

ENVIRONMENTAL ASSESSMENT

Duralie Extension Project

SECTION 1 INTRODUCTION



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1 INTRODUCTION

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

The DCM is located approximately 10 kilometres (km) north of the village of Stroud and approximately 20 km south of Stratford in the Gloucester Valley in New South Wales (NSW) (Figure 1-1).

Duralie Coal Pty Ltd (DCPL) is the owner and operator of the DCM. DCPL is a wholly owned subsidiary of Gloucester Coal Ltd (GCL).

GCL also owns and operates the Stratford Coal Mine (SCM), which is located some 20 km to the north of the DCM (Figure 1-1).

1.1 PROJECT OVERVIEW

1.1.1 Purpose of this Report

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

This EA considers the potential environmental impacts of the Project in accordance with the Director-General's Environmental Assessment Requirements (EARs) issued by the NSW Department of Planning (DoP) on 5 November 2009 (Attachment 1).

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

1.1.2 Background

The location of the existing DCM is shown on Figures 1-1 and 1-2. A description of the existing DCM operations and history of approvals is provided in Sections 2.1 and 2.2, respectively.

The open pit mining operations at the DCM are supported by on-site facilities including a main infrastructure area, water management infrastructure/storages and rail infrastructure.

Coal extracted from the open pit mining operations is hauled to the run-of-mine (ROM) pad and coal handling area (including a rotary breaker), at the main infrastructure area.

Sized ROM coal from the DCM is loaded into wagons on a dedicated train that runs between the DCM and SCM on the North Coast Railway (Figure 1-1). At the SCM, the coal is unloaded and processed in the SCM Coal Handling and Preparation Plant (CHPP). Product coal from the SCM is then transported by rail to the Port of Newcastle for export and domestic customers.

1.1.3 Project Summary

The Project would involve the continuation of open pit mining operations at the DCM and would extend the current operations by approximately nine years. Table 1-1 provides a summary comparison of the existing DCM and the Project components including upgrades.

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

- continued development of open pit mining operations at the DCM to facilitate a ROM coal production rate of up to approximately 3 million tonnes per annum (Mtpa), including:
 - extension of the existing approved open pit in the Weismantel Seam to the north-west (i.e. Weismantel Extension open pit) within Mining Lease (ML) 1427 and Mining Lease Application (MLA) 1; and
 - open pit mining operations in the Clareval Seam (i.e. Clareval North West open pit) within ML 1427 and MLA 1;
- ongoing exploration activities within existing exploration tenements;
- progressive backfilling of the open pits with waste rock as mining develops, and continued and expanded placement of waste rock in out-of-pit waste rock emplacements;
- increased ROM coal rail transport movements on the North Coast Railway between the DCM and SCM in line with increased ROM coal production;
- continued disposal of excess water through irrigation (including development of new irrigation areas within ML 1427 and MLA 1);
- raising of the approved Auxiliary Dam No. 2 from relative level (RL) 81 metres (m) to approximately RL 100 m to provide significant additional on-site storage capacity to manage excess water on-site;
- progressive development of dewatering bores, pumps, dams, irrigation infrastructure and other water management equipment and structures;



