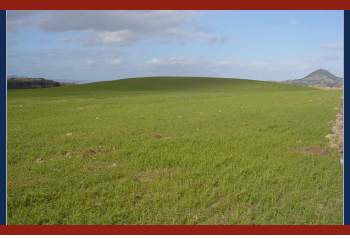
Anglo Coal (Drayton Management) Pty Ltd


Background Document

Drayton Mine Extension EA

June 2006

HANSEN CONSULTING

ANGLO COAL

DRAYTON

ANGLO COAL (DRAYTON MANAGEMENT) PTY LTD

DRAYTON MINE EXTENSION

ENVIRONMENTAL ASSESSMENT

BACKGROUND PAPER FOR PLANNING FOCUS MEETING

Prepared by:

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14 June 2006

for:

Anglo Coal (Drayton Management) Pty Ltd
PMB 9
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Prepared by:	*Approved by:*
	
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1.0 INTRODUCTION

1.1 PROJECT BACKGROUND

Hansen Consulting (Hansen) has been commissioned by Anglo Coal (Drayton Management) Pty Ltd to prepare an Environmental Assessment (EA) to accompany a Project Application to the Minister for Planning for the Drayton Mine Extension (the Project) near the township of Muswellbrook, New South Wales.

The existing Drayton Mine (Drayton) requires Project Approval to:

- Continue its open cut operations;
- Recover additional coal reserves within its current mining leases and;
- Extend the currently approved life of the mine from 2012 to 2017 at a production rate of up to 8 Million tonnes per annum (Mtpa).

The EA will include detailed environmental assessments from relevant specialists on (at least):

- Stakeholder Consultation;
- Air Quality;
- Noise and Blasting;
- Groundwater;
- Surface Water;
- Rehabilitation;
- Final land use and void management;
- Flora and Fauna;
- Aboriginal Archaeology and Cultural Heritage;
- Visual impacts;
- Socio-economics;
- Spontaneous Combustion;
- Traffic and Transport;
- Soils and Land Capability; and
- European Heritage.

1.2 SITE LOCATION

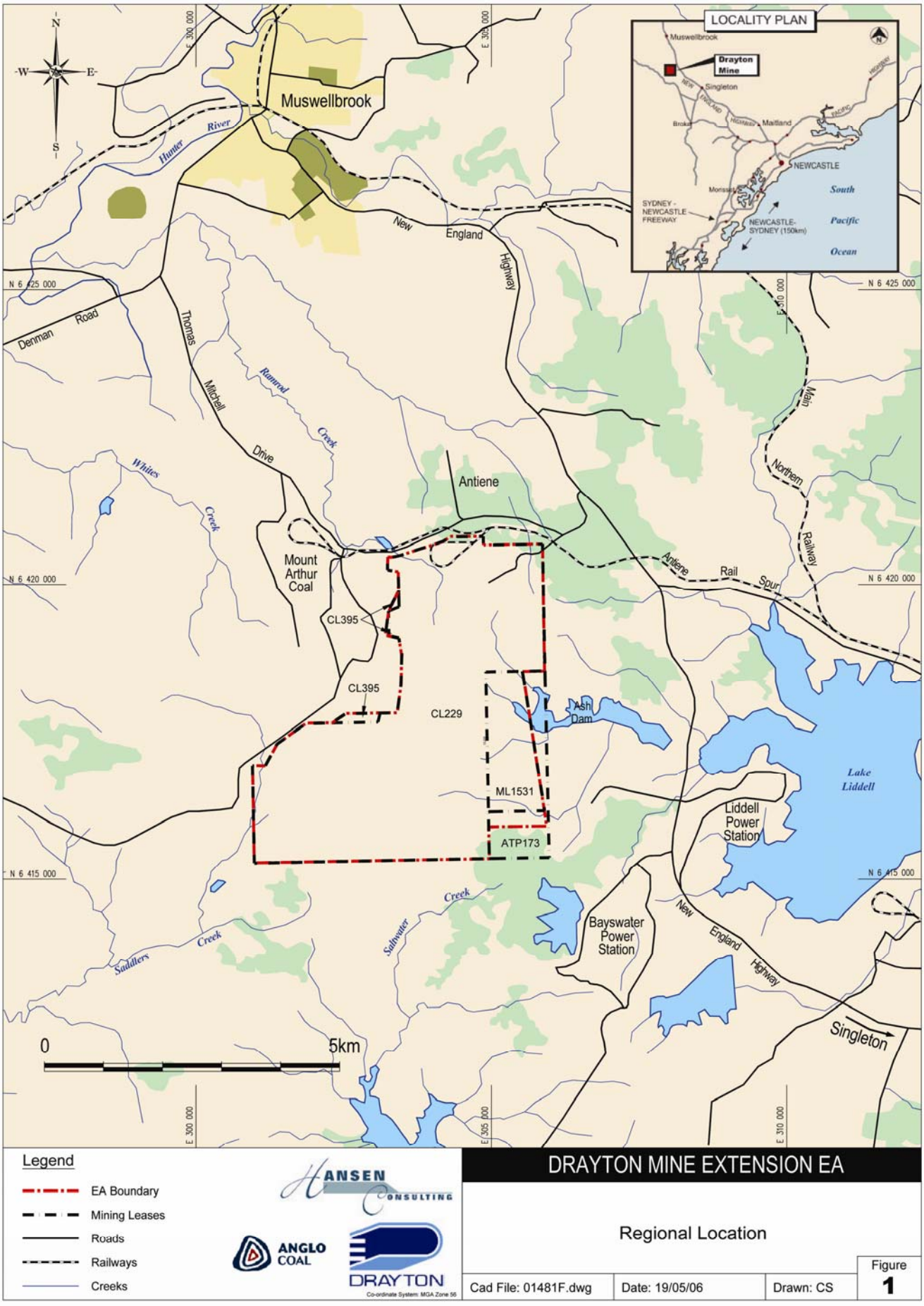
The site is approximately 13 km South of Muswellbrook and approximately 120 km North-west of Newcastle in New South Wales.

The Project is located on Thomas Mitchell Drive, West of the New England Highway, North-west of Liddell and Bayswater Power Stations, East of Mount Arthur Coal and South-west of the rural-residential village of Antiene (see **Figure 1**).

1.3 DOCUMENT STRUCTURE

This document provides an overview of the Project and presents its potential environmental impacts. The proposed methodology and assessments for the Project are presented for the consideration of the Department of Planning (DoP) and other relevant Government Regulators.

