Environmental Assessment

Existing Operations &
Increased Road Receival Hours
for Port Kembla Coal Terminal

Volume i
Main Report

Prepared for:
Port Kembla Coal Terminal

September 2008

PKCT
PORT KEMBLA COAL TERMINAL

Cardno
Forbes Rigby
Shaping the Future

STATEMENT OF CERTIFICATION

Environmental Assessment prepared under
Part 3A of the Environmental Planning and Assessment Act 1979

Environmental Assessment Prepared by:

Name:	David Laing
Company:	Cardno Forbes Rigby Pty Ltd
Position:	Environmental Planner (Project Director)
Qualifications:	B.Nat.Res, Grad Dip URP, Grad Dip Nat Res Law MPIA CPP, MNELA, MEIA
Address:	278 Keira Street Wollongong NSW 2500

Project to which the Environmental Assessment relates:

Project Description:	Continued operation of the existing Port Kembla Coal Terminal and increase in receival hours for coal delivered by public road to 24 hours a day, 7 days a week for a maximum of 10mtpa.

Applicant's Name:	Port Kembla Coal Terminal
Applicant's Address:	Port Kembla Road Inner Harbour Wollongong NSW 2500

Certification:

I certify that I have prepared this Environmental Assessment and to the best of my knowledge:

- It has been prepared in accordance with Part 3A of the EP&A Act 1979 and the Regulations
- It has been prepared in accordance with the Director General Requirements dated 26 February 2008
- It does not contain information that is either false or misleading.

Signature:

Date: 9/9/08

VOLUME 1 of 2

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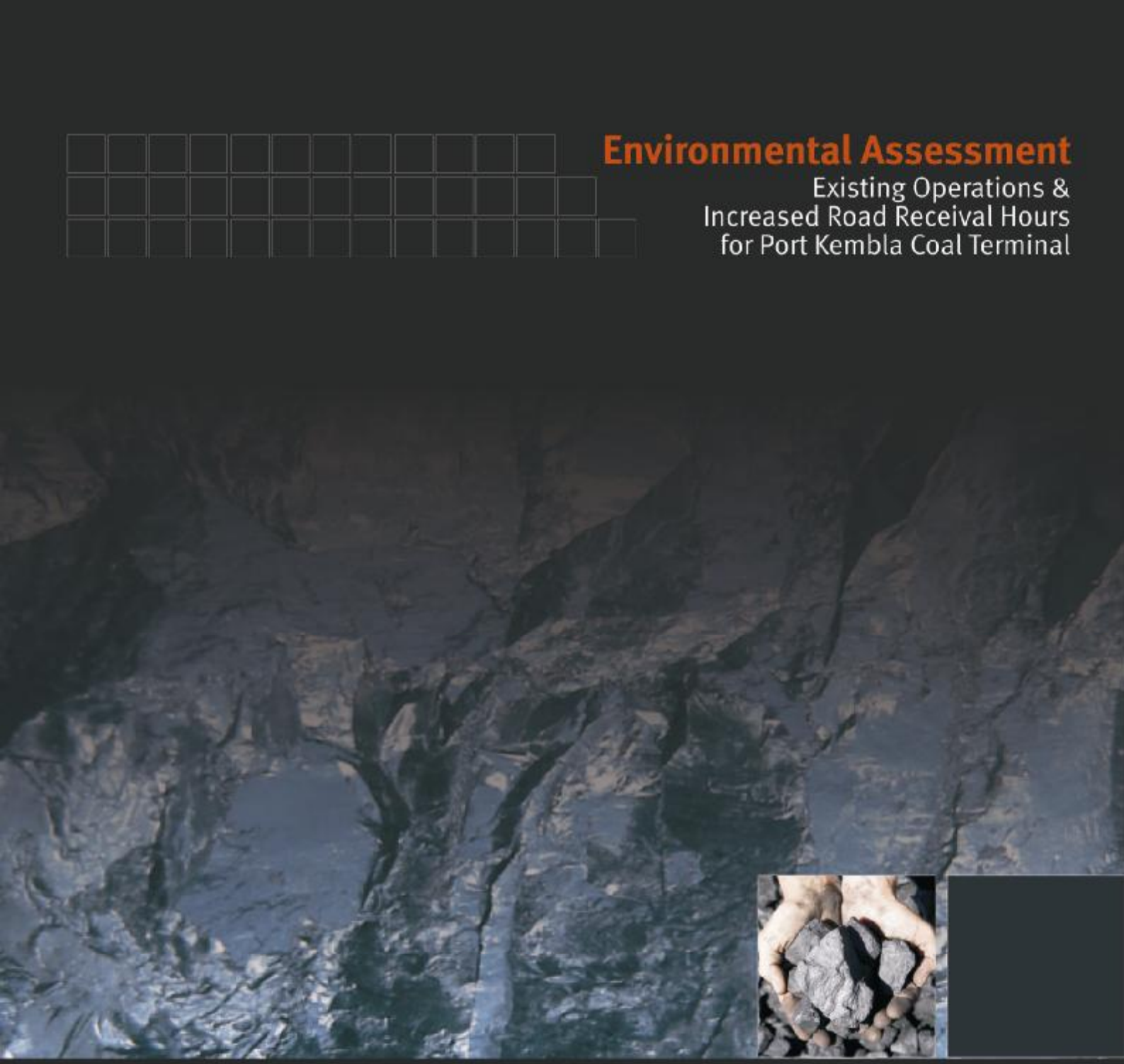
Environmental Assessment

Existing Operations &
Increased Road Receival Hours
for Port Kembla Coal Terminal



Introduction

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1. INTRODUCTION

This section describes the background to the proposal, the history of site controls and reasons for the change.

1.1. PURPOSE OF ENVIRONMENTAL ASSESSMENT

This Part 3A Application includes a review of the existing Port Kembla Coal Terminal (PKCT) operations. It also assesses a new proposal to enable coal deliveries to PKCT 24 hours per day, 7 days per week (24/7) by public road to a maximum of 10 million tonnes per annum (mtpa).

The purpose of this Environmental Assessment (EA) is therefore to:

Describe and assess environmental impacts from existing PKCT operations. Describe the proposal to enable PKCT to receive 24/7 deliveries of coal via public road up to a maximum of 10mtpa and assess environmental impacts. Where necessary, identify relevant measures to adequately mitigate environmental impacts.

This EA will provide DoP and other stakeholders with a document, which details the type and extent of existing operations and assesses environmental impacts from these activities. Further detail on key environmental impacts is provided in specialist reports, which can be found in the Appendices to this report.

1.2. AIMS OF ENVIRONMENTAL ASSESSMENT

This EA aims to demonstrate:

- Existing PKCT operations do not have a significant impact on the built or natural environment
- Existing PKCT environmental impact mitigation measures are sufficient to accommodate the proposal to increase road deliveries of coal by public road 24/7 up to 10mtpa and ensure acceptable environmental outcomes

1.3. SCOPE OF ENVIRONMENTAL ASSESSMENT

The scope of this EA is to discuss the extent of environmental impacts from existing PKCT operations and assess any increase from the proposal relating to the following environmental areas:

1. Air quality
2. Traffic
3. Noise
4. Surface water
5. Climate change & energy use
6. Waste
7. Visual
8. Land use
9. Flora & fauna
10. Indigenous and European heritage.

Director General Requirements (DGR) direct the scope of an EA. The DGR specifies points 1 to 5. Points 6 to 10 are additional environmental issues, which are included in the scope, as PKCT identifies them as relevant to a full review of existing operations.

1.4. DIRECTOR GENERAL'S REQUIREMENTS

Before release of the DGR, DoP consulted with the following public authorities:

- Department of Environment & Climate Change (DECC)
- Department of Premier & Cabinet (DPC)
- Department of Primary Industries (DPI).

Issues identified for consideration by these authorities are included within the DGR. **Table 1.1** lists the DGR and shows where each matter is discussed in this document. The DGR and associated information from the public authorities consulted by DoP are in **Appendix A**.

Table 1.1 – Director General Requirements

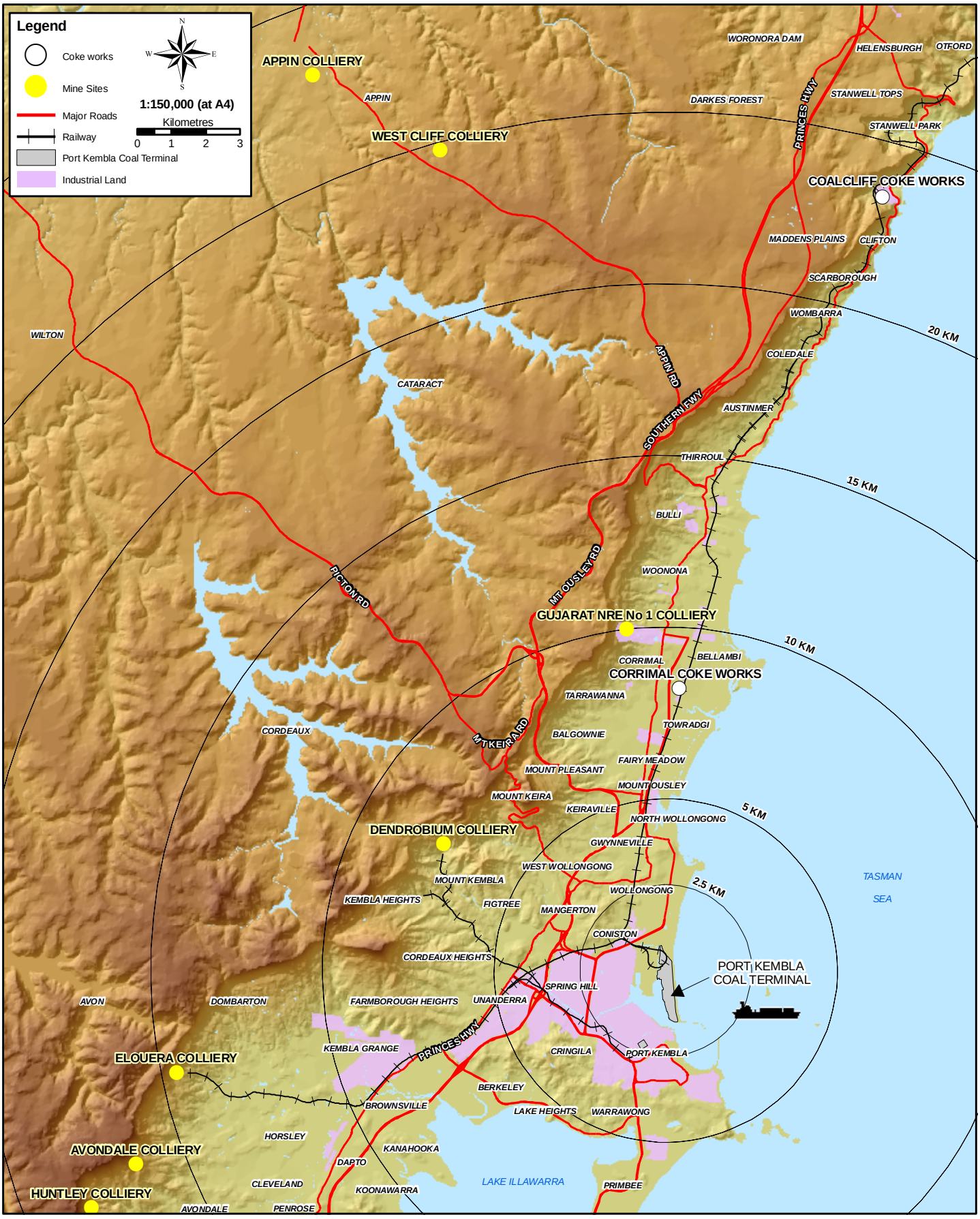
Requirement	Where Addressed in this Report
An executive summary	Included directly after the content pages.
A historical overview of the terminal's operations, including a detailed description of the existing and approved operations, all relevant statutory approvals, and the current regime for environmental management and monitoring on site.	Historical overview **- Section 1.5** Relevant statutory approvals - **Section 1.6** Existing & approved operations - **Section 4** Current environmental management & monitoring on site – **Section 4.3, 6 & 7**
A detailed description of the project, including the: • Need for the project • Alternatives considered • Plans for any building works • Various components and stages of the project.	Need **- Section 8.1** Alternatives **- Section 8.2** No building works proposed – **Section 4.4.2** Components & staging **- Section 4.4.6**
Consideration of any relevant statutory provisions, including whether the project is consistent with objectives of the *Environmental Planning & Assessment Act 1979.*	**Section 2**

A general overview of the environmental impacts of the proposal, identifying key issues for further assessment, and taking into consideration issues raised during consultation.	**Section 6.3**
Detailed assessment of key issues specified below, and any other significant issues identified in the general overview of environmental impacts of the proposal (see above), which includes: • A description of the existing environment; • An assessment of the potential impacts of the proposal including any potential cumulative impacts; • A description of the measures that would be implemented to avoid, minimise, mitigate, offset, manage and/or monitor the impacts of the proposal.	**Section 6 & 7**
Statement of Commitments, outlining the proposed environmental management, mitigation and monitoring measures.	**Section 9**
Conclusion justifying the project, taking into consideration the environmental social and economic benefits of the project.	**Section 10**
Signed statement from the author of the Environmental Assessment certifying that the information in the report is neither false nor misleading.	Included directly after the front cover.
Key Issues as detailed below	
Air Quality – including site dust and other emissions.	**Section 6.4**
Traffic – including the rationale for the use of road transport, details of traffic types and volumes likely to be generated; assessment of predicted impacts on road safety and the capacity of the road network.	**Section 6.5**
Noise – including site and traffic noise.	**Section 6.6**
Water – including stormwater management and discharges from the project site.	**Section 6.7**
Greenhouse Gas & Energy Efficiency – including quantified assessment of greenhouse gases likely to be generated by the proposal, and a description of the measures that would be implemented to ensure the terminal is energy efficient.	**Section 6.8**
Consultation, in particular with: • Department of Environment and Climate Change • Department of Primary Industries (Fisheries) • Roads and Traffic Authority • Wollongong City Council.	**Section 3**

1.5. PKCT BACKGROUND

PKCT is located on Lots 2, 200, 2005 and 2006 in DP 1030233 in the Inner Harbour of Port Kembla, near Wollongong (see **Figure 1**).

PKCT land is owned by the Port Kembla Port Corporation (PKPC) and is leased to PKCT under a 20 year, plus 20 year option. PKPC have reviewed current port operations and have commissioned a Masterplan for the site to co-ordinate existing and proposed developments. The 24/7 operation of the port allows flexibility to service customers and assist with the continued economic success of the port. PKCT already operates on a 24/7 basis and now seeks approval to receive deliveries in accordance with the same conditions regulating other port businesses and their hours of operation.



PKCT Geographical Location

PORT KEMBLA COAL TERMINAL

FIGURE 1

PKCT
PORT KEMBLA COAL TERMINAL

Cardno Forbes Rigby

Map Produced by Cardno Forbes Rigby
Date: 22 May 2008
Coordinate System: Zone 56 MGA/GDA 94
GIS MAP REF:
108004-01_1801_Existing_Operations_A4_rev P1.mxd

PKCT is owned by five equal shareholders, namely BHP Billiton Illawarra Coal, Oakbridge (Xstrata Coal), Centennial Coal, Tahmoor Coal and Metropolitan Collieries (Peabody). BHP Billiton has managed the coal terminal since 1990.

Extensive road and rail infrastructure service PKCT. Currently, PKCT receives and transfers to ship nearly 12 million tonnes of coal per annum (financial year ended 2007), with approximately 43% delivered by road and the remaining 57% by rail. In addition, 540,000 tonnes of bulk products were shipped in financial year ended June 2007, including coke and slag. All of the coal received is loaded onto ships with approximately 93% destined for export and 7% for the domestic market (see **Figure 2**).

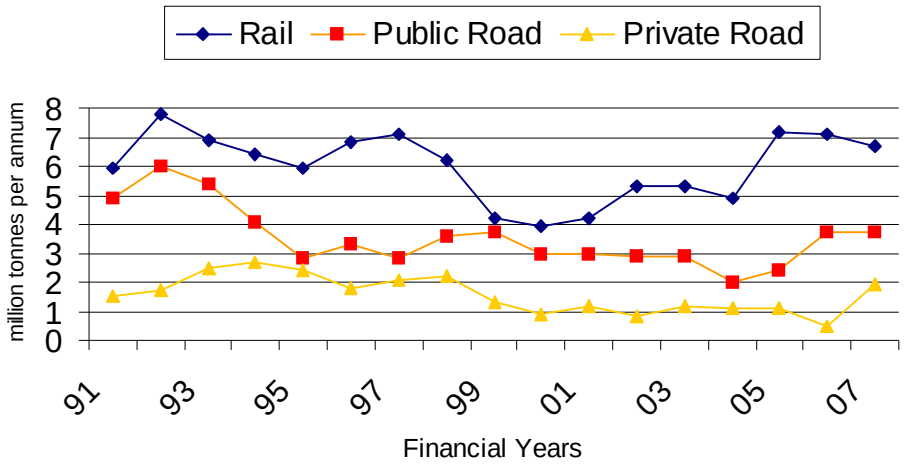
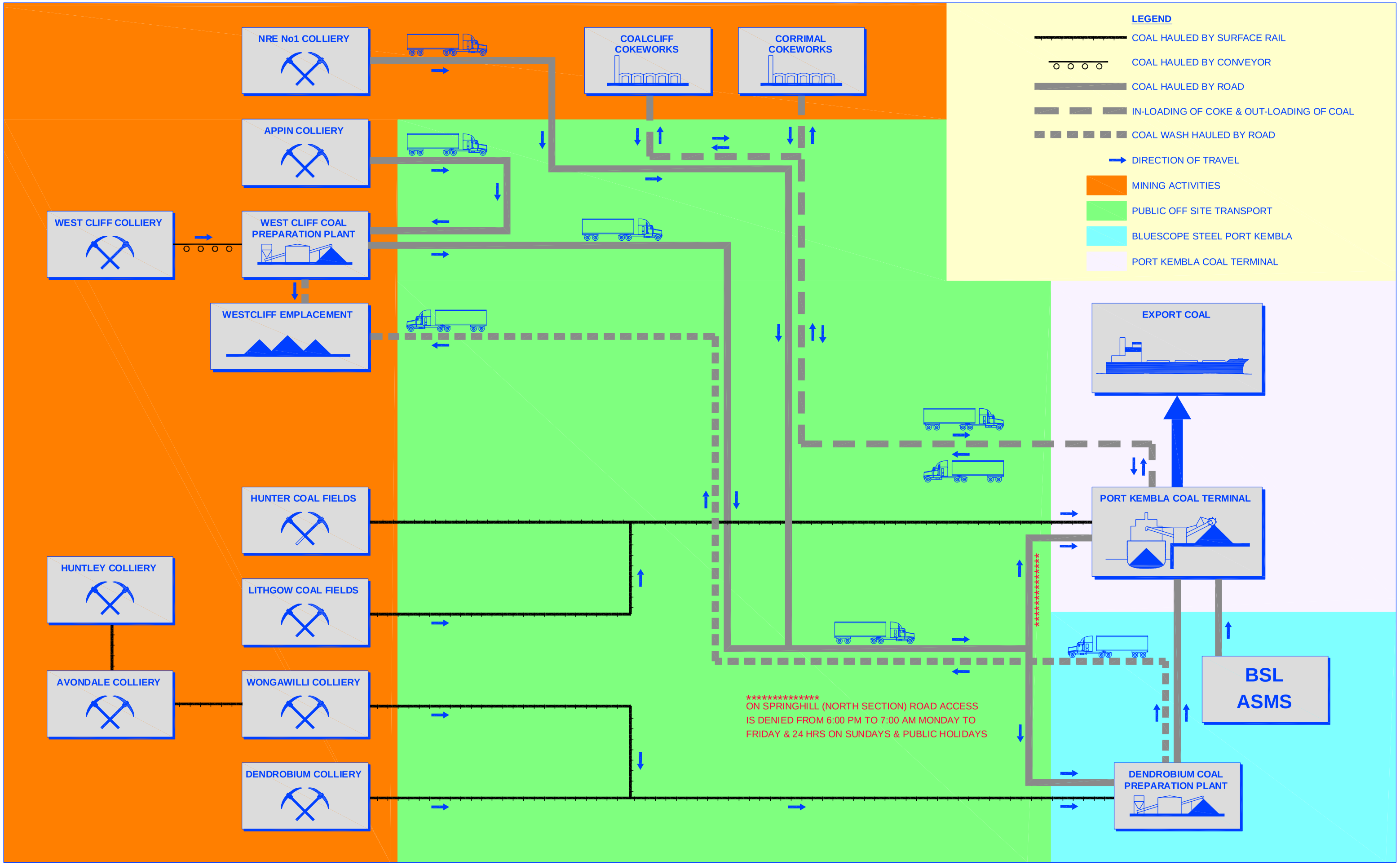


Figure 2 - Record of PKCT Annual Throughput

PKCT is the major coal intermodal facility in southern NSW for the transfer of coal from rail and road to ship. The terminal is responsible for receiving, assembling and loading coal from the Southern and Western New South Wales coalfields, for transport by ship to international and domestic markets (see **Figure 3**). PKCT has two bulk handling facilities; a high capacity Coal Berth that handles the loading of coal, and a Bulk Products Berth that loads and unloads a range of bulk products.

PKCT is the key link in the global coal supply chain for the Illawarra and Lithgow areas yet throughput is restricted due to controls on the receival of coal by public road. This restriction is contained in State Environmental Planning Policy (Infrastructure) 2007 (the Infrastructure SEPP) and it is this which PKCT is seeking to have removed. This would allow the Coal Terminal to receive freight by public road 24/7, which is consistent with other operations in the PKPC precinct.



SCHEMATIC PROCESS DIAGRAM

PORT KEMBLA COAL TERMINAL OPERATIONS

FIGURE - 03

CFR REF 108004 - 02

1.6. LEGISLATIVE CONTEXT

1.6.1. Development Application

PKCT currently operates under consent conditions attached to its 1979 Development Approval (No. 79/44) which contains 17 conditions which:

- Control rail delivery and related activities
- Control road delivery and related activities
- Require the provision of coal truck and PKCT vehicle washing facilities
- Dust monitoring and suppression measures
- Conveyor system for the transportation of coal within the PKCT premises
- Movement of sand and deposition of dredged materials relating to the construction of the facility
- Retention in good order of all environmental mitigation measures
- Compliance with other relevant legislation.

A copy of this approval is located in **Appendix B**.

This Part 3A application seeks approval to supersede and replace this Development Consent through the assessment of existing PKCT operations in addition to the impacts from the proposed change to 24/7 public road deliveries up to a maximum of 10mtpa.

If DoP approve this Part 3A application PKCT will liaise with Wollongong City Council to repeal DA 79/44.

1.6.2. State Environmental Planning Policy (Infrastructure) 2007

The Infrastructure SEPP has superseded three conditions in the PKCT 1979 DA in relation to road haulage. This limits the hours in which PKCT may receive coal deliveries by public road to between 7am and 6pm on Monday to Saturday (11/6) and none on a public holiday. Based on a time trial of maximum throughput during 11/6 operations this restriction constrains PKCT's maximum capacity to receive coal by public road to 5.2mtpa.

PKCT is seeking approval to repeal Section 73 of the Infrastructure SEPP, which relates directly to PKCT and controls coal delivery by road. This will ensure that the Infrastructure SEPP does not unfairly or unreasonably affect the NSW coal industry and regional economic development, and that consistent regulations are applied to all port of Port Kembla precinct operations.

1.6.3. SEPP (Major Projects) 2005

DoP gazetted this proposal as a Major Project on 21 December 2007. Consequently, the Minister for Planning is the consent authority.

The Preliminary Environmental Assessment (PEA) was submitted to DoP on 31 October 2007, and provided a brief outline of the existing, approved and proposed development; an overview of the community and environment context; an environmental risk analysis; and identified key issues proposed to be addressed in the EA for the change to 24/7 public road receival access to PKCT.

Following consideration of the PEA and consultation with relevant government agencies, DoP provided the DGR (as included in **Section 1.4**) on 1 February 2008 for preparation of the EA.

1.6.4. Environmental Protection Licence

PKCT currently holds Environmental Protection Licence (EPL) 1625 issued by DECC under the Protection of the Environment Operations Act 1997 (for further detail on this legislation see **Section 2.2.2** below). EPL 1625 is due for review on 19 August 2009. This Licence sets responsibilities which PKCT must abide by to ensure their actions do not have a significant impact on the local environment.

EPL 1625 regulates PKCT's discharges to air, water and land and controls the operating conditions. PKCT monitors their operations and provides annual reports to DECC to ensure compliance with EPL 1625.

1.7. STRATEGIC CONTEXT

The Illawarra is a unique region situated between an escarpment and coastline, which supports a strong industrial and mining economy. The Illawarra region supports several coal mines with PKCT as the point of export for the Illawarra, Wollondilly and Lithgow region's coal output. According to the NSW Department of Primary Industries:

- "Coal is the single largest export from NSW"
- "The total value of NSW coal exports in 2006-07 was around $6.2 billion"
- "The value of coal exports from the Southern Coalfields in 2006-07 was estimated at about $700 million".

The Southern Coalfields represent approximately 60% of the total coal exported through PKCT. When combined with the Western Coalfields, it is estimated that the total value of coal exports through PKCT is approximately $1.2 billion (2006-07).

PKCT is an integral part of Illawarra's and NSW's mining infrastructure. The operation of PKCT results in the company directly employing 89 people. The location of PKCT in Wollongong has an employment and economic flow-on effect for the region. It is estimated that a further 34 contractors are employed on a full-time equivalent basis at PKCT, as well as the multiplier effects into the region.

The aims of the Illawarra Regional Strategy 2006 show that the NSW State Government understand the importance of the port of Port Kembla to the economic viability of the Illawarra. The strategy advises that export opportunities presented by the Port and protection of existing and proposed transport corridors to support freight transport can strengthen the regions economy.

DoP released The Illawarra Regional Strategy 2006-31 in January 2007. As detailed in **Section 2.6.3,** this seeks continued improvement in economic viability of the Illawarra region and considers industry and mining activities to play a vital role. This further confirms the regional importance of PKCT and reasons for support of the proposal for continued growth.

The current operation of the port of Port Kembla, including PKCT (with the exception of road receival SEPP restriction), is unrestricted by time controls and as such operates on a 24/7 basis. The removal of time restrictions on deliveries via public roads to PKCT will serve to strengthen the strategic importance of the region by allowing a greater amount of coal exports and allowing the Coal Terminal to maximise export opportunities due to greater flexibility in delivery times and routes.

1.8. STRUCTURE OF THE ENVIRONMENTAL ASSESSMENT REPORT

This EA has been prepared in accordance with the EP&A Act 1979 and the Environmental Planning & Assessment Regulation 2000. It is set out as follows:

- The **Executive Summary** provides an overview of the project and existing operations at Port Kembla Coal Terminal. This summarises the EA and highlights justifications for the proposal and key areas of environmental impact assessment.
- **Section 1** explains the purposes, aims and scope of this EA followed by background information to PKCT and the Wollongong locality. Background information is provided on existing approvals for current operations.
- **Section 2** assesses relevant Federal, State and Local legislation that is applicable to existing and proposed PKCT operations.
- **Section 3** explains proposed consultation methods to ascertain stakeholder and local community options regarding the PKCT existing operations and the proposed 24/7 public road deliveries.
- **Section 4** discusses existing PKCT operations and explains proposed alterations, which are the subject of this EA.
- **Section 5** discusses the aims and results of the 24/7 public road delivery trial which was undertaken between 3 March and 14 April 2008.
- **Section 6** provides an Environmental Risk Assessment and considers key environmental impacts from PKCT existing and proposed operations.
- **Section 7** considers other environmental impacts from PKCT existing and proposed operations.
- **Section 8** provides justification for the proposal, discusses consequences of not implementing the increased road delivery of coal, and explores alternative options.
- **Section 9** provides a draft statement of commitments.
- **Section 10** contains project level conclusions from all assessments undertaken.
- **Section 11** lists the reference materials used in the preparation of this EA.

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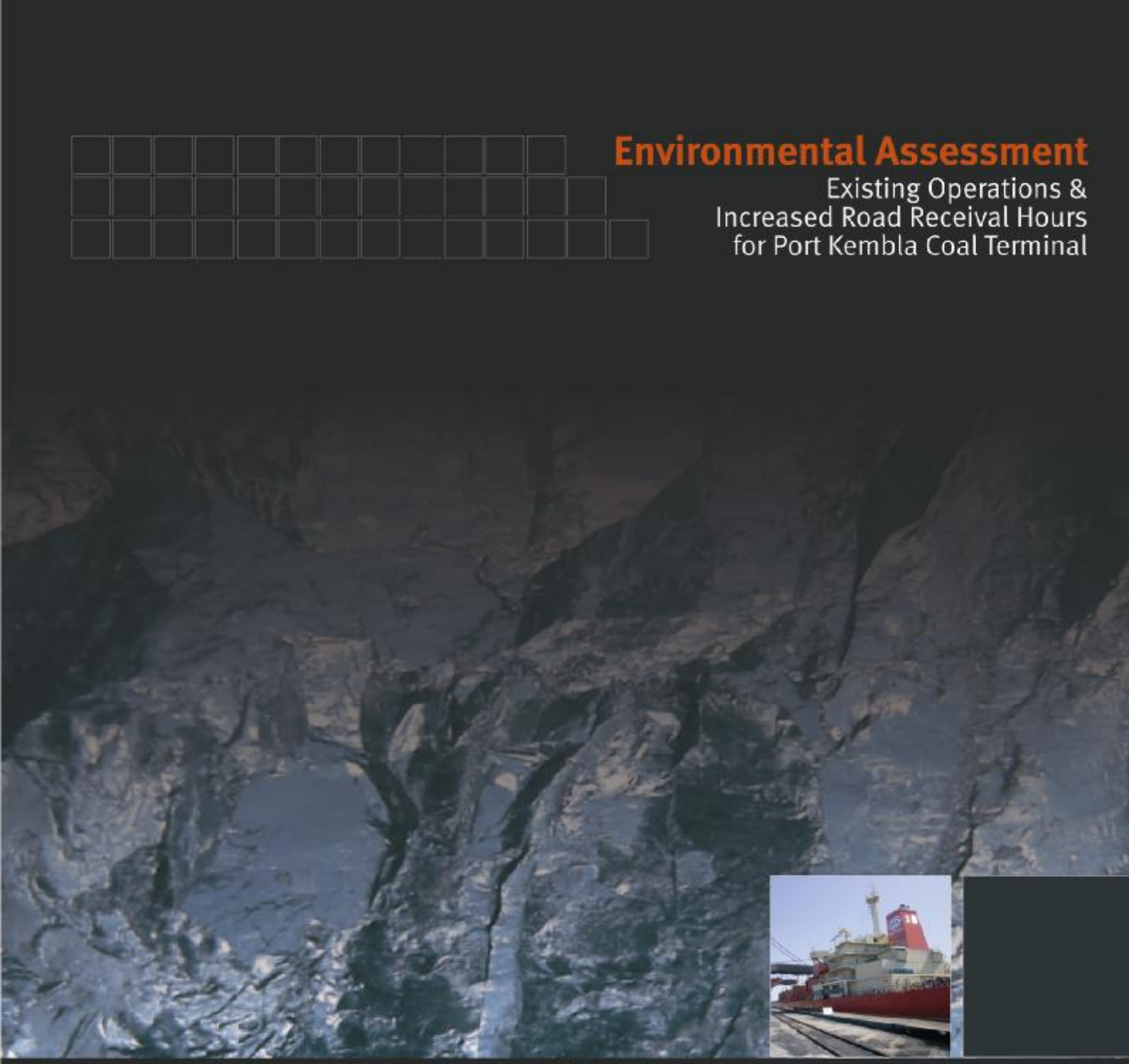
Environmental Assessment

Existing Operations &
Increased Road Receival Hours
for Port Kembla Coal Terminal



Regulatory Framework

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2. REGULATORY FRAMEWORK

This section identifies relevant legislation and policies and assesses existing and proposed PKCT operations against the requirements or guidance.

2.1. COMMONWEALTH LEGISLATION

2.1.1. Environment Protection & Biodiversity Conservation Act 1999

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) is Commonwealth environment and heritage legislation which applies to matters of national significance. This Act requires approval from the Department of the Environment, Water Heritage and the Arts (DEWHA) for any action that has, will have or is likely to have a significant impact on the seven listed matters of national environmental significance.

These matters are:

- World Heritage properties.
- National Heritage places.
- Wetlands of international importance.
- Threatened species and ecological communities.
- Migratory species.
- Commonwealth marine or land areas.
- Nuclear actions (including uranium mining).

PKCT is not a World Heritage site or a National Heritage place. Furthermore, the nearby Tom Thumb Lagoon is not a wetland of international importance. The PKCT site is on reclaimed land, which has been highly disturbed by the construction of the Terminal. It is not known to provide habitat for ecological communities or migratory species. PKCT is not within or adjacent to a Commonwealth marine or land area.

Moreover, the delivery of coal will continue to use existing transport corridors and no construction is proposed. It is highly unlikely there will be any impact to threatened avian species which may migrate through the area or aquatic species which may visit the waters around PKCT.

In May 2008, Green and Golden Bell Frogs were found within the PKCT property. The Threatened Species Conservation Act 1995 protects this species. The identification of these frogs represents a matter, which the EPBC Act controls, and details have been provided to DEWHA.

In order to confirm that PKCT existing or proposed operations do not require assessment under the EPBC Act a referral was made to the Department of the Environment, Water Heritage and the Arts. On the 7 July 2008, the Department confirmed by letter that the PKCT proposal is not a controlled action. As such, no further assessment under the EPBC Act is required. EPBC correspondence is included in **Appendix C**.

2.2. NSW LEGISLATION

2.2.1. Environmental Planning & Assessment Act 1979

The *Environmental Planning and Assessment Act 1979* (EP&A Act) legislates the planning process for consideration of all developments within New South Wales. DoP administer this Act and define relevant consent authorities for proposed developments.

The EP&A Act has numerous objectives. Those relevant to existing and proposed operations at PKCT are to encourage:

- The proper management, development and conservation of natural and artificial resources, including agricultural land, natural areas, forests, minerals, water, cities, towns and villages for the purpose of promoting the social and economic welfare of the community and a better environment
- The promotion and co-ordination of the orderly and economic use and development of land
- Ecologically sustainable development
- Increased opportunity for public involvement and participation in environmental planning and assessment.

As the PKCT proposal has been declared a Major Project, a review of existing operations and consideration of the proposed 24/7 coal delivery by public road requires consent from the Minister for Planning in accordance with Clause 75D.

2.2.2. Protection of Environment Operation Act 1997

The *Protection of Environment Operation Act 1997* (POEO Act) 1997 is a major aspect of the NSW Government's legislation to protect the environment. This Act is administered by DECC.

PKCT holds EPL 1625. This stipulates controls, conditions and regulations on the Coal Terminal's activities in order to protect the environment. PKCT currently operate in accordance with this licence. It is not expected that the proposed 24/7 delivery of coal by public road will have any impacts on PKCT's ability to continue to operate within EPL 1625 requirements.

2.2.3. Roads Act 1993

The *Roads Act 1993* is administered by the RTA, Local Council or the Department of Lands. The RTA has jurisdiction over major roads, the Local Council over minor roads, and the Department of Lands over Road Reserves.

Under Section 138, Part 9, Division 3 of the Act, unless the appropriate roads authority provides consent, a person must not:

- Erect a structure or carry out work in, or over a public road

- Dig up or disturb the surface of a public road
- Remove or interfere with a structure, work or tree on a public road
- Pump water into a public road from any land adjoining the road
- Connect a road (whether public or private) to a classified road.

This EA does not propose any of the activities listed above. As such, no approval under the Roads Act for the existing or proposed operations at the Coal Terminal is required.

Furthermore, existing deliveries to PKCT by public road do not have a significant impact on road safety or intersection operation and traffic modelling of the proposal to permit road deliveries 24 hours a day has been shown not to alter existing carriageway or intersection operating characteristics**.**

2.2.4. National Parks & Wildlife Act 1974

DECC administer The *National Parks & Wildlife Act* (NP&W Act) 1974 that manages:

- Conservation of nature
- Conservation of objects, places and features of cultural value
- Public appreciation, understanding and enjoyment of nature and cultural heritage
- Land reserved under this Act.

When determining applications under this Act, DECC must consider the objectives listed above, the public interest and appropriate management of the subject land. This Act stringently controls activities carried out in designated Parks, Reserves and Aboriginal areas.

The NP&W Act does not affect existing or proposed operations at PKCT because it is not within a Park, Reserve or Area designated under Part 4 of the NP&W Act. Furthermore, there is no construction or ground disturbance works proposed and there are no known protected flora, place or feature of European or Aboriginal cultural heritage within the Coal Terminal. This is due to the industrialised use of the area and highly disturbed nature of the land.

Section 7.3 and **Section 7.4** provide further consideration of flora and fauna and cultural heritage matters.

2.2.5. Threatened Species Conservation Act 1995

The *Threatened Species Conservation Act* (TSC Act) outlines protection of threatened species, communities and critical habitat in New South Wales. Protection is provided under this act for species, populations and ecological communities which are considered to be endangered, vulnerable or extinct. Any activity which may have an impact on protected animals, plants or locations is rigorously assessed to ensure the justification is strong enough to permit the impact to progress. The TSC Act links with the EP&A Act to ensure consideration of these matters during the determination of a development application.

The Green and Golden Bell Frog is the only threatened species protected by the TSC Act identified within the PKCT premises. PKCT has employed Biosphere Environmental Services to carryout a Seven Part Test under the TSC Act. Biosphere Environmental Services has provided an interim plan of management for implementation over the winter period. This is to be followed by a full plan of management in the spring/summer period.

The Seven Part Test has shown that the proposed increase in road deliveries to PKCT will not adversely affect the Green and Golden Bell Frogs found at PKCT premises. PKCT is currently implementing the interim plan of management .

The work carried out by Biosphere Environmental Services ensures that PKCT existing and proposed operations remain in compliance with the TSC Act.

Further detail regarding the proposal to protect the frogs from PKCT operations is contained in **Section 7.4**. The interim plan of management and Seven Part Test is contained in **Appendix D.**

2.2.6. Heritage Act 1977

The *Heritage Act 1977* has responsibility for listing and protecting items and areas of heritage significance to New South Wales. The NSW Heritage Council administers the Act and listings.

There are no heritage items or areas within PKCT, which are listed under the Heritage Act 1997 as PKCT is predominately built on reclaimed land. Furthermore, Section 75U, Part 3A of the EP&A Act exempts 'Major Project' applications from having to make applications under the Heritage Act 1977.

2.3. STATE ENVIRONMENTAL PLANNING POLICIES

2.3.1. SEPP (Major Projects) 2005

As discussed in **Section 1.6.3** DoP have stipulated that a contemporary planning approval for the entire PKCT site and operations is required and that an application under Part 3A of the EP&A Act is the preferred method to achieve this contemporary approval, which will replace the existing DA D79/44 and repeal Section 73 of the Infrastructure SEPP.

To meet DoP requirements a review of existing developments and operations as well as consideration of the proposed increase in delivery hours and amounts via public road has been declared a 'Major Project' under SEPP (Major Projects) 2005 by the Minister for Planning on 21 December 2007. As such, the Minister for Planning is the consent authority.

It is also noted that DoP propose to list PKCT as a 'State Significant Site' under SEPP (Major Projects) 2005. DoP has consulted with PKCT regarding this matter and the proposal was due for public exhibition in May 2008. If the State Significant Site listing is approved it will result in the consent authority for future developments at the Coal Terminal being either the DoP or the Port Kembla Port Corporation (under Part 5 EP&A Act).

2.3.2. SEPP 7 – Port Kembla Coal Loader

The gazettal of SEPP 7 took place in December 1982 with the objective of regulating coal and coke deliveries by road to the Port Kembla Coal Terminal's coal loader. This SEPP superseded conditions 2, 3 and 17 (which regulated road delivery) of Development Application D79/44 from Wollongong City Council for the Coal Terminal. SEPP 7 was repealed on 1 January 2007 when SEPP (Infrastructure) 2007 was gazetted.

SEPP 7 specified that coal and coke can only be received at the road receival between 7am – 6pm Monday to Saturday and not at all on a Sunday or Public Holiday unless:

- An emergency situation has been declared by the Minister for Planning
- At any time on any day via Tom Thumb Road if the coal is transported from the adjacent BlueScope Steelworks.

It is the removal of this time constraint of road deliveries via any road other than Tom Thumb, which is the subject of this Part 3A Application and associated EA.

2.3.3. SEPP (Infrastructure) 2007

The Infrastructure SEPP has consolidated and updated the planning processes for new public infrastructure. Smaller scale infrastructure is permissible as exempt or complying development whilst large infrastructure projects have a more streamlined and simplistic approval process.

Road receival restrictions in the Infrastructure SEPP in relation to PKCT are very similar to that in SEPP 7. As such, the Infrastructure SEPP does not alter controls over road deliveries to PKCT.

2.3.4. SEPP 33 – Hazardous & Offensive Development

This SEPP aims to regulate the control of hazardous or offensive developments through the Planning process. This SEPP lists the type of development considered hazardous or offensive by DoP. An assessment of a hazardous or offensive development forms part of the determination of an application under the EP&A Act.

Neither PKCT current development and operation or the proposed alteration to 24/7 public road deliveries constitutes a hazardous or offensive industry. Due to this, no further assessment under this SEPP is required.

2.3.5. SEPP 71 – Coastal Protection

SEPP 71 – Coastal Protection is predominantly aimed at ensuring public have access to the waterfront and that any waterfront areas of significance for Aboriginal cultural reasons, flora or fauna reasons, rock platform reasons and marine environment reasons are safeguarded. The SEPP also seeks to protect beach amenity from degradation due to inappropriate use or developments.

Adjacent to PKCT's existing boundary is an armoured seawall, which was installed as part of PKCT's construction to provide protection from ocean wave action. The wall connects with the northern breakwater, which forms part of the Outer Harbour. These facilities are on private property owned by Port Kembla Port Corporation. To date, the Port Corporation has not restricted access by the public to these areas for purposes such as fishing, surfing and sight-seeing. Pedestrian access is possible from the beach to the north of the armoured sea wall.

Existing or proposed operations at PKCT do not require a full assessment in relation to SEPP 71. This is because PKCT operations (existing and proposed) do not prevent public access to the waterfront and there is no specific Aboriginal or environmental reason to protect the highly disturbed PKCT harbour. The existing developments and operations do have a visual impact on the foreshore; however, the port has been in place for nearly 100 years and has become an established visual feature.

