



Appendix N

Traffic and Transport Impact Assessment



DRAYTON MINE EXTENSION

TRAFFIC AND TRANSPORT IMPACT ASSESSMENT

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for:

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DRAYTON MINE EXTENSION TRAFFIC AND TRANSPORT IMPACT ASSESSMENT

for
Anglo Coal (Drayton Management) Pty Ltd

1.0 INTRODUCTION

Anglo Coal (Drayton Management) Pty Ltd (Drayton) currently undertakes open cut mining at the Drayton Coal Mine in the Hunter Valley area of New South Wales. It currently has development consent approval to mine up to 5.5 million tonnes per annum (Mtpa) of Run of Mine (ROM) coal through until 2012.

Drayton is applying for a Project Approval to recover additional coal reserves within its current mining leases (the Project Area). Development of the Drayton Mine extension (the Project) will involve the following:

- an extension of mine life from 2010 to 2017;
- an extension of the mine footprint, to uncover additional coal reserves within the current mining leases;
- an increase in maximum ROM coal production up to 8.0 Mtpa;
- upgrade of the existing stockpile reclamation system and existing Coal Handling Plant (CHP); and
- modifications to Drayton's power reticulation and water management systems.

This report presents the results of a road traffic and coal transport impact assessment for the Project. Section 2 describes the roads and intersections in the vicinity of Drayton Mine and the impacts upon them of increases in road traffic due to the Project. Section 3 describes the existing Drayton Mine rail network and the impact of increased coal transport due to the proposed increase in coal production. Section 4 provides a summary of the road traffic and coal transport impacts and proposed management measures.

2.0 ROAD TRAFFIC

2.1 EXISTING ROAD NETWORK

2.1.1 Location

Drayton Mine is located approximately 13 kilometres (km) south of Muswellbrook and approximately 120 km north-west of Newcastle in New South Wales. The regional road network in the vicinity of the Project Area is shown on Figure 1. Vehicular access to the site is via the private Drayton Mine Access Road which runs south off Thomas Mitchell Drive. Thomas Mitchell Drive runs between the New England Highway (to the east) and Denman Road (to the west). Existing local traffic is typical of a mixed rural-mining area.

The following sections provide a description of the roads and intersections in the vicinity of the Project Area that will potentially be impacted by the Project.

2.1.2 Thomas Mitchell Drive

Thomas Mitchell Drive is a two lane 7.0 m wide sealed local road under the jurisdiction of the Muswellbrook Shire Council (MSC). At the eastern end it intersects the New England Highway approximately 10 km south-east of Muswellbrook. At the north-western end it intersects Denman Road approximately 4 km south-west of Muswellbrook.

Thomas Mitchell Drive provides access to Mt Arthur Coal (MAC) and the Muswellbrook Industrial Estate, in addition to smaller local roads and private properties. It also provides an access route for some traffic associated with the Bengalla Mine and the Mount Pleasant Project site, and enables vehicles travelling between Denman Road and the New England Highway to bypass the township of Muswellbrook. The speed limit on Thomas Mitchell Drive is 100 km per hour.

2.1.3 New England Highway

The New England Highway is a major state-controlled road under the jurisdiction of the Roads and Traffic Authority (RTA) of NSW. It is a two lane, two-way sealed road with periodic passing lanes. It has a speed limit of 100 km per hour outside urban areas.

2.1.4 New England Highway / Thomas Mitchell Drive Intersection

The intersection of the New England Highway and Thomas Mitchell Drive was upgraded approximately six years ago. It has a rural Type C intersection configuration (Plate 1). The New England Highway has a left turn lane for vehicles decelerating to turn left into Thomas Mitchell Drive and a right turn lane for vehicles turning right into Thomas Mitchell Drive. There is also a left turn lane for vehicles waiting to turn left from Thomas Mitchell Drive onto the New England Highway (northbound).

2.1.5 Denman Road

Denman Road is a two lane 7.0 m wide sealed state road under the jurisdiction of the RTA but maintained by the MSC. It connects the New England Highway at Muswellbrook with the township of Denman to the south-west. The speed limit on Denman Road is 100 km per hour.

2.1.6 Thomas Mitchell Drive / Denman Road Intersection

The intersection of Thomas Mitchell Drive and Denman Road was upgraded approximately three years ago to cater for projected traffic volumes from existing mining operations in the area and the approved Mount Pleasant Project. It has left turn lanes for vehicles decelerating to turn left from Denman Road into Thomas Mitchell Drive, and traffic turning left from Thomas Mitchell Drive into Denman Road. It also has a Type B rural right turn treatment for vehicles turning right from Denman Road into Thomas Mitchell Drive, which provides sufficient width to permit northbound vehicles to pass a stationary right-turning vehicle (Plate 2).

