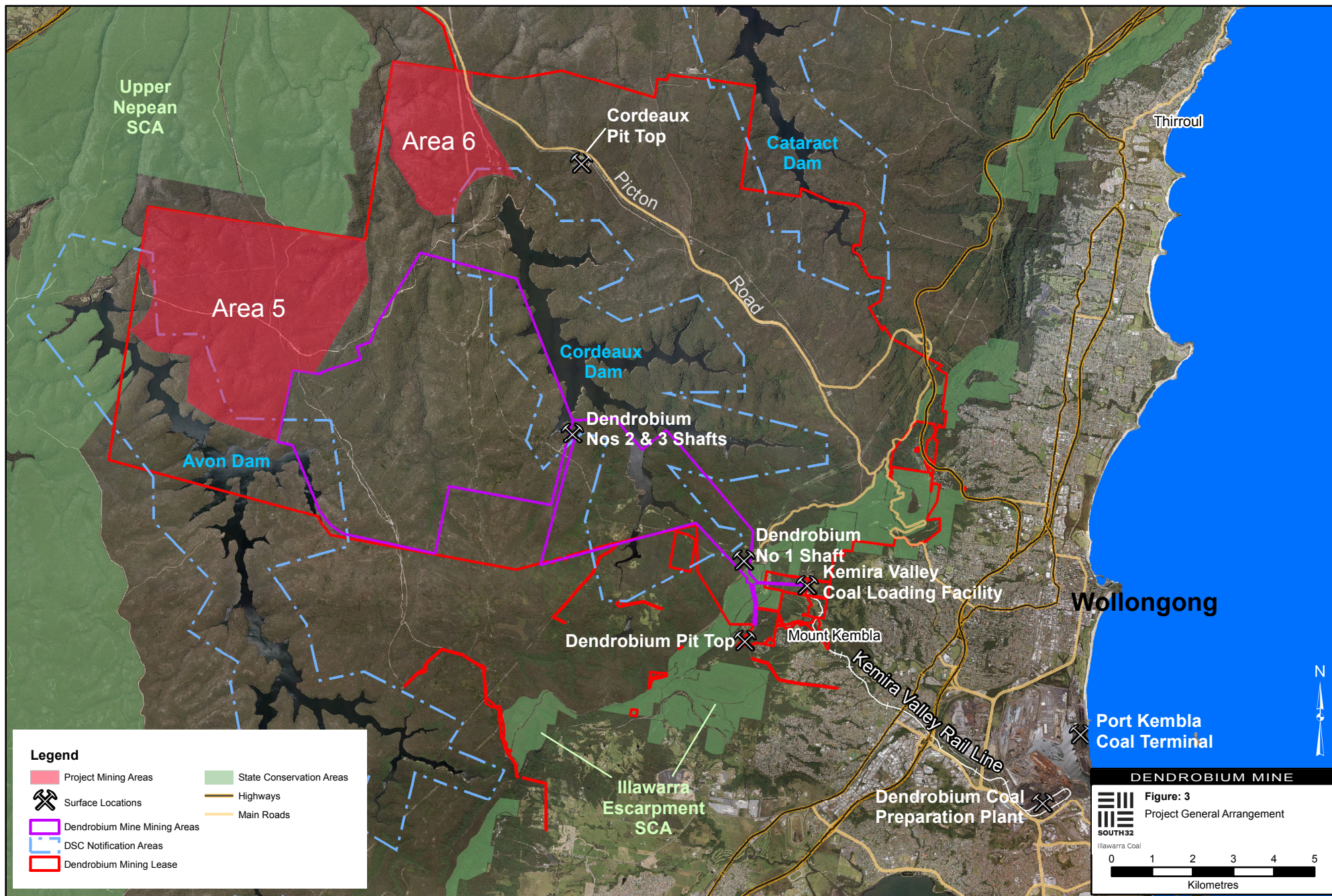


Table 1
Summary Comparison of the Approved Mine and Project

Component	Approved Mine (DA 60-03-2001)	Project (New Development Consent)
Mining Method	Underground extraction using longwall mining methods.	Underground extraction using longwall mining methods.
Resource	Mining of the Wongawilli Seam in Areas 1, 2, 3A, 3B and 3C.	Mining of the Bulli Seam in Area 5 and the Wongawilli Seam in Area 6 within CCL 768.
Annual Production	Up to 5.2 Mtpa of ROM coal (combined) from Areas 1, 2, 3A, 3B and 3C.	Up to 5.2 Mtpa of ROM coal (combined) from Areas 5 and 6.
Mine Life	Until 31 December 2030.	Until end of 2048.
Total Resource Recovered	Not specified.	Additional Coal Resources (55% Indicated, 45% Inferred) of approximately 40 million tonnes in Area 6 and additional exploration areas in Area 5 to be further defined during the next phase of the Project.
Coal Handling and Processing	<p>Transport of coal from underground workings to the Kemira Valley Coal Loading Facility via an underground conveyor network.</p> <p>Sizing and stockpiling of coal at the Kemira Valley Coal Loading Facility prior to transport to the Dendrobium CPP via the Kemira Valley Rail Line in accordance with the approved hours of operation.</p> <p>Processing of up to 5.2 Mtpa of sized ROM coal at the Dendrobium CPP.</p>	<p>Transport of coal from underground workings to the Kemira Valley Coal Loading Facility via an underground conveyor network.</p> <p>Sizing and stockpiling of coal at the Kemira Valley Coal Loading Facility prior to transport to the Dendrobium CPP via the Kemira Valley Rail Line in accordance with the approved hours of operation.</p> <p>Processing of up to 5.2 Mtpa of sized ROM coal at the Dendrobium CPP.</p>
Management of Mining Waste	<p>Transportation of up to approximately 1.1 Mtpa of coal wash by road from the Dendrobium CPP to the West Cliff Colliery Stage 3 and Stage 4 Coal Wash Emplacement.</p> <p>Development and rehabilitation of the West Cliff Stage 3 Coal Wash Emplacement.</p> <p>Supply of coal wash to customers for engineering purposes (e.g. civil construction fill) or for other beneficial uses.</p>	<p>Transportation of up to approximately 1.1 Mtpa of coal wash by road from the Dendrobium CPP to the West Cliff Colliery Stage 3 and Stage 4 Coal Wash Emplacement.</p> <p>Continued development and rehabilitation of the West Cliff Stage 3 Coal Wash Emplacement.¹</p> <p>Continued supply of coal wash to customers for engineering purposes (e.g. civil construction fill) or for other beneficial uses.</p> <p>Coal wash balance to be presented in the EIS following further mine planning studies.</p>
General Infrastructure	<ul style="list-style-type: none"> Dendrobium Pit Top. Kemira Valley Coal Loading Facility. Kemira Valley Rail Line. Dendrobium CPP. Dendrobium Shafts Nos 1, 2 and 3. 	<p>Use of existing infrastructure with minor upgrades and extensions.</p> <p>Augmentation of mine access arrangements, which may include upgrades to, and the use of, the Cordeaux Pit Top (currently under care and maintenance).</p> <p>Development of surface infrastructure associated with mine ventilation and gas management and abatement and other ancillary infrastructure.</p>
Product Transport	Delivery of product coal from the Dendrobium CPP to the Port Kembla Steelworks or Port Kembla Coal Terminal for export.	Delivery of product coal from the Dendrobium CPP to the Port Kembla Steelworks or Port Kembla Coal Terminal for export.

Table 1 (Continued)
Summary Comparison of the Approved Mine and Project

Component	Approved Mine (DA 60-03-2001)	Project (New Development Consent)
Water Management	Water management infrastructure to separate clean, oily and dirty water. Use of a combination of recycled treated mine water and potable water purchased from Sydney Water in underground and surface operations. Release of water in accordance with the conditions of Environment Protection Licence (EPL) 3241.	Augmentations and extensions to existing water management infrastructure. Use of a combination of recycled treated mine water and potable water purchased from Sydney Water in underground and surface operations. Release of water at Licensed Discharge Point (LDP) 5 in accordance with the conditions of EPL 3241. Water supply and release requirements subject to the outcomes of a detailed water balance that would be presented in the EIS.
Workforce	Current workforce of approximately 270 personnel (direct employees).	Employment of the existing Mine workforce, with increases for Project construction and additional development requirements.
Hours of Operation	Operated on a continuous basis, 24 hours per day, seven days per week. Trains do not travel on the Kemira Valley Rail Line between 11 pm and 6 am, unless written approval is obtained from the NSW Environment Protection Authority (EPA) for emergency use of the rail line.	Operated on a continuous basis, 24 hours per day, seven days per week. Trains would not travel on the Kemira Valley Rail Line between 11 pm and 6 am, unless written approval is obtained from the NSW Environment Protection Authority (EPA) for emergency use of the rail line.
Key Environmental Mitigation Measures	As outlined in the Development Consent DA 60-03-2001 and the Statement of Commitments.	To be determined through the environmental assessment and stakeholder consultation process.
Capital Investment Value	Not applicable.	To be determined through the detailed mine planning process and provided with the Development Application.