The proposed extension to road delivery hours will not have any impact on the coast of NSW. As such, assessment of this proposal in accordance with SEPP 71 is not required.

2.4. REGIONAL ENVIRONMENTAL PLANS

2.4.1. Illawarra Regional Environmental Plan No. 1

This document provides strategic planning controls and guidance for the Illawarra region as a whole in order to ensure Local Environmental Plans within the region remain consistent. There are several sections within the *Illawarra Regional Environmental Plan (IREP) No. 1* of relevance to existing and proposed operations at PKCT. The sections in IREP 1, which are relevant, are:

- Provisions Relating to Extractive Materials
- Provisions Relating to Coal
- Provisions relating to Transport & Service Corridors
- Provisions Relating to Ports & Harbours.

Road deliveries to PKCT comply with relevant aims of IREP No. 1. This is because:

- The coal haulage road routes used by trucks delivering to PKCT has been chosen to ensure they are the most environmentally acceptable routes
- The coal haulage road routes have been chosen to ensure coal trucks bypass urban areas to the greatest extent
- Masters Road and Springhill Road were specifically designed to provide access to the port of Port Kembla whilst minimising impacts on residential communities
- Sensitive areas along the coal haulage road routes have acoustic barriers which reduce noise levels at residential receptors to minimise adverse environmental impacts
- Road haulage of coal from the mines currently delivering by road is believed to be the only viable transportation method at the present time

- Reducing the number of trucks on the road during peak commuter times by allowing public road deliveries to PKCT 24/7 will assist in reducing coal truck interaction with other road users.

IREP 1 understands the importance of the port of Port Kembla to the Illawarra region. As such, the document seeks to strengthen and expand the existing economic and functional roles of the port in such ways as the expansion of products handled whilst minimising environmental impacts.

2.5. LOCAL PLANNING CONTEXT

PKCT's project application is made under Part 3A of the EP&A Act and is therefore not bound by requirements to comply with Local Environmental Plans (LEP) as detailed in Part 4 of the EP&A Act. However, PKCT consider that an assessment of the LEP, which is applicable to their site, has benefits to the overall merit of the proposal.

Wollongong Local Environmental Plan 1990

Land use zoning at the PKCT site is 5(A) Special Uses (Port) under Wollongong Local Environmental Plan 1990 (see **Figure 4**). . The table to clause 15 of Wollongong LEP 1990 provides that development is permissible with development consent on land within that zone for port-related purposes.

PKCT believe that their existing operations and the proposed 24/7 delivery via public roads complies with relevant sections of the Wollongong LEP 1990. This is because the operation complies with PKCT's original Development Consent (D79/44) and is in accordance with the use of the site for port related purposes. The use of public roads for coal delivery is also permissible under the LEP. Given the infrastructure operation of PKCT will remain unchanged; it is only the permissible road delivery hours, which require assessment.

Wollongong Draft Local Environmental Plan 2007

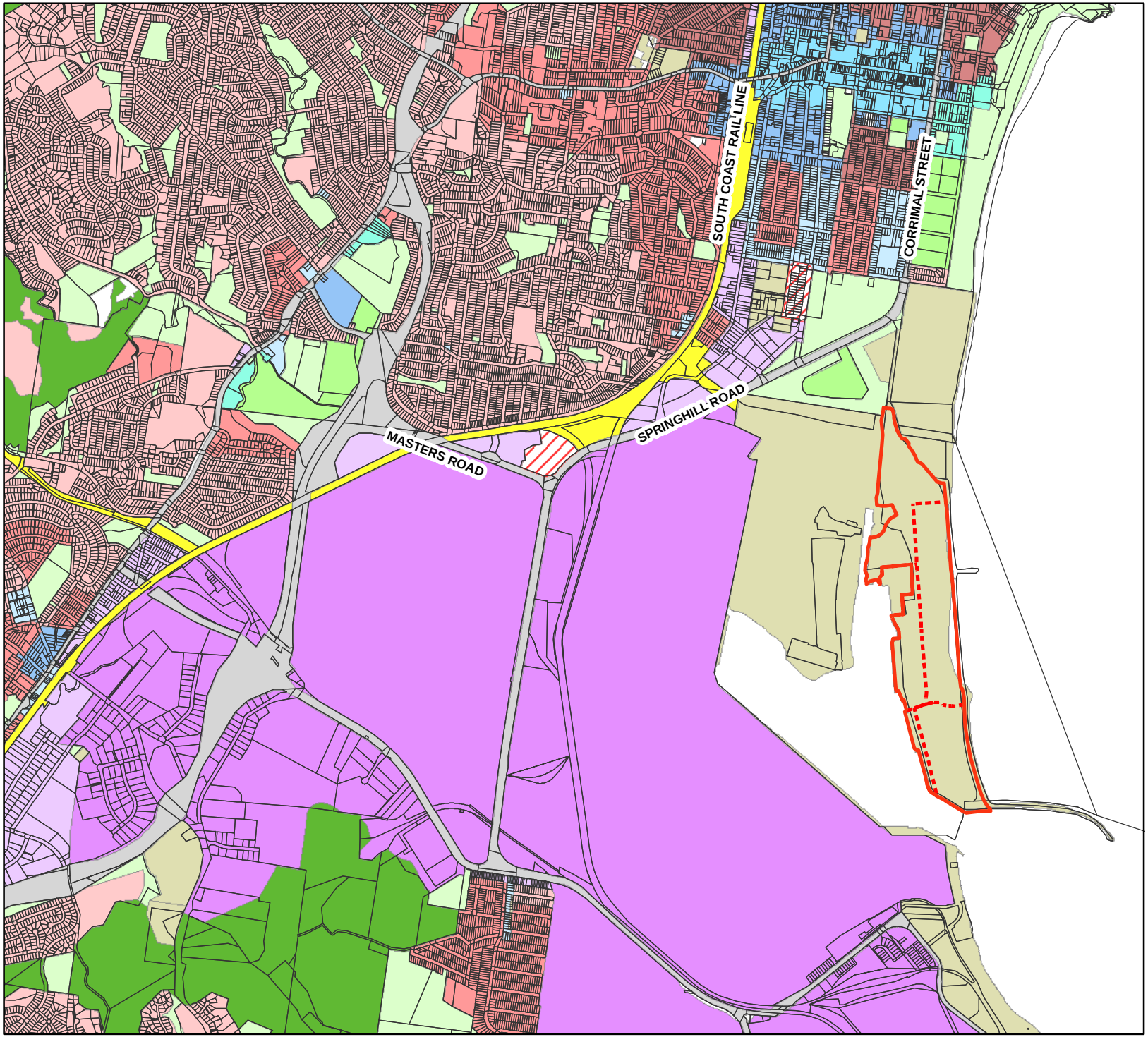
Wollongong City Council is currently preparing a consolidated Local Environmental Plan for the entirety of its administrative area. The consolidated LEP is in three stages:

- City Centre
- West Dapto
- City Wide (includes the remainder of the administrative area)

The port of Port Kembla forms part of the City Wide stage and is likely to be on public exhibition in the third or fourth quarter of 2008. Council have advised that draft zoning for the PKCT premises is SP2 Infrastructure. The objectives of this zone are to:

- Provide for required infrastructure and related uses
- Prevent development not compatible with, or that detracts from, provision of infrastructure
- Set aside land for future provision of key infrastructure required to service development.

This zoning permits developments associated with PKCT.



Land Zoning

SPRINGHILL ROAD

Legend

PKCT Lease Areas

- Site Boundary
- Sub Areas
- Cadastre (LPI)

Wollongong LEP 1990

- 2(a) Residential - Low Density
- 2(b) Residential - Medium Density
- 2(c) Residential - High Density
- 3(a) General Business
- 3(c) Regional Business
- 3(d) Commerical Services
- 4(a) Industrial - Light
- 4(b) Industrial - Heavy
- 6(a) Public Recreation
- 6(b) Private Recreation
- 7(b) Environmental Protection - Conservation
- 6(c) Tourism
- 5(a) Special Uses (Port)
- 5(b) Special - Railways
- 5(c) Special - Main Roads
- Deferred

N
W E
S

FIGURE 4

Scale 1:30,000 (at A4)

Meters

0 125 250 500 750 1,000

Cardno Forbes Rigby

Map Produced by Cardno Forbes Rigby
Date: 20 May 2008
Coordinate System: Zone 56 MGA/GDA 94
GIS MAP REF:
108004_01_1807_Land_Zoning_A4.mxd

2.6. STRATEGIC PLANNING CONSIDERATIONS

2.6.1. Port Kembla Land Use Strategy

A joint initiative of PKPC, DoP and Wollongong City Council, the Strategy aims to develop a framework to support sustainable port related growth in Port Kembla over the next 20 years. The main outcome of the strategy will be a strategic framework for management of development in the study area, including revised planning controls for the industrial and port zoned land in Port Kembla. This land use strategy is providing information towards the production of the City Wide stage of the Draft Wollongong LEP.

The Land Use Strategy indicates that the port of Port Kembla has been identified as appropriate for large scale increases in use and throughput of imports and exports. The PKCT proposal to increase throughput and exports follows the trend of port expansion. As the PKCT proposal does not incorporate any construction works and only constitutes an increase in existing operations, environmental impacts are forecast to be small in comparison to the larger expansion of the port.

2.6.2. State Infrastructure Plan

This is the NSW Government's commitment to state infrastructure to 2016, which includes a $140 million upgrade to the port of Port Kembla. Key port projects include Inner Harbour redevelopment, Outer Harbour reclamation and development and upgrading major roads in the region, inc. Princes Highway, Illawarra Highway, Northern Distributor.

The investment from the State Government will have benefits for PKCT due to general infrastructure improvements within the Port Kembla port precinct. The proposed road upgrades will allow for improved movement of traffic and modern, quieter road surfaces.

2.6.3. Illawarra Regional Strategy 2006-31

This is a 25 year blue print which covers the administrative areas of Wollongong, Shellharbour and Kiama. It strongly focuses on job creation and sustainable settlements. The Strategy seeks to capture opportunities from the proposed $140 million expansion of Port Kembla.

In detailing the proposal to nominate the port of Port Kembla as a State Significant Site DoP provide the following description of the Illawarra Regional Strategy:

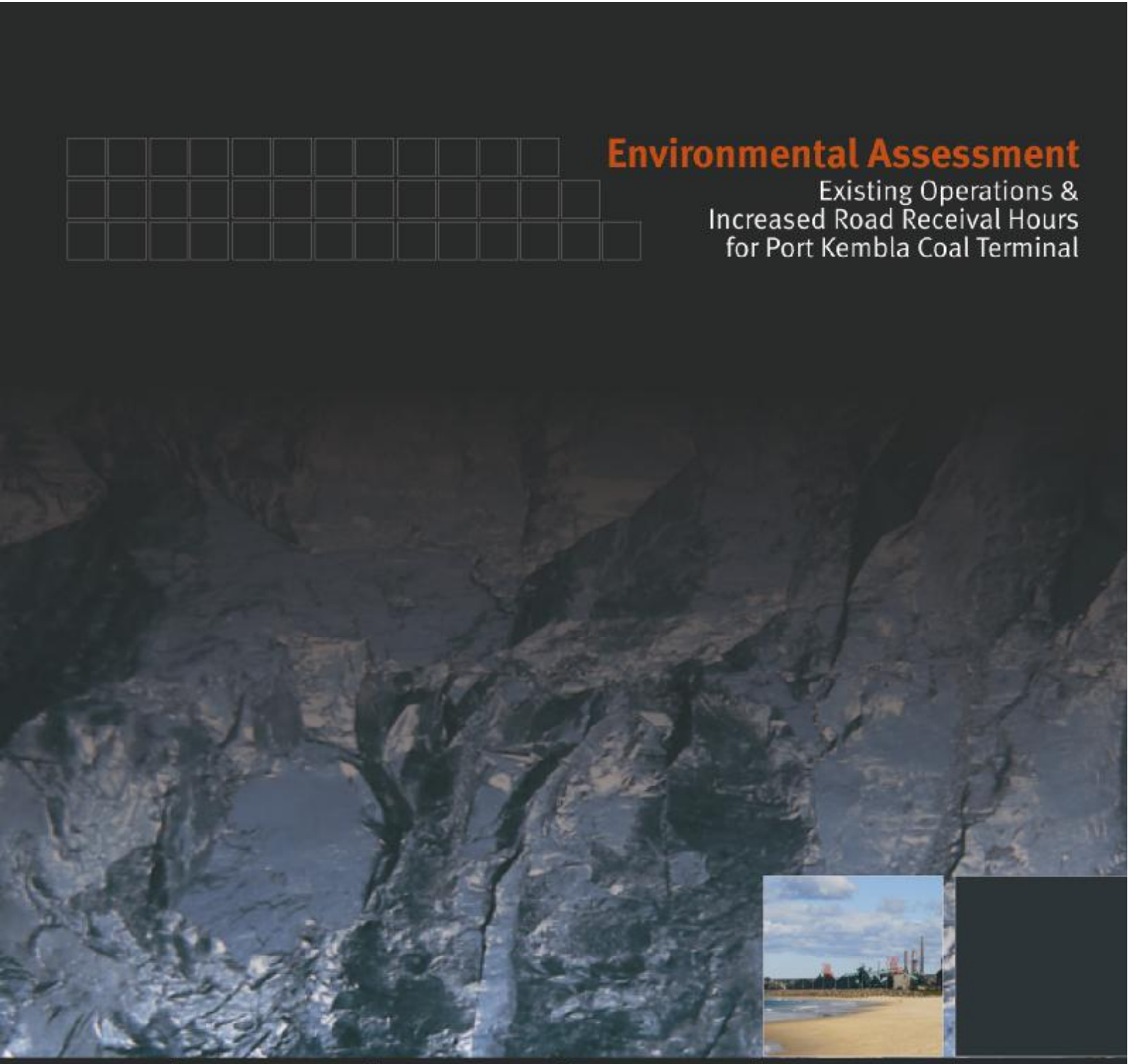
> *"An aim of the Illawarra Regional Strategy is to ensure an adequate supply of land strategically located to support economic growth and the capacity for an additional 30,000 new jobs. In particular, the strategy supports a land-use planning framework which captures employment benefits from the $140 million Port Kembla port expansion, expected to boost the local economy by $200 million per annum and secure 1,000 direct and indirect jobs. Economic studies undertaken for the Port Corporation show the port contributes $418 million annually to the Illawarra economy and provides 3,500 direct and indirect employment opportunities. Trade worth five and a half billion dollars annually passes through the port.*
>
> *In the next 5-10 years Port Kembla will replace Port Jackson as the primary port for automobile imports in NSW" (Three Ports (2008) DoP)."*

The Strategy supports increased use of the port of Port Kembla as this provides strong opportunities for economic growth and job creation.

Increased throughput at PKCT meets the general aims of the Regional Strategy as PKCT is an integral facility in the port of Port Kembla and the proposal will assist in improvements to the local economy due to increased exports. The PKCT proposal is also anticipated to have flow on effects as additional work will be available, such as, coal truck drivers and mine workers due to the increased output from mines which deliver to PKCT.

Environmental Assessment

Existing Operations & Increased Road Receival Hours for Port Kembla Coal Terminal



Consultation

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3. CONSULTATION

This section describes consultation undertaken as part of the EA. It outlines the method of consultation with both statutory authorities and the local community.

Director General Requirement

During the preparation of the Environmental Assessment you should consult with the relevant local, State or Commonwealth government authorities, service providers, community groups or affected landowners. The consultation process and issues raised must be described in the Environmental Assessment.

In particular you should consult with:

- **Department of Environment and Climate Change**
- **Department of Primary Industries (Fisheries)**
- **Roads and Traffic Authority**
- **Wollongong City Council**

3.1. STATUTORY

3.1.1. Methodology

PKCT consulted key government representatives during the development of the PEA including the DoP, DECC, PKPC, RTA and Wollongong City Council. Additional stakeholders have formed an important role in this EA to ensure important aspects relating to this proposal are managed appropriately. Liaison with Government continued as required throughout the project, to discuss and confirm requirements, source information and to discuss outcomes of environmental assessments.

Stage 1 of Consultation

In October 2007, the PEA was distributed to all appropriate government agencies and key stakeholders. Following a range of consultation sessions were held, mostly through face-to-face meetings, with all key government agencies. In addition, discussions were commenced with the community, through the PKCT Community Consultative Committee in the first instance. All PKCT shareholders, customers and employees were also briefed on the project.

Stage 2 of Consultation

It has been a core focus of the consultation process that parties who may be the most directly affected by the proposed 24/7 public road receival operation are consulted. To this end, key government agencies were subsequently consulted and direct feedback was received from Wollongong City Council, RTA, DECC and the PKPC. In addition, an independent telephone survey was conducted of 330 people who live along the road coal haulage routes (see **Section 3.2.2**), as well as a household letterbox drop to 2,400 households along these road routes (see **Section 3.2.3**).

Stage 3 of Consultation

General 'public' communication has been undertaken at various stages of the proposal, including a media announcement when the Project was gazetted as a Major Project which was posted on the PKCT website. In addition, the community newsletter was posted on the PKCT website, as well as an opportunity for any interested party to subscribe for regular updates on the project development through regular e-mail bulletins. Furthermore, PKCT has advertised the Community Hotline phone number (1800 111 448) which is available 24/7 for any community members to discuss this or any other matter related to PKCT.

3.1.2. Stakeholders

Stakeholders are consulted by DoP during the preparation of the DGR. PKCT have also consulted a variety of stakeholders to ascertain perceptions. This methodology is found in **Section 3.1.1**. The following stakeholders have been consulted either by DoP or PKCT during the preparation of the DGR, the EA and associated studies:

- Department of Planning
- Department of Environment and Climate Change
- Department of Primary Industries
- Roads and Traffic Authority
- Wollongong City Council
- Department of Premier & Cabinet
- Port Kembla Port Corporation
- All PKCT Customers and Shareholders
- Local community.

3.1.3. Consultation Findings

Department of Planning

DoP were consulted regarding this proposal at an early stage and advised that the proposal is characterised as a 'Major Project'. Continued consultation allowed DoP's project requirements to be identified and included in the PEA. PKCT continued to work with DoP during the 'Major Project' gazettal and issue of the DGR. PKCT also met with the local office of DoP on 15 November 2007 to brief them of the proposal, no additional local issues or concerns were raised at this meeting.

All DoP project requirements are considered in this EA.

Department of Environment & Climate Change

PKCT met with William Dove, Paul Werne and Dennis Pascall from the DECC in November 2007, at which time the proposal to permit public road delivery 24/7 was discussed. DECC advised that no alterations to the current PKCT EPL 1625 will be required due to the proposal. DECC did seek information on the initiatives and strategic plans PKCT have in place for environmental management, which was subsequently provided.

Department of Primary Industries

An email was provided by Judith Egan of the Department of Primary Industries (DPI) on 30 January 2008 which advised there are no concerns with the proposal. DPI confirmed that they do not have a statutory responsibility for the site; however, increased coal deliveries would be reflected in Mining Operations Plans, which are a DPI requirement for all mines.

Roads and Traffic Authority

A meeting was held with Nicole Stevenson and Graham Brisbane of the Roads and Traffic Authority (RTA) on 18 December 2007. The RTA expressed two main concerns, which were, 24/7 road deliveries along Bellambi Lane and noise impacts along Mt Ousley Road.

Bellambi Lane is currently a State road, classified as a sub-arterial which is under management of the RTA. Once the Northern Distributor Extension is open to traffic Bellambi Lane will be a local road, classified as a collector and be under the management of Wollongong City Council.

The RTA raised two minor concerns regarding noise and road safety related to the proposal, Impacts from night time truck movements at the intersection of Port Kembla Road and Springhill Road and street lighting at the Masters Road and F6 Freeway intersection.

It is noted that there may be additional noise due to an increase in truck numbers at the Port Kembla Road and Springhill Road intersection and that at night this noise may have a minor additional impact on residential receivers. The headlight sweep from these trucks in this locality is also considered. The adequacy of street lighting to provide safe visibility at the Masters Road and F6 Freeway intersection was discussed with the RTA. These concerns have been addressed in the in **Section 6.7** of the EA.

Wollongong City Council

PKCT met with Wollongong City Council's Lord Mayor, General Manager and Planning Department representatives on 14 November 2007. The proposal was detailed and possible environmental impacts and mitigation measures were discussed. This meeting was held at an early stage of the proposal to allow any Council concerns to be incorporated and addressed in the EA.

The specific questions from Council were:

- Questions were raised in relation to road corridors and road ownership (which were answered at the briefing), as well as the RTA position on roads to be utilised (which were not known at the time of the briefing).
- Historical and community perspectives were discussed, with the Lord Mayor particularly aware of the community concerns expressed in the late 1970s and early 1980s.
- It was suggested by Council that PKCT brief Wollongong City Councillors of the proposal prior to the public consultation period. This was agreed by PKCT, and a date scheduled for the briefing, however, since that time, the Councillors have been removed from their positions following an Independent Commission Against Corruption Enquiry and Administrators subsequently appointed.

A second meeting with Wollongong City Councillors is not possible due to their dismissal. PKCT has been in contact with Wollongong City Council Planning Officers and General Manager to provide an update on the project. A meeting with Council Administrators and relevant Officers has been proposed and is yet to be arranged.

Department of Premier and Cabinet

Correspondence from Chris Lacey, Strategic Projects Division of the Department of Premier & Cabinet, on 23 January 2008, includes the following:

- NSW Government commitment to upgrade port of Port Kembla as part of the NSW Ports Growth Strategy, and therefore has a strong interest in ensuring the port precinct operates efficiently to maximise its productive capacity for the benefit of the Illawarra and NSW economy. Further "it would appear the current restrictions operate to limit the productive capacity of the Port and, as such, should only remain if there are strong grounds to justify them"
- "……the circumstances which led to the introduction of road haulage restrictions on the PKCT have changed sufficiently to warrant a prima facie re-examination of the need for, and effects of, such restrictions"
- "The potential noise impacts generated by the proposal, particularly in the evenings to adjacent residents along Mt Ousley Road, would warrant deliberate efforts by the applicant to consult and inform the community about the proposal to provide opportunities for early feedback".

Port Kembla Port Corporation

As a tenant of the PKPC and a major port facility, PKCT liaise closely with PKPC on a regular basis. Ongoing discussions have been held with PKPC on this proposal, as well as a formal briefing on 20 November 2007.

Discussion at this meeting included changes within the port of Port Kembla precinct, the PKPC Transport Drivers Code of Conduct, and discussion on the PKPC Environmental Assessment for general port expansion. PKPC agreed to provide information to PKCT on the studies that had been undertaken previously, especially in relation to transportation matters of road and rail to and from the port precinct.

PKPC fully support the proposal for 24/7 delivery and an increase in throughput, and provided a letter of support for the proposal.

PKCT Current Road Transportation Customers - BHP Billiton Illawarra Coal and Gujarat NRE

Both BHP Billiton Illawarra Coal (BHPBIC) and Gujarat NRE (GNRE) currently transport coal to PKCT by road. An increase in road delivery hours to PKCT will provide both companies with greater flexibility for transportation of coal, as well as enabling additional capacity of coal to be delivered across a larger timeframe. Hence, both companies are extremely supportive of the proposal.

PKCT All Customers and Shareholders

All PKCT customers and shareholders have been briefed on the proposal and are aware of the variety of environmental impacts from the PKCT operations, including transportation of coal by both road and rail. All customers and shareholders of PKCT support the proposal and the environmental management of the operations.

3.2. COMMUNITY

PKCT is located on the northern eastern side of Port Kembla Harbour, with neighbouring residents located approximately 700m to the north west and 750 to the north of PKCT's northern site boundary (see **Figure 5**).

Figure 5 – Proximity of Residential Properties to PKCT

The focus of consultation and discussion with the community has been on residences who are potentially exposed to noise impacts due to the extension of road receival hours at PKCT. Residences along the road coal haulage routes were therefore targeted directly in both communications about the proposal and a telephone survey. In addition, PKCT has discussed the proposal with the PKCT Community Consultative Committee and information about the proposal has been made available to the general community.

The properties potentially exposed to impacts of truck noise were identified through contour mapping. Residential areas along all the road coal haulage routes to PKCT have been assessed based on topography and the modelled distance sound will travel. This has resulted in a 'consultation corridor' of varying widths each side of the road coal haulage routes. These 'consultation corridors' are identified on the following Noise Sensitive Areas maps (see **Figures 6 & 7** overleaf).

PKCT prepared a communications plan to engage the local community which are assessed as being impacted by the proposal. This plan and the results of the different aspects are detailed below.

3.2.1. PKCT Community Consultative Committee

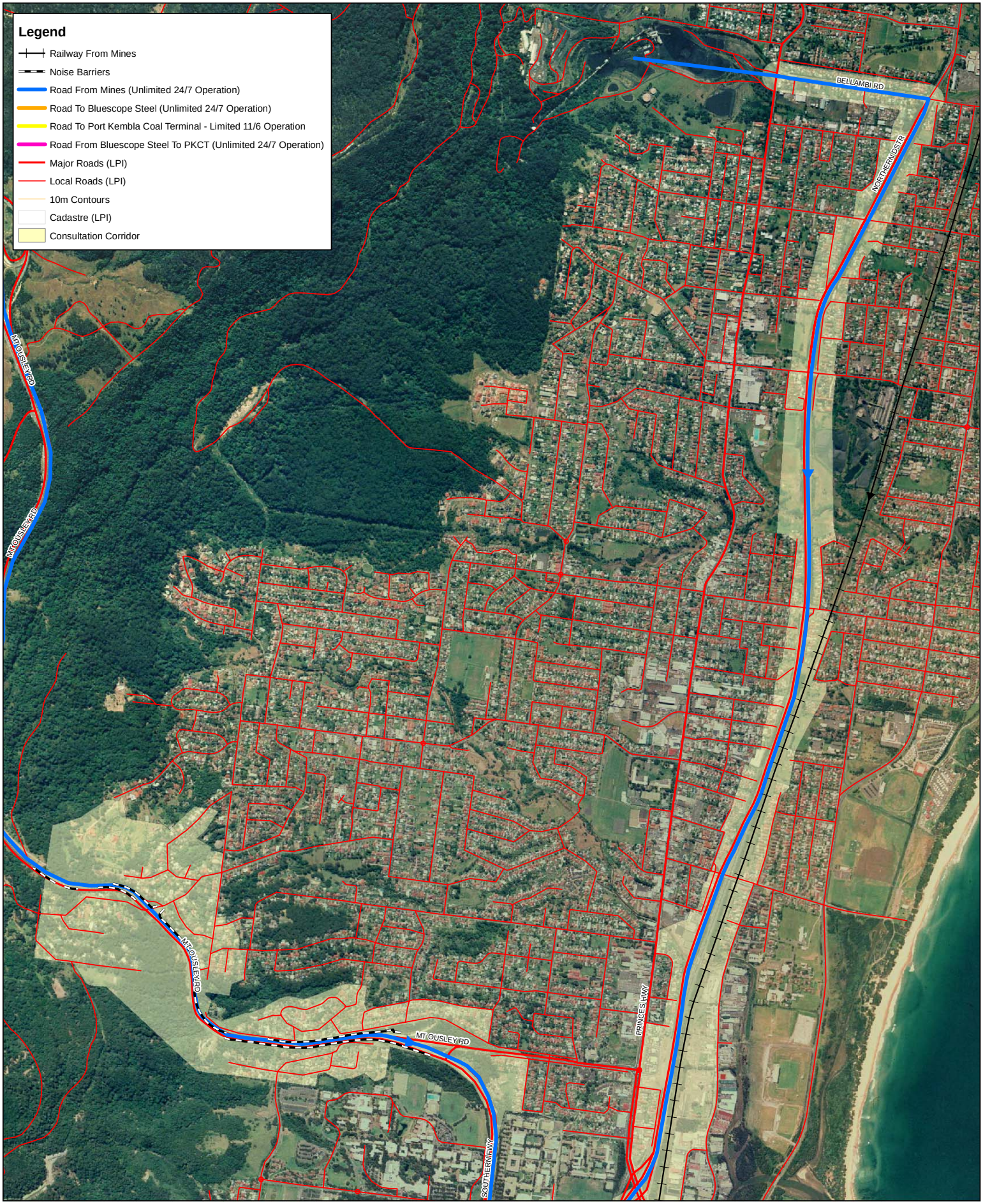
The PKCT Community Consultative Committee has been operating since November 2006. The committee meets quarterly and is comprised of local community members living in proximity to the PKCT site. The 24/7 road proposal was discussed at the Community Consultative Committee Meetings held on 24 October 2007 and 27 February 2008. At these meetings community input was provided including:

- concern raised about headlight sweep potential impact on nearby residences when trucks depart Port Kembla Road
- concern raised about tailgate and tipping noise at road receival being intensified at night.

Both of the above mentioned concerns were taken into consideration in this EA. The headlight sweep issue is discussed in **Section 7.2** and the tailgate noise is discussed in **Section 6.7**.

3.2.2. Community Survey – April 2008

The Illawarra Regional Information Service (IRIS) was engaged to conduct a telephone survey of 330 households along the consultation corridor. The aim of the survey was to assess community perceptions of planned changes to coal truck delivery hours; the level of community concern with coal trucks movements and quantify community support for the planned changes.



Coal Truck Routes to PKCT
Noise Sensitive Areas

MT OUSLEY RD/NORTHERN DISTRIBUTOR

FIGURE 6

PKCT
PORT KEMBLA COAL TERMINAL

N
W E
S

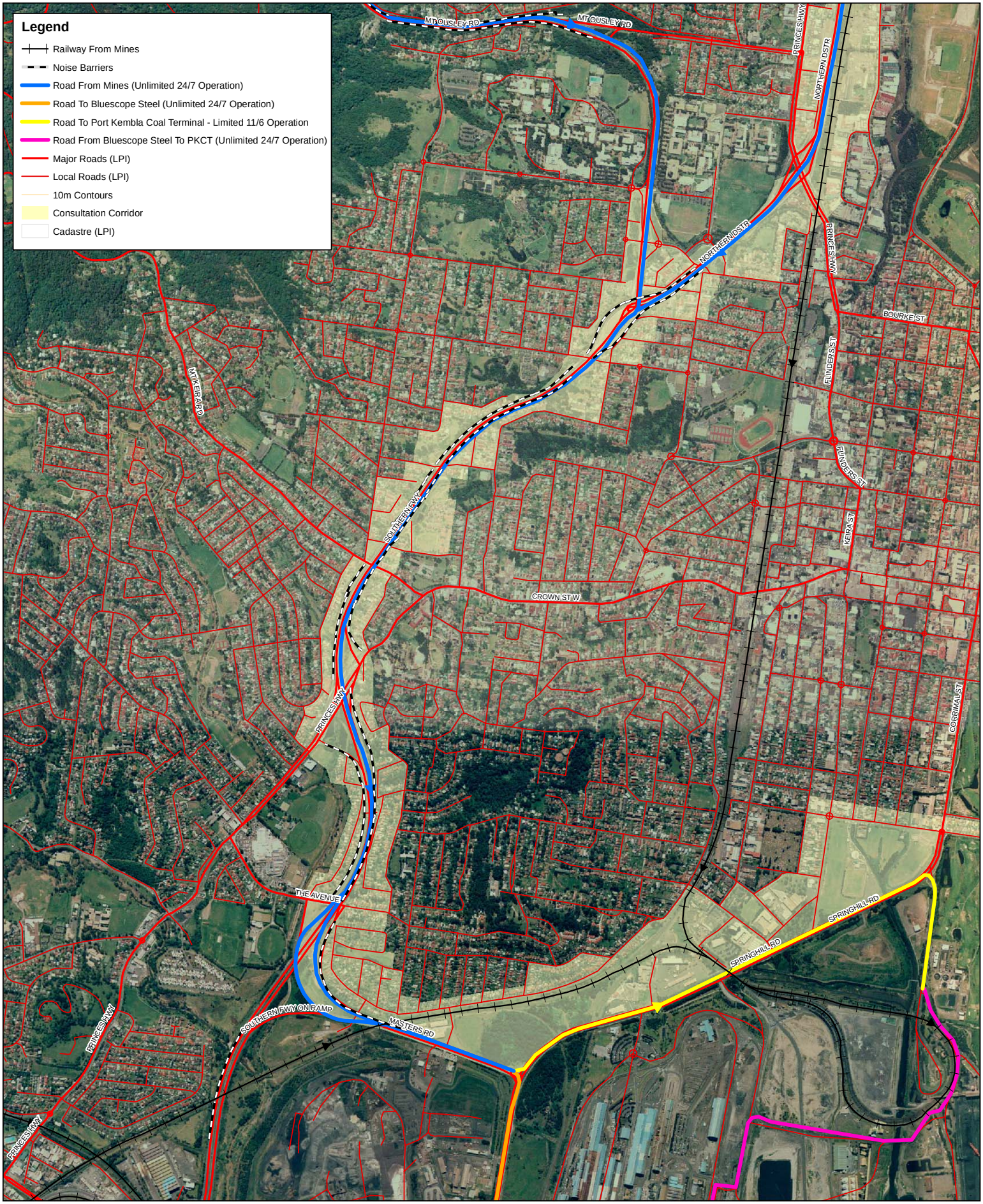
1:16,000 (at A3)

Kilometres

0 0.25 0.5

Cardno Forbes Rigby

Map Produced by Cardno Forbes Rigby
Date: 21 January 2008
Coordinate System: Zone 56 MGA/GDA 94
GIS MAP REF:
108004_02_2803_Noise_Sensitive_Areas_NthDist_MtOusley.mxd



Coal Truck Routes to PKCT
Noise Sensitive Areas

SOUTHERN FREEWAY/MASTERS RD/ SPRINGHILL RD

FIGURE 7

N
W E
S

1:16,000 (at A3)

Kilometres

0 0.25 0.5

Cardno Forbes Rigby

Map Produced by Cardno Forbes Rigby
Date: 21 January 2008
Coordinate System: Zone 56 MGA/GDA 94
GIS MAP REF:
108004_02_2802_Noise_Sensitive_Areas_Freeway_MastersRd.mxd

The survey was conducted between 8 -11 April 2008, which was during the last week of the 24/7 Trial period. A report of the findings is available at **Appendix E**. A summary of the key findings of the survey is below:

- 59% of respondents indicated a medium to high level of support for the change
- Residents were overwhelmingly in favour of the proposal because of the reduction in congestion during peak times (25%), and a further group supported the proposal because it can generate further employment (6%)
- Congestion on the roads was mentioned by 39% of residents as being a high level of concern, the biggest reason was too many cars on the road (31%)
- Eight environmental and transport issues were rated for levels of concern, the two top issues of concern were general road safety (51% high concern) and vehicle pollution or exhaust fumes (43% high concern)
- Noise pollution from heavy vehicles was rated by 33% as a high level of concern, with general engine noise (13%) and air brake noise (12%) being key causes of concern. In addition, general night time noise (9%) and truck noise too early in the morning/affecting sleep (2%) were also mentioned in regards to noise pollution.
- 93% of residents had not noticed any change in truck movements in recent weeks, ie during the 24/7 Trial period
- General road safety was rated a high concern by 51% of residents, and poor/unsafe driver behaviour was mentioned by 35% of residents. Conversely, the issues of direct relevance to PKCT were less frequently mentioned, including speeding trucks (6%), lack of separation from trucks and cars, bunching of trucks and trucks losing control all rating at only 1% each.
- 53% of residents have a low level of concern regarding trucks that pass near their neighbourhoods.

During the survey, respondents were asked if they would like a follow-up call by PKCT, and 38 outbound follow-up calls were made by the PKCT External Affairs Manager. An outline of the responses was logged into the PKCT Stakeholder Enquiries and Complaints Data-base and is outlined as follows:

- The majority of community members were seeking further information, and following a discussion were provided with a copy of the Community Newsletter (see **Section 3.2.3** and **Appendix F**)
- Several residents located close to Mount Ousley Road (both north and south), as well as located on Bellambi Lane were concerned with noise and pollution from coal trucks, and the potential impacts of noise at night, especially from air brakes.
- Several community members were very supportive of the proposal as it provided an opportunity for additional exports and jobs, and the benefits of less congestion during peak commuting times were frequently mentioned.

3.2.3. Community Newsletter Distribution

A Community Newsletter was distributed to 2,400 households along the consultation corridor in April 2008. This newsletter was also posted on the PKCT website and can be found at

http://www.pkct.com.au/pdf/Newsletter_April_08.pdf or **Appendix F**. The newsletter provided an overview of the 24/7 proposal and sought community feedback through either the community hotline or via email communitylinks@pkct.com.au. Community members were also invited to "keep informed" by subscribing to the PKCT Environmental Assessment progress.

Responses to the community newsletter are summarised as follows:

- Three phone complaints were received, one from a resident located in Bellambi Lane and two from Mount Pleasant. The concerns expressed were in relation to noise from trucks, especially at night and air brake noise; not all truck fleet are considered of a high standard; speeding trucks and truck driver behaviour.
- Two further responses were received to the newsletter via email seeking to subscribe to be kept informed of the EA progress.
- It should be noted that the EA progress information distribution list, including those from community newsletter and IRIS survey responses, is a total of 9 people.

3.2.4. "1800" Community Hotline

PKCT has a Community Hotline "1800 111 445", which is advertised in the local phone directory, on the Community News flyer, and is advertised on the PKCT website at http://www.pkct.com.au/hotline.htm. The Community Hotline is available 24/7, and is currently answered directly by the PKCT External Affairs Manager. All calls to the Community Hotline are logged in the PKCT Stakeholder Enquiries and Complaints Data-base.

The following community contact lines were also monitored for responses in relation to the PKCT proposal:

- BHP Billiton Illawarra Coal Community Hotline: Community issues in relation to BHP Billiton's operations. Complaints relating to truck movements from BHP Billiton mines can be logged on this call line.
- Gujarat NRE Community Hotline: Community issues in relation to Gujarat NRE's operations at NRE No 1 mine. Complaints relating to truck movements from Gujurat NRE operation can be logged on this call line.
- Haulage Contractor Community Hotline: Community complaints in relation to Scott Corporation operations.

3.2.5. Media and Advertising in the local newspaper, Illawarra Mercury

On 20 December 2007, the Planning for Minister, Frank Sartor, announced through a media release that the PKCT application had been declared a Major Project to be assessed under Part 3A of the EP&A Act. PKCT despatched a media release on 21 December 2007 entitled "Coal Terminal Seeks Efficiency Improvements", which was posted to the PKCT website http://www.pkct.com.au/news.htm.

Subsequently to the aforementioned media releases, the following media was received on 21-22 December 2007 relation to the 24/7 road transportation proposal:

- ABC Radio (Illawarra)
- WIN Television
- i98 Radio
- Illawarra Mercury.

It is proposed that the project will be advertised in the Illawarra Mercury following the submission of the EA and discussions with the DoP. This forthcoming advertisement will outline the process of public consultation and provide information of access to documents including the EA.

3.2.6. Other Community Information

In April 2006, PKCT conducted a Community Survey of perceptions through the Illawarra Regional Information Service. This survey assessed a range of community perceptions and provided a baseline of data from 412 people who were interviewed through telephone survey. One of the key findings of this report was in relation to coal transportation. This provides a correlation to the survey conducted two years later, which was specific to this project and is outlined in **Section 3.2.2**. Results from the 2006 survey are compared as follows:

- 53% of respondents expressed an interest in options which spread coal truck deliveries over a longer period
- When presented with two options for hours of road deliveries to PKCT, the majority (60%) favoured 24/7, with the reason for support listed by 78% of respondents being less congestion on roads.

The results from the 2006 survey validate the 2008 survey, which outlined a 59% support for the proposed 24/7 deliveries, and the reason for support outlined being less congestion on roads during peak commuter periods. This demonstrates the validity of the community survey through comparison.

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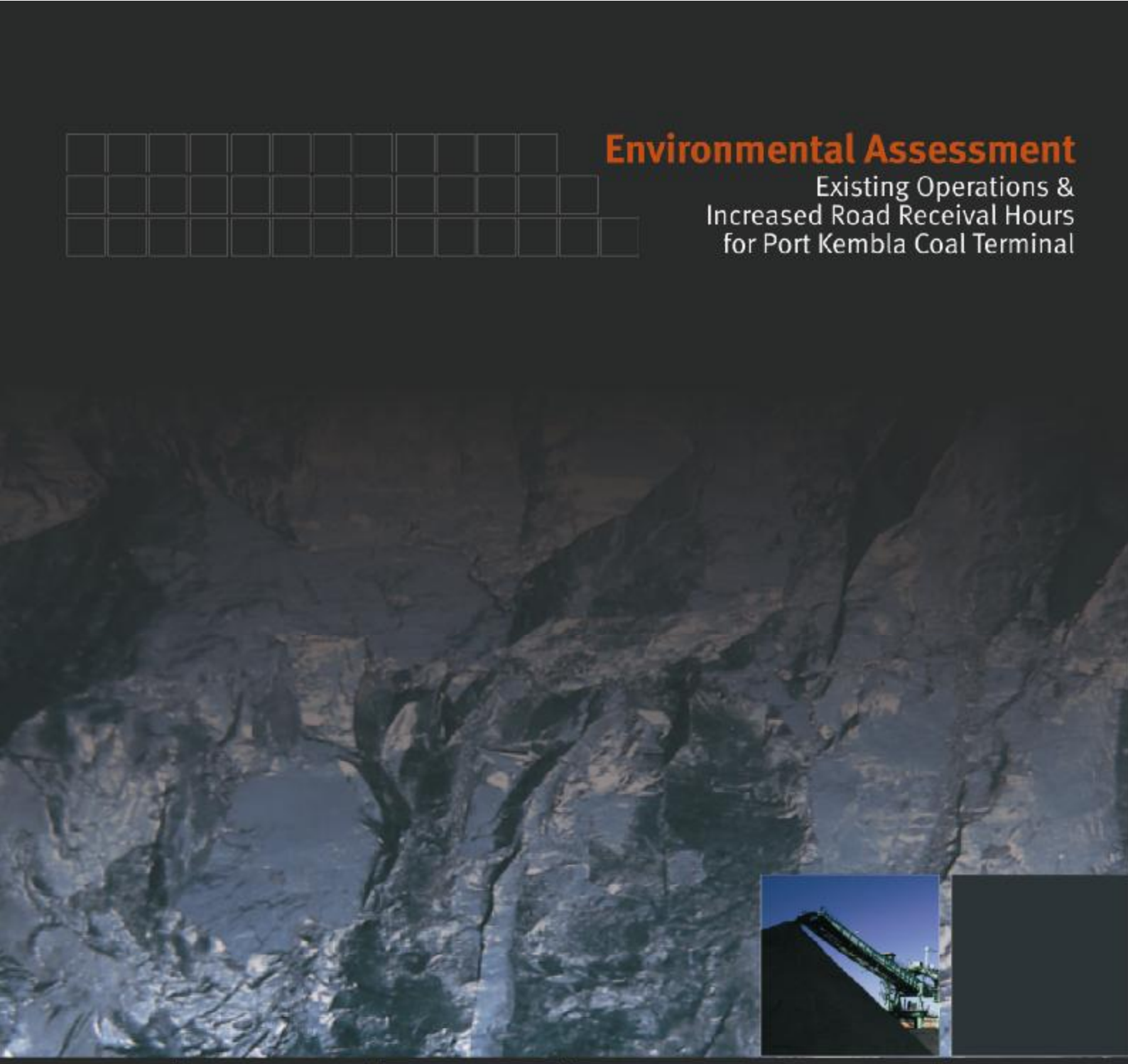
Environmental Assessment

Existing Operations &
Increased Road Receival Hours
for Port Kembla Coal Terminal



Existing & Proposed Operations

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4. EXISTING AND PROPOSED OPERATIONS

This section describes the PKCT existing development and the general aims of, and desired outcomes from, the development proposed in this Environmental Assessment.