2.1.7 Drayton Mine Access Road

The Drayton Mine Access Road is a private road which intersects Thomas Mitchell Drive approximately 1.1 km from the New England Highway. The Drayton Mine Access Road extends from Thomas Mitchell Drive for a distance of 1.5 km at which point it terminates at the Drayton Mine administration building and car park.

2.1.8 Thomas Mitchell Drive / Drayton Mine Access Road Intersection

The intersection of Thomas Mitchell Drive and the Drayton Mine Access Road includes a Type B deceleration lane for vehicles turning left from Thomas Mitchell Drive, and a Type B rural right turn widening treatment which enables eastbound vehicles to pass decelerating or stationary vehicles turning right into the Drayton Mine Access Road.

2.1.9 Other Local Roads

Other smaller local roads that connect with Thomas Mitchell Drive in the immediate vicinity of the Project Area and may potentially be impacted by the Project include Wire Lane, Balmoral Road and Hassall Road (Figure 1).

Hassall Road joins Thomas Mitchell Drive from the north, approximately 0.1 km west of the New England Highway intersection. It provides access to four private properties, the residents of which have raised some concerns about the safety of the existing intersection, as there is no dedicated right turning lane for traffic entering Hassall Road from Thomas Mitchell Drive.

Wire Lane joins Thomas Mitchell Drive from the north, approximately 3 km west of the New England Highway intersection and 2 km west of the Drayton Mine Access Road intersection. Balmoral Road

runs off Wire Lane approximately 0.4 km north of the Thomas Mitchell Drive intersection. There is some local widening of the road pavement of the westbound lane of Thomas Mitchell Drive in the vicinity of the Wire Lane intersection. This allows westbound vehicles to pass a stationary vehicle waiting to turn right into Wire Lane.

2.2 BASELINE ROAD TRAFFIC VOLUMES

2.2.1 Baseline Traffic Predictions

The most recent study of traffic on Thomas Mitchell Drive and adjoining roads was undertaken as part of the Mount Arthur North Coal Project Environmental Impact Statement (MAN EIS) published in April 2000. The MAC Mine Access Road is located on Thomas Mitchell Drive and the road network affected by it is identical to that of Drayton Mine.

The traffic volumes assessed as vehicles per day (vpd) in the MAN EIS included those for the Mount Arthur Mine, the Drayton Mine and the approved Mount Pleasant Project. The study projected peak traffic volumes on affected roads for the period until 2021. The MAN EIS traffic study therefore provides a relevant assessment of the baseline traffic situation on the road network in the vicinity of the Project Area for the proposed period of the Project.

The 2013 daily traffic volumes in the vicinity of the Project Area, which were forecast as part of the MAN EIS traffic study, have been assumed to be representative of the baseline traffic volumes for the peak traffic generation year for the Project Year 5 and are shown in Table 1.

Table 1
Predicted Base Traffic Volumes (Project Year 5)

Road	Location	Direction	Base Traffic ⁽¹⁾ (vpd)
Thomas Mitchell Drive	West of Drayton Mine Access Road	Eastbound	749
		Westbound	803
New England Highway	North of Thomas Mitchell Drive	Northbound	4,497
		Southbound	4,533
	South of Thomas Mitchell Drive	Northbound	5,059
		Southbound	5,064
Denman Road	North of Thomas Mitchell Drive	Northbound	3,341
		Southbound	3,327
	South of Thomas Mitchell Drive	Northbound	2,958
		Southbound	2,947

(1) From the Mount Arthur North Coal Project EIS (April 2000) Table 13.8 Summary of Daily Traffic Flows During Mine Operation Phase.

2.2.2 Potential Cumulative Road Traffic Generation

At the time this assessment was undertaken a number of other mining projects were at various stages of approval and development in the area south and west of Muswellbrook. These projects range from minor extensions to existing mines, to new mine developments. The current status and the predicted impact of these projects, in the event that they are approved and developed, is summarised in Table 2.

Table 2
Possible Future Traffic Generating Developments in the Vicinity of the Project Area

Project	Location	Approval Status	Project Details / Traffic Generation
Mount Pleasant Mine	Thomas Mitchell Drive	Development consent granted in 2000. Currently undeveloped.	Peak operations workforce of 380 employees predicted in Year 13 ⁽¹⁾ . Forecast traffic which will be generated during construction and operation has been included in the MAN EIS traffic assessment.
Mt Arthur Coal South Pit Extension	Thomas Mitchell Drive	Application anticipated by the end of 2006.	No change in workforce predicted ⁽²⁾ . Traffic impact expected to be negligible.
Mt Arthur Coal Underground Exploration Adit	Thomas Mitchell Drive	Current application.	Minimal increase in workforce for a 2 year period ⁽³⁾ .
Bengalla Mine Modification	Bengalla Link Road	Current application.	An additional 20 employees for the life of the project ⁽⁴⁾ . Minimal impact on road traffic predicted.
Anvil Hill Project	Wybong Road	Current application.	Predicted workforce of 240 employees ⁽⁵⁾ .