1 Development and rehabilitation of the West Cliff Stage 4 Coal Wash Emplacement would continue to be conducted in accordance with Project Approval 08_0150 for the Bulli Seam Operations.

An indicative Project general arrangement showing the underground mining areas and key infrastructure locations is provided on Figure 3. Additional details on the main Project components are provided in Section 3.

The Project does not include approved underground mining operations in the Wongawilli Seam in Areas 1, 2, 3A, 3B and 3C at the Dendrobium Mine and associated surface activities (such as monitoring and remediation). It is proposed that these activities would continue to operate in accordance with Development Consent DA 60-03-2001 (as modified).

If development consent is granted for the Project, the new consent would prevail to the extent of any inconsistency with DA 60-03-2001 in relation to:

- use of existing roadways and drifts for personnel and materials access, ventilation, dewatering and other ancillary activities related to Areas 5 and 6;
- use of the existing Dendrobium Pit Top, Kemira Valley Coal Loading Facility, Dendrobium CPP and Dendrobium Shafts;
- transport of sized ROM coal from the Kemira Valley Coal Loading Facility to the Dendrobium CPP via the Kemira Valley Rail Line;
- delivery of product coal from the Dendrobium CPP to the Port Kembla steelworks or Port Kembla Coal Terminal for export;
- transport of coal wash by road to customers for engineering purposes (e.g. civil construction fill), other beneficial uses and/or for emplacement at the West Cliff Colliery Stage 3 and Stage 4 Coal Wash Emplacement; and
- development and rehabilitation of the West Cliff Stage 3 Coal Wash Emplacement.

2 STRATEGIC CONTEXT

2.1 TARGET RESOURCE

The Project would target the Wongawilli and Bulli Seams. Further information on resource recovery and the characteristics of the coal resource are provided below.

Mining and Exploration Tenements

Table 2 provides details of the mining and exploration tenements held by Illawarra Coal Holdings Pty Ltd, Dendrobium Coal Pty Ltd and Endeavour Coal Pty Limited related to the Project.

Table 2
Mining and Exploration Tenements Related to the Project

Tenement Reference	Expiry
<i>Mining Tenements</i>	
CCL 768	07/10/2029
ML 1510	23/04/2023
ML 1566	06/09/2026
<i>Exploration Tenements</i>	
AUTH 143	07/11/2018
AUTH 338	08/10/2019
AUTH 374	24/10/2017

AUTH – Authorisation.

CCL – Consolidated Coal Lease.

ML – Mining Lease.

The Project underground mining areas would be located wholly within CCL 768.

Geology

The Project is located in the NSW Southern Coalfield within the southern portion of the Permo-Triassic Sydney Basin.

The Late Permian Illawarra Coal Measures contain a number of workable seams throughout the Southern Coalfield. Above the Illawarra Coal Measures, the stratigraphy of the area consists of a sequence of sandstone, shale and claystone units within the Narrabeen Group, which are in turn, overlain by the Hawkesbury Sandstone.

A typical stratigraphic section of the Project area is shown on Figure 4.

The Mine currently extracts coal from the Wongawilli Seam. The Appin Mine (also owned and operated by South32) extracts coal from the Bulli Seam.

Mineable areas of the Wongawilli Seam and the Bulli Seam have been identified in the Project underground mining areas. A summary of the characteristics of the target seams is provided in Table 3.

Table 3
Seam Characteristics of the Target Seams

Seam	Depth of Cover (m)	Seam Thickness (m)
Wongawilli Seam	300 – 400	9 – 11*
Bulli Seam	300 – 375	2 – 3

m – metres.

* The working section thickness is 2.5 – 4 m.

Exploration Methods

Exploration, including exploration drilling and seismic surveys, in the future underground mining areas at the Mine (Areas 5 and 6) is ongoing.

The current exploration program is focused on determining seam quality, gas levels, geotechnical constraints and the locations of geological structures and igneous intrusions. This information will be used to develop the preferred mine extent.

The EIS would present the outcomes of the current exploration program, including the estimated Coal Resources and Coal Reserve, and details of the ROM coal and marketable product planned to be produced for each year of the life of the Project.

Exploration activities would continue to be undertaken over the life of the Project as input to detailed mine planning and engineering studies to refine the understanding of geological structures and coal quality.

Resource Recovery











Illawarra Coal will seek to maximise resource recovery within geological, environmental and infrastructure constraints. At this stage, the Project would not be expected to have a significant impact on future extraction or recovery of coal.

Outcomes of environmental assessment studies would also be considered during mine planning conducted in parallel with the EIS.

**MEDIAN
THICKNESS
ACROSS
PROJECT AREA
(m)**

FORMATION

GROUP

		170	Hawkesbury Sandstone	HAWKESBURY SANDSTONE
		15	Newport Formation	NARRABEEN
		5	Garie Formation	
		20	Bald Hill Claystone	
		145	Colo Vale Sandstone	NARRABEEN
		60	Wombara Formation	
		2.5	Bulli Seam	
		20	Eckersley Formation	ILLAWARRA COAL MEASURES
		9	Wongawilli Seam	
		15	Kembla Sandstone	

DENDROBIUM MINE



Figure: 4
Indicative Stratigraphic Section-
Project Area

Illawarra Coal

Illawarra Coal provides approximately 60% of BlueScope Steel's coking coal requirements from coal extracted at the Mine and Appin Mine.

2.2 REGIONAL CONTEXT

The Project is located in the Southern Coalfield of NSW, approximately 8 km west of Wollongong (Figure 1).

A preliminary Schedule of Lands for the Project Development Application Area² is provided in Attachment A. The Development Application Area is located within the Wollongong, Wingecarribee and Wollondilly Local Government Areas (LGAs).

The Dendrobium Pit Top and Kemira Valley Coal Loading Facility are located in Mount Kembla, approximately 8 km west of Wollongong on the Illawarra Escarpment. The Kemira Valley Rail Line runs from the Kemira Valley Coal Loading Facility to the Dendrobium CPP, which is located within the Port Kembla Steelworks precinct.

The existing access and material drifts (Dendrobium tunnel and Kemira tunnel) to the Mine pass through a portion of the Illawarra Escarpment State Conservation Area to the existing underground mining areas.

The existing and Project underground mining areas at the Mine are located within the catchments of the Avon and Cordeaux Rivers. These catchments are situated within the Metropolitan Special Area declared under the *Water NSW Act, 2014*. The Project underground mining areas would not directly longwall mine below the full supply level of the Avon and Cordeaux Reservoirs.

The underground mining areas are situated on the Woronora Plateau, which includes the upper catchments of the Cataract River and Nepean River. The Woronora Plateau is characterised by incised watercourses that have formed steep blocky valleys and cliff lines that contain sandstone overhangs. Open sections of exposed sandstone occur along ridge tops and plateau caps.

Original vegetation remains over most of the underground mining areas, except for the presence of fire roads, Picton Road, powerlines, the Maldon-Dombarton rail corridor and other minor disturbances.

Other mines in the vicinity of the Project include:

- Appin Mine, including the previous West Cliff Colliery mine workings (South32 owned);
- Cordeaux Colliery (South32 owned, under care and maintenance);
- Russell Vale Colliery (under care and maintenance); and
- Wongawilli Colliery.

Environmentally Sensitive Areas

A preliminary investigation of environmentally sensitive areas of State significance (as defined in the *State Environmental Planning Policy (State and Regional Development) 2011* [State and Regional Development SEPP]) with respect to the Project has identified the following:

- The provisional Development Application Area is not within coastal waters of the State.
- No lands protected or preserved under *State Environmental Planning Policy No. 14 - Coastal Wetlands* or *State Environmental Planning Policy No. 26 - Littoral Rainforests* occur within the provisional Development Application Area.
- No lands reserved as an aquatic reserve under the *NSW Fisheries Management Act, 1994* or as a marine park under the *NSW Marine Parks Act, 1997* occur within the provisional Development Application Area.
- No lands within a wetland of international significance declared under the Ramsar Convention on Wetlands or lands within a World Heritage area declared under the World Heritage Convention occur in or near the provisional Development Application Area.
- The provisional Development Application Area includes land mapped as "Natural Resource Sensitivity" under the *Wollongong Local Environmental Plan 2009* and *Wingecarribee Local Environmental Plan 2010*.
- No lands identified in an Environmental Planning Instrument as being of high Aboriginal cultural significance have been identified within the provisional Development Application Area.

² The Development Application Area may be subject to change following detailed engineering and mine planning, environmental assessment and consideration of alternatives conducted for the EIS.

