



INTEGRA MINE COMPLEX MODIFICATION 2

Environmental Assessment

Prepared for Integra Coal Operations Pty Limited
September 2012





Integra Mine Complex Modification 2 Environmental Assessment

Prepared for Integra Coal Operations Pty Limited | 21 September 2012

Ground Floor, Suite 01, 20 Chandos Street
St Leonards, NSW, 2065

T +61 2 9493 9500

F +61 2 9493 9599

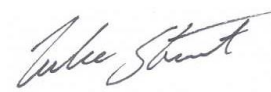
E info@emgamm.com

emgamm.com

Integra Mine Complex Modification 2 Environmental Assessment

Final

Report J11056RP3 | Prepared for Integra Coal Operations Pty Limited | 21 September 2012

Prepared by	Rachael Russell	Approved by	Luke Stewart
Position	Environmental Planner	Position	Director
Signature		Signature	
Date	21 September 2012	Date	21 September 2012

This report has been prepared in accordance with the brief provided by the client and has relied upon the information collected at or under the times and conditions specified in the report. All findings, conclusions or recommendations contained in the report are based on the aforementioned circumstances. The report is for the use of the client and no responsibility will be taken for its use by other parties. The client may, at its discretion, use the report to inform regulators and the public.

© Reproduction of this report for educational or other non-commercial purposes is authorised without prior written permission from EMM provided the source is fully acknowledged. Reproduction of this report for resale or other commercial purposes is prohibited without EMM's prior written permission.

Document Control

Version	Date	Prepared by	Reviewed by
V1	16/08/2012	Rachael Russell	Luke Stewart
V2	21/09/2012	Rachael Russell	Luke Stewart

ENVIRONMENTAL ASSESSMENT CERTIFICATION

For submission of an environmental assessment (EA) under Section 75W of the *Environmental Planning and Assessment Act 1979*.

EA prepared by

Luke Stewart

BAppSc (Hons)

EMGA Mitchell McLennan Pty Limited

Ground Floor, Suite 1

20 Chandos Street

St Leonards NSW 2065

Rachael Russell

BSc; MEnvP

Applicant

Integra Coal Operations Pty Limited (Integra)

PMB 7

Singleton NSW 2330

Proposed development

Integra Mine Complex Modification 2


Refer to Chapter 3 of the EA for a detailed description of the proposed modifications

Land to be developed

Refer to Appendix 1 of the Project Approvals in Appendix A to the EA

Certification

We certify that we have prepared this EA in accordance with the Director-General's Requirements and to the best of our knowledge the information contained in this EA is neither false or misleading



Luke Stewart

Project Director



Rachael Russell

Project Manager

21 September 2012

Table of Contents

Executive Summary	i
Chapter 1 Introduction	1
1.1 Overview of proposed modifications	1
1.2 Site and surrounds	1
1.3 The proponent	2
1.4 Purpose of this report	2
1.5 Director-General’s Requirements	3
1.6 Report structure	4
Chapter 2 Approved project and existing operations	9
2.1 Approval history	9
2.1.1 North Open Cut Mine	9
2.1.2 Surface Facilities Project	9
2.2 Current approvals – Integra Mine Complex	10
2.2.1 Integra Open Cut Project	10
2.2.2 Integra Underground Project	10
2.2.3 Integra Mine Complex Modification 1	10
2.3 Approved operations	10
2.3.1 Biodiversity offsets	10
2.3.2 Coal transportation	12
2.3.3 Employment and hours of operation	12
2.4 Environmental management	13
2.4.1 Overview	13
2.4.2 Management plans	13
2.4.3 Rehabilitation	14
2.4.4 Annual reviews and independent audits	14
Chapter 3 Proposed modifications	17
3.1 Overview	17
3.2 Removal of requirement for an overland conveyor	17
3.2.1 Proposed modification	17
3.2.2 Need for modification	17
3.2.3 Alternatives considered	18
3.3 Operating hours	19
3.3.1 Proposed modification	19
3.3.2 Need for modification	20
3.3.3 Alternatives considered	20
3.4 Changes to receptor details	20

Table of Contents *(Cont'd)*

3.4.1	Proposed modification	20
3.4.2	Need for modification	21
3.4.3	Alternatives considered	21
3.5	Long term security of offset areas	21
3.5.1	Proposed modification	21
3.5.2	Need for modification	22
3.5.3	Alternatives considered	22
Chapter 4	Planning and statutory framework	23
4.1	Environmental Planning and Assessment Act 1979	23
4.2	Other NSW legislation and policies	24
4.2.1	Legislation	24
4.2.2	State Environmental Planning Policies	24
4.2.3	Singleton Local Environmental Plan 1996	25
4.3	Commonwealth legislation	25
Chapter 5	Stakeholder engagement	27
5.1	Stakeholder engagement strategy	27
5.2	Project specific stakeholder engagement	27
5.2.1	Government	27
5.2.2	Local residents and community groups	29
Chapter 6	Environmental risk assessment	31
6.1	Methodology	31
6.2	Prioritisation	32
Chapter 7	Acoustics	35
7.1	Introduction	35
7.2	Existing environment	35
7.3	Impact assessment	36
7.3.1	Continued road haulage	36
7.3.2	Change to operating hours	37
7.3.3	Vacant land changes	39
7.3.4	RBL review	39
7.4	Management and monitoring	40
7.5	Summary	40
Chapter 8	Air quality and greenhouse gases	43
8.1	Introduction	43
8.2	Existing environment	43
8.3	Impact assessment	43

Table of Contents *(Cont'd)*

8.3.1	Methodology	43
8.3.2	Continued road haulage	44
8.3.3	Vacant land changes	46
8.3.4	Cumulative impacts	46
8.4	Greenhouse gas emissions	47
8.5	Management and monitoring	47
8.6	Summary	47
<hr/>		
Chapter 9	Other environmental considerations	49
<hr/>		
Chapter 10	Statement of commitments	53
<hr/>		
Chapter 11	Justification and conclusion	55
11.1	Suitability of the site	55
11.2	Objects of the Environmental Planning and Assessment Act 1979	55
11.3	Conclusion	56
<hr/>		
References		
<hr/>		

Tables

1.1	Director-General's Requirements	3
5.1	Government consultation activities and outcomes	28
5.2	Matters raised and responses	30
6.1	Environmental assessment matrix	32
6.2	Environmental risk rating	33
7.1	Individual mine contributions to cumulative night noise levels ($L_{eq(15-min)}$)	37
7.2	Noise criteria for representative receptors	38
7.3	Comparison of 1 hour weekly and Sunday RBL's	38
8.1	Comparison of total emissions using default emission factor	44
8.2	Predicted exceedences using default emission factor	45
8.3	Comparison of total emissions using AP-42 emission factor	45
8.4	Predicted exceedences using AP-42 emission factor	46
9.1	Other environmental considerations	50
10.1	Statement of commitments	53

Figures

1.1	Regional context	6
1.2	Complex overview	7
2.1	Integra biodiversity offset areas	16
7.1	Receptor and monitoring locations	42

Appendices

A	Project Approvals PA 08_0101 and PA 08_0102
B	Director-General's Requirements
C	Integra Underground Haul Truck Noise Assessment
D	Unattended noise monitoring data
E	Low pass BarnOwl graphs, Ernst residence
F	Ambient noise levels, Ernst residence
G	Air Quality Impact Assessment

Executive Summary

ES1 Overview

The Integra Mine Complex (the Complex) is located in the Hunter Coalfields of the Sydney Basin and is entirely within the Singleton Local Government Area. It is located approximately 10 km north-west of Singleton town centre, in the locality of Camberwell.

The Complex comprises underground and open cut operations which have successfully operated since 1991 under the former Glennies Creek and Camberwell joint ventures. The Complex currently operates under a single project approval instrument which combines the Project Approvals for Integra Underground and Integra Open Cut (PA 08_0101 and PA 08_0102, respectively).

Integra seeks approval from the Minister for Planning and Infrastructure to modify the Project Approvals under Section 75W of the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act). The proposed modifications comprise:

- removal of Schedule 3 Condition 48, which requires the installation and operation of an overland conveyor from the underground surface facilities to the Coal Handling and Preparation Plant (CHPP);
- amendment to the definitions of “Day” and “Night” in Schedule 1 to enable the operations within the North Open Cut (NOC) to be carried out for the period from 7 am to 10 pm Monday to Sunday, and public holidays in place of the currently approved 7 am to 10 pm Monday to Saturday, and 8 am to 10 pm Sunday and public holidays under Schedule 2 Condition 11(a);
- amendment to Table 6 in Schedule 3 Condition 6 “Land where additional noise mitigation measures are available on request” to include “363 – D & L Bynon”;
- amendment to the night time rating background level (RBL) for receptor ID 112; and
- amendment of Schedule 3 Condition 43, to extend the timeframe for the long term security of all areas in the revised offset strategy from September 2012 to September 2014.

The modifications proposed above, taken collectively, constitute Modification 2 to the Integra Mine Complex Project Approvals.

This Environmental Assessment (EA) was prepared to accompany an application by Integra for the proposed modifications, in accordance with Section 75W of the EP&A Act. The EA is intended to provide an assessment of the potential impacts resulting from the proposed modifications and detail measures that would be implemented to avoid, minimise and/or offset potential impacts. The EA provides information to allow NSW government authorities to assess the merits of the proposed modifications and make a determination as to whether or not to grant approval.

The purpose of the EA is also to inform the public about the proposed modifications so that they can make submissions if they desire to do so. Such submissions are a further important information source for the assessment process.

ES2 Need for the proposed modifications

Feasibility assessments were undertaken on the various overland conveyor systems and associated infrastructure. Construction costs were initially estimated at \$95 million. Alternative options failed to deliver operational cost savings sufficient to justify the allocation of capital to complete the design and construction phases of the project relative to any environmental benefit gained. In addition, assessments showed that the construction of the overland conveyor would be likely to result in significant disruption to existing operations. Accordingly, removal of Schedule 3 Condition 48 of the Project Approvals is required.

Detailed noise and air quality modelling was undertaken to assess potential impacts of continued truck haulage of ROM coal from the Underground surface facilities to the CHPP compared with the overland conveyor. As described in Section ES5 below, only marginal environmental gains would result from the construction and operation of the conveyor.

In relation to the biodiversity offset areas, recent geological investigations indicate that the current biodiversity offset areas overlie substantial coal resources. Potential revenue from this resource is estimated at \$6.2 billion and its extraction would have positive economic and social impacts on a local, regional, state and national level. The proposed extension to the timeframe for securing the existing offset areas would potentially prevent sterilisation of this resource.

It is also intended that the provision of alternative biodiversity offset areas would be undertaken in accordance with the Office of Environment and Heritage's Upper Hunter Strategic Assessment (UHSA), which has only recently been developed and was not available at the time the Project Approvals were granted. It is considered that utilising this mechanism will provide for an enhanced biodiversity outcome.

The proposed modifications do not seek approval to impact or alter the size or nature of the current offset strategy. Integra will continue to implement and maintain its biodiversity offset strategy for the existing offset areas until an appropriate alternative is identified and assessed.

If ultimately alternative offsets are sought, they would be fully assessed and approval sought in consultation with the relevant stakeholders at the appropriate time.

The minor amendment to operating hours for the NOC will allow for an improvement in operational outputs by allowing for a more practical approach to shift rosters for staffing requirements.

Land owners, government agencies and the community have an expectation and a right that landowner details are accurate in project approval documentation. The identification of an additional receptor, and amendment to the night time RBL at another, will ensure this right is respected.

ES3 Stakeholder engagement

A comprehensive stakeholder engagement strategy is in place for the Complex. This strategy has been, and will continue to be, supplemented by activities that apply specifically to the proposed modifications. Engagement activities related specifically to the proposed modifications included a community information session, presentation to the Complex's Community Consultative Committee and meetings and correspondence with various government agencies. Engagement outcomes were considered in the final form of the proposed modifications and within this EA.

ES4 Environmental risk assessment

An environmental risk assessment was undertaken for the proposed modifications. All environmental risks were assessed as low, with the exception of potential noise, air quality and socio-economic impacts, which were assessed as moderate risks. Environmental impact assessments were prepared, commensurate with the identified risk levels and taking account of the management and monitoring measures developed to manage the identified risks.

ES5 Environmental impact assessment and management

The environmental management of the Complex is undertaken in accordance with:

- commitments made in EAs prepared for Integra's projects;
- the Project Approvals that are in force;
- Integra's Environmental Management Strategy;
- environmental management plans; and
- Mining Operations Plans.

The EA concluded that the proposed modifications can be generally managed under the Complex's existing environmental management systems.

The findings from the environmental impact assessments are summarised below.

ES5.1 Noise

The noise modelling for road haulage versus conveyor incorporated all open cut noise emissions and the noise mitigation effects of a recently-constructed 3 m bund wall. The modelling results of the comparison indicated there will be a negligible noise increase in potentially affected receptors and that there will be no addition of privately owned receptors within the Complex's acquisition and management zones.

An assessment of the potential noise impacts from the proposed minor change to mine operating hours was undertaken for three representative residential receptors. The assessment showed that the change to operating hours would not result in a significant increase in noise impacts as there is no substantial difference between existing background noise levels during weekdays and Sundays.

The identification of an additional receptor will ensure additional noise mitigation measures are afforded to this receptor if requested.

A review of the night time RBL at receptor ID 112 has resulted in a 2 dB decrease in the acquisition criterion for the property. Despite this decrease, predicted and monitored noise levels demonstrate that the lower acquisition criterion is not exceeded at the property.