This document, feedback from the Planning Focus Meeting (PFM) to be arranged by DoP and any subsequent discussions with key Government stakeholders will form the basis for DoP to issue the Environmental Assessment Requirements (EARs) for the Project.


LOCALITY PLAN
Muswellbrook
Drayton Mine
Singleton
Maitland
NEWCASTLE
South Pacific Ocean
SYDNEY - NEWCASTLE FREEWAY
NEWCASTLE-SYDNEY (150km)
N
W
E
S
Muswellbrook
Hunter River
New England Highway
Denman Road
Thomas Mitchell Drive
Ramrod Creek
Whites Creek
Antiene
Mount Arthur Coal
CL395
CL229
ML1531
ATP173
Ash Dam
Lake Liddell
Liddell Power Station
Bayswater Power Station
Saltwater Creek
Saddlers Creek
Main Northern Railway
Antiene Rail Spur
Singleton
N 6 425 000
N 6 420 000
N 6 415 000
E 300 000
E 305 000
E 310 000
0
5km
Legend
EA Boundary
Mining Leases
Roads
Railways
Creeks
HANSEN CONSULTING
ANGLO COAL
DRAYTON
Co-ordinate System: MGA Zone 56
DRAYTON MINE EXTENSION EA
Regional Location
Cad File: 01481F.dwg
Date: 19/05/06
Drawn: CS
Figure 1

2.0 EXISTING OPERATIONS

Drayton received Development Consent (DA-799) in September 1980 to commence operations, with first coal produced in June 1983. Drayton has three mining leases relevant to the operation: ML 1531 which expires in February 2024; ML 229 which expires in May 2024 and; portions of CL 395 which expires in January 2008 (see **Figure 1**). Authorisation 173 (ATP 173) was renewed in June 2004, thereby extending the authority for exploration to the South-west of ML 1531 until August 2008 (see **Figure 1**).

Drayton currently has development consent approval to mine up to 5.5 Million tonnes per annum (Mtpa) of saleable coal until 2012, which is conducted 24 hours per day, by one dragline, three excavators, two loaders and a fleet of 22 trucks. Drayton produced 4.65 Million tonnes of saleable coal in 2005 and employs 340 personnel, including employees and contractors. The saleable coal at Drayton is produced primarily for export purposes (3.5 Million tonnes in 2005) and for domestic services (1.1 Million tonnes in 2005).

An overland conveyor from Drayton directly transports domestic coal to Macquarie Generation's Bayswater Power Station. Export coal is railed to the Port of Newcastle via the Antiene Rail Spur and the Main Northern Railway.

Drayton utilises a comprehensive environmental management system to ensure that all of the environmental aspects and impacts associated with its activities are carefully managed.

Drayton achieved ISO 14001 certification for its Environment and Community Management System in 2003 and operates in compliance with AS4801 for health and safety.

The Safety, Health, Environment and Community Management System (SHECMS) is a comprehensive management tool which effectively manages safety, health, environment and community risks at Drayton. The SHECMS builds on a sustainable development philosophy held by Anglo Coal Australia and Anglo American management principles. Drayton's SHECMS utilises policies and procedures, supported by relevant management plans, to promote sustainable development, environmental stewardship, social and cultural responsibilities and stakeholder engagement.

3.0 STAKEHOLDER CONSULTATION

3.1 INTRODUCTION

Proactive stakeholder consultation is being undertaken from the Project inception, during the formulation of the EA and throughout the determination process. Consultation with all interested stakeholders will continue throughout the life of the operation. The purpose of the initial consultation program is to:

- Ensure that all stakeholders are accurately informed on the Project and have the opportunity to provide input into the preparation of the EA;
- Identify potential key issues and impacts associated with the Project and potential options for management and mitigation; and
- Ensure all stakeholder issues are adequately addressed in the EA.

3.2 STAKEHOLDER IDENTIFICATION

A thorough stakeholder identification process has identified over 40 individual neighbours, as additional to numerous regulatory agencies, non-government organisations and other stakeholders who will be offered a briefing in relation to the Project. Briefings will be offered to all interested parties throughout the EA process.

3.3 ISSUE SCOPING

The identification of specific issues relevant to the Project is integral to the preparation of the EA. Individual briefings, presentations, relevant media releases and the distribution of regular newsletters on the Project will all aid in maintaining open and honest, two-way communication on the Project.

The objectives of the issue scoping phase of the consultation program are to:

- Provide information on the Project;
- Initiate open two-way communication with stakeholders;
- Explain the Project;
- Identify community issues and concerns in relation to the Project;
- Identify potential final land use options; and
- Identify potential strategies to address the issues raised.

Specific communication methods have been designed for different stakeholders to ensure a comprehensive list of issues is formulated. The methods used for communication and provision of information for the identified stakeholders are described in **Table 1** below.

Table 1
Stakeholder Communication Methods

Stakeholders	Method
• Department of Planning (DoP)	Briefing, PFM, Newsletters
• Department of Primary Industries (DPI)	Briefing, PFM, Newsletters
• Department of Natural Resources (DNR)	Briefing, PFM, Newsletters
• Department of Environment and Conservation (DEC)	Briefing, PFM, Newsletters
• Muswellbrook Shire Council Mayor, Councillors & Officers (MSC)	Briefing, PFM, Newsletters
• Relevant State & Federal MPs	Offer of Briefing, Newsletters
• Drayton Community Consultative Committee (CCC)	Briefing, Newsletters
• Aboriginal Community	Briefing, Newsletters
• Individual Neighbours	Offer of Briefing, Newsletters
• Relevant Neighbouring mines and industry	Offer of Briefing, Newsletters
• Drayton Employees	Toolbox Talk, Newsletters
• Non-Government Organisations	Offer of Briefing, Newsletters

Project newsletters have and will continue to be developed periodically and distributed to identified stakeholders. Newsletter 1 was distributed to stakeholders (as identified in **Table 1**) in May 2006, at the initial briefings and via post.

Face-to-face briefings and group presentations of the Project have occurred since April 2006 and will continue throughout the Project's development.

Over eight presentations have been undertaken with State and Local Government agencies (DoP, DPI), MSC and community groups such as the Drayton CCC. The purpose of these interviews and presentations was to provide stakeholders with an initial overview of the Project, and to identify issues associated with the Project which require assessment in the EA. The meetings also provided stakeholders with an opportunity to provide feedback to Drayton on their current operations.