- The provisional Development Application Area is located below a portion of the Illawarra Escarpment State Conservation Area associated with the existing access and material drifts at the Mine (Figure 5) and below a portion of the Upper Nepean State Conservation Area.
- No lands, places, buildings or structures listed on the State Heritage Register under the *NSW Heritage Act, 1977* occur within the Development Application Area. The Avon Dam and Cordeaux Dam structures are listed on the State Heritage Register and are located outside of the provisional Development Application Area.
- No lands declared as critical habitat under the *NSW Threatened Species Conservation Act, 1995* or *Fisheries Management Act, 1994* occur within the provisional Development Application Area.
- Crown land within the provisional Development Application Area is shown on Figure 5. There is no Crown land within the Project underground mining areas (Areas 5 and 6).

2.3 PERMISSIBILITY AND STRATEGIC PLANNING

Applicability of Division 4.1 of Part 4 of the Environmental Planning and Assessment Act, 1979

Development Consent for the Project will be sought under the State Significant Development provisions (i.e. Division 4.1) under Part 4 of the EP&A Act. The EP&A Act and EP&A Regulation generally set the framework for planning and environmental assessment in NSW.

Under section 89C of the EP&A Act a class of development such as mining may be declared as State Significant Development by a State Environmental Planning Policy (SEPP). Clause 8 of the State and Regional Development SEPP provides that the development is declared to be State Significant Development for the purposes of the EP&A Act if:

- the development on the land concerned is, by the operation of an environmental planning instrument, not permissible without Development Consent under Part 4 of the EP&A Act (first criterion); and
- the development is specified in Schedule 1 or 2 (second criterion).

In respect of the first criterion identified above, pursuant to clause 7 of the *State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007* (Mining SEPP), the Project may be carried out only with Development Consent under Part 4 of the EP&A Act (described further below).

In respect of the second criterion identified above, development for the purpose of mining that is coal or mining is specified in Schedule 1, Item 5 as being State Significant Development.

The Project is development for the purpose of coal mining (Section 3) and therefore will be State Significant Development. Development Consent will be sought from the NSW Minister for Planning (or delegate).

Permissibility of the Project

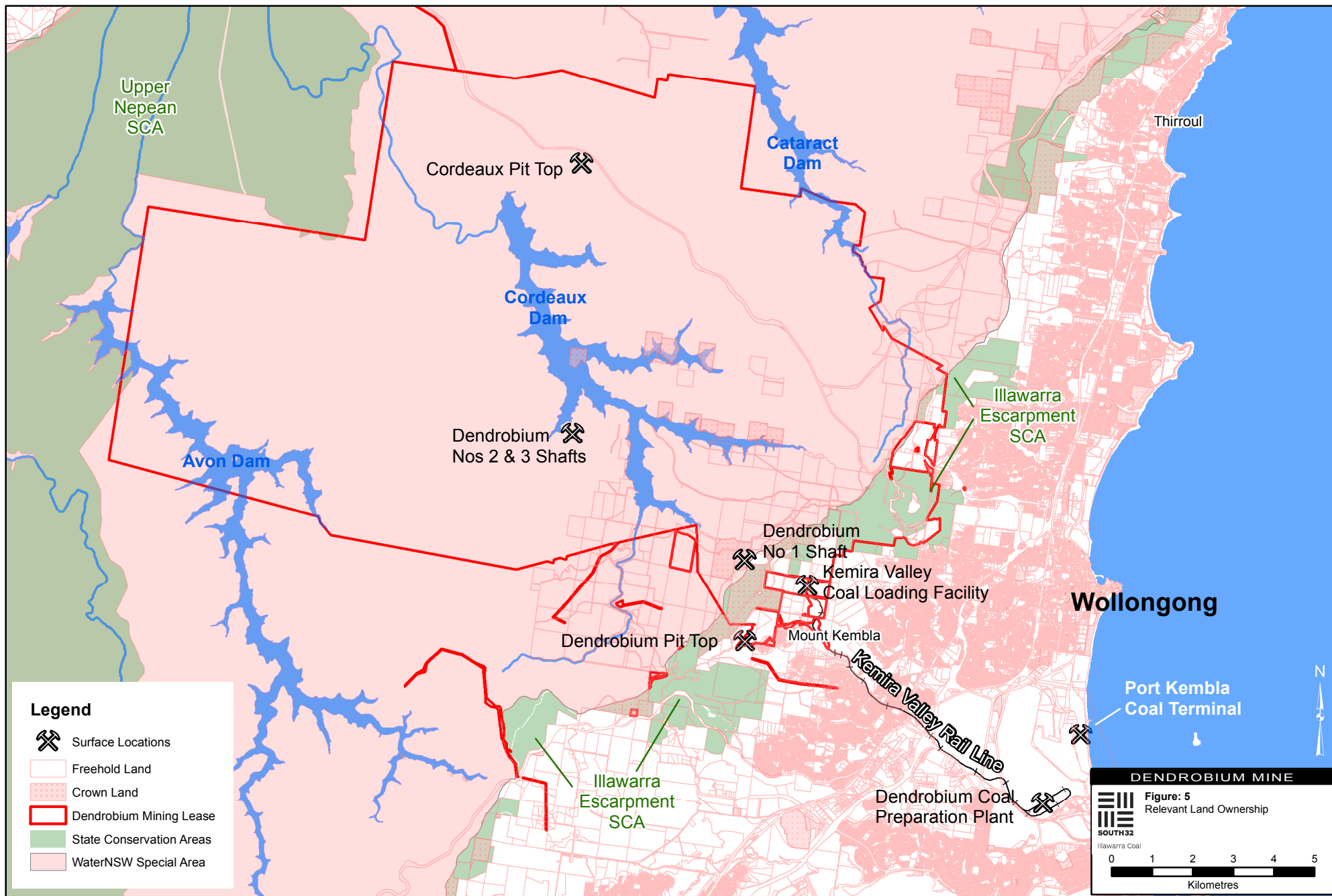
Section 89E of the EP&A Act provides that development consent may not be granted under Division 4.1 of Part 4 if the development is *wholly* prohibited by an environmental planning instrument, but may be granted despite the development being *partly* prohibited by an environmental planning instrument.

The provisional Development Application Area is within the Wollongong, Wingecarribee and Wollondilly LGAs (Figure 1), which is covered by:

- *Wollongong Local Environmental Plan 2009* (Wollongong LEP);
- *Wingecarribee Local Environmental Plan 2010* (Wingecarribee LEP); and
- *Wollondilly Local Environmental Plan 2011* (Wollondilly LEP).

The provisional Development Application Area includes land zoned under the Wollongong LEP as:

- Zone RU1 (Primary Production);
- Zone RU2 (Rural Landscape);
- Zone E1 (National Parks & Nature Reserves);
- Zone E2 (Environmental Conservation);
- Zone E3 (Environmental Management);
- Zone E4 (Environmental Living); and
- Zone SP2 (Infrastructure).



The provisional Development Application Area includes land zoned under the Wingecarribee LEP and Wollondilly LEP as:

- Zone E2 (Environmental Conservation); and
- Zone SP2 (Infrastructure).

Subject to the application of the Mining SEPP (as discussed below), underground mining would be prohibited under the Wollongong LEP, Wingecarribee LEP and Wollondilly LEP in these zones.

Clause 4 of the Mining SEPP relevantly provides:

4 Land to which Policy applies

This Policy applies to the State.

Clause 5(3) of the Mining SEPP gives it primacy where there is any inconsistency between the provisions in the Mining SEPP and the provisions in any other environmental planning instrument (subject to limited exceptions).

The practical effect of clause 5(3) for the Project is that if there is any inconsistency between the provisions of the Mining SEPP and those contained in the Wollongong LEP, Wingecarribee LEP and Wollondilly LEP, the provisions of the Mining SEPP will prevail.

Clauses 6 and 7 of the Mining SEPP provide what types of mining development are permissible without development consent and what types are permissible only with development consent.

In this regard, clause 7(1) states:

7 Development permissible with consent

(1) Mining

Development for any of the following purposes may be carried out only with development consent:

- (a) *underground mining carried out on any land,*

...

- (d) *facilities for the processing or transportation of minerals or mineral bearing ores on land on which mining may be carried out (with or without development consent), but only if they were mined from that land or adjoining land,*

...

The term 'underground mining' in the Mining SEPP is given an extended definition in clause 3(2) as follows:

underground mining means:

- (a) *mining carried out beneath the earth's surface, including bord and pillar mining, longwall mining, top-level caving, sub-level caving and auger mining, and*
- (b) *shafts, drill holes, gas and water drainage works, surface rehabilitation works and access pits associated with that mining (whether carried out on or beneath the earth's surface),*

but does not include open cut mining.

The effect of clause 7(1)(a), in conjunction with the operation of clause 5(3) of the Mining SEPP, is that notwithstanding any prohibition in the Wollongong LEP, Wingecarribee LEP and Wollondilly LEP, development for the purpose of underground mining and facilities for the processing and transportation of coal may be carried out with development consent.