(1) Mount Pleasant Mine Environmental Impact Statement prepared in 1997 for Coal and Allied Operations Pty Ltd.

(2) Preliminary Environmental Assessment – Mt Arthur Coal South Pit Extension Project.

(3) Environmental Assessment Proposed Exploration Adit prepared in June 2006 for Mt Arthur Coal.

(4) Statement of Environmental Effects Modifications to Mining Operations prepared in February 2006 for Bengalla Mining Company.

(5) Anvil Hill Project Environmental Assessment prepared in August 2006 for Centennial Hunter Pty. Ltd.

As previously noted, the predicted traffic which will be generated by any future development of the Mount Pleasant Mine has already been included in the baseline traffic data taken from the MAN EIS. The proposed Mt Arthur Coal South Pit Extension and Underground Exploration Adit projects will have little or no impact on the long term traffic volumes in the area. The proposed Bengalla Mine Modification may have a minimal impact on traffic volumes due to a predicted peak workforce increase of 20 persons.

Of all the potential projects in the area, the most significant and sustained impacts on traffic volumes in the area may potentially be caused by the proposed Anvil Hill Project which could employ 240 employees. The potential cumulative impact of this project is discussed further in Section 2.5.8.

2.3 EXISTING ROAD SAFETY STATISTICS

The road accident statistics for Muswellbrook Shire in the vicinity of the Project Area were obtained from the RTA for the period from 2000 to 2005. A summary of these statistics is provided in Table 3.

The statistics indicate that few accidents have occurred on the road network in the vicinity of the Project Area and that there are no recurring road accident trends in the data.

Table 3
Road Accident Statistics 2000 – 2005

Location	Year	Number of Accidents	Number of tow-aways	Number of injured	Number of fatalities
Thomas Mitchell Drive	2000	0	0	0	0
	2001	2	2	4	0
	2002	1	1	0	0
	2003	0	0	0	0
	2004	5	1	4	0
	2005	3	2	1	0
Wire Lane	2000	0	0	0	0
	2001	0	0	0	0
	2002	0	0	0	0
	2003	0	0	0	0
	2004	0	0	0	0
	2005	1	1	0	0
Balmoral Road	2000	0	0	0	0
	2001	0	0	0	0
	2002	0	0	0	0
	2003	0	0	0	0
	2004	0	0	0	0
	2005	0	0	0	0
Intersection of Thomas Mitchell Drive and Wire Lane	2000	0	0	0	0
	2001	0	0	0	0
	2002	1	1	0	0
	2003	0	0	0	0
	2004	0	0	0	0
	2005	0	0	0	0

Location	Year	Number of Accidents	Number of tow-aways	Number of injured	Number of fatalities
Intersection of Thomas Mitchell Drive and New England Highway	2000	1	0	1	0
	2001	0	0	0	0
	2002	0	0	0	0
	2003	0	0	0	0
	2004	1	0	5	0
	2005	1	1	0	0
Intersection of Thomas Mitchell Drive and Denman Road	2000	0	0	0	0
	2001	0	0	0	0
	2002	0	0	0	0
	2003	3	1	1	1
	2004	0	0	0	0
	2005	0	0	0	0

(Data provided by RTA in August 2006. Data for 2005 is preliminary only.)

2.4 EXISTING DRAYTON MINE ROAD TRAFFIC

2.4.1 Existing Workforce Traffic

In 2006 Drayton employed an operational workforce of 340 persons. The residential postcodes of this workforce were analysed and the residential base areas, relative to the town of Muswellbrook, are summarised in Table 4.

Approximately 90% of the existing mine workforce travels to the mine individually by private car. The other 10% travels either as passengers in private cars, or on the mine's bus service to the Lower Hunter area.

The direction from which the employees will most likely approach Thomas Mitchell Drive has been assessed and is also summarised in Table 4. This assessment is based on the following assumptions:

- Employees based in the town of Muswellbrook approach the mine from both directions with an estimated 30% of vehicles approaching on Thomas Mitchell Drive (eastbound) via Denman Road, and 70% approaching on Thomas Mitchell Drive (westbound) via the New England Highway;
- Employees based north of Muswellbrook approach the mine from the east from the New England Highway and then Thomas Mitchell Drive (westbound);
- Employees based south-east of Muswellbrook approach the mine from Thomas Mitchell Drive (westbound) via the New England Highway; and
- Employees based south-west of Muswellbrook approach the mine from Thomas Mitchell Drive (eastbound) via Denman Road.