A total of 40 residents to date have been identified to be contacted by phone and offered a personal briefing. The issue scoping interviews were held with 14 residents in the immediate vicinity of:

- Thomas Mitchell Drive;
- Balmoral Road and Hassall Road; and
- Pamger Drive.

Issue Scoping interviews were offered to 16 specific Muswellbrook residents who had previously expressed an interest in Drayton. Six of these residents were provided issue scoping briefings.

Neighbouring mines and industry such as Mount Arthur Coal (MAC) and Macquarie Generation have been offered the opportunity for briefings to gain an understanding of the Project and to provide feedback.

Potential environmental issues of concern raised by stakeholders to date differed across geographic areas, however, the potential for air quality impacts, noise and blasting impacts and spontaneous combustion were identified as the primary areas of concern. Other

concerns raised included mine closure, final land use, water management, rail and road traffic and community contributions.

3.4 ISSUE RESPONSE

The analysis of issues and responses to these is paramount to the stakeholder consultation process. Relevant responses may include:

- The incorporation of issues, impacts and proposed management and mitigation measures in the EA;
- The distribution of fact sheets;
- Ongoing Newsletter distribution; and
- Follow up meetings with stakeholders (as required).

3.5 ONGOING CONSULTATION

It is intended that ongoing Newsletter distribution and ongoing follow-up meetings with stakeholders will continue through the preparation of the EA, the determination process and throughout the operation of the Project (as is currently the practice at Drayton).

4.0 THE PROJECT

4.1 INTRODUCTION

Drayton is applying for a Project Approval to recover additional coal reserves within its current Mining Leases at a rate of up to 8 Mtpa and to extend the life of the mine. A number of improvements to the mining operation and additional mine planning flexibilities will be sought in conjunction to ensure Drayton remains competitive into the future (see **Figure 2**).

4.2 RESOURCE & MINE PLAN

Drayton propose to mine an additional resource of 30 Million tonnes from the Greta Coal Measures (targeting the Rowan formation) at a rate of up to 8 Mtpa to 2017. The extension of mining will predominantly progress to the South of current operations; however, additional areas within the North and East of the Project Area are also proposed to be mined (see **Figure 2**).

Drayton wish to maintain the flexibility to place surplus overburden material in an area to the South-west of the Primary EA Boundary (if required). Drayton has entered into a sub-lease agreement with Mt Arthur Coal over this area (see **Figure 2**. If material is placed in this area, it will be below the final surface landform for which Mt Arthur Coal will be responsible for creating and rehabilitating, as per the sub-lease agreement.

4.3 MINING METHOD & HOURS OF OPERATION

The extension of Drayton will extract coal via open cut mining methods, 24 hours per day, 7 days per week, as is currently practiced.

Drayton will continue to utilise a dragline, excavators, loaders and a fleet of trucks to both uncover the coal and transport it to on-site processing and load-out facilities. Blasting will continue to be required to assist with overburden and coal extraction.

4.4 EQUIPMENT FLEET & MANNING

The Project will require some additional items of equipment to the currently approved equipment fleet, to accommodate an increased rate of production which shall include:

- One excavator;
- Three track dozers;
- Five 280 tonne rear dump trucks;
- One additional drill, grader and watercart; and
- Other minor ancillary equipment.

A workforce of approximately 390 persons (including contractors) will be required for the operation at Drayton during full production.


THOMAS MITCHELL DRIVE
PRODUCT STOCKPILE
RAIL LOOP
ACCESS ROAD
DOMESTIC STOCKPILE
ACCESS ROAD DAM
CHPP
MOUNT ARTHUR COAL
ROM STOCKPILE
DRAYTON
LIDDELL ASH DAM
DELPAH DAM
SERVICES CORRIDOR (ACCESS ROAD, POWER, WATER)
N 6 420 000
N 6 418 000
N 6 416 000
E 302 000
E 304 000
E 306 000
0
1km
Legend
Primary EA Boundary
Mine Plan
Year 2008
Year 2009-10
Year 2011-12
Year 2013-17
Railway
Mt Arthur Coal Sub-Lease
HANSEN CONSULTING
DRAYTON
Co-ordinate System: MGA Zone 56
DRAYTON MINE EXTENSION EA
Site Locality Plan
Cad File: 01482G.dwg
Date: 06.06.2006
Drawn: CS
Figure 2

4.5 TRANSPORT

Domestic coal from Drayton will continue to be transported via an overland conveyor to Macquarie Generation's Bayswater Power Station. Up to 7 Mtpa of export coal will be railed to the Port of Newcastle, from the Antiene Rail Spur via the Main Northern Railway, as approved in the Antiene Rail Spur development consent (DA 106-04-00) (see **Section 5.2**).

Road and rail traffic impacts resulting from the Project will be assessed where relevant in the EA (see **Section 7.3.7**).

4.6 INFRASTRUCTURE

Drayton will continue to utilise current infrastructure including; administration offices, workshops, parking facilities, conveyors, coal handling facilities and coal stockpiles.

The existing Coal Handling Plant (CHP) and associated stockpile reclamation system will be upgraded in order to align the facilities with the proposed increase in annual production. A new 80,000 tonnes product coal stockpile and a 40,000 tonne domestic product coal stockpile is proposed to further assist production efficiencies.

Minor changes to Drayton's water management system are also proposed to maximise water management and use at the mine.

The proposed infrastructure improvements will be assessed in the EA and are presented in **Figure 2**.