Director General Requirement

A historical overview of the terminal's operations, including a detailed description of the existing and approved operations.

4.1. EXISTING OPERATION

4.1.1. Overview of PKCT Existing Onsite Operations

As discussed in **Section 1.5** PKCT is an intermodal facility primarily used for the transfer of product from road or rail to ship. It is this process which has directed the development of PKCT and existing onsite operations are organised to make this process as efficient as possible whilst minimising environmental impacts.

PKCT's current customers include BHP Billiton Illawarra Coal, Centennial Coal, Xstrata Coal, Peabody, Tahmoor Coal, Gujarat NRE, BlueScope Steel, Illawarra Coke Company and Australian Steel Mill Services.

The coal mines currently supplying coal to the Terminal are located in two regions, the Southern Coalfields in the Illawarra and Wollondilly regions, and the Western Coalfields in the Lithgow region. The mines serviced include the following Collieries:

- Appin
- West Cliff
- Dendrobium
- Gujarat NRE No. 1
- Wongawilli
- Metropolitan
- Tahmoor
- Baal Bone
- Charbon
- Clarence
- Ivanhoe No. 2
- Springvale

PKCT also receives coke and slag from the following locations:

- Coalcliff & Corrimal Coke Works
- BlueScope Steel
- Australian Steel Mill Services

PKCT is also working with several additional prospective customers who are considering the shipments of coal from mines further afield through Port Kembla. In addition, several additional prospective customers are seeking to ship a variety of bulk products through the Bulk Products Berth.

This EA and the traffic modelling conducted to assess trucks delivering up to 10mtpa of coal and bulk products (see **Section 6.5**) was carried out for the existing and proposed routes for the three mines and bulk products producers which currently deliver coal and bulk products by road to PKCT. It is noted that the majority of existing coal and bulk products haulage routes are via arterial roads.

Coal from Dendrobium Mine is transported by rail from the mine to the Coal Preparation Plant located within the BlueScope Steelworks precinct, and currently transported from the preparation plant by private road to PKCT. However due to development within the Port Precinct, it may be necessary in future for this coal to be hauled via public road to PKCT. The trucks would leave and re-enter the BlueScope Steelworks through 21 Entry Road and would proceed North on Springhill Road to Port Kembla Road. As this represents a change to current operating conditions, impacts have been modelled and assessed. This tonnage is captured under the 10 mtpa cap on public road receivals.

In future, should an existing or new customer wish to deliver coal and bulk products to PKCT using principally the same arterial roads which have been assessed in this EA, and they have the appropriate approvals in place, it is proposed that this Part 3A Application would enable PKCT to accept coal and bulk products by public road, up to the proposed 10mtpa road limit.

In addition to existing PKCT customers exporting product by ship, some coal is received via rail in-loading and then subsequently out-loaded by road from PKCT to service coke customers, notably Illawarra Coke Company. This service is sporadic in nature, and required to assist in providing cost-effective solutions to coke customers, using trucks which would otherwise depart PKCT empty.

Existing infrastructure at PKCT is adequate to meet current operations and the proposed change to operations which are anticipated in this EA. The current annual throughput is approximately 13.1 million tonnes per annum, financial year ended June 2008.

Approximately 40% of the total coal throughput is delivered to PKCT by road from three locations, namely BHPBIC West Cliff Coal Preparation Plant (CPP) (this includes coal mined at West Cliff & Appin Collieries), BHPBIC Dendrobium CPP and GNRE No. 1 Colliery. These deliveries are referred to herein as road delivery mines.

In addition, coke is delivered by road from Coalcliff Coke Works, Corrimal Coke Works and BlueScope Steel. Slag is delivered by road by Australian Steel Mill Services. The coal is

delivered to the PKCT road receival loop which is located off Port Kembla Road within the rail receival loop. The coke and slag is delivered to the Bulk Products Stockyards.

Approximately 60% of coal is delivered to PKCT by rail from Tahmoor, Metropolitan, Wongawilli, Baal Bone, Charbon, Clarence, Ivanhoe No. 2 and Springvale Collieries.

The coal is transported from the receivals area by conveyor belts and assembled for loading by the operation of three track mounted stackers into two parallel stockpile pads each approximately 50 metres wide by 1000 metres long. The area allows for 16 separate types of coal with a maximum cargo assembly capacity of 850,000 tonnes.

Two rail mounted slewing bucket wheel reclaimers undertake reclaiming of cargo from the stockpile area to vessel. The system has a loading capacity of 6,600 tonnes per hour (tph). Conveyor belts transport coal throughout the system linking with one reclaimer and one ship loader at any time. There are 15 conveyor belts in total with a total length of 10km.

PKCT has two ship berths. Berth 102 is designed for the loading of coal vessels with cargo up to 166,000 Deadweight Tonnes (DWT). The berth is equipped with two ship loaders which under normal operations load up to 120,000 DWT, however special cases are made to enable larger cargo to be loaded, with the record DWT of 166,000. Berth 101 loads a number of bulk products, including coke and slag.

PKCT operates in accordance with EPL 1625. Dust emissions are the most significant environmental aspect, which could potentially affect the community. Management of dust emissions within acceptable levels is through stockpile spray systems (see **Figure 8**), water sprays at transfer points and other controls (see **Section 4.1.9**).

Numerous water sprays are located within the PKCT site. These retain high levels of moisture within the coal to limit the movement and escape of dust.

Figure 8 – Spray System

An aerial view of the PKCT plant and coal storage is provided in **Figure 9**.

4.1.2. Receival Systems

Rail

The coal terminal is designed to receive coal by rail in "unit trains" with bottom dump-wagons. Train size ranges from 32 to 45 wagons. Trains enter the port along the rail line which branches from the main line at Coniston, and proceed around a loop in a clock-wise direction, dumping coal within the receival terminal before leaving the site (see **Figure 10**).

Maximum unloading efficiency is achieved by using these unit trains traversing the balloon rail loop and entering the rail receival shed (see **Figure 11**), enabling trains to dump their loads while moving, through bottom doors on the wagons (see **Figure 12**). The train speed through the unloading facility is maintained at an average of 0.75kph, with a train taking approximately one hour to unload. Traffic lights advise the driver to increase, maintain or decrease speed in order to achieve the required average speed for unloading.

Proportioning of the rail dump hopper allows trains to unload wagon by wagon. It has a capacity of 300 tonnes and is only intended to hold coal for momentary surges. During normal delivery the hopper is continually emptied via the discharge openings.

The hopper is a single unit with six discharge openings, coal is recovered from the hopper through under-bin belt feeders. The feeders discharge material to a collecting conveyor, C5, and is conveyed to either the western or eastern stockyard or to a vessel at the 102 berth.

PKCT
PORT KEMBLA COAL TERMINAL

Site Plan

PORT KEMBLA COAL TERMINAL

Legend

- Stacker
- Reclaimer
- Reclaimer Long Travel Rail
- Stacker Long Travel Rail
- Cadastre (LPI)

PKCT Lease Area

- Site Boundary
- Sub Areas

N E S W

Scale 1:14,000 (at A4)

Meters
0 50 100 200 300 400 500

FIGURE 9

Cardno Forbes Rigby

Map Produced by Cardno Forbes Rigby
Date: 2 July 2008
Coordinate System: Zone 56 MGA/GDA 94
GIS MAP REF:
108004_01_1802_Site_Plan_A4_Rev_P2_2.mxd
Imagery supplied from Google Earth Pro
and associated third party suppliers.

PORT KEMBLA COAL TERMINAL
RAIL RECEIVAL AREA

Site Plan (Inset)

Legend

- Stacker
- Reclaimer
- Reclaimer Long Travel Rail
- Stacker Long Travel Rail
- Cadastre (LPI)

PKCT Lease Area

- Site Boundary
- Sub Areas

Scale 1:5,000 (at A4)

Metres

0 25 50 100 150 200

FIGURE 10

Cardno Forbes Rigby

Map Produced by Cardno Forbes Rigby
Date: 13 June 2008
Coordinate System: Zone 56 MGA/GDA 94
GIS MAP REF:
108004_01_1812_Rail_Receival_Area.mxd

For the financial year ending June 2007, rail in-loading was 6.725 million tonnes of coal, which represented 57% of the total in-loading, with the remainder by road. There is an average of 8 trains per day, with an average load of 3,300 tonnes per train.

The coal delivery train unloads within a partially enclosed building to assist dust control.

Figure 11 – Rail Receival Shed

Coal is dropped from the wagon into a hopper for transportation to the stockpiles. Dust escape is minimised due to the enclosure of the rail receival area.

Figure 12 – Bottom Dump-Wagon

Road

The road system within the Coal Terminal enables trucks to enter the receival area, discharge coal into receival bins, pass through a washing facility and leave the port area efficiently without intruding into the main facility and without affecting rail deliveries to the port. The truck unloading loop is located within the rail loop (see **Figure 13**).

Receival of coal carried to PKCT by truck is in an enclosed hopper with a capacity of 3,000 tonnes. The terminal has the capacity to receive two separate coal types into two bins simultaneously. The road receival system has a nominal design capacity of 3,700 tonnes per hour (See **Figure 14**).

For the financial year ending June 2007, the road in-loading was 4.982 million tonnes of coal, which represented 43% of the total in-loading, with the remainder by rail.

PORT KEMBLA COAL TERMINAL ROAD RECEIVAL AREA

Site Plan (Inset)

Legend

- Stacker
- Reclaimer
- Reclaimer Long Travel Rail
- Stacker Long Travel Rail
- Cadastre (LPI)

PKCT Lease Area

- Site Boundary
- Sub Areas

Scale 1:2,000 (at A4)

Metres

0 12.5 25 50 75 100

FIGURE 13

Map Produced by Cardno Forbes Rigby
Date: 13 June 2008
Coordinate System: Zone 56 MGA/GDA 94
GIS MAP REF:
108004_01_1811_Road_Receival_Area.mxd

Coal is tipped into the under road hopper for conveyor transportation to the stockyards. Wind barriers assist dust control.

Figure 14 – Road Receivals

Coal from the road receival can be conveyed to either the western stockyard, or eastern stockyard or to a vessel at Berth 102. Before any trucks depart the Coal Terminal they must proceed through a truck wash to remove dust before proceeding on to public roads.

4.1.3. Conveyors

A system of conveyors (see **Figure 15**) and transfers directs coal from the receival facilities either to any one of the stackers or, directly to the shiploaders. Conveyor transfer points are fully enclosed to reduce dust escape. The system has been designed to allow flexibility in the receipt, storage and loading of various coal products. The system comprises 15 principal conveyors with a total belt length of approximately 10 km. Belt width ranges from 1.5 m to 2.2 m, with speeds of up to 5.3 m per second.

Transportation of coal via conveyor from the rail or road receival area to the stacker.

Figure 15 - Conveyor

The collecting conveyors C1, C5 and C11 are equipped with a magnet at the discharge end for removal of metal material. Neither system can operate unless the magnet is in position and energised.

4.1.4. Stockpiles

The main stockpile area consists of two parallel stockpile pads, each approximately 50m wide and 1,000m long, located to the south of the receival area (see **Figure 16**). These provide approximately 850,000 tonnes of storage, however, the working capacity of the stockyard is approximately 600,000 tonnes.

Coal is stacked onto these stockpiles by three rail mounted luffing stackers (see **Figure 17**). The luffing (up and down) action of the stackers allows a minimum drop height to be maintained at all times, reducing dust generation. Each machine has a nominal capacity of 3,700 tonnes per hour. Two machines will operate from the one yard belt. While one machine is stacking the other machine may travel to the required location for its next task, thus assisting in achieving efficient service.

The stockpiles are serviced by an extensive stockpile spray system involving 165 water cannons, which operate automatically during high winds. Water application is undertaken as required to maintain coal moisture level at the optimum moisture content and after taking into consideration weather conditions, forecasts and coal types.

The stockpiles are located between the stackers with the bucket wheel reclaimers in-between the piles.

Figure 16 – Stockpiles

The moveable stacker deposits coal in organised piles depending on owner and type. PKCT has three stackers which operate effectively to accommodate high delivery levels. The stacker arm moves up and down to minimise coal dust movement by reducing the height from which coal is dropped.

Figure 17 - Stacker

4.1.5. Reclaiming

Reclaiming of coal from stockpiles is by rail mounted bucket wheel reclaimers, using 52 metre boom machines each with a peak capacity equal to the full 6600 tonnes per hour output of the system. The use of full capacity machines provides a complete back-up in case of breakdown and also enables pre-positioning to reduce machine travel time when changing cargoes.

The reclaimers discharge to conveyor C11. In the ship loading mode material will be transported to the vessel on C11 travelling forward. An operator drives the reclaimer as it moves across different bench levels of the stockpile face picking up coal to be transferred by conveyor belts to the ship (See **Figure 18**).

The bucket wheel can be moved laterally and vertically in order to fully collect coal. The operator is housed in a cabin just behind the wheel for optimum visibility. The bucket wheel deposits coal on a conveyor belt which transports coal to the ship loader. The white vehicle behind the wheel gives an idea of scale.

Figure 18 – Bucket Wheel Reclaimer

4.1.6. Loading Berths

The inner harbour channel depth is 15.25 metres (Port Kembla Harbour datum). There are two loading berths named Berth 101 and Berth 102, the coal berth being 102 and the bulk products berth 101. Berth 102 is equipped with two shiploaders, each with a design capacity of 6,600 tonnes per hour. The loader dimensions and outreach suit vessels of 206,000 DWT (see **Figure 19**).

Berth 102's berthing basin is 16.25m enabling the loading of vessels with cargo up to 166,000 DWT. This berth enables dredging of the basin to 18.25m.

Berth 101 is much smaller with a berthing basin depth of 11.6 metres and is restricted to vessels with a maximum cargo size of approximately 50,000 DWT. Primary use of this berth is to ship smaller cargoes of coke, slag and other bulk products. A trial, approved by DECC, is currently in progress to use Berth 101 to load coal onto small vessels. PKCT advise this trial has produced excellent results and if continued will provide flexibility in the future for optimal utilisation of Berth 102.

Coal from the bucket wheel reclaimer travels along the conveyor belt and in to the ship loader. The 'nose' of the loader drops into the hold of the ship to ensure minimum dust emissions. The loader moves laterally to access the different holds.

Figure 19 – Ship Loader

4.1.7. Bulk Products Berth

The Coal Terminal has a Bulk Products Berth No. 101 (BPB) which has a capacity of over 2mtpa (see **Figure 20**). The BPB is supported by 500,000 tonnes of stockpile capacity comprising a road receival area, road hopper, coke screener, stockyard, conveyors, transfer stations, ship loader, front end loaders, wharf and berthing basin. The BPB has the capacity to handle both self discharging and geared vessels, at a loading rate of up to 1,000 tonnes per hour, depending on the product type.

Materials are stored in the BPB stock yard prior to being loaded onto a vessel berthed at the number 101 berth.

Figure 20 – Bulk Products Berth

During FY07, PKCT total product shipped at the BPB was 540,000 tonnes. This included 171,000 tonnes of granulated slag (which is for domestic use) and 369,000 tonnes of coke (which is primarily for export markets, the two main ones being Europe and India).

PKCT also outloads small quantities of coal, via trucks, for the production of coke. Trucks currently bring coke to PKCT for export through the BPB, and the majority leave unladen, while a small quantity of trucks depart laden with coal back to the Coke Works.

The BPB also comprises an emergency coal storage area, which provides a truck shedding option in case of a prolonged road receival breakdown. This avoids possible truck queues extending onto public roads and additional truck movements associated with trucks returning to mine sites.

During FY07, PKCT has assisted two existing customers by in-loading coal via rail, and out-loading the same coal via road for use in coke production. The out-loading of coal to the Illawarra Coke Company (ICC) Corrimal and Coalcliff Coke Works was initially conducted under a “trial” agreement between PKCT and ICC with DECC and Wollongong City Council approval. This is on average for 550 tonnes per week of coal, loaded 1 day per week through 20 loads using 5 trucks. The trucks depart the PKCT site after going through the existing truck wash facility.

4.2. EXISTING ROAD HAULAGE ROUTES

Trucks travel along the pre-approved haulage routes to deliver coal and bulk products to PKCT. This minimises traffic impacts on smaller, residential, roads and ensures congestion is minimised by retaining trucks on roads with a greater capacity to carry high levels of traffic. The designated haulage routes allow for easier monitoring and modelling of current and future coal and bulk products truck numbers and impacts, as proposed by this EA.

Public road delivery of coal to PKCT currently occurs from the following two locations.

West Cliff Colliery

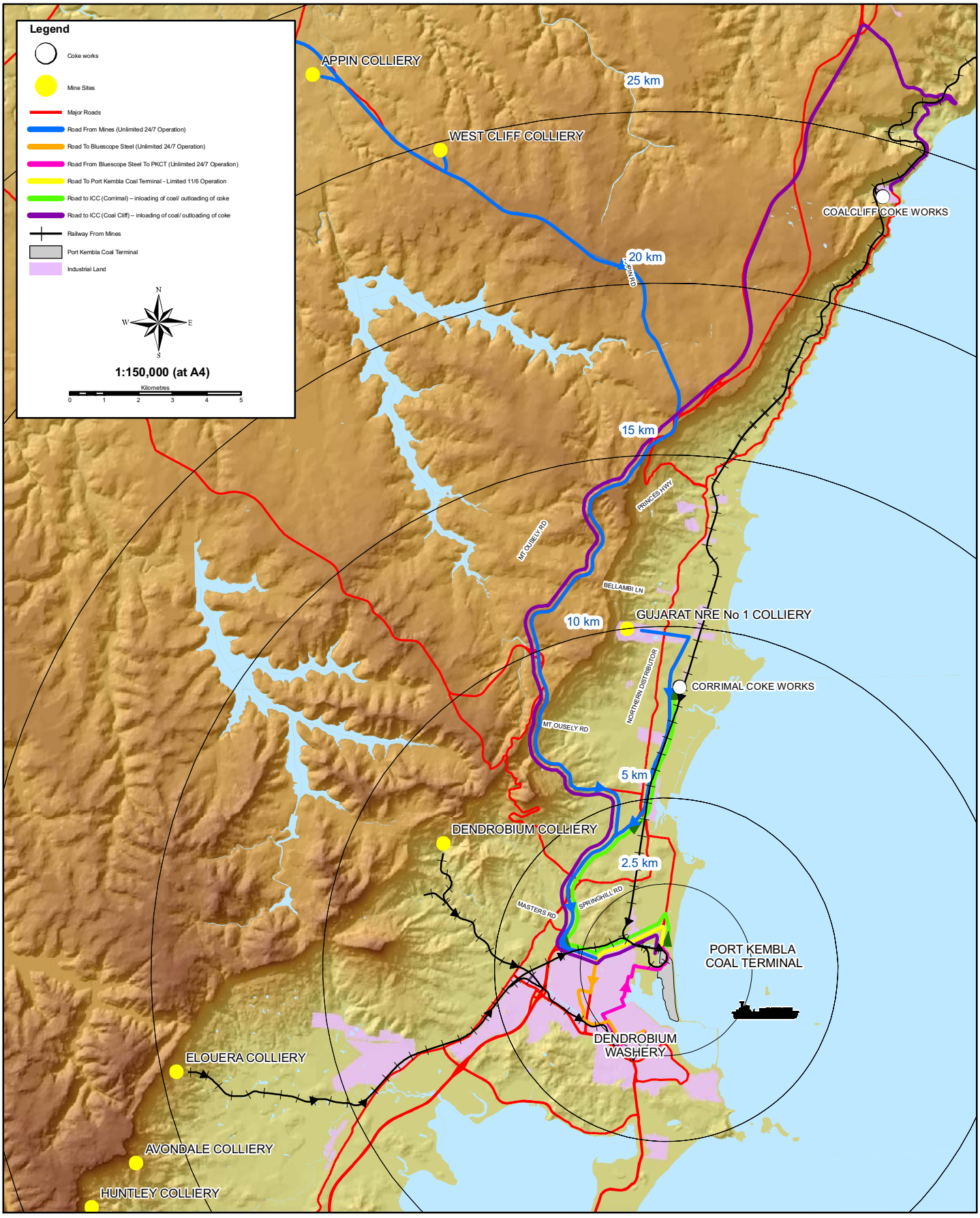
BHPBIC's West Cliff Coal Preparation Plant (CPP) is located at West Cliff Colliery approximately 4 kilometres south of Appin and 50km north of PKCT. West Cliff CPP processes coal from BHP Billiton's West Cliff and Appin collieries, with primary output being high quality coking coal. The clean coal is loaded onto trucks and delivered to Port Kembla Coal Terminal or to BlueScope Steel, which is also in the port of Port Kembla precinct.

NRE No 1 Mine

NRE No 1 Mine is located at Russel Vale in Wollongong's Northern Suburbs. The mine produces unwashed or Run of Mine (ROM) coking coal which is transported by truck 14.1 kilometres to PKCT destined for export to India.

The road haulage routes, including the routes used by ICC to transport coke to PKCT, are shown on **Figure 21** overleaf. Roads forming the haulage routes include:

- Specific roads from Gujarat NRE No.1 Mine & ICC Corrimal Coke Works to PKCT:
  - Bellambi Lane
  - Northern Distributor.
- Specific roads from West Cliff CPP to PKCT:
  - Appin Road
  - Mount Ousley Road
  - Southern Freeway (Northern).
- Specific roads from ICC Coalcliff Works to PKCT:
  - Lawrence Hargrave Drive
- Common roads to PKCT:
  - Southern Freeway (Southern)
  - Masters Road
  - Springhill Road.



Coal & Coke Haulage Routes

PORT KEMBLA COAL TERMINAL

FIGURE 21

PKCT
PORT KEMBLA COAL TERMINAL

Cardno Forbes Rigby
Shaping the Future

Map Produced by Cardno Forbes Rigby
Date: 29 October 2007
Coordinate System: Zone 56 MGA/GDA 94
GIS MAP REF:
108004_01_1801_Existing_Operations_A4.mxd

This EA provides an overview of roads forming the coal and bulk products haulage routes where changes to operating conditions are proposed:

4.2.1. Appin Road

Appin Road is an arterial road linking the Southern Freeway at Bulli Tops with coal mines near Appin and south-western Sydney. It is a state road and classified as Main Road No. 177. This road is predominantly a two-lane undivided rural road, with frequent overtaking lanes due to the high volume of heavy vehicles.

4.2.2. Mt Ousley Road

Mount Ousley Road is an arterial road linking the two sections of the Southern (F6) Freeway between Bulli Tops and Mount Ousley. It is a state road – classified as Main Road No. 513 north of Picton Road and Main Road No. 95 south of Picton Road – and carries a majority of the road traffic between Sydney, Wollongong and points south.

Mount Ousley Road consists of many steep descents; a posted speed limit of 40km/h applies for heavy vehicles on descent from Clive Bissell Drive to the Southern Freeway.

Noise barriers are in place on Mount Ousley Road adjacent the residential areas.

4.2.3. Southern Freeway

The Southern Freeway forms part of the arterial route linking Sydney and Wollongong, and is split into two sections; Waterfall to Bulli Tops and Mount Ousley to Yallah. It is a State Road, classified as Freeway No. 6006. It carries the nickname “F6” as that was both its legal classification and route number for many years.

The focus of this study is the section of the Freeway between Mount Ousley Road and Masters Road. This section is predominantly four lanes with a jersey barrier median. There are two additional lanes between Northern Distributor and Princes Highway interchanges.

Noise barriers are in place along residential and noise sensitive areas of the F6.

4.2.4. Masters Road

Masters Road is an arterial road connecting the Southern (F6) Freeway and Springhill Road. It is a State Road – classified as Main Road No. 602. It consists of dual carriageways of six lanes with a posted speed limit of 80km/h.

Masters Road was constructed in 1978 to provide a direct connection between the Southern (F6) Freeway and Springhill Road, to eliminate heavy vehicles from the Mount St Thomas residential area. The development along Masters Road is largely industrial.

4.2.5. Springhill Road

Springhill Road is an arterial road connecting Masters Road and PKCT, as well as being part of the main link from Wollongong to Port Kembla, Warrawong and Shellharbour. It is a State Road – classified as Main Road No. 581. The road was purpose built as a high capacity, access restricted route as a result of port development in the period 1955-1961.

4.2.6. Port Kembla Road

Port Kembla Road is a State Road – classified Main Road No. 671 – providing access from the arterial road network to PKCT. It functions as a local road due to it only serving a heliport, sewage treatment works and the port.

4.2.7. Bellambi Lane

Bellambi Lane is an east-west road linking Gujarat NRE No. 1 Mine, Princes Highway, the Northern Distributor and Bellambi Railway Station. The section used for coal haulage is between Gujarat NRE No. 1 Mine and Northern Distributor.

Between Princes Highway and the Northern Distributor, Bellambi Lane is a four-lane undivided road with restricted access. It is part of the Princes Highway (Highway No. 1) and a State Road. However, once the Northern Distributor extension is completed in mid 2009 (as forecast on the RTA website under the 'Construction and Maintenance' subheading), it is proposed that the Highway No. 1 and State Road classifications will be moved onto the new road. Bellambi Lane will revert to being a collector road.

4.2.8. Northern Distributor

The Northern Distributor is an arterial road through Wollongong's northern suburbs, extending from the Southern (F6) Freeway at Gwynneville to Bellambi Lane at Bellambi. Extension of the distributor to Princes Highway at Molloy Street, Bulli, is underway and due for completion in 2009.

Section 3.2 of the Traffic Study in **Appendix G** provides detailed descriptions of each of these roads.

4.3. PKCT PROCESSES & ENVIRONMENTAL MANAGEMENT

4.3.1. Coal Quality Assurance & Quality Control

Samples are collected from all shipping consignments for determination of ash and moisture contents. The C13/C14 transfer is the point from which primary samples are taken. These samples are crushed and the quantity reduced, with secondary and tertiary samples, into a manageable size. A laboratory undertakes further analysis of these samples.

Sampling is carried out by private sampling companies and is not the responsibility of PKCT other than to maintain the sampling equipment located in Transfer Station 8.

A weigh system is also provided for operator and inventory purposes. All cargoes received and exported are weighed on conveyor scales. These scales are located:

- Rail receival conveyor C6
- Road receival conveyor C2
- Shiploading conveyor C13.

Scales are also provided for the reclaimer boom conveyors, as part of the reclaimer equipment as assistance to the operator.

4.3.2. Environmental Safeguards

Dust control from stockyards is primarily achieved by the spraying of water onto the stockpiles intermittently. The water sprayed replaces moisture lost through evaporation and dampens the coal and bulk products, which helps to mitigate against potential dust emission due to atmospheric conditions.

The spray system is computer controlled and spray cycles activate automatically once wind speed exceeds 10 metres per seconds. An early high wind warning system is in place. In addition, the PKCT control tower manually monitors southerly winds and weather forecasts. If necessary, control tower personnel will manually activate spray cycles.

A number of other environmental safeguards have been employed at PKCT, principally in relation to coal and bulk products spillage, cleanup, collection and removal. These include:

- Rail receival area is enclosed within a shed; rail bins sprays are available and may be activated by train unloading personnel if required
- Road receival area is screened and constructed of concrete with a kerb and gutter; road sprays are located adjacent to receival bins; trucks are washed on leaving site via an automatic truck wash
- Receival conveyors are fully enclosed and transfer points are enclosed within transfer station buildings
- Conveyor sprays are located at key transfer points to add moisture during receivals and/or shiploading if required

- Wind guards are located on each side of yard conveyors and shiploading conveyors
- Shiploading conveyors to and from the sampling station are fully enclosed and associated transfer points are located within transfer station buildings
- Water scapers are located at various locations controlling dust at the head end of open conveyors
- Misting sprays under yard conveyors control dust escape from trafficable areas
  – *Page revised 7 Aug 2008*
- Shiploader discharge chutes are able to extend into a ship's hatch providing protection from the wind for the coal being deposited
- Stackers are set subject to stockpile height controlling the drop height of coal being discharged from the stackers to minimise dust generation from the stacking process
- In stockyard cleaning:
  - Front end loaders and trucks are regularly cleaned to remove dust
- Collection ponds:
  - Spills and surface water are controlled via a water management system to meet EPL 1625 standards prior to release off site
- Roads and sealed areas are cleaned using a sweeper truck or water cart as required
- Water cart is used as an additional dust control measure in the BPB stockyard and to control dust in unsealed areas.

For further information refer to **Section 6.5** and the Environmental Management Overview in **Appendix H**.

4.3.3. Occupational Health and Safety

PKCT has a Health, Safety, Environment and Community (HSEC) management system in place incorporating policies, standards, management plans and procedures.

This system covers onsite operations, maintenance and service activities to provide preventative measures through hazard identification, risk assessment and reduction together with corrective measures through incident investigation. PKCT has an emergency management plan ensures effective emergency response.

PKCT has a strong focus on HSEC performance improvement through business planning and operational processes. PKCT advise this has realised a significant improvement in recordable injury frequency rate in recent years with a record of zero recordable injuries for the 12 months to 17 June 2008.

4.3.4. Ancillary Services

PKCT material handling facilities are supported by a range of ancillary infrastructure including:

- Storm and process water collection system

- Road street lighting and drainage system
- Security fencing, camera and site surveillance facilities
- 1 workshop complex
- 2 contractor depots
- Administration Building
- Main Control Tower
- Amenities Block
- Water supply infrastructure including a water reservoir, pump house and water supply distribution system
- Electrical Switch rooms.
- Sewerage system
- High voltage power supply network including cabling, pits, transformers, sub stations
- Two wharves and associated ship mooring facilities
- Two road bridges.

4.3.5. Hours of Operation

PKCT operates 24/7, with the exception of road receivals via public road, which are limited to 7am to 6pm Monday to Saturday excluding Public Holidays.

PKCT is staffed 24/7. Staff rosters are organised to ensure 24/7 operation of the Terminal to meet customer and shipping requirements.

Equipment maintenance at PKCT, including trucks, cranes, boom lifts, and vehicles, occurs regularly at convenient times based on product throughput and use of machinery. As PKCT does not have any onsite operational time restrictions work may be carried out at any time during a 24 hour period.

4.4. PROPOSED OPERATION

4.4.1. Recycled Water Dust Suppression

PKCT uses about 475ML per annum (1.3ML per day) of potable water, mainly for dust suppression. This makes it the 14th largest water user in NSW (2nd largest in the Illawarra).

PKCT is currently implementing a water re-use project, which will see the reduction of approximately 75% of the current potable (fresh) water usage on site for dust suppression replaced with Tertiary Treated Effluent (TTE). The project includes:

- Installation of a pipeline, connecting PKCT and the adjoining Sydney Water Sewerage Treatment Plant to the north, through which TTE will be supplied
- Installation of pressure reduction and backflow protection equipment
- Upgrading and reconfiguration of PKCT's water supply pumps to enable TTE to be used for all non domestic water uses on site

- Physical separation of PKCT's domestic and non domestic water supply systems
- Supply of domestic water from PKCT's existing emergency water supply line.

PKCT has undertaken various technical studies into the Occupational Health and Safety, environmental risks and health implications of using TTE on site, as well as on coal and other bulk product stockpiles for dust suppression.

PKCT has approved the water re-use project, which is valued at $1.2M. The project will result in water savings of 360 ML pa, commencing in December 2008.

4.4.2. Project Objectives

The objective of this project is to provide optimal throughput of coal through PKCT by eliminating the current constraint to road receival of coal and bulk products, which currently exists under the Infrastructure SEPP. PKCT is currently constrained for 60% of the available time by this limitation on receiving coal and bulk products by public roads during 11/6 restrictions when the remainder of the operation is 24/7. The increase in delivery hours will enable an increase in the amount of coal and bulk products delivered by road to a maximum of 10mtpa.

Both the Wollongong City Council Development Consent (D79/44) and SEPP 7 were developed in 1979 and 1982 respectively, at a time when different coal transportation routes, road infrastructure and truck fleets were in place. SEPP 7 was introduced to minimise the impacts of road haulage of coal and bulk products on residents of Wollongong at a time when there were eleven mines delivering coal via road. Only three mines deliver coal by road today. Coal and bulk products transportation routes from the three mines are markedly different today to that of over 25 years ago. Since 1982:

- Significant changes have been made to improve road infrastructure, including jersey barriers, noise attenuation barriers and additional lanes on the coal and bulk products haulage routes to and from PKCT
- Trucks have been designed to be both quieter and have larger payloads (eg B-doubles), resulting in fewer trucks on the road
- Truck fleet safety and environmental performance have improved markedly.

4.4.3. Construction

There is **no** construction proposed as part of this Part 3A application.

Construction is not required to facilitate the proposed throughput at PKCT because the existing receival areas, conveyor systems and stacking, reclaiming and ship loading plant all have capacity to accommodate the proposed increase in road delivery to 10mtpa.

4.4.4. Coal Berth Future

At the time of writing this Environmental Assessment, it is proposed that the Coal Berth (102) will continue to operate at PKCT as it has in the past using the same plant and equipment,

which has been described in **Section 4.1.6**. It should be noted that PKCT has no capacity expansion plans.

Throughput at PKCT, or the volume of coal shipped through the Coal Terminal, has varied over the past 16 years, with the highest recorded in 1992 of 15.2mtpa. During 1999 to 2004, throughput remained under 10mtpa. However, from 2005 to 2008 throughput grew steadily from 10.1 to 12.6mtpa. PKCT has seen a steady incremental growth in coal throughput over the past four years (refer to **Figure 22**), and this steady growth is expected over the next five years.

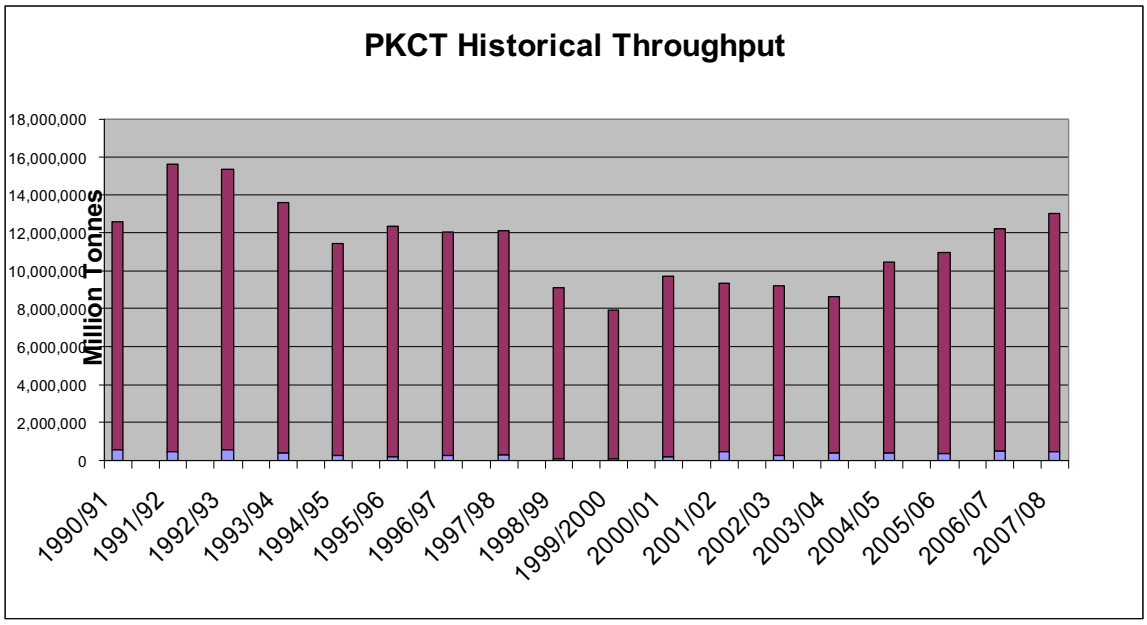


Figure 22 – PKCT Historical Throughput

While it is difficult to accurately predict the forecast throughput of coal, it is not anticipated that volumes of coal will decline as high levels of market demand in the export coal industry, and strong levels of confidence have been expressed by PKCT customers in the medium to long term. Market conditions are currently strong, with international coal demand outstripping Australia's capacity to supply both thermal and coking coal. Market prices for both thermal and coking coal are at record high levels, which have not previously been experienced.

At the time of writing this Environmental Assessment, there is a high case for throughput in the order of 20mtpa to 25mtpa by 2013/14, which may or may not come to fruition. There are many factors which may impinge upon the capacity of the "pit to port" supply chain's ability to meet high case throughput scenarios. These include:

- A change in the market conditions, which is not anticipated, however could possibly occur
- New or existing mine development plans not being realised
- Supply chain inability to meet demand
- Rail capacity inability to meet demand

One of the biggest future uncertainties is the capacity of the rail supply chain to deliver to PKCT. The rail supply chain includes both paths and rolling stock and is in part, constrained by competing priorities for rail paths with passenger services. This sees a "curfew" placed on the rail paths, which have been estimated as limiting up to 38% of the available window of time rail freight deliveries can occur to PKCT.

PKCT's total throughput capacity has not been 'tested' since 1992/93, when the highest record throughput of 15.2mtpa of coal was experienced, over 15 years ago. It is believed that ship loading capacity of both berths 101 and 102 is in the order of 19mtpa to 20mtpa. However, it should be noted that the ship loading capacity is not the same as the overall supply chain capacity. Supply chain capacities are difficult to accurately measure, with a number of variables contributing including mine site loading and storage efficiencies, track maintenance outages, mine production outages, rolling stock availability, and competing priorities for rail infrastructure. The loading facility, in this case PKCT, is only one part of the overall pit to port supply chain.

At the time of writing this Environmental Assessment, and within the above mentioned overall pit to port supply chain capacity context, the most likely future throughput scenario by 2013/2014 will see between 18mtpa and 20mtpa as the total coal and bulk products throughput for berths 101 and 102 at PKCT.

4.4.5. Bulk Products Future

PKCT considers that in the future, there may be demands for more diverse bulk products receival and despatch. There are currently two key products at the BPB, namely coke and slag. In the past 2 years there has also been an increase in business development enquiries for the BPB from a wide range of bulk products.

The BPB is capable of loading a diverse range of bulk products and in the past, PKCT has despatched lump coke, breeze, copper slag, sand and coal. PKCT currently receives enquiries for other products for the BPB including magnetite, sinter filter cake, coal fines, paper products, gypsum, wood chip and quartzite.

As the port grows, increased use of the BPB is an opportunity for the port and the Coal Terminal. A trial, approved by DECC, is currently in progress to use Berth 101 to load coal onto small vessels. PKCT advise that this trial has produced pleasing results and if continued will provide flexibility in future for optimal utilisation of both Berth 101 and 102. This will meet aims of the Illawarra Regional Strategy and the State Government for continued economic growth for the region.

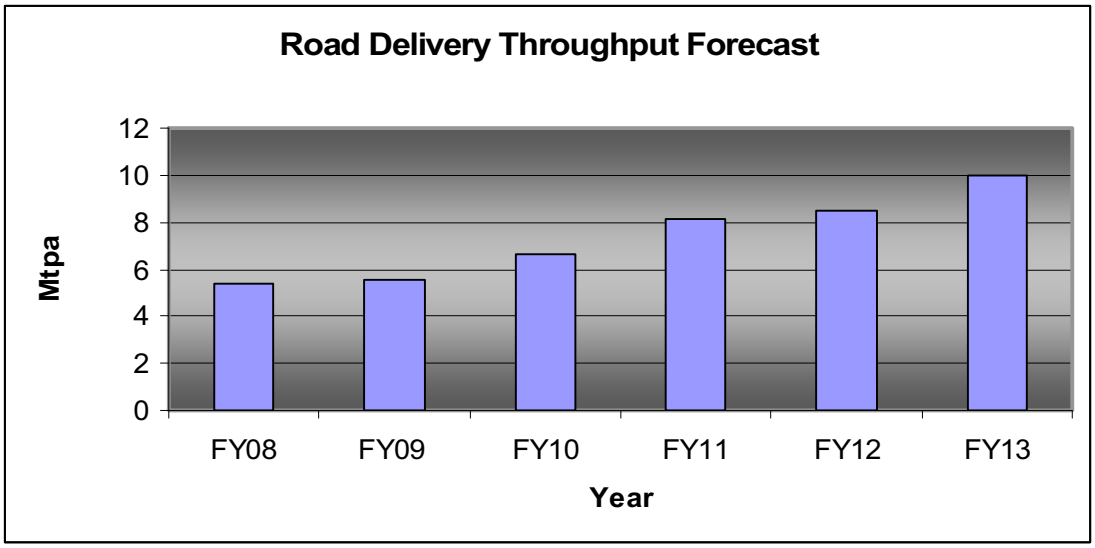
Volumes of product through the BPB have changed over time, from lows of 150,000tpa to high's of 600,000tpa. It is anticipated that in future, say by 2013/14 that throughput at Berth 101 (ie the BPB) will be in same order of magnitude as current volumes of approximately 500,000tpa. The exception is during 2009 when a surplus of bulk products will be shipped as a result of the BlueScope Steel blast furnace reline.

4.4.6. Road Receival Forecast

Efficiency gains through proposed 24/7 deliveries, coupled with strong forecast growth from customer mines, has resulted in increased road delivery throughput volumes being projected

for the coming 5 year period. Forecast delivery predictions from existing coal and bulk products customers have been collated and are exhibited in **Figure 22a**.

Figure 22a – Road Delivery Throughput Forecast



Unlike the rail capacity uncertainty (see **Section 4.4.4**), road delivery capacity following the proposed 24/7 operational hours, provides for certainty of delivery capacity. The throughput volumes exhibited above have been used for assessment and modelling, and are based on full forecast volumes from all customers being reached by 2013, which is the worst case scenarios for noise modelling.

