



**STATEMENT OF ENVIRONMENTAL
EFFECTS**

Modification to Development Consent

**Continued Truck Haulage of ROM Coal from
Glennies Creek Colliery to the Camberwell
Coal Handling and Preparation Plant (CHPP)**

July 2004

ENVIRONMENT • HEALTH • SAFETY

PREPARED FOR

**CAMBERWELL COAL PTY LTD
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Newcastle • Sydney



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Environment Health Safety

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Prepared for

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Modification to Development Consent
Continued Truck haulage of ROM Coal from Glennies Creek Colliery to the
Camberwell Coal Handling and Preparation Plant
July 2004

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EXECUTIVE SUMMARY

This Statement of Environmental Effects has been prepared to support an application pursuant to Section 96(2) of the Environmental Planning and Assessment Act to modify the development consent for the Camberwell Coal Project (DA 86-2889).

The modification is sought to enable the continuation of internal coal transportation from the Glennies Creek Colliery to Camberwell CHPP by haul road and the deferment of installation of the previously approved overland conveyor until the cessation of Camberwell Coal's open-cut mining activities.

DA 86-2889-M4, granted on the 18 December 2001 limited routine coal haulage of Glennies Creek coal by internal haul road to a period of 3 years. This period was assessed at the time as being adequate for the required earthworks, installation and operational commissioning of the conveyor and one that would not significantly impact upon Camberwell Coal's plans for rehabilitation of the former North Pit area.

The proposal to modify this Development Approval as outlined in this document:

- has minimal impact on the environment or local residents;
- is a consequence of operational and financial considerations which were not foreseen at the time of DA 86-2889-M4; and
- will enable a continuation of coal transportation in a manner which does not impact on Camberwell Coal's rehabilitation program yet overcomes the operational and financial constraints which would be incurred as a consequence of conveyor installation in the short to medium term.

1.0 INTRODUCTION

1.1 Scope

This Statement of Environmental Effects has been prepared in support of an application by Camberwell Coal Pty Ltd (Camberwell) to the Minister for Infrastructure and Planning. The Application, under Section 96(2) of the Environmental Planning and Assessment Act 1979 seeks a modification to the Development Consent for the Camberwell Coal Mine (DA 86-2889) to enable continued road haulage of coal between the Glennies Creek Colliery and the Camberwell CHPP for the life of the Camberwell Mine Open Cut operations (approximately 2011), and deferred installation of the previously approved overland conveyor. Coal Haulage will principally utilise road registrable Prime Movers with semi or B-double trailers on a near level haul road located along the RL100 topographic contour.

1.2 Location and Land Ownership

Camberwell is an operating open cut coal mine located 10 km northwest of Singleton (refer **Figure 1**). The mine is operated by Camberwell Coal Pty Limited (ACN 003 825 01 8) on behalf of the Camberwell Coal Joint Venture partners, Toyota Tsusho Mining (Australia) Pty Ltd 90% (ACN 003 765 008) and Dia Coal Mining (Australia) Pty Ltd 10% (ACN 003 724 249).

The land to which this application for a S.96 (2) modification applies is owned by RHA Pastoral Company Pty Limited (RHA), a company wholly owned by the Camberwell Joint Venture and lies within part of Camberwell's Coal Lease (357). No surface restrictions apply to CL357 and surface operations, including open cut mining and associated activities, can be conducted throughout CL357. **Appendix 1** contains a schedule of surface lands contained in Coal Lease 357. **Figure 2** shows the nearest potentially effected premises within the vicinity of the Camberwell and Glennies Creek operations.

An area of approximately 43 ha in the north of CL357 (known as the "lease transfer area" and indicated on Figure 3) is pending transfer to Glennies Creek Colliery. On finalization of the transfer, the Glennies Creek Colliery will assume all responsibilities and liabilities under the Lease. While the lease transfer area is currently part of the Camberwell Coal mine lease, the area will be part of the Glennies Creek Colliery holding.

2.0 RATIONALE FOR THE PROPOSAL

In December 2001, Camberwell received approval of a modification to Development Consent (DA 86-2889-M4) enabling the transportation of Glennies Creek Coal through CL357, its processing at the Camberwell CHPP and the dispatch of the processed coal via the Camberwell train loader.

Condition 12(iv) of DA 86-2889-M4 approved the haulage of the coal from the Glennies Creek Colliery on Camberwell's internal haul roads, with truck haulage to be replaced by routine use of an overland conveyor by December 2004. Although it was envisaged at the time that conveyor construction could commence in 2002, with routine conveyor utilisation in 2004, a range of operational and economic circumstances have changed, necessitating this current application.

2.1 Operational Considerations

DA 86-2889-M4 identified that coal from the overland conveyor would discharge to a 100 Kt capacity raw coal stockpile at the Camberwell CHPP, with a bulldozer or front-end loader being used to move the coal over the stockpile area as it is stored and reclaimed.

Further investigations undertaken since 2001 have identified that while Camberwell continues to produce its own coal, inadequate stockpile capacity is available in close proximity to the planned conveyor discharge point.

The inability to stockpile coal in close proximity would therefore necessitate movement of the coal away from the conveyor and then back to the CHPP raw coal receipt bunker and incur the associated costs of double handling. Conversely, truck haulage of coal provides flexibility in coal stockpiling / dumping and minimises any requirement for double handling.

Following the cessation of Camberwell coal's open cut mining activities, all raw stockpile capacity at the CHPP will be available for the storage of Glennies Creek coal and double handling will be minimized, allowing the efficient use of a conveyor system.

2.2 Economic Considerations

During 2004, Glennies Creek Colliery, the party responsible for financing the overland conveyor, has committed to capital expenditure in excess of \$28 million. Although use of a conveyor is their economically preferred option for coal transportation to the Camberwell CHPP in the longer term, a continuation of truck haulage is considered the more economically responsible approach in the short to medium term. Glennies Creek also report that a deferment of conveyor installation would postpone a further \$10million (plus) capital expenditure at a time when that Company's resources are limited, and reduce the financial exposure of the Glennies Creek Project.

2.3 Environmental Considerations

Environmental Assessments conducted as part of this application have shown that the environmental consequences of continuing the haulage of coal by internal haul road are minimal and can be managed within existing management controls and community expectations.

3.0 STATUTORY PLANNING APPROVAL SOUGHT

The proposed modification to Camberwell Coal's 1990 Development Consent is considered to be Non-Designated, State Significant Development that will be determined by the Minister for Infrastructure and Planning. This Statement of Environmental Effects (SOEE) has been prepared to support the requested modification to the consent.

3.1 Approvals Required

3.1.1 Section 96(2) Modification

Although no formal written advice from DIPNR has been received by Camberwell Coal Pty Ltd it is assessed that an Application under S96 (2) is appropriate, as the application would necessitate a minor change only to the currently approved development consent, and the modified development would be substantially the same development for which consent was previously granted.

3.1.2 Other Approvals

In the normal course of operations at the Camberwell Coal Mine, additional approvals are required from various government agencies. For example, Camberwell is holder of Environmental Protection Licence (No. 3390) issued under Section 55 of the *Protection of the Environment Operations Act 1997* (POEO Act). No variation to this or any other approval is considered necessary as a consequence of this application.

3.1.3 Changes to Consent Conditions

Previous and proposed modifications to development consent conditions are shown in **Table 1** below

**Statement of Environmental Effects
Modification to Consent for Continued Truck Haulage from Glennies Creek Colliery**

Table 1 – Consent Condition – Original, Modified and Proposed

Number	Original Consent 19 March 1990	Modified Condition 22 April 1992	Modified Condition 22 December 1994	Modified Condition 6 May 1999	Modified Condition 18 December 2001	Modified Condition 22 December 2003	Proposed Condition This variation
1	Camberwell Coal is defined by a series of documents						
(i)	EIS dated Oct 1989	"As modified by the works set out in Figures 1 and 2 attached to this notice of amendment"					
(ii)	Letter to SSC re rail facilities						
(iii)	Letter to SSC dated 29 Jan 1990						
(iv)	Responses to letters of objection						
(v)	Responses submitted by government bodies dated 5 Feb 1990						
(vi)					Reference to additional information in the SEE		
(vii)					Reference to additional information by PJ Murray		
(viii)						Reference to additional information by Camberwell Coal	Reference to additional information by Camberwell Coal
(ix)						Reference to conditions of this consent	
2	Duration						
3 (i)	Protection of heritage property						
(ii)	Maintaining "Dulwich" if required						
4	Water Supply approvals						