ES5.2 Air quality and greenhouse gases

A review of the dust emissions arising from the continuation of road haulage shows that the estimated dust emissions are negligible relative to the total emissions from the Complex. Only two private residences are predicted to experience an exceedance of any of the air quality criteria as a result of the

continuation of road haulage. Both these residences are currently entitled to acquisition upon request and additional air quality mitigation measures.

Air quality monitoring data in the vicinity of the Complex, which includes the impacts of dust emission generated from the current road haulage, has generally demonstrated compliance with all relevant criteria. It was concluded that the continuation of hauling of coal from the underground operations would not cause any discernable change to dust levels in the area, relative to the approved operations at the Complex as a whole.

The continuation of road haulage would result in a decrease in greenhouse gas emission levels in comparison to the conveyor option.

ES5.3 Socio-economic

Construction of the conveyor is not economically viable. Further its construction would result in significant disruption to existing operations. Continuation of road haulage would improve the mine's economic position, providing benefits such as enhanced security of employment.

Recent geological investigations indicate that the current biodiversity offset areas overlie substantial coal resources with potential revenue estimated at \$6.2 billion. The extraction of this resource would have positive socio-economic impacts on a local, regional, state and national level which would not be possible if sterilised by the securing of the current biodiversity offset areas.

The proposed changes to operating hours would have a positive economic outcome resulting from improved operational efficiencies and would not have any unacceptable adverse impacts.

Potential amenity impacts associated with noise, dust and visual are addressed above and below.

ES5.4 Biodiversity

The proposed continuation of road haulage would represent a positive biodiversity outcome, as potential vegetation disturbance resulting from construction of the conveyor would not be required.

The proposed extension of the timeframe to secure offsets has the potential to allow for an improved biodiversity outcome, as well as providing the socio-economic benefits referred to above which flow from not sterilising coal resources.

ES5.5 Aboriginal heritage

The proposed continuation of road haulage would represent a positive outcome, as potential disturbance to unidentified Aboriginal heritage items resulting from construction of the conveyor would not eventuate.

ES5.6 Soils and land capability

The proposed continuation of road haulage would represent a positive outcome, as potential disturbance to soils resulting from construction of the conveyor would not be required.

ES5.7 Visual amenity

The continuation of haulage via the haul road would have less visual impact than the conveyor as the conveyor is a permanent fixture whilst trucking only occurs intermittently.

ES5.8 Other environmental attributes

The proposed modifications have been assessed as having none to negligible impacts on the following environmental attributes: historic heritage, surface water, traffic and transport, blasting, mine rehabilitation and groundwater.

ES6 Conclusion

The proposed modifications are in response to recent investigations conducted by Integra which:

- concluded that the overland conveyor required under Condition 48 is not economically viable and its construction would result in significant disruption to the existing operations, with only very minor environmental benefits to air quality and increased greenhouse gas emissions;
- identified a need to increase the operating hours for the open cut operations at the NOC to improve efficiency;
- identified an inaccuracy in the identification of vacant land and the RBL at receptor ID 112; and
- identified significant coal resources under the existing biodiversity offset areas which would be sterilised if mechanisms for the long-term security of the offset areas were implemented. Further, it is intended that, should alternative offsets be sought, they would be developed under OEH's UHSA. Participation in the UHSA will allow for an improved biodiversity conservation outcome on a regional scale and an improved selection process for offset areas.

It is considered that, on balance, the overall potential impacts of the proposed modifications are consistent with the approved development and the objects of the EP&A Act.

1 Introduction

1.1 Overview of proposed modifications

The Integra Mine Complex (the Complex) is owned and operated by Integra Coal Operations Pty Limited (Integra). The Complex comprises underground and open cut operations which have been active since 1991 under the former Glennies Creek and Camberwell joint ventures. The Complex currently operates under a single project approval instrument which combines the Project Approvals for Integra Underground and Integra Open Cut (PA 08_0101 and PA 08_0102, respectively). The Project Approvals were granted by the then Department of Planning (now Department of Planning and Infrastructure (DP&I)) on 26 November 2010 under Part 3A of the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act) and are provided in Appendix A.

Integra seeks approval from the Minister for Planning and Infrastructure to modify the Project Approvals under Section 75W of the EP&A Act. The proposed modifications comprise:

- removal of Schedule 3 Condition 48, which requires the installation and operation of an overland conveyor from the Underground surface facilities to the Coal Handling and Preparation Plant (CHPP);
- amendment to the definitions of “Day” and “Night” in Schedule 1 to enable the operations within the North Open Cut (NOC) to be carried out for the period from 7 am to 10 pm Monday to Sunday, and public holidays in place of the currently approved 7 am to 10 pm Monday to Saturday, and 8 am to 10 pm Sunday and public holidays under Schedule 2 Condition 11(a);
- amendment to Table 6 in Schedule 3 Condition 6 “Land where additional noise mitigation measures are available on request” to include “363 – D & L Bynon”;
- amendment to the night time rating background level (RBL) for receptor ID 112; and
- amendment of Schedule 3 Condition 43, to extend the timeframe for the long term security of all areas in the revised offset strategy from September 2012 to September 2014.

The modifications proposed above, taken collectively, constitute Modification 2 to the Integra Mine Complex Project Approvals.

1.2 Site and surrounds

The Complex is located in the Hunter Coalfields of the Sydney Basin and is entirely within the Singleton Local Government Area (LGA). It is located approximately 10 km north-west of Singleton town centre, in the locality of Camberwell (Figure 1.1). The Complex is bound by the New England Highway to the south-west, Bridgman Road to the east and the Middle Falbrook locality to the north (Figure 1.2). The Main Northern Railway line traverses the site.

Both open cut and underground mining operations are undertaken within the Complex with open cut mining operations commencing in 1991 within the former North Pit and underground operations commencing in the late 1990s. Open cut coal mining operations currently comprise the NOC and South Open Cut (SOC). The SOC includes the approved western extension (under PA 08_0102). Operations at the Integra Open Cut produce both semi-soft coking coal (70%) and thermal coal (30%) for export. Integra

Underground, located to the north of the Open Cut, involves approved longwall mining of the Hebden, Barrett and Middle Liddell seams with high quality, semi-hard coking coal produced for export.

The Complex is surrounded by a number of existing mines, predominantly along the western boundary, including Mount Owen Mine and Ravensworth East Mine to the north-west, Glendell Mine and Ashton Mines to the west and Rix's Creek Mine to the south-west.

Nearby residential areas are in Camberwell Village and Wattle Ponds, to the west and east of the mine respectively. There are a number of residences situated in the immediate vicinity of the Complex. Land uses within the locality are predominately mining and mining related operations, as well as grazing and cropping.

1.3 The proponent

The proponent is Integra on behalf of the Integra Coal Joint Venture. The joint venture partners are:

- Vale Australia Pty Limited through subsidiary companies Vale Australia (GC) Pty Limited (Vale);
- NS Glennies Creek Pty Limited, a subsidiary of Nippon Steel;
- POS - GC Pty Limited, a subsidiary of POSCO;
- JS Glennies Creek Pty Limited and JFE Steel Pty Limited, both subsidiaries of Japan Steel;
- Navidale Pty Limited;
- Chubu Electric Power Integra Pty Limited;
- Toyota Tsusho Mining (Australia) Pty Limited; and
- Toyota Tsusho Corporation (Australia) Pty Limited.

Integra is the management company responsible for the operation of the Integra Underground and Open Cut. Glennies Creek Coal Management Pty Limited and Camberwell Coal Pty Limited, the employers at the individual sites, are wholly owned by Integra.

1.4 Purpose of this report

The purpose of this Environmental Assessment (EA) is to accompany an application by Integra for the proposed modifications, in accordance with Section 75W of the EP&A Act. This document is intended to provide an assessment of the potential impacts resulting from the proposed modifications and detail measures that would be implemented to avoid, minimise and/or offset potential impacts. The EA provides information to allow NSW government authorities to assess the merits of the proposed modifications and make a determination as to whether or not to grant approval.

The purpose of the EA is also to inform the public about the proposed modifications so that they can make submissions on its merits or impacts. Such submissions are a further important information source for the assessment process.

This EA was prepared by EMGA Mitchell McLennan Pty Limited (EMM) on behalf of Integra.

1.5 Director-General’s Requirements

A Preliminary Environmental Assessment (PEA) prepared by EMM (2011a) was submitted to the Director-General of DP&I on 21 October 2011. The PEA contained information relating to potential environmental impacts as a consequence of the proposed modifications to assist the Director-General with preparing the Director-General’s Requirements (DGRs) for the proposed modifications. The DGRs were originally issued on 23 December 2011. However, an amendment to the proposed modifications required the DGRs to be reissued. Revised DGRs were issued on 27 July 2012 and are attached as Appendix B of this report.

As required under Section 75F of the EP&A Act, this EA has been prepared in accordance with the DGRs. A summary of each of the requirements and the sections of the EA that address the requirements are provided in Table 1.1.

Table 1.1 Director-General’s Requirements

Requirements	EA reference
General requirements	
The Environmental Assessment (EA) of the project must include:	
<ul style="list-style-type: none"> • an executive summary. • a detailed description of: <ul style="list-style-type: none"> - existing and approved mining operations, infrastructure, biodiversity and heritage offset areas; - the proposed modification; - need for and justification of the proposed modification; and - plans of any proposed building works. • consideration of all relevant environmental planning instruments, including identification and justification of any inconsistencies with these instruments; • a detailed assessment of the key issues specified below, and any other significant issues identified in the risk assessment included in the Preliminary EA for the proposed modification, which includes: <ul style="list-style-type: none"> - a description of the existing environment, using sufficient baseline data; - an assessment of the potential impacts of the modification, including any cumulative impacts, taking into consideration any relevant laws, policies, guidelines and plans; and - a description of the measures that would be implemented to avoid, minimise, and if necessary offset the potential impacts of the modification. • a statement of commitments, summarising the proposed environmental management and monitoring measures; • a conclusion justifying the modification, taking into consideration: the suitability of the site; the economic, social and environmental impacts of the project as a whole; and whether the modification is consistent with the objects of the <i>Environmental Planning & Assessment Act 1979</i>; and • a signed statement from the author of the EA, certifying that the information contained within the document is neither false nor misleading. 	<p>Executive Summary Chapters 2 and 3</p> <p>Chapter 4</p> <p>Chapters 7 - 9</p> <p>Table 10.1</p> <p>Chapter 11</p> <p>See front of EA</p>
Key issues - The EA must include a detailed assessment of the following key issues:	
Air Quality - including:	
<ul style="list-style-type: none"> • a quantitative assessment of potential air quality impacts, including a comparison of the impacts of the modification with the approved project; • assessment of cumulative impacts with reference to the Camberwell Cumulative Impact Study; • details of any changes to existing acquisition and management zones, mitigation measures, monitoring programs or operating practices (including the real-time monitoring system). 	<p>Chapter 8 and Appendix G</p>
Greenhouse Gases – including:	
	Section 8.4 and