**Table 1-1
Project Summary**

Project Component	Summary of the Existing DCM	Summary of the Project
Open Pit Mining and ROM Coal Production	<ul style="list-style-type: none"> Conventional open pit mining methods and equipment. ROM coal production of approximately 12.3 million tonnes (Mt). 	<ul style="list-style-type: none"> Conventional open pit mining methods and equipment. ROM coal production of approximately an additional 20.5 Mt¹.
Life of Mine	<ul style="list-style-type: none"> Scheduled cessation of mining in 2010. 	<ul style="list-style-type: none"> Current mine planning indicates an additional operational life of approximately 9 years.
Coal Seam/Pits	<ul style="list-style-type: none"> Mining of the Weismantel Seam (Weismantel open pit). 	<ul style="list-style-type: none"> Mining of the Weismantel Seam by extending the existing open pit (Weismantel Extension open pit). Mining of the Clareval Seam (Clareval North West open pit).
ROM Coal	<ul style="list-style-type: none"> Production of approximately 1.8 Mtpa of ROM coal. 	<ul style="list-style-type: none"> Production of up to approximately 3 Mtpa.
Waste Rock Management	<ul style="list-style-type: none"> Backfill within Weismantel open pit. Out-of-pit waste rock emplacement. Maximum elevation of backfilled waste emplacement approximately RL 110 m. 	<ul style="list-style-type: none"> Continued backfill within Weismantel and Weismantel Extension open pits and additional backfill within Clareval North West open pit. Continued placement of waste rock in out-of-pit waste rock emplacement. Maximum elevation backfilled waste rock emplacement approximately RL 110 m.
Total Waste Mined	<ul style="list-style-type: none"> Approximately 40 million bank cubic metres (Mbcm). 	<ul style="list-style-type: none"> Approximately 114 Mbcm of additional waste rock.
ROM Coal Train Movement Hours	<ul style="list-style-type: none"> 7.00 am to 10.00 pm. 	<ul style="list-style-type: none"> 7.00 am to 2.00 am.
Water Management	<ul style="list-style-type: none"> Water management system comprises of water management storages, runoff diversions and control, sediment control, open pit dewatering and sewage treatment. Disposal of excess water through on-site irrigation within ML 1427. Water management system designed for no release of water to Mammy Johnsons River. 	<ul style="list-style-type: none"> Progressive upgrades and augmentation to existing water management system, including raising of embankment of Auxiliary Dam No. 2 from RL 81 m to approximately RL 100 m and utilisation of the Weismantel Extension open pit void as in-pit water storage. Development of new irrigation areas within ML 1427 and MLA 1. Water management system designed for no release of water to Mammy Johnsons River.
Coal Handling	<ul style="list-style-type: none"> Coal handling area (including rotary breaker). 	<ul style="list-style-type: none"> Coal handling area (including rotary breaker).
Final Voids	<ul style="list-style-type: none"> At the cessation of mining, the final void would remain in the Weismantel open pit. 	<ul style="list-style-type: none"> At the cessation of the Project, final voids would remain in the Clareval North West open pit and Weismantel Extension open pit.
Rehabilitation	<ul style="list-style-type: none"> Rehabilitation of waste rock emplacement areas and other progressive surface disturbance areas. 	<ul style="list-style-type: none"> Continued rehabilitation of waste rock emplacement areas and other progressive surface disturbance areas.
Exploration	<ul style="list-style-type: none"> Exploration activities undertaken ahead of the open pit mining operations to investigate geological structures and seam morphology as input to detailed mine planning. 	<ul style="list-style-type: none"> Exploration activities would continue to be undertaken in accordance with the requirements of existing exploration tenements.
Employment	<ul style="list-style-type: none"> The existing number of operational employees is approximately 120 employees. 	<ul style="list-style-type: none"> It is anticipated that an average of approximately 135 employees would be required during operation of the Project.

¹ Approximately 1.5 Mt of ROM coal is associated with the continuation of the existing/approved extent of the Weismantel open pit (as modified by the Minister for Planning on 28 October, 2009).

- development of new haul roads and internal roads;
- upgrade of existing facilities and supporting infrastructure in line with increased ROM coal production;
- continued development of soil stockpiles, laydown areas and gravel/borrow pits;
- establishment of a permanent Coal Shaft Creek alignment adjacent to the existing DCM mining area;
- ongoing monitoring and rehabilitation; and
- other associated minor infrastructure, plant, equipment and activities.

1.1.4 Site Location and Tenure

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

The Project is located within the existing mining and exploration tenements ML 1427 and exploration authorisation 315 (A315), respectively.

GCL owns all land within the Project Application Area. Relevant land ownership information for parcels of land within the immediate vicinity of the DCM is provided on Figures 1-3a and 1-3b.

The Project is located within the Great Lakes Local Government Area (LGA). A description of the land zoning (including relevant development control plans) which apply to the Project is provided in Section 6.

The Project would extend into a new MLA area (MLA 1) (Figure 1-2) within A315 which adjoins ML 1427 to the north-west.