**Statement of Environmental Effects
Modification to Consent for Continued Truck Haulage from Glennies Creek Colliery**

Table 1 – Consent Condition – Original, Modified and Proposed Cont'd

Number	Original Consent 19 March 1990	Modified Condition 22 April 1992	Modified Condition 22 December 1994	Modified Condition 6 May 1999	Modified Condition 18 December 2001	Modified Condition 22 December 2003	Proposed Condition This variation
5 (i) (a)	Landscaping plan						
(b)	Visual appearance proposal						
(c)	Landscape management plan						
5 (ii)	Rehabilitation of bund walls and out of pit emplacements						
6	Visual amenity enhancement works						
7 (i)	Purchasing affected lands and residences						
(ii) (a)	Purchase price				Reference to clause 19.1 and 19.2		
(b)	Disturbance and relocation costs				Reference to clause 19.1 and 19.2		
(c)	Legal advice costs						
(iii)	Purchasing disagreements						
(iv)	Impacts on residences in zone						
(v)	Structural surveys						
(vi)	Private compensation agreements						
8	Railway works plans						
9	State Rail Authority						
10	Crown Lands						
11	State Pollution Control Commission						
12 (i)	Coal transportation by rail						
(ii)	Emergency haulage of coal						

**Statement of Environmental Effects
Modification to Consent for Continued Truck Haulage from Glennies Creek Colliery**

Table 1 – Consent Condition – Original, Modified and Proposed Cont'd

Number	Original Consent 19 March 1990	Modified Condition 22 April 1992	Modified Condition 22 December 1994	Modified Condition 6 May 1999	Modified Condition 18 December 2001	Modified Condition 22 December 2003	Proposed Condition This variation
(iii)	Road haulage through CL No 201						
(iv)					Time restraint for coal haulage by truck		Change time constraint to end of open cut operations
(v)					Conditions of road use		Change to 24 hour operation
13	Flood Lighting						
14	Transmission Line relocations						
15 (i)	Environmental Monitoring						
(ii)	Environmental safeguards enforced						
(iii)	Reporting of results						
16	Environmental Officer						
17	Annual report		Date changes				
(i)	Performance of the development						
(ii)	Effectiveness of environmental controls						
(iii)	Results of monitoring						
(iv)	Mining operations from past 12 months						
(v)	Workforce characteristics						
(vi)	Modifications to mining operations						
		The applicant shall report progress of investigations on long term tailings disposal by means other than tailings ponds in its annual report pursuant to Condition 17					
		The applicant shall meet the requirements of the Dams Safety Committee in respect of design, operation and maintenance of the proposed tailings dams					

**Statement of Environmental Effects
Modification to Consent for Continued Truck Haulage from Glennies Creek Colliery**

Table 1 – Consent Condition – Original, Modified and Proposed Cont'd

Number	Original Consent 19 March 1990	Modified Condition 22 April 1992	Modified Condition 22 December 1994	Modified Condition 6 May 1999	Modified Condition 18 December 2001	Modified Condition 22 December 2003	Proposed Condition This variation
18	Financial contributions						
19	Off site effects				Delete old clause 19 and replace with a new clause for off site effects		
19.1					Noise level criteria		
(i)					Noise		
(ii)					Noise - affectation area		
(iii)					Noise		
(iv)					Exceedence		
(v)					Noise acquisition clause		
(vi)					Noise - negotiations		
(vii)					Noise- independent investigations		
19.2					Noise- monitoring technique and location		
(i)					Air quality		
(ii)					Dust- land affectation		
(iii)					Dust - acquisition		
19.3					Dust - independent investigations		
20	Cumulative impact study			Condition deleted	Off site effects		
21	Land and water management plans						
22 (i)	Access roads						

**Statement of Environmental Effects
Modification to Consent for Continued Truck Haulage from Glennies Creek Colliery**

Table 1 – Consent Condition – Original, Modified and Proposed Cont'd

Number	Original Consent 19 March 1990	Modified Condition 22 April 1992	Modified Condition 22 December 1994	Modified Condition 6 May 1999	Modified Condition 18 December 2001	Modified Condition 22 December 2003	Proposed Condition This variation
(ii)	Bank guarantee for damage to roads						
(iii)	Annual maintenance contribution						
23	Closure of Middle Falbrook Road						
24	Blasting notifications						
25	Disputes regarding consent						
26	Rental housing						
27		This amendment expires 19 March 2012			New condition – Noise Management Plan		Update Noise Management Plan
28					New Condition – Dust Management Plan		Update Dust Management Plan
29					New condition – Erosion and Sediment Control Plan		Update erosion and Sediment Control Plan
30					New condition – Community Consultative Committee		
31					New Condition – Western haul Road Drainage		Include RL100 haul road
32					New Condition – Statutory Requirements		

4.0 CONSULTATION

The following government authorities and community groups were consulted prior to and/or during the preparation of this Statement of Environmental Effects.

- DIPNR
- DMR
- Singleton Shire Council
- Camberwell Coal Mine Community Consultative Committee (16 June 2004)

A copy of the Camberwell Coal Pty Ltd correspondence with DIPNR is contained in **Appendix 2**.

5.0 PLANNING CONTEXT

The following plans are deemed relevant to the proposed modification.

Singleton Local Environmental Plan (LEP), 1996

The Singleton LEP 1996 applies to the land. Under that instrument the land is classified 1(a) - Rural Zone. Coal mines and Coal Works are permitted with Council consent in this zone.

The objectives of the 1 (a) Rural zone are contained in Clause 16 of the LEP and include:

- (a) *to protect and conserve agricultural land and to encourage continuing viable and sustainable agricultural land use;*
- b) *to promote the protection and preservation of natural ecological systems and processes;*
- (c) *to allow mining where environmental impacts do not exceed acceptable limits and the land is satisfactorily rehabilitated after mining;*
- (d) *to maintain the scenic amenity and landscape quality of the area;*
- (e) *to provide for the proper and co-ordinated use of rivers and water catchment areas;*
- (f) *to promote provision of roads that are compatible with the nature and intensity of development and the character of the area.*

The subject land is not listed in the LEP as being or containing any heritage item, nor is it in a heritage conservation area.

Development Control Plans

Singleton Shire Council's **Car Parking Development Control Plan** is not applicable to the proposal as there is no increase in the need for car parking associated with the proposal.

Singleton Shire Council's **Erosion and Sediment Control Plan** applies to any activity that involves or could involve:

- disturbance of or placing fill on the soil surface, and/or changes to the contours of the land;

- change in the rate and/or volume of runoff flowing overland, or directly or indirectly entering "waters".

The requirements of this plan are adequately addressed by conditions in the Mine's existing consent and the contents of the Mine Operations Plan (MOP) that is submitted to, and accepted by the Department of Mineral Resources (DMR).

Section 94 Contributions

Singleton Shire Council has in place a Section 94 Contributions Plan under which it may levy contributions to be applied to the provision of public facilities.

5.1 State Environmental Planning Policies

The following State Environmental Planning Policies (SEPPS) are potentially applicable to this proposal.

State Environmental Planning Policy No 44 - Koala Habitat Protection

This SEPP encourages the conservation and management of koala habitats, to ensure permanent free-living koala populations will be maintained over their present range. The policy applies to 107 local government areas including Singleton Shire (the local government area affected by this proposal). Development cannot be approved in the areas covered by the policy without a prior investigation for core koala habitat.

As the proposed modification applies to land that has been previously mined by open cut methods and is devoid of vegetation. Hence SEPP 44 is not applicable.

State Environmental Planning Policy No 45 - Permissibility of Mining

This SEPP covers mining on land, where an environmental planning instrument requires the consent authority to make a value judgment as to whether such development is permissible. The policy does not affect provisions in environmental planning instruments that have no relevance in determining whether or not mining is permitted on land, but only those provisions that must be satisfied for mining to be permissible. As the Singleton LEP permits mining in the 1(a) Rural Zone, SEPP 45 does not apply to this application.

6.0 EXISTING OPERATION

6.1 Current Approvals

Development consent for Camberwell Coal Mine was granted by the Minister for Local Government and the Minister for Planning on 19 March 1990 and, since that time there have been five (5) subsequent modifications. Copies of all consents and modifications can be found in **Appendix 3**.

6.2 Current On-site Coal Haulage

The current haulage route from the Glennies Creek Colliery to the Camberwell CHPP is consistent with the previously approved road corridors. Refer to **Figure 3**. Haulage is currently undertaken using three (3) mine trucks on a campaign basis.

6.3 Current Off-site Coal Haulage

All coal from Camberwell CHPP is despatched to the Port of Newcastle by rail, with loading from a load-out bin located on a rail loop off the main Northern Rail Line. This rail loop is also utilised by the adjacent Rix's Creek Mine, which has its own dedicated coal stockpiles and rail load-out bin.