Accordingly, the Minister would not be precluded from granting approval under section 89E of the EP&A Act for the Project in respect of those parts of the Project land where mining is prohibited under the Wollongong LEP, Wingecarribee LEP and Wollondilly LEP.

In addition to the above, the Dendrobium CPP and a portion of the Kemira Valley Rail Line is located within Zone IN3 (Heavy Industrial) under the *State Environmental Planning Policy (Three Ports) 2013* (Three Ports SEPP). Port facilities and heavy industries are permissible with consent within this zone.

Planning Provisions

State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007

The EIS would include detailed consideration of the aims of the Mining SEPP (Part 1) and the matters for consideration in Part 3 of the Mining SEPP based on the final description of the Project and impact assessment.

A preliminary review of the Project against the Mining SEPP did not identify any matters which could prevent the Project proceeding.

Mining activities for the Project would be carried out within existing mining leases (CCL 768, ML 1510 and ML 1566), and therefore Part 4AA of the Mining SEPP does not apply.

State Environmental Planning Policies

In addition to the Mining SEPP, the following SEPPs may potentially be relevant to the Project:

- State and Regional Development SEPP;
- *State Environmental Planning Policy (Sydney Drinking Water Catchment) 2011*;
- *State Environmental Planning Policy (Infrastructure) 2007*;
- Three Ports SEPP;
- *State Environmental Planning Policy No. 33 (Hazardous and Offensive Development) (SEPP 33)*;
- *State Environmental Planning Policy No. 44 - Koala Habitat Protection*; and
- *State Environmental Planning Policy No. 55 (Remediation of Land)*.

Relevant provisions and objectives of the above SEPPs would be considered in the preparation of the EIS.

Water NSW Act, 2014

The existing and Project underground mining areas at the Mine are located within the Metropolitan Special Area, which is a declared 'Special Area' under the *Water NSW Act, 2014*. Special Areas are jointly managed by WaterNSW and the National Parks and Wildlife Service (on behalf of the Minister for the Environment).

Illawarra Coal has consent from WaterNSW to enter the Metropolitan Special Area and carry out activities permitted by statutory approvals.

Illawarra Coal would seek to extend this consent for the Project.

Water Management Act, 2000

Under section 89J(1) of the EP&A Act, if the Project is approved as a State Significant Development, water use approvals under section 89, water management work approvals under section 90, or activity approvals (excluding aquifer interference approvals) under section 91 of the *Water Management Act, 2000* would not be required for the Project.

The EIS would include consideration of the Project against the water management principles and access licence dealing principles under the *Water Management Act, 2000*. The EIS would also identify access licences required for each water source associated with the Project.

Protection of the Environment Operations Act, 1997

The NSW *Protection of the Environment Operations Act, 1997* (PoEO Act) and the NSW *Protection of the Environment Operations (General) Regulation, 2009* set out the general obligations for environmental regulation in NSW.

The Mine currently operates under EPL 3241 granted under the PoEO Act. The EPL contains conditions which relate to emission and discharge limits, environmental monitoring and reporting. If approved, the Project may require a variation of EPL 3241.

Mine Subsidence Compensation Act, 1961

Under the *Mine Subsidence Compensation Act, 1961*, the Mine Subsidence Board is established, which is a service organisation operating for the community in coal mining areas of NSW and is responsible for administering the *Mine Subsidence Compensation Act, 1961*.

Under section 10 of the *Mine Subsidence Compensation Act, 1961*, a Mine Subsidence Compensation Fund has been established into which colliery holders are required to make annual payments. From this fund the *Mine Subsidence Compensation Act, 1961* provides for compensation or repair services where property improvements are damaged by mine subsidence resulting from the underground extraction of coal.

Illawarra Coal would make contributions to the Mine Subsidence Compensation Fund and would conduct consultation with the Mine Subsidence Board in regard to Project subsidence impacts on property improvements.

Roads Act, 1993

If the Project is approved, Illawarra Coal would apply for the necessary consents under section 138 of the NSW *Roads Act, 1993* associated with mining under any public road.

Under section 89K(1)(f) of the EP&A Act, if the Project is approved as a State Significant Development, consent under section 138 of the *Roads Act, 1993* cannot be refused and is to be substantially consistent with any Development Consent granted under Division 4.1 of Part 4 of the EP&A Act.

Commonwealth Environment Protection and Biodiversity Conservation Act, 1999

The Project is being referred to the Commonwealth Minister for the Environment and Energy for consideration as to whether the Project is a 'Controlled Action' and requires approval under the EPBC Act.

If the Project is assessed under the assessment bilateral agreement with the NSW Government for impacts on water resources, NSW and the Commonwealth will jointly obtain the advice of the Independent Expert Scientific Committee on Coal Seam Gas and Large Coal Mining Development.

Planning Strategies

The following strategic planning documents would be considered in the planning of the Project and the preparation of the EIS:

- *Illawarra-Shoalhaven Regional Plan* (NSW Government, 2015c);
- *A Plan for Growing Sydney* (NSW Government, 2014) (and any South West District Plan released prior to submission of the EIS);
- *Wollongong 2022: Our Community Strategic Plan 2012-2022* (Wollongong City Council, 2012);
- *Wingecarribee Local Planning Strategy 2015-2031* (Wingecarribee Shire Council, 2016); and
- *Wollondilly Community Strategic Plan 2033* (Wollondilly Shire Council, 2013).

3 PROJECT DESCRIPTION AND PROJECT RATIONALE

Illawarra Coal is seeking a new Development Consent to extend the underground mining areas at the Mine to gain access to additional coal within CCL 768. This would be supported by development of supporting infrastructure and an extension to the approved surface operations by approximately 18 years.

Illawarra Coal is seeking approval from the NSW Minister for Planning for Development Consent under Division 4.1 of Part 4 of the EP&A Act for the Project.

The proponent's details are provided in Section 3.1. A brief description of the existing Mine is provided in Section 3.2 and a description of key Project components is provided in Sections 3.3 to 3.6. A Project justification overview is provided in Section 3.7.

3.1 PROPONENT

Illawarra Coal (ABN 69 093 857 286) is the proponent for the Project.³ The contact details for Illawarra Coal are:

Illawarra Coal Holdings Pty Ltd
Level 35
108 St Georges Terrace
PERTH WESTERN AUSTRALIA 6000
Phone: (02) 4286 3000

The Illawarra Coal website is:

<https://www.south32.net/our-operations/australia/illawarra-coal>

The Mine is located at Cordeaux Road, Mount Kembla NSW, 2526.

3.2 EXISTING DENDROBIUM MINE

The Mine has an approved operational capacity of up to 5.2 Mtpa of ROM coal from the Wongawilli Seam until 31 December 2030.

Surface Facilities

Key surface infrastructure at the Mine (Figure 2) includes the:

- Dendrobium Pit Top;
- Kemira Valley Coal Loading Facility;
- Kemira Valley Rail Line;
- Dendrobium CPP; and
- Dendrobium Shafts Nos 1, 2 and 3.

The Dendrobium Pit Top contains administration buildings, workshop, machinery and equipment storage areas, personnel and materials access to the underground workings via the Dendrobium tunnel, water management infrastructure and other ancillary infrastructure.

ROM coal is transported from underground workings to the Kemira Valley Coal Loading Facility via an underground conveyor network reaching the surface via the Kemira Valley tunnel. Coal is then sized and stockpiled at the Kemira Valley Coal Loading Facility prior to transport to the Dendrobium CPP via the Kemira Valley Rail Line.

Sized ROM coal from the Mine is processed at the Dendrobium CPP, which is located within the Port Kembla Steelworks precinct. Product coal is delivered from the Dendrobium CPP to the Port Kembla steelworks or Port Kembla Coal Terminal for export.

Dendrobium No 1 Shaft provides intake air to the underground workings. The Dendrobium Nos 2 & 3 Shaft site includes a downcast (intake) and upcast (exhaust) shaft to support ventilation of the underground workings.

³ At all relevant times in relation to the Project, Illawarra Coal Holdings Pty Ltd will be acting as agent for and on behalf of Dendrobium Coal Pty Ltd in respect of all mining and exploration tenements held by Dendrobium Coal Pty Ltd.

Up to approximately 1.1 Mtpa of coal wash is transported by road from the Dendrobium CPP to the West Cliff Colliery Stage 3 and Stage 4 Coal Wash Emplacement. Coal wash is approved for emplacement at the West Cliff Stage 3 Coal Wash Emplacement (approved under DA 60-03-2001) and the West Cliff Stage 4 Coal Wash Emplacement (approved under Project Approval 08_0150).

Coal wash is also supplied to third parties for use as an engineering fill material or for other beneficial uses.

Underground Mining Areas

The Mine includes five approved underground mining areas, named Areas 1, 2, 3A, 3B and 3C (Figure 2).

Longwall extraction is largely complete in Areas 1, 2 and 3A. Longwall extraction is currently being undertaken in Longwall 12 in Area 3B.