Table 4
Existing Workforce Residential Location Areas

Residential Location Area	Proportion of total workforce	Direction of approach to Thomas Mitchell Drive
Muswellbrook	42%	30% via Denman Road 70% via New England Highway
North of Muswellbrook	14%	All via New England Highway
South-west of Muswellbrook	5%	All via Denman Road
South-east of Muswellbrook	39%	All via New England Highway

The direction of approach to Drayton Mine from Thomas Mitchell Drive is summarised in Table 5.

Table 5
Existing Workforce Direction of Approach to Drayton Mine

Direction of Approach to Drayton Mine Access Road	Proportion of Total Workforce
From the East on Thomas Mitchell Drive	82%
From the West on Thomas Mitchell Drive	18%

2.4.2 Existing Service and Delivery Vehicle Traffic

In 2005 Drayton produced 4.65 Mt of saleable coal, and in 2006 the forecast coal production is 5.5 Mt. Mine operation associated with this production generates service and delivery vehicle movements to the site for the delivery of:

- Diesel fuel;
- Explosives;
- Large equipment (cranes, earthmoving equipment);
- Small equipment (hoses, spare parts etc);
- Couriers; and
- Office supplies.

Delivery vehicles include the following:

- Light vehicles, such as cars and utes (Austroads classes 1 and 2);
- Single unit vehicles, such as vans, small trucks, buses and some trucks (Austroads classes 3, 4 and 5); and
- Articulated vehicles, such as semi-trailers (Austroads classes 6 to 12).

Commercial and heavy vehicles include single unit and articulated vehicles. A summary of service and delivery vehicle traffic volumes surveyed during a typical week of mine operations in July 2006 is provided in Table 6.

Table 6
Typical Weekly Service and Delivery Vehicle Traffic to Drayton Mine (2006)

Delivery Type	Light Vehicles	Single Unit	Articulated
Fuel	0	2	11
Equipment	0	70	3
General Contractors, earthmoving etc	25	20	0
Office deliveries, couriers	9	19	0
Security patrols	11	0	0
Total	45	111	14

The points of origin of the service and delivery vehicles include the town of Muswellbrook, the Muswellbrook Industrial Estate and other bases in the local area. For the purpose of this study, it has been estimated that 80% of service and delivery vehicles will approach the Drayton Mine Access Road from the east, from the New England Highway via Thomas Mitchell Drive. The remainder will approach along Thomas Mitchell Drive from the west.

Therefore the total average daily volume of service and delivery vehicles travelling to the Project Area, and the direction of approach to the Mine Access Road, are summarised in Table 7. All service and delivery visits have conservatively been assumed to occur on a weekday.

Table 7
Average Daily Service and Delivery Vehicle Traffic and Direction of Approach to Drayton Mine (2006)

Direction of Approach to Drayton Mine Access Road	Existing Daily Service and Delivery Vehicle Volumes		
	Light vehicle	Single Unit	Articulated
From the East on Thomas Mitchell Drive	7	18	2
From the West on Thomas Mitchell Drive	2	4	1
Total	9	22	3

2.5 ROAD TRAFFIC IMPACT ASSESSMENT

2.5.1 Introduction

This section summarises the road traffic impact assessment for the Project. It includes assessment of the following:

- Traffic predicted to be generated during the construction phase of the Project;
- Traffic predicted to be generated during the operations phase of the Project;
- Impact of the Project on road traffic volumes;
- Impact of the Project on the level of service on the road network; and
- Impact of the Project on intersections and local roads.

2.5.2 Construction Phase Road Traffic Generation

The construction phase of the Project will have minimal impact on the public road network, as the construction works are relatively minor and will be completed within a short time frame. Upgrade of the CHP is estimated to take approximately eight weeks, during which time the construction workforce will range from approximately 12 to 24 persons. Construction of the new product stockpile will commence following this and will take approximately 12 weeks to construct. It will require a construction workforce of approximately 12 persons.

During construction, all necessary equipment and machinery deliveries will access the Project Area via the existing Drayton Mine Access Road. There will be a slight increase in road traffic to the Project Area due to the temporary construction workforce and the transport of construction materials and equipment. However this will not result in any significant impact on the affected road network which has more than sufficient capacity for this minor increase in traffic volumes. The temporary traffic increase due to the construction phase will be less than the additional peak traffic volumes which will be generated during operation of the Project. Therefore traffic generation during the construction period has not been evaluated further.