Table 1.1 Director-General’s Requirements

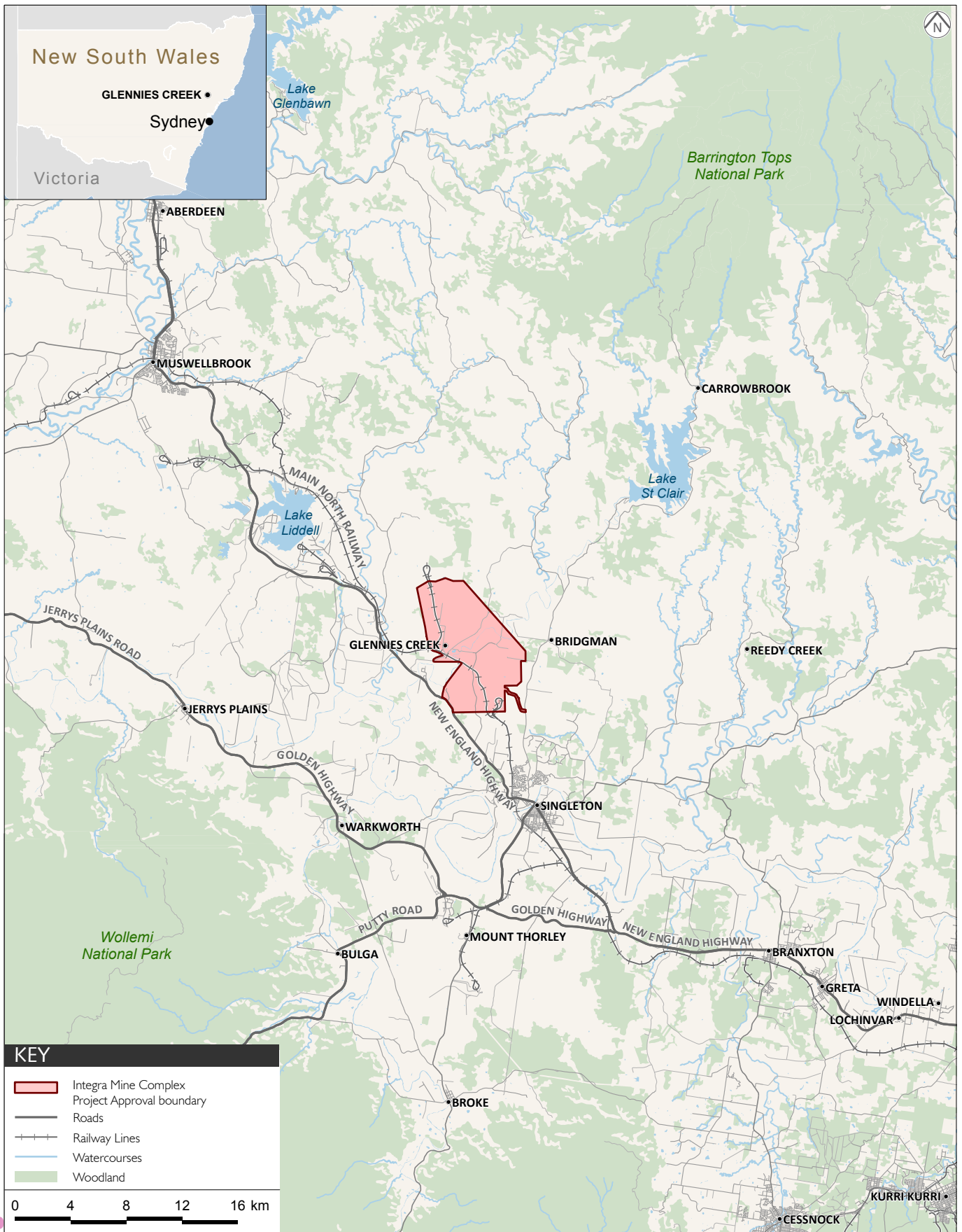
Requirements	EA reference
<ul style="list-style-type: none"> a quantitative assessment of potential Scope 1, 2 and 3 greenhouse gas emissions; a comparison of the impacts of the modification with the approved project; and an assessment of reasonable and feasible measures to minimise greenhouse gas emissions and ensure energy efficiency; 	Appendix G
<p>Noise, Vibration & Blasting - including a quantitative assessment of potential:</p> <ul style="list-style-type: none"> construction, operational and transport noise impacts, including a comparison of the impacts of the modification with the approved project; blasting impacts on people, livestock and property; cumulative impacts, with reference to the Camberwell Cumulative Impact Study; and any changes to existing acquisition and management zones, mitigation measures, monitoring programs or operating practices (including the real-time monitoring system and predictive meteorological forecasting); 	Chapter 7 and Appendices C - F Table 9.1
<p>Social & Economic - including:</p> <ul style="list-style-type: none"> an assessment of the costs and benefits of the modification relative to the approved project, including consideration of the potential impacts on the local and regional community; 	Table 9.1
<p>Traffic & Transport - including:</p> <ul style="list-style-type: none"> accurate predictions of the road and rail traffic generated by the modification; comparison of the impacts of the modification and the approved project; a detailed description of any measures required to maintain and/or improve the capacity, efficiency and safety of the road and rail networks in the surrounding area; 	Table 9.1
<p>Biodiversity – including details of any modifications to the approved offset strategy and mechanisms for its implementation.</p>	Section 3.5
<p>Consultation</p> <p>During the preparation of the EA, you should consult with the relevant local, State or Commonwealth Government authorities, service providers, community groups or affected landowners. In particular you must consult with the:</p> <ul style="list-style-type: none"> Commonwealth Department of Sustainability, Environment, Water, Populations and Communities; Office of Environment and Heritage (including the Heritage Branch); Division of Resources and Energy within the Department of Trade and Investment, Regional Infrastructure and Services; Department of Primary Industries (including the NSW Office of Water; NSW Forestry, Agriculture and Fisheries sections; Catchments and Lands (Crown Lands Division)); NSW Health; and Singleton Council. <p>The consultation process, and the issues raised during this process, must be described in the EA.</p>	Chapter 5

1.6 Report structure

The EA is structured as follows.

- Chapter 1* – Introduction to the proposed modifications, including description of the site, locality, proponent, and the purpose of this report.
- Chapter 2* – Description of the existing operations and Project Approvals.

- *Chapter 3* – Description of the proposed modifications including the need for the modifications and alternatives considered.
- *Chapter 4* – Overview of the planning and statutory framework.
- *Chapter 5* – Details of stakeholder engagement undertaken for the existing operations, as well as details specific to the proposed modifications.
- *Chapter 6* – Environmental risk assessment for the proposed modifications.
- *Chapters 7 to 9* – Environmental impact assessment for the proposed modifications.
- *Chapter 10* – Statement of commitments.
- *Chapter 11* – Suitability of the site, justification of the proposed modifications against the objects of the EP&A Act and conclusion to the report.
- *Appendix A* – Project Approvals.
- *Appendix B* – Director-General’s Requirements.
- *Appendix C* – Integra Underground Haul Truck Noise Assessment (EMM 2012).
- *Appendix D* – Unattended Noise Monitoring Data (EMM 2011).
- *Appendix E* – Low pass BarnOwl graphs, Ernst residence (EMM 2011).
- *Appendix F* – Ambient noise levels, Ernst residence (EMM 2011).
- *Appendix G* – Air Quality Impact Assessment (PAE Holmes 2012).

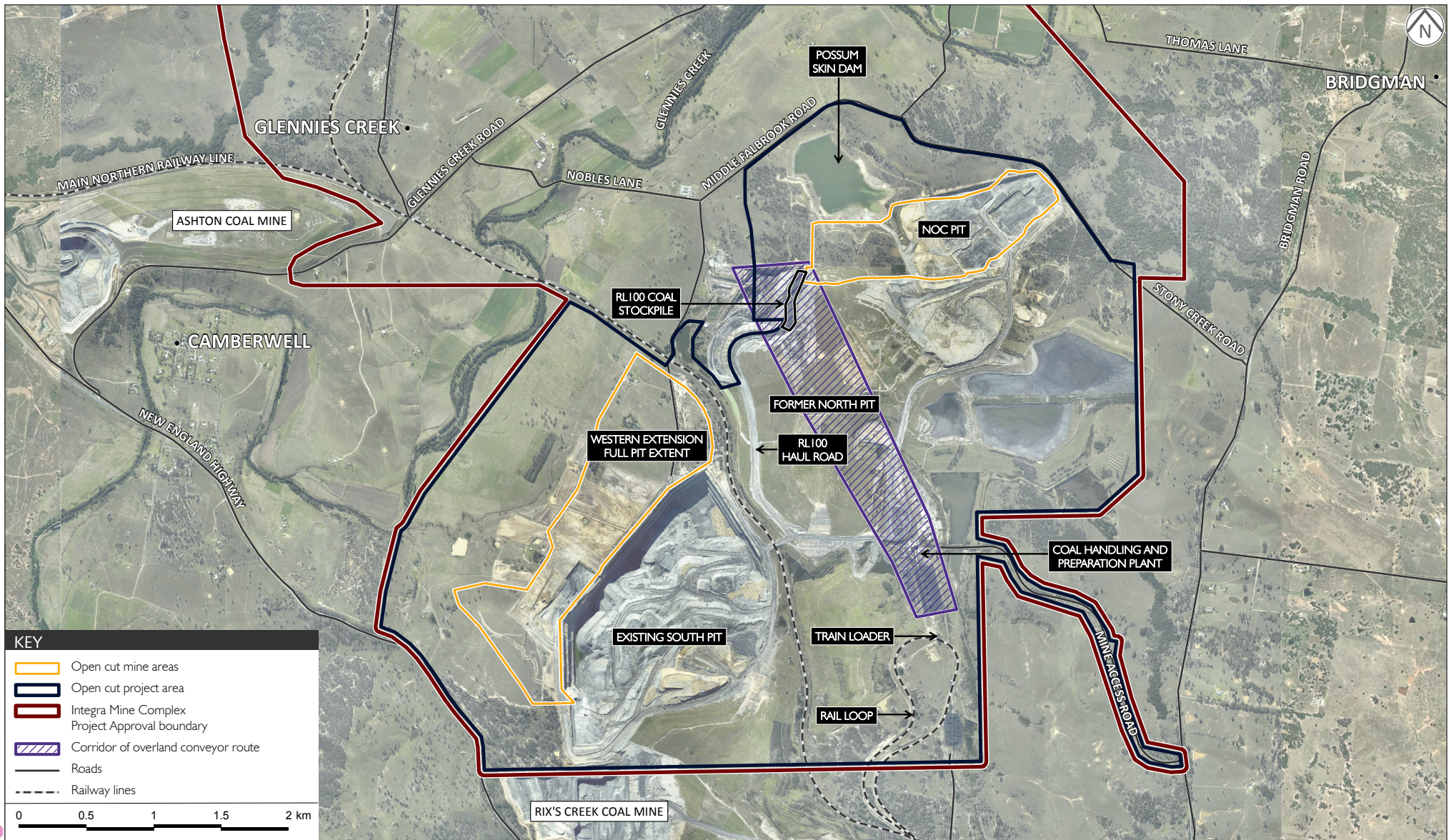


Integrated Design Solutions | 1030609 Integra Mine Complex modification - Rev F 14 August 2012

Regional context

Integra Mine Complex Modification 2 Environmental Assessment

FIGURE 1.1



Source: URS 2011. Boundaries are offset to prevent overlap.

Complex overview

2 Approved project and existing operations

2.1 Approval history

The project elements the subject of this modification were assessed in the Glennies Creek Coal Mine Open Cut EA prepared by R.W. Corkery & Co. Pty Limited in 2007 (NOC EA) and Surface Facilities Project EA prepared by Glennies Creek Coal Management Pty Limited in 2006 which were approved under Project Approval (PA) 06_0073 and PA 06_0057, respectively. These approvals were consolidated by the Integra Open Cut and Underground Project Approvals (PA 08_0101 and PA 08_0102). This section provides an overview of approved operations, as modified, including relevant detail on the NOC and Surface Facilities Projects.

2.1.1 North Open Cut Mine

The NOC was approved under PA 06_0073 on 2 December 2008 by the then Minister for Planning. The approval allowed for the following mining activities:

- extraction of coal by open cut mining methods within a pit shell approximately 90 ha in area from the Liddell, Barrett and Hebden seams;
- stockpiling of run of mine (ROM) coal at temporary ROM coal stockpile areas located at the top of the active open cut ramp or within the existing RL100 Stockpile Area, with subsequent transportation to the CHPP;
- highwall mining from the northern highwall for a maximum length of approximately 300 m;
- progressive placement of waste rock materials into the out-of-pit emplacement area south of the pit shell, with subsequent placement out-of-pit as well as in-pit;
- construction of surface water control structures, including three sediment dams;
- storage and washing of ROM coal and despatch of product coal from the CHPP and placement of fine tailings material within the existing tailings dams; and
- progressive reshaping and rehabilitation of all areas of mining-related disturbance.

2.1.2 Surface Facilities Project

The construction of surface facilities at the Complex was approved under Part 3A of the EP&A Act on 31 January 2007 (PA 06_0057). The approval was for the ongoing use of existing surface facilities and the construction and use of additional surface facilities including a conveyor to haul coal between the underground operations and the CHPP.

Two modification applications to PA 06_0057 were subsequently approved in 2008 and 2009 to extend the timeline for construction of the overland conveyor until the end of December 2011.

2.2 Current approvals – Integra Mine Complex

2.2.1 Integra Open Cut Project

The Integra Open Cut Project involved a western extension of the existing SOC Pit and incorporated the approved NOC operations. An application and accompanying EA, prepared by URS Australia Pty Limited in 2009 (Open Cut Project EA), was lodged with the then Department of Planning (now DP&I) under Part 3A of the EP&A Act. Project Approval 08_0102 for the Integra Open Cut Project was granted on 26 November 2010 by the then Minister for Planning. Open cut operations at the Complex are approved until 31 December 2022 with approved maximum production levels of 1.5 million tonnes per annum (Mtpa) of ROM coal from the NOC and 4.5 Mtpa of ROM coal from the SOC.

The Integra Open Cut Project incorporated open cut activities at the Complex into one Project Approval (08_0102). As a result, a number of Project Approvals including 06_0073 for the NOC and 06_0057 for certain surface facilities, and other existing approvals are in the process of being surrendered by Integra in accordance with Schedule 2 Condition 12 of the Project Approvals.

2.2.2 Integra Underground Project

An application and accompanying EA, prepared by ERM Australia Pty Limited (Underground Project EA), to extend the mining activities at Integra Underground was lodged with the then Department of Planning (now DP&I) under Part 3A of the EP&A Act. The Integra Underground Project was approved under Project Approval 08_0101 on 26 November 2010.

Approved underground mining operations include longwall mining of the Hebden, Barrett and Middle Liddell seams with a maximum production level of 4.5 Mtpa of ROM coal. Underground operations are approved until 31 December 2035.

2.2.3 Integra Mine Complex Modification 1

An application for modification of the Project Approvals and accompanying EA (EMM 2011b), were lodged with DP&I on 2 December 2011. The modification application (Modification 1) comprised:

- an extension of the approved NOC out-of-pit dump by 32 ha;
- an increase of the maximum height of the NOC emplacements from 135 m AHD to 141 m AHD;
- the relocation of the existing NOC crib hut site; and
- an extension of the timeframes stipulated in Conditions 42, 43 and 48 to 30 September 2012.

Modification 1 to the Project Approvals was approved by DP&I on 18 March 2012.

2.3 Approved operations

An overview of the current approvals is provided above. This section provides details on elements of the approved operation that are the subject of, or relate to, the proposed modifications.

2.3.1 Biodiversity offsets

The NOC EA included a biodiversity offset strategy to compensate for impacts on native vegetation and fauna habitat associated with NOC operations and was approved under PA 06_0073. Some requirements

in relation to biodiversity effects were modified on 18 March 2012 by Modification 1. The original strategy included four offset areas located within the Complex to the north and east of the NOC as shown in Figure 2.1. The original strategy was incorporated into Schedule 3 Condition 41 of the Project Approvals and expanded to include the Bridgman Offset Area, which compensated for impacts associated with the Open Cut Project.