Further approvals under the conditions of the Development Consent DA 60-03-2001 are required for extraction of Longwalls 14 to 19 and longwalls in Area 3C.

Illawarra Coal will continue mining within underground mining areas approved under Development Consent DA 60-03-2001. Monitoring and remediation/rehabilitation activities will continue to be undertaken by Illawarra Coal in previous mining areas.

3.3 PROJECT ACTIVITIES

Underground Mining Operations

The Project involves longwall mining operations within CCL 768 to (Figure 3):

- extract the Bulli Seam in Area 5; and
- extract the Wongawilli Seam in Area 6.

The Project would operate within the existing approved operational capacity limit of up to 5.2 Mtpa of ROM coal.

Other associated infrastructure and activities would include:

- personnel and materials access, which may involve upgrades to, and the use of, the Cordeaux Pit Top (currently under care and maintenance) and/or continued use of the existing facilities at the Dendrobium Pit Top;

- materials handling and transport systems to convey coal from the longwall and development faces to the surface;
- underground equipment (e.g. shearers, continuous miners, conveyors, bins) and mobile fleet (e.g. load haul dump vehicles, drill rigs, shuttle cars, personnel carriers);
- ventilation systems to maintain a safe working environment within the underground workings;
- gas monitoring systems and gas management and abatement activities;
- water management systems to transfer groundwater that accumulates in underground workings to the surface; and
- monitoring, rehabilitation and remediation of subsidence and other mining effects.

The locations of surface infrastructure would be refined through detailed mine planning, environmental assessment outcomes and consideration of alternatives, and would be documented in the EIS.

Coal Processing, Handling and Transport Infrastructure

The Project would include the use of the existing Mine surface facilities (Section 3.2) for handling, processing and transportation of coal for the life of the Project.

The Project may incorporate minor upgrades and extensions to existing infrastructure, which would be documented in the EIS.

Coal Wash Management

The Project would involve the continued use of the West Cliff Stage 3 and Stage 4 Coal Wash Emplacement.

If development consent is granted for the Project, the new consent would prevail to the extent of any inconsistency with DA 60-03-2001 in relation to development and rehabilitation of the West Cliff Stage 3 Coal Wash Emplacement.

It is intended that development and rehabilitation of the West Cliff Stage 3 Coal Wash Emplacement would continue to be integrated with the management activities at the West Cliff Colliery surface facilities, including continued implementation of the West Cliff Coal Wash Emplacement Area Management Plan.

Illawarra Coal would also support the continued supply of coal wash for engineering purposes (e.g. civil construction fill) or for other beneficial uses.

The EIS would present a detailed coal wash balance following further mine planning studies.

Water Management

The surface facilities at the Mine incorporate water management infrastructure to separate clean, oily and dirty water.

The Project would involve the use of the existing infrastructure with minor augmentations and extensions, including the progressive development of sumps, pumps, pipelines, water storages and other water management infrastructure.

The Project would involve the use of a combination of recycled treated mine water and potable water purchased from Sydney Water in underground and surface operations.

Final water supply and release requirements for the Project would be subject to the outcomes of a detailed water balance that would be presented in the EIS.

Other Activities

Other activities that would be conducted as a component of the Project include development associated with exploration in Areas 5 and 6, rehabilitation of surface disturbance, and development of other associated minor infrastructure, plant, equipment and activities.

Hours of Operation

The Mine would continue to be operated on a continuous basis (24 hours per day, seven days per week) during the Project.

Trains would not travel on the Kemira Valley Rail Line between 11 pm and 6 am (unless written approval is obtained from EPA for emergency use of the rail line), consistent with the current conditions in the Development Consent DA 60-03-2001.

3.4 EMPLOYMENT

The Mine currently employs approximately 270 personnel (direct employees). The Project would facilitate continued employment of the existing workforce.

Additional employment would be generated by Project construction activities and additional development requirements. This additional employment would be quantified and assessed in the EIS.

3.5 PROJECT SCHEDULE

Longwall extraction in Area 3B at the Mine (i.e. the current mining area) is scheduled for completion at the end of 2022.

Illawarra Coal is undertaking mine planning and feasibility studies on the next preferred mining area following Area 3B (i.e. Area 3C, Area 5 or Area 6).

If Illawarra Coal determines that Area 5 or Area 6 is preferable as the next domain, then first workings development into areas beyond the current approved area would be required by mid 2019.

3.6 MANAGEMENT COMMITMENTS

Preliminary strategies to address potential impacts associated with the Project are outlined in Section 4, which would be developed and refined through the environmental assessment process.

It is proposed to continue the management approach at the existing Mine for the Project.

It is anticipated that any new Development Consent, would include a contemporary Extraction Plan process for Areas 5 and 6 to mitigate, remediate, monitor, manage and offset potential impacts associated with subsidence.

3.7 PROJECT RATIONALE

The extraction of underground coal from the Mine provides benefits at national, state and local levels. Illawarra Coal provides approximately 60% of BlueScope Steel's coking coal requirements.

The Project would facilitate the continuation of benefits derived from the Mine.

Benefits from the Mine occur through continuity of employment, expendable income, export earnings and government revenue. Illawarra Coal provides local jobs for its direct employees with an employment flow-on effect in the Illawarra and Wollondilly regions. More than 400 local businesses provide their goods and services to Illawarra Coal.

The Mine has 270 direct employees. These jobs are reliant on maintaining continuity of longwall coal extraction at the Mine through the Project.

First workings development in the additional areas being sought as part of the Project (Areas 5 and 6) may be required as early as mid 2019 to maintain continuity of longwall coal extraction due to gas constraints identified in Area 3C (which may delay the extraction of parts of Area 3C).

Full justification of the Project on social, environmental and economic grounds, including consideration of the principles of ecologically sustainable development, consideration of alternatives and a cost benefit analysis, would be included in the EIS. This evaluation would consider the *Guidelines for Economic Assessment of Mining and Coal Seam Gas Proposals* (NSW Government, 2015d).

4 PRELIMINARY ENVIRONMENTAL IMPACT ASSESSMENT

4.1 OVERVIEW

The following preliminary environmental impact assessment has been prepared to identify the key potential environmental issues associated with the construction and operation of the Project. This information has been prepared to assist the DP&E with issuing of the SEARs for the Project under clause 3 of Schedule 2 of the EP&A Regulation.

This preliminary environmental impact assessment has drawn on:

- understanding of the local and regional context (Section 2) and the Project (Section 3);
- feedback from stakeholder consultation undertaken to date;
- baseline environmental data; and
- experience from the existing Mine and previous environmental management and approvals processes throughout NSW.

The preliminary environmental impact assessment involved the following steps:

1. **Identification of Potential Issues –** Consideration of how the Project is likely to affect the physical or biological aspects of the environment; natural or community resources; environmentally sensitive areas; areas allocated for conservation purposes; and areas sensitive because of community factors.
2. **Identification of Key Potential Environmental Issues –** Identification of the priority issues based on consideration of: the extent of the potential impacts; the nature of the potential impacts; and the potential impacts on environmentally sensitive areas.
3. **Preliminary Consideration of the Study Requirements –** Each of the key environmental issues identified above were considered with respect to the level and scope of assessment that would be required for the EIS. Preliminary strategies to address the key impacts were also identified.

The key environmental issues identified are provided in Table 4 with a preliminary list of study requirements to address these issues.

Recognised specialists will be commissioned to conduct the studies outlined in Table 4, and independent peer review will be conducted for select key studies.

4.2 LEVEL AND SCOPE OF ASSESSMENT

In addition to consideration of the key potential environmental issues (Table 4), the following environmental aspects would also be addressed as a component of the EIS to consider other potential issues:

- visual amenity;
- non-Aboriginal heritage;
- geochemistry; and
- preliminary hazard analysis in accordance with SEPP 33.

Assessment of the key potential environmental issues (Table 4) and the other potential impacts identified above would include consideration of:

- existing environment using sufficient baseline data;
- potential impacts of all stages of the Project including relevant cumulative impacts;
- measures that could be implemented to avoid, mitigate, rehabilitate/remediate, monitor and/or offset the potential impacts of the Project; and
- contingency plans and/or adaptive management for managing any potentially significant residual risks to the environment.

Some preliminary strategies to address each of the key environmental issues are presented in Table 4. These strategies would be developed and refined through the assessment process. Detail on the proposed measures would be presented in the EIS.

Assessments for the EIS would consider applicable policies, guidelines and plans included in the *Indicative Secretary's Environmental Assessment Requirements for State Significant Mining Developments* (NSW Government, 2015a). Therefore, these policies, guidelines and plans have not been repeated within this document.