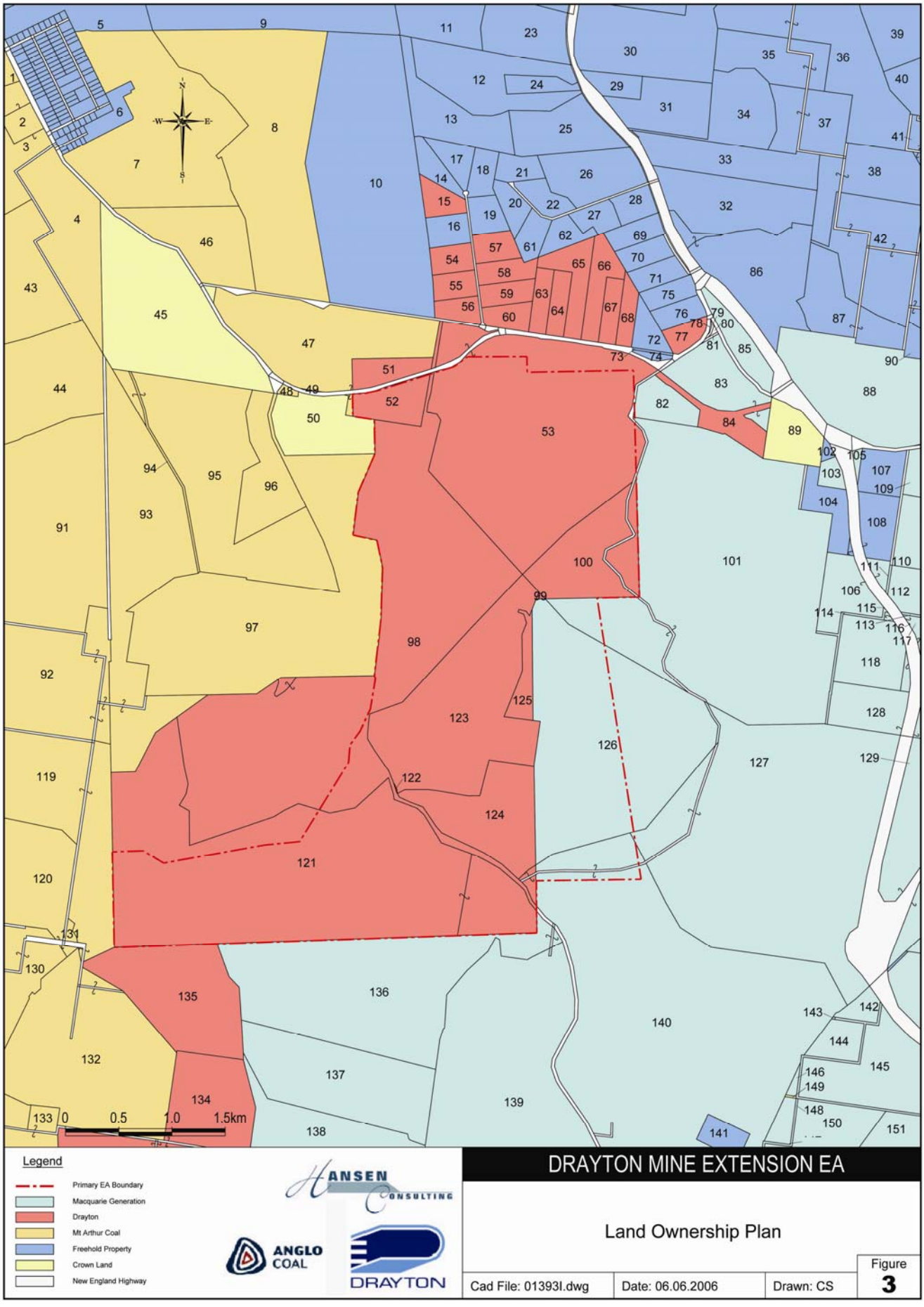
4.7 LAND OWNERSHIP

Land ownership within the Project Area and surrounds is shown on **Figure 3.**

The majority of land within the Project Area is owned by Anglo Coal (and its subsidiaries). A small area of land within the South-east of the Project Area is owned by Macquarie Generation. Surface Agreements exist with Macquarie Generation to enable Drayton to mine this land (which will be revised upon any approval of an alternate mine plan as required).

Mt Arthur Coal is the largest landowner to the West of the Project Area, and private landowners occupy land North of the Project Area.

All landowners surrounding the Project Area will be consulted and will be regularly updated throughout the EA process with Project Newsletters.


Legend
Primary EA Boundary
Macquarie Generation
Drayton
Mt Arthur Coal
Freehold Property
Crown Land
New England Highway
0 0.5 1.0 1.5km
HANSEN CONSULTING
ANGLO COAL
DRAYTON
DRAYTON MINE EXTENSION EA
Land Ownership Plan
Cad File: 01393l.dwg
Date: 06.06.2006
Drawn: CS
Figure 3

5.0 REGULATORY FRAMEWORK

5.1 INTRODUCTION

Drayton will seek an application for Project Approval under Part 3A of the *Environmental Planning and Assessment Act 1979* (EP&A Act) from DoP. Therefore, under Part 3A of the EP&A Act, the Project is deemed to be a Major Project of Significance to the State and as such will be determined by the Minister for Planning.

In addition to approval under Part 3A of the EP&A Act, the Project may also require approvals under a number of additional Acts or State Environmental Planning Policies (SEPP) as discussed in **Sections 5.3**, **5.4**, **5.5** below.

5.2 CURRENT APPROVALS

An integral component of the Project will be gaining a single planning approval for Drayton thereby replacing all existing and applicable Development Consents and associated impact assessments, where practical.

Several MSC Development Approvals (DA's) exist for activities outside the scope of this EA and as such, will remain (see **Table 2)**. These include the existing Drayton Rail loop and Antiene Rail Spur (DA 106-04-00) (see **Table 2, Ref 6**).

The status of all of Drayton's Development Consents is shown in **Table 2**.

Table 2
Development Consent Status

Ref	DA No	Approval title	Date	Approval Authority	Status
1	ID 799	Open cut mine and Antiene Rail spur	25 September 1980	MSC	Expired
2	102/87	Road transport of coal to Power Stations	17 July 1984	MSC	Expired
3	9/90	Far East tip Project- overburden emplacement	26 March 1990	MSC	Expired
4	176/92	Construction of two water storage dams	24 December 1992	MSC	Expired
5	27/99	Mine water storage Dam (Saddlers)	8 September 1998	MSC	Expired
6	106-04-00	Increased coal transport using the existing Drayton Rail loop and Antiene Rail Spur	2 November 2000	Department of Urban Affairs & Planning	Current
7	92/87	Installation of Conveyor systems and associated facilities for the supply of coal to Bayswater Power Station	15 September 1987	MSC	Current (To be surrendered)
8	40/92	Lease Boundary Adjustment between Coal Lease 744 and Coal Lease 229 (Bayswater Coal)	10 April 1992	MSC	Current (To be surrendered)
9	102/2002	Conveyor Protection Structures	11 September 2002	MSC	Current (To be surrendered)

Ref	DA No	Approval title	Date	Approval Authority	Status
10	80/2003	Section 96 amendment, Removal of conditions of consent from two lot subdivision	29 June 2004	MSC	Current (To be surrendered)
11	ID 743	Coal Crushing Facilities and Receival Station- Coal lease 229	13 September 1985	MSC	Current (To be surrendered)
12	ID 799	Section 96 amendment to ID 799	20 December 2001	MSC	Current (To be surrendered)
13	163/2002	Mining Lease Renewal/ Open Cut Coal mine Extension	16 December 2002	MSC	Current (To be surrendered)
14	163/2002	Modification of a Coal Treatment Unit	20 February 2004	MSC	Current (To be surrendered)

5.3 COMMONWEALTH LEGISLATION

5.3.1 Australian Heritage Council Act 2003

The *Australian Heritage Council Act 2003* (AHC Act) establishes the Australian Heritage Council as a heritage advisory body and provides for the register of the National Estate to assist in the protection of places important to Australia's natural and cultural environment for current and future generations. The Act sets out criteria for assessing significance relating to aesthetic, historic, scientific or social significance, or other significance. Placing a site on the register of the National Estate formally recognises its significance. The Federal Department of Environment and Heritage (DEH) is the administering authority for this Act.