2.5.3 Operations Phase Road Traffic Generation

Project Workforce Traffic

The predicted total operational workforce of the Project will peak at approximately 388 persons in Project Year 5. This includes the Project's peak additional operational workforce of 59 persons, and is still below the originally approved Drayton workforce of 430 persons.

The additional workforce will live locally and will travel to site daily. It is assumed that the Project workforce travel arrangements will remain the same as for the existing workforce with approximately 90% of employees travelling to site alone in their own car. The remaining 10% will car-pool or travel to site by bus from the Lower Hunter Region.

The additional workforce will comprise staff and rostered employees with the majority working day shifts. Approximately 30% of the workforce will be rostered on day and night shifts. As a result, the peak number of vehicle trips to the Project Area generated by the additional workforce has conservatively been assumed to occur on a weekday when the maximum number of staff and shift employees travel to the site.

On this basis the project workforce has been conservatively predicted to generate an additional 38 private vehicles travelling to and from the Project Area each day. Assuming that the residential locations for the additional workforce will be similarly distributed as for the 2006 mine workforce (Table 4), the volume of additional vehicles and the direction of travel to the mine of this additional workforce at peak operations will be as shown in Table 8.

Table 8
Predicted Peak Additional Daily Workforce Traffic Volumes (Project Year 5)

Direction of Approach to Drayton Mine Access Road	Additional Vehicles
From the East on Thomas Mitchell Drive	31
From the West on Thomas Mitchell Drive	7

Project Service and Delivery Vehicle Traffic

There will be an increase in the number of service and delivery vehicle movements to the site associated with the Project. When the operations reach peak production in Project Year 5, this increase is predicted to be in the order of 15% of the existing mine service and delivery traffic movements summarised in Table 6 and Table 7, based on the increase in production rate and site delivery experience. The predicted additional volumes of these vehicles and the direction of travel to the Project Area are summarised in Table 9.

Table 9
Predicted Peak Additional Daily Service and Delivery Vehicle Traffic Volumes (Project Year 5)

Direction of Approach to Drayton Mine Access Road	Predicted Daily Service and Delivery Vehicle Volumes		
	Light Vehicle	Single Unit	Articulated
From the East on Thomas Mitchell Drive	1	3	< 1
From the West on Thomas Mitchell Drive	0	1	0
Total	1	4	< 1

Total Project Operations Traffic

The predicted total additional peak daily traffic volumes on Thomas Mitchell Drive due to the Project are summarised in Table 10. Heavy vehicles include vehicles in the single unit and articulated vehicle

categories and comprise less than 13% of the additional vehicle movements predicted on Thomas Mitchell Drive in Project Year 5.

Table 10
Total Peak Additional Daily Traffic Volumes (Project Year 5)

Direction of Approach to Drayton Mine Access Road	Total Predicted Additional Vehicle Volumes			
	Light Vehicle	Single Unit	Articulated	Total
From the East on Thomas Mitchell Drive	32	3	< 1	36
From the West on Thomas Mitchell Drive	7	1	0	8
Total	39	4	< 1	44

2.5.4 Impact on Road Traffic Volumes

Predicted peak total daily traffic volumes on local roads impacted by the Project are shown in Table 11. The predicted traffic volumes are for Project Year 5 which is the year of peak traffic generated by the Project. These traffic volumes have been calculated by adding the peak additional project traffic volumes for Project Year 5 (Table 10) to the baseline traffic volumes for Project Year 5 (Table 1) from the MAN EIS.

Table 11
Predicted Traffic Volumes at Peak Project Operation (Project Year 5)

Roads	Location	Direction	Base Traffic (vpd)	Project Traffic (vpd)	Total (vpd)	Project Increase
Thomas Mitchell Drive	West of Drayton Mine Access Road	Eastbound	749	8	757	1.1%
		Westbound	803	8	811	1.0%
	East of Drayton Mine Access Road	Eastbound ⁽¹⁾	915	36	951	3.9%
		Westbound ⁽¹⁾	969	36	1,005	3.7%
New England Highway	North of Thomas Mitchell Drive	Northbound	4,497	19	4,516	0.4%
		Southbound	4,533	19	4,552	0.4%
	South of Thomas Mitchell Drive	Northbound	5,059	17	5,076	0.3%
		Southbound	5,064	17	5,081	0.3%
Denman Road	North of Thomas Mitchell Drive	Northbound	3,341	6	3,347	0.2%
		Southbound	3,327	6	3,333	0.2%
	South of Thomas Mitchell Drive	Northbound	2,958	2	2,960	0.1%
		Southbound	2,947	2	2,949	0.1%

(1) The MAN Coal Project EIS did not estimate traffic volumes on Thomas Mitchell Drive east of the Drayton Mine Access Road. Therefore these base traffic volumes have been estimated based on knowledge of existing Drayton Mine traffic volumes.