Table 4
Key Potential Environmental Issues, Required Level and Scope of Environmental Assessment
and Preliminary Strategies to Address Potential Impacts

Key Potential Environmental Issue	Extent and Nature of Potential Impacts	Proposed Level and Scope of Environmental Assessment	Preliminary Strategies to Address Potential Impacts*
Impacts on water resources as a result of subsidence and site water management.	<ul style="list-style-type: none"> Depressurisation of aquifers as a result of mine subsidence and dewatering of the coal seam to facilitate underground mining, leading to potential effects on overlying groundwater system. Potential depressurisation of shallow and perched groundwater systems, including upland swamps. Potential for erosion/scour and/or altered water distribution in upland swamps. Potential impacts on surface water regimes, including localised effects on water quality and/or persistence of flows. Net neutral or beneficial effect on water quality in the Avon Dam and Cordeaux Dam catchments. 	<ul style="list-style-type: none"> Assessment of the impacts of the Project on the quantity and quality of the region's water resources, connectivity between water sources, water-dependent assets and water-related infrastructure, including cumulative impacts. Groundwater assessment, including numerical modelling and consideration of the Aquifer Interference Policy. Risk assessment approach to consideration of potential subsidence impacts and environmental consequences to streams and swamps. Detailed site water balance for the Project incorporating all sources of water inflow and development of a water management strategy for the life of the Project. Investigation of measures to avoid, mitigate, remediate, monitor and/or offset the potential impacts of the Project. Assessment against the <i>Neutral or Beneficial Effect on Water Quality Assessment Guideline 2015</i> (Sydney Catchment Authority, 2015). Expert peer reviews of the assessments. 	<ul style="list-style-type: none"> Development and implementation of Extraction Plans to mitigate, monitor, remediate, manage and offset potential impacts on water resources. Groundwater monitoring network. Surface water monitoring network. Water management strategy for the Project based on regular reviews of the site water balance. Erosion and sediment control during construction and operation. Appropriate licensing in accordance with the legislative requirements of the <i>Water Management Act, 2000</i>. Mitigation, offset and/or compensatory measures to achieve net neutral or beneficial effect on water quality in the Avon Dam and Cordeaux Dam catchments.
Impacts on ecology as a result of underground mining.	<ul style="list-style-type: none"> Potential changes to vegetation within upland swamp and riparian communities as a result of impacts on water resources. Potential impacts on fauna habitats associated with streams, upland swamps and cliff lines. 	<ul style="list-style-type: none"> Flora and fauna surveys of the underground mining area and review of previous survey effort. Subsidence, groundwater and surface water assessments of potential subsidence effects and impacts on flora and fauna habitat. Assessment of potential impacts on any terrestrial and aquatic species, populations, ecological communities or their habitats. Risk assessment approach to consideration of potential subsidence impacts and environmental consequences to streams and swamps. Identification of measures that would be implemented to maintain or improve the biodiversity values of the surrounding region in the medium to long-term. 	<ul style="list-style-type: none"> Consideration of environmental assessment outcomes during detailed mine planning (e.g. development of performance measures). Development and implementation of Extraction Plans to mitigate, monitor, remediate, manage and offset potential impacts on ecology. Offset and compensatory measures to maintain or improve the biodiversity values of the surrounding region in the medium to long-term.

Table 4 (Continued)
Key Potential Environmental Issues, Required Level and Scope of Environmental Assessment
and Preliminary Strategies to Address Potential Impacts

Key Potential Environmental Issue	Extent and Nature of Potential Impacts	Proposed Level and Scope of Environmental Assessment	Preliminary Strategies to Address Potential Impacts*
Impacts on ecology as a result of vegetation disturbance.	<ul style="list-style-type: none"> Potential disturbance or loss of threatened flora and fauna species and potential loss of habitat. 	<ul style="list-style-type: none"> Flora and fauna surveys of the disturbance area in consideration of relevant survey guidelines. Assessment of potential impacts on any terrestrial and aquatic species, populations, ecological communities or their habitats. Assessment of alternative locations of surface infrastructure in consideration of potential impacts on ecology. Identification of measures that would be implemented to maintain or improve the biodiversity values of the surrounding region in the medium to long-term. 	<ul style="list-style-type: none"> Consideration of environmental assessment outcomes during detailed mine planning (including minimisation of vegetation disturbance, particularly disturbance of areas with higher ecological value). Surface disturbance protocols (including pre-clearance surveys). Weed and feral animal control measures. Rehabilitation strategy for the Project. Offset and compensatory measures to maintain or improve the biodiversity values of the surrounding region in the medium to long-term.
Impacts on Aboriginal heritage as a result of subsidence and direct disturbance.	<ul style="list-style-type: none"> Potential subsidence related disturbance or loss of items of Aboriginal heritage or Aboriginal cultural values. Direct disturbance or loss of items of Aboriginal heritage or Aboriginal cultural values as a result of surface disturbance. 	<ul style="list-style-type: none"> Subsidence assessment of potential subsidence effects on items of Aboriginal heritage. Assessment of impacts on items of Aboriginal heritage and Aboriginal cultural values in accordance with NSW Department of Environment, Climate Change and Water (DECCW) (2010) and NSW Department of Environment and Conservation (2005). Investigation of measures to avoid, mitigate, monitor and manage the potential impacts of the Project. 	<ul style="list-style-type: none"> Consideration of environmental assessment outcomes during detailed mine planning (e.g. locations of Aboriginal heritage sites). Involvement of Aboriginal stakeholders during the assessment and operational phase. Surface disturbance protocols (including salvage or demarcation of sites where applicable). Development of subsidence performance measures for any significant heritage sites. Adaptive management approach to achieve subsidence performance measures. Development and implementation of Extraction Plans to mitigate, monitor and manage potential impacts on Aboriginal heritage.

Table 4 (Continued)
Key Potential Environmental Issues, Required Level and Scope of Environmental Assessment
and Preliminary Strategies to Address Potential Impacts

Key Potential Environmental Issue	Extent and Nature of Potential Impacts	Proposed Level and Scope of Environmental Assessment	Preliminary Strategies to Address Potential Impacts*
Noise impacts on the surrounding community.	<ul style="list-style-type: none"> Potential for continued increased noise levels resulting from continued use of the Mine surface facilities. Potential for continued increased noise levels resulting from continued transportation of sized ROM coal via the Kemira Valley Rail Line. Potential for continued increased noise levels resulting from continued transportation of coal wash via road and employee and delivery movements to surface facilities. 	<ul style="list-style-type: none"> Assessment of changes in traffic volumes on the surrounding road network. Modelling and assessment of potential noise impacts as a result of mining operations, including road and rail traffic. Assessment of potential cumulative impacts resulting from the Project and nearby developments. Investigation of measures to avoid, mitigate and/or monitor the potential impacts of the Project. 	<ul style="list-style-type: none"> Reasonable and feasible mitigation measures on-site to minimise noise generation. Noise monitoring. Existing curfew for non-passenger vehicles.
Air quality impacts on the surrounding community.	<ul style="list-style-type: none"> Potential air quality impacts resulting from Project activities. Potential greenhouse gas emissions resulting from the combustion of diesel fuel, use of electricity and fugitive emissions from underground mining. 	<ul style="list-style-type: none"> Modelling and assessment of potential air quality impacts as a result of Project activities. Assessment of potential cumulative impacts resulting from the Project and nearby developments and mines. Assessment of greenhouse gas emissions (including scope 1, 2 and 3 emissions). Investigation of measures to avoid, mitigate and/or monitor the potential impacts of the Project. 	<ul style="list-style-type: none"> Dust mitigation measures to minimise dust generation during construction and operation. Air quality monitoring. Energy efficiency measures.

Table 4 (Continued)
Key Potential Environmental Issues, Required Level and Scope of Environmental Assessment
and Preliminary Strategies to Address Potential Impacts

Key Potential Environmental Issue	Extent and Nature of Potential Impacts	Proposed Level and Scope of Environmental Assessment	Preliminary Strategies to Address Potential Impacts*
Costs and benefits to the regional and NSW economy.	<ul style="list-style-type: none"> Continued employment of the existing workforce and generation of additional employment by Project construction activities and additional development requirements. Benefits through continuity of employment, expendable income, export earnings, government revenue and continued support of local businesses. Continued support of BlueScope Steel's coking coal requirements. 	<ul style="list-style-type: none"> Economic assessment of potential impacts on the regional and NSW economy and a cost-benefit analysis. Project justification, including consideration of alternatives, principles of ecologically sustainable development and the objects of the EP&A Act. Consideration of the significance of the coal resource. 	<ul style="list-style-type: none"> Strategies to continue support of local businesses. Continued community contributions from Illawarra Coal.

* To be refined during detailed impact assessments.

5 STAKEHOLDER ENGAGEMENT

5.1 ENGAGEMENT TO DATE

Illawarra Coal engages regularly with the community through the following mechanisms:

- a dedicated website (<https://www.south32.net/our-operations/australia/illawarra-coal>);
- Dendrobium Community Consultative Committee meetings (with meeting minutes provided on the website and emailed direct to interested stakeholders);
- Dendrobium Community Enhancement Program (a dedicated community-based social investment program to benefit the communities surrounding the Mine operations);
- community information sheets and letter box drops;
- media releases and other media activities;
- general community surveys and reports;
- Dendrobium News (an Illawarra Coal publication for the communities surrounding the Mine operations);
- landholder relations program; and
- information days and mine open days.