These forecasts are based on current operating scenarios and are subject to change given operating parameters and market influences. On this basis, forecasting suggests that through incremental growth, coal and bulk products road receivals are expected to reach 10mtpa, on a best case scenario, by 2013.

4.4.7. Staging

It is envisaged that 24/7 public road deliveries to PKCT will commence as soon as possible after approval has been granted for this Part 3A application.

The growth in coal delivered to PKCT by public road to a maximum of 10mtpa is to steadily increase over the next five to ten years (see **Figure 22a** above), depending on production capability and market demand on coal and bulk products from road delivery mines. No developments at PKCT are required to facilitate the proposed increase in delivery times or amounts.

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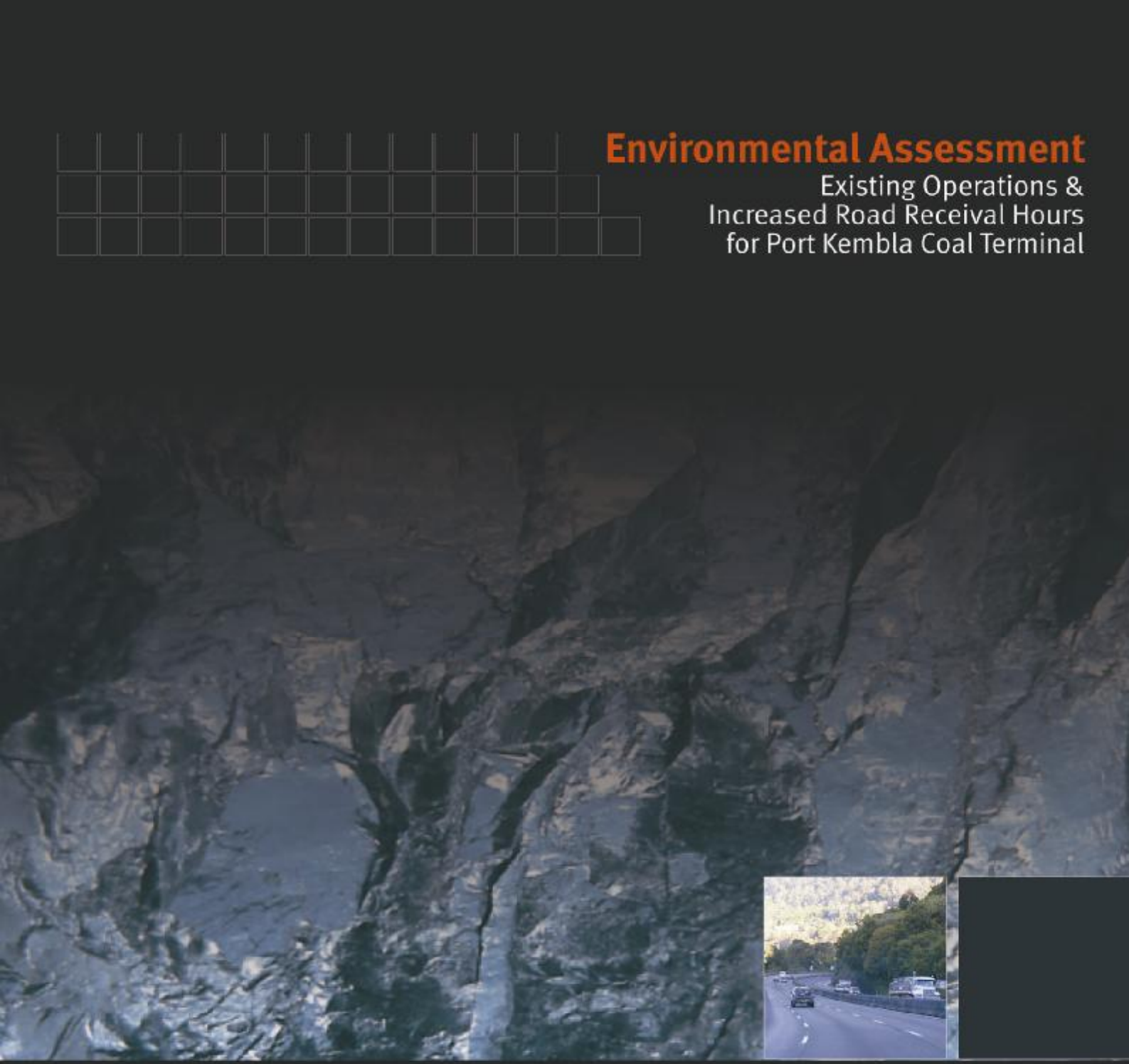
Environmental Assessment

Existing Operations &
Increased Road Receival Hours
for Port Kembla Coal Terminal



24/7 Public Road Delivery Trial

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5. 24/7 PUBLIC ROAD DELIVERY TRIAL

This section provides details of the 24/7 trial undertaken by PKCT in association with BHPBIC and GNRE.

Trial Approval Requirement

Traffic – A report on the extent and impacts of traffic during any road transport trial or during previous use of the "emergency provisions" under the repealed State Environmental Planning Policy No 7 – Port Kembla Coal Terminal.

5.1. BACKGROUND

The Infrastructure SEPP contains provisions in clause 73 (4d) to permit the DoP Director General to allow collieries to haul coal to PKCT via public roads over the full 24hour 7 day period for no longer than three months.

This provision allowed DoP to provide PKCT with an opportunity to carry out a trial of 24 hour 7 day per week deliveries in the current operating environment. The trial has proven to be a beneficial exercise for the PKCT proposal as it has permitted:

- Carriageway and intersection level of service monitoring along the coal haulage routes
- Noise monitoring of 24/7 coal truck operation, especially between Springhill Road and Port Kembla Road
- An opportunity to simulate the proposed increase in amounts of coal delivered by public road
- Comparison of previous occasions when 24/7 deliveries were permitted through emergency provisions being declared under SEPP 7 regulations
- Community consultation to assess actual impacts on residences along the coal haulage routes and determine if the general public had noticed the increased delivery hours.

This trial operated between 3 March and 14 April 2008. During these times, studies of noise, traffic counts and community perceptions were undertaken.

Under SEPP 7, PKCT had the authority to apply to the Minister for Planning for a period of emergency provisions, whereby, due to high shipping demands, coal could be received at the terminal on a 24/7 basis. During these periods, PKCT carried out noise and traffic monitoring to examine impacts. DoP has granted approval for several periods of emergency provision during the last decade. The most recent emergency provisions were conducted in December 2006 to March 2007. Results from noise and traffic monitoring of this period have been used within this EA to establish strong knowledge of existing operating conditions.

5.2. AIMS & COMMITMENTS

Table 5.1 identifies the aims and commitments for the 24/7 Trial.

Table 5.1 – 24/7 Trial Aims & Commitments

	Aim	Commitment
Hours of the day	• Spread truck deliveries over the full 24 hours of the day • Minimise peak commuter time traffic congestion	• Minimum 15% of total deliveries to PKCT at night (ie after 6pm and before 7am) • Staggered truck driver shift start and finish times
Days of the week	• Spread truck deliveries over the full 7 days of the week	• Minimum 5% of total deliveries to PKCT on Sundays
Tonnage Throughput Forecast	• Different delivery rates of projected increased volumes of coal throughput	• Minimum one 24 hour period and maximum three 24 hour periods of deliveries at 10 mtpa road received coal (ie 27,500 tonnes per day)
Community Perceptions	• Capture community issues and complaints	• PKCT Community Hotline data will be captured

5.3. SCOPE

The scope of the trial was to operate coal deliveries via public road to PKCT in a manner similar to that, which is proposed in this Part 3A application. This scope directed the aims and commitments of the trial.

A range of current operating constraints, which were explained to DoP, influenced the trial objectives. These limited the scope of the trial, as it is difficult within the current operating constraints to fully replicate the proposed increase in night time deliveries and the amounts of coal proposed to be delivered to PKCT by road.

The key constraints to the scope of the trial are discussed below.

5.3.1. 24 Hour Deliveries

As the normal operation of road receivals at PKCT are 11/6, trucking companies have scheduled their shift times to accommodate the existing time constraint. Furthermore due to the 11/6 restriction on PKCT, normal road based supply of coal to other customers, such as BlueScope Steel, are carried out at night. This resulted in difficulties in altering delivery plans, for the duration of the trial, whilst continuing to meet existing customer commitments.

The trial occurred during a time of moderate to low coal shipping volumes. This limited the available truck resources for delivery of coal to PKCT. Consequently, deliveries to PKCT had to be predominantly conducted during the day when availability of trucks and drivers was highest.

5.3.2. Seven Day per week Deliveries

The availability of coal trucks and drivers for deliveries on Sunday was limited for the following reasons:

- Sunday is primarily used for maintenance of truck fleets and PKCT plant because the current 11/6 restriction prevents public road deliveries to PKCT
- BHPBIC and PKCT employee shifts are based around no deliveries to PKCT on Sunday, and are used as a primary rest day for truck drivers.

5.3.3. Increased Coal Delivery

As previously mentioned the trial took place during a time of low shipping volumes, where high deliveries were not required to meet customer demands. As a result, truck fleets could not be fully utilised to deliver coal to PKCT.

5.3.4. Community Perceptions

No constraints were identified to effectively capturing community perceptions. Several options for community members to contact PKCT, BHPBIC or GNRE during the trial period were available.

5.4. METHODOLOGY

During the six week trial, BHPBIC had some flexibility in available coal stocks and truck fleets to increase the amounts of coal delivered to PKCT. Bulktrans, BHPBIC's primary haulage contractor, were fully involved in the organisation of the trial and additional deliveries based on known shipping forecasts.

GNRE did not have export requirements to enable an increase in deliveries to PKCT during the trial. This resulted in GNRE continuing with current delivery levels. To avoid noise impacts on neighbouring properties to No 1 mine, GNRE elected not to operate night time deliveries during the trial.

5.5. RESULTS

The results of the 24/7 trial are to be assessed against the aims and commitments listed in **Section 5.2**.

5.5.1. Overview

During the 24/7 trial coal was delivered to PKCT by road from the following sources:

- West Cliff CPP: 159,866 tonnes delivered in total, with 121,154 tonnes delivered during the day and 38,711 tonnes delivered at night

- Dendrobium CPP: 155,184 tonnes delivered in total with 110,095 tonnes delivered during the day and 45,089 tonnes delivered at night
- No.1 Mine: 46,971 tonnes delivered in total, with all deliveries being carried out during the day. There were no changes to delivery patterns or volumes during the trial.

West Cliff CPP and No. 1 Mine are the only current locations, which deliver coal to PKCT by public road. Delivery of coal from Dendrobium CPP to PKCT is along Tom Thumb Road, which is a private road within the port of Port Kembla precinct. When analysing the amount of coal actually delivered to the PKCT road receival hopper deliveries from within the port are included. For analysis of impacts on road delivered coal on the coal haulage routes and other traffic only deliveries from West Cliff CPP and No. 1 Mine are used.

5.5.2. 24 Hour Delivery

Figure 23 graphs volumes of coal delivered by road to PKCT during the 6 week 24/7 trial. A total of 361,860 tonnes was delivered to PKCT by road during the trial period, of which 278,059 tonnes was delivered during the day and 83,800 tonnes was delivered at night.

PKCT committed to deliver at least 15% of coal at night during the 24/7 trial. Based on the total amount of coal, delivered 23% of coal was delivered between 6pm and 7am. The total coal delivered at night has met commitment number 1.

Of the total 361,860 tonnes delivered, 206,837 tonnes were delivered by public road from West Cliff CPP or No. 1 Mine, with the remainder coming via private road from BHP Billiton's Dendrobium CPP within BlueScope Steel.

While GNRE deliveries were limited to daytime deliveries, all BHPBIC operations undertook night time deliveries. The combined total of all deliveries represented a split of 77% daytime deliveries and 23% night time deliveries, which exceeded the 15% commitment for night time road deliveries.

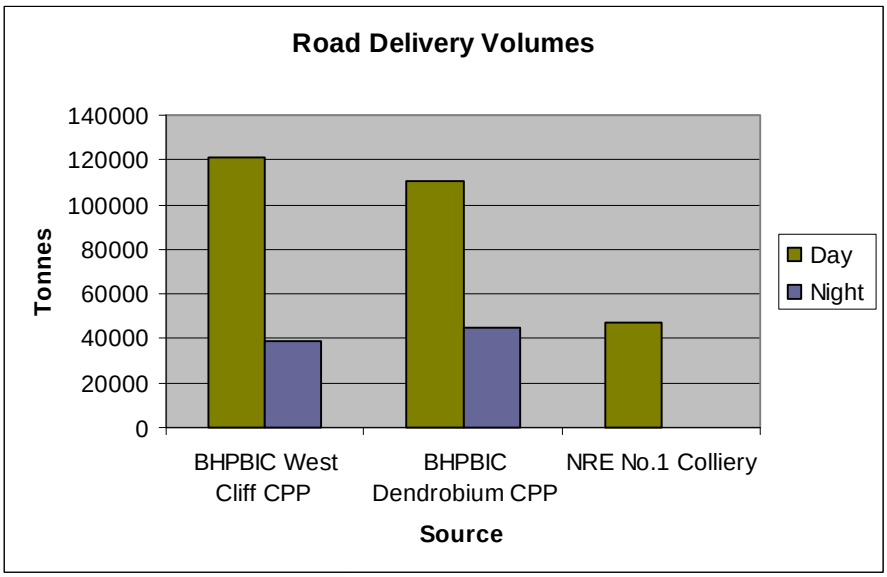

Figure 23 – Road Delivery Volumes

5.5.3. 7 Day per Week Delivery

Road deliveries to PKCT occurred on Sundays from two BHPBIC sources during the trial. Of the 361,860 tonnes of deliveries made to PKCT during the trial, 19,087 tonnes were delivered on a Sunday, which accounted for 5.2% of total deliveries. Therefore the target of 5% deliveries on Sunday, was met.

5.5.4. Increased Amounts of Coal Delivered

In order to replicate deliveries at a 10mtpa level during the trial, road deliveries to PKCT between 6am on 19 March and 6am on 20 March were significantly increased. Deliveries during this period were made from West Cliff CPP and Dendrobium CPP. The tonnes delivered from each location over the 24 hour period were:

- West Cliff CPP delivered 14,714 tonnes, in 409 truckloads
- Dendrobium CPP delivered 9,099 tonnes in 209 truckloads.

This resulted in a total of 23,814 tonnes delivered in the 24 hour period. Due to an equipment breakdown at PKCT, a delay of approximately 2 hours was experienced which significantly effected planned deliveries. 27,500 tonnes was required to be delivered to PKCT to simulate a 10mtpa day.

Tonnes delivered to PKCT in the proposed 10mtpa day equated to approximately 8.7mtpa. Due to low shipping volumes, a repeat of the 10mtpa simulation was not possible during the trial period.

5.5.5. Community Consultation

During the 24/7 trial period, no complaints were received from the community

The community survey discussed in **Section 3.2.2** was conducted from the 8 – 11th of April 2008, while the trial was running. The respondents were asked a series of questions in relation to truck movements, including some specific questions in relation to the trial.

When asked if they had noted any change in coal truck movements on Mt Ousley Road or Springhill Road in the last few weeks, 93% of respondents commented that they had noted no change, and 0.3% were unsure of a change. Of the respondents who commented that they had noticed more trucks, 5% noticed more trucks on the road, 1.3% noticed more trucks at night and 0.7% felt that noise from trucks had increased.

The respondents were asked whether they had noticed more trucks at night in the previous weeks. 75% of respondents could not recall additional trucks at night time, 11% of respondents could recall additional trucks at night time, with the remainder being unsure.

When asked if the respondent could recall seeing more coal trucks on Sunday, 76% could not recall seeing trucks on Sunday, 6% could recall seeing trucks on Sundays and the remainder of the population was unsure.

As noted by IRIS in their community survey report (**Appendix E**), these results overwhelmingly show the majority of residents did not notice the change in coal truck delivery hours that occurred during the 24/7 trial.

5.6. 24/7 TRIAL & EMERGENCY PROVISION COMPARISON

During December 2006 to March 2007, approval was granted under SEPP 7 emergency provisions, to allow the road haulage of coal direct to PKCT on a 24/7 basis. During this period, studies of environmental noise and traffic volumes were undertaken over a five week period in February and March 2007.

As part of this 24/7 trial assessment, comparison with the emergency provisions data has been undertaken to determine consistency of findings. The key difference was that the emergency provisions were undertaken in a period of very high shipping demand, whereas the 24/7 trial was undertaken in a period of low to moderate demand.

Monitoring of coal truck and background traffic movements along key sections of the coal haulage routes during the 24/7 trial and 2007 emergency provisions has permitted information to be obtained showing trends.

Based on both these periods of 24/7 deliveries between West Cliff CPP and PKCT an average percentage of deliveries made during the day and night has been determined for the 2007 emergency provisions, the 2008 trial and the period following the 24/7 trial which reverted back to 11/6 restricted operating provisions. The results are shown in **Figure 24**.

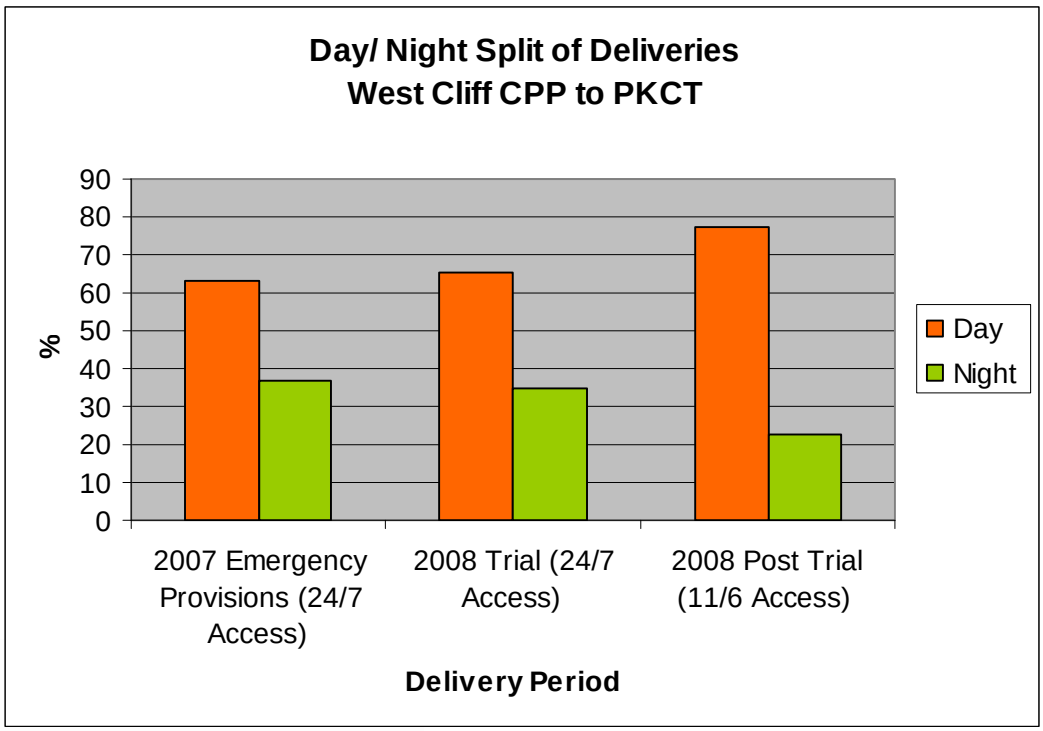

Figure 24 – Day / Night Split of Deliveries

Noise monitoring of the Emergency Provisions, 24/7 Trial and after the Trial has also been undertaken to allow comparison of data. These results are in **Figure 25**.

The chart shows an average reading of all the monitoring undertaken on Swan Street during the three time periods. This measures noise emissions from Springhill Road to the nearest residential receiver. This has been selected as 11/6 restrictions prohibit coal trucks. Due to this, if coal trucks delivering to PKCT affect the nearest houses during the night under 24/7 delivery conditions, then noise is expected to be higher than during 11/6 delivery periods.

Figure 25 shows consistency between the different monitoring periods as the different reading times as the results for the time periods are closely grouped.

There are no significant trends shown by the average results of the noise monitoring, however the following is noted:

- Noise levels are generally lowest during the 2007 Emergency Provisions monitoring
- The only exceedences of Environmental Criteria for Road Traffic Noise (ECRTN) are during the Post Trial period during the weekday and weekend night
- Noise during the 24/7 Trial only has the highest reading at night on the weekend.

Results from the graph indicate that noise levels were found to be highest during times when the 11/6 delivery period was in force. This indicates that coal trucks delivering to PKCT do not primarily generate noise at Swan Street. This issue is explored further in **Section 6.6**.

The noise monitoring of the three different time periods has identified similar findings for different times of the 24 hour period on weekdays and weekends. The consistency of results over two years strengthens findings in this report.

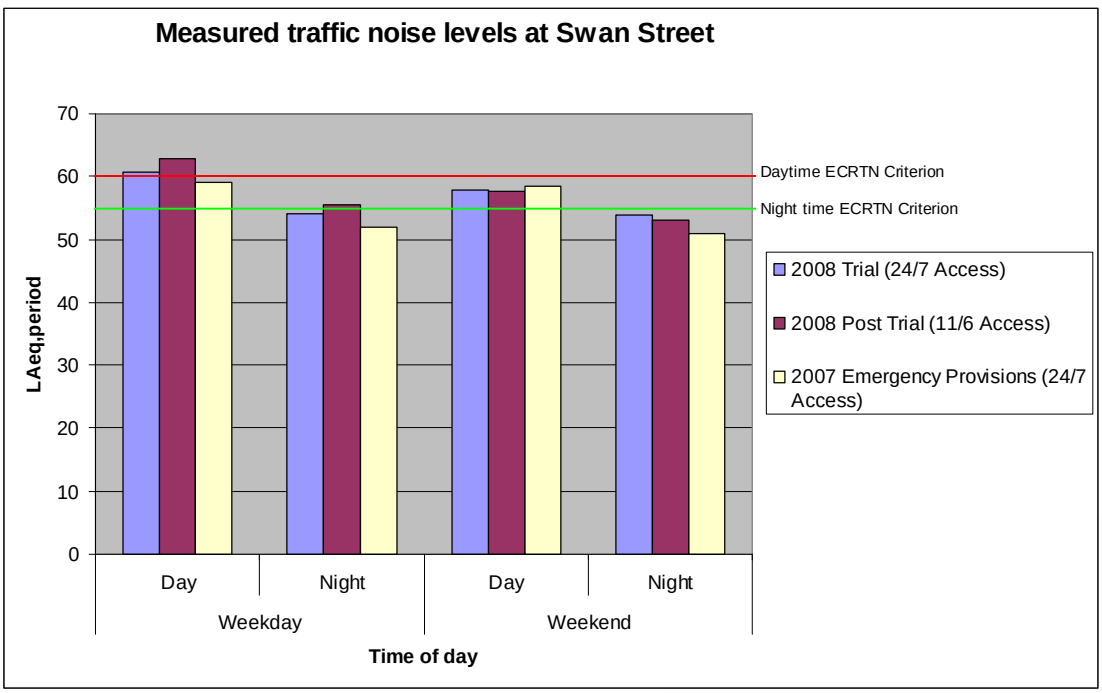

Figure 25 – Comparison of Measured Traffic Noise Levels

5.7. FINDINGS & CONCLUSION

The 24/7 trial has been largely successful when judged against the aims and objectives. This is shown in **Table 5.2**.

Table 5.2 – 24/7 Trial Results

Aim	Met?	Commitment	Met?
24 hour deliveries	Yes	15% night time deliveries	Yes
Minimise impact on commuters	Yes	5% Sunday deliveries	Yes
7 day deliveries	Yes	One 24 hour 10mtpa simulation	Nearly
Increased delivery amounts	Yes	Capture data from Hotline	Yes
Capture community comments	Yes		

The emergency provisions and the 24/7 trial period shows that 24/7 access allows a greater percentage of deliveries to be made at night, thus reducing day time coal truck road movements. Both trial and emergency provisions periods demonstrated an approximate level of deliveries at night of 35%.

Under 11/6 restrictions following the trial, deliveries, were far greater during the day than at night, indicating a higher interaction with peak commuter times. Data collected for 11/6 provisions showed that the delivery split was significantly lower, with approximately 20% of deliveries occurring at night.

To demonstrate these differences in impact on peak commuter times, a comparison between a high volume delivery day under 11/6 restrictions and the 24/7 high volume day has been prepared. Both delivery days provide coal truck data between West Cliff CPP and PKCT. The two days were selected for comparison due to very similar truck numbers.

In November 2007 11/6 restrictions were in place. Between 5am on 8 November and 5am on 9 November 445 truck movements were recorded. During this 24 hour period, the highest number of deliveries for a 1 hour period was 42 trucks, which occurred at 10am.

March 2008 was part of the 24/7 trial during which time restrictions on road deliveries to PKCT was removed. Between 5am on 19 March 2008 and 5am on 20 March 447 truck movements were recorded. During this 24 hour period, the highest number of deliveries for a 1 hour period was 27 trucks, which occurred outside of peak commuter times (6am).

Figure 26 demonstrates traffic impacts on commuters are reduced by 24/7 road delivery. Under 11/6 restrictions the peak in hourly coal truck deliveries is between 7am and 10 am, when the start of public road access to PKCT is permissible. This results in an average of 39 trucks per hour delivering to PKCT during the morning commuter period. During 24/7 public road access to PKCT there is only an average of 19 trucks per hour between 6am and 11am. This equals a difference of 20 coal trucks per hour during the morning commuter period.

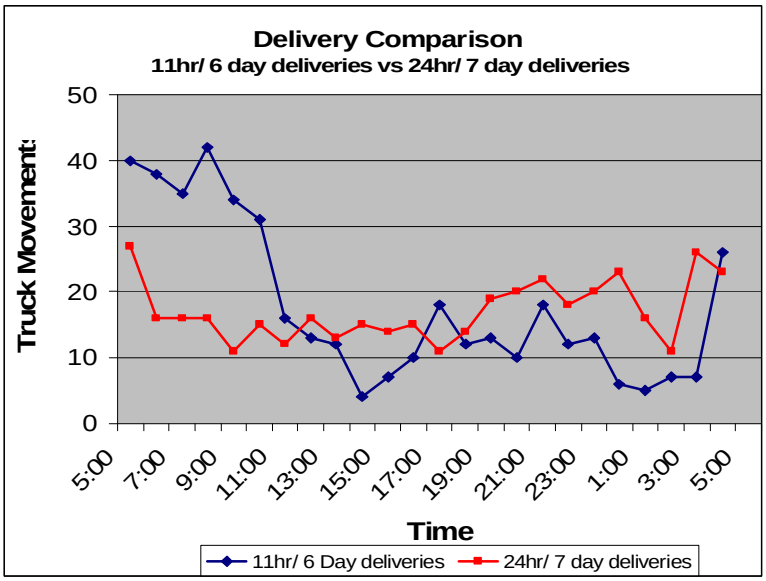

Figure 26 - Comparison of a Typical 11/6 and 24/7 Delivery Day

Information on general traffic and coal truck movements during the 24/7 trial and the 2007 SEPP 7 emergency period have permitted the following **conclusions**:

- **Deliveries to PKCT over 24 hours of the day results in spreading the load of coal trucks on the haulage routes, especially during times of high delivery volumes**
- **24/7 permits greater percentages of night deliveries which reduces interaction with peak commuter traffic**
- **Deliveries on Sundays allow coal truck numbers on other days of the week to be reduced**
- **Community perceptions of coal trucks show very little noticeable change with 24 hour deliveries to PKCT.**

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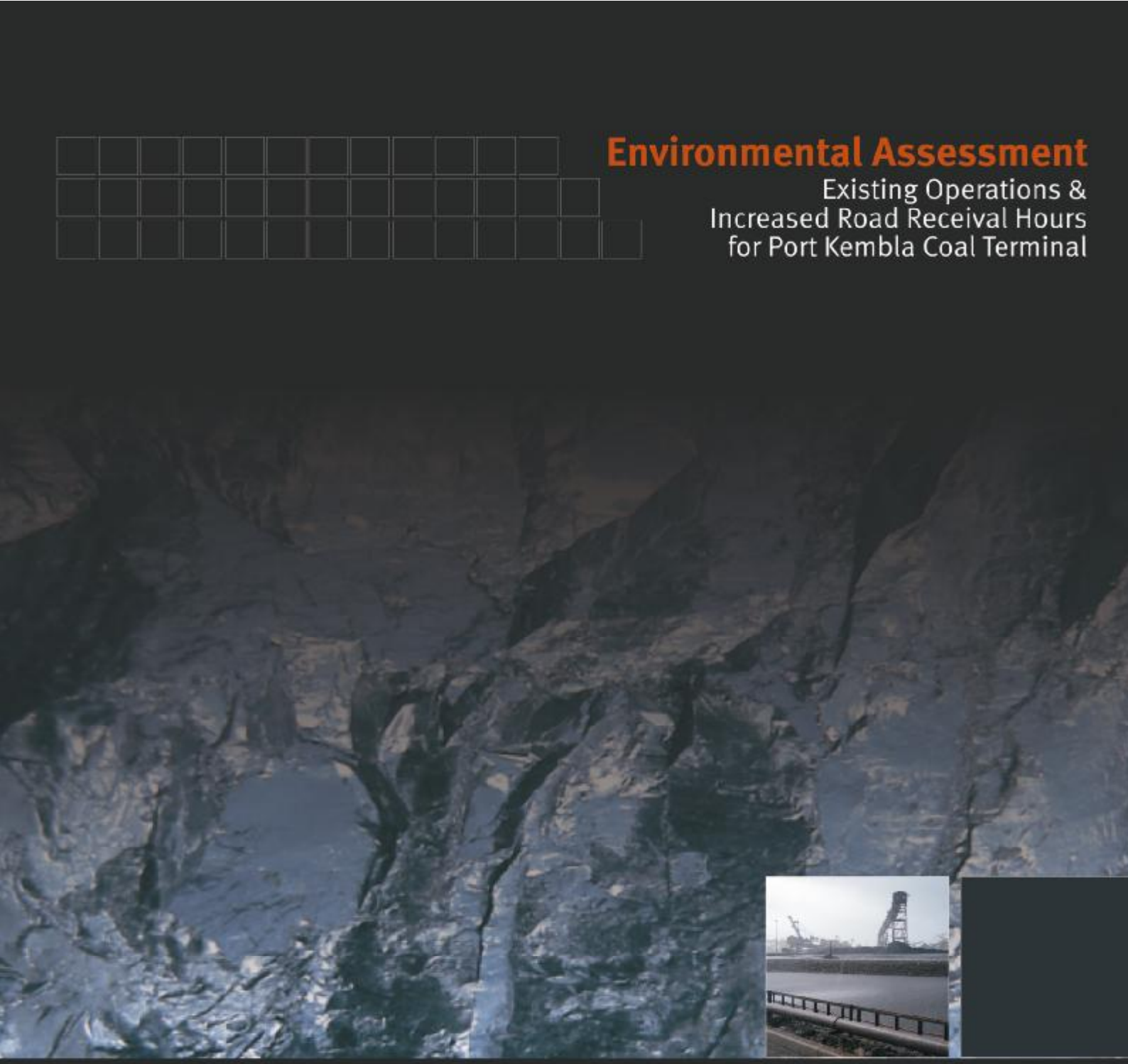
Environmental Assessment

Existing Operations &
Increased Road Receival Hours
for Port Kembla Coal Terminal



Key Environmental Assessments

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6. KEY ENVIRONMENTAL ASSESSMENTS

This section describes environmental impacts generated by existing and proposed operations and the findings of the associated environmental assessments.

6.1. ENVIRONMENTAL RISK ASSESSMENT

In order to meet environmental requirements and reduce impacts PKCT has continually developed and implemented a range of technological improvements to minimise their environmental footprint. These improvements have been directed by ongoing assessments of environmental risks from PKCT operations.

PKCT undertook a preliminary risk assessment as part of PEA for this project. This identified high, medium and low risk issues. As a result of this, further study has been undertaken as part of this EA.

To further assess the environmental aspects and impacts of the proposal, an Environmental Risk Assessment has been completed as part of this EA. The risk assessment covers both existing operational impacts of PKCT and additional impacts predicted as part of the proposal. This Environmental Risk Assessment is included in **Appendix I** and a summary of the process is provided in the flowchart below.

PKCT Environmental Risk Assessment Process

Environmental Risk Analysis Methodology

The environmental risk analysis methodology used for the process is described below. This methodology leads to the development of an Environmental Aspects and Impacts Register for the project.

↓

Determine Environmental Aspects

Environmental aspects are elements of the operation or proposed activities products or services which have an interaction with the environment. Environmental aspects for the PKCT operation and the proposed 24/7 road receival were developed PKCT's existing Environmental Aspect and Impacts Register as well as through a workshop with PKCT management.

↓

Determine Environmental Impacts

The impacts are described as any change in the environment, which may credibly arise from the identified aspects as a result of PKCT's activities, products or services.

↓

Determine Severity

The Severity Factor is a measure of the degree of the realistic potential consequences that could occur associated with a risk issue. Those consequences could either negatively impact PKCT or its stakeholders. Severity factor is determined on a 1 – 1000 scale in 7 categories of severity.

↓

Determine Exposure

The Exposure Factor is a measure of the frequency of occurrence of the risk issue during which PKCT and/or its stakeholders could be exposed to consequences of the specified level of severity. Exposure factor is measured on a scale of 0.1 – 10. For example, if an aspect had a high frequency of at least once a week, an exposure factor of 10 would be applied.

↓

Determine Probability

The Probability Factor is a measure of the chance of consequences of a specified level of severity occurring when the risk issue occurs (i.e. chances of an impact being incurred during a "window of opportunity"). Probability factor is measured on a scale of 0.1 – 10. For example if an aspect had a low probability of occurrence and was conceivable but only in extreme circumstances, a probability factor of 0.1 would be applied.

↓

Initial Risk Ranking

The initial risk ranking is determined by multiplying the severity, exposure and probability, which have been applied to the project.

↓

Apply Controls

In light of the severity, exposure and probability appropriate mitigation measures are to be applied to the environmental aspect. Severity, exposure and probability are then reassessed to determine the effectiveness of controls, and multiplied to determine the final risk ranking.

↓

Residual control effectiveness

Having assessed the risk and applied controls, a residual risk ranking is applied to the impact, and then it is determined whether the level of residual risk is acceptable to the business.

6.2. RISK ASSESSMENT OUTCOMES

Key risks identified during the risk assessment process are summarised below. These risks are all considered to be acceptable to PKCT, through effective controls being in place.

6.2.1. Dust from Road Receival

The road receival is a key area with potential to generate dust. Controls such as regular road cleaning, truck washing and wind barriers to reduce the impacts of wind during tipping are in place. These effectively reduce the impact of tipping to an acceptable level.

6.2.2. Dust from Product Storage

Due to the size of the product storage areas at PKCT and their location on the coastline, dust control in product storage areas is imperative to the operation. PKCT controls this risk with a computer controlled spray system, which is linked to an early high wind warning system. The coal is also dampened during the handling process to reduce airborne dust emissions. Water carts are on site to assist with dust suppression.

6.2.3. Ship Fuel Bunkering

Due to the high impact of a hydrocarbon spill into Port Kembla, ship fuel bunkering is considered a high severity operation carried out on site. Specialist operators who have specialised ship / bunkering interface controls manage this activity. Spill response equipment and plans are on hand. High standards of control are in place for bunkering activities and the work is carried out in restricted security zones and access to these areas is controlled. Both the exposure and the probability of this operation are low.

6.2.4. Noise

Through the industrial nature of the operation, there are several noise sources on the site. Control of these noise sources is through regular maintenance, inspections and verification through noise testing. All testing indicated that the noise emitted from site complies with the NSW Industrial Noise Policy.

6.2.5. Endangered Species

Due to the Green and Golden Bell Frogs found on site in May 2008 being listed as an endangered species under federal and state legislation, proactive management to protect the species from harm is required. An interim plan of management is in place for the frogs and all employees and contractors are aware of the need to protect the species. A full study of the species is to be carried out in Spring / Summer of 2008.

6.3. OVERVIEW OF KEY ENVIRONMENTAL ASSESSMENTS

The environmental assessment of PKCT existing and proposed operations is divided over two sections of this report. **Section 6** reviews key environmental issues as identified by the DGR. **Section 7** reviews secondary environmental issues, which have been assessed as part of the existing site operations. **Table 6.1** identifies the environmental issues under assessment in each section of the EA.

Each environmental assessment reviews current PKCT operations and assesses existing environmental protection measures to determine the net effect on the surrounding environment. Expected environmental impacts from the proposed increase to 24/7 public road deliveries are then assessed and where necessary mitigation measures are proposed.

Table 6.1 – Environmental Assessments

Key Issues for Environmental Assessment	Secondary Issues for Environmental Assessment	Issues Raised During Consultation
Air Quality (**Section 6.5**)	Waste (**Section 7.1**)	Coal truck noise (**Section & 6.7 & 6.9**)
Traffic (**Section 6.6**)	Land Use (**Section 7.2**)	Road safety (**Section 6.6 & 6.9**)
Noise (**Section 6.7**)	Visual (**Section 7.3**)	New light pollution from coal truck headlights (**Section 7.3 & 6.9**)
Surface Water Management (**Section 6.8**)	Flora & Fauna (**Section 7.4**)	Adequacy of lighting at Masters Rd / F6 junction (**Section 6.6 & 6.9**)
Climate Change & Energy Use (**Section 6.9**)	European and Indigenous Heritage (**Section 7.5**)	Coal truck suspension (**Section 6.9**)
Cumulative Impacts (**Section 6.10**)		

6.4. AIR QUALITY

Director General Requirement

Air Quality – including dust and other emissions from the site.

PKCT commissioned Katestone Environmental to assess impacts on air quality from existing PKCT operations and the proposal to receive road deliveries 24/7 up to a maximum of 10mtpa. Katestone Environmental's full Air Quality Report is within **Appendix J**.

6.4.1. Existing Conditions

Dust emissions from PKCT operations potentially occur where coal is picked up, conveyed, discharged, crushed or open to erosion by the wind. Whilst stockpiles are the primary source of potential emissions, secondary dust emissions could also occur due to wind action on material that has been spilled or deposited on structures.

External factors also contribute to emissions of dust. Meteorological conditions at the terminal and in transit from the mine to the coal terminal have an important affect on the dustiness of coals during handling and storage at the port. Hot and dry conditions can enhance the dustiness during transit from the mine and can result in emissions during unloading. Windy conditions can also lead to emissions during stacking and reclaiming.

Activities that are associated with potential dust emissions from PKCT are:

- Fugitive dust from wind erosion of coal stockpiles
- Fugitive dust from front end loader operations in the BPB
- Dust from truck and rail deliveries of coal
- Dust from coal in-loading and reclaim operations in the main stockpiling area
- Dust from conveyor transfer points and ship-loading operations
- Dust from the action of truck wheels and truck slip streams on-site and on public roads

Minor amounts of wind-blown dust may also be associated with vehicular activity onsite and wind erosion of dust from bare ground.

To reduce coal dust escaping from onsite activities PKCT has numerous mitigation measures in place. These are:

- Coal is delivered into underground hoppers from road and rail
- Rail delivery takes place within a building to prevent dust escape
- Road receival is carried out behind a wind barrier
- Water sprays of conveyor systems and stockpiles to reduce wind taking dust off exposed coal
- Truck wash to reduce the amount of dust taken away from site on vehicles
- Road cleaning vehicles to prevent dust accumulating in road corridors.

PKCT's stockpile spray system is fully automated. An anemometer activates spray cycles depending upon wind speed (greater than 10 metres per second) and wind direction. System operation and status, site conditions, weather forecasts and weather conditions are monitored by PKCT personnel in the Main Control room (MCR). MCR is also able to control sprays manually if a localised dust problem is observed (i.e dust emission from a specific location or stockpile).

PKCT has an early wind warning system which can detect southerly winds traveling up the coast. When detected, an alarm is transmitted to the MCR and spray cycles and other control measures can be implemented by PKCT personnel as required.

For wind speeds less than 10 metres/ second, MCR personnel set sprays cycles between 30 minutes and 6 hours depending upon site conditions and weather forecasts.

A road sweeper and water cart are also used by the site for road cleaning and dust suppression. PKCT is currently conducting a project on spillage reduction, which is primarily aimed at preventing coal falling off conveyors, which has the potential to be a source of dust generation.

In addition to PKCT, there are other industrial activities, which have the potential to generate dust within the port of Port Kembla precinct. Cumulative dust escape from these different industrial activities influenced the air quality of the area near PKCT.

Table 6.2 shows all industries that are within the region that emit particulate matter (as PM_{10}) and report to the National Pollutant Inventory (NPI). The most important off-site dust emission sources that could contribute to dust levels in the local area are located at the BlueScope Steel steelworks approximately 1.1 kilometres west of PKCT.

Motor vehicles and salt spray are also likely to be important sources of PM_{10} emissions in the region. The latter may be most evident when the wind direction is from the south-southeast through to east and through to north. Studies by Australian Nuclear Science and Technology Organisation of particulate levels at Warrawong (Cohen 1999) have found that the component of sea salt in $PM_{2.5}$ dust monitoring samples to be about 11% of the total and motor vehicles to account for 27% of the total.

Table 6.2 – Dust Emission Sources

Facility Name	Locality	ANZSIC Class Name	Relative location to PKCT		PM_{10} (kg)
			Distance	Direction	
BlueScope Steel Port Kembla Steelworks	Port Kembla	Iron Smelting and Steel Manufacturing	1.1	W	1191357
Corrimal Coke Works	Corrimal	Other Petroleum and Coal Product Manufacturing	7	N	28401.6
Coalcliff Coke Works	Coalcliff	Other Petroleum and Coal Product Manufacturing	23.7	NNE	25572.6
Elouera Colliery	Wongawilli	Coal Mining	11.8	WSW	6923
Shinagawa Refractories Australasia, Glastonbury Avenue site	Unanderra	Other Ceramic Product Manufacturing	4	WSW	6421.2
BlueScope Illawarra Coated Products - Springhill	Port Kembla	Iron Smelting and Steel Manufacturing	2.2	W	6200
Industrial Galvanizers Port Kembla	Port Kembla	Metal Coating and Finishing	2.6	SSW	2974
BlueScope Steel CRM Service Centre	Port Kembla	Iron Smelting and Steel Manufacturing	1.3	S	1200
Boral Asphalt Port Kembla	Port Kembla	Other Petroleum and Coal Product Manufacturing	2.3	SSE	1042
Orica Port Kembla Site	Port Kembla	Basic Inorganic Chemical Manufacturing	1.7	SSE	385.16
Wollongong Sewage Treatment System	Wollongong East	Sewerage and Drainage Services	0.5	N	142.96
BOC Gases Port Kembla	Cringila	Industrial Gas Manufacturing	2.1	SW	106.3

In accordance with EPL 1625 monthly monitoring of dust emissions is undertaken. This is carried out via a series of 12 dust deposition gauges located in and around their premises, which are referred to in **Figure 27**. These collect dust 24 hours a day and are manually checked and analysed every month in accordance with EPL 1625. To increase dust monitoring capability PKCT has implemented two new continuous dust monitors which are located off site to improve monitoring of dust escape to residential areas. **Figure 27** identifies the new monitors as 'Continuous Dust Monitors'.