DCPL will lodge an MLA with the NSW Department of Industry and Investment – Minerals and Energy (DII-Minerals & Energy) for Project areas that are outside existing mining tenements. DCPL will also continue to apply for and renew the exploration tenements with the DII- Minerals & Energy as required.

1.1.5 Proponent

The Project is being developed by DCPL, a wholly owned subsidiary of GCL:

Gloucester Coal Ltd
Level 15, Citadel Towers (Tower B)
799 Pacific Highway
CHATSWOOD NSW 2067

1.2 ENVIRONMENTAL ASSESSMENT REQUIREMENTS

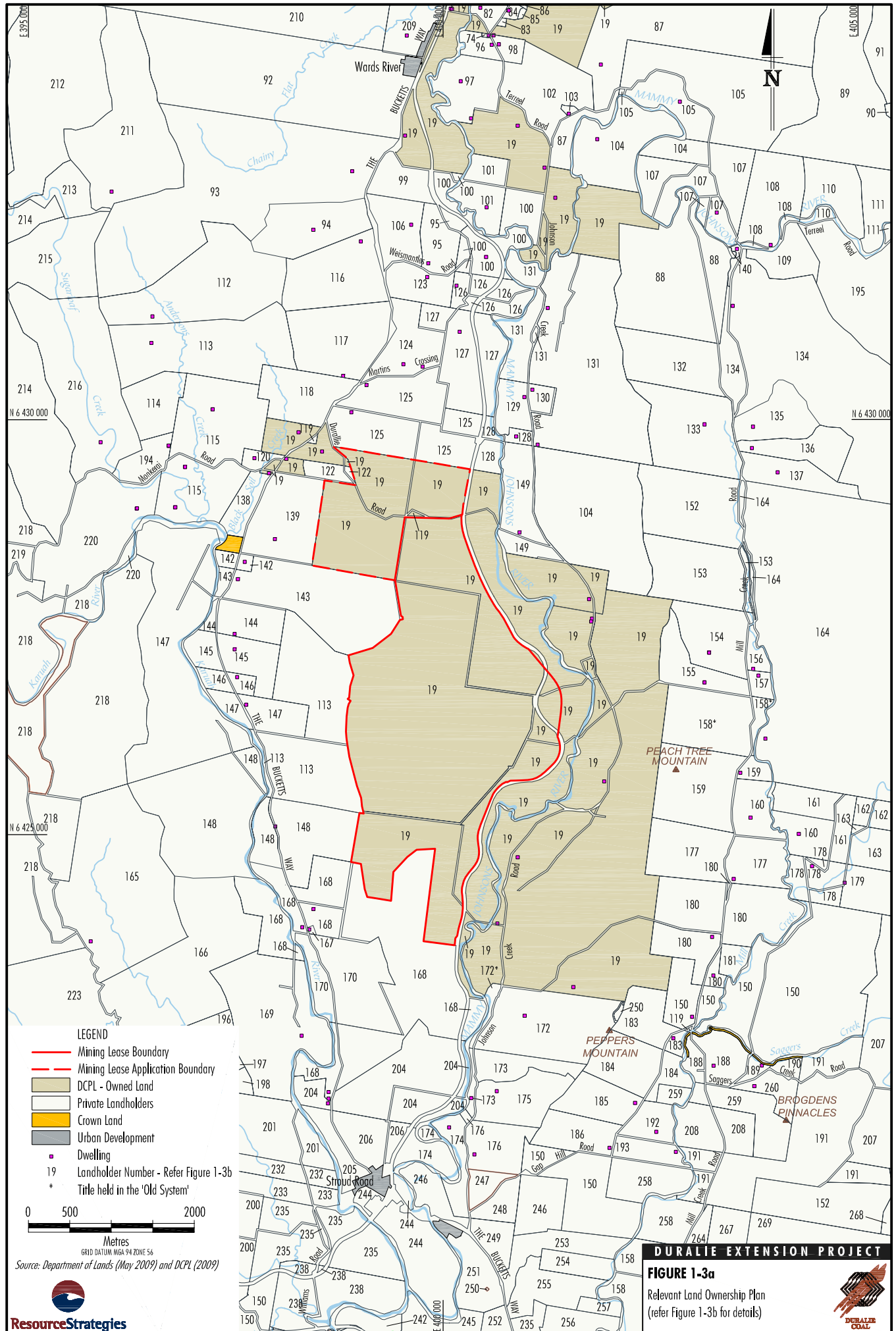
The EARs for the Project were issued by the Director-General of the DoP on 5 November 2009 (Attachment 1).