Specific engagement completed in relation to the Project has included:

- Consultation with representatives of the NSW Division of Resources and Energy (DRE) and WaterNSW regarding ongoing exploration and mining activities in CCL 768.
- Consultation with the DP&E regarding the status of the Project and the lodgement of this request for SEARs.
- A Conceptual Project Development Plan meeting with representatives of the DRE on 29 July 2016.
- Overview briefings on the Project to a number of NSW Government agencies (e.g. WaterNSW) when consulting on operational matters for the existing Mine.

- Provision of information on the Project and offer for ongoing briefings with representatives of the Wollongong City Council, Wingecarribee Shire Council and Wollondilly Shire Council on the Project.
- Ongoing consultation with the Dendrobium Community Consultative Committee.

5.2 STAKEHOLDER ENGAGEMENT PROGRAM

A stakeholder engagement program has been developed for the Project. Key objectives of this program are to:

- engage with government and public stakeholders about the Project;
- seek input from key stakeholders on the elements of the Project;
- recognise and respond to local interest or concerns regarding the Project; and
- continue the ongoing dialogue between Illawarra Coal and its key stakeholders.

The issues raised and outcomes of the stakeholder engagement program will be reported in the EIS.

The consultation will include, but not necessarily be limited to, the following government agencies and authorities:

- DP&E;
- WaterNSW;
- NSW Office of Environment and Heritage (including the National Parks and Wildlife Service and the Heritage Branch);
- NSW Department of Industry, Skills and Regional Development (including the DRE);
- NSW Dams Safety Committee;
- NSW Environment Protection Authority;
- Department of Primary Industries (DPI) (including the DPI Water and Crown Lands);
- Transport for NSW (including Roads and Maritime Services);
- Mine Subsidence Board;

- Wollongong City Council;
- Wingecarribee Shire Council;
- Wollondilly Shire Council; and
- Commonwealth Department of the Environment.

The stakeholder engagement program also recognises other key stakeholders including:

- Dendrobium Community Consultative Committee;
- Mount Kembla, Cordeaux Heights and Unanderra communities;
- the Aboriginal community;
- local, State and Federal elected representatives;
- interested non-Government organisations;
- Mine employees;
- infrastructure owners (such as Endeavour Energy and Jemena); and
- local customers and suppliers.

The EIS engagement program will include the use of a variety of consultation mechanisms such as:

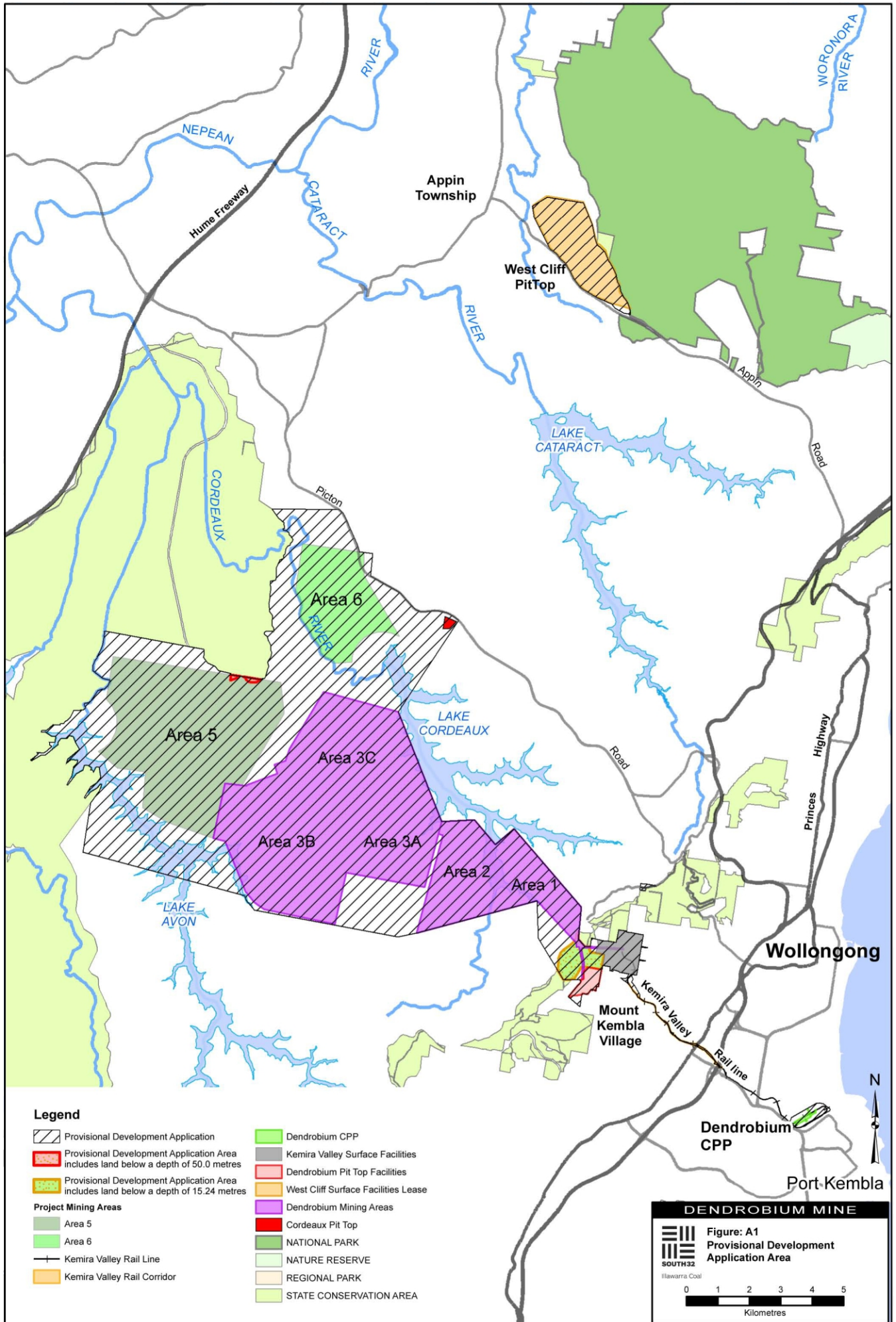
- public availability of key documents (e.g. this request for SEARs and the EIS);
- existing community information mechanisms (Section 5.1), including:
 - regular updates to the Dendrobium Community Consultative Committee;
 - community information sheets and letter box drops;
 - updates in the Dendrobium News;
 - provision of information on the website (<https://www.south32.net/our-operations/australia/illawarra-coal>); and
 - information days;
- consultation with the Aboriginal community in consideration of the requirements of the *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010* (DECCW, 2010); and
- meetings with government agencies and other stakeholders.

6 REFERENCES

- Department of Environment and Conservation
(2005) *Draft Guidelines for Aboriginal Cultural Heritage Impact Assessment and Community Consultation*.
- Department of Environment, Climate Change and Water (2010) *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010*.
- NSW Government (2014) *A Plan for Growing Sydney*.
- NSW Government (2015a) *Indicative Secretary's Environmental Assessment Requirements for State Significant Mining Developments*.
- NSW Government (2015b) *Mine Application Guideline – Specific development application requirements for State significant mining and extractive industry developments under the Environmental Planning and Assessment Act 1979*.
- NSW Government (2015c) *Illawarra-Shoalhaven Regional Plan*.
- NSW Government (2015d) *Guidelines for Economic Assessment of Mining and Coal Seam Gas Proposals*.
- Sydney Catchment Authority (2015) *Neutral or Beneficial Effect on Water Quality Assessment Guideline 2015*.
- Wingecarribee Shire Council (2016) *Wingecarribee Local Planning Strategy 2015-2031*.
- Wollondilly Shire Council (2013) *Wollondilly Community Strategic Plan 2033*.
- Wollongong City Council (2012) *Wollongong 2022: Our Community Strategic Plan 2012-2022*.