Data from these PKCT dust monitors in addition to data from DECC and BlueScope Steel dust monitors has been used to identify existing levels of air quality. This is assessed by measuring three criteria:

1. The amount of PM_{10} particulates suspended in the atmosphere
2. The level of Total Suspended Particulates (TSP) in the atmosphere
3. The amount of deposited dust.

Data from the dust monitors located around and within the port precinct cannot effectively be classified by emission source. The dust collected in gauges are cumulative levels from the Port Kembla precinct, which includes the existing onsite operations of, and all deliveries to, PKCT and other sources. From analysis of results of the PKCT dust deposition gauges cumulative levels meet DECC criteria for topics 1 & 3 listed above. This is explained in the Air Quality report and summarised below:

- The 24 hour and annual averages of PM10 particulates have been below DECC criteria for the last three years
- Levels of TSP are above DECC criteria by just over 10%. This is most likely a result of the existing mix of industrial activities, motor vehicles and natural sources such as salt spray. PKCT is unlikely to contribute substantially to these levels given the low level of dust deposition calculated to be from the PKCT
- 90% of coal dust is combustible. Averaged across the three PKCT dust monitors located in residential areas for the last 7 years only 33% of deposited dust constitutes combustible matter. This is equal to, or less than, the DECC criteria of 4 g/m2/month at each monitor for each of the last seven years.

The Air Quality Report indicates that current onsite activities at PKCT do not exceed DECC air quality criteria or have an unacceptable impact on the local environment.

6.4.2. Impact Assessment

The Air Quality Report has undertaken dispersion modelling to identify location which maybe impacted by predicted increases in dust emission rates due to the proposal to increase coal throughput at PKCT. This is based on the findings of existing air quality conditions at PKCT. Impacts from the proposed change to road receival operating 24/7 up to 10mtpa on ground-level concentrations of PM_{10}, TSP and dust deposition have been modelled and reported.

The predicted 24-hour average and annual average concentrations of PM_{10}, the annual average concentrations of TSP and annual average dust deposition rate at nearest residences to PKCT are presented in **Table 6.3**. The ground-level concentrations predicted show PKCT operating with road receival occurring 24/7. The results indicate that predicted ground-level concentrations due to the entire PKCT operations will be well below relevant DECC criteria.

Table 6.3 - PKCT Air Quality Impacts Based on 24/7 Road Deliveries

Receptor	PM_{10} (µg/m^3)		TSP (µg/m^3)	Deposition (g/m^2/month)
	24 hour	Annual	Annual	Annual
R1 (1.3 km/N)	4.7	0.4	0.8	0.07
R2 (1.7 km/NW)	2.3	0.2	0.4	0.04
R3 (1.65 km WNW)	1.5	0.1	0.3	0.01
R4 (2.5 km SW)	1.1	0.1	0.3	0.02
R5 (2.8 km SSW)	1.9	0.1	0.3	0.03
R6 (2.6 km S)	2.2	0.2	0.4	0.03
Criteria	**50**	**30**	**90**	**2**

The Air Quality Report has also modelled cumulative impacts based on the 24/7 proposal and other emissions sources from around PKCT. This includes background PM_{10}, TSP and deposition rates from other premises around PKCT which are known to have air quality

impacts on the surrounding environment. **Table 6.4** presents the predicted concentrations due to PKCT operations with existing background and industrial levels included.

The predictions identify that ground-level concentrations are below the criteria for PM_{10} and dust deposition rate, but exceed the criteria for TSP due to the existing background levels being above 90 g/m^3. The TSP exceedence is expected to be for the same reasons as identified above in relation to existing conditions and emission sources

Table 6.4 - Background & PKCT Air Quality Impacts Based on 24/7 Road Deliveries

Receptor	PM_{10} ($\mu g/m^3$)		TSP ($\mu g/m^3$)	Deposition (g/m^2/month)
	24 hour	Annual	Annual	Annual
R1 (1.3 km N)	49.1	18.9	102	3.7
R2 (1.3 km N)	48.3	18.8	101	3.6
R3 (1.65 km WNW)	48.5	18.8	101	3.6
R4 (2.5 km SW)	48.5	18.7	101	3.6
R5 (2.8 km SSW)	48.3	18.7	101	3.6
R6 (2.6 km S)	49.1	18.7	101	3.6
Criteria	**50**	**30**	**90**	**4**

No.	Dust Monitor Location Description
P1	25m south of Bulk Products Berth (BPB)
P2	40m south of Bulk Products Berth stockyard
P3	40m east of Bulk Products Berth stockyard
P4	40m east of Coal Berth stockyard
P5	Northern Pond (Pond No.1)
P6	40m west Coal Berth stockyard
P7	250m west of Coal Berth stockyard
P8	PKCT North Truckwash
P9	Wollongong Sewerage Treatment Plant
P12	157 Church Street
P13	Entry Gate to Bluescope Ro Ro Berth
P15	North of PKCT Planning Office
C1	Continuous Monitor 1
C2	Continuous Monitor 2

Dust Monitor Locations

PORT KEMBLA COAL TERMINAL

Legend

- Continuous Dust Monitor Location
- Dust Monitor Location
- Cadastre (LPI)
- Local Roads (LPI)

PKCT Lease Area Layer

- Site Boundary
- Sub Areas

1:12,000 (at A3)

Metres

0 100 200 300 400 500

Cardno Forbes Rigby

FIGURE 27

Map Produced by Cardno Forbes Rigby
Date: 23 May 2008
Coordinate System: Zone 56 MGA/GDA 94
GIS MAP REF:
108004_02_2805_PKCT_Dust_Collection_Points.mxd

Tables 6.3 & 6.4 show that the proposal to permit PKCT to receive deliveries via public road up to 10mtpa during the 24/7 period will have only minor impacts on the air quality surrounding the site. The actual additional impacts from the 24/7 proposal are very minor and it is only due to surrounding land uses that the Total Suspended Particulate (TSP) levels are exceeded.

Through modelling, the Air Quality Report has drawn the following key conclusions:

- For the existing operations at PKCT, maximum concentrations of PM10 and TSP and dust deposition rates due to all activities at PKCT are expected to be well below the relevant air quality criteria for human health and amenity.
- The largest source of dust emissions is the coal stockpiles (calculation carried out during the air quality assessment). These represent about half of the total emissions of PM10 from PKCT. These will be unchanged because of the 24-hour road receival.
- Emissions of dust from road and rail receival are equivalent per tonne of throughput because the emission controls provide an equivalent reduction in total emissions. Therefore, increasing road receival will not substantially affect coal dust emission rates if existing dust controls are diligently applied and tracking-out of coal along access roads is minimised.
- Whilst truck washing facilities are installed at PKCT, visual observations suggest that there is some tracking-out of coal along the PKCT access road. This may be attributed to some inadequacies in the implementation or effectiveness of the truck washing facility. Works are being undertaken to ensure that the truck washing facility is effective.
- Maximum concentrations of PM10, TSP and dust deposition rates due to PKCT are predicted to occur on site or to the immediate east.
- Maximum concentrations of PM10, TSP and dust deposition rates due to all activities at PKCT, including the proposed increase in road receival, are predicted to be well below the relevant air quality criteria for human health and amenity.
- Predicted 24-hour average and annual average concentrations of PM10 are less than 5 µg/m3 and 0.5 µg/m3, respectively at the closest residences due to PKCT. These are well below the 24-hour NEPM standard of 50 µg/m3 and the annual average DECC criterion of 30 µg/m3.
- Predicted annual average concentrations of TSP and dust deposition rates are less than 1% and 4% of the relevant criteria.

In summary the Air Quality Report shows that impacts to air quality from PKCT will be well below relevant DECC criteria based on existing PKCT operations and the proposal to receive coal by road over a 24/7 period up to a maximum of 10mtpa.

6.4.3. Mitigation Measures

The Air Quality Report identifies that existing controls in place adequately manage dust emissions from existing and proposed operations to ensure compliance with DECC requirements.

The Air Quality Report advises that if these existing dust controls are maintained the proposed increase in road deliveries will not cause dust emissions levels to exceed the DECC criteria. Based on the Air Quality Report PKCT will not need to implement new air quality mitigation measures.

PKCT is evaluating the truck washing facility as suggested in the Air Quality Report to ensure this is operating effectively. If required, PKCT will take necessary action to ensure the truck washing facility operates correctly, as referred to further in the Draft Statement of Commitments (**Section 9**).

6.5. TRAFFIC

Director General Requirement

Traffic – including the rationale for the use of road transport, details of traffic types and volumes and volumes likely to be generated; assessment of predicted impacts on road safety and the capacity of the road network.

PKCT commissioned Cardno Eppell Olsen (Cardno) to conduct an assessment of traffic impacts from existing operations and the proposal to receive road deliveries 24/7 up to a maximum of 10mtpa. Cardno's full Traffic Study is available in **Appendix G**.

6.5.1. Existing Conditions

The current 11/6 public road delivery results in coal trucks travelling along the haulage routes (as identified in **Section 4.2**) and turning left at the Masters Road / Springhill Road intersection between 7am and 6pm. Outside of these hours BHPBIC coal trucks delivering to PKCT must turn right at this intersection and enter the port precinct through BlueScope Steel Limited (BSL) premises (refer to **Figure 28**).

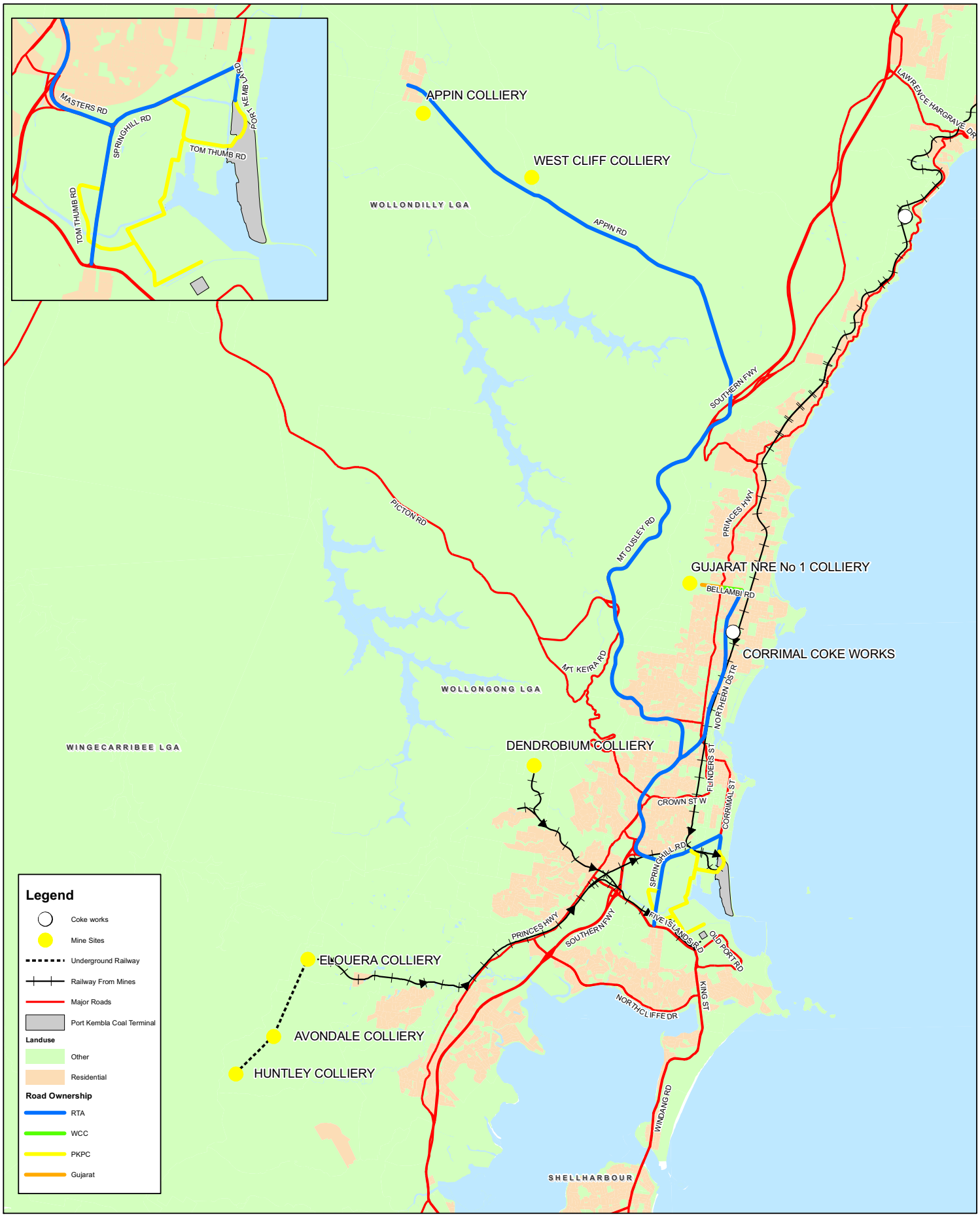
Mines directly affected by the 11/6 public road restriction are:

1. BHPBIC's Appin & West Cliff Collieries
2. GNRE's No. 1 Mine.

There is no opportunity to develop a rail line and associated loading facilities at West Cliff, and NRE No.1 Collieries. These mines are limited to road haulage by a combination of terrain, land constraints and economic viability issues.

The time restriction constrains the amount of coal, which can be delivered within a 24 hour period by both companies. To meet current delivery requirements BHPBIC have to schedule deliveries with a higher frequency during the day than if they could deliver without restriction. This results in coal trucks operating more frequently during morning and afternoon commuter hours than would be necessary if deliveries could occur over a 24/7 period.

GNRE forecast strong output growth resulting in increased deliveries which further elevate coal truck numbers during peak commuter times if the existing 11/6 restriction is retained.



Coal Haulage Route
Road Ownership

PORT KEMBLA COAL TERMINAL

FIGURE 28

N
W E
S

1:120,000 (at A3)

Kilometres
0 2.5 5

Cardno Forbes Rigby
Shaping the Future

Map Produced by Cardno Forbes Rigby
Date: 19 June 2008
Coordinate System: Zone 56 MGA/GDA 94
GIS MAP REF:
108004_01_1808_Road_Ownership_Rev_P3.mxd

Congestion

Assessment of existing carriageway performance along the coal haulage routes for total traffic shows that the majority of the roads meet level of service (LoS) requirements. This is shown in **Table 6.5** as LoS A, B, C are acceptable, D is tolerable and E & F are "unstable" and "forced flow". Further clarification of the LoS classifications is provided in **Table 6.6**.

Coal trucks currently represent between 0.2% and 4.7% of total traffic on all coal haulage routes. This demonstrates that even with the removal of all coal trucks from traffic counts, the LoS on all roads remains unchanged.

Table 6.5 – Existing Carriageway Level of Service

Road	From/ To	AM Peak*		PM Peak*	
		To PKCT	From PKCT	To PKCT	From PKCT
Appin Rd	Appin Mine Access to West Cliff Mine Access	B (11.6%)	C (2.1%)	C (0.6%)	B (5.2%)
Appin Rd	West Cliff Mine Access to Dharawal Conserv. Ent.	B (11.6%)	C (2.1%)	C (0.6%)	B (5.2%)
Appin Rd	Dharawal Conserv. Ent. to No. 10A Fire Road	C (11.6%)	D (2.1%)	D (0.6%)	C (5.2%)
Appin Rd	No. 10A Fire Road to Mount Ousley Rd	C (11.6%)	D (2.1%)	D (0.6%)	C (5.2%)
Mount Ousley Rd	Appin Rd to Picton Rd	D (1.1%)	C (1.3%)	C (0.4%)	C (0.5%)
Mount Ousley Rd	Picton Rd to Southern Fwy	D (1.1%)	C (1.3%)	C (0.4%)	B (0.5%)
Southern Fwy	Mount Ousley Rd to Northern Distributor	F (0.9%)	F (0.5%)	F (0.3%)	E (0.4%)
Southern Fwy	Northern Distributor to Princes Hwy	C (1.0%)	D (0.5%)	C (0.3%)	B (0.4%)
Southern Fwy	Princes Hwy to Masters Rd	D (1.0%)	F (0.5%)	E (0.3%)	D (0.4%)
Bellambi Ln	Princes Hwy to Northern Distributor	A (0.7%)	A (0.9%)	A (0.0%)	A (0.3%)
Northern Distributor	Bellambi Ln to Railway St	B (0.4%)	B (0.5%)	A (0.0%)	B (0.2%)
Northern Distributor	Railway St to Southern Fwy	B (0.4%)	B (0.5%)	A (0.0%)	B (0.2%)
Masters Rd	Southern Fwy to Springhill Rd	A (2.2%)	A (2.5%)	A (1.7%)	A (0.5%)
Springhill Rd	Masters Rd to Port Kembla Rd	A (5.3%)	A (2.0%)	A (1.4%)	A (1.6%)
Springhill Rd	Masters Rd to Entry Road	A (5.3%)	A (2.0%)	A (1.4%)	A (1.6%)

* Figures shown in ( ) brackets indicate the proportion of coal trucks as a percentage of average weekday hourly volumes (one-way)

Table 6.6 – Level of Service Classification

LoS	Description
A	**Free flow** - A condition of free flow in which individual drivers are virtually unaffected by the presence of others in the traffic stream. Freedom to select desired speeds and to manoeuvre within the traffic stream is extremely high, and the general level of comfort and convenience provided is excellent.
B	**Stable flow** (**slight delays)** - In the zone of stable flow and drivers still have the reasonable freedom to select their desired speed and to manoeuvre within the traffic stream, although the general level of comfort and convenience is a little less than with LOS A.
C	**Stable flow (acceptable delays)** - Also in the zone of stable flow, but most drivers are restricted to some extent in their freedom to select their desired speed and to manoeuvre within the traffic stream. The general level of comfort and convenience declines noticeably at this level.
D	**Approaching unstable flow (tolerable delays) -** Close to the limit of stable flow and is approaching unstable flow. All drivers are severely restricted in their freedom to select their desired speed and to manoeuvre within the traffic stream. The general level of comfort and convenience is poor, and small increases in traffic flow will generally cause operational problems.
E	**Unstable flow (congestion; intolerable delays) -** Occurs when traffic volumes are at or close to capacity, and there is virtually no freedom to select desired speeds or to manoeuvre within the traffic stream. Flow is unstable and minor disturbances within the traffic stream will cause break-down.
F	**Forced flow (jammed)**

The Traffic Study has monitored and assessed the three key controlled intersections along the coal road haulage routes for performance under existing PKCT delivery conditions. **Table 6.7** shows that each intersection meets LoS requirements.

Table 6.7 – Intersection Analysis

Intersection	Control	2008 AM Peak				2008 PM Peak			
		DS	d	Q	LoS	DS	d	Q	LoS
Masters Rd/ Springhill Rd	Signalised	0.859	33.6	277	C	0.732	42.0	172	C
Springhill Rd/ Port Kembla Rd	Signalised	0.339	5.6	28	A	0.741	12.4	63	A
Springhill Rd/ Tom Thumb Rd	Signalised	0.793	14.1	182	A	0.809	16.8	122	B

DS = Degree of Saturation *d = Delay (seconds)*
Q = Queue Length (m) *LoS = Level of Service*

The Traffic Study shows that existing levels and frequency of road deliveries to PKCT are not having a detrimental impact on the ability of the coal haulage routes to accommodate existing traffic levels.

Road Safety

Consultation with the RTA identified concerns regarding the level of street lighting at the Southern Freeway and Masters Road intersection. A certified Lead Auditor and an accredited Level 1 Auditor have undertaken a road safety audit of the entire coal haulage routes to address the RTA's concern and identify any other safety issues with the routes.

In conducting day and night surveys of the routes, road safety was found to be generally good. Identified road safety issues were:

- Some line markings require repainting and cracks sealing on Wedderburn Road
- The bridge width over Loddon River on Appin Road
- Sunken pit lids on the road surface on Mt Ousley Road.

Existing measures identified as improving road safety are:

- Provision of overtaking lanes
- Driver rest parking areas
- Street lighting
- Safety barriers
- Well marked vehicle lanes
- Adequate or better sign posting
- Provision for cyclists.

The road safety audit identified that the haulage routes acceptably meet road safety standards with no immediate remedial action being required. Assessment of street lighting at the Southern Freeway / Masters Road intersection identifies that this acceptably meets road safety requirements. There are no identified road safety issues associated with current coal haulage routes to PKCT.

6.5.2. Impact Assessment

The proposal to permit deliveries of coal via the Springhill Road / Port Kembla Road entrance on a 24/7 basis and increase the amount of coal received by road to a maximum of 10mtpa and it's impacts on haulage routes has been assessed.

PKCT forecast 10mtpa of coal may be delivered by road as early as 2013 and at the latest by 2018. The Traffic Study has modelled impacts on congestion from 10mtpa in 2013 and 2018.

The proposed increased road deliveries of coal to PKCT will be due to increased shipping levels for both BHPBIC and GNRE. Both companies will continue to deliver along the

existing coal haulage routes but if permission is granted for 24/7 road receivals all coal trucks will turn left at the Masters Road / Springhill Road intersection and enter PKCT via Springhill Road and Port Kembla Road.

The only change to road haulage routes that is foreseeable is if coal from Dendrobium Coal Preparation Plant is to be delivered on public road via Springhill Road. Full assessment of this change is available in the Traffic Study contained in **Appendix G**.

While changes are noted on Springhill road from the 24/7 delivery of coal up to 10mtpa, the percentage increase in hourly traffic volumes on Springhill Road due to Dendrobium CPP potential coal truck traffic increases in 2013 is negligible because it only ranges from 0.6% to 3.0%.

Assessment of the calculated 2013 peak-hour mid-block Level of Service on Springhill Road indicates the 0.6% to 3.0% increase in traffic from the Dendrobium CPP will have no affect. Springhill Road currently operates at LoS A in both the AM and PM peaks and will continue to do so including Dendrobium CPP coal trucks.

The proposed change to 24/7 will allow the frequency of daytime deliveries to reduce, resulting in less coal trucks on the road during peak commuter hours. 24/7 will also result in greater efficiency for BHPBIC as they will not have to access PKCT via BSL at night. Furthermore, when GNRE output is too high to be accommodated within 11/6 restrictions they will have the flexibility to deliver during the night reducing impacts on commuter traffic.

In order to assess impacts from the delivery of coal over the full 24 hour period and to a maximum level of 10mtpa the Traffic Study has calculated the required coal trucks per hour to deliver 10mtpa under 24/7 time frames and has applied these to calculated increases in background traffic. Changes to existing operating characteristics of roads forming the coal haulage routes are assessed based on calculated total traffic numbers.

Table 6.8 demonstrates the change in the percentage of coal trucks of all heavy vehicles as a result of both the time and volume changes by 2013 (ie move to 24/7 and 10mtpa).

Table 6.8 – Forecast Increases in Coal Trucks from all Heavy Vehicles

Road	Weekdays % Change		Weekends % Change	
	Daytime	Night time	Daytime	Night time
Appin Road	8.1	15.6	10	23.1
Mt. Ousley Road	2.8	6.1	5.6	10.3
Southern Freeway (nth)	6.2	12.6	13	23.1
Southern Freeway (sth)	6.3	12.4	13.7	22
Masters Road	12.5	23.5	15.5	30.8
Springhill Road	22.5	82.6	19	82.3
Bellambi Lane	27.5	52.3	35.7	50.3
Northern Distributor	16.1	36.9	24.4	44.2

The overriding trend is a larger increase in the number of coal trucks during the night. This is an expected result of the 24/7 proposal as it is desirable to spread deliveries over the 24 hour period to reduce interaction of coal trucks and peak commuter traffic.

The largest increases are nearly exclusively on Springhill Road and Bellambi Lane with the Northern Distributor and Masters Road showing comparatively medium level increases.

Springhill Road has a high percentage of coal truck increases as both West Cliff CPP and No. 1 Mine deliver along this road. The large increase in night time coal trucks on Springhill Road is expected as this is currently prohibited for night time use by the Infrastructure SEPP.

The new General Cargo Handling Facility, which is located within the port precinct, dispatches car transport vehicles along Springhill and Masters Roads on their way north to Sydney. The introduction of these heavy vehicles will reduce the percentage of coal trucks of total heavy vehicles along Springhill and Masters Roads. Consideration of coal truck impacts along these two roads should also note that the Traffic Study predicts coal trucks will only be 7.8% of total traffic along Springhill Road in 2018.

Bellambi Lane shows a high percentage increase in the number of coal trucks. This is due to the Northern Distributor Extension, which is due to open in mid 2009, which will result in a decrease of overall traffic on Bellambi Lane, post the NDE opening.

Road Congestion

In accordance with the objectives of this EA the Traffic Study has assessed the operating characteristics of road sections and key intersections along the haulage routes and has modelled expected operating` characteristics in 2018 based on the PKCT proposal to receive a maximum of 10mtpa of coal via 24/7 road delivery.

Existing road conditions and delivery activities do not create a level of congestion, which results in the coal haulage routes not accommodating current traffic levels. The 24/7 trial provided evidence that existing road infrastructure can accommodate the alteration in delivery hours and modelling has shown that the increase in coal truck numbers is not expected to alter the operating characteristics of roads in the haulage routes.

Tables 6.9 & 6.10 show predicted mid block carriageway level of service based on modelled background traffic growth of all vehicles including coal trucks (apart from the column titled "No CT" means "No coal trucks") along the haulage routes. See **Table 6.6** for Level of Service Classifications.

Table 6.9 - Carriageway Level of Service by Scenario – 2018 AM Peak

Location	to PKCT					from PKCT				
	No CT	11/6		24/7		No CT	11/6		24/7	
	0mtpa	4mtpa	10mtpa	4mtpa	10mtpa	0mtpa	4mtpa	10mtpa	4mtpa	10mtpa
Appin Rd, South of Appin Mine	B	B	B	B	B	C	D	D	C	D
Appin Rd, South of West Cliff Mine	B	B	B	B	B	C	D	D	C	D
Appin Rd, South of Dharawal CE	C	C	C	C	C	D	D	D	D	D
Appin Rd, South of No. 10A Fire Rd	C	C	C	C	C	D	D	E	D	D
Mount Ousley Rd, South of Appin Rd	E	E	E	E	E	D	D	D	D	D
Mount Ousley Rd, South of Picton Rd	E	E	E	E	E	D	D	D	D	D
Southern Fwy, South of Mount Ousley Rd	F	F	F	F	F	F	F	F	F	F
Southern Fwy, South of Northern Dist.	C	C	C	C	C	E	E	E	E	E
Southern Fwy, South of Princes Hwy	F	F	F	F	F	F	F	F	F	F
Bellambi La, South of Princes Hwy	A	A	A	A	A	A	A	A	A	A
Northern Dist., South of Bellambi Ln	C	C	C	C	C	B	B	B	B	B
Northern Dist., South of Railway St	C	C	C	C	C	B	B	B	B	B
Masters Rd, East of Southern Fwy	A	A	A	A	A	A	A	A	A	A
Springhill Rd, East Masters Rd	A	A	A	A	A	A	A	A	A	A
Springhill Rd, South of Masters Rd	A	A	A	A	A	A	A	A	A	A

Table 6.10 - Carriageway Level of Service by Scenario – 2018 PM Peak

Location	to PKCT					from PKCT				
	No CT	11/6		24/7		No CT	11/6		24/7	
	0mtpa	4mtpa	10mtpa	4mtpa	10mtpa	0mtpa	4mtpa	10mtpa	4mtpa	10mtpa
Appin Rd, South of Appin Mine	B	B	B	B	B	B	B	B	B	B
Appin Rd, South of West Cliff Mine	B	B	B	B	B	B	B	B	B	B
Appin Rd, South of Dharawal CE	B	B	C	B	C	C	C	C	C	C
Appin Rd, South of No. 10A Fire Rd	B	C	C	B	C	B	C	C	C	C
Mount Ousley Rd, South of Appin Rd	C	C	C	C	C	C	C	C	C	C
Mount Ousley Rd, South of Picton Rd	B	C	C	C	C	B	B	C	B	B
Southern Fwy, South of Mount Ousley Rd	F	F	F	F	F	E	E	E	E	E
Southern Fwy, South of Northern Dist.	C	C	C	C	C	B	B	C	B	B

Southern Fwy, South of Princes Hwy	D	D	D	D	D	D	D	D	D	D
Bellambi La, South of Princes Hwy	A	A	A	A	A	A	A	A	A	A
Northern Dist., South of Bellambi Ln	B	B	B	B	B	B	B	B	B	B
Northern Dist., South of Railway St	B	B	B	B	B	B	B	B	B	B
Masters Rd, East of Southern Fwy	A	A	A	A	A	A	A	A	A	A
Springhill Rd, East Masters Rd	A	A	A	A	A	A	A	A	A	A
Springhill Rd, South of Masters Rd	A	A	A	A	A	A	A	A	A	A

This analysis shows that in the AM and PM commuter peaks the increase in amount of coal delivered and the change to 24/7 makes little difference to the level of service.

In the AM it is noted that:

- Appin Road (South of No. 10A Fire Rd)) has a worse LoS if 10mtpa are delivered under the 11/6 restriction as opposed to 24/7
- Mount Ousley Road's LoS worsens compared with 2007 due to the increase in background traffic and the low percentage of coal trucks in overall traffic. The different coal delivery scenarios do not change the LoS category
- The Southern Freeway already has a poor LoS and this is not noticeably impacted by the change in coal delivery scenarios
- Bellambi Lane, Northern Distributor, Masters Road and Springhill Road all have good LoS under all delivery scenarios.

In the PM it is noted that:

- All roads apart from the Southern Freeway have good LoS under all delivery scenarios
- Southern Freeway LoS is poor based on background traffic and the LoS category is improved if 24/7 coal delivery is implemented
- Mount Ousley will have a worse LoS if 10mtpa of coal is delivered under the 11/6 restrictions rather than 24/7.

This modelling shows that the proposed road delivery amount up to 10mtpa and over the full 24/7 time period does not have a significant impact on the level of service of any road within the coal haulage routes. Furthermore, if coal deliveries increase, a worse LoS category is predicted on some roads if the 11/6 restriction is retained

The three assessed key intersections on the coal haulage routes operate well under current coal delivery scenarios. The increases in traffic are not believed to detrimentally affect these intersections. The Springhill Road / Port Kembla Road intersection is believed to be able to accommodate the increase in truck numbers because it is currently operating at a LoS A and the trucks will pass through at regular intervals without significant delay. Furthermore, increased traffic during critical peak periods are relatively minor. This enables the traffic light sequence to operate without long traffic queues forming.

The Traffic Study has forecast 0% growth of background traffic along Masters Road and Springhill Road. This results in a reduced impact on assessed intersections as it is only the

number of heavy vehicles passing through these intersections which will be increasing in number over time.

The intersection of Bellambi Lane and the Northern Distributor was not assessed. The volume of traffic turning right out of Bellambi Lane (west) into the Northern Distributor will be declining after the Northern Distributor Extension opens in mid 2009. This is based on the forecast levels of traffic along Bellambi Lane reducing after this opening. Due to this it is believed that additional coal trucks will not result in an unacceptable operation of this signalised intersection as the background traffic will be reduced.

6.5.3. Mitigation Measures

Mitigation measures for traffic impacts are not required in relation to PKCT's proposal to receive road delivered coal 24/7 up to a maximum of 10mtpa.

As discussed above and fully justified in the Traffic Study existing road infrastructure adequately accommodates existing PKCT operations. Forecast predictions for the proposal to increase coal delivery by road have been shown not to have an impact on intersection operation or operation of the road carriageway between intersections (mid block).

As expected, delivery during the full 24/7 time period will smooth PKCT impacts on the haulage routes by reducing the number of trucks on the road during the morning and evening peak commuting periods, as compared to 11/6 operating conditions.
Typical profiles were developed for average weekday and weekend traffic at each location by hour of day. These profiles provided background traffic volumes for light, rigid and articulated vehicles per hour at each location. The coal truck scenarios were then added to each profile to demonstrate the impact of the change in coal truck volumes by time of day.

This has identified that Springhill Road and Bellambi Lane are subject to significant changes. **Figure 29** and **Figure 30** represent the hourly profiles for average weekday heavy vehicle traffic in 2018 for Springhill Road and Bellambi Lane respectively.

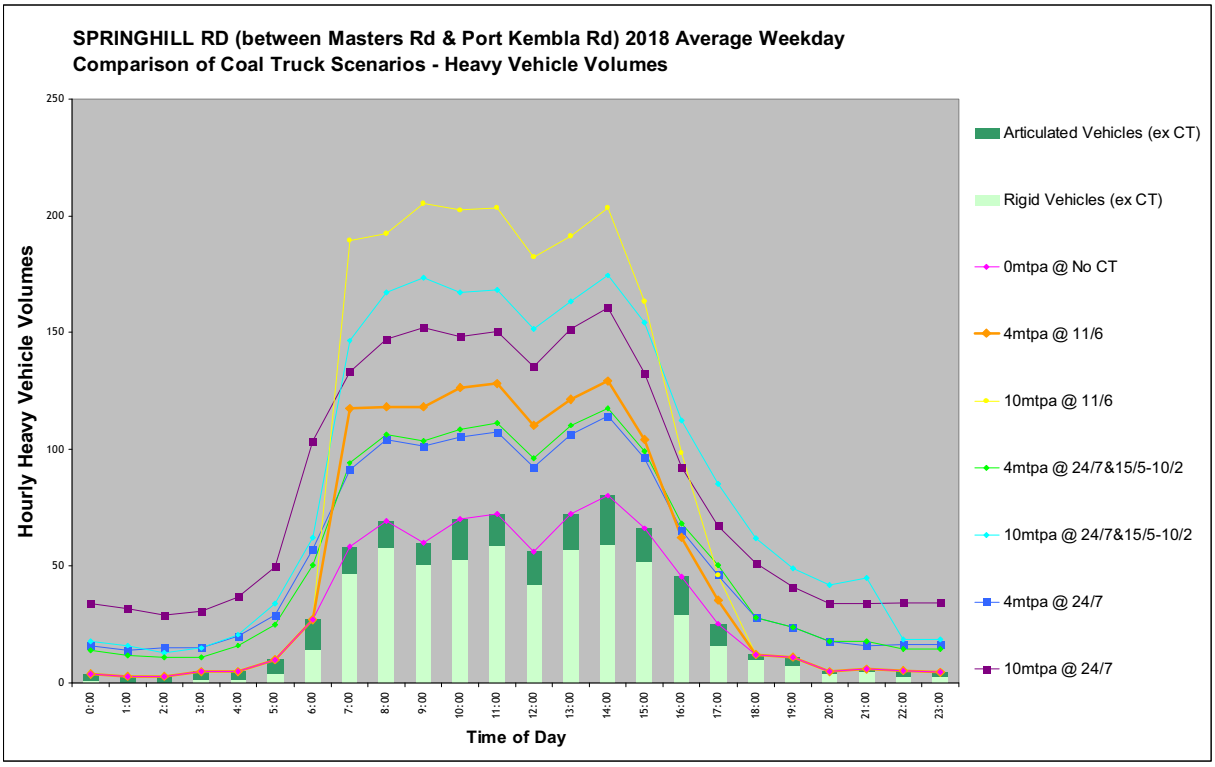


Figure 29 - 2018 Average Weekday Heavy Vehicle Volumes – Springhill Road

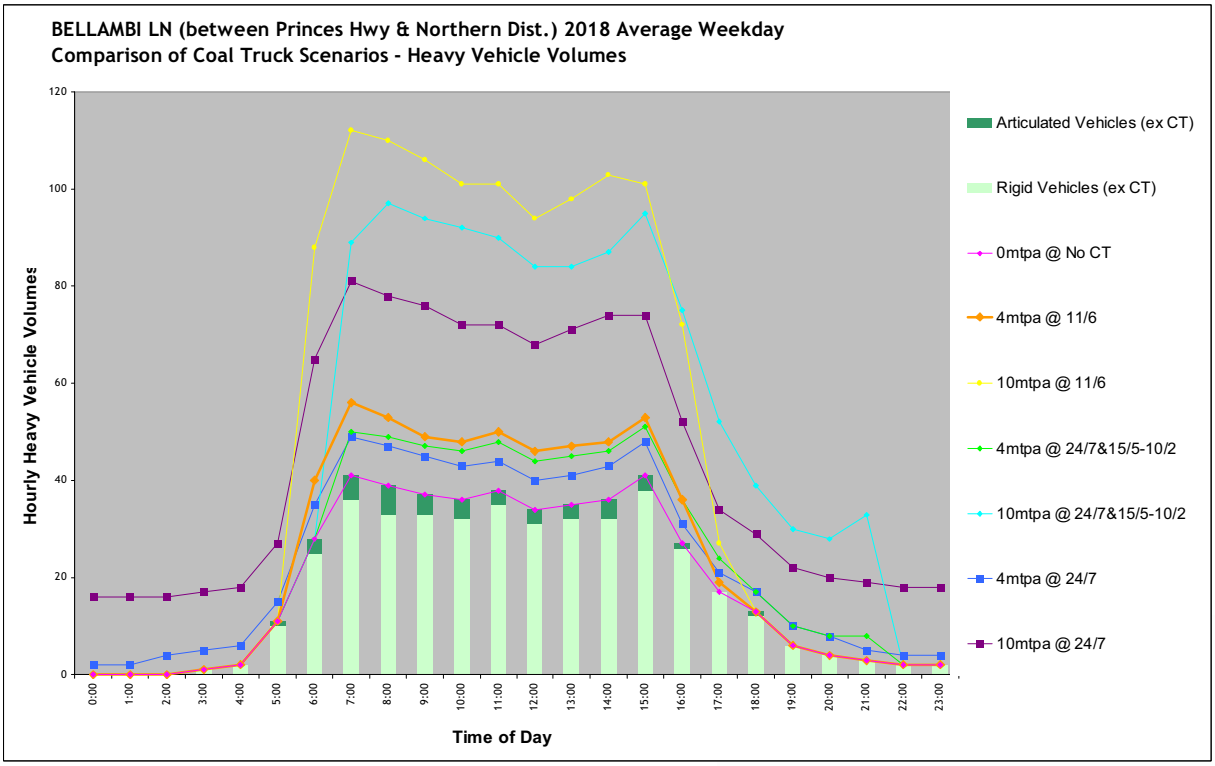


Figure 30 - 2018 Average Weekday Heavy Vehicle Volumes –Bellambi Lane

The green columns represent the hourly rigid and articulated truck volumes as background traffic. The yellow line represents the heavy vehicle volumes with coal truck traffic under existing conditions ('4mtpa' output with 11/6 restrictions). The yellow line represents the baseline heavy vehicle volumes under current arrangements.

From these graphs, we can compare the heavy vehicle volume changes in 2018 at different times of the day under each of the key scenarios:

- The red line represents the heavy vehicle volumes with coal truck traffic under current output ('4mtpa') with 24/7 operations. Comparing this to the 'yellow line', we observe that:
  - There is a slight decrease in day time hourly heavy vehicle volumes
  - There is a slight increase in night time hourly heavy vehicle volumes
  - Overall, there is a smoothing of the hourly profile when compared to the existing situation.
- The light blue line represents the heavy vehicle volumes with coal truck traffic under increased output ('10mtpa') with existing 11/6 restrictions. Comparing this to the 'yellow line', we observe that:
  - There is a marked increased in day time hourly heavy vehicle volumes
  - There is very little change in night time hourly heavy vehicle volumes
  - Overall, there is an increase in the disparity between night time and day time hourly volumes, with higher peaks and lower troughs observed in the graph shape.
- The magenta line represents the heavy vehicle volumes with coal truck traffic under increased output ('10mtpa') with 24/7 operations. Comparing this to the 'yellow line', we observe that:
  - There is an increase in both the day time and night time hourly heavy vehicle volumes
  - Overall, there is a smoothing of the hourly profile when compared to the existing situation.

The Traffic Study for this EA demonstrates that the proposal to allow 24/7 road delivery of coal to a maximum of 10mtpa has positive impacts on traffic as smoothing of coal truck volumes over day and night time periods is achievable. Furthermore, the study shows acceptable impacts on existing road infrastructure at the current date or within the 10 year time frame of assessment.

6.6. NOISE

Director General Requirement

Noise – including site and traffic noise

PKCT commissioned Wilkinson Murray to undertake an acoustic assessment of existing and proposed noise generated by PKCT onsite activities and road deliveries, in accordance with the Director Generals Requirements. This section of the EA summarises information and findings from the WM Noise Assessment.

The full Noise Assessment is included in **Appendix K**.

There are two separate aspects of the noise assessment, namely:

- Onsite noise
- Public road delivery noise along coal haulage routes

This assessment of noise impacts will consider each aspect individually. Initially, based on existing PKCT operations and deliveries, and secondly based on impacts from the PKCT proposal for 24/7 deliveries to a maximum of 10mtpa.

The impacts of noise from onsite activities at PKCT and coal trucks delivering to PKCT has been calculated in the Noise Assessment based on monitoring locations shown in **Table 6.11** below. These locations selected are all residential properties, and monitoring has been undertaken by WM and also by HATCH during SEPP 7 Emergency Provisions.

Table 6.11 – Location of Noise Monitors

Truck Route	Measurement Location	Monitoring Period
Noise Monitoring Conducted by Wilkinson Murray		
Bellambi Lane	77 Bellambi Ln (front yard)	8 to 22 March 2008
	91 Keerrong Ave (rear yard)	8 to 22 March 2008
Northern Distributor	13 Eager St (rear yard)	8 to 22 March 2008
	7 Albert St (rear yard)	14 to 22 March 2008
Springhill Road	392 Keira St (front yard)	8 to 14 March 2008
	163 Kembla St (front yard – Swan St)	8 to 22 March 2008
	163 Kembla St (front yard – Swan St)	2 to 9 May 2008
Noise Monitoring Conducted by Hatch		
Mount Ousley Road	96 Dumfries Ave	26 February to 13 March 2007
	6 Binda St	26 February to 13 March 2007
F6	13 Phillips Cr[(1)]	26 February to 1 March 2007
	36 Acacia Ave	26 February to 13 March 2007
Masters Road	84 Taronga Ave	25 February to 16 March 2007

6.6.1. Existing conditions

Onsite Operations

Noise emanating from the PKCT site has been assessed using the NSW Industrial Noise Policy for continuous and semi-continuous noise sources and the DECC Noise Guide for Local Government where short-term, high level noises occur during the night time period. The noise from PKCT's premises is defined as 'industrial noise' for the purpose of assessment.