From Table 11 it can be seen that the Project's greatest impact will be on Thomas Mitchell Drive traffic volumes. Traffic volumes on Thomas Mitchell Drive have been predicted to increase by a maximum of 3.9% per day east of the Drayton Mine Access Road.

Heavy Vehicle Traffic

The greatest increase in heavy vehicle traffic volumes predicted for the Project at peak operation will occur on Thomas Mitchell Drive and will not exceed five heavy vehicle movements per day in either direction. The MAN EIS predicted the baseline heavy vehicle traffic volume on Thomas Mitchell Drive as 14% eastbound and 16% westbound. The additional heavy vehicle traffic predicted on the local road network due to the Project will be minor.

2.5.5 Impact on Level of Service

The level of service on a road is defined in the Austroads Guidelines as a qualitative measure of the operational conditions within a traffic stream, as perceived by motorists and passengers. The level of service categories generally describe the conditions in terms of factors which include speed and travel time, freedom to manoeuvre, traffic interruptions, comfort, convenience and safety. There are six levels of service ranging from A to F. Level A represents the best operating condition of free flow, virtually unaffected by the presence of other vehicles. Level F represents the worst with forced or break-down flow.

From Table 11 it can be seen that the predicted peak traffic volumes generated by the Project will result in a minor increase in traffic volumes. The maximum increase of 3.9% will occur on Thomas Mitchell Drive with predicted volume increases on the New England Highway and Denman Road in the order of 0.3% and 0.4%, or less. The predicted levels of service corresponding to these traffic increases on roads in the vicinity of the Project Area have been estimated in accordance with the Austroads Guidelines and are summarised in Table 12. There will not be any change in the level of service on the local road network due to the Project.

Table 12
Predicted Levels of Service (Project Year 5)

Road	Location	Predicted AADT with the Project ⁽¹⁾	Predicted Level of Service
Thomas Mitchell Drive	West of Drayton Mine Access Road	1,568	B
	East of Drayton Mine Access Road	1,956	B
New England Highway	North of Thomas Mitchell Drive	9,068	D
	South of Thomas Mitchell Drive	10,157	D
Denman Road	North of Thomas Mitchell Drive	6,680	C
	South of Thomas Mitchell Drive	5,909	C

(1) AADT is Average Annual Daily Traffic Volume and represents the combined traffic volume in both directions.

2.5.6 Impact on Intersections

The intersection of Thomas Mitchell Drive with the New England Highway is a rural Type C intersection configuration. It has adequate capacity to accommodate the predicted 36 additional vehicles per day in each direction due to the Project, of which 32 are light vehicles.

The intersection of Thomas Mitchell Drive with Denman Road is also a rural Type C intersection configuration. It has adequate capacity to accommodate the predicted increase of approximately 8 additional vehicles per day in each direction due to the Project.

The intersection of Thomas Mitchell Drive with the Drayton Mine Access Road has adequate capacity to accommodate the turning movements of the predicted 44 additional vehicles per day in each direction along the Drayton Mine Access Road due to the Project.

2.5.7 Impact on Local Roads

As noted in Table 11 the maximum predicted peak increase in traffic on Thomas Mitchell drive due to the Project will be approximately 3.9% east and 1.1% west of the Drayton Mine Access Road.

Vehicles accessing Hassall Road may experience a slight increase in waiting time due to this increase in traffic however this is likely to be restricted to the weekday morning and afternoon peak hours. Vehicles accessing Wire Lane west of the Drayton Mine Access Road will experience only very slight delays due to the maximum 1.1% increase in traffic volumes in this area.

2.5.8 Cumulative Road Traffic Impacts

As noted in Section 2.2.2, there are some proposed development projects in the vicinity of the Project Area which may have an impact on future road traffic generation in the area. The only project that could potentially contribute to significant cumulative traffic impacts on roads relevant to Drayton is the Anvil Hill Project. This project site is located at least 20 km by road from Drayton.

In order for any cumulative impacts to eventuate from the Anvil Hill Project it would need to be approved and developed, and the Bengalla Link Road would need to be extended through to Wybong Road. This project is currently at development application stage so there is no certainty as to when these events may occur.

The Anvil Hill Project Environmental Assessment made the following assumptions regarding future traffic flows in the area:

- Traffic to/from Wybong Road generated by the Anvil Hill Project will be directed to use the planned extension of the Bengalla Link Road;

- 66% of the traffic generated by the Anvil Hill Project will travel via Bengalla Link Road to/from Denman Road, at which point 63% will travel to/from Muswellbrook and 3% will travel to/from Denman; and,
- Approximately 20% of the additional traffic predicted to be directed onto Denman Road will also travel on Thomas Mitchell Drive. (This represents approximately 10 additional vehicles per hour each way on Thomas Mitchell Drive at peak travel times).