41. *“The proponent shall implement the offset strategy summarised in Table 18, described in the open cut and underground project EAs, and shown conceptually in the figure in Appendix 8 to the satisfaction of the Director-General.”*

Table 18 - Biodiversity offsets strategy for the Integra Mining Complex

Offset areas	Minimum size (ha)
Northern offset area	121
Southern offset area	39
Western offset area	94
Supplementary offset area	33
Bridgman offset area	86

To further compensate for vegetation clearance associated with the Open Cut and Underground Projects, additional areas of vegetation communities were required to be offset under Schedule 3 Condition 42 of the Project Approvals.

42. *“By the end of September 2012, unless the Director-General agrees otherwise, the Proponent (Integra) shall revise the (biodiversity) offset strategy referred to above, in consultation with OEH, and to the satisfaction of the Director General. The revised offset strategy must:*

(a) ensure provision of at least 140 hectares of Narrow-leaved Ironbark-Spotted Gum-Forest Red Gum Forest (or a suitable equivalent) to further offset the impact of the open cut project; and

(b) include an additional 6 hectares of Central Hunter Swamp Oak Forest (or a suitable equivalent) to offset the impact of the underground project on the Glendell Biodiversity Offset Area.

In accordance with Condition 42, the Martin’s Creek offset area is in the process of being incorporated into the offset strategy. The offset areas, including Martin’s Creek, provide in excess of 140 ha of Narrow-leaved Ironbark-Spotted Gum-Forest Red Gum Forest. The Martin’s Creek offset area also includes 13.2 ha of Central Hunter Swamp Oak Forest, therefore, satisfying the above condition. The Martin’s Creek offset area is shown on Figure 2.1.

Schedule 3 Condition 43 of the Project Approvals relates to the long term security of offsets and states:

43. *“By the end of September 2012, the proponent shall make suitable arrangements to provide appropriate long term security for all the areas in the revised offset strategy to the satisfaction of the Director-General.*

Amendment to Condition 43 forms an element of the proposed modification (refer to Section 3.5).

Schedule 3 Condition 44 of the Project Approvals relates to the preparation and implementation of a Biodiversity Management Plan for the operations and states:

44. *“The proponent shall prepare and implement a Biodiversity management plan for the projects to the satisfaction of the Director-General. This plan must:*

a) be prepared in consultation with OEH, and submitted to the Director-General for approval by end of December 2011.”

This plan was prepared by ERM Australia and submitted to DP&I for approval in December 2011.

The following condition, Schedule 3 Condition 44A, was introduced to the Project Approvals as a result of Modification 1.

44A The Proponent shall commission a suitably qualified, experienced and independent person approved by the Director-General to conduct an audit of all biodiversity offset areas referred to in conditions 41 and 42 above. The audit report is to be submitted to the Director-General by the end of July 2012 for approval and must:

(a) report on current baseline data on flora and fauna within each biodiversity offset area, including the condition of all key vegetation communities;

(b) compare the current condition of each vegetation community within each biodiversity offset area to that surveyed in 2007, including a report on any works and/or other disturbance that has taken place since those surveys;

(c) evaluate the effectiveness of management measures undertaken to date in improving the biodiversity value of each biodiversity offset area; and

(d) recommend any additional improvement works for each biodiversity offset area and provide a schedule for their implementation.

The audit has been completed and a report was submitted to DP&I on 31 July 2012.

2.3.2 Coal transportation

All product coal from the Complex is transported by rail to the Port of Newcastle. Coal is transported internally to the CHPP where it is washed and prepared for sale. The coal is then transported from the CHPP to the rail loadout facility on Integra’s Rail Loop, located at the southern end of the CHPP area (see Figure 1.2).

ROM coal extracted from the underground operations is currently transported to the surface via conveyor and stockpiled at the RL100 stockpile. ROM coal from the stockpile is then hauled to the CHPP at Integra Open Cut by truck along an internal haul road (the RL100 haul road). The RL100 haul road is shown in Figure 1.2.

Haulage on the RL100 haul road is required to cease by 30 September 2012 in accordance with Schedule 3 Condition 48 of the Project Approvals. ROM coal would then be required to be transported from the RL100 to the CHPP by an overland conveyor. The overland conveyor is yet to be constructed.

2.3.3 Employment and hours of operation

The Complex currently employs a total of 516 full-time employees (FTEs) and 166 contractors.

The approved hours of operation for the NOC are detailed in Schedule 2 Condition 11 of the Project Approvals.

11. The Proponent shall only carry out:

(a) open cut mining operations in the northern mining area during the day and evening; and

(b) vegetation clearing and topsoil stripping on site between 7am and 6pm.

Day, Evening and Night are defined in the Definitions section of the Project Approvals as:

- Day – The period from 7am to 6pm on Monday to Saturday, and 8am to 6pm on Sundays and Public Holidays;
- Evening – The period from 6pm to 10pm; and
- Night – The period from 10pm to 7am on Monday to Saturday, and 10pm to 8am on Sundays and Public Holidays.

Operations at the SOC and Underground are approved to operate 24 hours, seven days a week.

2.4 Environmental management

2.4.1 Overview

The environmental management of the Complex is carried out in an integrated and coordinated manner in order to comply with:

- commitments made in EAs prepared for Integra's projects;
- the Project Approvals that are in force;
- Integra's Environmental Management Strategy;
- environmental management plans; and
- Mining Operations Plans (MOPs).

2.4.2 Management plans

The Project Approvals require environmental management plans to be prepared for the following: air quality, greenhouse gases, noise, blasting, water, waste, rehabilitation, biodiversity, heritage and extraction. The plans are characterised by being:

- user friendly and practically oriented;
- action and responsibility focussed;
- collaborative, where possible, with surrounding mines; and
- adoptive of technological advances in proactive and reactive environmental management.

The plans were approved by DP&I in June 2012. The exceptions being the biodiversity, air quality and greenhouse gases, noise and blast plans which are currently subject to revision by Integra following

receipt of comments from DP&I. The Rehabilitation Plan has been approved by DP&I conditional on the approval of the Department of Trade and Investment, Regional Infrastructure and Services (DTIRIS) - Division of Resources and Energy (DRE).

If amendments to these plans are required as a result of the proposed modifications they will be undertaken within three months of a notice of approval and submitted to DP&I for endorsement as required under Schedule 5 Condition 4 of the Project Approvals.

2.4.3 Rehabilitation

MOPs are the primary instruments for ensuring mine rehabilitation is carried out in a well-planned and environmentally responsible manner. The Rehabilitation Management Plan, referred to in Section 2.4.2, reflects the role of Integra's MOPs in directing rehabilitation activities and the Plan extensively references the MOPs.

Integra's MOPs cover, amongst other aspects:

- mining activities over the MOP term;
- rehabilitation indicators and completion criteria;
- rehabilitation status at MOP commencement;
- proposed rehabilitation activities in this MOP period;
- rehabilitation monitoring; and
- rehabilitation maps.

The rehabilitation planning in each MOP takes account of the proposed final landform, including the final void. The MOPs, in effect, set out the rehabilitation phases that will lead the final landform being in place and performing to preordained criteria.

The Complex currently holds three MOPs, one for the underground operations, one for all open cut operations except for the NOC, and one for the NOC. Consultation with DRE was undertaken on 19 January 2012 to determine the most appropriate way forward with the existing MOPs.

An amendment to the NOC MOP was lodged with DRE in April 2012 to extend the MOP period until 31 December 2012 and to update the MOP in accordance with the Project Approvals. Prior to the NOC and Open Cut MOPs expiring at the end of December 2012, a consolidated MOP for all open cut operations at the Complex will be submitted. This consolidated MOP will also address any updates required as a result of the proposed modifications.

The Underground MOP is approved until the end of March 2015 and will not require amendments as a result of the proposed modifications.

2.4.4 Annual reviews and independent audits

Integra's Project Approvals have two conditions relating to environmental performance reviews and environmental audits.

Schedule 5 Condition 3 of the Project Approvals stipulates that Integra must review the environmental performance of the Complex by the end of March 2012, and annually thereafter. Matters the annual

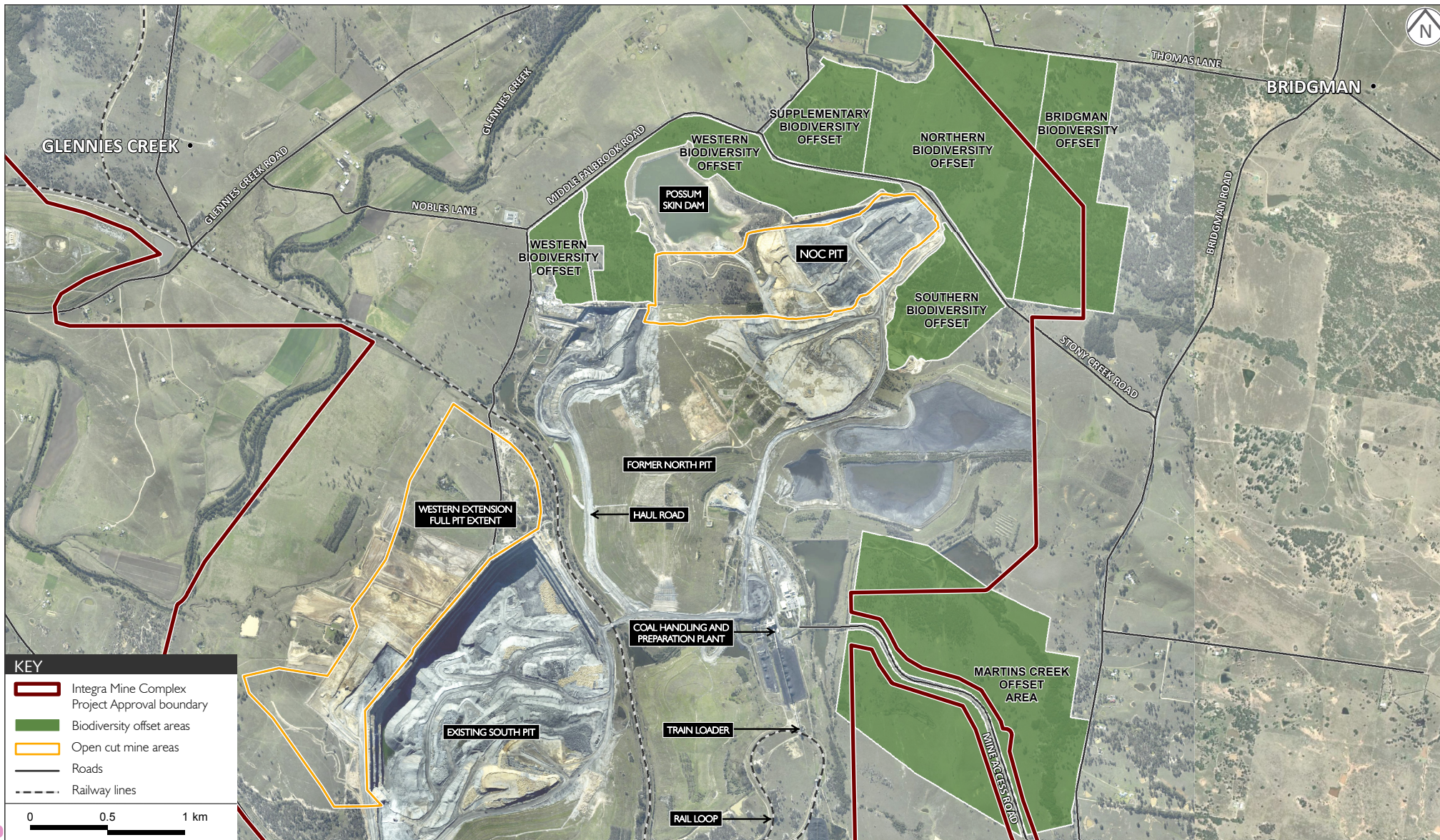
review has to address comprise: past and future development; monitoring results and complaints records; non-compliances; monitoring data trends; discrepancies between predicted and actual impacts; and measures to improve environmental performance.

In compliance with above condition, Integra submitted its annual review to the DP&I on 30 March 2012.

Schedule 5 Condition 8 of the Project Approvals requires Integra to commission an Independent Environmental Audit of the Complex by the end of December 2011, and every 3 years thereafter. This audit must: be conducted by a suitably qualified, experienced and independent team of experts; include consultation with relevant agencies; assess environmental performance; review the adequacy of approved strategies, plans or programs; and, if appropriate, recommend measures to improve environmental performance.

In compliance with the above condition, the first Independent Environmental Audit was commissioned before the end of December 2011 and submitted to the DP&I on 22 May 2012.

In addition to statutory requirements, Integra carries out its own internal compliance and environmental audits in accordance with its Environmental Management Strategy.



Integra biodiversity offset areas

3 Proposed modifications

3.1 Overview

For each of the modifications this chapter provides a description of the proposed modification, discussion on the need for the modification and the alternatives considered. Modification components are shown on Figure 1.2.

3.2 Removal of requirement for an overland conveyor

3.2.1 Proposed modification

It is proposed to remove Schedule 3 Condition 48 of the Project Approvals which states:

“By the end of September 2012, the Proponent shall cease truck haulage of ROM coal from the underground surface facilities to the CHPP, and transport such coal only by overland conveyor, except in an emergency situation and with the prior written approval of the Director-General.”

The intention of the proposed modification is that the current truck hauling arrangements will continue and that the conveyor stipulated in the approval condition not be built. The timeframe for construction of the conveyor has been extended by previous approvals to enable further assessment of the benefits and costs of the overland conveyor to be undertaken.

3.2.2 Need for modification

The construction of an overland conveyor was initially proposed within the Surface Facilities Project application 06_0057. The conveyor was considered to provide environmental benefits through an associated reduction in noise and air quality impacts from cessation of truck haulage of ROM coal between the Underground surface facilities and the CHPP.