An assessment of the Project under the AHC Act is yet to be completed, however based on the nature of the Project, the approval of DEH is considered unlikely to be required.

5.3.2 Environmental Protection and Biodiversity Conservation Act 1999

The *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act) prescribes the Commonwealth's role in environmental assessment, biodiversity conservation and the management of protected areas of national significance. It also provides a mechanism for national environment protection and biodiversity conservation. Biodiversity conservation is promoted by providing protection for;

- Listed species and communities (eg: listed threatened species and ecological communities and migratory species);
- Protected areas (eg: World heritage properties, Ramsar wetlands of international significance, conservation zones); and
- National, Commonwealth and Indigenous Heritage.

Under the assessment and approval provisions of the EPBC Act, Projects or other actions that are likely to have a significant impact on a Matter of National Environmental Significance (MNES) are subject to a rigorous assessment and approvals process.

An assessment of the Project under the EPBC Act is yet to be completed, however based on the nature of the Project, the approval of DEH is considered unlikely to be required.

5.4 NSW LEGISLATION

5.4.1 Environmentally Hazardous Chemicals Act 1985

The *Environmentally Hazardous Chemicals Act 1985* assesses and controls chemicals and declares substances to be chemical wastes. A licence is required for any storage, transport or use of prescribed chemicals. A revision of the licence will be required if Project Approval is granted under this Act if any prescribed chemicals are proposed to be stored or used as part of the Project. An assessment on the requirements and any impacts will be included in the EA.

5.4.2 Dam Safety Act 1978

The *Dam Safety Act 1978* requires the NSW Dams Safety Committee to "formulate measures to ensure the safety of dams" and to "maintain a surveillance of prescribed dams". A "prescribed dam" is one listed in Schedule 1 of the Act.

Drayton currently has three dams listed as prescribed dams under the NSW Dams Safety Committee; Delpah Dam; Access Road Dam and Liddell Ash Dam levee. Both the Access Road Dam and Liddell Ash Dam levee will not be impacted by the Project; however, Delpah dam will be removed by the progression of mining in this Project (**see Figure 2**). As such, the NSW Dams Safety Committee will be consulted throughout the EA to ensure all statutory and safety requirements are adhered to and that in due course, Delpah dam is successfully delisted from Schedule 1 under the Act.

5.4.3 Other Authorisations

As part of the Project, a variation of the Drayton Environmental Protection Licence (EPL) 1323 may be required under the *Protection of the Environment Operations Act 1997*. Further, Drayton's Mining Operations Plan (MOP) will be required to be renewed to incorporate the Drayton Extension, should Project Approval be granted.

5.5 NSW STATE ENVIRONMENTAL PLANNING POLICIES

5.5.1 SEPP (Major Projects)

This State Environmental Planning Policy (SEPP) defines certain developments which are classified as major Projects under Part 3A of the EP&A Act for determination by the Minister for Planning. In accordance with Schedule 1 of the SEPP (Major Projects) this Project is required to be assessed under Part 3A of the EP&A Act.

5.5.2 SEPP No 11 - Traffic Generating Developments

SEPP 11 establishes the Roads and Traffic Authority (RTA) as the sole traffic management authority to be consulted, and ensures it is given the opportunity to make a representation on a development application. As mining is listed in Schedule 1 of the SEPP, the RTA will need to be consulted regarding the Project throughout the EA process.

5.5.3 SEPP No 33 - Hazardous and Offensive Development

SEPP 33 requires the consent authority to consider whether an industrial Project is a potentially hazardous industry or a potentially offensive industry. As the Project is an extension of current operations and existing land uses, a hazardous assessment is not considered necessary for inclusion in the EA.

5.5.4 SEPP No 44 - Koala Habitat Protection

SEPP 44 encourages the conservation and management of natural vegetation areas that provide habitat for koalas to ensure there is ongoing protection of koalas and their habitat. An assessment of koala habitat in the Project Area will be conducted as part of the ecological assessment in the EA.

5.5.5 SEPP No 45 - Permissibility of Mining

SEPP 45 allows the mining on land, with consent, where an environmental planning instrument requires the consent authority to make a judgement as to whether such development is permissible. In essence, the EP&A Act allows for the Minister to make mining permissible within prohibited zonings described in environmental planning instruments.

The Project area is predominantly classified in the Muswellbrook Local Environmental Plan (LEP) (1985) as zone 1(a) "Rural", which provides that mining is permissible with development consent. However, a small portion of land to the South-east of the Project area is classified as zone 5(a) "Power Station" which provides that:

> *a) development for the "particular purpose indicated by scarlet lettering on the map" (in this case "Power Stations") is permissible subject to conditions;*
>
> *b) development for any purpose "ordinarily incidental or subsidiary to" that purpose, and utility installations, are permissible with development consent; and*
>
> *c) all other development is prohibited.*

Pursuant to Section 75J(1) of the EP&A Act, as the vast majority of the Project area is within Zone 1(a) which permits mining, the EP&A Act allows for the Minister to make mining permissible within that area zoned 5(a) of the LEP. I.e. Mining is permissible under Part 3A of the EP&A Act as proposed.

6.0 PRELIMINARY RISK ASSESSMENT

6.1 INTRODUCTION

A preliminary risk assessment was undertaken for the Project to assess the potential environmental impacts on both the local and regional environments. Each of the potential environmental issues were then ranked as either being of High, Medium or Low risk to the environment. These initial findings of the risk assessment were used to prioritise and focus the required environmental assessments for the Project to ensure that each of the environmental issues were addressed to a relevant extent and that relevant management and mitigation options will be developed.

The risk assessment is detailed in **Table 3**, while **Table 4** show the risk analysis matrix and subsequent definition of risk ratings which were utilised for the risk assessment.