The quantity of coal railed from Camberwell Mine has historically been within the range of 1.8 to 2.3 Mtpa, with production from the Glennies Creek Colliery adding to this total.

6.4 Employment Status and Demography

The total number of employees working at Camberwell coal is 201 and for Glennies Creek Colliery is 122. (Source: Annual Environmental Management Report 2003). Approximately 55% of this total workforce reside in the Singleton Shire, 16% in the Cessnock local government area and 12% in the Maitland local government area. **Tables 2a and 2b** present employment demographics for both Camberwell Coal and Glennies Creek Colliery.

**Table 2a - Employment Demography
Camberwell Coal**

Place of Residence	Number	Percent %
Singleton Shire	136	67
Cessnock Shire	30	15
Maitland Shire	17	8.5
Muswellbrook and Scone Shires	11	6
Newcastle Shire	6	3
Other	1	0.5
Total	201	100

**Table 2b - Employment Demography
Glennies Creek Colliery**

Place of Residence	Number	Percent %
Singleton Shire	39	32
Cessnock Shire	22	18
Maitland Shire	23	18.9
Muswellbrook and Scone Shires	1	0.8
Newcastle Shire	16	13.1
Other	7	5.7
Total	122	100

6.5 Coal Production (ROM and Saleable)

Prior to September 1994 Camberwell Mine produced 10.52 Mt of ROM coal. **Table 3** below identifies the annual production of ROM and Saleable Coal from both Camberwell and Glennies Creek Mines since that time.

Table 3 – Annual Production of ROM and Saleable Coal from 94/95 to 02/03

Year (Sept to Aug)	CAMBERWELL		GLENNIES CREEK	
	ROM (Mt)	Saleable (Mt)	ROM (Mt)	Saleable (Mt)
94/95	3.24	2.02	NP	NP
95/96	3.27	2.07	NP	NP
96/97	3.15	1.82	NP	NP
97/98	3.63	2.18	NP	NP
98/99	3.65	2.23	NP	NP
99/00	3.34	1.88	0.17	0.08
00/01	3.02	1.71	0.37	0.17
01/02	3.39	2.00	0.26	0.12
02/03	3.72	2.26	1.38	0.72

NP – No production from Glennies Creek Colliery

It is understood that projected production from the Glennies Creek Colliery for 2003 / 2004 is 2.5 Mt ROM and 1.33 Mt saleable coal, with ROM coal production in 2004 / 2005 to increase to 3Mt. Camberwell Coal production will remain at approximately 2Mt saleable coal till the end of open cut operations.

7.0 THE PROPOSAL

It is proposed to continue the trucking of coal from the Glennies Creek Colliery via an upgraded haul road located along the RL100 contour of the North Pit to Camberwell's CHPP area as shown on **Figure 3**. The proposed haul road (the RL100 haul road) is positioned approximately midway between the existing approved central and western haul roads.

Initially, the coal would be routinely hauled using road-registrable prime movers with semi-tippers capable of carrying 70t. However, in the medium to longer term, road registrable prime movers with semi-tipper or B-double tipping truck configurations may be introduced. Where necessary CAT 777 mine trucks may be used during periods of semi-tipper or B-double unavailability. At the current approved production rate from the Glennies Creek Colliery of approximately 3 Mtpa, four 70t semi-tippers or two 140t semi-tippers or B-doubles would be required.

It is understood that Glennies Creek has discussed a planned increase in production with DIPNR and that an application to modify their consent is under way. Although no additional 70t semi-tippers would be necessary for a projected increased haulage rate of approximately 4 Mtpa, a third 140t semi-tipper or B-double may be required.

Haulage would be routinely undertaken on a campaign basis 24 hours per day 3 days per week with additional haulage during periods of CHPP availability resulting from any reduced production from the Camberwell Open Cut. Coal haulage will continue by truck until the end of Open Cut operations at Camberwell. The RL100 haul road will include a 3m high bund as recommended by Spectrum Acoustics to provide acoustic shielding. The bund that will be revegetated in conjunction with adjacent rehabilitation activities will also provide visual shielding.

8.0 ENVIRONMENTAL ASSESSMENT OF THE PROPOSAL

8.1 Topography

The final landform of Camberwell Mine will not be significantly altered as a result of the proposal. The haulage road will follow the RL 100 contour along the side of the overburden emplacement. To the east of the road the landform will generally rise at ten degrees to a height of RL 140. To the west of the road the landform will generally fall at ten degrees from the upper limit of the roadside bund to natural ground level. Rehabilitation of the surfaces upslope and downslope of the RL100 haul road will be integrated with Camberwell's existing rehabilitation plans.

On completion of all road haulage activities, the former road route will be retained and revegetated with trees, shrubs and grasses to create a corridor within the rehabilitated North Pit. Such a tree corridor is consistent with Camberwell's existing rehabilitation and integrated landscape plan and will also have benefits in terms of long-term site water management.

8.2 Erosion and Sediment Control

The proposed RL100 haul road will be located within the current footprint of mining activities of Camberwell Mine. Existing and future erosion control measures will be implemented in accordance with the approved Erosion and Sediment Control Plan required by development consent condition 29 for the existing road haulage, and the Mine Operations Plan. The effectiveness of these actions will continue to be assessed each year by the Department of Infrastructure Planning and Natural Resources (DIPNR) and the Department of Mineral Resources (DMR) and reported in the Mine's Annual Environmental Management Report.

8.3 Rehabilitation Program

With the exception of the proposed lease transfer area adjacent to the Glennies Creek Colliery, refer to **Figure 4**, which will be rehabilitated as part of the Glennies Creek portal area rehabilitation program, the Camberwell Coal rehabilitation program will be unaffected by this proposal. The current rehabilitation for the Camberwell Coal North Pit is scheduled for completion prior to the end of Open Cut operations in 2011.

Co-Resources Pty Limited was commissioned to provide an updated final rehabilitation design. The conceptual final landform incorporating both the RL100 road and conveyor is provided in **Figure 4**.

In discussions with Glennies Creek Colliery it has been determined that some areas within the lease transfer area can be rehabilitated and rehabilitation of these areas will, where

practicable, be undertaken in conjunction with adjacent works undertaken by Camberwell Coal, refer to the shaded areas in **Figure 4**.

Detailed rehabilitation timing for the Camberwell lease area will be provided in the Camberwell Coal Mine Operations Plan (MOP) due for submission to the DMR in December 2004. While the detailed rehabilitation timing has yet to be completed, to minimise visual impacts, rehabilitation of the area of land below the RL100 haul road will be scheduled for 2005. This initial rehabilitation will include the 3m bund along the haul road. Selected materials will be incorporated into the bund to assist in the final rehabilitation of the road. The RL 100 road will replace the Western haul road which was to remain open for emergency coal haulage in the event of overland conveyor breakdowns. As such, the RL100 haul road will be rehabilitated by Glennies Creek at the end of their operations.

Final rehabilitation of the RL100 haul road will involve placing the bund material over the road, deep ripping to break up the compacted road surface and seeding and planting with trees. The road will then comprise one of the tree corridors planned for the Camberwell mine. The tree corridor will form part of the Integrated Landscapes Plan strategy for the mines closure.

8.4 Hydrology

8.4.1 Surface Water

The division of the site into sub-catchments allows for the diversion of clean water to separate storage areas. Clean stormwater is diverted around disturbed areas while all runoff from disturbed areas and rehabilitated areas prior to the establishment of an adequate vegetation cover) is collected in a series of sedimentation dams designed to allow coarse particulate matter to settle out. This situation will remain essentially unchanged by the development and use of the RL100 haul road. Minor changes involving the exact location of sedimentation dams will occur but the water management plan is essentially the same.

Hannan Environmental Management has completed a preliminary Mine Closure Plan and a Surface Water Management Plan. The Surface Water Management Plan suggests improvements to the system with an emphasis on the diversion of clean water away from the Mine's water management facilities and towards natural drainage lines. Future rehabilitation plans will remain in accordance with these recommendations.

It is expected that water management on Camberwell Coal's site will be essentially unaffected by the proposal.

8.4.2 Groundwater

The proposed modification will have no impact on groundwater. There will be no change to Camberwell Coal's current mine plan and the manner in which open cut operations interact with the local groundwater regime. The overburden emplacement will remain in the area of the

former North Pit and groundwater migrating through the overburden will remain behind the former high wall. Previously predicted groundwater impacts will continue to apply.