Subsequent feasibility assessments of the overland conveyor system and associated infrastructure have estimated the cost to design and construct the conveyor, infrastructure upgrades and CHPP interface at approximately \$95 million. This is primarily due to the geotechnical and engineering constraints associated with building on unconsolidated overburden areas, the avoidance of existing mine infrastructure and the required upgrade of existing infrastructure to accommodate the proposed overland conveyor. Further cost assessments were undertaken of other conveyor options including refined earthworks and equipment layouts, incorporating a screening and sizing function at the Underground surface facilities, and a basic conveyor option. These alternatives failed to reduce the capital cost for the overland conveyor and CHPP interface below \$40 million and deliver operational cost savings sufficient to justify the allocation of capital to complete the design and construction phases of the project. Therefore, conveyor construction is not considered economically viable. In addition, the construction of the overland conveyor is likely to result in significant disruption to existing operations.

Detailed noise and air quality modelling has been undertaken to assess potential impacts of continued truck haulage of ROM coal from the Underground surface facilities to the CHPP (see Appendices C and G respectively). As described in Chapter 8, modelling indicates marginal air quality benefits would result from the construction and operation of the conveyor. However, the conveyor option would not result in a change in noise emissions and would result in an increase in greenhouse gas (GHG) emission levels in comparison to the continuation of road haulage. The conveyor option would also have increased visual impacts relative to the continuation of truck haulage given that the conveyor is a permanent elevated

fixture whilst trucking would occur intermittently. Potential impacts that may also occur through the construction of the conveyor include: biodiversity, soils, surface water and Aboriginal heritage as a result of the required land disturbance.

In summary, the need for this modification is based on the significant cost penalties involved for the conveyor for little environmental benefit in return.

3.2.3 Alternatives considered

As discussed in the above section, various conveyor options were considered during conveyor feasibility studies. Worley Parsons conducted an extensive Options Study in 2008 and 2009 which examined over 15 options for the conveyor system including various conveyor routes, stockpiling and conveying options at the Underground, and various pre-treatment options prior to conveying. Geotechnical evaluations of the slope stability and settlement of mine spoil within the conveyor corridor were also undertaken by Douglas Partners in 2009. The geotechnical study included drilling of test holes into natural ground and evaluation of mine spoil by test pits.

From the options study, 'Option 15D' was initially selected by Integra as the preferred option, as it provided the following technical benefits:

- lowest geotechnical risk;
- construction with limited impact on the underground operations;
- lowest operating costs of options considered;
- upside capacity; and
- most closely complied with Integra's Stakeholder Requirement Specification prepared for the overland conveyor.

The Worley Parsons Options Study estimated that the capital cost for the project, including engineering, procurement and construction management, to be \$95,375,000 (in 2009 Australian Dollars with $\pm 15 - 20\%$ accuracy). It was concluded that the capital and operating costs of Option 15D were not economically viable when incorporated into the financial modelling of the Underground Project and, as a result, Integra proceeded to investigate alternative options that may have been economically viable.

A secondary feasibility study was conducted by Worley Parsons to identify economically feasible solutions and/or changes to the proposed overland conveyor systems that would reduce capital and/or operating costs. A number of project options were assessed which focused on scope and infrastructure expenditure at each end of the proposed overland conveyor. Specific cost estimates were calculated for the following three options:

- Refined Overland Conveyor Option – detailed review of earthworks and equipment layouts to identify efficiencies and cost savings – capital cost of AUD \$85 - \$90M;
- Refurbished Breaker Station – incorporated a screening and sizing function at the current Underground breaker station thereby eliminating the need for short-haul trucking to the SL04 stockpile and bypassing the existing primary crushing station – capital cost of AUD \$60 - \$65M; and
- Basic Conveyor (Bare Bones) Option – involved minimal capital works, with no breaker station and a requirement for short-haul trucking to the SL04 stockpile – capital cost of AUD \$50 - \$55M.

The Basic Conveyor Option was the lowest cost option that is technically feasible. However, it has the highest operational and maintenance risks as, without screening and sizing at the Underground end of the conveyor which removes large lumps or trash planning, there is a high risk of damage to infrastructure from tramp material. This option also involved a degree of truck haulage which would have associated dust and noise impacts. Nonetheless, Integra instructed Worley Parsons to examine this option in more detail as it represented the only overland conveyor option that could potentially be economically feasible.

Further cost reduction options were investigated by Integra and included the following:

- use of second hand conveyor equipment;
- curved (single Flight) overland conveyor option;
- feasibility of a reclaim tunnel on the RL100 stockpile;
- feasibility of a bin in lieu of a stockpile at SL04;
- improved procurement power;
- operational cost reduction through low friction type conveyor belting;
- financial impact of Carbon Pollution Reduction Scheme; and
- earthworks cost savings.

These cost reduction options failed to reduce the capital cost of the Basic Conveyor Option below AUD \$40M. These operational cost savings are not considered sufficient to justify the allocation of capital to complete the design and construction phases of the project and, therefore, the overland conveyor is not economically viable. Further, the conveyor provides only minor air quality benefit, with no reduction in noise (as mitigated) and increased GHG and visual impacts as well as potential operational, biodiversity, soil, surface water and Aboriginal heritage impacts. Therefore, it is considered that the conveyor does not provide an overall environmental benefit which would justify the expenditure.

In consideration of the above, the continuation of road haulage is the only feasible alternative.

3.3 Operating hours

3.3.1 Proposed modification

A minor change to the operating hours for the NOC is proposed to improve operational outputs by allowing for a more practical approach to shift rosters for staffing requirements.

Under Schedule 2 Condition 11(a) of the Project Approvals, open cut mining operations in the NOC are approved to operate “during the day and evening”. In Schedule 1, “Definitions” of the Project Approvals, “Day” is defined as the period from 7 am to 6 pm Monday to Saturday, and 8 am to 6 pm Sunday and public holidays and “Night” is defined as the period from 10 pm to 7 am on Monday to Saturday, and 10 pm to 8 am Sundays and public holidays. This modification seeks to change the approved “Day” operating hours at the NOC on Sundays and public holidays to 7 am to 6 pm and will consequently require an amendment to the approved “Night” period so that it ceases at 7 am on Sundays and public holidays. It is not proposed to increase the approved maximum rate of production from the NOC or any other approved operational activities.

Potential noise impacts resulting from the extension to the operating hours are discussed in Chapter 7 of this EA. Currently approved air quality impacts, as assessed in the Open Cut Project EA, are not distinguished by times or days of the week. Therefore, the change in operating hours will not result in a change in dust emissions. On this basis, air quality impacts have not been considered further in this EA in relation to operating hours.

3.3.2 Need for modification

The noise assessment in Chapter 7 has considered the background noise levels (noise levels without contribution from the Complex) between 7 am and 8 am on Sundays and determined that these are not significantly different from the background levels at equivalent times during other days of the week. Therefore, it is considered that the later start on Sundays is not warranted given that there would be no additional noise impacts, or other environmental impacts.

The minor amendment to operating hours for the NOC will better align staff shift rosters. Shift rosters on Sunday's commence at 7 am; however, under the current arrangements personnel are unable to commence work until 8 am. Consistent starting times across the week will allow for an improvement in operational outputs and reduction of inefficiencies.

3.3.3 Alternatives considered

The current operating hours could be continued; however, there is no alternative to better align shift rosters with operational hours, resulting in greater efficiencies, for the NOC.

3.4 Changes to receptor details

3.4.1 Proposed modification

There is a residence on vacant land ID 363 which was built prior to 2009 when the Open Cut Project EA was prepared. The landowner for vacant land ID 363 has also changed from Alan Charles Noble to D & L Bynon. Vacant land ID 363 is now recognised as a receptor (ID 363) and is shown on Figure 7.1. Nearby receptor ID 53 is considered to be representative of receptor ID 363 for the purpose of this assessment. Under Schedule 3 Condition 6 of the Project Approvals, receptor ID 53 is identified as being subject to additional noise mitigation measures on request. The results of the noise assessment presented in Chapter 7, show that receptor ID 363 should also be subject to additional noise mitigation measures on request.

A similar assessment was undertaken for receptor ID 363 in respect to air quality impacts. Receptor ID 53 is not predicted to experience any exceedences of the air quality criteria as a result of operations at the Complex and, therefore, no air quality impacts are predicted for receptor ID 363.

As a result of the above, it is proposed to modify Table 6 "Land where additional noise mitigation measures are available on request" in Schedule 3 Condition 6 of the Project Approvals to include receptor ID 363 "D & L Bynon". A letter will be sent to D & L Bynon to inform them of their rights to additional noise mitigation measures following approval of this application.

A review of the night time RBL, or background noise levels, at receptor ID 112 "S & C Ernst" has been undertaken following a request from DP&I (see Section 7.3.4). The review has identified that the night time RBL at this receptor is 2 dB lower than that identified in the Open Cut Project EA (URS 2009a). This has resulted in a decrease in the receptor's noise acquisition criterion to greater than 45 dB(A). Accordingly, it is proposed to modify the Project Approvals to lower the night time noise acquisition

criterion at receptor ID 112. It is noted, however, that the predicted and monitored noise levels at this property do not show an exceedance of this lowered acquisition criteria.

The owner's of receptor ID 112 "S & C Ernst" will be notified to the changes of the night time RBL and acquisition criteria following approval of this application.

3.4.2 Need for modification

Land owners, government agencies and the community have an expectation that landowner details are accurate in project approval documentation. The proposed modification seeks to achieve this.

3.4.3 Alternatives considered

There are no alternatives to updating the information as proposed, other than allowing the existing incorrect information to remain within the Project Approvals.

3.5 Long term security of offset areas

3.5.1 Proposed modification

In accordance with Schedule 3 Conditions 41 to 44 of the Project Approvals, a biodiversity offset strategy was developed for the Complex. The strategy includes six offset areas, as described in Section 2.2.1 and shown in Figure 2.1.

Integra has identified a significant coal resource under the Northern, Western and Supplementary Offset Areas. Provision of alternative biodiversity offset areas will retain the required biodiversity value, while potentially (subject to later application and determination) realising the economic and social value of the additional coal resource. Further detail regarding the identified resource is provided in Section 3.5.2 below.

It is intended that the provision of alternative biodiversity offset areas would be undertaken in accordance with OEH's Upper Hunter Strategic Assessment (UHSA) which aims to:

- address Commonwealth and State threatened species/biodiversity issues in one, upfront process;
- consider the impacts of all mines within a regional context over a 30 year timeframe;
- calculate quantum of offsets addressing Commonwealth and State requirements using a repeatable methodology;
- improve the process of finding and securing biodiversity offsets;
- targeted offsetting to deliver regional conservation gains; and
- address how rehabilitation and restoration can contribute to biodiversity conservation in a regional context.

The UHSA process accords with Integra's biodiversity conservation objectives, however, it is currently in draft form and implementation is not expected until 2014. DP&I has stated that Integra's participation in the UHSA is encouraged, recognising that this will not be possible until at least 2014. It is, therefore, intended that the Complex's existing biodiversity offset strategy shall continue to allow for the potential development of an alternative strategy under the UHSA.

As previously discussed, under Schedule 3 Condition 43 of the Project Approvals Integra is required to provide long term security of the current biodiversity offset areas by 30 September 2012. To facilitate the potential for the Complex's future participation in the UHSA, it is proposed to amend Schedule 3 Condition 43 to state:

By the end of September 2014, the proponent shall make suitable arrangements to provide appropriate long term security for all the areas in the revised offset strategy to the satisfaction of the Director-General.

The proposed modifications do not seek approval to impact or alter the current offset strategy. Integra will continue to manage its biodiversity offset areas for conservation outcomes in accordance with its:

- biodiversity offset strategy prepared in accordance with Schedule 3 Conditions 41 and 42 of the Project Approvals; and
- Biodiversity Management Plan prepared in accordance with Schedule 3 Condition 44 of the Project Approvals.

Ultimately, if alternative offsets are sought, they would be fully assessed and approval sought in consultation with the relevant stakeholders at the appropriate time.

3.5.2 Need for modification

Exploration activities, undertaken since the NOC and associated offset strategy was approved, have identified a significant coal resource under the Northern, Western and Supplementary Offset Areas. This resource contains approximately 35 million tonnes (Mt) of semi-soft coking coal and 8 Mt of thermal coal which has an estimated revenue of \$6.2 Billion. Long term security of the biodiversity offset areas, as required under Schedule 3 Condition 43 of the Project Approvals, would result in the sterilisation of this resource meaning that the future mining of this resource would be prevented. Given the significant economic impacts of resource sterilisation, such as investment, revenue, export earnings, jobs and substantial regional economic flow-on benefits, Integra considers that investigation of potential alternatives to the biodiversity offset areas within the current strategy is warranted.

Revision of the biodiversity offset strategy would also give Integra the potential to improve the associated biodiversity conservation values. Participation in the UHSA will allow for an improved biodiversity conservation outcome on a regional scale and an improved selection process for offset areas.

3.5.3 Alternatives considered

The alternative to the proposed amendment to Schedule 3 Condition 43 of the Project Approvals is for Integra to not seek an amendment and to secure the current biodiversity offset areas by the approved deadline (ie end of September 2012). Further, the environmental benefits associated with participating in the UHSA would not be realised. Due to the significant adverse socio-economic impacts associated with sterilising the coal resources underneath the current biodiversity offset areas, it is considered that the most preferable alternative is to seek suitable alternative offset areas. In the meantime, current biodiversity management measures, as outlined above, will continue to apply.