Table 3
Environmental Risk Assessment

Ref	Environmental Issue	Activity / Contributors	Consequence	Probability	Initial Ranking	Section
1	Air Quality	Vegetation clearing & Topsoil Stripping	2	A	High (10 H)	7.2.1
		Overburden emplacement	2	A	High (10 H)	7.2.1
		Dragline rehandle	1	B	Medium (19 M)	7.2.1
		Coal and overburden haulage	1	B	Medium (19 M)	7.2.1
		Coal handling facility	1	C	Low (22 L)	7.2.1
		Blasting of overburden	1	C	Low (22 L)	7.2.1
		Exhaust emissions from plant and equipment	1	C	Low (22 L)	7.2.1
		Spontaneous Combustion odours	1	C	Low (22 L)	7.2.1
2	Noise and Vibration	Excavator/Dragline operating in pit	2	B	Medium (14 M)	7.2.2
		Coal and overburden haulage	2	A	High (10 H)	7.2.2
		Blasting of overburden	2	A	High (10 H)	7.2.2
		Coal handling facility	2	C	Medium (18 M)	7.2.2
		Road traffic travelling to/from the mine	2	B	Medium (14 M)	7.2.2
		Train movements	2	C	Medium (18 M)	7.2.2
		Conveyor operation	2	C	Medium (18 M)	7.2.2
3	Groundwater	Loss of groundwater aquifers/ dewatering due to open cut mining	2	B	Medium (14 M)	7.2.3
		Contamination of groundwater due to fuel or chemical spill	2	D	Low (21 L)	7.2.3

Ref	Environmental Issue	Activity / Contributors	Consequence	Probability	Initial Ranking	Section
		Groundwater inflow/seepage into pit	1	A	Medium (15 M)	7.2.3
		Potential for heavy metals and saline ingress to groundwater supply	2	D	Low (21 L)	7.2.3
4	Rehabilitation	Overburden emplacement	1	B	Medium (19 M)	7.2.4
		Dozer shaping rehabilitation	2	C	Medium (18 M)	7.2.4
		Erosion	2	C	Medium (18 M)	7.2.4
		Weed infestation and feral animals on disturbed areas	2	B	Medium (14 M)	7.2.4
		Contaminated land	2	c	Medium (18 M)	7.2.4
5	Final land use	Final void management	2	B	Medium (14 M)	7.2.5
		Water storage (saline)	2	B	Medium (14 M)	7.2.5
		Fly ash emplacement	2	C	Medium (18 M)	7.2.5
		Contaminated land	2	C	Medium (18 M)	7.2.5
6	Ecology	Impacts on threatened species or communities	2	4	Low (21 L)	7.2.6
		Vegetation clearing	1	B	Medium (19 M)	7.2.6
		Dirty water runoff entering local waterways	2	B	Medium (14 M)	7.2.6
		Fuel or chemical spill	1	C	Low (22 L)	7.2.6
		Re-use of cleared materials	1	D	Low (24 L)	7.2.6
		Weed infestation and feral animals	2	B	Medium (14 M)	7.2.6
7	Surface Water	Dirty water runoff entering local waterways	2	B	Medium (14 M)	7.3.1
		Sedimentation of local waterways	2	C	Medium (18 M)	7.3.1
		Machine wash down	1	C	Low (22 L)	7.3.1
		Vegetation clearing	2	C	Medium (18 M)	7.3.1
		Flooding	2	E	Low (23 L)	7.3.1
		Fuel or chemical spill	2	D	Low (21 L)	7.3.1
		Creek erosion	1	D	Low (24 L)	7.3.1
		Dirty water management	2	C	Medium (18 M)	7.3.1
		Alteration to natural/overland drainage flow	1	E	Low (25 L)	7.3.1
		Post-mining impacts on surface water flow and quality	1	A	Medium (15 M)	7.3.1
8	Aboriginal Archaeology and Cultural Heritage	Destruction of Aboriginal Archaeology sites due to open cut mining	2	A	High (10 H)	7.3.2
		Loss of cultural heritage	2	B	Medium (14 M)	7.3.2
9	European Heritage	Destruction of European Heritage sites due to open cut mining	2	D	Low (21 L)	7.3.3

Ref	Environmental Issue	Activity / Contributors	Consequence	Probability	Initial Ranking	Section
10	Visual amenity	Open cut pit or associated mine infrastructure visible from public locations	1	C	Low (22 L)	7.3.4
		Lighting impacts on neighbouring residents during 24 hour operations	1	B	Medium (19 M)	7.3.4
11	Socio-economics	Revenue & employment	1	C	Low (22 L)	7.3.5
12	Spontaneous Combustion	Odour	1	B	Medium (19 M)	7.3.6
		Greenhouse Gas emissions	1	B	Medium (19 M)	7.3.6
		Dozer and truck movements for stockpiling inert material for capping	2	C	Medium (18 M)	7.3.6
		Spreading of inert material	2	C	Medium (18 M)	7.3.6
		Stockpiling of material	3	A	High (6 H)	7.3.6
13	Traffic generation	Mine employees travelling to work	1	A	Medium (15 M)	7.3.7
		Deliveries to the mine	1	A	Medium (15 M)	7.3.7
		Train movements	2	A	High (10 H)	7.3.7
14	Soils and land capability	Topsoil stripping	1	C	Low (22 L)	7.3.8
		Loss/deterioration of land capability and agricultural suitability	2	C	Medium (18 M)	7.3.8
		Stockpiling / Management of topsoil	1	C	Low (22 L)	7.3.8
		Runoff from stockpiles increasing sediment load	1	C	Low (22 L)	7.3.8
		Loss of productive topsoil	1	C	Low (22 L)	7.3.8
15	Waste Management	Storage of dangerous goods, including hydrocarbons and explosives	1	C	Low (22 L)	7.4
		Radiation source management	1	C	Low (22 L)	7.4
		General waste management	1	C	Low (22 L)	7.4
		Rejects management	1	C	Low (22 L)	7.4
		Sewage Treatment Plant	2	D	Low (21 L)	7.4
		Soil and/or water contamination from spills and leaks	2	C	Medium (18 M)	7.4

6.2 DISCUSSION

The risk assessment findings indicated that few issues associated with the Project were rated as High, with the majority of the environmental issues rated as Medium or Low. The issues which were identified as High will be assessed in the EA as Primary Issues, with relevant management and mitigation strategies developed. The scope of assessment for these issues is discussed in detail in **Section 7.0**.