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

1.3 PROJECT CONSULTANTS

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

- DCPL project team (*project design, alternatives and justification, preliminary hazard analysis, environmental risk assessment, background data, resource economics, consultation, rehabilitation, final landform, final void management and Statement of Commitments*);
- Gilbert & Associates Pty Ltd (Gilbert & Associates) (*surface water assessment*);
- Agricultural Water Management (*irrigation water suitability assessment*);
- Heritage Computing (*groundwater assessment*);
- Heggies Pty Ltd (Heggies) (*noise and blasting and air quality assessments*);
- Cenwest Environmental Services (*terrestrial flora and fauna and aquatic ecology assessments*);
- EcoBiological (*baseline terrestrial flora and fauna surveys*);
- Gillespie Economics (*socio-economic assessment*);
- Halcrow MWT (*road transport assessment*);
- Environmental Geochemistry International Pty Ltd (EGi) (*geochemistry assessment*);
- Kayandel Archaeological Services (*Aboriginal cultural heritage assessment*);
- McCardle Cultural Heritage Pty Ltd (*draft methodology for Aboriginal cultural heritage assessment*);
- Heritage Management Consultants Pty Ltd (*non-Aboriginal heritage assessment*);
- SP Solutions (*environmental risk assessment*);
- Urbis (*visual assessment*); and
- Blake Dawson (*legal review*).