The Anvil Hill Project traffic study concluded that, in the event that the Bengalla Link Road extension is constructed, and the conservatively estimated traffic volumes are generated along it, both the existing Bengalla Link Road / Denman Road intersection and the Thomas Mitchell Drive / Denman Road intersections will have adequate capacity to cope with the increased road traffic volumes with only minimal increases in vehicle waiting times.

Therefore there will not be any potential significant adverse cumulative traffic impacts, in the event that the Anvil Hill Project is developed in the future.

3.0 COAL TRANSPORT

3.1 EXISTING COAL TRANSPORT

Drayton currently produces coal for both export and domestic markets. Export coal is railed to the Port of Newcastle via the Drayton Rail Loop, the Antiene Rail Spur and the Main Northern Railway Line, in accordance with the Antiene Rail Spur development consent (DA 106-04-00) (Figure 1). Domestic coal is transported directly to the Bayswater Power Station by overland conveyor.

3.2 PROJECT COAL TRANSPORT

3.2.1 Coal Transport by Rail

Coal produced by the Project at Drayton will not be hauled on public roads. Coal produced for export sale will continue to be railed to the Port of Newcastle via the Drayton Rail Loop, the Antiene Rail Spur and the Main Northern Railway Line, in accordance with the existing Antiene Rail Spur development consent. This consent approves transportation of 7 Mtpa coal along the Drayton Rail Loop and a peak number of train movements of 12 per day. On this basis, up to 7 Mtpa of product coal will be transported by rail to the Port of Newcastle.

3.2.2 Coal Transport by Overland Conveyor

There will be no change to the current arrangements for the transport of coal by overland conveyor. The remainder of the coal not railed to the Port of Newcastle for export will be transported via the existing overland conveyor to Macquarie Generation's Bayswater Power Station.

3.3 COAL TRANSPORT IMPACTS

All additional rail haulage of coal produced by the Project will be undertaken in accordance with existing development consents.

4.0 SUMMARY AND MITIGATION

4.1 SUMMARY OF IMPACTS

The Project will generate relatively minor additional traffic volumes on public roads in the vicinity of the Project Area. No adverse traffic impacts are predicted on the affected road network, taking into account the cumulative traffic impacts of other potential mine developments in the area.

The traffic impacts predicted due to the Project are summarised as follows:

- No significant increase in road traffic generated due to construction;
- A maximum 3.9% increase in road traffic generated on Thomas Mitchell Drive between the Drayton Mine Access Road and the New England Highway due to the Project at peak operation;
- A maximum 1.1% increase in road traffic generated on Thomas Mitchell Drive between the Drayton Mine Access Road and Denman Road at peak operation;
- No predicted change in the level of service on roads in the vicinity of the Project; and
- An increase in the quantity of coal to be railed on the Antiene Rail Spur and Main Northern Railway Line, in accordance with the existing development consent for the rail facility.

The construction phase of the Project will have a very minor and short term impact on traffic generation. Operation of the Project will generate slight increases in vehicular traffic, of predominantly single unit vehicles. Mine traffic will continue to approach the site via Thomas Mitchell Drive from either the New England Highway or Denman Road. All affected roads have the capacity to convey the predicted increases in traffic volumes without a discernible change in the level of service.

The two major public road intersections used by traffic travelling to the mine via Thomas Mitchell Drive are at the New England Highway and Denman Road. Both of these intersections have been upgraded in recent years to increase capacity, decrease delay times and improve safety. Both have adequate capacity to convey the minor increases in traffic volumes predicted due to the Project. The intersection of the Drayton Mine Access Road with Thomas Mitchell Drive is also adequate to accommodate the predicted increase in traffic volumes.

On this basis the existing transport network in the vicinity of the Project Area has been assessed as having adequate capacity for the predicted minor increases in road and rail traffic volumes which will be generated by the Project.

4.2 TRAFFIC MANAGEMENT MEASURES

No road improvement works are necessary as a result of the traffic and transport impacts of the Project. However the following ongoing traffic management measures will be continued:

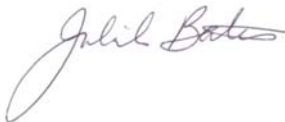
- Consultation with the RTA and other local authorities as necessary prior to the movement of oversize loads on public roads; and
- Continued encouragement of carpooling amongst the mine workforce.