8.5 Air Quality

8.5.1 Assessment Methodology

An assessment of air quality impacts associated with the use of RL 100 haul road was conducted by HLA Envirosciences Pty Ltd (HLA) and is summarized below. The report entitled "Air Quality Impact Assessment Proposed RL100 Haul Road Camberwell Coal, Singleton NSW" dated June 2004 can be found in **Appendix 4**

The assessment, including model development, determination of existing environmental pollutant concentrations, meteorological data analysis and impact assessment, was undertaken in accordance with the EPA's "Approved Methods and Guidance for the Modelling and Assessment of Air Pollutants in New South Wales NSW" (EPA, 2001). The "National Environment Protection Measure for Ambient Air Quality" (NEPC, 1998), was considered with respect to future criteria that may be accepted by NSW EPA.

8.5.2 Dispersion Modelling

The ISCST3 dispersion model, an advanced Gaussian plume dispersion model, which is approved by the US EPA for use in regulatory assessments undertaken within the United States, was used in the study. ISCST3, one of the most widely used regulatory models in the world, uses the Gaussian dispersion model equation to simulate the dispersion of an air pollutant plume from point, area, or volume sources and incorporates wind speed, wind direction and other dispersion parameters. The model is conservative and, under very light wind conditions leads to over estimates of concentrations at receptors, which are long distances downwind.

8.5.3 Modelling Scenario

Dispersion modelling was undertaken for three operational scenarios to represent the potential worst case situations with respect to potential air quality impacts, namely coal production rates

of 3 Mtpa using 140t capacity B-doubles, 4 Mtpa using 70t semi-tippers and 4 Mtpa using 140t capacity B-doubles respectively. Emissions from the use of 140t semi-tippers or Cat 777 mine trucks would be less than that from B-doubles or 70t tippers due to one or a combination of less vehicle kilometres travelled in transporting the coal and less truck tyres.

The scenarios considered were as follows;

Scenario 1 - 3Mt per annum 140t capacity B-doubles

- Coal will be hauled on 156 days per year;
- Daily haulage rate of 19,231 tonnes;
- Trucks are 160 tonnes loaded and 20 tonnes unloaded (137 loaded trucks per day);
- During haul days, trucks will operate 24 hours per day;
- The haul distance on the RL100 haul road is 2960m; and,
- Level 2 water on roads will reduce emissions by 75%

Scenario 2- 4Mt per annum 70t capacity semi-tippers

- Coal will be hauled on 156 days per year;
- Daily haulage rate of 25,641 tonnes;
- Trucks are 90 tonnes loaded and 20 tonnes unloaded (366 loaded trucks per day);
- During haul days, trucks will operate 24 hours per day;
- The haul distance on the RL100 haul road is 2960m; and,
- Level 2 water on roads will reduce emissions by 75%

Scenario 3- 4Mt per annum 140t capacity B-doubles

- Coal will be hauled on 156 days per year;
- Daily haulage rate of 25,641 tonnes;
- Trucks are 160 tonnes loaded and 20 tonnes unloaded (183 loaded trucks per day);
- During haul days, trucks will operate 24 hours per day;
- The haul distance on the RL100 haul road is 2960m; and,
- Level 2 water on roads will reduce emissions by 75%.

The modelling also assumed no terrain effects, albeit that the haul road would be located adjacent to an existing overburden dump (RL 140) which would likely affect wind speed and direction and result in some particle entrainment.

8.5.4 Air Quality Descriptors and Criteria

Air quality is principally described in terms of:

- deposited dust, ie particulates which are sufficiently large as to readily fall out of the atmosphere and be deposited on surfaces, eg window sills, parked cars and washing. Deposited dust, though not affecting public health can, if present at sufficiently high levels, cause nuisance by reducing the amenity of an area to such an extent that activities cease to be either enjoyable or viable;
- total suspended particulates, ie particulates with an aerodynamic diameter of 0.1 μm to 50 μm . Of these, the larger ($>10 \mu\text{m}$) particulates are too large to be inhaled and thus cannot give rise to health effects; and
- PM_{10} particulates, ie that component of the TSP with an aerodynamic diameter of 10 μm or less. PM_{10} particulates can penetrate the respiratory system and may be associated with bronchitis and asthma. In the Hunter Valley, PM_{10} particulates generally constitute approximately 40% of the TSP concentration.

Air quality goals that are applicable to deposited dust, TSP and PM_{10} are as follows:

- DEC annual average 2 g/m^2 month maximum increase and 4 g/m^2 month maximum dust deposition rates.
- DEC annual average TSP 90 $\mu\text{g}/\text{m}^3$ standard for sensitive receptor sites.
- DEC 24-hour PM_{10} 50 $\mu\text{g}/\text{m}^3$ standard to assess increases due to the proposed haulage activities in isolation from existing environment PM_{10} concentrations.
- US EPA 24-hour PM_{10} 150 $\mu\text{g}/\text{m}^3$ standard to assess cumulative impacts.
- DEC annual average PM_{10} 30 $\mu\text{g}/\text{m}^3$ standard to assess cumulative impacts.

8.6 Existing Air Quality

The existing air quality in the vicinity of the Camberwell and Glennies Creek operations is monitored through a network of ten (10) deposit dust gauges and three (3) high volume air samplers to record Total Suspended Particulates (TSP). The locations of the monitors are shown in the **Air Quality Assessment Report - Figure 7**.

Figure 2 shows the locations of sensitive receptors in the vicinity of the operations.

Summaries of annual average ambient dust deposition rates and TSP levels from data collected over the period since January 2000 are presented in **Tables 4** and **5**. **Table 6** presents ambient PM₁₀ levels assuming PM₁₀ constitutes 40% of TSP. **Tables 7, 8** and **9** also identify the allowable increase in deposited dust, TSP and PM₁₀, i.e. whilst still satisfying the criteria identified in Section 9.5.4.

**TABLE 4
Dust Deposition Rates Summary (September 2000 – February 2004)**

Averages	D2	D3	D4	D5	D6	D7	D8	D9	D10	D11
2000	2.7	1.6	2.3	2.2	2.1	2.9	1.9	2.0	2.2	3.3
2001	2.1	2.6	2.4	1.7	1.6	5.0	2.0	1.8	2.1	2.4
2002	2.3	2.6	2.6	1.9	1.9	4.3	2.3	2.9	2.7	3.3
2003	1.5	1.9	2.5	1.5	1.4	4.0	1.4	2.0	2.4	2.4
2004	1.5	5.4	2.3	1.5	1.2	4.2	2.2	2.2	3.4	3.5
All Data	2.0	2.8	2.4	1.7	1.6	4.1	2.0	2.2	2.6	3.0
Allowable Increase*	2	1.2	1.6	2.0	2.0	0	2.0	1.8	1.4	1.0
All units are g/m ² .month										
*Allowable increase means the relevant criteria less the existing background DDR										

**TABLE 5
TSP Data Summary (September 2000 – February 2004)**

Averaging Period	HV1 – Bridgmans Average	HV2- Dulwich Average	HV3 – Hardy's Average
2000	33	77	59
2001	34	91	56
2002	49	96	74
2003	46	89	56
2004 (ytd)	44	114	64
All Data	41	94	62
Allowable Increase*	49	0	28
All units are µg/m ³			
*Allowable increase means the relevant criteria less the existing background dust			

**TABLE 6
PM10 Data Summary (September 2000 – February 2004)**

Averaging Period	HV1 – Bridgmans		HV2- Dulwich		HV3 – Hardy's	
	Average	Maximum	Average	Maximum	Average	Maximum
2000	13	27	31	82	23	42
2001	14	86	37	122	23	47
2002	20	52	38	95	30	90
2003	18	86	35	101	22	71
2004 (ytd)	18	29	46	75	26	32
All Data	17	86	37	122	25	90
Allowable 24 hour Increase*	64		28		60	
Allowable annual Increase*	13		0		5	
All units are $\mu\text{g}/\text{m}^3$						
*Allowable increase means the relevant criteria less the existing background dust						

Notwithstanding that particulate concentrates of all sizes decrease with increasing distances from the RL 100 haul road, for assessment purposes, HLA conservatively assumed that the existing air quality at each receptor shown on **Figure 7** of their report corresponds to that at the nearest monitoring location.

Receptor groupings for each deposited dust gauge and high volume air sampler are as follows.

Deposited Dust Gauge:

- D10 Receptors 1-17, 48
- D4 Receptors 18-24
- D5 Receptors 25-34
- D6 Receptors 35-37
- D7 Receptor 39
- D8 Receptors 38, 40 and 42-47
- D9 Receptor 41

High Volume Air Sampler:

- HV1 Receptors 15-37

HV2	Receptors 39
HV3	Receptors 1-14, 38 and 41 – 48

8.7 Results

Tables 7, 8 and 9 present the predicted increases and cumulative pollutant concentrations at each receptor within the vicinity of the Camberwell and Glennies Creek operations when using the RL 100 haul road at transport rates of 3 Mtpa using 140t capacity B-doubles, 4 Mtpa using 70t capacity semi-tippers and 4 Mtpa using 140t capacity B-doubles respectively. Contour plots of the results are presented in **Appendix 4**.