19	Gloucester Coal Ltd	135	P. J. Ayliffe	191	A. M. Mokeeff
74	D. L. & D. W. Melmeth	136	D. P. Pickles	192	S. & A. F. Vajda
82	S. A. & J. E. Wright	137	T. J. Lord	193	N. & C. M. Smith
83	Cemetery	138	P. W. M. Moylan, B. D. Moylan, G. O. Moylan, S. C. M. Newton & M. J. Moylan	194	J. & C. L. Kellehear
84	A.W. & C.M. Hart			195	Shulgin Investments Pty Ltd
85	R. A. & D. Shaw			196	E. D. Sanders
86	J. Andersen	139	M. S. Juttner	197	H. R. & D. A. Moorehouse
87	Pacific Property Investments Ltd	140	D. C. Bennett & D. M. Stark	198	Aspenview Enterprises Pty Limited
88	V. S. Edwards	142	P. G. Madden	200	G. J. & S. G. Trappel
89	D. J. Robertson	143	P. G. & K. A. Madden	201	I. G. Wilson
90	W. A. & J. A. Thomson	144	D. J. Wielgosinski	204	M. C. Jones
91	Hunter Water Corporation	145	D. H. & S. W. Owens	205	J. S. & K. L. Bratfield
92	Sejon No 4 Pty Ltd	146	M. A. Bragg	206	D. E. Allen
93	K. V. & P. M. Howard	147	J. I. Edwards	207	P. Trenchev
94	B. V. & P. O. Howard	148	D. J. McAndrew	208	C. A. Bowden
95	D. J. Smith & S. Ransley	149	Hattam Pty Ltd	209	D. M. Chapman
96	H. T. & M. B. Turnbull	150	R. N. & T. E. Rumbel	210	Heatscape Pty Limited
97	S. W. Davis	152	D. M. Lowrey	211	B. & B. I. Irwin
98	I. D. Partelle & M. M. Ramsay	153	L. & R. K. Paul	212	P. & N. V. Makaroff
99	K. MacFarlane	154	J. R. Morgan	213	E. A. & P. Hillard
100	K. S. Richards	155	M. & R. Guberina	214	K. G. Sneddon
101	K. M. & D. B. Holloway	156	T. R. J. & B. Hope	215	Monkerai Holdings Pty Limited
102	W. R. Kerslake	157	C. N. & S. D. Stephenson	216	D. M. Matcham
103	G. L. Macedo	158	B. Gilbert	218	D. K. & J. A. Holdings Pty. Limited
104	R. S. Mudford	159	T. R. Waterer	219	C. A. Olsen
105	R. M. Edwards	160	P. & M. E. Kenney	220	T. G. Lindfield and Associates Pty. Limited
106	R. A. James	161	D. G. Hutchison	223	F., E., R., D. M. & G. Ferraro
107	P. G. Spencer	162	L. S. Miller	232	I. G. Wilson
108	A. G. & M. A. Tersteeg	163	M. A. & C. H. Hockings & C. H. Willcox	233	R. G. Wilson
109	R. J. Bathgate & M. L. Levey	164	Gorton Timber Co. Limited	235	M. J. Bratfield
110	G. W. Lewis & A. J. Moore	165	ESOR Nominees Pty Limited	238	H. R. Kerr
111	T. J. Somerville & C. D. Martin	166	A. J. & A. L. Daniel	242	M. M. Gorton
112	S. R. Hogeveen	167	M. & S. M. Ravagnani	244	R. R. & M. J. Lawrence
113	C. W. & J. I. Edwards	168	V. R. & E. K. Schultz	245	N. Curtis
114	H. Paliokas	169	R. D. K. & N. L. Williams	246	P. & S. A. Margery
115	P. W. M. & B. D. & G. O. & M. J. Moylan & S. C. M. Newton	170	I. K. & M. J. Schultz	247	D. C. Hawkins
		172	S. J. & J. E. Lyall	248	R. B. & J. M. Eastoe
116	G. R. Weismantel	173	S. M. Trigg, J. M. Trigg, M. J. Holland, B. J. Holland, M. Trigg & S. C. Trigg	249	P. Margery
117	E. D. Holmes and L. M. Holmes			250	Midcoast County Council
118	P. W. M. Moylan	174	D. C. Carroll	251	B. R. Warner
119	Great Lakes Council	175	R. J. & S. J. Woodley	252	D. K. Pritchard
120	M. J. & C. A. Mahony	176	P. G. & L. J. Billett	253	E. & J. A. Allan
122	S. White	177	W. J. Thompson	254	D. N. & D. T. Young
123	J. L. Oleksiuk & K. P. Carmody	178	N. E. Hitchcock & E. E. Coldham	255	J. P. Miles
124	A. J. & R. M. B. Bailey	179	I. Mellar	256	M. I. Butler
125	T. & K. Zulmovski	180	B. R. & G. J. & K. G. & K. J. & W. J. Thompson	257	P. R. Garland
126	H. L. & M. R. Hamann - Pixalu Pty Limited			258	G. K. & A. G. Brown
127	A. J. Fisher-Webster	181	G. J. Thompson	259	C. A. Bowen
128	D. R. & B. Hare-Scott	183	M. H. & E. V. Elfick	260	D. & J. Roberts
129	J. Weismantel	184	B. J. & M. C. Gay	264	K. Pepper & S. M. Lyall
130	M. A. & J. M. Giudice	185	A. W. Raine & T. Hilleard	267	D. L. & T. L. Fordham
131	W. L. Relton	186	K. B. & J. N. Farnham	268	Hudrow Pty Limited
132	A. T. Gorton	188	T. E. Rumbel	269	The Minister for Forestry
133	R. J. Gorton	189	H. J. Gillard		
134	Duzmen Pty Ltd	190	B. Clayton		