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for
HANSEN BAILEY

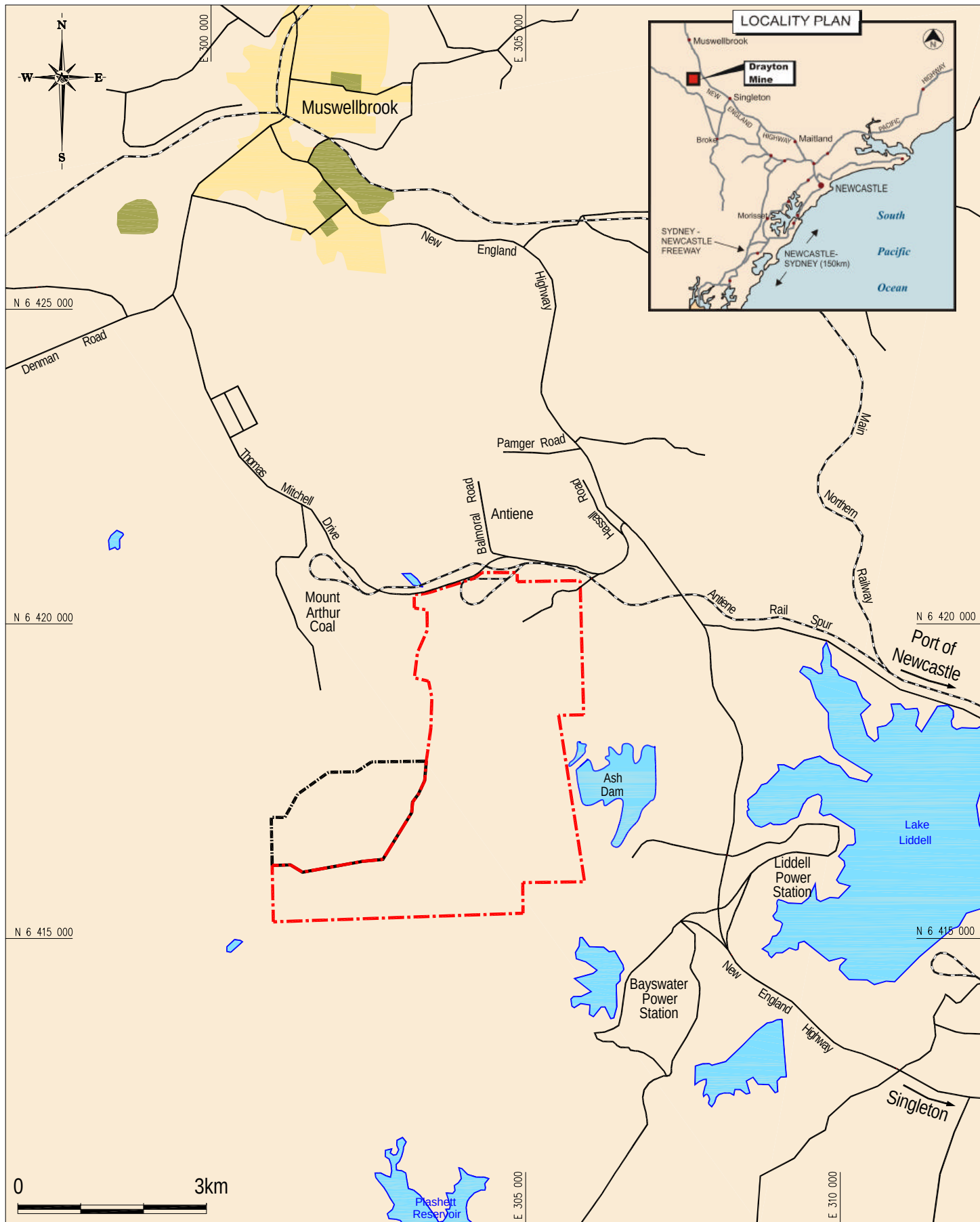


Juliet Bates
Senior Civil Engineer



Peter Hansen
Principal Environmental Engineer

FIGURES



Legend - EA Boundary - MAC Sublease - Roads - Railways    Co-ordinate System: MGA Zone 56	DRAYTON MINE EXTENSION EA Regional Transport Network <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 2px 5px;">Cad File: 01746E.dwg</td> <td style="padding: 2px 5px;">Date: 12.03.2007</td> <td style="padding: 2px 5px;">Drawn: JD</td> <td style="text-align: center; padding: 5px;"> Figure 1 </td> </tr> </table>		Cad File: 01746E.dwg	Date: 12.03.2007	Drawn: JD	Figure 1
Cad File: 01746E.dwg	Date: 12.03.2007	Drawn: JD	Figure 1			

PLATES



Plate 1

North view along the New England Highway with Thomas Mitchell Drive intersecting at the left.



Plate 2

North-east view along Denman Road with Thomas Mitchell Drive intersecting at the right.

APPENDIX A

Reference Document List

REFERENCES

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