Noise impacts on sensitive receivers near PKCT have to take into consideration other local noise generating operations. The majority of land uses to the south and west of PKCT are industrial in nature and operate 24 hours per day, 7 days per week.

The Noise Assessment identifies existing background noise levels, called Rating Background Levels (RBL) at Kembla Street and Keira Street monitoring locations. This concluded that any noise contribution to the RBLs at the Keira and Kembla Street monitors from industrial operations within the port precinct would (conservatively) be at least 5dBA lower than the general background noise level at the front of these residences due to distance and topography.

Table 6.12 describes the calculated project specific noise levels in relation to different types of noise. This identifies the noise level which would have to be created by PKCT onsite operations to have an effect on the closest sensitive receivers. These levels are calculated at the residential receiver where PKCT site noise and the exiting ambient noise environment are taken into account.

Table 6.12 – Operational Noise Criteria from PKCT Site

Residence	Time Period	Criteria (dBA)		
		Continuous Noise		Intermittent Noise
		Intrusive $L_{Aeq,15min}$	Amenity $L_{Aeq,period}$	Sleep Disturbance $L_{A1,1min}$
North and Northeast of PKCT (along Swan St)	Daytime	***51***	60	n/a
	Evening	***50***	50	n/a
	Night Time	***49***	***43***	***59***
Northwest of PKCT (along Keira St)	Daytime	***55***	60	n/a
	Evening	***49***	50	n/a
	Night Time	***43***	43	***53***

The numbers in bold are the project specific criteria.

Monitoring undertaken as part of the Noise Assessment at the Kembla and Keira Street properties has shown that the noise levels identified in the table above rarely occur in these locations. This is shown in **Table 6.13**.

Table 6.13 - Summary of Calculated Onsite Noise Levels to Residences

Residence	Time Period	Calculated Noise Level (dBA)					Noise Criteria $L_{Aeq,15min}$ (dBA)
		Non-Enhanced	Enhanced				
			Autumn	Spring	Summer	Winter	
Cnr of Swan/Kembla Sts)	Day	34	41	42	40	41	51
	Evening	35	43	44	44	42	50
	Night	36	43	43	44	42	49
Cnr of Swan/Corrimal Sts)	Day	37	42	42	40	42	51
	Evening	37	43	45	44	43	50
	Night	38	44	44	44	43	49
Cnr of Keira/Swan Sts	Day	40	43	44	42	43	55
	Evening	40	44	45	45	43	49
	Night	41	***44***	***45***	***45***	43	43

The only instances of exceedence of criteria levels are at night at the corner of Keira & Swan Streets (shown by bold numbers in **Table 6.13**). These exceedences only occur at times when seasonal weather conditions enhance the noise effect. These exceedences are only 1dBA in autumn and 2dBA in spring and summer. The calculated levels remain at least 8dBA below the noise level calculated to disturb sleep.

Calculations in **Table 6.13** are based on a worst case scenario of all PKCT plant operating simultaneously in addition to road and rail receivals occurring. It is highly unlikely that this scenario will occur resulting in normal onsite operations generating lower noise emissions than calculated above with a low chance of exceedence of noise criteria.

In discussions with site personnel and based on site visits, events identified that will produce instantaneous, short-duration, high-level noise events would be limited to tailgates of trucks striking the truck body. This scenario has been identified by the community via consultation with PKCT personnel and was assessed by WM.

The predicted noise level from such an event has been calculated to be L_{Amax} 37dBA at the nearest of the residential receivers. Given that this noise level is below the general background noise level in the area (38dBA), it can be concluded that the potential risk of such an event disturbing the sleep of nearby residences is unlikely.

Figure 31 and **Figure 32** provide a visual representation of the results shown in **Table 6.12**. These figures present the worst case contours in respect of residential receivers along Keira Street for the daytime and night time periods.

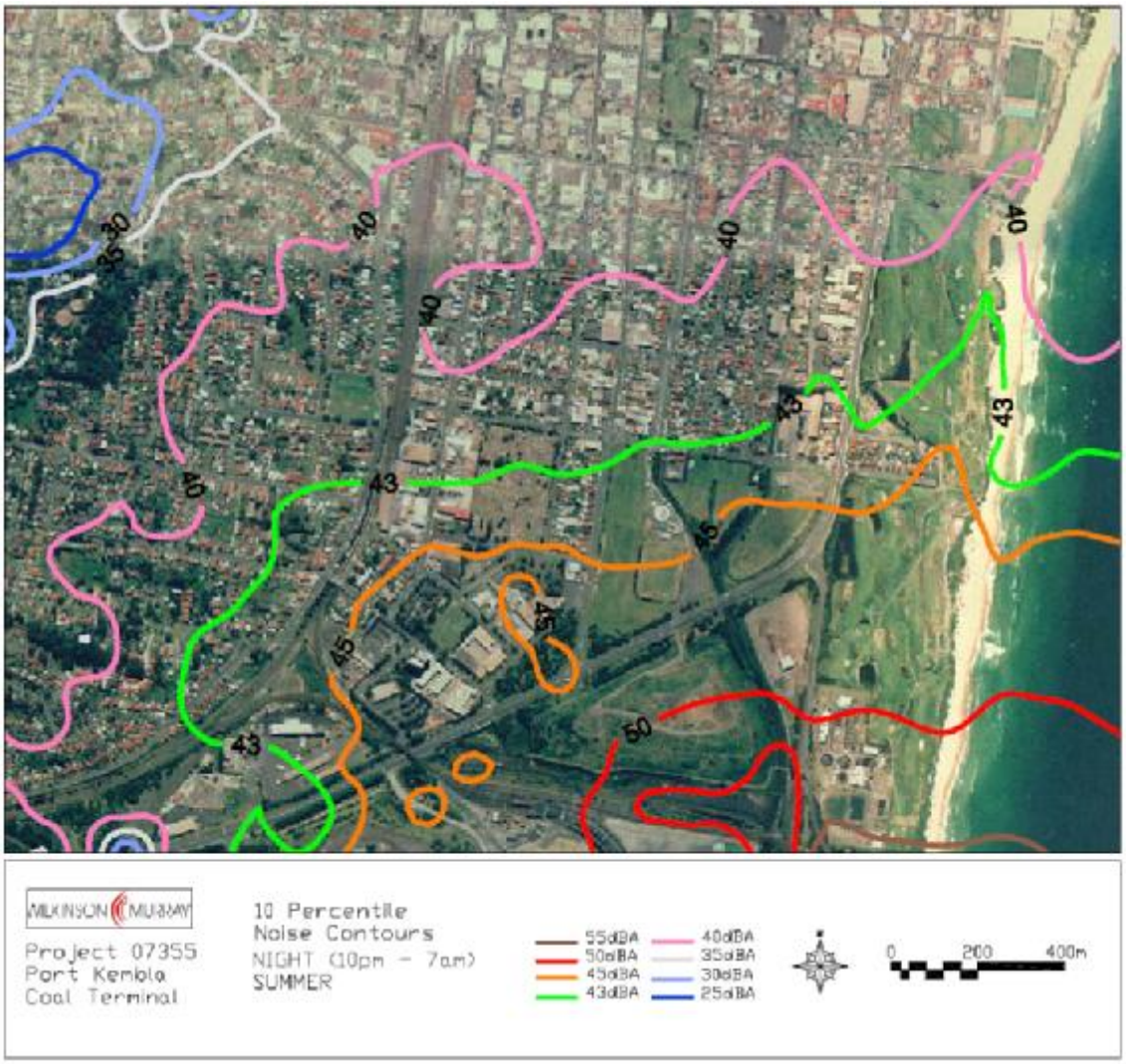


Figure 31 - Noise Contour – Night Time – Summer

Figure 32 - Noise Contour - Daytime - Spring

Impacts from noise generated by PKCT onsite activities will also be reduced as Springhill Road is located between the residential properties on Swan and Keira Streets and PKCT. Springhill Road is a sub-arterial route carrying average daily traffic volumes upwards of 14,500 vehicles. This contributes significantly to background noise which effectively masks noise from PKCT and the port of Port Kembla.

Noise from Springhill Road results in ambient noise levels at Keira and Kembla Streets being high and including low frequency content. Due to this, the risk of greater annoyance at sensitive receivers from industrial noise is unlikely.

The Noise Assessment has shown that noise generated by onsite operations at PKCT are highly unlikely to have a significant impact on the nearest residential receivers.

Coal Road Haulage Routes

The Noise Assessment reviewed the coal road haulage routes apart from Appin Road. This road was not included as there are no noise sensitive receivers.

PKCT predict that coal deliveries by road will reach 10mtpa between 2013 and 2018. The Noise Assessment has carried out modelling based on 2013 as this presents a worst case scenario as background noise levels will be lower due to less background traffic being on the road than in 2018 but the number of coal trucks required to deliver 10mtpa will not change.

In order to establish road traffic noise criteria (as defined by the L_{Aeq} noise descriptor), the background traffic noise levels, which exclude coal truck movements associated with PKCT, are established and then compared to criteria. The calculation of noise per coal truck and knowledge of the number of coal trucks along the haulage routes from the Traffic Study allow the coal truck noise level for existing and future delivery amounts to be calculated.

The Environmental Criteria for Road Traffic Noise (ECRTN) recommends that such noise be assessed using two periods of time as follows:

- Daytime 7.00am - 10.00pm
- Night time 10.00pm - 7.00am

Assessment of existing traffic noise measurements and calculations to remove noise associated with coal trucks along the coal haulage routes has provided the results shown in **Table 6.14**. Numbers in bold are above the ECRTN criteria. This shows that many roads are already above noise criteria for the road category excluding coal trucks.

Table 6.14 - Summary of Road Traffic Noise Levels for Base Year – 2008 excluding the effect of any coal truck.

Truck Route	Measurement Location	*ECRTN Criteria*		Traffic Noise Level			
				Weekday		Weekend	
		Day	Night	Day	Night	Day	Night
Bellambi Lane	77 Bellambi Lane (front yard)	$L_{Aeq,15hr}$ 60	$L_{Aeq,9hr}$ 55	***71.1***	***64.1***	***69.2***	***63.1***
	91 Keerrong Ave (rear yard)	$L_{Aeq,15hr}$ 60	$L_{Aeq,9hr}$ 55	56.4	48.3	54.4	47.7
Northern Distributor	13 Eager St (rear yard)	$L_{Aeq,15hr}$ 60	$L_{Aeq,9hr}$ 55	54.1	48.3	53.1	48.6
	7 Albert St (rear yard)	$L_{Aeq,15hr}$ 60	$L_{Aeq,9hr}$ 55	***60.5***	***53.8***	***58.4***	***53.5***
Springhill Road	392 Keira St (front yard)	$L_{Aeq,15hr}$ 60	$L_{Aeq,9hr}$ 55	***63.3***	***53.7***	***58.2***	52.6
	163 Kembla St (front yard – Swan St) – March 2008	$L_{Aeq,15hr}$ 60	$L_{Aeq,9hr}$ 55	***60.6***	***53.8***	57.7	***53.6***
Mount Ousley Road	96 Dumfries Ave	$L_{Aeq,15hr}$ 60	$L_{Aeq,9hr}$ 55	***65.1***	***62.1***	***62.4***	***59.3***
	6 Binda St (rear yard)	$L_{Aeq,15hr}$ 60	$L_{Aeq,9hr}$ 55	***59.6***	***57.7***	57.1	***54.5***
F6	36 Acacia Ave	$L_{Aeq,15hr}$ 60	$L_{Aeq,9hr}$ 55	***62.0***	***58.8***	***58.6***	***54.3***
Masters Road	84 Taronga Ave (rear yard)	$L_{Aeq,15hr}$ 60	$L_{Aeq,9hr}$ 55	***58.2***	***54.9***	53.2	51.8

If a new development is proposed and existing levels breach criteria, the ECRTN permits an increase of no more than 2dB if justifiable, valid reasons are provided. This is either up to the specified ECRTN criteria (shown in brackets) or the permissible +2dB.

The Noise Assessment has calculated noise from coal trucks along the coal haulages routes. This noise level has been added to the existing background traffic noise levels shown in 6.14.

Table 6.15 shows the calculated increase in noise level from coal trucks based on the existing delivery level of 4mtpa and 11/6 restrictions.

Table 6.15 – Traffic Noise from Existing (2008) Road Deliveries

Location	Lowest Permitted Noise Level Change (dB)	Calculated 2008 Noise Level Change (dB)
Bellambi Lane	+2	<1.1
Northern Distributor	+2	<0.5
Mount Ousley Road	+2	<0.2
F6 Freeway	+2	<0.4
Masters Road	+2	<0.9
Springhill Road	+2	<0.2

Table 6.15 identifies that noise impacts from existing deliveries to PKCT are well within ECRTN criteria as no increase is above 2dB. Justification for exceedence within the 2dB allowance are:

- Each of the roads used by PKCT coal trucks is either an arterial/freeway or sub-arterial, purposely designed to carry heavy vehicle movements and remove them from other more dense residential corridors
- Many of the roads used by PKCT have already undergone mitigation treatments in the form of road side barriers and noise monitoring
- The routes used are the most direct and impacts on the least number of residential and receivers
- Residential properties are set back some distance from Springhill Road resulting in other noise sources having greater impact than coal trucks
- Sending coal trucks any other route would have far greater noise and traffic impact as the coal haulage routes have been selected to mitigate noise impacts on residential receivers to the greatest extent.

6.6.2. Impact Assessment

This section considers noise impacts in relation to onsite operations and road deliveries in relation to the proposed 24/7 deliveries up to a maximum of 10mtpa.

Onsite Operations

PKCT are not proposing any changes to the type of onsite operations as part of this Part 3A Application. Existing PKCT infrastructure has the capacity to accommodate the proposed 24/7 road based deliveries to the amount of 10mtpa. Additionally, PKCT already operate 24/7 on site, 365 days per year.

Onsite noise levels will not be increased by the 24/7 proposal or the increase in deliveries. As discussed in **Section 3.6.2** it is proposed that a greater amount of coal will be delivered via road during night time hours. This will alter current PKCT activities as more deliveries will occur at night. This is assessed as not having a detrimental noise impact on sensitive receivers as noise calculations demonstrate that deliveries during the night do not breach DECC night time criteria.

The proposal to receive road deliveries 24/7 up to 10mtpa will not create significant noise impacts from PKCT onsite operations.

Coal Road Haulage Routes

As shown in **Table 6.14** many roads forming the coal haulage routes already have sections experiencing noise levels above ECRTN criteria. The Noise Assessment has calculated noise increases along the haulage routes based on the PKCT proposal to increase road deliveries to 24/7 and 10mtpa. This modelling is based on background traffic levels predicted in 2013.

Table 6.17 shows increases in noise levels along the coal haulage routes due to the PKCT proposal.

Table 6.17 - Traffic Noise from 2013 Proposed Deliveries

Location	Lowest Permitted Noise Level Change (dB)	Calculated 2013 Noise Level Change (dB)
Bellambi Lane	+2	Refer to body text and Tables 6.18 & 6.19
Northern Distributor	+2	<2.0
Mount Ousley Road	+2	<0.2
F6 Freeway	+2	<0.8
Masters Road	+2	<1.9
Springhill Road	+2	<0.2

As noted previously 2013 is the earliest date predicted by PKCT that 10mtpa of coal could be received and this is the worst case scenario for noise calculations. This calculation demonstrates that the entire coal haulage routes, apart from Bellambi Lane, will remain within the 2dB level allowable by ECRTN criteria.

The noise impacts on all roads other than Bellambi Lane are acceptable in relation to the proposed increase in to 24/7 in road deliveries to PKCT. The Northern Distributor Extension (NDE) is due to open in late 2008 / early 2009 and this significantly alters traffic volumes on

Bellambi Lane. It is anticipated that the traffic volumes on Bellambi lane will reduce by 58% from approximately 12,000 cars to approx 5,000 cars.

As such, increasing the number of coal truck movements delivering to PKCT along Bellambi Lane may result in noise impacts. Therefore a more detailed assessment has been conducted, not just calculating changes in noise level but also absolute levels. Considering the year 2009 (after NDE opening) and 2013 and 24/7 haulage, **Table 6.18** shows the predicted noise levels.

Table 6.18 Calculated LAeq Noise Level for Bellambi Lane for 24/7 haulage scenario

Scenario	Location Bellambi Lane	Approximate number of houses impacted	ECRTN Criteria		Predicted noise level 10th percentile worst hour. (Noise Level in comparison to 2008 (base Year, dB)).			
					Weekday		Weekend	
			Day $L_{Aeq,1hr}$	Night $L_{Aeq,1hr}$	Day $L_{Aeq,1hr}$	Night $L_{Aeq,1hr}$	Day $L_{Aeq,1hr}$	Night $L_{Aeq,1hr}$
2009 24/7 4M	front yard Bellambi Lane	29	60	55	68.1 (-3.0)	65.9 (+1.8)	66.9 (-2.3)	63.3 (+0.2)
	rear yards Keerrong Ave	36			53.4(-3.0)	50.1 (+1.8)	52.1 (-2.3)	47.9 (+0.2)
2013 24/7 10M	front yard Bellambi Lane	29			70.9(-0.2)	71.1(+7.0)	70.9 (+1.7)	67.3 (+4.2)
	rear yards Keerrong Ave	36			56.2(-0.2)	55.3 (+7.0)	56.1 (+1.7)	51.9 (+4.2)

Table 6.18 shows daytime noise levels for the houses fronting Bellambi Lane reduce in 2009 even with additional coal truck movements. At night the traffic noise levels however increase. The increase is below the allowance goal of 2dB. With regard to the houses along Keerong Avenue (rear facing Bellambi Lane) the noise levels show the same trend, however, all noise levels are below the ECRTN noise criteria.

For 2013 assuming road received coal is operating at 10 Mtpa at PKCT, the daytime noise levels for the houses fronting Bellambi Lane are back to the base year (2008 no coal trucks) noise level. At night exceedences of up to 7dB above the base year (2008 no coal trucks) noise levels have been calculated. These increase in night time noise levels are interpreted as presenting significant night time noise impacts.

6.6.3. Mitigation Measures

Onsite Operations

The Noise Assessment has monitored and calculated current noise levels from existing PKCT onsite operations. Modelling has been undertaken to identify noise levels associated with the PKCT proposal to increase road based coal delivery.

This work has identified that current onsite operations do not create noise levels which exceed the relevant DECC Industrial Noise criteria. As onsite operations will not change due to the proposed increase in coal delivery there will not be any additional disturbance from onsite noise.

As no detrimental noise impacts on sensitive receivers is predicted there is no requirement for any mitigation measures.

Coal Road Haulage Routes

The Noise Assessment has shown that existing and proposed deliveries to PKCT do not result in exceedences of ECRTN criteria apart from on Bellambi Lane at night time. Noise impacts associated with coal haulage along Bellambi Lane are exacerbated due to the opening of the NDE which sees a sharp decline in background traffic volumes. As a result of this, the noise impacts associated with the haulage of coal under a 24/7 operating environment would be significant during night time hours.

To ensure least impact on the local community GNRE propose not to carry out deliveries in the night time hours of 10pm – 7am along Bellambi Lane. Furthermore GNRE propose to limit deliveries along Bellambi Lane to 8am – 6 pm on Saturdays, Sundays and Public Holidays. This will result in 15 hour delivery days during the week and 10 hour delivery days on the weekends and public holidays. This time frame is referred to as 15/5 &10/2.

GNRE are required to submit a Part 3A application for current operations at No. 1 Mine by 2010. GNRE may further explore road delivery options and mitigation measures along Bellambi Lane within this application.

The Noise Assessment calculations for Bellambi Lane have been based on ECRTN day and night time hours. These are:

- Daytime 7am – 10pm
- Night time 10pm – 7am

It is proposed that the 15/5 & 10/2 delivery pattern will allow for greatest residential amenity, while allowing GNRE to efficiently deliver coal to PKCT up to maximum forecast volumes.

Compared to 24/7 deliveries the 15/5 & 10/2 restriction will increase the frequency of coal trucks along Bellambi Lane during the day if GNRE are to meet predicted amounts which are attributed to a portion of the total 10mtpa delivered by road to PKCT. This will increase daytime noise levels from coal trucks along Bellambi Lane. **Table 6.19** identifies calculated noise level increases based on 15/5 & 10/2 deliveries to meet the predicted 10mtpa in 2013.

As the Noise Assessment has shown that noise levels are minimised on Bellambi Lane through the 15/5 & 10/2 delivery pattern it is suggested that the approval of this application contain a condition restricting road deliveries of coal from GNRE along Bellambi Lane to 7am – 10pm Monday to Friday and 8am to 6pm on Weekends and Public Holidays.

Table 6.19 –Calculated L_{Aeq} Noise Level Changes for Bellambi Lane in 2013

Scenario	Location Bellambi Lane	Approximate number of houses impacted	ECRTN Criteria		Predicted noise level 10th percentile worst hour. Noise Level Change between 2008 base Year, (dB).			
					Weekday		Weekend	
			Day $L_{Aeq,1hr}$	Night $L_{Aeq,1hr}$	Day $L_{Aeq,1hr}$	Night $L_{Aeq,1hr}$	Day $L_{Aeq,1hr}$	Night $L_{Aeq,1hr}$
2008 15-10 4M	front yard Bellambi Lane	29	60	55	68.5(-2.6)	60.4(-3.7)	66.8(-2.4)	59.4 (-3.7)
	rear yards Keerrong Ave	36			53.8(-2.6)	44.6(-3.7)	52.0(-2.4)	44.0 (-3.7)
2013 15-10 10M	front yard Bellambi Lane	29			71.9 (+0.8)	60.6(-3.5)	70.3(+1.1)	59.6 (-3.5)
	rear yards Keerrong Ave	36			58.5(+0.8)	44.8 (-3.5)	55.5 (+1.1)	44.2 (-3.5)

As can be seen in **Table 6.19** the daytime noise levels for the houses fronting Bellambi Lane have increased by approximately 1dB during the day compared to the baseline 2008 traffic noise levels. The increase is below the allowance goal of 2dB. At night the traffic noise levels however decrease increasing residential amenity substantially.

The 15/5 & 10/2 restriction is believed to be a satisfactory mitigation measure to allow GNRE to increase coal exports and protect residential amenity from unacceptable noise impacts. This is for the following reasons:

- Noise impacts associated with coal trucks on Bellambi Lane are primarily caused by a reduction in traffic due to the NDE opening.
- Traffic frequency and overall traffic noise along Bellambi Lane will reduce once the NDE opens due to the expected decline in vehicle numbers (other than coal trucks).
- Mitigation measures which preclude No 1 Mine from 24/7 deliveries will be enforced. There will continue to be no coal trucks delivering to PKCT along Bellambi Lane at night to protect residential amenity.
- As identified in the Noise Assessment some properties along Bellambi Lane will not be as affected by the noise due to set backs, fences, existing structures and vegetation.
- Bellambi Lane constitutes the most direct route from No 1 Mine to the Northern Distributor which impacts on the lowest number of residential properties.
- GNRE operations provide benefits to the State and region in terms of employment, tax and exports; constraints greater than 15/5 & 10/2 will unreasonably constrain GNRE reducing these benefits.
- On balance, the loss in noise reduction for Bellambi Lane properties is not believed to be a justifiable reason to prevent daytime deliveries at 15/5 & 10/2 out of No 1 Mine.

Conclusion

The onsite noise assessment has found that the calculated noise levels meet the Industrial Noise Policy criteria. Noise from PKCT onsite operations is generally below background noise at the closest residential receivers and it is highly unlikely to cause sleep disturbance

from instantaneous, short duration events. Additionally, PKCT already operate 24/7 on site 365 days per year, and minimal change in onsite noise is predicted as a result of this proposal.

PKCT predict that coal deliveries by road will reach 10mtpa between 2013 and 2018, this has been the basis for noise modelling predictions. Modelling against the ECRTN criteria on the major roads such as Mt Ousley, F6, Northern Distributor, Masters Road and Spring Hill Road for 2008 24/7 4Mtpa and 2013 24/7 10Mtpa comply with the ECRTN allowance goal of the 2dB, with most roads exhibiting very little change. Mount Ousley Road shows a minor change of only +/- .2 DB under the 2013 10mtpa scenario.

For Bellambi Lane the noise assessment has shown that 24/7 coal haulage has potential night noise impacts. Recognising that 2013 24/7 coal haulage on Bellambi Lane has the potential for significant night noise impacts it is proposed to use a 15 hour 5 weekday and 10 hour 2 weekend day (15/5 & 10/2) delivery pattern. The (15/5 & 10/2) delivery pattern will allow for greatest residential amenity, while allowing GNRE to efficiently deliver coal to PKCT up to maximum forecast volumes. It is predicted that this will result in only marginal 1.1Db increases in noise levels above current levels.

With appropriate mitigation measures, noise from PKCT on site operations and road haulage routes will not significantly affect the residential amenity of neighbouring residences.

6.7. WATER

Director General Requirement

Water – including site water management, stormwater management, operational requirements of the site's EPL and discharges from the project site.

6.7.1. Existing Conditions

Cardno Forbes Rigby carried out a review of the existing surface water management and effectiveness. Impacts from the proposed change to 24/7 and 10mtpa were considered and the requirement for mitigation measures considered.

Stormwater runoff from the sites coal stockpiles, roads and hardstanding areas are captured and treated to remove coal fines prior to discharge into the inner harbour. Site runoff is directed to a number of collection ponds and these ponds are pumped to a treatment lagoon for chemically-aided coagulation and settlement. Clarified water is either discharged to the inner harbour or re-used on-site for dust suppression. **Figure 33** highlights major components of the sites surface water system.

Figure 33 – PKCT Surface Water Infrastructure

A hydrologic/hydraulic study was undertaken in May 1993 titled *"Contaminated Water Collection and Treatment Plant – Operational Philosophy"* authored by Mechatricity Pty Ltd. The study detailed the operational philosophy of the (then) proposed surface water treatment system at PKCT and was consequently constructed in accordance with Mechatricity's design.

The current surface water management system at PKCT aims to collect and treat water prior to discharge into Port Kembla Harbour or re-use on-site for dust suppression. Discharges into the harbour must occur in accordance with the operating conditions stipulated in EPL 1625. The EPL specifies both concentration limits for discharges into the harbour and requirements for monitoring of discharges from a single location identified as TP16. **Table 6.21** outlines the applicable concentration limits:

Table 6.21 - PKCT EPA Operating License Conditions

Criteria	Units	100 Percentile Concentration Limit
Oil and Grease	mg/L	10
pH	pH	6.5-8.5
Total Suspended Solids	mg/L	50

EPL 1625 operating conditions are met with site ponds to improve water quality. Most ponds are simply used for water capture and are then pumped by vertical mounted slurry pumps to the treatment lagoon. Suspended solids settle in the treatment lagoon.

Chemical dosing of water in the lagoon occurs as necessary to promote flocculant formation and therefore improve settling rates. The meandering layout of the lagoon promotes 'beaching' of suspended solids and dense macrophyte planting improves the uptake of other pollutants (along with improving settlement).

Table 6.22 characterises the various ponds in the system.

Table 6.22 - Pond Details

Component	Catchment Area (ha)	Volume (m^3)	Discharge to
Central Pond	17.7	7480	Treatment Lagoon
Southern Pond	11.2	7700	Central Pond
TS1 Pond	4.3	1550	Treatment Lagoon
Tower 3 Pond	2.90	450	Central Pond
Workshop Pond	1.65	370	Treatment Lagoon
Northern Pond	13.2	3000	Treatment Lagoon
Treatment Lagoon	NA	7300	Harbour

PKCT have improved their onsite surface water management systems since first inception. This has included preparation of an action plan of measures, which include:

- New pond cleaning system
- Improvements to the chemical dosing unit
- Audit and reporting on the new equipment.

The EPL specifies both concentration limits for discharges into the harbour and requirements for monitoring of discharges from a single location identified as TP16. PKCT's annual EPL report shows water discharged from TP16 meets license requirements.

PKCT's increased road-based deliveries will have no impact on the management of surface water within the PKCT site. Existing management systems will continue to adequately control onsite water flows and mitigate impacts on the environment.

6.7.2. Impact Assessment

Assessment of the PKCT surface water management in relation to the proposal for increased road deliveries to PKCT is not required, as this will not affect the onsite management of surface water.

6.7.3. Mitigation Measures

As the proposal to allow PKCT to receive increased road based deliveries will have minimal impact on the management of surface water within the PKCT site existing management

systems will continue to adequately control onsite water flows and mitigate impacts on the environment. Alterations to the existing surface water management system are not required due to PKCT's 24/7 proposal.

6.8. CLIMATE CHANGE & ENERGY USE

Director General Requirement

Greenhouse Gas & Energy Efficiency – including qualified assessment of GHG likely to be generated by the proposal, and a description of the measures that would be implemented to ensure that the terminal is energy efficient

6.8.1. Existing Conditions

Climate Change

Existing onsite operations and deliveries via road and rail to PKCT have been assessed in relation to GHG emissions. These include:

- PKCT existing onsite operations (electricity and diesel use, waste generation)
- Coal receivals by road and rail
- Storage of coal on PKCT site
- Loading of coal onto ships for export (international and domestic)

Prior to reviewing GHG emissions from existing PKCT operations, it is relevant to review the three scopes of classification against which emissions are assessed.

The GHG calculations in this report have been prepared using methodology outlined in the *National Greenhouse Accounts (NGA) Factors* (2008) and using emissions factors tabulated in the document and best industry practice. This document, produced by DECC, replaces the AGO Factors & Methods Workbook (2006). All methodologies are underpinned by frameworks outlined in documents produced by the United Nations Framework Convention on Climate Change (UNFCCC) and the Intergovernmental Panel on Climate Change (IPCC) with due regard to the Kyoto Protocol. Policies devised by these bodies are accepted as the internationally spanning frameworks designed for intergovernmental efforts to tackle the challenges posed by climate change.

Sources of GHG data on national and global trends used for this study are readily available, and are either peer-reviewed journal articles from CSIRO, or publications that have been prepared by NSW and Federal Government departments, and / or acknowledged by the these government agencies and the IPCC as credible sources.

Consistent with the protocols of IPCC and UNFCCC three scopes of GHG emissions have been defined for this project. These scopes are:

- **Scope 1** – includes direct emissions from sources within the boundary of an organisation such as fuel combustion and manufacturing processes
- **Scope 2** – includes indirect emissions from the consumption of purchased electricity, steam or heat produced by another organisation. Scope 2 emissions result from the combustion of fuel to generate electricity, steam, or heat and do not include emissions associated with the production of fuel. Scopes 1 and 2 are carefully defined to ensure that two or more organisations do not report the same emissions in the same scope.
- **Scope 3** – includes all other indirect emissions that are a consequence of an organisation's activities but are not from sources owned or controlled by the organisation. Examples of Scope 3 emissions include indirect emissions associated with the extraction/production of fuels used onsite, fuel extraction and line loss associated with the consumed electricity, transport of product outside the organisation, and emissions associated with end use of product.

For this GHG assessment all emissions associated with onsite PKCT activities and the delivery of coal are considered Scope 1.

Scope 2 emissions defined in this assessment include direct point source combustion generation emissions associated with the generation of purchased electricity used on the PKCT site.

Scope 3 emissions defined in this assessment include:

- Indirect extraction emissions associated with the generation of purchased electricity used on site (these emissions occur during the extraction of coal/fuels used for generation of electricity)
- Emissions from mining activities to provide diesel fuel used by PKCT onsite vehicles and coal trucks delivering to PKCT
- Full fuel cycle emissions associated with transportation of product coal offshore to customers in China, Japan, Africa, and Europe
- Combustion emissions associated with end use of clean coal
- Waste generated onsite and their transport to tips, landfill and recycling facilities.

The *Greenhouse Gas Protocol 2004* (WBCSD & WRI) considers reporting of Scope 3 emissions to be optional in the GHG inventory calculation of a project, as they are produced by third party organisations and form part of the GHG inventories of those third parties. Also, reporting Scope 3 emissions can result in double-counting of emissions and can potentially make comparisons between organisations and projects problematic potentially resulting in yield emission values higher than the true value.

Notwithstanding the above, Scope 3 emissions are included in this study from as many sources as practical and from sources where data were available.

The various Scope 1, Scope 2, and Scope 3 GHG emissions associated with the PKCT operations and included in the GHG assessment are summarised in **Table 6.23**.

Table 6.23 – Scope 1, 2, & 3 Emissions from PKCT Site

Scope 1 Emissions	Scope 2 Emissions	Scope 3 Emissions
• Diesel consumption by loaders and trucks onsite • Emissions from spontaneous combustion of coal • Emissions from slow oxidation of coal • Diesel consumption during transportation of coal from mines to PKCT site.	• Consumption of purchased electricity.	• Diesel extraction (indirect extraction). • Fuel consumption during transportation of coal to customers offshore (full fuel cycle). • Consumption of purchased electricity at PKCT site (fuel extraction and line loss). • Coal end-use combustion • Fugitive emissions from waste generated and transported to land-fills

The methodology and calculations regarding the greenhouse gas emissions can be found in **Appendix L**.

The results of the GHG assessment of existing PKCT activities and 11/6 road deliveries are summarised in **Table 6.24** with **Table 2** in **Appendix L** providing supporting information on emissions arising due to shipping of coal to overseas countries and to South Australia.

Table 6.24 - Summary of Greenhouse Gas Emissions for the Current 11/6 Operations

Scope 1 emissions total / t CO_2-e per year	41,290
Scope 2 emissions total / t CO_2-e per year	18,690
Scope 3 emissions total / Mt CO_2-e per year	5.63
TOTAL Scope 1 - 3 Emissions / Mt CO_2-e per year	5.69
TOTAL Scope1 + Scope 2 Emissions / t CO_2-e per year	59,980
GHG Emissions in t CO_2-e per year per tonne of coal	**0.49**

Table 6.25 – Comparison of Existing PKCT GHG Emissions

	NSW (2007/08)	Australia (2007/08)	World (2010)
GHG Emission	158.2 Mt CO_2-e	560 Mt CO_2-e	41,825 Mt CO_2-e
% From Current PKCT Operations	0.038 %	0.011 %	~1.4x10^{-4} %

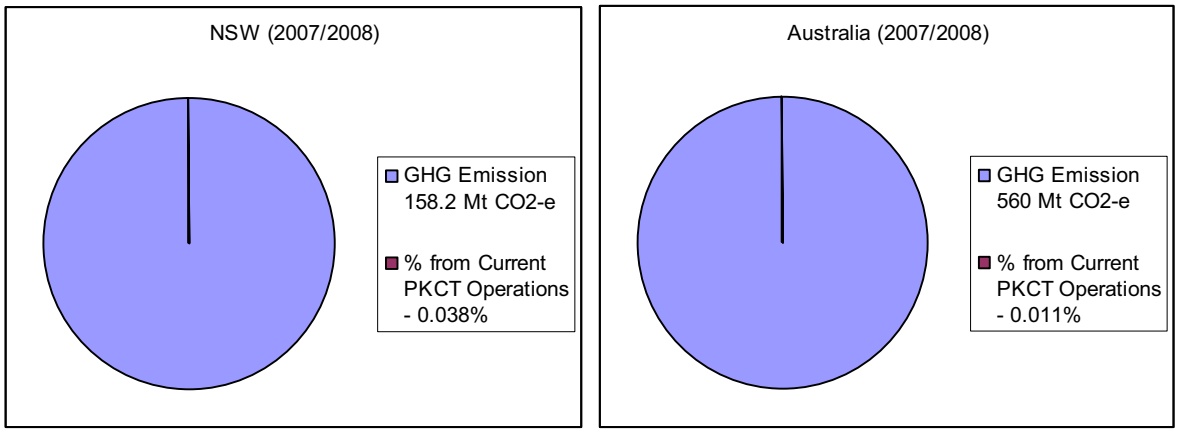


Figure 34 - Comparison of Existing PKCT GHG Emissions

There is not a set criterion to define if increases in GHG emissions are acceptable. Current best practice is to compare emissions with local relevant levels and assess if the emissions from a specific development form a significant amount.

This calculation has been completed and is shown in **Table 6.25** and **Figure 34** above. GHG emissions from existing PKCT operations have been shown to be of very low levels and constitute a negligible percentage of NSW, Australian and world emissions

In calculating the relative values shown in **Table 6.25** Scope 3 emissions have been disregarded and Scope 1 + Scope 2 total emissions have been used because these are the true indicators of GHG emissions from existing PKCT operations, which equal 59,980 / t CO_2-e per year.

Electricity Usage

PKCT electricity usage is a major aspect of existing operations and an important consideration in GHG emissions calculations. All equipment, with the exception of front-end loaders is powered by electricity purchased from the national grid. In the 2006 – 2007 financial year PKCT consumed 21 million kilo watt hours of electricity.

As PKCT operates onsite 24/7 electricity use is constant. PKCT have an Energy Saving Action Plan (ESAP) that seeks to minimise usage where possible. Testing of electricity usage based on continued operation of machinery (such as conveyor belts) and continued stop and restart have shown there is minimal impact on usage. The PKCT Energy Saving Action Plan (ESAP) is included in **Appendix M**.

The ESAP demonstrates PKCT's commitment to a reduction in electricity usage not only for financial gain but also to reduce GHG emissions associated with the Terminal's activities. The ESAP commenced in 2005 and is regularly reviewed at PKCT management meetings. Actions, as detailed in the ESAP, are undertaken to ensure aims of the plan are achieved. Implemented actions include:

- Replacement of inefficient office air condition units
- Removal of redundant lighting and heating.

Cost effective opportunities for electricity use reduction, which are under consideration, include:

- Optimisations of road delivery conveyors and stackers
- Improved power factor correction
- Reduced lighting in workshops.

Further detail on these measures and other possible measures are in **Appendix M**.

6.8.2. Impact Assessment

Raising deliveries to 10mtpa will have an increase of GHG emissions. This is from greater amounts of diesel fuel consumed due to increased coal truck journeys. Other increases in emissions will be from a greater coal throughput and expected increases in use of electricity as onsite plant will be in operation more frequently.

Table 6.26 provides a summary of calculated emissions which will arise from the proposed increase in road deliveries. **Table 4** in **Appendix L** provides emissions from shipping of the proposed increase in coal throughput at the PKCT site.

Table 6.26 - Summary of Greenhouse Gas Emissions for the Proposed 24/7 Operations

Scope 1 emissions total / t CO_2-e per year	58,158
Scope 2 emissions total / t CO_2-e per year	22,428
Scope 3 emissions total / Mt CO_2-e per year	7.47
TOTAL Scope 1 - 3 Emissions / Mt CO_2-e per year	7.55
TOTAL Scope1 + Scope 2 Emissions / t CO_2-e per year	80,586
GHG Emissions in t CO_2-e per year per tonne of coal	**0.46**

The total of all emissions (Scope 1, Scope 2 Scope 3) yields a value of 5.69 Mt CO_2-e per year for the current PKCT operations. The emissions increase to 7.55 Mt CO_2-e per year for the proposed 24/7 road deliveries up to 10mtpa. In both cases Scope 3 emissions make up 98.9% of the total emissions. In both scenarios, emissions are dominated by Scope 3 indirect upstream and downstream emissions.

This GHG assessment has calculated the percentage increase in absolute GHG emissions to be 29% in relation to the proposed increased road deliveries. When Scope 3 emissions are disregarded the percentage increase is slightly higher at 33%. As the PKCT GHG emissions are so low in relation to NSW and Australia GHG emissions this difference can be considered insignificant.

In terms of GHG emissions per tonne of coal throughput the current operations yield a value of 0.49 t CO_2-e per year per tonne of coal (when Scope 3 emissions are disregarded) while in the case of proposed throughput the value actually decreases to 0.46 t CO_2-e per year per tonne of coal. Exclusion of Scope 3 emissions is consistent with the international

frameworks on GHG emissions developed by IPCC and UNFCCC, and hence the first set of data is more realistic than the latter set.

An important conclusion inferred from these observations is that omitting Scope 3 emissions in calculations reflects the true change in GHG emissions due to the proposed increased coal deliveries by road.

Expressing emissions (Scope 1 + Scope 2) as per tonne of coal handled is a better indicator of the extent of the change. This identifies that there is a decrease of ~6% in GHG emissions due to the implementation of the 24/7 road deliveries up to 10mtpa.

A plausible explanation for the calculated reduction in GHG emissions per tonne of coal is an increase in efficient use of PKCT plant as greater amounts of coal will reduce occasions when equipment is idle or operational without handling throughput (i.e. conveyors running without carrying coal). The current 24/7 onsite operations will continue with no increase in manpower to handle the proposed approximate 40%.increased coal throughput. This can be referred to as a benefit from an economy of scale.

Only a 20% increase is expected in electricity and diesel consumption to accommodate the increased coal throughput. The result is that a 40% increase in throughput can be handled by PKCT without a substantial outlay of resources or a large increase in GHG emissions.

Table 6.27 – Comparison of Future PKCT GHG Emissions

	NSW (2007/08)	Australia (2007/08)	World (2010)
GHG Emission	158.2 Mt CO_2-e	560 Mt CO_2-e	41,825 Mt CO_2-e
% From Current PKCT Operations	0.038 %	0.011 %	~$1.4x10^{-4}$ %
% From Proposed PKCT Operations	0.052 %	0.014 %	~$2x10^{-4}$ %

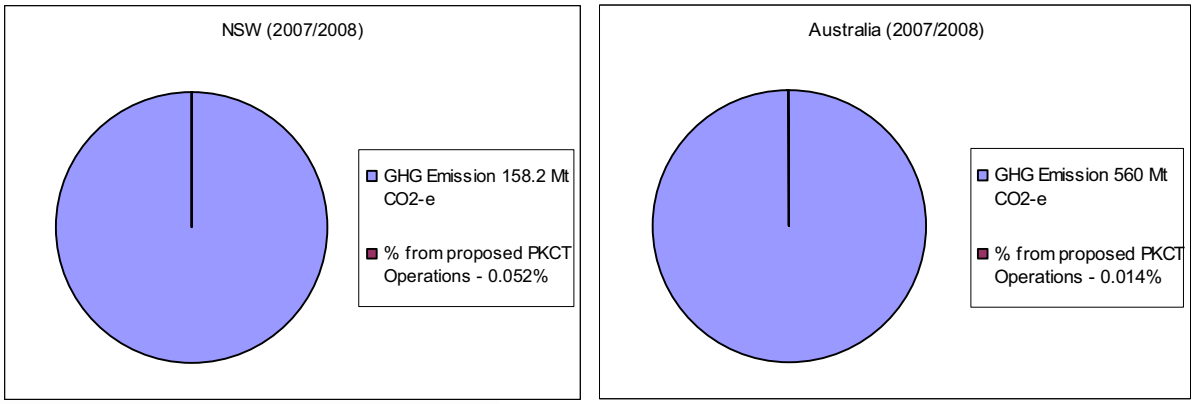


Figure 35 - Comparison of Future PKCT GHG Emissions

In calculating the relative values shown in **Table 6.27** and **Figure 35** we have disregarded Scope 3 emissions, and rather have used (Scope 1 + Scope 2) total emissions in both the

current and proposed scenario. These are the true indicators of GHG emissions from the project.