4 Planning and statutory framework

4.1 Environmental Planning and Assessment Act 1979

Integra requests that the Minister modifies Project Approvals PA 08_0101 and PA 08_0102 which form a single approval instrument and were originally granted in 2010 for the purpose of carrying out mining activities at the Complex under Part 3A of the EP&A Act.

Part 3A was repealed by the *Environmental Planning and Assessment Amendment (Part 3A Repeal) Act 2011* (Part 3A Repeal Act) which was passed by the NSW Parliament on 22 June 2011, and commenced on 1 October 2011. Under the Part 3A Repeal Act, projects deemed to be 'transitional Part 3A projects' will continue to be subject to Part 3A of the EP&A Act (as in force immediately before the repeal and as modified by the Part 3A Repeal Act). Transitional Part 3A projects include certain projects that were the subject of an existing approval under Part 3A.

As the Complex has Project Approvals that were granted under Part 3A of the EP&A Act, it is a transitional Part 3A project.

Section 75W of the EP&A Act enables the Minister to modify a project approval granted under Part 3A of the EP&A Act. In determining whether changes to a Part 3A project can be modified under Section 75W of the EP&A Act, consideration is given to the proposed modifications and any possible change in potential associated environmental impacts.

Section 75W states:

“(1) In this section:

Minister’s approval means an approval to carry out a project under this Part, and includes an approval of a concept plan.

modification of approval means changing the terms of a Minister’s approval, including:

- (a) revoking or varying a condition of the approval or imposing an additional condition of the approval, and*
 - (b) changing the terms of any determination made by the Minister under Division 3 in connection with the approval.*
- (2) The proponent may request the Minister to modify the Minister’s approval for a project. The Minister’s approval for a modification is not required if the project as modified will be consistent with the existing approval under this Part.*
- (3) The request for the Minister’s approval is to be lodged with the Director-General. The Director-General may notify the proponent of environmental assessment requirements with respect to the proposed modification that the proponent must comply with before the matter will be considered by the Minister.*
- (4) The Minister may modify the approval (with or without conditions) or disapprove of the modification.”*

Based on the scope and scale of the proposed modifications, the proposed modifications are not predicted to result in significant environmental consequence beyond the current Project Approvals and are proposed to be assessed under Section 75W. Detailed assessments provided in Chapters 7 to 9 quantify these impacts.

A consideration of the proposed modification against the relevant objects of the EP&A Act is given in Section 11.2.

4.2 Other NSW legislation and policies

4.2.1 Legislation

The following NSW Acts of legislation are relevant to the proposed modifications:

- *Protection of the Environment Operations Act 1997* (POEO Act); and
- *Mining Act 1992*.

The POEO Act requires that scheduled premises, which are defined in Schedule 1 of the Act, are required to obtain and operate under an Environment Protection Licence (EPL). The Complex is a scheduled premise and operates under EPL 3390. EPL 3390 may need to be updated as a result of the proposed modifications.

As outlined in Section 2.4.3, the Complex currently has three MOPs which were approved under the *Mining Act 1992*. Components of the proposed modifications will be incorporated into the consolidated Open Cut MOP to be submitted to DRE before the end of December 2012.

4.2.2 State Environmental Planning Policies

State environmental planning policies (SEPPs) are environmental planning instruments prepared by the Minister to address issues significant to NSW. The following SEPPs are relevant to the proposed modifications:

- SEPP (Mining, Petroleum Production and Extractive Industries) 2007;
- SEPP (Major Development) 2005; and
- SEPP (State and Regional Development) 2011.

The SEPP (Mining, Petroleum Production and Extractive Industries) 2007 aims to provide for the proper management and development of mineral, petroleum and extractive material resources for the social and economic welfare of the State. The policy establishes appropriate planning controls to encourage ESD. The proposed modifications are consistent with the aims and controls of this policy.

SEPP (Major Development) 2005 previously defined classes of development to which Part 3A of the EP&A Act applied. This SEPP was amended by SEPP (State and Regional Development) 2011 in accordance with the repeal of Part 3A, though it is still relevant to the proposed modifications as it continues to apply to transitional Part 3A projects. Prior to the repeal of Part 3A of the EP&A Act, Clause 6 of SEPP (Major Development) 2005 stated:

(1) *Development that, in the opinion of the Minister, is development of a kind:*

(a) that is described in Schedule 1 or 2, or

...

is declared to be a project to which Part 3A of the Act applies.

Coal mining was a form of development described in Schedule 1 of SEPP (Major Development) 2005 and, therefore, Part 3A of the EP&A Act applies to the Complex's Project Approvals.

4.2.3 Singleton Local Environmental Plan 1996

The project is located within the Singleton LGA. Under the provisions of the Singleton Local Environmental Plan 1996 (Singleton LEP) the project site is zoned No.1 (a) Rural. Mining is a permissible land use within this zone with development consent or project approval under the EP&A Act. This modification is consistent with the provisions of the Singleton LEP.

The Draft Singleton Local Environmental Plan 2012 (Draft LEP) is currently on public exhibition. Under the Draft LEP the project site is zoned RU1 – Primary Production. Open cut mining is permissible with consent within this zone.

4.3 Commonwealth legislation

The *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act) aims to protect matters deemed to be of national environmental significance (NES) including:

- world heritage properties;
- places listed on the National Heritage Register;
- Ramsar wetlands of international significance;
- threatened flora and fauna species and ecological communities;
- migratory species;
- Commonwealth marine areas; and
- nuclear actions (including uranium mining).

If an action (or project) will, or is likely to, have a significant impact on any matters of NES it is deemed to be a Controlled Action and requires approval from the Commonwealth Environment Minister or the Minister's delegate. To determine whether a proposed action will or is likely to be a Controlled Action an action may be referred to the Department of Sustainability, Environment, Water, Population and Communities (SEWPaC).

The proposed modifications will not have a significant impact on any matters of NES and, accordingly, approval under Commonwealth legislation is not required.

5 Stakeholder engagement

5.1 Stakeholder engagement strategy

A comprehensive stakeholder engagement strategy is in place for the Complex. As outlined in this section, this strategy has been, and will continue to be, supplemented by activities that apply specifically to the proposed modifications. The planned stakeholder activities are based on the nature and scale of the proposed modifications.

Integra's stakeholder engagement strategy allows for consideration of stakeholders' views and timely feedback of any matters raised. The existing consultation program includes the following key components.

- A 24-hour community information line – this service aims to promptly and effectively address community concerns.
- Integra Mine Complex Community Consultative Committee (CCC) – meets quarterly (previously biannually) to discuss environmental management and any matters raised by members of the community.
- Integra website – includes updates on current and future operations, including past and present environmental monitoring results.
- Newsletters – these are prepared and circulated to disseminate information on Integra's operations.
- Management of a complaints register – to record complaints received and steps to follow up complaints.

Feedback received during stakeholder engagement was considered in the options analysis and within this EA. Details of stakeholder engagement that relates specifically to the proposed modifications are provided below.

5.2 Project specific stakeholder engagement

5.2.1 Government

The DGRs for the proposed modifications require consultation with the following parties:

- SEWPaC;
- OEHL including the Heritage Branch;
- DRE;
- Department of Primary Industries including the NSW Office of Water (NOW), NSW Forestry Agriculture and Fisheries sections, Catchments and Lands (Crown Lands Division);
- NSW Health; and
- Singleton Council.

The consultation activities with government agencies and the outcomes of these activities are summarised in Table 5.1.

Table 5.1 Government consultation activities and outcomes

Agency	Date of activity	Purpose of activity	Outcomes of activity
DP&I	20/9/11	Meeting to discuss the proposed modifications and other modification elements which were the subject of Modification 1.	DP&I advised that a modification application was required with a supporting PEA to be submitted before the end of October 2011.
	6/10/11	Meeting to discuss the proposed modifications and other modification elements which were the subject of Modification 1.	DP&I was provided with an update on the progression of the modification application.
	4/11/11	Meeting to discuss the proposed modifications and other modification elements which were the subject of Modification 1.	DP&I was provided with an update on the progression of the modification application. DP&I provided feedback on the PEA.
	June and July 2012	Various letters sent to DP&I describing changes to project description for Modification 2.	DP&I revised the DGRs in accordance with the changes to the project description and confirmed in principle support for adoption of the UHSA for biodiversity offset areas.
	August and September 2012	A review of the night time RBL at receptor ID 112 was requested.	The results of the review are provided in Section 7.3.4.
SEWPaC	22/8/12	A briefing letter on the proposed modifications was sent with an invitation to provide comments.	No comments have been received to date.
OEH, including Heritage Branch	5/12/11 and 18/07/12	Biodiversity related offset matters were discussed with OEH on 5 December 2011. Briefing sessions on the UHSA were attended on 18 July 2012.	Feedback received from OEH during 2011, including at the 5 December 2011 meeting, influenced the form the proposed modification. The 18 July 2012 reaffirmed Integra's commitment to utilising the UHSA for the provision of alternative offsets.
DRE	19/1/12	To discuss the proposed modifications and the status of the Complex's MOPs.	Feedback received at this meeting primarily related to assessment of the NOC out-of-pit emplacement extension which has now been removed from the proposed modifications.
NOW	22/8/12	A briefing letter on the proposed modifications was sent with an invitation to provide comments.	No comments have been received to date.

Table 5.1 Government consultation activities and outcomes

Agency	Date of activity	Purpose of activity	Outcomes of activity
NSW Forestry Agriculture and Fisheries	22/8/12	A briefing letter on the proposed modifications was sent with an invitation to provide comments.	NSW Forestry Agriculture and Fisheries stated that the proposed modifications would not result in significant impact to agriculture. However, it noted that any replacement of the offset areas would require further consultation.
Catchments and Lands (Crown Lands Division)	22/8/12	A briefing letter on the proposed modifications was sent with an invitation to provide comments.	No comments have been received to date.
NSW Health	24/8/12	A briefing letter on the proposed modifications was sent with an invitation to provide comments.	No comments have been received to date.
Singleton Council	November 2011 and February, May and August 2012	Representatives of Council attended the CCC meetings held in November 2011 and February, May and August 2012 at which the proposed modifications were discussed.	See below in Section 5.2.2.

5.2.2 Local residents and community groups

The proposed modifications were discussed at CCC meetings held on 15 November 2011, 7 February 2012, 1 May 2012 and 1 August 2012. The feedback received from these meetings relevant to the proposed modifications related to the timing of the EA's public exhibition, the opportunity for the community to gain information and comment on the proposal as well as potential loss of local biodiversity offset areas.

As a result of this feedback, Integra held a community information session in Singleton on 9 August 2012 to provide community members with information regarding the proposed modification, an opportunity to ask any questions and provide feedback on the proposal and other general matters related to the Complex. Feedback was also received from community members unable to attend the session by phone. Approximately 20 people attended the session and a further eight people provided feedback over the phone.

Matters raised during the information session and individual feedback are summarised in Table 5.2 together with a response to these matters.

Table 5.2 Matters raised and responses

Matters raised	Response
Additional dust and noise impacts resulting from continued road haulage.	<p>As detailed in Chapter 8, the estimated increase in dust emissions were assessed as negligible with only two private residences predicted to experience an exceedence of any of the air quality criteria as a result of the continuation of road haulage.</p> <p>As detailed in Chapter 7, potential noise impacts, as mitigated, were assessed as negligible. The removal of the conveyor scenario would result in decreases in noise levels for receptors situated in NAG 10 and potentially at NAG 9.</p>
Ongoing management of the current biodiversity offset areas.	<p>As detailed in Section 3.5.1, current biodiversity offset areas are being managed in accordance with the Complex’s biodiversity offset strategy and Biodiversity Management Plan.</p>
Additional noise impacts resulting from an increase in NOC’s operating hours.	<p>As detailed in Section 7.3.2, background noise levels at two of the three representative receptors are identical, and within 1 dB at the third receptor when comparing Sunday to Saturday mornings. The earlier start on Sunday’s will not result in additional impact than that experienced on other days of the week. Further discussion is provided in Chapter 7.</p>
EA public viewing and timeframe for making submissions on the proposed modifications.	<p>The EA and supporting documentation will be publically exhibited on DP&I’s website and at other locations specified by DP&I. As per Section 84 of Environmental Planning and Assessment Regulation 2000, notice of exhibition, including locations and timeframes, will be advertised in the local newspaper (Singleton Argus) and on DP&I’s website. During this period, members of the public will be invited to make submissions on the proposed modifications which will be considered by Integra and DP&I. Matters raised will be considered and responses provided in the response to submission report which will be made publically available on DP&I’s website: www.planning.nsw.gov.au</p>
Mining of resource identified beneath current biodiversity offset areas.	<p>The proposed modifications do not propose to mine the resource located under the biodiversity offset areas or any other areas not currently approved under the Project Approvals. Should Integra propose to extend the currently approved mining area this would be fully assessed and approval sought in consultation with the relevant stakeholders at the appropriate time.</p>
Mine related impacts not specifically related to the proposed modifications.	<p>Integra has adopted a proactive approach to management of environmental impacts and this is supported by its management plans, particularly those for air quality and noise. Key characteristics of the management plans are listed in Section 2.4.2. The Complex’s management plans have either been recently approved or are currently being revised in response to comments received from DP&I. Matters raised by community members will be considered, filed and actioned appropriately where required.</p>

6 Environmental risk assessment

6.1 Methodology

An environmental risk assessment was undertaken for the proposed modifications wherein the elements were rated, using two variables, namely:

- the potential severity or consequences of the impact; and
- the likelihood of the impact occurring.

The variables were evaluated for each modification element, assuming that appropriate mitigation measures would be in place.

The following definitions were applied.