ATTACHMENT A

**PROVISIONAL DEVELOPMENT APPLICATION AREA
AND PRELIMINARY SCHEDULE OF LANDS**



PRELIMINARY SCHEDULE OF LANDS

Table 1
Lot Description Table

Lot Number	Plan Label	Lot Class	Controlling Entity
7	DP238832	Standard Lot	Freehold
1	DP41756	Standard Lot	Freehold
1	DP157009	Standard Lot	Freehold
12	DP250762	Standard Lot	Freehold
8	DP250762	Standard Lot	Freehold
1	DP782097	Standard Lot	Freehold
135	DP1101894	Standard Lot	Freehold
11	DP1101896	Standard Lot	Freehold
11	DP250762	Standard Lot	Freehold
3	DP196371	Standard Lot	Freehold
1	DP191695	Standard Lot	Unknown
34	DP7960	Standard Lot	Freehold
2	DP555020	Standard Lot	Freehold
26	DP876910	Standard Lot	Freehold
1	DP44334	Standard Lot	Freehold
1	DP553102	Standard Lot	Freehold
2	DP196371	Standard Lot	Freehold
1	DP986723	Standard Lot	Freehold
1	DP745812	Standard Lot	Freehold
1	DP156521	Standard Lot	Freehold
1	DP1000997	Standard Lot	Freehold
36	DP650174	Standard Lot	Freehold
2	DP41756	Standard Lot	Freehold
3	DP157009	Standard Lot	Freehold
13	DP751278	Standard Part Lot	Freehold
1	DP158575	Standard Lot	Freehold
7	DP401354	Standard Lot	Freehold
3	DP159797	Standard Lot	Freehold
1	DP196406	Standard Lot	Freehold
1	DP193941	Standard Lot	Freehold
2	DP196993	Standard Lot	Freehold
8	DP401354	Standard Lot	Freehold
24	DP876910	Standard Lot	Freehold
1	DP713256	Standard Lot	Freehold
275	DP751278	Standard Lot	Freehold
1	DP920893	Standard Lot	Freehold
14	DP255285	Standard Lot	Freehold
1	DP196993	Standard Lot	Freehold
166	DP751278	Standard Lot	Freehold
18	DP1111734	Standard Lot	Freehold
2	DP1103666	Standard Lot	Freehold
1	DP1103666	Standard Lot	Freehold
19	DP1131362	Standard Lot	Freehold

Lot Number	Plan Label	Lot Class	Controlling Entity
212	DP914738	Standard Lot	Freehold
2000	DP914741	Standard Lot	NSW Government
6 [#]	DP1185541	Standard Lot	NSW Government
285	DP751278	Standard Lot	Freehold
278	DP751278	Standard Lot	Freehold
24	DP751278	Standard Lot	Freehold
161	DP1196124	Standard Lot	Freehold
2	DP217891	Standard Lot	Freehold
1	DP560813	Standard Lot	Freehold
1	DP716852	Standard Lot	Freehold
15	DP162288	Standard Lot	Freehold
1	DP1037257	Standard Lot	Freehold
1	DP770473	Standard Lot	Freehold
1	DP230082	Standard Lot	Freehold
21	DP548951	Standard Lot	Freehold
24	DP1120351	Standard Lot	Freehold
23	DP1120351	Standard Lot	Freehold
3	DP1103666	Standard Lot	Freehold
3	DP196426	Standard Lot	Freehold
1	DP553538	Standard Lot	Freehold
1	DP255281	Standard Lot	NSW Government
1	DP615178	Standard Lot	Freehold
1	DP159797	Standard Lot	Freehold
114	DP1127132	Standard Lot	Freehold
4	DP1185541	Standard Lot	NSW Government
3 [#]	DP1185541	Standard Lot	NSW Government
1	DP221602	Standard Lot	Freehold
2	DP157009	Standard Lot	Freehold
2	DP159797	Standard Lot	Freehold
138	DP1190404	Standard Lot	Freehold
1	DP60361	Standard Lot	Freehold
1	DP164689	Standard Lot	Freehold
21	DP1190621	Standard Lot	Freehold
1	DP1190768	Standard Lot	Freehold
115	DP1190868	Standard Lot	Freehold
134	DP751278	Standard Lot	Freehold
137	DP751278	Standard Lot	Freehold
25	DP876910	Standard Lot	Freehold
217	DP751278	Standard Lot	Freehold
284	DP751278	Standard Lot	Freehold
276	DP751278	Standard Lot	Freehold
1	DP1012600	Standard Lot	Freehold
213	DP914738	Standard Lot	Freehold
1	DP1001210	Standard Lot	Freehold
216	DP751278	Standard Lot	Freehold
289	DP751278	Standard Lot	Freehold
1	DP907377	Standard Lot	Freehold
13*	DP1092321	Standard Lot	Freehold

Lot Number	Plan Label	Lot Class	Controlling Entity
1	DP1193744	Standard Lot	Freehold
1	DP1103781	Standard Lot	Freehold
279	DP751278	Standard Lot	Freehold
1	DP1186788	Standard Lot	Freehold
1	DP606434	Standard Part Lot	Freehold
1	DP203687	Standard Lot	Freehold
4	DP203034	Standard Lot	Freehold
68	DP259919	Standard Lot	Freehold
1	DP606431	Standard Lot	Freehold
22	DP259921	Standard Lot	Freehold
7	DP259921	Standard Lot	Freehold
18	DP259921	Standard Lot	Freehold
20	DP259921	Standard Lot	Freehold
3	DP1157196	Standard Lot	Freehold
2	DP1157196	Standard Lot	Freehold
1	DP606430	Standard Lot	Unknown
45	DP1189567	Standard Lot	NSW Government
811	DP881172	Standard Lot	Freehold
2	DP214572	Standard Lot	Freehold
3	DP214572	Standard Lot	Freehold
41	DP36130	Standard Lot	Freehold
37	DP36411	Standard Lot	Freehold
70	DP432516	Standard Lot	Freehold
2	DP263531	Standard Lot	Freehold
-	SP73645	Strata	Freehold
39	DP36130	Standard Lot	Freehold
43	DP36130	Standard Lot	Freehold
40	DP36130	Standard Lot	Freehold
38	DP36130	Standard Lot	Freehold
1	DP196473	Standard Lot	Freehold
2	DP596422	Standard Lot	Freehold
3	DP38313	Standard Lot	Freehold
10	DP38313	Standard Lot	Freehold
5	DP38313	Standard Lot	Freehold
9	DP38313	Standard Lot	Freehold
102	DP602229	Standard Lot	Freehold
1	DP569400	Standard Lot	Freehold
7	DP38313	Standard Lot	Freehold
2	DP158694	Standard Lot	Freehold
11	DP38313	Standard Lot	Freehold
6	DP38313	Standard Lot	Freehold
101	DP602229	Standard Lot	Freehold
1	DP158694	Standard Lot	Freehold
33	DP36411	Standard Lot	Freehold
4	DP38313	Standard Lot	Freehold
8	DP38313	Standard Lot	Freehold
22	DP1076092	Standard Lot	Freehold
1	DP1061983	Standard Lot	Local Government Authority

Lot Number	Plan Label	Lot Class	Controlling Entity
25	DP216637	Standard Lot	Freehold
32	DP1115382	Standard Lot	Freehold
74	DP751278	Standard Part Lot	Freehold
23	DP36411	Standard Lot	Freehold
34	DP36411	Standard Lot	Freehold
11	DP615589	Standard Lot	Freehold
815	DP1193843	Standard Lot	Freehold
9	DP241076	Standard Lot	Freehold
25	DP36411	Standard Lot	Freehold
29	DP36411	Standard Lot	Freehold
35	DP36411	Standard Lot	Freehold
30	DP36411	Standard Lot	Freehold
2	DP1061983	Standard Lot	Freehold
-	SP77561	Strata	Freehold
36	DP36411	Standard Lot	Freehold
31	DP36411	Standard Lot	Freehold
3	DP203034	Standard Lot	Freehold
6	DP867936	Standard Lot	Freehold
7	DP867936	Standard Lot	Freehold
2	DP208440	Standard Lot	Freehold
26	DP36411	Standard Lot	Freehold
28	DP36411	Standard Lot	Freehold
27	DP36411	Standard Lot	Freehold
24	DP36411	Standard Lot	Freehold
-	SP53017	Strata	Freehold
1	DP227274	Standard Lot	Freehold
2	DP208744	Standard Lot	Freehold
341	DP263444	Standard Lot	Freehold
1557	DP807879	Standard Lot	Freehold
1	DP208743	Standard Lot	Freehold
350	DP263444	Standard Lot	Freehold
451	DP708415	Standard Lot	Freehold
345	DP263444	Standard Lot	Freehold

Provisional Development Application Area includes land below a depth of 15.24 metres for this parcel of land.

* Provisional Development Application Area includes land below a depth of 50 metres for this parcel of land.

Table 2
Crown Land Description Table

Lot Number	Plan Label	Lot Class	Controlling Entity
7318	DP1164103	Standard Lot	Crown
1	DP1190181	Standard Lot	Crown
2	DP1190181	Standard Lot	Crown
21 [#]	DP1190749	Standard Lot	Crown
2711 [#]	DP1190953	Standard Lot	Crown
1	DP45861	Standard Lot	Crown
212	DP1176205	Standard Lot	Crown

Provisional Development Application Area includes land below a depth of 15.24 metres for this parcel of land.

Table 3
Road Reserve Description Table

NSW Land and Property Information GIS Reference Number	Road Name
101335953	Harry Graham Dr
104228429	Central Rd
104515837	Benjamin Rd
104515829	Cordeaux Rd
104516698	Picton Rd
104228426	Princes Hwy