Source: DCPL (2009) and Department of Lands (2009)
Current as at 28 October 2009

DURALIE EXTENSION PROJECT

FIGURE 1-3b
Relevant Land Ownership List



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

Summary of Environmental Assessment Requirements	EA Reference
General Requirements	
The EA must include:	
• Executive Summary.	Front of EA
• Description of the DCM including historical, existing and approved mining operations and infrastructure and environmental management and monitoring.	Sections 1, 2.1, 2.2 and 4
• Description of the Project.	Section 2
• Project justification and alternatives considered.	Section 6
• Risk assessment of the potential environmental impacts of the Project.	Section 4.1 and Appendix M
• Description of the existing environment.	Section 4
• Assessment of the potential environmental impacts of all stages of the Project, including cumulative impacts.	Section 4
• Consideration of relevant policies, guidelines, plans and statutory provisions.	Section 6
• Description of the measures to avoid, minimise, mitigate and/or offset the potential impacts of the Project including contingency plans.	Sections 4, 5, 6 and 7
• Statement of Commitments.	Section 7
• A conclusion justifying the Project on economic, social and environmental grounds, taking into consideration whether the project is consistent with the objects of the EP&A Act.	Section 6 and Appendix G
• Certification by the author of the EA.	Front of EA
Key Issues	
• Surface and Groundwater.	Sections 4.3 and 4.4 and Appendices A and B
• Noise and Blasting.	Section 4.5 and Appendix C
• Air Quality.	Section 4.6 and Appendix D
• Biodiversity.	Sections 4.8, 4.9 and 4.10 and Appendices E and F
• Traffic.	Section 4.13 and Appendix H
• Heritage.	Sections 4.11 and 4.12 and Appendices J and K
• Greenhouse Gases.	Section 4.7 and Appendix D
• Visual.	Section 4.16 and Appendix O
• Rehabilitation/Mine Closure.	Section 5 and Appendix N
• Social and Economic.	Sections 4.14 and 4.15 and Appendix G
Consultation Requirements	
• Describe consultation with relevant local, State or Commonwealth government authorities, service providers, community groups or affected landowners.	Section 3
• The consultation process and the issues raised must be described in the EA.	Section 3

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

In addition to the above, peer review was undertaken by the following specialists:

- Emeritus Professor Thomas McMahon (*surface water*).
- Dr Frans Kalf (*groundwater*).
- Dr John Rolfe (*socio-economic assessment*).
- Emeritus Professor Clive Bell (*rehabilitation and landscape management*).

1.4 DOCUMENT STRUCTURE

The EA comprises a main text component and supporting studies, which include Appendices A through O. An overview of the main text is presented below:

Section 1	Provides an introduction to the Project and the EA.
Section 2	Describes the various components and stages of the Project.
Section 3	Describes the consultation undertaken in relation to the EA and ongoing community involvement.
Section 4	Details the environmental assessment for the Project including a description of the existing environment, an assessment of potential impacts and a description of measures that would be implemented to avoid, minimise, mitigate, offset, manage and/or monitor the potential impacts of the Project.
Section 5	Describes the rehabilitation and landscape management strategy for the Project.
Section 6	Outlines the statutory provisions relevant to the Project, describes the alternatives considered and provides a Project justification.
Section 7	Provides DCPL's Statement of Commitments including a summary of the proposed environmental management, monitoring and reporting and specific environmental commitments in relation to the Project.
Section 8	Lists documents referenced in Sections 1 to 7 of this EA.
Section 9	Defines abbreviations, acronyms and terms used in Sections 1 to 7 of this EA.

Attachments to the main text are also provided as follows:

Attachment 1	Director-General's Environmental Assessment Requirements.
Attachment 2	Project Application Area and Real Property Descriptions.
Attachment 3	Peer Review Letters.
Attachment 4	Community Information.

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

Appendix A	Surface Water Assessment.
Appendix B	Groundwater Assessment.
Appendix C	Noise and Blasting Impact Assessment.
Appendix D	Air Quality Assessment.
Appendix E	Terrestrial Flora and Fauna Assessment.
Appendix F	Aquatic Ecology Assessment.
Appendix G	Socio-Economic Assessment.
Appendix H	Road Transport Assessment.
Appendix I	Geochemistry Assessment.
Appendix J	Aboriginal Cultural Heritage Assessment.
Appendix K	Non-Aboriginal Heritage Assessment.
Appendix L	Preliminary Hazard Analysis.
Appendix M	Environmental Risk Assessment.
Appendix N	Rehabilitation and Landscape Management Strategy.
Appendix O	Visual Assessment.