8.7.1 Scenario 1

All particulate concentration and deposition rates are predicted to increase due to the activities involved with the use of 140t B-double trailers on the RL100 haul road at a production rate of 3Mtpa to the degree detailed in Table 7. Cumulative particulate concentrations are predicted to exceed the DEC assessment criteria for TSP(Annual Criteria) and PM10(Annual Criteria) at Receptor 39 only. Cumulative and allowable increase dust deposition criteria are predicted to be exceeded at Receptor 39 only. Receptor 39 is however, located within the Camberwell Coal Mine zone of affectation.

8.7.2 Scenario 2

All particulate concentration and deposition rates are predicted to increase due to the activities involved with the use of 70t semi-tippers on the RL100 haul road at a production rate of 4Mtpa to the degree detailed in Table 8. Annual concentrations are predicted to exceed the DEC assessment criteria for TSP(Annual Criteria) and PM10(Annual Criteria) at Receptor 39 only. Cumulative and allowable increase dust deposition criteria are predicted to be exceeded at Receptor 39 only. Receptor 39 is however, located within the Camberwell Coal Mine zone of affectation.

8.7.3 Scenario 3

All particulate concentration and deposition rates are predicted to increase due to the activities involved with the use of 140t B-double trailers on the RL100 haul road at a production rate of 3Mtpa at a production rate of 4Mtpa to the degree detailed in **Table 9**.

Annual concentrations are predicted to exceed the DEC assessment criteria for TSP and PM10(Annual Average) at Receptor 39 only located within the current Camberwell mine zone of affectation. This receptor is also predicted to exceed cumulative and allowable increase criteria for deposited dust.

8.8 Assessment of Impacts

Notwithstanding the conservative approach adopted in the modelling, a review of **Tables 7, 8 and 9** shows that although deposited dust, TSP and PM10 rates will increase at all receptors as a consequence of RL 100 haul road usage, all criteria are satisfied under all scenarios at other than Receptor 39 located within the existing Camberwell Zone of Affectation.

**TABLE 7
3 MTPA COAL HAULAGE USING 140t CAPACITY B-DOUBLES -
RECEPTOR POLLUTANT CONCENTRATIONS**

Receptor	TSP		DDR		PM10 ANNUAL		PM10 24 HOUR	
	Increase	Cum	Increase	Cum	Increase	Cum	Increase	Cum
1	2.0	64.0	0.2	2.8	0.5	25.0	4.5	94.5
2	2.2	64.2	0.2	2.8	0.5	25.0	3.7	93.7
3	2.1	64.1	0.2	2.8	0.5	25.0	3.7	93.7
4	2.2	64.2	0.2	2.8	0.5	25.0	4.2	94.2
5	2.3	64.3	0.2	2.8	0.5	25.0	4.4	94.4
6	2.1	64.1	0.2	2.8	0.5	25.0	4.0	94.0
7	2.3	64.3	0.2	2.8	0.5	25.0	4.1	94.1
8	3.8	65.8	0.5	3.1	0.9	25.3	7.2	97.2
9	3.3	65.3	0.3	2.9	0.8	25.1	5.3	95.3
10	3.5	65.5	0.3	2.9	0.8	25.1	5.5	95.5
11	3.1	65.1	0.3	2.9	0.7	25.1	4.8	94.8
12	2.8	64.8	0.2	2.8	0.7	25.0	4.6	94.6
13	3.6	65.6	0.3	2.9	0.9	25.1	5.3	95.3
14	3.5	65.5	0.3	2.9	0.8	25.1	5.4	95.4
15	1.2	42.2	0.1	2.7	0.3	16.5	2.9	88.9
16	1.3	42.3	0.1	2.7	0.3	16.5	3.0	89.0
17	1.7	42.7	0.1	2.7	0.4	16.5	3.9	89.9
18	1.9	42.9	0.1	2.5	0.5	16.5	4.2	90.2
19	1.9	42.9	0.1	2.5	0.5	16.5	3.7	89.7
20	1.7	42.7	0.1	2.5	0.4	16.5	4.0	90.0
21	1.5	42.5	0.1	2.5	0.4	16.5	3.3	89.3
22	1.6	42.6	0.2	2.6	0.4	16.6	3.5	89.5
23	1.2	42.2	0.2	2.5	0.3	16.6	2.1	88.1
24	1.4	42.4	0.2	2.6	0.3	16.6	2.5	88.5
25	1.6	42.6	0.3	2.0	0.4	16.7	2.4	88.4
26	1.6	42.6	0.4	2.1	0.4	16.8	2.1	88.1
27	1.6	42.6	0.5	2.2	0.4	16.9	2.2	88.2
28	1.7	42.7	0.6	2.3	0.4	17.0	2.8	88.8
29	1.5	42.5	0.6	2.3	0.4	17.0	2.7	88.7

TABLE 7 Cont'd

Receptor	TSP		DDR		PM10 ANNUAL		PM10 24 HOUR	
	Increase	Cum	Increase	Cum	Increase	Cum	Increase	Cum
30	1.0	42.0	0.2	1.9	0.2	16.6	1.9	87.9
31	0.9	41.9	0.1	1.8	0.2	16.5	1.7	87.7
32	1.1	42.1	0.4	2.1	0.3	16.8	2.2	88.2
33	1.4	42.4	0.6	2.3	0.3	17.0	2.4	88.4
34	1.4	42.4	0.7	2.4	0.3	17.1	2.0	88.0
35	1.4	42.4	0.9	2.5	0.3	17.3	1.9	87.9
36	1.3	42.3	0.8	2.4	0.3	17.2	1.9	87.9
37	1.3	42.3	0.8	2.4	0.3	17.2	2.0	88.0
38	1.9	63.9	0.2	2.2	0.5	25.0	3.5	93.5
39	8.1	102.1	1.4	5.5	1.9	39.0	7.4	129.4
40	2.2	64.2	0.3	2.3	0.5	25.1	3.2	93.2
41	4.8	66.8	0.9	3.1	1.1	25.7	6.0	96.0
42	1.2	63.2	0.1	2.1	0.3	24.9	2.5	92.5
43	0.9	62.9	0.1	2.1	0.2	24.9	2.0	92.0
44	1.0	63.0	0.1	2.1	0.2	24.9	1.6	91.6
45	1.2	63.2	0.1	2.1	0.3	24.9	2.0	92.0
46	0.9	62.9	0.1	2.1	0.2	24.9	2.0	92.0
47	1.2	63.2	0.1	2.1	0.3	24.9	2.2	92.2
48	1.8	63.8	0.1	2.7	0.4	24.9	3.8	93.8

All TSP and PM10 results in $\mu\text{g}/\text{m}^3$
 All DDR results in $\text{g}/\text{m}^2 \cdot \text{month}$
 Bold text indicates exceedance of criteria

TABLE 8

**4 MTPA COAL HAULAGE USING 70t CAPACITY SEMI-TIPPERS -
RECEPTOR POLLUTANT CONCENTRATIONS**

Receptor	TSP		DDR		PM10 ANNUAL		PM10 24 HOUR	
	Increase	Cum	Increase	Cum	Increase	Cum	Increase	Cum
1	2.5	64.5	0.3	2.9	0.6	25.1	6.0	96.0
2	2.8	64.8	0.3	2.9	0.7	25.1	4.9	94.9
3	2.7	64.7	0.2	2.8	0.7	25.0	4.9	94.9
4	2.9	64.9	0.3	2.9	0.7	25.1	5.6	95.6
5	3.0	65.0	0.3	2.9	0.7	25.1	5.8	95.8
6	2.8	64.8	0.2	2.8	0.7	25.0	5.2	95.2
7	2.9	64.9	0.3	2.9	0.7	25.1	5.5	95.5
8	5.0	67.0	0.6	3.2	1.2	25.4	9.6	99.6
9	4.2	66.2	0.4	3.0	1.0	25.2	7.1	97.1
10	4.6	66.6	0.4	3.0	1.1	25.2	7.3	97.3
11	4.0	66.0	0.3	2.9	1.0	25.1	6.4	96.4
12	3.6	65.6	0.3	2.9	0.9	25.1	6.0	96.0
13	4.7	66.7	0.4	3.0	1.1	25.2	7.0	97.0
14	4.6	66.6	0.3	2.9	1.1	25.1	7.2	97.2
15	1.5	42.5	0.1	2.7	0.4	16.5	3.8	89.8
16	1.7	42.7	0.1	2.7	0.4	16.5	3.9	89.9
17	2.2	43.2	0.1	2.7	0.5	16.5	5.1	91.1
18	2.5	43.5	0.1	2.5	0.6	16.5	5.5	91.5