Issues which have been identified as Medium to Low risk will be assessed as Secondary Issues in the EA. A lesser scope of assessment will be prepared for these issues, based on their risk rating which is discussed further in **Section 7.0**.

Table 4
Environmental Risk Assessment Matrix

ANGLO COAL AUSTRALIA PTY LTD – SHE RISK MATRIX						
		Hazard Effect/ Consequence				
Loss Type		1 Insignificant	2 Minor	3 Moderate	4 Major	5 Catastrophic
(P) Harm to People		Slight injury or health effects – first aid/ minor medical treatment level	Minor injury or health effects – restricted work or minor lost workday case	Major injury or health effects – major lost workday case/ permanent disability	Permanent total disabilities, single fatality	Multiple fatalities
(E) Environmental Impact		Environmental nuisance	Material environmental harm	Serious environmental harm	Major environmental harm	Extreme environmental harm
(A) Asset Damage & Other Consequential Losses		Slight damage <$0.01M No disruption to operation	Minor damage $0.01M to$0.1M. Brief disruption to operation	Local damage $0.1M to$1.0M. partial shutdown	Major damage $1.0M to$10.0M. Partial loss of operation	Extreme damage > $10.0M. Substantial or total loss of operation
(R) Impact on Reputation		Slight impact – public awareness may exist but no public concern	Limited impact – some local public concern	Considerable impact – regional public concern	National impact – national public concern	International impact – international public attention
Likelihood	Likelihood Examples (use only as a guide)	Risk Rating				
A (Almost certain)	Likely that the unwanted event could several times per year at this location	15 (M)	10 (H)	6 (H)	2 (Ex)	1 (Ex)
B (Likely)	Likely that the unwanted event could several times per year in Anglo Coal Australia; or could happen annually	19 (M)	14 (M)	9 (H)	4 (Ex)	3 (Ex)
C (Possible)	The unwanted event could well have occurred in Anglo Coal Australia at some time in the past 10 years	22 (L)	18 (M)	13 (H)	8 (H)	5 (Ex)
D (Unlikely)	The unwanted event has happened in the mining industry at some time; or could happen in 100 years	24 (L)	21 (L)	17 (M)	12 (H)	7 (H)
E (Rare)	The unwanted event has never been known to occur in the mining industry; or is highly unlikely that it could ever occur	25 (L)	23 (L)	20 (M)	16 (M)	11 (H)

Risk Matrix Rating	Risk Level	Guidelines for Risk Management
1 to 5	(Ex) – Extreme	Eliminate, avoid or implement specific plans/ procedures to manage & monitor
6 to 13	(H) – High	Proactively manage via the SHE Management System
14 to 20	(M) – Medium	Manage via the SHE Management System
21 to 25	(L) – Low	Monitor & manage as appropriate via the SHE Management System

PRINCIPAL HAZARDS

7.0 POTENTIAL ENVIRONMENTAL ISSUES

7.1 INTRODUCTION

All known relevant social and environmental issues associated with the Project have been identified through the preliminary risk assessment in **Section 6.0**. Any relevant additional issues identified as part of the stakeholder consultation process described in **Section 3.0** will also be assessed in the EA. All potential environmental issues will be assessed in the EA in accordance with the EAR's and all relevant guidelines required under Part 3A of the *EP&A Act 1979*.

Issues identified to date have been ranked as primary, secondary or minor issues according to the risk assessment. A methodology for impact assessment of each issue is presented below for discussion and agreement with DoP and other relevant regulators. These discussions will result in the provision of EAR's for the Project for inclusion in the EA.

7.2 PRIMARY ISSUES

7.2.1 Air Quality

An assessment of air quality impacts and commitment to best practice management and mitigation techniques will be included in the EA.

Dust deposition, Total Suspended Particulates (TSP) and PM_{10} will be assessed in accordance with the Department of Environment and Conservation (DEC) Guidelines "Approved Methods and Guidance for the Modelling and Assessment of Air Pollutants in New South Wales" (2005).

An appropriate PM_{10} 24-hour average model calibration factor will be calculated and determined in consultation with DEC.

Quantification and proposed mitigation measures for greenhouse gas emissions will be included in the EA. Additionally, an assessment of potential impacts from nitrogen dioxide, carbon monoxide and sulphur dioxide in relation to diesel exhaust emissions will also be included.

A cumulative air quality assessment will also be undertaken for the EA incorporating surrounding mining and other activities.

A Statement of Commitments will include the development and regular update of the Drayton Management and Monitoring Program (**see Section 7.5**). The Program will be developed in consultation with DEC, to the approval of DoP.

An approved Air Quality Management Plan will no longer be required.

7.2.2 Noise and Blasting

An assessment of noise and blasting impacts from the Project and best practice management and mitigation will be included in the EA.

The Project will be assessed under DEC's Industrial Noise Policy (INP) (2000) with the assessment included in the EA. The Impact Assessment will consider; operational noise, rail and road traffic relevant to the Project, sleep disturbance, and low frequency noise emissions for the EA Project area.

The assessment will also determine blasting noise and vibration impacts and compare them to Australian and New Zealand Environment Conservation Council (ANZECC) recommended criteria.

A cumulative assessment will also be undertaken for the EA incorporating surrounding mining and other activities.

A Statement of Commitments will include the development and regular update of the Drayton Management and Monitoring Program (**see Section 7.5**). The Program will be developed in consultation with DEC, to the approval of DoP.

An approved Noise Management Plan and Blasting/Vibration Management Plan will no longer be required.

7.2.3 Groundwater

An assessment of groundwater impacts and best practice management will be included in the EA.

The assessment will rely upon a finite element, numerical groundwater model utilising the FEFLOW software package to predict groundwater inflow and seepage; dewatering of aquifers; post-mining groundwater impacts including final voids; and cumulative impacts.

A cumulative assessment will also be undertaken for the EA incorporating surrounding mining and other activities.

A Statement of Commitments will include the development and regular update of the Drayton Management and Monitoring Program (**see Section 7.5**). The Program will be developed in consultation with DEC and DNR to the approval of DoP.

An approved Water Management Plan will no longer be required.

7.2.4 Rehabilitation

A proposed mine rehabilitation strategy with options for final land use will be included in the EA. The rehabilitation strategy will incorporate the long term use of the land and will have regard to the *Synoptic Plan-Integrated Landscapes for Minesite Rehabilitation (1999)*, for the Upper Hunter.

A Statement of Commitments will include progressive rehabilitation following mining utilising endemic tree species where practical.

Management and mitigation procedures consistent with Drayton's ISO14001 Certified EMS provide adequate management of any identified impacts.