Similarly, to GHG emissions from existing PKCT operations, calculated increases in GHG emissions from the proposed increased road deliveries will only form small amounts of State, Country and World emissions.

In terms of existing PKCT operations impact on global temperature rise it is necessary to compare GHG emissions against IPCC estimates. The IPCC has estimated that doubling of CO_2-e concentration in atmosphere would lead to a 2.5°C rise in global average temperature. With the current global carbon dioxide concentration of 2,750 Gt and a total project contribution of 5.69 Mt (current operations) and 7.55 Mt (proposed operations) the PKCT existing operations only forms a negligible increase of ~$2x10^{-9}$°C.

6.8.3. Mitigation Measures

It is not believed that mitigation measures in relation to GHG emissions from the proposed increase in road deliveries of coal to PKCT are required. This is because:

- The assessment has shown that approximately 99% of the GHG emissions generated as a consequence of the project (in both the current and proposed operations) are those associated with the downstream combustion of coal elsewhere in the world
- In terms of GHG emissions per tonne of coal throughput the current operations yield a value of 0.46 t CO2-e per year per tonne of coal, while in the case of proposed throughput the value actually decreases to 0.49 t CO2-e per year per tonne of coal due to economy of scale benefits
- The similarity in these two values are attributable to the more efficient use of the PKCT resources in the proposed operations resulting in 40% increased coal output and only a slight (<10%) increase in GHG emissions
- GHG emissions from the proposed operations makes up 0.052% of the NSW GHG emissions, 0.014% of the national emissions and ~2x10-4% of the global total emissions
- In itself the project will have an insignificant impact on the climate change and thus poses negligible threat to society and the environment
- The proposed 24/7 road deliveries will not result in a significant increase in electricity consumed by PKCT.

GHG emissions from existing PKCT operations have been shown to be of very low levels and constitute a negligible percentage of NSW, Australian and world emissions. The calculations undertaken in this assessment identify that the proposed increased throughput and road receival hours do not significantly increase the percentage of GHG emissions in comparison to State, national and world levels. Additionally the level of GHG emissions per tonne of coal throughput at PKCT has been calculated as reducing due to improved PKCT efficiency based on the operations proposed in this Environmental Assessment.

As the levels of GHG emissions from PKCT's existing and proposed operations are so low, there is minimal scope for reduction and no method for mitigation. However, PKCT will continue to apply their Energy Saving Action Plan as part of their continued environmental management.

6.9. ISSUES RAISED DURING CONSULTATION

Director General Requirement

The consultation process and the issues raised must be described in the Environmental Assessment

Table 6.28 identifies and summarises issues which have been raised during consultation with stakeholders and the community.

Table 6.28 – Summary of Issues Raised During Consultation

Issue Raised	Section	Comments
Coal truck noise	**6.6.2**	Assessment shows this does not breach ECRTN criteria apart from on Bellambi Lane. Delivery restrictions for Bellambi Lane are proposed.
Road safety	**6.5.1**	Existing road conditions are generally meet requirements. As coal trucks are very small amounts of total traffic increased numbers are not believed to significantly impact on road safety.
New light pollution from coal truck headlights	**7.4**	The distance from light sensitive receivers results in truck headlight sweep at Springhill Road / Port Kembla Road not having a detrimental impact.
Adequacy of lighting at Masters Road / F6 junction	**6.5.1**	The Road Safety Auditor has advised existing street lighting meets safety requirements.
Coal truck suspension	**6.10**	See below.

This EA has addressed all issues raised during consultation. The EA addresses the matter of dynamic load sharing suspensions for coal trucks described in the letter dated 24 January 2008 from Dr Arnold McLean below.

The main issues raised in promotion of the dynamic load sharing suspensions are:

- Improved vehicle safety
- Reduced noise
- Reduced traffic congestion associated with heavy vehicle breakdowns and road repairs
- Minimise exhaust emissions generated by improved fuel consumption

Primary road haulage contractors,which deliver to PKCT operate modern prime movers and trailers to haul coal between West Cliff CPP, No 1 Mine and PKCT in the safest, quietest and most fuel efficient way. This ensures coal trucks are modern and safe.

This EA identifies that noise, congestion and GHG emissions are not unacceptably impacted by the proposed development as:

- Existing and proposed deliveries to PKCT meet ECRTN criteria apart from along Bellambi Lane. This EA proposes appropriate noise mitigation measures to reduce this disturbance to acceptable levels.
- The Traffic Study predicts that increased public road deliveries will not alter carriageway operating characteristics (congestion) along the road coal haulage routes.
- GHG emission from PKCT existing and proposed deliveries are very small amounts of NSW emissions.

The advised noise, traffic and GHG emissions are not required to ensure the increased road deliveries meet acceptable impact levels. Additionally, truck fleets are a matter for the coal mining companies and their haulage contractors. As PKCT have no control over truck fleets, it would be inappropriate to condition the use of dynamic load sharing suspensions on this EA.

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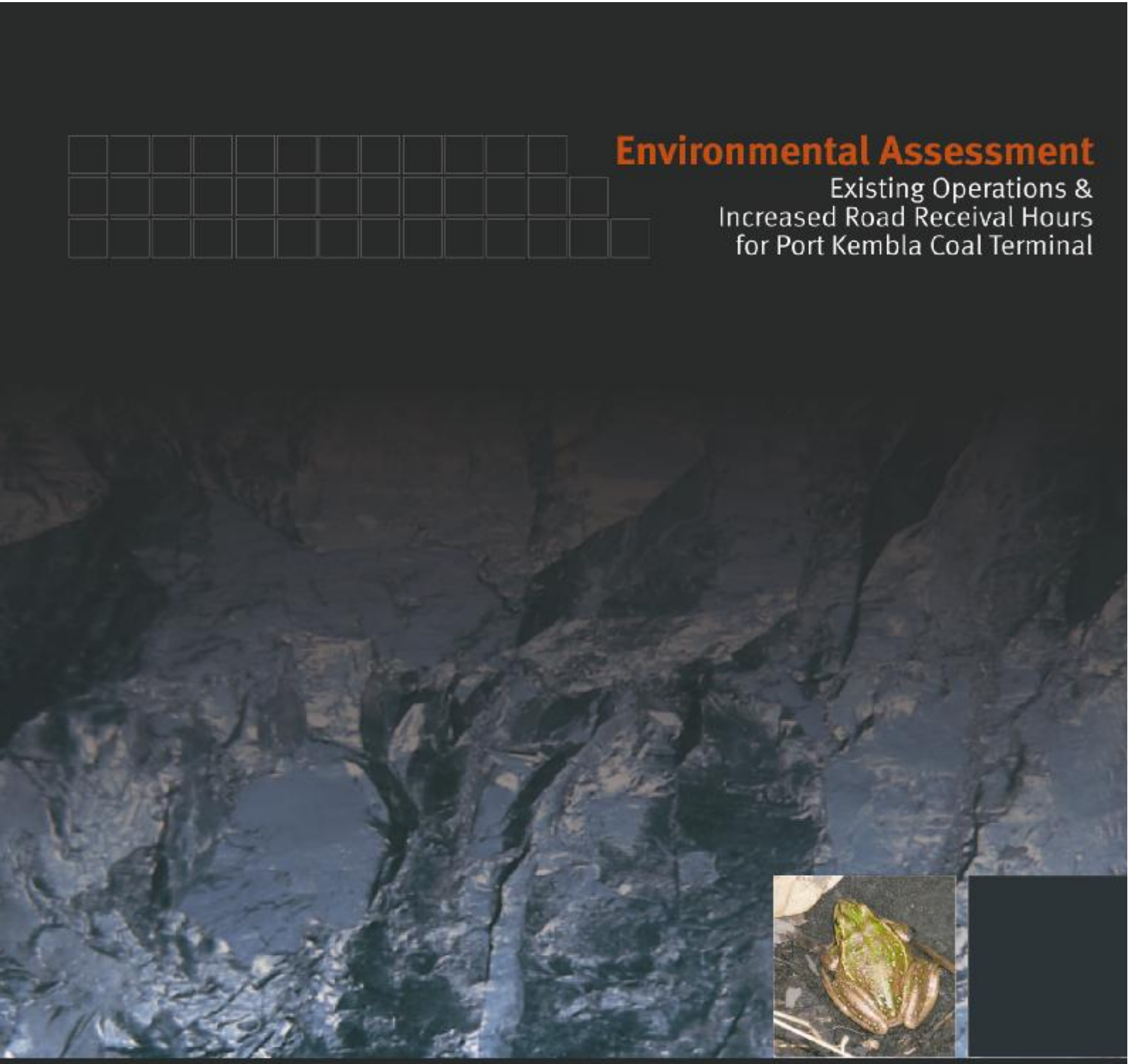
Environmental Assessment

Existing Operations &
Increased Road Receival Hours
for Port Kembla Coal Terminal



Secondary Environmental Assessments

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7. SECONDARY ENVIRONMENTAL ASSESSMENTS

7.1. WASTE

7.1.1. Existing Conditions

All activities at PKCT are planned and controlled to minimise the generation of waste. Waste generated by existing onsite activities, is stored and disposed of according to legal requirements. PKCT waste activities comply with the following legislation, policies and environmental guidelines:

- Waste Avoidance and Resource Recovery Act 2001
- Protection of the Environment Operations Act 1997
- Assessment, Classification and Management of Liquid and Non Liquid Wastes
- National Waste Minimisation and Recycling Strategy.

PKCT have a contract in place with Transpacific Industrial Solutions (TIS) to project manage the following activities:

- Office Cleaning
- Window Cleaning
- Building Maintenance
- Grounds Maintenance
- Industrial Cleaning
- Waste Removal
- Waste Steel Removal

TIS provide a monthly report to PKCT detailing works carried out, any issues encountered and amount of general waste and waste steel removed from site. This process also involves OH&S reporting and training. As part of this contract TIS organise the recycling of waste steel and cardboard on behalf of PKCT.

The contract with TIS ensures that waste materials are removed from site in an expedient manner and that recycling opportunities are taken where possible. This process will be applicable to the ongoing operations of PKCT.

PKCT have designed and implemented a waste management hierarchical system in respect of waste generated by existing onsite activities. This prioritises waste avoidance, reduction, reuse, recycling treatment and disposal in order of importance. Key onsite waste streams and their management are summarised below:

Waste Oil and Lubricants

The maintenance and operating processes of onsite equipment requires the handling transport, transfer and exchange of fuel, oils and lubricants. Waste oils and lubricants generated onsite return to a storage facility or are disposed of directly by an EPA licenced waste contractor. Regular storage capacity and integrity monitoring occurs of onsite storage tank, which is located in the workshop area. Empting takes place as required by an EPA licenced waste contractor. Recycling or reuse of tank contents occurs where possible. .

General Rubbish and Scrap Metal

General rubbish and scrap metal are collected in bins onsite and disposed of under contract. Employees are encouraged to ensure that rubbish is deposited in the correct bin to avoid contamination.

Sewage and Waste Water

Staff utilise the toilet and shower facilities located within the administration and workshop buildings on the site. These buildings are connected to the existing sewer, which feeds to the Coniston Sewerage Treatment Plant located north of the site.

Green Waste

Vegetation management contractors are employed to carry out the majority of maintenance of landscaping areas on the site. Green waste generated from on site activities is removed from site and disposed of at a green waste disposal facility. Noxious weeds are disposed of in accordance with Council requirements.

Paper / Cardboard Waste

Paper and cardboard waste is collected in designated onsite bins for recycling. A contract is in place for the collection and recycling of waste paper and cardboard generated.

Waste streams generated onsite from existing PKCT activities and operations are currently managed according to legislative guidelines. All impacts on the environment are mitigated to an acceptable level.

7.1.2. Impact Assessment

The proposal to permit 24/7 public road deliveries to PKCT and increase road deliveries to 10mtpa will not alter the type of onsite waste generated. Only minimal change to the volume of waste is anticipated as a result of this proposal. All changes to waste volumes can be managed through the existing waste management system.

7.1.3. Mitigation Measures

The waste management hierarchical system which prioritises waste avoidance, reduction, reuse, recycling, treatment and disposal in order of importance is effectively implemented onsite. The increase hours and delivery amounts will not compromise the effectiveness of this system and as a result no mitigation measures for waste are required or proposed.

7.2. LAND USE

7.2.1. Existing Conditions

PKCT Site

As PKCT is part of the port of Port Kembla. Land use surrounding the premises is predominately industrial. A Sydney Water sewage treatment plant and Wollongong Golf Course are located directly to the north of PKCT and the Tasman Sea is located directly to the east. Port related activities and BlueScope Steel are located to the south and east of PKCT.

There are a variety of land uses within 1 km of the PKCT premises in a northerly direction. This area incorporates the closest residential properties and public reserves to PKCT. Specific land uses in this area include:

- JJ Kelly Park – public open space including rugby and football fields
- Wollongong Golf Club – mixture of public and privately owned land
- Sydney Water Sewage Treatment plant
- Private open space – no public access
- Springhill Road - arterial road carrying on average 14,500 vehicles per day
- Tate Street – industrial and commercial buildings
- Wollongong Cemetery
- Swan Street – residential, commercial and industrial buildings
- Keira Street - residential, commercial and industrial buildings.

Figure 36 identifies the location of these land use in relation to the PKCT premises.

Coal Haulage Routes

Coal is transported by road from BHPBIC West Cliff Coal Preparation Plant and Gujarat No. 1 Mine to PKCT. The coal haulage routes and adjacent land uses are described below.

Appin Road

Sections of Appin Road forming the coal haulage route pass through undeveloped land gazetted as part of Sydney's water catchment area.

Mount Ousley Road

Mount Ousley Road passes through mostly non-urban land gazetted as part of Sydney's water catchment. Descending the Escarpment, Mount Ousley Road passes through residential areas, albeit separated from them by controlled access conditions, vegetation, sounds barriers and earthworks.

Surrounding Land Use

PORT KEMBLA COAL TERMINAL

Legend

- Stacker
- Reclaimer
- Reclaimer Long Travel Rail
- Stacker Long Travel Rail
- Cadastre (LPI)

PKCT Lease Area

- Site Boundary
- Sub Areas

N E S W

Scale 1:17,000 (at A4)

Meters

0 50 100 200 300 400 500

FIGURE 36

Cardno Forbes Rigby

Map Produced by Cardno Forbes Rigby
Date: 13 June 2008
Coordinate System: Zone 56 MGA/GDA 94
GIS MAP REF:
108004_01_1802_Site_Plan_A4_Rev_P3.mxd
Imagery supplied from Google Earth Pro
and associated third party suppliers.

Bellambi Lane

Bellambi Lane is boarded by residential development on both sides, and light industrial on the southern side, however direct property access is only provided on the southern side. **Figure 37** shows the land uses around Bellambi Lane.

Northern Distributor

The Northern Distributor runs parallel to the South Coast Railway Line through the northern suburbs of Wollongong, generally adjacent to residential areas. The Distributor also runs through some open space at Corrimal and North Wollongong, and industrial areas at Fairy Meadow and North Wollongong. At Gwynneville it runs adjacent to two high schools and a primary school, between University Avenue and Princes Highway.

Surrounding land uses are buffered from the Northern Distributor by a combination of vegetation and sound barriers along most of its length.

Southern Freeway

Sections of the Southern Freeway (forming the coal haulage route) run north-south through mainly residential areas, some of which pre-date the freeway (Gwynneville). The Freeway is generally separated from adjacent land uses by vegetation, cuttings and/or sound barriers. The Freeway also passes between Wollongong TAFE and the University of Wollongong.

Masters Road

Masters Road is a purpose-built access to the industrial area and port, and thus its adjacent land uses are generally industrial. A small part of the Mount St Thomas residential area abuts the road west of Jack Kimble Bridge, however a buffer of vegetation and sound barriers is provided. East of Jack Kimble Bridge, the South Coast Railway Line provides a buffer between the road and the residential areas, which it bypasses.

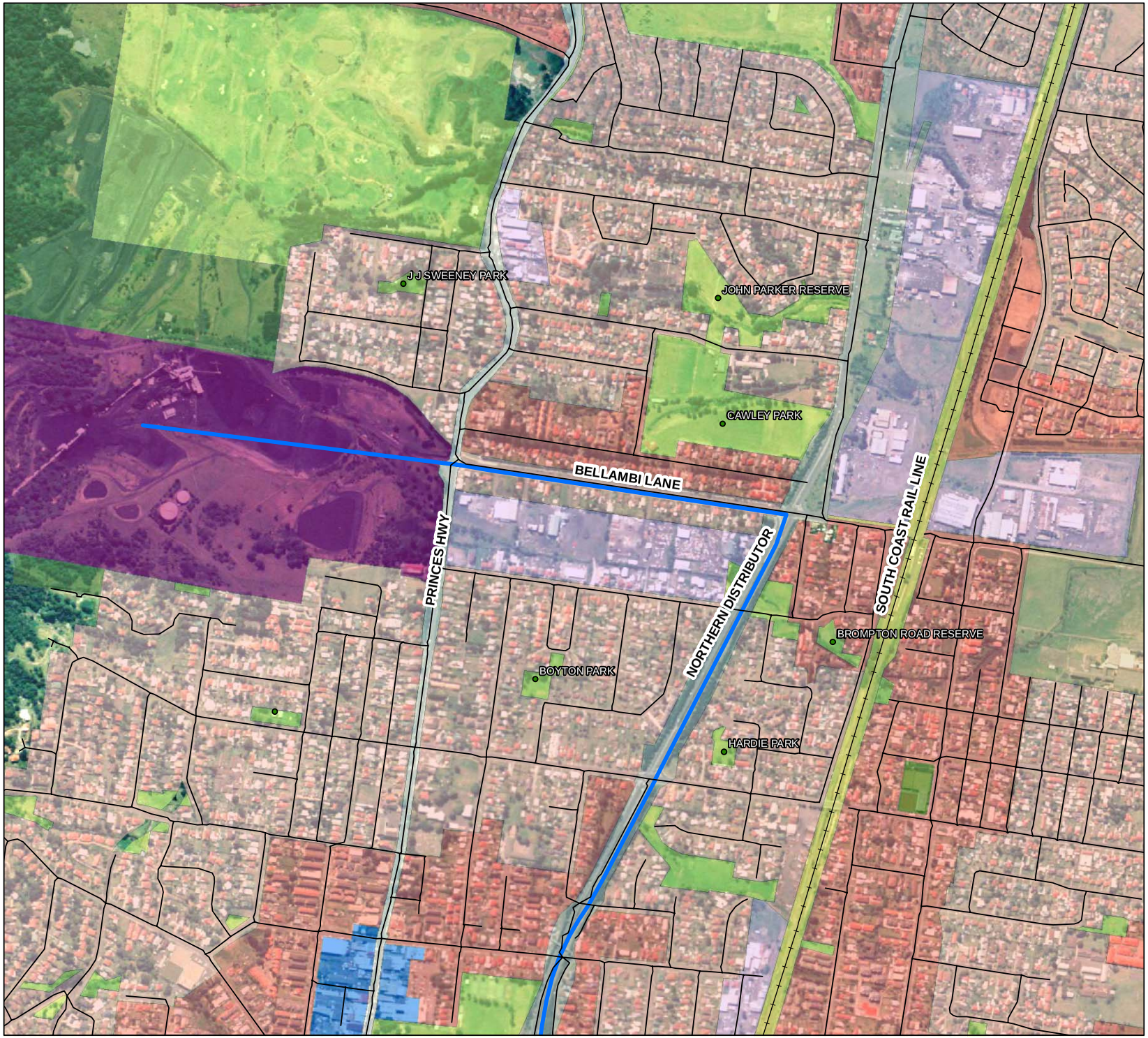
Springhill Road

Springhill Road is a purpose-built access road for the industrial area and port. As such, the abutting land uses are industrial, including the Steelworks on the southern side and light industry units on the northern side. North-east of Bridge Street, a significant buffer of parkland is provided, separating Springhill Road and the industrial land uses from the residential areas of Coniston and Wollongong. **Figure 38** shows the land uses around Springhill Road.

Port Kembla Road

Port Kembla Road is the main access road to the Port Kembla Coal Terminal and is adjacent to open space at its northern end, and the port area at its southern end.

For ease of reference **Figure 39** provides an overview of the coal road haulage routes and identifies locations of residential areas.



Landuse Along Route

BELLAMBI LANE

Legend

- Cultural Points
- Local Roads (LPI)
- Railway (LPI)
- Road From Mines

Wollongong Broad Landuse (ABS)

- Deferred
- General Business
- Industrial - Light
- Industrial - Extractive
- Main Roads
- Private Recreation
- Public Recreation
- Environmental Protection - Conservation
- Residential - Low Density
- Residential - Medium Density
- Special - Main Roads
- Special - Railways
- Special Uses

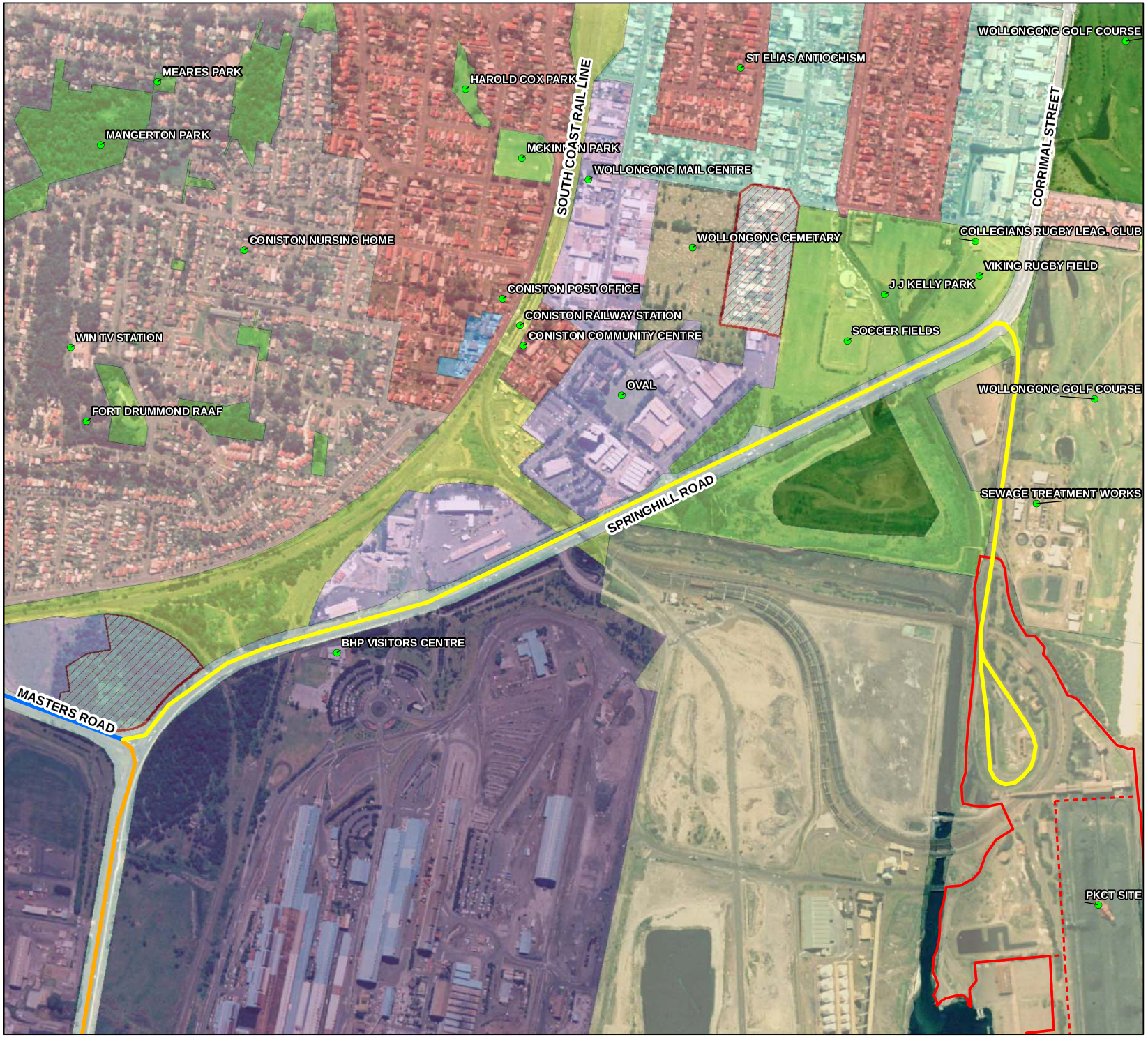
N
W E
S

Scale 1:8,000 (at A3)

Meters
0 50 100 200 300 400

FIGURE 37

Map Produced by Cardno Forbes Rigby
Date: 9 May 2008
Coordinate System: Zone 56 MGA/GDA 94
GIS MAP REF:
108004_01_1814_Bellambi_Lane_Landuse.mxd



Landuse Along Route

SPRINGHILL ROAD

Legend

- Cultural Points
- Road To Port Kembla Coal Terminal
- Road To Dendrobium Washery
- Road From Mines

Wollongong Broad Landuse (ABS)

- Commerical Services
- Deferred
- Industrial - Heavy
- Industrial - Light
- Main Roads
- Neighbourhood Business
- Private Recreation
- Public Recreation
- Residential - Low Density
- Residential - Medium Density
- Special - Main Roads
- Special - Railways
- Special Uses

PKCT Lease Area

- Site Boundary
- Sub Areas

N
W E
S

Scale 1:8,000 (at A3)

Meters
0 50 100 200 300 400

FIGURE 38

Cardno Forbes Rigby

Map Produced by Cardno Forbes Rigby
Date: 9 August 2007
Coordinate System: Zone 56 MGA/GDA 94
GIS MAP REF:
108004_01_1804_springhill_road_zone.mxd

Sensitive Landuse Along Road Haulage Routes

REGIONAL CONTEXT

FIGURE 39

PKCT
PORT KEMBLA COAL TERMINAL

Cardno Forbes Rigby

Map Produced by Cardno Forbes Rigby
Date: 28 November 2007
Coordinate System: Zone 56 MGA/GDA 94
GIS MAP REF:
108004_01_1806_Sensitive_Landuse_A3.mxd

7.2.2. Impact Assessment

The PKCT proposal to increase road deliveries of coal will not impact on land use as there are no proposed changes to existing land use.

7.2.3. Mitigation Measures

No mitigation measures are required in respect to increased road deliveries and land use matters. This is because there are no additional impacts on land use from the proposed increased road deliveries.

7.3. VISUAL

7.3.1. Existing Conditions

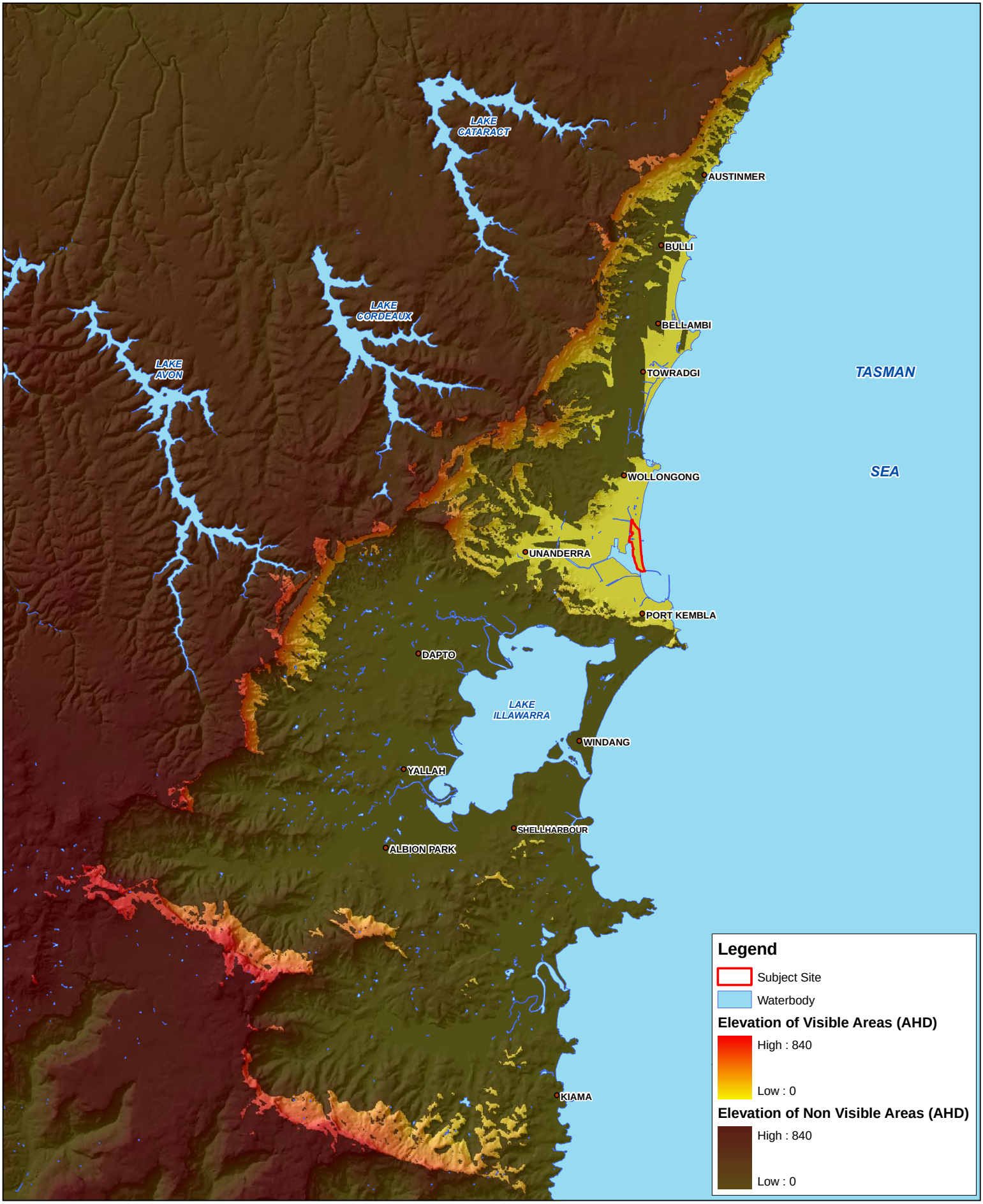
A coal terminal has been located in the present position of PKCT for over 100 years and the site has been slowly developed over this time. The stackers, reclaimers and ship loaders have been in place since the 1960s and have become an established visual feature of the area.

Figure 40 is a viewshed analysis. This visually represents where the PKCT coal stockpiles would be visible from based on topography. This mapping does not take into account any buildings which may block lines of sight. **Figure 40** indicates that the coal stockpiles would be most visible from:

- Urban areas of Wollongong due to low land between the viewing location and coal stockpiles
- Rural areas on top of the Illawarra Escarpment due to viewing from an elevated location.

The mapping indicates that without buildings the coal stockpiles would be visible from numerous locations. Visual impacts from PKCT are significantly mitigated due to existing buildings which block view corridors and distance. This results in the existing development and coal stockpiles at PKCT having minimal visual impact on the surrounding area.

The PKCT premises is located within the port of Port Kembla precinct which is highly characterised as an industrial area due to the appearance of existing machinery, storage containers, workshops, chimneys and infrastructure. The port accommodates BlueScope Steel works, a grain terminal and bulk cargo storage and imports. All of these uses have on site equipment which creates visual impacts, many of which can be seen from outside of the port precinct. **Figure 41** shows a view of the port of Port Kembla taken from the outer harbour wall. BlueScope Steel works are located on the left and PKCT on the right.



Viewshed Analysis

PORT KEMBLA COAL TERMINAL

FIGURE 40

1:150,000 (at A3)

Kilometres

0 1 2 3 4 5

Map Produced by Cardno Forbes Rigby
Date: 19 June 2008
Coordinate System: Zone 56 MGA/GDA 94
GIS MAP REF:
108004-02_2806_Viewshed_Analysis.mxd

Figure 41 – View of the port of Port Kembla from Outer Harbour Wall

The stackers, reclaimers and ship loaders at PKCT are large items of machinery which can be viewed from locations outside of the port precinct. This equipment is in character with the port as it appears as heavy industry related plant due to the size and lattice work structure. The coal stockpiles are located between the coast line and the majority of the PKCT premises and equipment. These often form a visual screen of the majority of the PKCT site. **Figure 42 & 43** (below) show a view of PKCT from the outer harbour wall and public beach (to the north of PKCT) respectively.

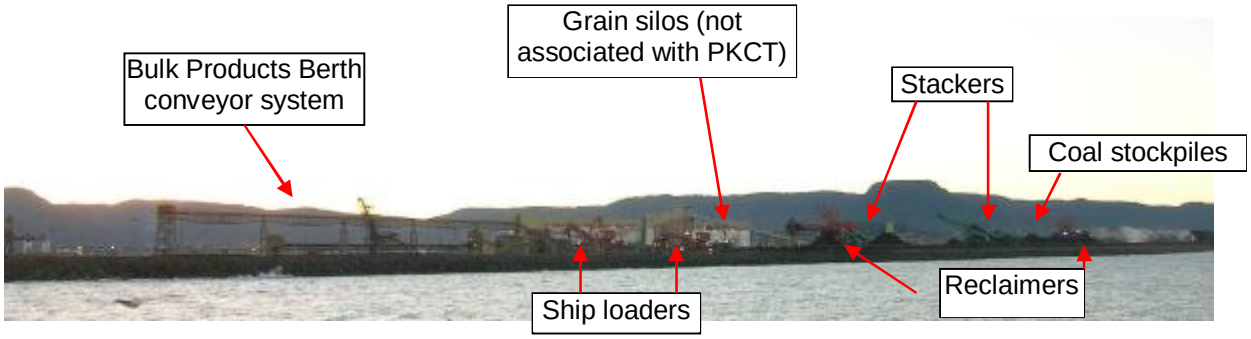


Figure 42 – PKCT Viewed from Outer Harbour Wall

Figure 43 – PKCT viewed from Coniston Beach

The undulating topography and sweeping nature of the Wollongong coast line permits easy views of the PKCT equipment from some areas and yet totally obscures it from view in other locations. The PKCT site and the majority of buildings have limited public visual exposure due to being low in height and set away from residential areas. It is the stackers, reclaimers and coal stockpiles which have a high public visual exposure due to the location near the boundary of the PKCT premises and the height.

All three photographs in this section show PKCT viewed against the backdrop of the Illawarra Escarpment. This is typical from the majority of view points and results in mitigating visual impacts from the PKCT machinery. This is because the PKCT equipment merges into the backdrop of the vegetated escarpment with the lattice work construction increasing this due to its transparent nature.

In order to confirm that existing PKCT plant and operations do not have a significant visual impact on the surrounding area an assessment is required which focuses on items identified as having high public visual exposure. These are the stackers, reclaimers and coal stockpiles.

The following six matters are considered to identify the level of visual impact from the existing PKCT items of high public visual exposure:

1. Reflection and Colour

The area surrounding PKCT is characterised by a mix of colours from the Tasman Sea, developments in the port precinct, areas of green open space and colours from the sky. The PKCT plant and coal stockpiles are not prominent features within this diverse range of colours.

The stackers are painted green and the reclaimers are painted red, the coal is black. None of these colours gives off a strong reflection. This further minimises visual impacts from the PKCT existing developments.

2. Night Lighting

PKCT operates during the full 24 hour period. This requires adequate lighting during the hours of darkness to ensure a safe working environment for employees. This creates illumination, which is visible outside of the PKCT premises and can be seen from public locations.

The location of PKCT within the port precinct results in the PKCT lighting amalgamating with lighting from surrounding premises. All businesses at the port operate during the full 24 hours which results in significant levels of night time illumination. The PKCT lighting does not have a significant visual impact when viewed in context with surrounding lighting.

3. Bulk and Height

The heights of the items of high visual exposure are:

- Stackers – approximately 30m
- Reclaimers – approximately 40m
- Coal stockpiles – average 18m

The bulk and height of these items are considered to have no more than medium visual impact as they are not out of character with the port precinct due to surrounding properties having equipment of similar and greater heights.

4. Locality and Appropriateness within the Locality

PKCT is located with the port precinct, which is an established heavy industry area. Many premises have equipment similar to PKCT or which has greater visual impact. The entire PKCT site and associated infrastructure is appropriately located to reduce visual impacts whilst still allowing for operational use.

5. Existing Structures

There are numerous existing structures within the port precinct which have a similar or greater level of visual impact to the stackers, reclaimers and stockpiles. Most notable are the grain silos, steel works buildings and 198m tall chimney.

6. Associated Structures such as Signs and Fencing

PKCT has signs and fencing but these are small in size and do not have an unacceptable visual impact on any sensitive receiver.

Visual impacts from coal trucks travelling along the haulage routes are believed to be insignificant. This is because it is expected to see all types of vehicles along the main roads, which form the coal haulage routes.

7.3.2. Impact Assessment

The proposal to permit 24/7 road deliveries via Springhill Road / Port Kembla Road intersection to a maximum of 10mtpa does not require any new infrastructure. This ensures there is no new construction which will alter existing levels of visual impact from the PKCT premises.

The only potential visual impact due to the PKCT proposal are in relation to coal truck headlights as greater numbers will be operational at night. The proposal to permit coal trucks to enter and exit PKCT premises via the junction of Port Kembla Road and Springhill Road at night will increase the number of vehicles passing through this intersection with headlights operational. This will result in a greater impact of light pollution from vehicles on this intersection and surrounding land uses than occurs under existing delivery perations.

The night time 'headlight sweep' from coal trucks as they move through this intersection is not considered to significantly impact on surrounding land uses. This is because land uses adjacent to this junction are:

- To the north – JJ Kelly Park
- To the east – Wollongong Golf Course
- To the south – Port Kembla Road and port related uses
- To the west – Springhill Road and port related uses

None of these land uses will be detrimentally effected by the 'headlight sweep' of coal trucks as there are either not used at night or are roadways where headlight illumination is expected and necessary.

7.3.3. Mitigation Measures

Mitigation measures to reduce visual impacts from PKCT due to existing operational conditions or the proposal to increase road deliveries are not required. This is because existing developments at PKCT have been established for a significant amount of time and have become an established part of the port precinct.

This Part 3A application does not propose any new structures. As such, there will be no new onsite visual impacts generated from the actions proposed in this EA and impacts from truck headlights are sufficiently mitigated by existing land use buffers or road side measures.

7.4. FLORA & FAUNA

7.4.1. Existing Conditions

The construction of Port Kembla harbour was given approval by the NSW State Government in 1898. The first coal loader operated from the PKCT site from the early 1900 and such operations have continued on site to the present date. The PKCT site has been artificially created during the construction of Port Kembla and the land has been continually used for works related to the transportation of coal for approximately 100 years.

The history of the PKCT premises has prevented any plant growth and most animal occupation of operational areas of the site. The only flora within the PKCT site is located near the sedimentation pond and on the slopes of the road receival area. There is no known protected flora species within these areas. PKCT does not carry out activities in these locations which would harm plant growth.

PKCT have planted a number of trees near the road receival area to mitigate visual impacts from the facility and provide wind screening.

A single species of protected fauna has been located within PKCT premises. During May 2008, routine work on site resulted in the discovery of 15 Green and Golden Bell Frogs, in close proximity to the workshop area on the PKCT site (refer to **Figure 45**). The area where the frogs were found is used as a spares area. Green and Golden Bell Frogs are listed as a vulnerable species under the Commonwealth EPBC Act, and as endangered under the New South Wales TSC Act.

The site was immediately cordoned off and expert advice was sought from several sources. **Figure 44** shows the location that the frogs were found.

Figure 44 – Location of Green & Golden Bell Frogs

Location of Green & Golden Bell Frog Sightings

PORT KEMBLA COAL TERMINAL

Legend

- Stacker
- Reclaimer
- Reclaimer Long Travel Rail
- Stacker Long Travel Rail
- Proposed Location of Frog Fence
- Location of Green & Golden Bell Frogs
- Cadastre (LPI)

PKCT Lease Area

- Site Boundary
- Sub Areas

Scale 1:14,000 (at A4)

Meters
0 50 100 200 300 400 500

FIGURE 45

Cardno Forbes Rigby

Map Produced by Cardno Forbes Rigby
Date: 4 July 2008
Coordinate System: Zone 56 MGA/GDA 94
GIS MAP REF:
108004_02_2807_Green_Golden_Frogs.mxd

Imagery supplied from Google Earth Pro and associated third party suppliers.

The Green and Golden Bell Frog is an aquatic breeding species that generally requires a water body that is:

- Shallow (i.e. <1m deep)
- Still or moving slowly (e.g. ponds)
- Unshaded and free of fish
- Has an area of open water (ie., free of floating and/or emergent vegetation)
- Contains water that has low salinity (i.e. <8 ppt)
- Is warm (i.e. >200 C) during the spring/summer breeding season.

In addition, this species breeds opportunistically and responds to certain types of habitat disturbance that trigger movement and breeding. This disturbance, which may include changes in water depth, salinity or amounts of aquatic vegetation, can be naturally or artificially induced. The Green and Golden Bell Frog forages mostly on the ground or on low vegetation, utilising areas with either little vegetation or sparse tree cover (Pyke and White 2001).

PKCT has several ponds and drainage channels in which water flows, and is stored. While these are all primarily used for coal sediment and water containment, there are no contaminants preventing aquatic life.

After consultation with DECC, it was agreed that the best course of action is to have Green and Golden Bell Frog experts capture the frogs and keep them in a cage over the winter period. Frog handling experts who manage Green and Golden Bell frogs at other locations around Port Kembla is currently capturing the Frogs. As a result of this program, 7 frogs have been captured on the site at the time of writing this report and are being cared for until the spring.

In early June, Port Kembla Coal Terminal engaged Biosphere Environmental Consultants Pty Ltd to assess the finding of the frogs and to advise of the short-term and long-term actions for the company

7.4.2. Impact Assessment

The proposal for road deliveries over the 24 hour period will not change impacts on the small areas of the PKCT site in which flora is located. As such there are no additional impacts due to the alterations to PKCT operations detailed in this EA.

The location where the frogs were found is approximately 680 metres from the PKCT road receival hopper, where a change in road receival movements is proposed. No frogs have been sighted in the vicinity of the road receival area.