- Severity or consequences of impact:
 - Minor: Near-source confined and promptly reversible impact on-site with little or no off-site impact expected.
 - Medium: Near source confined and short-term reversible impact on-site with little promptly reversible off-site impact.
 - Serious: Near-source confined and medium-term recovery impact on-site with near-source and short-term reversible off-site impact.
 - Major: Impact that is unconfined and requiring long-term recovery, leaving residual damage on-site with near-source confined and medium-term recovery of off-site impacts.
 - Catastrophic: Impact that is widespread and unconfined and requiring long-term recovery, leaving major residual damage on-site with off-site impact that is unconfined and requiring long-term recovery and leaving residual damage.
- Likelihood of impact:
 - Rare: Impact that is very unlikely to occur during the lifetime of the project.
 - Unlikely: Impact that is unlikely to occur during the lifetime of the project.
 - Possible: Impact that may occur during the lifetime of the project.
 - Likely: Impact that may occur frequently during the lifetime of the project.
 - Almost Certain: Recurring event during the lifetime of the project.

Table 6.1 below shows the risk matrix used to identify environmental risks that were used to determine priorities for the EA. In each case, a score of 1 to 5 is given for the consequence and likelihood of impact and the scores are added to determine environmental risk. There are four classes of environmental risk utilised in this assessment, as indicated below.

- Low: Risks that are below the risk acceptance threshold and do not require active management. Certain risks could require additional monitoring.
- Moderate: Risks that lie on the risk acceptance threshold and require active monitoring. The implementation of additional measures could be used to reduce the risk further.
- High: Risks that exceed the risk acceptance threshold and require proactive management. Includes risk for which proactive actions have been taken, but further risk reduction is impractical.
- Critical: Risks that significantly exceed the risk acceptance threshold and need urgent and immediate action.

Table 6.1 Environmental assessment matrix

		Consequence				
		1 Minor	2 Medium	3 Serious	4 Major	5 Catastrophic
Likelihood of Impact	5 Almost Certain	6 (Moderate)	7 (High)	8 (Critical)	9 (Critical)	10 (Critical)
	4 Likely	5 (Moderate)	6 (High)	7 (High)	8 (Critical)	9 (Critical)
	3 Possible	4 (Low)	5 (Moderate)	6 (High)	7 (Critical)	8 (Critical)
	2 Unlikely	3 (Low)	4 (Low)	5 (Moderate)	6 (High)	7 (Critical)
	1 Rare	2 (Low)	3 (Low)	4 (Moderate)	5 (High)	6 (High)

6.2 Prioritisation

The results of the risk assessment for the proposed modifications are provided in Table 6.2. These were derived by considering each of the modification elements and how they would affect the environmental attributes listed in the table in terms of the likelihood and consequences of their impacts on those attributes. The highest score for any element is the score that is given in the table.

Table 6.2 Environmental risk rating

Environmental Attribute	Consequence	Likelihood	Priority
Acoustics			
Incremental noise impacts on residential receptors	2	3	5 (Moderate)
Cumulative noise impacts	2	2	4 (Low)
Air quality and greenhouse gases			
Incremental air quality impacts on residential receptors	2	3	5 (Moderate)
Cumulative air quality impacts	2	2	4 (Low)
Greenhouse gas impacts	1	1	2 (Low)
Socio-economic			
Impacts on general amenity of residential receptors	2	3	5 (Moderate)
Economic impacts of proposed modification	3	2	5 (Moderate)
Biodiversity			
Impact upon threatened flora and vegetation communities	1	1	2 (Low)
Impact on threatened fauna	1	1	2 (Low)
Impact on habitat for native species	1	1	2 (Low)
Cumulative ecological impacts	1	1	2 (Low)
Aboriginal heritage			
Impact on Aboriginal artefacts	1	1	2 (Low)
Impact on cultural heritage	1	1	2 (Low)
Historic heritage			
Impact on historic heritage	1	1	2 (Low)
Surface water			
Impact on local watercourses and Hunter River	1	1	2 (Low)
Soils and land capability			
Erosion and soil disturbance	1	1	2 (Low)
Impact on agricultural land	1	1	2 (Low)
Visual amenity			
Impact on surrounding receptors	1	1	2 (Low)
Traffic and transport			
Impact on local and regional road networks	1	1	2 (Low)
Groundwater			
Impact on groundwater	1	1	2 (Low)
Rehabilitation			
Changes to landform	1	1	2 (Low)

As shown in Table 6.2, all environmental risks from the proposed modifications were considered low, with the exception of potential noise, air quality and socio-economic impacts. Environmental assessments of the relevant moderate risk environmental aspects have been undertaken commensurate with their risks and, where appropriate, management and monitoring measures developed to manage the identified risks.

The environmental assessments for noise and air quality are provided in Chapters 7 and 8, respectively. However, a standalone chapter for socio-economics has not been included as sufficient assessment is provided in other sections of the report. Specifically, potential amenity issues relating to air quality and noise are assessed in Chapters 7 and 8, socio-economic considerations are considered in the need for the project sections in Chapter 3 and in the justification and conclusion sections in Chapter 11, and a

summary of socio-economic related matters is provided in Table 9.1 together with a summary of the remaining environmental aspects.

7 Acoustics

7.1 Introduction

The elements of the proposed modification which have potential noise impacts include continued road haulage of ROM coal from the Underground facilities to the CHPP, the change in operating hours to allow an additional hour on Sunday's (and public holidays) and identification of ID 363 as a receptor. It is also noted that during the course of the noise study, the night time RBL for receptor ID 112 was reassessed.

The noise impact assessments which accompanied the Glennies Creek Open Cut EA, Open Cut Project EA and Underground Project EA were prepared by Heggies Pty Ltd (2007 and 2009a) and ERM Australia Pty Limited (2009b) respectively. A noise assessment (Heggies 2009b) also accompanied the Submissions Report on the Open Cut Project EA prepared by URS (2010).

The potential noise impacts as a result of continued road haulage were assessed by EMM and are presented in full in Appendix C and summarised in Section 7.3.1. The potential noise impacts as a result of the change in operating hours are presented in Section 7.3.2 with long term unattended noise monitoring data presented in Appendix D. The potential noise impacts resulting from the identification of ID 363 as a receptor are summarised in Section 7.3.3. A review of the night time RBL at receptor ID 112 is provided in Section 7.3.4 with the relevant monitoring data provided in Appendices E and F.

7.2 Existing environment

The existing noise climate for local receptors is influenced by emissions from rural and industrial estates, including mining areas surrounding the Complex. Residences to the east, along Bridgman Road, are exposed to low level mining noise from current NOC operations and from surface facilities. However, these areas can be described as typical of rural residential settings adjacent to a sub-arterial road. Properties further east and set back from Bridgman Road are in a typical rural setting subject to mostly natural sounds with little exposure to noise emissions from the Complex. The areas to the north of the site have occasional exposure to noise emissions from current NOC activities, but are also afforded a noise climate typical of rural settings at other times. To the west, Camberwell Village and nearby properties are surrounded by mining operations, a major railway line, or a major road, depending on their specific location. These properties have noise climates typical of rural settings, though with intermittent exposure to mining, rail and road traffic noise.

Noise monitoring at the Complex consists of attended and unattended measurement and real-time monitoring. Attended monitoring is conducted quarterly. In accordance with the Project Approvals, monitoring is undertaken at a representative receptor within the noise assessment groups (NAGs) identified in Schedule 3 Condition 2. Unlike for dust, there are no prescribed noise monitoring locations. Additional monitoring can also be undertaken in special circumstances, for example, additional monitoring was completed at eight nearby receptors, including receptor ID 112, during 2011 as part of an Independent Review undertaken in response to private landowners requests as required under Schedule 4 Condition 3 of the Project Approvals. Monitoring at these receptors showed that measured levels were all below the site specific criteria, with the exception of one marginal exceedence (2 dB) at a receptor located 2 km to the north of the NOC. There were no exceedences of the amenity criteria specified in the NOC Noise Monitoring Program. Noise management measures are discussed further in Section 7.4.

All monitoring at the Complex is conducted as guided by Australian Standard (AS) 1055:1997 Acoustics – Description and Measurement of Environmental Noise and the *NSW Industrial Noise Policy* (INP) (OEH 2000). The results of monitoring, in conjunction with existing modelling and previous assessments for the Complex, provide an accurate evaluation of noise impacts resulting from current operations.

7.3 Impact assessment

Acoustic assessment of the proposed continuation of ROM coal road haulage, change in operating hours, and the changes to vacant land boundaries have been reviewed and compared against current emissions from the Complex.

7.3.1 Continued road haulage

Integra is seeking to remove Schedule 3 Condition 48 of the Project Approvals which requires the installation and operation of an overland conveyor from the Underground surface facilities to the CHPP. The alternative to the conveyor system would be the continued use of the Complex's RL100 haul road.

A comparison between the conveyor system and the haul road has been quantified and presented in Appendix C. The assessment focused on two scenarios associated with coal transportation from the underground to the CHPP, using either a coal conveyor or truck haulage.

i Methodology

The methodology for this assessment included comparing cumulative modelled Open Cut and Underground operations for the two separate methods of coal transport from the Underground to the CHPP. The comparison was undertaken for six Open Cut operational scenarios including full pit and part pit operations in combination with three assessment periods and meteorological conditions (day, evening and night inversion).

Combining the Open Cut and Underground noise emissions for these two coal transport methods allowed for an overall comparison of variations in noise, if any, between the two scenarios.

A detailed comparison of cumulative noise levels within Camberwell Village was undertaken for all surrounding mines. The comparison took into account current emissions identified in the Camberwell Cumulative Study (*Independent Review of Cumulative Noise Impacts – Camberwell Village, Wilkinson Murray 2010*) and included potential emissions associated with the proposed Ashton Mine South East Open Cut (*Noise and Vibration Impact Assessment, Ashton South East Open Cut Project, Camberwell NSW, Spectrum Acoustics 2009*) and the proposed Ravensworth Underground Mine (*Ravensworth Underground Mine, Proposed Modification 9, Environmental Noise Impact Assessment, Global Acoustics 2012*).

ii Results and discussion

The results of the comparison between either haul road or conveyor methods of transport when combined with the open cut emissions indicate that, for the majority of receptors, there will be a negligible noise increase. This is due to the insignificant noise contribution of these sources compared to the overall noise level of other Open Cut and Underground associated plant.

The results of the comparisons identified that generally, the haul road scenario would generate noise levels 2 dBA to 3 dBA higher than the conveyor scenario at western receptors. However, with the incorporation of a proposed 3 m bund wall, noise emissions from trucks on the haul road would be negated. This bund wall has now been constructed by Integra, and therefore, increased emissions at western receptors negated. Additionally, the removal of the conveyor scenario would see decreases in noise levels for receptors situated in NAG 10 and potentially at NAG 9 (see Appendix A of Appendix C to this report). However, this decrease would be no more than 1 dB which is an imperceptible difference and, therefore, it is considered that there is no significant difference in noise impacts between the conveyor and continued truck haulage.

The proposed modification, as mitigated, will not result in the addition of privately owned receptors within the Project's acquisition and management zones.

Results of the cumulative noise assessment, including proposed changes associated with the underground truck haulage option compared to the proposed conveyor options, are provided for comparison in Table 7.1.

Table 7.1 Individual mine contributions to cumulative night noise levels ($L_{eq(15-min)}$)

Mine	Conveyor contribution ¹		Haulage contribution ¹	
	Minimum	Maximum	Minimum	Maximum
Ashton (South East Open Cut)	38	51	38	51
Ashton (North East Open Cut)	38	42	38	42
Glendell	36	39	36	39
Ravensworth Operations	25	27	25	27
Ravensworth Underground (Mod 9)	11	23	11	23
Rixs Creek	30	33	30	33
Integra Open Cut Project (including western extension)	42	44	42	44
Integra Underground Project	30	34	31	35
Cumulative night time $L_{eq(period)}$ ²	42	50	42	50

Note 1: Based on predicted levels for Year 1 scenario for receptor ID 52, or nearest residence, located in the centre of Camberwell Village.

Note 2: Takes into account the correction for a 15-minute interval to night assessment period.

The anticipated noise contribution from the haul road component would remain 10 dB(A) or more below the current noise levels within Camberwell Village and, therefore, there is no predicted increase to cumulative noise at Camberwell Village.

7.3.2 Change to operating hours

Integra is seeking an amendment to the Project Approvals to enable operations within the NOC to occur from 7 am to 10 pm Monday to Sunday, and public holidays in place of the currently approved 7 am to 10 pm Monday to Saturday, and 8 am to 10 pm Sundays and public holidays.

i Methodology

A review and analysis of historic noise levels from three representative receptors adjacent to NOC operations (see Figure 7.1) has been undertaken to demonstrate justification for modifying the condition. The noise data used in the analysis is presented in Appendix D. The three receptors were selected due to the availability of historical directional BarnOwl data obtained during the 2011 Independent Review and are considered representative of the ambient environment surrounding the NOC. They are:

- ID 20 – Mr Garvie;
- ID 31 – Ms Jensen; and
- ID 48 – Mr and Mrs Cheetham.

Summary of the noise criteria for the three representative receptors analysed in this assessment are reproduced in Table 7.2 from Table 2 in Schedule 3 of the Project Approvals.