TABLE 8 Cont'd

Receptor	TSP		DDR		PM10 ANNUAL		PM10 24 HOUR	
	Increase	Cum	Increase	Cum	Increase	Cum	Increase	Cum
19	2.5	43.5	0.1	2.5	0.6	16.5	4.9	90.9
20	2.2	43.2	0.2	2.6	0.5	16.6	5.3	91.3
21	2.0	43.0	0.2	2.6	0.5	16.6	4.4	90.4
22	2.1	43.1	0.2	2.6	0.5	16.6	4.6	90.6
23	1.6	42.6	0.3	2.6	0.4	16.7	2.7	88.7
24	1.8	42.8	0.3	2.7	0.4	16.7	3.3	89.3
25	2.1	43.1	0.4	2.1	0.5	16.8	3.2	89.2
26	2.1	43.1	0.5	2.2	0.5	16.9	2.8	88.8
27	2.1	43.1	0.7	2.4	0.5	17.1	2.9	88.9
28	2.2	43.2	0.8	2.5	0.5	17.2	3.7	89.7
29	2.0	43.0	0.8	2.5	0.5	17.2	3.6	89.6
30	1.3	42.3	0.2	1.9	0.3	16.6	2.5	88.5
31	1.1	42.1	0.2	1.9	0.3	16.6	2.3	88.3
32	1.5	42.5	0.5	2.2	0.4	16.9	2.9	88.9
33	1.8	42.8	0.8	2.5	0.4	17.2	3.1	89.1
34	1.8	42.8	0.9	2.6	0.4	17.3	2.6	88.6
35	1.9	42.9	1.1	2.7	0.5	17.5	2.5	88.5
36	1.8	42.8	1.1	2.7	0.4	17.5	2.5	88.5
37	1.7	42.7	1.0	2.6	0.4	17.4	2.7	88.7
38	2.5	64.5	0.2	2.2	0.6	25.0	4.6	94.6
39	10.6	104.6	1.9	6.0	2.6	39.5	9.9	131.9
40	2.9	64.9	0.4	2.4	0.7	25.2	4.3	94.3
41	6.2	68.2	1.2	3.4	1.5	26.0	8.0	98.0
42	1.6	63.6	0.1	2.1	0.4	24.9	3.3	93.3
43	1.1	63.1	0.1	2.1	0.3	24.9	2.6	92.6
44	1.3	63.3	0.1	2.1	0.3	24.9	2.2	92.2
45	1.5	63.5	0.1	2.1	0.4	24.9	2.7	92.7
46	1.2	63.2	0.1	2.1	0.3	24.9	2.6	92.6
47	1.6	63.6	0.1	2.1	0.4	24.9	2.9	92.9
48	2.3	64.3	0.2	2.8	0.6	25.0	5.1	95.1

All TSP and PM10 results in $\mu\text{g}/\text{m}^3$
 All DDR results in $\text{g}/\text{m}^2 \cdot \text{month}$
 Bold text indicates exceedance of criteria

TABLE 9
4 MTPA COAL HAULAGE USING 140t CAPACITY B-DOUBLES -
RECEPTOR POLLUTANT CONCENTRATIONS

Receptor	TSP		DDR		PM10 ANNUAL		PM10 24 HOUR	
	Increase	Cum	Increase	Cum	Increase	Cum	Increase	Cum
1	2.6	64.6	0.3	2.9	0.6	25.3	5.7	95.7
2	2.9	64.9	0.3	2.9	0.7	25.3	4.7	94.7
3	2.8	64.8	0.2	2.8	0.6	25.2	4.8	94.8
4	3.0	65.0	0.3	2.9	0.7	25.3	5.4	95.4
5	3.0	65.0	0.3	2.9	0.7	25.3	5.6	95.6
6	2.8	64.8	0.3	2.9	0.7	25.3	5.0	95.0
7	3.0	65.0	0.3	2.9	0.7	25.3	5.3	95.3
8	5.1	67.1	0.7	3.3	1.2	25.7	9.3	99.3
9	4.3	66.3	0.4	3.0	1.0	25.4	6.8	96.8
10	4.7	66.7	0.4	3.0	1.1	25.4	7.0	97.0
11	4.1	66.1	0.3	2.9	0.9	25.3	6.2	96.2
12	3.7	65.7	0.3	2.9	0.8	25.3	5.8	95.8
13	4.8	66.8	0.4	3.0	1.1	25.4	6.8	96.8
14	4.7	66.7	0.4	3.0	1.1	25.4	6.9	96.9
15	1.6	42.6	0.1	2.7	0.4	17.1	3.7	89.7
16	1.7	42.7	0.1	2.7	0.4	17.1	3.8	89.8
17	2.3	43.3	0.1	2.7	0.5	17.1	5.0	91.0
18	2.5	43.5	0.1	2.5	0.6	17.1	5.3	91.3
19	2.5	43.5	0.1	2.5	0.6	17.1	4.7	90.7
20	2.2	43.2	0.2	2.6	0.5	17.2	5.1	91.1
21	2.0	43.0	0.2	2.6	0.5	17.2	4.2	90.2
22	2.1	43.1	0.2	2.6	0.5	17.2	4.4	90.4
23	1.6	42.6	0.3	2.6	0.4	17.3	2.6	88.6
24	1.9	42.9	0.3	2.7	0.4	17.3	3.2	89.2
25	2.1	43.1	0.5	2.2	0.5	17.5	3.1	89.1
26	2.1	43.1	0.6	2.3	0.5	17.6	2.7	88.7
27	2.2	43.2	0.7	2.4	0.5	17.7	2.8	88.8
28	2.2	43.2	0.8	2.5	0.5	17.8	3.5	89.5
29	2.0	43.0	0.8	2.5	0.5	17.8	3.5	89.5
30	1.3	42.3	0.2	1.9	0.3	17.2	2.4	88.4
31	1.2	42.2	0.2	1.9	0.3	17.2	2.2	88.2
32	1.5	42.5	0.5	2.2	0.4	17.5	2.8	88.8
33	1.9	42.9	0.9	2.6	0.4	17.9	3.0	89.0
34	1.8	42.8	0.9	2.6	0.4	17.9	2.5	88.5
35	1.9	42.9	1.2	2.8	0.4	18.2	2.4	88.4
36	1.8	42.8	1.1	2.7	0.4	18.1	2.4	88.4
37	1.8	42.8	1.1	2.7	0.4	18.1	2.6	88.6
38	2.5	64.5	0.2	2.2	0.6	25.2	4.4	94.4
39	10.8	104.8	1.9	6.0	2.5	38.9	9.5	131.5
40	3.0	65.0	0.5	2.5	0.7	25.5	4.1	94.1
41	6.4	68.4	1.2	3.4	1.5	26.2	7.7	97.7
42	1.6	63.6	0.2	2.2	0.4	25.2	3.2	93.2
43	1.2	63.2	0.1	2.1	0.3	25.1	2.5	92.5
44	1.3	63.3	0.1	2.1	0.3	25.1	2.1	92.1

TABLE 9 Cont'd

Receptor	TSP		DDR		PM10 ANNUAL		PM10 24 HOUR	
	Increase	Cum	Increase	Cum	Increase	Cum	Increase	Cum
45	1.6	63.6	0.1	2.1	0.4	25.1	2.6	92.6
46	1.3	63.3	0.1	2.1	0.3	25.1	2.5	92.5
47	1.6	63.6	0.1	2.1	0.4	25.1	2.8	92.8
48	2.4	64.4	0.2		0.5	25.2	4.9	94.9

All TSP and PM10 results in $\mu\text{g}/\text{m}^3$
 All DDR results in $\text{g}/\text{m}^2 \cdot \text{month}$
 Bold text indicates exceedance of criteria

8.9 Noise

8.9.1 Introduction

An assessment of the potential acoustical impact of the RL 100 haul road was undertaken by Spectrum Acoustics Pty Limited. Summaries of the methodology adopted and outcomes of the assessment are presented below with the full report, entitled *"Noise Impact Assessment – Proposed Continuation of Coal Haulage by Truck Glennies Creek Colliery Camberwell NSW"* and dated May 2004, presented in **Appendix 5**.

8.9.2 Assessment Methodology

The assessment methodology adopted was consistent with the requirement identified in the NSW EPA Industrial Noise Policy (INP, 2000).

Modelling was undertaken using the Environmental Noise Model (ENM) developed by Renzo Tonin and Associates in conjunction with the EPA with Leq (15 minute) noise levels generated by truck movements along the proposed RL100 haul road predicted using the model.