An approved Site Rehabilitation Strategy and Land Management Plan will no longer be required.

7.2.5 Final Land Use & Void Management

An assessment of options for final land use (including void management) will be included in the EA, incorporating relevant comments from stakeholders. A final landform will be developed for inclusion in the EA, and shall have regard to the surrounding landforms and associated land uses.

A Statement of Commitments will include updating Drayton's Final Void Management Plan in consultation with DPI for finalisation at least five years prior to mine closure.

7.2.6 Flora and Fauna

An assessment of flora and fauna impacts from the Project and best practice mitigation will be included in the EA. The impact assessment for flora and fauna will be consistent with the document titled *'Guidelines for Threatened Species Assessment'* (DEC/DPI- July 2005).

An initial survey of the Project Area recorded endemic species and one TSC Act listed threatened migratory bird. An assessment of the impacts of the Project on significant species will be undertaken in the ecological assessment in the EA.

A Statement of Commitments will include the development and regular update of the Drayton Management and Monitoring Program (**see Section 7.5**). The Program will be developed to the approval of DoP.

An approved Flora & Fauna Management Plan will no longer be required.

7.3 SECONDARY ISSUES

7.3.1 Surface Water

An assessment of surface water impacts and best practice management will be included in the EA.

The assessment will consider; existing hydrology, downstream drainage impacts, the mine water management system, drainage management plans, and post-mining impacts.

A Statement of Commitments will include the development and regular update of the Drayton Management and Monitoring Program (**see Section 7.5**). The Program will be developed in consultation with DEC and DNR to the approval of DoP.

An approved Water Management Plan will no longer be required.

7.3.2 Aboriginal Archaeology & Cultural Heritage

Both an Aboriginal Archaeology and Cultural Heritage assessment will be undertaken for the Project Area in accordance with the "Draft Guidelines for Aboriginal Cultural Heritage Impact Assessment and Community Consultation, DEC, July 2005", with field surveys focusing on known sites, creek lines, ridges and disturbed areas. Aboriginal stakeholder consultation will form an integral part of the Assessment.

Any significant sites identified throughout the surveys will be fenced, until such time that approval is granted to salvage identified archaeological material or other required management techniques instigated.

Drayton's Archaeology and Cultural Heritage Management Plan will be revised to include any findings and recommendations from the EA, in relation to Aboriginal Heritage, in consultation with DEC and the Aboriginal community, to the approval of DoP.

7.3.3 European Heritage

A European Heritage assessment will be undertaken for the Project in accordance with the *Heritage Act 1977 (NSW)*.

Any significant sites identified throughout the assessment will be fenced, until such time that approval is granted in accordance with the provisions of section 139(4) of the *Heritage Act 1977*

to disturb identified European Heritage material or other required management techniques instigated.

Management and mitigation procedures consistent with Drayton's ISO14001 Certified EMS provide adequate management of any identified impacts.

An approved Archaeology and Cultural Heritage will no longer be required for European Heritage.

7.3.4 Visual and Lighting Assessment

A visual and lighting assessment is proposed for the Project with up to four locations to be assessed.

Photomontages will provide the basis for the visual assessment, combined with an impact assessment based on levels of sensitivity and effect. Suggested management and mitigation measures will also be determined where impacts are determined to be high.

Proposed localities (to be confirmed in the field) include; a selected Northern residence, Thomas Mitchell Drive, the New England Highway driving Northward South of the operation, and an Eastern location as relevant to be determined following stakeholder consultation.

Management and mitigation procedures consistent with Drayton's ISO14001 Certified EMS provide adequate management of any identified impact.

An approved Visual Management Plan will no longer be required.

7.3.5 Socio-Economics

A detailed socio-economic study will be undertaken for inclusion in the EA.

The Project will require a workforce of approximately 390 persons (including contractors) during full production. This will provide ongoing benefits to the local and regional community through employment, spending and additionally through businesses supporting the Mine.

Royalties, fees and taxes will also benefit federal, state and local government. These contributions will be calculated for inclusion in the EA.

7.3.6 Spontaneous Combustion

Although the management of Spontaneous Combustion at Drayton has been challenging in the past, current management practices have been effective in reducing impacts to an acceptable level. An assessment of Spontaneous Combustion associated with the Project and best practice management and mitigation strategies will be included in the EA.

A Statement of Commitments will include the revision of Drayton's Spontaneous Combustion Management Plan to include the findings and recommendations from the EA, in consultation with the DEC to the approval of DoP.

7.3.7 Traffic Assessment

A relevant assessment of traffic impacts from the Project will be included in the EA.

The Project will be assessed in accordance with the RTA's *Guide to Traffic Generating Development*, and *Austroads* Guidelines. The Assessment will consider; the existing road network and traffic volumes; an estimation of additional traffic from the Project, the capacity of the existing road network, and identification of any mitigation measures.

7.3.8 Soils and Land Capability

An assessment of soils and land capability, and best practice land management will be included in the EA. The assessment will consider; existing landform, pre-mining and agricultural suitability, mapping and description of soil types, suitability of topsoils, and recommendations for stockpile handling methods, post mining land capability & guidelines for post mining landform configuration.

The revision of Drayton's Sediment and Erosion Control Management Plan will be undertaken to include the findings and recommendations from the EA to the approval of DoP.

An approved Soil Stripping Management Plan will no longer be required.

7.4 MINOR ISSUES

Other minor issues to de discussed and assessed as required in the EA include:

- Regulatory Environment;
- Land Use, Climate and Meteorology; and
- Hazardous Materials and Waste Management.

It is proposed that these matters are addressed through relevant assessments in the EA, the Statement of Commitments and Drayton's ISO14001 Certified EMS, as required.

7.5 DRAYTON MANAGEMENT AND MONITORING PROGRAM

A Statement of Commitment will include the development and regular update of the Drayton Management and Monitoring Program which will incorporate; air quality, flora and fauna, noise, blasting/vibration, surface water and groundwater.

This Program shall commit to monitoring locations, frequency and regulatory limits, relevant standards, reporting requirements, and management and mitigation procedures consistent with Drayton's ISO14001 Certified EMS. The relevant EMS standards and procedures will be revised to include findings and recommendations from the EA. The Program will be developed in consultation with DEC and DNR (as relevant) to the approval of DoP.

Consultation with DEC will also be undertaken prior to submitting any application for variation of Drayton's Environmental Protection Licence (EPL) 1323, to reflect monitoring changes associated with the Project.

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