Although the risk of road mortality is very low due to the distance between the road receival area and the spares area, this is the only conceivable potential impact to the frogs as a result of the change in operation.

As Green and Golden Bell frogs are an endangered species (listed under Schedule 1 of Part 1 of the TSC Act 1995), any actions that may impact upon this species or their habitat must

be assessed. The Seven Part Test is a rapid assessment tool to determine if the actions may have a detrimental impact on the species.

The Seven Part Test has been applied to the change in road receivals at PKCT and the impacts on the frogs. The Seven Part Test has identified that the proposed increased in road deliveries to PKCT will not adversely affect the Green and Golden Bell Frogs. This Seven Part Test is located in **Appendix D**.

7.4.3. Mitigation Measures

Neither PKCT existing or proposed operations have a detrimental impact on flora. Due to this no mitigation measures are required.

Arthur White of Biosphere Environmental Consultants has prepared an interim plan of management for the species over the winter period which is found in **Appendix D**. This plan of management includes all actions which are to be carried out in the winter period, prior to a full assessment of the frog species being carried out in Spring/ summer.

As a result of initial recommendations made by Mr White, a frog exclusion fence, as shown in **Figure 46** which will prevent the frogs from being able to cross into the road receival area is being erected. While the likelihood of a road strike is low, this action will further minimise any chance of road mortality from the frogs crossing into the road receival area.

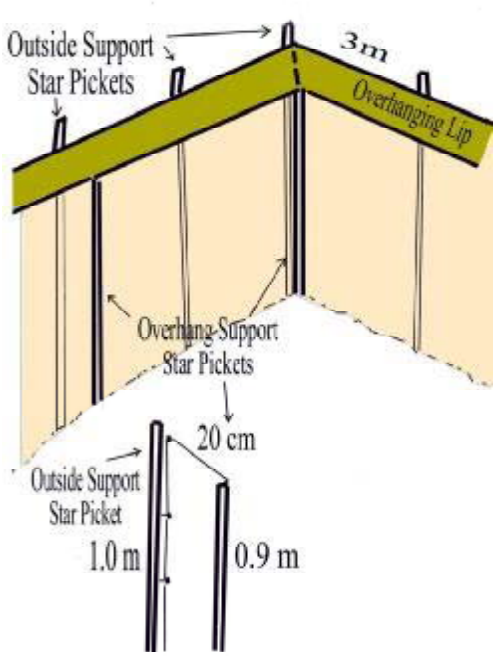


Figure 46 - Self-supported Frog-exclusion Fence

Furthermore, eight other mitigation measures have been suggested and implemented as detailed below:

1. A periodic survey of the Spares Area be undertaken by a qualified herpetologist and that any sheltering Bell Frogs found be captured and held in a DECC approved area.
2. The collection of frogs from the Spares Area could be facilitated by placing "shelter boards" around the site. Shelter boards are light pieces of timber (approximately 60 cm x 60 cm) that are laid on the ground; on end is slightly raised (by placing a small rock or item under the lip of the board). Green and Golden Bell Frogs seeking shelter may use these boards and hence will be easily captured during subsequent surveys.
3. Warning signs need to erected at the entrance and exit of the Spares Area alerting staff that an endangered species has been found in this area and to exercise caution. In addition, the notice should also indicate who to contact should Bell Frogs be found there or elsewhere on site.
4. The collected Bell Frogs will need to housed over-winter in portable containers and looked after by a qualified person.
5. The captured Bell Frogs will need to be examined for evidence of disease or injury and treated accordingly.
6. The Bell Frogs will needs to measured, sexed and implanted with a microchip before eventual release.
7. Communication to all staff & contractors: A bulletin has been circulated to all staff and contractors via email and bulletin boards alerting that endangered Green and Golden Bell Frogs have been found on the site. The bulleting also informs people of the appropriate person to contact should a frog be sighted.
8. A detailed survey of the frog species is planned for Spring / Summer 2008 to be conducted by Biosphere Environs. This will allow a detailed analysis of the population on site, the locations in which the frogs inhabit, and management and protection actions.

Due to winter inactivity, the only definite fact that is available is that Green and Golden Bell Frogs have entered the Coal Terminal site in search of over-winter habitat. It is not known if Green and Golden Bell Frogs also utilise other parts of the sites for other purposes, nor is known if they move between the Coal Terminal and other areas throughout the year.

In order to successfully manage the Green and Golden Bell frogs in and around the Coal Terminal, Biosphere Environmental Consultants has recommended that more basic information is required about the movements and habitat usage by Green and Golden Bell Frogs in this area. It is recommended that frog surveys be conducted, commencing in early spring and extending to early summer, to try to:

- Determine if habitats, other than over-winter sites, occur inside the Coal Terminal area
- Determine if Bell Frogs move between the Coal Terminal and nearby properties
- Determine movement corridors within the Terminal and leading off the Terminal to adjoining lands
- Determine where the nearest breeding and foraging habitat areas are
- Assess the threats to the survival of Green and Golden Bell Frogs in the north Port Kembla area.

These recommendations have been endorsed by PKCT and the above listed actions will commence when appropriate.

7.5. INDIGENOUS AND EUROPEAN HISTORY

7.5.1. Existing Conditions

The land on which PKCT sits has been artificially created by Western settlers in the early 1900 and in continuous uses for coal related operations since construction. There has not been any opportunity for use of the site by Aboriginal Groups. Furthermore, gradual development has been carried out within the PKCT site for approximately 100 years which has resulted in the land being highly disturbed.

There are no buildings or areas within the PKCT site which have been identified or listed as heritage items due to their significance to European history.

7.5.2. Impact Assessment

A specific heritage assessment of the PKCT premises has not been carried out because neither existing nor proposed PKCT operations will impact on Indigenous or European heritage. It is highly unlikely that the PKCT site contains any indigenous heritage items due to the artificial nature of the land and the long history of disturbance.

In relation to the transportation of products to PKCT all deliveries travel along existing transportation corridors. The continued, and future increased, use of existing travel routes to PKCT will not impact any heritage items.

The following Heritage Registers have been checked to confirm there are no identified heritage items within the PKCT premises:

- World Heritage List
- Commonwealth Heritage List
- National Heritage List
- Register of the National Estate
- NSW State Heritage Register
- Wollongong LEP 1990 Heritage Schedule.

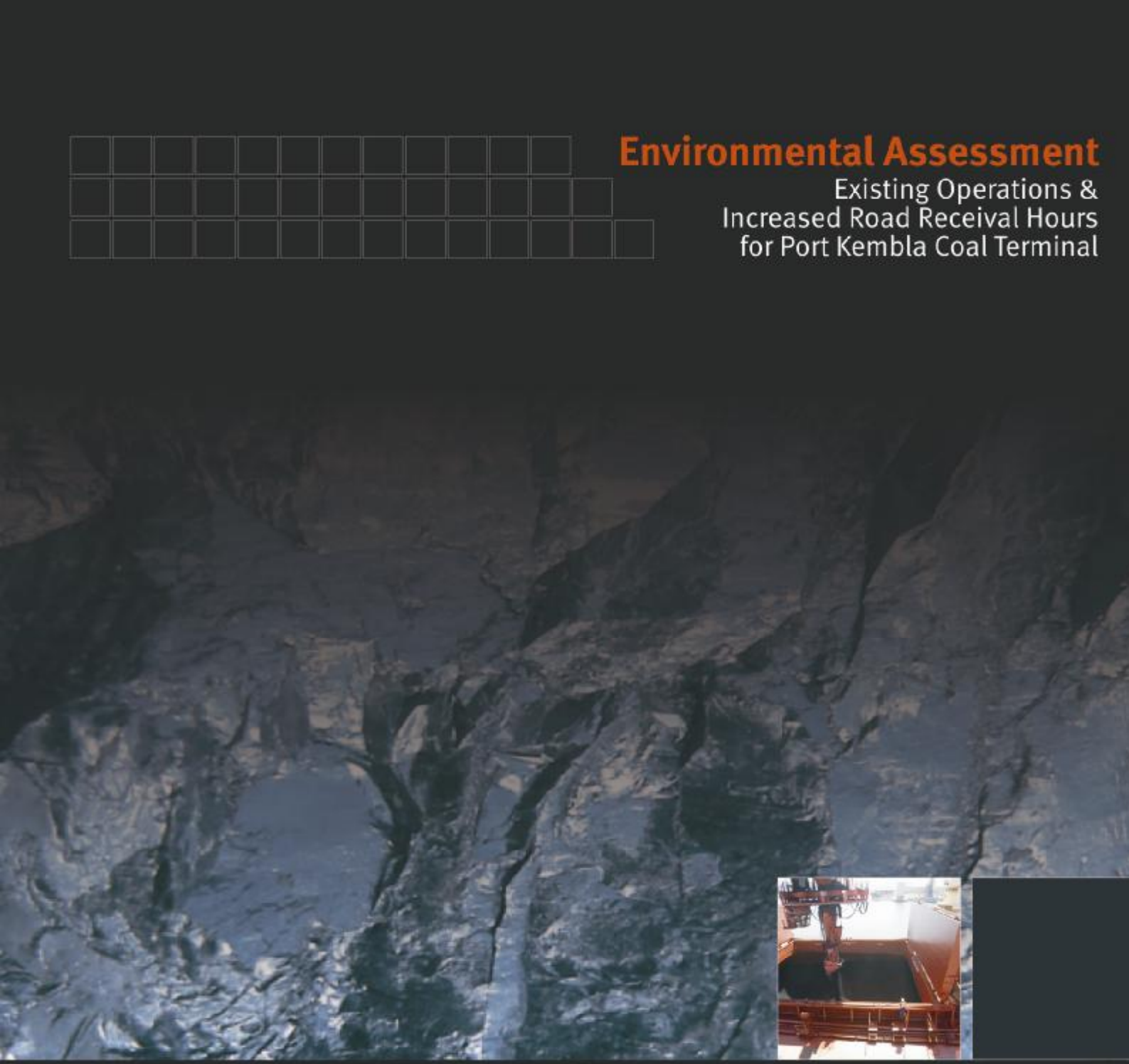
These searches did not identify any heritage item or area within or adjacent to the PKCT premises. Therefore no impact from PKCT operations will occur on items of heritage value.

7.5.3. Mitigation Measures

As PKCT has no impact on heritage items no mitigation measures are required.

Environmental Assessment

Existing Operations &
Increased Road Receival Hours
for Port Kembla Coal Terminal



Problems with Current Situation, Alternatives & Project Needs (Justification)

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8. PROBLEMS WITH THE CURRENT SITUATION, ALTERNATIVES AND PROJECT NEEDS (JUSTIFICATION)

This section outlines justifications for the proposed development and consideration of any alternatives (including the do-nothing option).

8.1. PROBLEMS WITH THE CURRENT SITUATION

The current policy of restricting public road deliveries to PKCT between 7am to 6pm, 6 days a week presents a number of operational problems to the organisation. These problems can be analysed in terms of both a historical context and application to the mining and/or heavy industry as a whole.

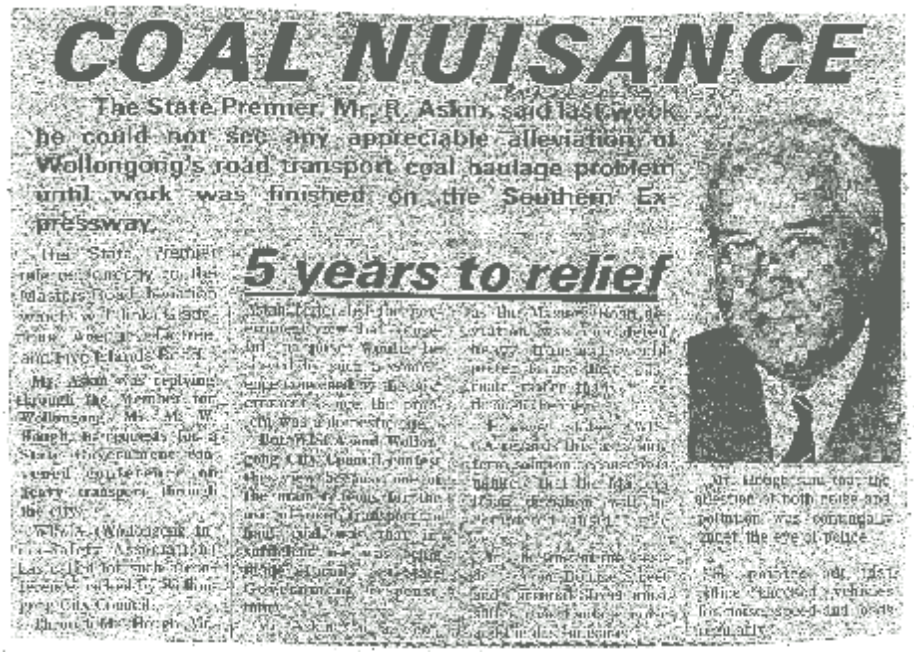
8.1.1. Historical Context

In terms of a historical context, SEPP 7 was introduced to minimise impacts from haulage of coal by road on Wollongong residents at a time when 11 mines were delivering by road and coal trucks were required to transit through residential areas en-route to PKCT.

Before the construction of the South Coast Freeway and Masters Road, coal trucks had to travel through the streets of Wollongong conflicting with local traffic and residences.

Figure 47 – Historical Photograph of Road Coal Delivery

The article below entitled "Coal nuisance" dated 25 January 1970, quotes the then State Premier, Mr Robert Askin" saying *that "as soon as the Masters Road deviation was completed heavy transport would prefer to use the bypass route rather than cross through the city."* The same article states*, "In the meantime, residents along Bourke Street and Corrimal Street must suffer road haulage noise and the dust nuisance."*



COAL NUISANCE

The State Premier, Mr. R. Askin, said last week he could not see any appreciable alleviation of Wollongong's road transport coal haulage problem until work was finished on the Southern Expressway.

5 years to relief

Figure 48 – Historical Newspaper Article

It is within the context of the 1970's that SEPP 7 was introduced, clearly at a time when coal trucks travelled through the city, in lieu of using the current arterial road networks."

Of the 11 mines, only three are still in operation and/or deliver coal by public road (including the Illawarra Coke Company) significantly reducing associated environmental impacts.

There have been significant changes in the local road network to mitigate congestion and noise from heavy vehicles. These changes include:

- Creation and extension of the Northern Distributor which takes heavy vehicles off residential roads and is designed to minimise noise to sensitive receivers
- Introduction of Masters Road to provide a link between the F6 and the Port which does not travel through residential areas
- Widening of Mt Ousley Road to provide slow vehicle lanes in both directions to allow cars to pass with greater ease and safety
- Jersey barriers on Mt Ousley Road to reduce noise levels at sensitive receivers.

There have also been significant improvements to the trucking fleet with consequential improvements to road safety and amenity impacts. The original truck fleet comprised single-unit rigid 10t tippers, which because of their reduced payload, had to make numerous trips to carry the same amount of product as larger fleet vehicles of today. The current haulage fleet

includes articulated trucks and B-Doubles, which have silencers, GPS mounted fleet management, improved braking and engine technology, improved emission controls, on-board safety systems and improved driver practices.

Having regard to the above arguments, it is *unnecessary* to retain the current 11/6 road delivery restriction.

8.1.2. Mining/Heavy Industry

PKCT is an integral part of the overall Southern Coalfields - Port Kembla Industrial precinct. Mining developments alone demonstrate a strong level of confidence in the future growth forecasts. Estimations indicate that growth in the region may result in 10mtpa of road deliveries to PKCT by 2013 to 2018.

To handle such throughput, PKCT like other industrial operations, runs on a 24/7 basis. This applies to the various facets of its business i.e. rail receival, stacking, reclaiming and ship loading but not road receival form a public road. Assessments indicate that the 11/6 time restriction constrains PKCT's maximum capacity to receive coal by public road to 5.2mtpa. The current restrictions will inhibit efficiency and volume growth. It is imperative that this capacity constraint be eliminated to enable the mining industry export potential to be realised.

The current 11/6 public road restriction serves to distinguish PKCT's operations from its peers who largely operate on an unrestricted 24/7 basis. PKCT see this as an inequitable situation, which unfairly restricts its operations in comparison to say the Port Kembla Harbour, BlueScope Steelworks, Port Kembla Grain Terminal, Multi-Purpose Berth who operate completely on a 24/7 basis (i.e. both on-site operation and off-site deliveries).

More specifically in terms of coal truck deliveries, BlueScope Steel receives coal truck deliveries on a 24/7 basis from its client mines including West Cliff and Appin Collieries. In this case, coal trucks travel down Mount Ousley, along Masters Road, and turn right *en route* to BlueScope Steel unrestricted. Conversely, coal trucks travelling to PKCT arrive at the intersection of Masters and Springhill Roads and are unable to turn left during restricted hours. This results in PKCT being restricted from receiving coal via the most direct and cost-effective haulage route for over 60% of total operating hours.

Having regard to the above argument, it is *unreasonable* to retain the current 11/6 road delivery restriction at PKCT.

8.2. PROJECT NEEDS (JUSTIFICATION)

The proposal by PKCT to increase road receivals to 24/7 for a maximum of 10mtpa presents a number of economic, social and environmental benefits. These are referred to as *statements of justification* and are described below.

8.2.1. Economic Justification

The proposal will enable PKCT to continue to handle increasing quantities of coal and related bulk products to deliver further economic opportunities as a vital link in the global coal supply chain. Estimations indicate the total value of coal exports through Port Kembla is approximately $1.2 billion (2006-07) *source:* www.dpi.nsw.gov.au. In the next five to ten years, coal exports through PKCT are predicted to steadily grow, and increased export opportunities can be realised through the removal of 11/6 road receival constraints.

The proposal also enables PKCT to accept road deliveries to match shipping and operational efficiencies and provides flexibility to meet customer road delivery requirements. This will ensure that PKCT remains a viable business. Moreover, the proposal provides energy savings per unit cost of coal and bulk products handled by PKCT.

The proposal also enables PKCT to remain a major capital and resource intensive operation. By nature, the Coal Terminal has high demands on infrastructure (both plant and equipment), resources and workforce (both permanent and contracted). This results in much higher impact on Gross Regional Product than could be expected for a similar sized business in a different sector of the economy. It is noted, that the mining sector exhibits high levels of productivity per employee and as employment multipliers for mining are 5.89 (*source:* IRIS, 2007) the sector outstrips other industries.

PKCT's proposal to increase road receivals to 24/7 for a maximum of 10mtpa is consistent with the statements of economic policy contained within the following government policy documents:

- The NSW State Plan (November 2006) sets key priorities for NSW including delivery of better services, growing prosperity across the State, and an environment for living. The proposal is consistent with these priorities in that PKCT is essentially a service provider for the NSW coalmines (and related industries). By providing such a service, PKCT ensures that the economic benefits of coal mining (and bulk products) are captured for the NSW economy. These economic benefits have been measured against environmental impacts associated with an increase in road receivals to 24/7, which have been found to be minimal.

  During the 2007-08 financial year, the NSW Government allocated $60M towards the State Plan and State Infrastructure Strategy. Spending to upgrade the port of Port Kembla is expected to reach $140M by the end of 2016. PKCT is an integral part of the Port and continued prosperity and throughput will be in accordance with the overall increase in port-related activities.

- The State Infrastructure Strategy 2006 has strong links to the State Plan as it details how the Government intends to deliver aspects of the Plan by improving infrastructure. The Infrastructure Strategy expands on funding infrastructure improvements. This Strategy provides a 10-year plan which charts infrastructure provision the State Government will need to make in each of the State's six broad regions.

  The Strategy states that *"an important role of Government infrastructure is to support industry"* (State Infrastructure Strategy, 2006, p12). The continued growth of PKCT is consistent with this policy statement. PKCT is a vital aspect of the NSW mining infrastructure and the continued operation and growth of PKCT are a vital aspect of a healthy NSW mining industry.

Section 3.4 of the Strategy advises, *"The expansion of Port Botany and Port Kembla along with related road and rail improvements will complement this growth".* This highlights that the NSW Government considers that activities at the port of Port Kembla have a significant role to play in the continued prosperity of the State.

Support of the proposal sends an unequivocal message to industry that government policy directs investment in NSW.

8.2.2. Social Justification

The proposal will enable PKCT to continue to provide direct employment for 89 employees plus approximately 34 full time equivalent contractors. These employees and contractors are typically locally based which results in maintained spending on local goods and services.

The proposed 24/7 operation reduces coal trucks on the road during peak commuter times in comparison with 11/6 restrictions. This reduces interaction between coal trucks and cars, which may be travelling to and from work or school. The reduction in traffic conflict is expected to improve traffic safety in relation to coal trucks and assist in the reduction of road congestion.

In a global sense, the proposal results in no significant social impacts that would not otherwise be associated with an industrial operation of this type. The EA has found that existing road design, signage and lighting acceptably meets safety requirements and the change to delivery can be accommodated without significant upgrade.

The community is indirectly benefited with the knowledge of a greater level of understanding of the impacts of the proposal through this EA and a commitment by PKCT to undertake ongoing monitoring of its air quality, water quality, noise, GHG and waste impacts.

8.2.3. Environmental Justification

Direct environmental benefits from this proposal largely relate to the energy (and hence GHG) savings per unit cost of coal and bulk products handled by PKCT. In other words, GHG emissions would be increased if PKCT wanted to increase production by any other means. The proposed 40% increase in coal delivered by road is anticipated to be accommodated by only a 20% increase in electricity use. This results in less GHG emissions per tonne of coal exported through the facility. There are consequential fuel savings through more efficient delivery schedules reducing the amount of time trucks are operational but inactive (i.e. waiting to move through BSL premises, the extra 4km travel distance through BSL, existing night time deliveries or queuing to tip coal).

Again, in a global sense, the proposal results in no significant environmental (as was the case for social above) impacts that would not otherwise be associated with an industrial operation of this type. Moreover, the EA has also found that the proposal can be accommodated within the existing environmental safeguards with no significant increase in dust, noise or GHG emissions.

Permitting PKCT to continue existing operations and allow the Terminal to increase operations to meet customer demands has significant environmental benefits in comparison

to say a new "greenfield" application elsewhere. PKCT requires no new infrastructure to accommodate proposals in this EA and key environmental mitigation measures are already in place ensuring minimal impact on the environment to achieve current and proposed operations.

8.3. ALTERNATIVES TO THE PROPOSED DEVELOPMENT

The only alternatives to permitting the continued operation of PKCT are to refuse permission or further constrain operations through approval conditions. Such actions would be inequitable, unreasonable and unnecessary. This is because greater environmental impacts are anticipated by implementing a new coal terminal elsewhere and this EA has shown existing PKCT operations have no unacceptable environmental impacts.

The only alternatives to permitting the proposed increase in road delivery of coal is to refuse permission (thereby retaining 11/6 restrictions) or permit an increase with conditions additional to that proposed in this EA. Both options would be unnecessary because this EA has shown that demands to increase export of coal by increased road delivery to PKCT can be met without unacceptable environmental impacts.

Alternative modes of coal delivery are not an option as West Cliff and Appin Collieries are limited to road haulage by a combination of terrain, land use constraints and economic viability issues.

Similarly, there are is no practicable opportunity to extend the South Coast Railway Line to GNRE No.1 Colliery (i.e. along Bellambi Lane). The required land is either privately owned or committed to the existing road carriageway uses.

There are no reasonable alternatives to the proposal given it is simply a change to road receival hours and delivery amounts which requires no additional infrastructure. The balance of the equipment at PKCT (i.e. road and rail hoppers, conveyors, stackers and reclaimers, ship loading facilities) operates on a continuous 24/7 period which in itself limits any greater utilisation rate. PKCT's product flow analysis shows that only minor incremental gains are made to improvements to its existing plant and equipment.

8.4. CONSEQUENCES OF NOT PROCEEDING (NULL-ALTERNATIVE)

The current policy of restricting public road deliveries to between 7am and 6pm at the Terminal is both unreasonable and unnecessary. It reflects a different era when coal transport on local roads created a number of social impacts.

Paradoxically, continuation of the current policy now, creates its own set of impacts as outlined below.

8.4.1. Economic Impacts

The current road delivery policy restricts the operation of the PKCT and in turn the NSW coal industry and regional economic development. It also does not allow for growth in the Illawarra area coalmines, as deliveries to PKCT for export are limited.

Significant potential economic benefit may be lost to the region and NSW, should the export of coal from the region by PKCT continue to be constrained. These would be far-reaching, extending from PKCT up and down the supply chain including to the mining industry, logistics suppliers, PKPC, as well as potential losses to the State Government of additional coalmine production royalties and payroll tax.

The current 11/6 public road delivery hours constrict the amount of PKCT throughput. This reduces the economic viability of the Terminal, as there will be times when the plant could be operating but delivery levels cannot be maintained. The time restriction also prevents PKCT, BHPBIC and GNRE employees and contractors from working additional hours. The removal of this constraint would generate increased wages, associated payroll tax and flow on effects to the local economy.

The policy also sends a mixed message to industrial operators as it does not uniformly apply to all Port users. PKCT is subject to the restriction in road delivery whereas BlueScope Steel, PKPC, the Grain Terminal and new General Cargo Handling Facility operate on an unrestricted time basis.

8.4.2. Social Impacts

Not permitting the proposed 24/7 road deliveries from West Cliff CPP and proposed time road deliveries from No. 1 Mine would result in the current Infrastructure SEPP 11/6 restrictions being retained. The Traffic Study has shown that increased road deliveries under this restriction would have a detrimental impact on the operating characteristics of roads forming the coal haulage routes. This results in greater traffic congestion as more coal trucks are on the road during peak commuter hours. This is a negative social impact as other road users take longer to reach their destinations.

Not permitting PKCT to operate on a 24/7 basis would limit PKCT growth and adversely affect mining jobs in the Illawarra, Wollondilly and Lithgow areas. In effect, such mines would be able to produce coal but not get it to market as they would like.

8.4.3. Environmental Impacts

Not permitting PKCT to continue will see the existing situation prevail. None of the environmental commitments would eventuate and DoP would lose the opportunity to achieve a contemporary planning approval for the project.

The 11/6 restriction will result in increased noise and traffic impacts as coal truck deliveries increase than if the 24/7 proposal are permitted. If these revised timeframes are not permitted the local community will be exposed to greater congestion and road traffic noise.

8.5. CUMULATIVE IMPACTS

The unique context in which the increased coal delivery proposal has been developed (i.e. change to 24/7 operations) means there are no practical possibilities of similar development being proposed. Notwithstanding, this EA has assessed the proposal cognizant of other related developments in the locality.

Each of the Key Environmental matters (dust, noise and traffic) have been assessed in the context of both the mining and heavy industrial environment within which PKCT operates. The Port environment has been appraised from a 'whole of port' perspective, particularly in relation to the expected off-site cumulative impacts (again traffic, noise and dust) associated with the upgrade of the Port.

In terms of the continued operation of PKCT and the proposed increase in road deliveries a cumulative assessment is considered to be defined as:

> *"The cumulative impacts on the environment both direct and indirect, which result from 24 hour 7 day per week road deliveries to Port Kembla Coal Terminal, added to other past, present and reasonably foreseeable future development proposals and activities in the region affected by coal terminal facility."*

Cumulative impacts relate to compounding effects and interactions arising from developments proposed or under implementation within the locality or at a similar time which together impact on the natural or built environment. This ensures consideration of environmental impacts from PKCT is not isolated from surrounding developments.

Developments with potential to contribute to cumulative environmental impacts in conjunction with ongoing operation of, and 24/7 public road deliveries to PKCT are considered to be other activities proposed by Port Kembla Port Corporation within the Inner Harbour in addition to other developments anticipated in PKCT's locality.

The following developments within the PKCT locality and are under construction or are understood to commence construction within the next six months:

- Port Kembla Port Corporation – General Cargo Handling Facility (GCHF). This is a new import berth within the port of Port Kembla. This will predominately be accommodating the import of cars and then delivery by road to other parts of Australia. This Major Project was granted approval on 6th April 2006 and is partly operational. Imports should reach expected levels by November 2008. Semi trailers transport the imported cars from the port north and south from Wollongong. Traffic and dust generation are key environmental impacts from this development.
- Horizon Living – Links Seaside multi-storey residential apartments including independent living and nursing facilities. This is located approximately 1km north of the PKCT road receival area and is under construction. Residents of these premises will be able to see existing infrastructure within PKCT premises, however as PKCT propose no new construction visual impacts will not increase from those evident when the resident decided to purchase the property. Coal trucks will not affect the Horizon Living development, as it is not located on road haulage routes. Additionally this results in road traffic from the apartments not having a cumulative impact with proposals in this EA.

Cumulative impacts seen to be relevant to this project are:

- Traffic congestion
- Road noise
- Noise from the northern area of the port precinct
- Dust from the northern area of the port precinct.

The Traffic Study, which forms part of this EA (Appendix G), has incorporated the levels of vehicles forecast to be associated with the GCHF in to the assessment of traffic congestion for PKCT proposal. This shows that roads used by both PKCT and GCHF will continue to operate to the same level of service even if neither proposal was implemented.

PKCT propose to increase the amount of coal delivered by road to a maximum of 10mtpa over a ten year period. This will increase the number of trucks visiting PKCT. The gradual increase in deliveries and the use of the entire 24 hour period is believed to reduce affects on the environment such that the cumulative impact is still acceptable.

The calculation of noise impacts for this EA has considered cumulative impacts. Noise from road transport associated with the new GCHF is incorporated into the background noise levels from vehicles on Springhill Road. The modelled noise levels at the nearest residential receivers to Springhill Road (Swan Street) indicates that the cumulative impacts will be within DECC ECRTN criteria.

The air quality assessment for this EA has considered dust levels from the PKCT premises on the surrounding land uses including the new residential development at Horizon Seaside Links. The Air Quality Report states:

> *"The Links Seaside Development is located to the north of Receptor R1 on the corner of Ross and Corrimal Streets. Dust levels at the Links Seaside Development due to operations of PKCT are likely to be lower than those predicted at Receptor R1 and are not expected to cause adverse impacts".*

As shown in **Table 6.3** in **Section 6.5.2** of this EA Receptor R1 is showing cumulative:

- PM_{10} levels 0.9 µg/m^3 below 24 hour criteria and 11.1 µg/m^3 below annual criteria
- Annual TSP levels 12 µg/m^3 above criteria
- Deposition levels 0.3 g/m^2/month below criteria.

Cumulative PM_{10} and deposition levels at Horizon Living and surrounding residential properties will not be impacted from cumulative dust generation from the port precinct to a greater extent than the existing situation. This is because cumulative levels are within DECC criteria and these areas are located further away from the port than Receptor R1.

Existing cumulative levels of TSP result in the combined impact being greater than DECC criteria. The Air Quality Report calculates TSP levels from PKCT to be low. As such, cumulative TSP levels will not significantly increase due to the PKCT proposal, resulting in cumulative air quality impacts on surrounding land uses not being significant.

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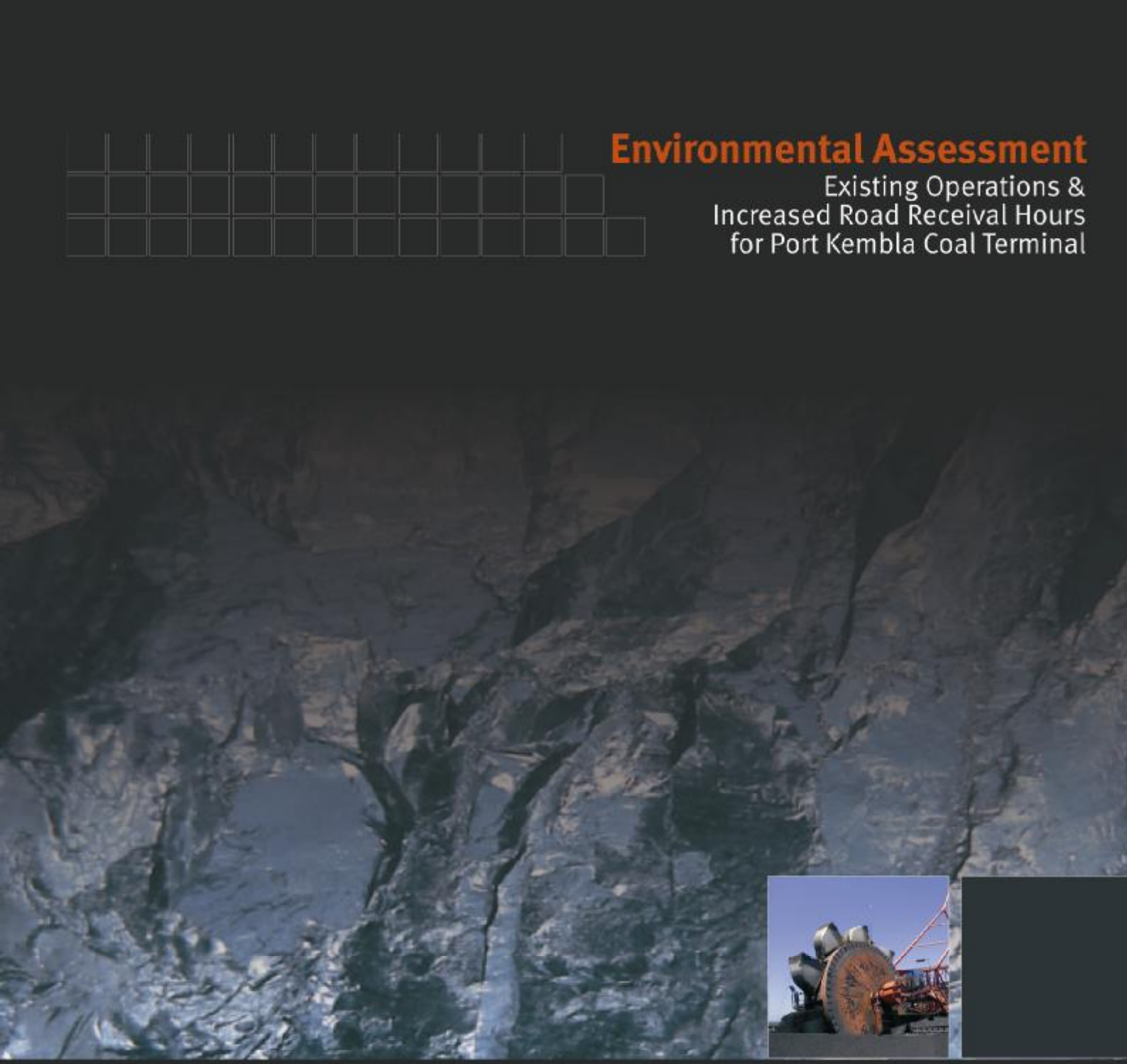

Draft Statement of Commitments

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9. DRAFT STATEMENT OF COMMITMENTS

This sections sets out a draft version of commitments which PKCT will abide to upon approval of this Part 3A application.

Environmental mitigation measures in relation to the existing operation of PKCT and the change to 24/7 receival via public roads have been described in the preceding chapters. The environmental risk assessment carried out as part of this process has identified several key areas requiring management during ongoing operations.

Subject to approval of the project, PKCT will commit to the following controls as detailed in **Table 9.1**.

Table 9.1 – Draft Statement of Commitments

Objective	Commitment
Traffic & Transportation	
• Transport of coal to PKCT to be conducted in a manner which does not adversely impact on public safety or amenity of road users. • Safety standards to be maintained by trucks following designated routes procedures. • Internal PKCT roadways to be maintained to minimise coal spillage and carry over onto public roadways.	• Road haulage of coal to PKCT will not exceed 10 million tonnes per annum. • All trucks delivering product to PKCT must follow designated heavy vehicle transport routes. • A driver's code of conduct will be utilised for all transport companies delivering product to PKCT. • Review effectiveness of truck wash facilities to be undertaken. • Coal truck deliveries along Bellambi Lane to only be undertaken between 7am – 10pm Monday to Friday. And 8am to 6pm on Saturday and Sunday.
Air Quality	
• Minimise dust emissions from activities carried out on the PKCT site.	• Installation of two continuous dust monitors to monitor airborne dust emissions. • Maintain appropriate dust suppressions systems on site to effectively manage dust both on stockpiles and roadways.
Water Management	
• Minimise use of potable water on site. • Effective management of on site storm water.	• Reduction in freshwater use on site to be achieved through the implementation of recycled water (Tertiary Treated Effluent) for dust suppression on stockpiles and other non-domestic uses e.g. fire, spillage washdown, conveyor sprays. Staged approach to be implemented which will result in a 360 Megalitre per annum reduction by the end of 2010.
Noise Management	
• Responsable management of PKCT site operational noise.	• Ensure that ongoing compliance is maintained to the New South Wales Industrial Noise Policy and relevant standards as detailed in the noise assessment section of this Environmental Assessment.
Community Relations	
• PKCT to be regarded as a responsible corporate citizen by the community.	• Continued operation of the PKCT Community Consultative Committee. • Continued advertisement and operation of the telephone hotline.

Environmental Monitoring	
• To ensure compliance to the conditions of PKCT's Department of the Environment and Climate Change licence.	• Development and implementation of a management plan which documents the environmental monitoring requirements for PKCT.
Environmental Management System	
• PKCT to maintain certification to ISO 14001.	• PKCT will continue to be certified to ISO 14001 and will be externally audited against the certification criteria on an annual basis.
Greenhouse Gases	
• Minimise the production of greenhouse gas emissions associated with PKCT operations.	• PKCT to review onsite electricity use and identify and implement economically viable opportunities for reduced electricity usage.
Landscaping	
• Improve the visual amenity of PKCT on surrounding community.	• Improve onsite soft landscaping through the planting of trees on the road receival earth bund and along the northern site boundary.
Flora and Fauna	
• Management of Green and Golden Bell Frogs (GGBF).	• Implement Interim Management Plan. • Undertake a GGBF Survey and then develop a Long Term Plan of Management.
Waste	
• To be detailed Minimise waste generated at the site to reduce the volume of waste requiring disposal to landfill. • Prevent dispersal of waste from the site to receiving environments.	• Develop a Waste Management Plan for the site.

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Conclusions

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10. CONCLUSIONS

This section highlights the key findings of the Environmental Assessment and concludes the report.

This EA has focussed on the key environmental issues (as identified in the DGR) of the PKCT proposal to increase road deliveries to 24/7 for a maximum of 10mtpa. It has also addressed secondary environmental issues to ensure a rigorous review of PKCT's existing and proposed operations. It shows that existing and proposed PKCT operations have a small environmental footprint, which is minimised through existing environmental impact mitigation measures.

The objective of the proposal is to provide optimal efficiency of coal throughput at PKCT by eliminating the current constraint to road receival at 11 hours per day, 6 days per week, which equates to 60% of the available PKCT operating time. It is noted that no construction is required to facilitate the proposed change to 24/7 road receival operations.

Continuation of existing onsite operations and increase in public road deliveries to 24/7 for a maximum of 10mtpa will present no significant impacts in relation to community amenity and the natural and built environment.

Specifically, the following Key Environmental Issues have been addressed in this EA:

Air Quality	PKCT is one of many industrial operators in the port of Port Kembla industrial precinct, which has the potential to generate dust. All operators in this area contribute to overall ambient air quality. PKCT undertakes monthly dust monitoring which shows dust levels have been below DECC criteria for the last three years. The 24/7 proposal would have only minor impacts on the air quality surrounding the site as existing controls adequately manage dust emissions.
Traffic	Coal trucks account for only 0.2 – 4.7% of existing total vehicle numbers on all parts of the road haulage routes. Traffic was assessed at three key controlled intersections as well as along the coal haulage routes for the proposed 24/7 operation and demonstrated there was an overall positive total traffic impact from the proposal. There will be an overall reduction in the number of coal trucks on the road during peak commuter times, compared with current 11/6 restrictions. Conversely, traffic conditions will worsen if coal deliveries increase under the 11/6 restriction.
Noise (onsite and road haulage route)	Noise monitoring of onsite operations showed that PKCT operations are within DECC Industrial Noise criteria at the nearest residential receivers. Noise was also assessed along the road haulage route, which demonstrates it will remain within the levels permitted by Environmental Criteria for Road Traffic Noise (ECRTN). However, following the opening of the Northern Distributor Extension, Bellambi Lane traffic will significantly differ and will result in potential night time noise impacts. It is therefore proposed to mitigate against this change, unless further or alternative appropriate approvals are in place, by implementing truck deliveries along Bellambi Lane only during 7am to 10pm on Monday to Friday and from 8am to 6pm on Saturday and Sunday.

Water	PKCT's 24/7 road deliveries proposal will have no impact on the management of surface water within the PKCT site. Existing management systems will continue to adequately control onsite water flows and discharges and mitigate impacts on the environment.
Climate Change and Energy Use	The GHG assessment demonstrates that, with the elimination of Scope 3 emissions, and following the proposed change to 24/7 road operations, there will be an actual decrease of 6% in GHG emissions per tonne of coal handled.
Cumulative Impact Assessment	Existing and proposed port operations and surrounding developments, including the General Cargo Handling in the port of Port Kembla, will have minimal impacts on the environment in combination with PKCT.
Consultation	PKCT consulted key statutory agencies and the community and results to date show no significant objection to the proposal.

A 6 week trial of 24/7 deliveries was conducted and confirmed that impacts associated with extending receival hours are within predictions and do not pose significant impact on either the environment or community. Modelling has demonstrated that a gradual increase in receivals over a 5 to 10 year period to 10mtpa will generally not have a significant impact on residential areas, road or intersection operating characteristics or safety.

Environmental assessments regarding PKCT operations indicate the proposal to continue onsite operations and permit deliveries by public road 24/7 up to a maximum of 10mtpa will not increase any environmental impacts to significant levels.

The improvement in coal truck technology, noise mitigation measures along road haulage routes and works to ensure these routes are suitable for heavy vehicles have all combined to reduce impacts from coal trucks on sensitive receivers and other traffic. The current road infrastructure and traffic climate is significantly improved from the time when the restriction on public road delivery was introduced over 25 years ago.

The previous justifications for the 11/6 time restriction are no longer relevant and it is unnecessary and unreasonable to retain this restriction on the growth of NSW coal exports. Furthermore, the current 11/6 policy is inequitable when compared with neighbouring industrial and port operations, who all operate unrestricted on a 24/7 basis.

This EA concludes that the continuation of existing operations and approval of 24 hours per day, 7 days per week delivery of coal by public road up to a maximum of 10mtpa with appropriate environmental mitigation measures is acceptable.

Prepared by
for and on behalf of
FORBES RIGBY PTY LTD

.....
Philip Paton
(Town Planner)

Reviewed by

.....
David Laing
(Director)

Cardno Forbes Rigby Pty Ltd
278 Keira Street
WOLLONGONG NSW 2500
Telephone: (02) 4228 4133
Facsimile: (02) 4228 6811

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