Initially, coal is to be hauled in 70t semi-tippers hauled by road registrable Mercedes Benz diesel-powered prime movers.

However, in the medium to longer term, the 70t capacity trailers may be replaced by 140t units or by 140t capacity B-doubles powered by road registrable Mack prime movers with CAT C-15 diesel engines. As road-going vehicles, all prime movers are required to satisfy Australian Design Rule ADR 28/01 with regard to noise emissions.

Measured data obtained for the Howick truck fleet which uses the Mercedes Benz Actross prime movers showed an average drive-by level of 81 dB(A) at 16m, which equates to a sound power

level of 113 dB(A). Information provided by Mack Trucks for a prime mover with the CAT C-15 diesel engine (quoted as Report MTA-28-78) shows a maximum drive-by level of 86.4 dB(A) at a distance of 7m which equates to a maximum sound power level of 112 dB(A).

Based on a coal haulage rate of 3Mtpa, haulage for three days (72 hours) per week and a truck capacity of 70t, there will be an average of 2.86 truck loads of coal per 15 minute period during haulage campaigns. Allowing for return travel, there will be approximately 6 truck movements along the haul road per 15 minutes. At a coal haulage rate of 4 Mtpa using 70t capacity trucks, there will be 3.82 loads of coal or approximately 8 truck movements per 15 minute period.

For a coal haulage rate of 3 Mtpa and 140t capacity B-doubles or semi-trailers there will be 1.43 loads of coal transported per 15-minute period, on average, during haulage campaigns. Allowing for return travel, there will be approximately 3 truck movements along the haul road per 15-minutes. At a coal haulage rate of 4Mtpa there will be 1.91 loads of coal (equating to approximately 4 truck movements) transported along the haul road per 15 minute period.

Preliminary modelling of multiple sources along the proposed haul route showed a "10dB-down" pass-by time of 60 seconds for each truck movement, as observed from each residence, assuming an average speed of 40km/hr. Using a pass-by time of 60 seconds, a maximum source level of 113 dB(A) and 6 and 8 truck movements in the DEC standard intermittent traffic noise calculation gave 15 minute Leq levels of 108 dB(A) and 109 dB(A) for coal haulage using Mercedes Benz prime movers for 3 and 4 Mtpa coal haulage respectively. For 3 and 4 Mack B-double or 140t semi-tipper movements, and a maximum source level of 112 dB(A), the 15 minute Leq noise levels are 104 dB(A) and 105 dB(A) for 3 Mtpa and 4 Mtpa coal haulage.

Scenarios were generated for the following prevailing meteorological conditions.

- Neutral, no wind or vertical gradient, 20⁰C, 70% relative humidity, ie the scenario for typical daytime condition.
- Inversion; vertical temperature gradient of 4⁰C/100m, ground level temperature of 10⁰C.
- NE wind speed of 3m/s to represent prevailing winter winds.
- SE wind speed of 3m/s to represent prevailing summer winds.

Both the 3 Mtpa and 4 Mtpa scenarios were also run assuming haulage by Cat 777 haul trucks.

8.9.3 Criteria

Noise criteria for a number of assessed receivers were established as part of the Camberwell State of Environmental Effects 2001 (Acoustic Assessment, Appendix 6). The criteria that apply to combined noise emissions from Camberwell Coal Mine and Glennies Creek Coal Haulage are identified in DA 86-2889 (as amended) and are shown in **Table 10**.

TABLE 10

NOISE CRITERIA FOR ASSESSED RECEIVER LOCATIONS

Location	Noise Criterion, LAeq(15-minute)
Mordey	38
Lambkin	38
Payne	36
Moore*	36
Noble	41(38)
Donellan*	38
Hardy*	38
Richards	39
Watling	39
Proctor	39
Burgess	39
Hall	39
Oxford	39
"Dulwich"	39

Notes:

Locations marked (*) were not included in the 2001 assessment, so noise criteria have been adopted from the nearest assessed location. (see note 2 concerning Noble residence)

The criterion at the Noble residence was established as 38 dB(A) in the 2001 SoEE. However, the EPA set the worst case predicted level of 41 dB(A) in the consent, since routine haulage on the western route using mine trucks was to cease within a few years. The current proposal to continue trucking has been assessed against the 38 dB(A) limit at Noble, Donellan, and Hardy.

8.9.4 Results

Table 11 shows the predicted noise levels at the nominated receivers at a coal haulage rate of 3Mtpa using B-doubles and 140t semi-tippers, **Table 12**, the predicted noise levels using 70t semi-tippers and **Table 13**, the predicted noise levels using Cat 777 haul trucks, each assuming the incorporation of a 3m high bund at appropriate locations. **Table 14** presents a comparison of the predicted worst case noise levels (over all assessed meteorological conditions) for the previously approved central haul road and overland conveyor and for the RL 100 haul road using B-doubles, 70t semi-tippers and Cat 777 haul trucks at a haulage rate of 4 Mtpa. The predicted noise levels at 4 Mtpa were determined by the addition of 1 dB to the values in **Tables 11, 12 and 13**.

**TABLE 11
SUMMARY OF PREDICTED NOISE LEVELS –
COAL HAULAGE USING 140t CAPACITY B-DOUBLE TRUCKS OR SEMI-TIPPERS
(3 Mtpa)**

Receiver	Atmospheric Condition			
	Neutral	Inversion	NW wind	SE wind
Mordey	<20	<20	20	<20
Lambkin	<20	<20	<20	<20
Egan	<20	<20	<20	<20
Payne	<20	20	<20	<20
Moore	<20	23	<20	25
Noble	<20	22	<20	24
Donellan	<20	22	<20	25
Hardy	<20	21	<20	22
Richards	<20	<20	<20	<20
Watling	<20	<20	<20	<20
Proctor	<20	<20	<20	<20
Burgess	<20	<20	<20	<20
G. Hall	<20	<20	<20	<20
Oxford	<20	<20	20	<20
"Dulwich"	25	30	23	31

TABLE 12

**SUMMARY OF PREDICTED NOISE LEVELS –
COAL HAULAGE USING 70t CAPACITY SEMI-TIPPERS (3 Mtpa)**
(Add 1 dB to all values for 4Mtpa coal haulage rate)

Receiver	Atmospheric condition			
	Neutral	Inversion	NW wind	SE wind
Mordey	<20	20	23	<20
Lambkin	<20	20	22	<20
Egan	<20	21	<20	<20
Payne	21	24	<20	<20
Moore	21	27	<20	29
Noble	22	26	<20	28
Donellan	21	26	<20	29
Hardy	20	25	<20	26
Richards	20	24	<20	22
Watling	20	23	<20	21
Proctor	20	23	<20	21
Burgess	20	22	<20	<20
G. Hall	20	24	<20	<20
Oxford	20	22	23	<20
"Dulwich"	29	34	27	35

TABLE 13

**SUMMARY OF PREDICTED NOISE LEVELS –
COAL HAULAGE USING CAT 777 HAUL TRUCKS (3 Mtpa)**

Receiver	Atmospheric Condition			
	Neutral	Inversion	NW wind	SE wind
Mordey	<20	24	25	<20
Lambkin	<20	25	25	<20
Egan	<20	<20	<20	<20
Payne	<20	20	<20	<20
Moore	<20	29	<20	27
Noble	<20	28	<20	28
Donellan	<20	25	<20	27
Hardy	<20	27	<20	30
Richards	<20	26	<20	26
Watling	<20	<20	<20	<20
Proctor	<20	<20	<20	<20
Burgess	<20	<20	<20	<20
G. Hall	<20	<20	<20	<20
Oxford	<20	<20	<20	<20
"Dulwich"	27	33	25	34

TABLE 14

**SUMMARY OF PREDICTED WORST CASE NOISE LEVELS – COMPARISON OF
APPROVED CONVEYOR AND CENTRAL HAUL ROAD WITH THE RL100 HAUL ROAD AT
4 Mtpa**

Receiver	Coal Haulage Option					Criterion
	Conveyor	Central Road (haul trucks)	RL 100 (B-doubles 140t semi-tippers)	RL 100 (CAT 777s)	RL 100 (70t)	
Mordey	30	35	21	26	24	38
Lambkin	26	33	<20	26	23	38
Egan	20	25	<20	<20	22	36
Payne	23	30	21	21	25	36
Noble	25	37	25	29	27	38
Richards	20	24	<20	27	25	39
Watling	20	22	<20	<20	24	39
Proctor	20	20	<20	<20	24	39
G. Hall	27	30	<20	<20	25	39
Oxford	27	30	<20	<20	24	39
"Dulwich"	28	38	32	35	36	39

On the basis of the modelling undertaken, Spectrum Acoustics concluded that at 4Mtpa coal haulage:

- use of the RL 100 haul road and 70t semi-tippers will result in predicted worst case $L_{Aeq}(15 \text{ minute})$ noise levels which vary from 6 dB(A) lower to 8 dB(A) higher than from those predicted for the overland conveyor and from 10dB(A) lower to 4 dB(A) higher than those predicted for the central haul road. However, at all residences, the relevant noise criteria are achieved;
- except at "Dulwich" which lies within the current affectation zone, the proposed RL100 route using B-double trucks or 140t semi-tippers will result in worst case received $L_{Aeq}(15\text{-min})$ noise levels less than or equal to those predicted for the overland conveyor, and significantly lower than those for the central haul route;
- use of the proposed RL 100 haul road and CAT 777s, when occurring, would result in predicted worst case noise levels equal to or less than the approved conveyor, except at the Noble, Richards and "Dulwich" residences;

- excluding "Dulwich", predicted levels from the proposed RL100 haul road are below the noise criteria by more than 9 dB (for 70t semi-tippers), 13 dB (for B-doubles and 140t semi-tippers) and more than 9 dB (for CAT 777s) and no significant cumulative contribution to existing noise levels is expected; and,
- no significant cumulative contribution to existing noise levels is expected.

8.10 Visual Aspects and Lighting Impact from Trucks

Existing operations at the Camberwell Coal Mine, including truck haulage of overburden and coal from both Camberwell and Glennies Creek's operations, are undertaken 24 hours a day. Accordingly, the continuation of truck movements associated with the haulage of coal from Glennies Creek Coal Mine to the CHPP will not result in any change in visual or night lighting impacts. Rather, the incorporation of a 3m bund along the RL100 haul road will reduce any impacts from truck headlights.

8.11 Flora and Fauna

The proposed haul route has previously been, and remains, totally disturbed with no vegetation present. Accordingly, no flora impacts are envisaged.

- The Original EIS for Camberwell Coal listed flora and fauna species recorded during surveys conducted in 1985. Subsequent to that time, other flora and fauna investigations have been undertaken by Wildthing Environmental Consultants (1997); and
- Environmental Appraisal and Planning Pty Ltd (1999).

These studies, together with reviews of the NPWS database, have identified the following species as potentially occurring within the area of the Camberwell Coal Mine:

- Red Goshawk *Erythrotriorchis radiatus*
- Tiger Quoll *Dasyurus maculata*
- Brush-tailed Phascogale *Phascogale tapoatafa*
- Squirrel Glider *Petaurus norfolcensis*
- Glossy Black-Cockatoo *Calyptorhynchus lathamii*
- Barking Owl *Ninox connivens*

- Koala *Phascolarctos cinereus*
- Common bent wing Bat *Mimiopterus schreibersii*

During the studies undertaken, no threatened or endangered species or populations were identified as occurring within or adjacent to CL 357.

Given that no previously undisturbed areas of the mine site will be affected to permit the continuation of road haulage of coal from Glennies Creek to the Camberwell CHPP and the results of previous assessments, no impact on flora and fauna would reasonably be expected.

8.11.1 Considerations under Section 5A of the EP&A Act

An assessment of the considerations of Section 5A for the species identified as threatened or endangered in the 1997 Wildthing Environmental Consultant's report, the 1999 Environmental Appraisal & Planning Pty Ltd report and the NPWS Wildlife Atlas database was conducted for the SEE submitted by Camberwell coal in 2001 including eight-part tests to assess the possible impacts of that proposal on identified endangered species. Given that the eight-part tests found that there would be no significant effect on the identified threatened species due to the extent of previous disturbance on site and the lack of suitable habitat in the proposal area, and that the current proposal is essentially unchanged from the 2001 Application, the conclusions at that time remain valid for this modification.

8.12 Waste Management

The proposed modification to operations will not impact upon current waste management arrangements at Camberwell, ie use of Contractors to remove and dispose of general "household" waste and the removal and recycling of waste oils and scrap metals.

Tyres from the B-doubles and coal haulage trucks employed in the Glennies creek road haulage operation will be disposed off site in an approved manner.

8.13 Heritage

8.13.1 Archaeology

The proposed RL100 haul route traverse areas of the Camberwell mine site that have been completely disturbed and reconstructed using overburden produced as part of open cut mining activities. Consequently no archaeological sites remain to be damaged or threatened by the proposal.

8.13.2 Post-Contact Heritage

With the exception of "Dulwich", a residence listed under "Part 3 - Items classified as being of local significance" of Schedule 3 of the Singleton Local Environmental Plan 1996 (LEP) which is located approximately 800m to the west of the proposed RL100 Haul Route, there are no features of post-contact heritage within or adjacent to CL 357.

Camberwell Coal's Development Consent conditions require that all necessary measures shall be taken to ensure that the building known as "Dulwich" is not materially damaged by blasting arising from the development.

The proposed modification does not include any blasting activities and consequently will not impact on "Dulwich".

9.0 SOCIO-ECONOMIC IMPACTS

Failure to receive approval for the modification would potentially impact upon the future of the Glennies Creek Colliery and the Camberwell Coal Preparation Plant employment levels.

As shown in **Table 2a and Table 2b** approximately 70% of the Camberwell and Glennies Creek workforce live in and around Singleton, with the employee's disposable income helping underpin the local economy and maintain the current level of services in the district. Mines are also important contributors to the State economy by way of coal royalties, state taxes, rail freight charges and port charges, and to national economy by way of export income earned and taxes.

The proposed extension of road haulage operations, by deferring capital expenditure for an overland conveyor, will allow the current economic and social benefits from the Camberwell and Glennies Creek Collieries to continue.

10.0 RELEVANT MATTERS UNDER SECTION 79C OF THE EP&A ACT

General matters for consideration under section 79C of the EP&A Act have been covered in previous sections of this Statement of Environmental Effects. The relevant sections and page numbers of the text relating to these matters are shown in **Table 13**.

TABLE 15
Section 79C Matters for Consideration

Matters	Report Reference
1 (a) the provisions of: (i) any environmental planning instrument, and	Section 6
(ii) any draft environmental planning instrument that is or has been placed on public exhibition and details of which have been notified to the consent authority, and	None Applicable
(iii) any development control plan, and	Section 6
(iv) the regulations (to the extent that they prescribe matters for the purposes of this paragraph), that apply to the land to which the development application relates	SoEE formulated to conform to the Act and Regulations
(b) The likely impacts of that development, including environmental impacts on both the natural and built environments, and social and economic impacts in the locality,	Section 9 Section 10
(c) the suitability of the site for the development,	The site is an approved operating open cut coal mine on suitably zoned land. The proposed modification relates to matters concerning coal transport on the site.
(d) any submissions made in accordance with this Act or the regulations,	Any submissions will be reviewed by DIPNR and the Minister.
(e) the public interest	Section 5

11.0 CONCLUSION

The proposed modification represents an extension to an existing approved activity as a consequence of operational and economic considerations. Through refinements in the form of the truck haulage employed, appropriate road design and positioning and the implementation of appropriate safeguards, the proposed extension of coal haulage between the Glennies Creek Colliery and Camberwell's CHPP for the duration of Camberwell's open cut mine life will be achieved with minimal impacts on the environment and local residents.

12.0 REFERENCES

Camberwell Coal Project, Glennies Creek, NSW. Environmental Impact Statement, 1989.
Camberwell Coal Joint Venture.

Camberwell Coal Project, Glennies Creek, NSW. Environmental Impact Statement, 2001.
Camberwell Coal Joint Venture. Prepared by HLA-Envirosciences Pty Limited

Glennies Creek Statement of Environmental Effects Namoi Hunter Pty Ltd SoEE in Support of a
Section 96 (2) Application for the Glennies Creek Overland Conveyor – RW Corkery and Co Pty Ltd
June 2001

Environmental Appraisal & Planning Pty Ltd, 1999. Flora and Fauna Assessment Component -
Statement of Environmental Effects of Proposed Excavated Overburden Emplacement, for HLA
Envirosciences for Camberwell Coal Pty Limited.

Glennies Creek Coal Mine, Environmental Impact Statement, 1990. Maitland Main Collieries Pty
Limited.

Mackie Environmental Research (2000). Camberwell Coal Water Management Studies - Final
Report July 2000, prepared for Camberwell Coal Pty Limited, Singleton.

Trudeau & Associates (1997). Report of the Hunter Valley Railway Programs Task Force, Volumes
1-2, prepared for Department of Urban Affairs and Planning, Sydney.

Wildthing Environmental Consultants, 1997. Flora and Fauna Study as part of a Review of the
Environmental Factors for the proposed upgrade and partial construction of Stony Creek Road,
Singleton NSW for Pacrim Environmental Pty Ltd.