Table 7.2 Noise criteria for representative receptors

Location	Day	Evening	Night	
ID and Name	LAeq (15min)	LAeq (15min)	LAeq (15min)	LA1 (1min)
20. Mr Garvie	37	37	36	49
31. Ms Jensen	36	36	35	46
48. Mr and Mrs Cheetham	36	36	36	48

ii Results and discussion

The data from three BarnOwl directional noise loggers obtained during the 2011 Independent Review (see Appendix D) was analysed to compare derived RBLs between 7 am and 8 am on Sundays against the 7 am to 8 am on weekday mornings. Data for the winter months were used with the analysis excluding data associated with winds above 5 m/s, rain events and days where noise levels from the direction of the Complex were prevalent (ie analysis excluded mine noise). Table 7.3 provides a summary of the analysis.

Table 7.3 Comparison of 1 hour weekly and Sunday RBL's

Location	Weekly RBL	Sunday RBL
ID and Name	L90 (1-hour)	L90 (1-hour)
20. Mr Garvie ¹	35	35
31. Ms Jensen ²	34	33
48. Mr and Mrs Cheetham ³	35	35

Note: 1: Analysis based on five days of relevant logging data.

2: Analysis based on nine days of relevant logging data.

3: Analysis based on 12 days of relevant logging data.

Analysis of the hour from 7 am to 8 am weekdays compared to the 7 am to 8 am on Sundays demonstrates that background noise levels are identical for receptor IDs 20 and 48, and otherwise comparable for receptor ID 31 (within 1 dB).

Additionally, analysis of ambient $L_{eq(15-min)}$ levels (see Appendix D) for Barnowl charts for the three receptors between 7 am to 8 am weekdays compared to the 7 am to 8 am on Sundays similarly reflects the consistent trend of the background noise levels. Furthermore, it is noted that night levels are significantly lower than during the morning with levels increasing typically at 6 am which is consistent with expected day-to-day rise and fall of noise levels, demonstrating some influence from local traffic noise. This is an example of why the 'shoulder' period as outlined in Section 3.3 of the NSW Industrial Noise Policy (INP 1999) was introduced for assessment purposes.

Section 3.3 of the INP dealing with 'shoulder' periods states:

'There will be situations that call for different assessment periods. For example, where early morning (5 am to 7 am) operations are proposed, it may be unduly stringent to expect such operations to be assessed against the night-time criteria—especially if existing background noise levels are steadily rising in these early morning hours. In these situations, appropriate noise level targets may be negotiated with the regulatory/consent authority on a case-by-case basis. As a rule of thumb it may be appropriate to assign a shoulder period rating background level as the mid-point value between the rating background levels of the two assessment periods that are on either side of the shoulder period.'

With respect to the proposed modification to the Project Approvals to operate on Sundays and public holidays prior to 8 am, it has been demonstrated in Table 7.3 that ambient and background noise in the hour prior to 8 am on Sundays is consistent with the weekdays. If approval was granted to operate between 7 am and 8 am on Sundays and public holidays, a morning shoulder is deemed applicable.

Applying the shoulder period mid-point method of determining RBL (and therefore criteria) between day and night as per the INP, would provide suitable limits for the assessment receptors. As there are minimal variations between the day and night noise criteria for all receptors surrounding the Complex, the shoulder period limits will be consistent with current day and night limits.

7.3.3 Vacant land changes

Integra is seeking to update Table 6 “Land where additional noise mitigation measures are available on request” in Schedule 3 Condition 6 of the Project Approvals to include receptor ID 363. Vacant land ID 363 is now recognised as a receptor and was assessed against the modelling undertaken for the Open Cut EA (Heggies 2009a and 2009b). The closest receptor (ID 53) to receptor ID 363 is located approximately 300 m to the south-west (see Figure 7.1). Receptor ID 53, located in NAG 12, is considered to be representative of receptor ID 363 for the purpose of this assessment.

Receptor ID 53 was identified as being subject to additional noise mitigation measures on request due to cumulative noise impacts at this receptor exceeding INP acceptable amenity criteria (URS 2010). Additional noise mitigation measures should also be afforded to receptor ID 363, as receptor ID 53 is considered to be representative of this residence.

7.3.4 RBL review

i Methodology

A review of the night time RBL calculated for the Open Cut Project EA (URS 2009a) at receptor ID 112 was requested by DP&I. The review was to include consideration of whether:

- excess morning traffic on the nearby New England Highway has increased the night time RBL; and
- operations at the Complex have been excluded.

Monitoring of ambient noise levels at receptor ID 112 was undertaken by EMM during the 2011 Independent Review for a total of 25 days (see Appendix F). An analysis of the data was undertaken which included the following:

- a night time period of between 10 pm to 5 am, to remove the potential for morning shoulder traffic influences from the New England Highway. It is noted that strict application of the INP would not require such filtering of morning traffic noise, however, this exercise was undertaken providing a conservative approach to determination of background and ambient noise levels;
- periods when winds or rain affected data were excluded from analysis; and
- noise contribution from the Complex was removed. Noise contribution was determined using the BarnOwl directional data with 6 out of the 25 days identified to be days with emissions generated by the operations that may influence ambient levels (see Appendix E).

ii Results and discussion

The results of the review indicated that traffic noise from the New England Highway during the morning shoulder period did not elevate the night time RBL at the Ernst property. This was determined by calculating RBL values with and without the 5 am to 7 am data. This is considered to be due to the way in which assessment background levels (ABLs), and hence RBLs, are determined under the INP method where the ABL is the lower 10th percentile of L90 noise levels. At receptor ID 112, the lower 10th percentile of the night period occurs during early morning hours not between 5 am to 7 am and, therefore, excluding these two hours has not influenced the results.

Excluding noise from the Complex (using BarnOwl's directional capabilities) resulted in a night time RBL of 35 dB(A) at receptor ID 112. The resultant acquisition target would therefore be greater than RBL + 10 dB(A) (as per contemporary practice) resulting in a new acquisition criterion of greater than 45 dB(A), or 46 dB(A) Leq(15-min). This is marginally lower than the current approval acquisition level of greater than 48 dB(A) for receptor ID 112. However, given accepted field measurement tolerances of 2 dB, it is considered that this analysis and findings are not inconsistent with the findings of the Open Cut Project Noise Impact Assessment (Heggies 2009a).

In addition, noise levels at receptor ID 112 as a result of operations at the Complex were predicted to be no more than 45 dB(A) (Heggies 2009a). Further, EMM's Independent Review in 2011 assessed noise levels at this property from the Complex to be lower than the levels predicted by Heggies (2009a). Therefore, despite the decrease, the acquisition criterion at receptor ID 112 is not exceeded. Receptor ID 112 is, however, currently subject to noise mitigation measures on request.

7.4 Management and monitoring

As stated in Section 7.3.1, the noise impacts of continued road haulage from the Underground to the CHPP would be mitigated through the construction of a 3 m bund wall along the western edge of the haul road. This bund wall has already been constructed by Integra in an effort to minimise noise impacts to receptors and will be maintained throughout the life of the Complex.

The Complex is in the process of developing additional noise management measures to minimise noise emissions. A Noise Management Plan and Blast Management Plan for the Complex have been prepared in accordance with Conditions 10 and 19 respectively of Schedule 3 of the Project Approvals and are currently under revision following receipt of comments from DP&I. These plans identify management measures and a monitoring program for the Complex to achieve compliance with criteria. The plan also contains specific procedures to be followed in the event of a noise complaint, including the possible movement or cessation of particular operations. These plans will be implemented at the Complex following approval from DP&I.

Additionally, routine noise monitoring is undertaken at the Complex with a combination of attended and unattended measurement, and real-time monitoring on a regular basis. Attended monitoring is conducted quarterly. In accordance with the Project Approvals, monitoring is undertaken at a representative receptor within the NAGs identified in Schedule 3 Condition 2.

No management and monitoring beyond that referenced in the above paragraphs is required as a result of the proposed modification.

7.5 Summary

Integra is proposing to remove the requirement to construct an overland conveyor as required under Schedule 3 Condition 48 of the Project Approvals. With the construction of a bund wall along the haul

road, the truck haul transport option will have decreases in noise levels for receptors situated in NAG 10 and potentially at NAG 9 compared to the conveyor scenario.

It is proposed to amend the definition of "Day" in the Project Approvals from "10 pm Monday to Saturday, and 8 am to 10 pm Sundays and public holidays" to "7 am to 10 pm Monday to Sunday, and public holidays" and consequently the definition of "Night" from "10 pm to 7 am on Monday to Saturday, and 10 pm to 8 am on Sundays and public holidays" to "10 pm to 7 am on Monday to Sunday, and public holidays". An assessment of three representative residential receptors show that the change to operating hours would not result in a significant increase in noise impacts as there is no substantial difference between existing background noise levels during weekdays and Sundays. Further, the period of 7 am to 8 am on Sundays can be considered as occurring in a shoulder period, as defined by the INP, and would have criteria equivalent to the existing day and night periods.

The property ID 363 is now recognised as a receptor and it is proposed that it be included in Table 6 "Land where additional noise mitigation measures are available on request" in Schedule 3 Condition 6 of the Project Approvals.

A review of the night time RBL at receptor ID 112 has resulted in a decrease in the acquisition criterion for the property. Despite this decrease, predicted and monitored noise levels demonstrate that the lower acquisition criterion is not exceeded at the property.

8 Air quality and greenhouse gases

8.1 Introduction

The only proposed modification that would potentially have an impact on air quality and GHG is the removal of the requirement under Schedule 3 Condition 48 of the Project Approvals to install and operate an overland conveyor from the Underground surface facilities to the CHPP. The approval of this proposed modification would mean the continued use of the road haulage system rather than an overland conveyor. Identification of ID 363 as a receptor is not considered to have an impact on air quality but has been considered further below.

PAEHolmes Pty Limited has prepared a report on the air quality impacts of continuing road haulage of coal compared to the overland conveyor. This report is contained in Appendix G and is summarised in this chapter.

8.2 Existing environment

Air quality at the Complex and surrounding areas is mainly influenced by dust emissions from the mine itself and other nearby mines, with minor emissions attributable to traffic on unsealed roads, agricultural activities and local building and construction activities.

The Complex maintains a network of air quality monitoring equipment. The data collected from this network, in conjunction with air dispersion modelling and assessments for the existing operations, provides accurate information on existing air quality around the mine. A variety of dust controls and safeguards are currently in place to achieve compliance with approved limits. These include regular monitoring in accordance with the Project Approvals and environmental licensing conditions.

Recent air quality monitoring results, presented in the Complex's 2010/2011 Annual Review, show that the annual average dust deposition levels at all monitoring locations were compliant with approved levels, except for one monitoring location (DG06 – located at the Dulwich property) situated within the Complex boundary.

PM₁₀ monitoring during this period showed that there were no exceedences of the annual average criteria PM₁₀ of 30 µg/m³, and only one exceedence of the short term 24-hour average maximum PM₁₀ criteria of 50 µg/m³ at monitoring location HV3 (located near Glennies Creek) in February 2011. There were no exceedences of the annual average Total Suspended Particulates (TSP) criteria for the reporting period and an improvement from the 2009/10 reporting period in the annual average TSP and PM₁₀ concentrations was seen at all sites.

8.3 Impact assessment

8.3.1 Methodology

Holmes Air Sciences (now PAEHolmes) completed an air quality impact assessment (AQIA) in June 2009 to support the Open Cut Project EA (URS 2009). The AQIA included emissions from all operations at the Complex, that is the Underground, NOC and SOC (including the western extension).

For the purposes of this assessment, the impacts at the sensitive receptors of continued haulage have been compared with the predicted impacts from approved operations at the Complex for:

- the Year 3 operations, as per Modification 1 (EMM 2011b); and
- the predicted impacts as per the 2009 AQIA for Year 4, Year 6 and Year 8 (Full Pit operations).

Dust emissions were estimated using emission factors. It is important to note that the 2009 AQIA used a default value of 4 kg/km for haulage on unpaved roads. It is now more accurate to use the NSW Environment Protection Authority's (EPA) preferred emission factor (AP-42 TSP). AP-42 TSP is calculated using site specific information and a prescribed formula (see Appendix G for details) and has been calculated as 2.8336 kg/km for haulage on unpaved roads within the Complex.

The predicted increase in dust emissions with and without haulage of coal has been calculated using both the default emission factor and the AP-42 TSP emission factor.

8.3.2 Continued road haulage

Table 8.1 summarises the estimated dust emissions with and without haulage of coal from the Underground surface facilities to the CHPP, using the default emissions factor of 4 kg/km. The predicted increase in emissions from the Complex due to the continuation of haulage of ROM coal is less than 6% compared with that currently approved. This is a "like with like" comparison with the AQIA predictions, as the AQIA used the default factor in its estimates.

Table 8.1 Comparison of total emissions using default emission factor

Pit	Year 3 modified	Year 4 per AQIA	Year 6 per AQIA	Year 8 per AQIA
SOC and western extension	1,972,350	2,935,367	2,429,178	2,791,261
Underground (exc. haul) ^(a)	80,512	198,084	198,084	198,084
NOC	1,007,661	1,108,991	293874	0
Total (exc. Haul)	3,060,523	4,242,442	2,921,136	2,989,345
Underground haulage	157,430	157,430	157,430	157,430
Total (inc. Haul)	3,217,953	4,399,872	3,078,566	3,146,775
% increase	5.1	3.7	5.4	5.3

Notes: (a) As part of the approvals process, Year 3 emissions were re-calculated to reflect the underground reclaim of the product stockpile. As no changes were made during the approvals process to subsequent years, it has conservatively been assumed the emissions are as per the AQIA.

Table 8.2 presents a summary of receptors where the continuation of hauling is predicted to result in an exceedence of an air quality assessment criterion using the default emission factor. One of the three receptors is mine owned. The other two receptors (IDs 47 and 110) are currently entitled to acquisition upon request due to subsidence and noise impacts respectively. Both receptor ID 47 and ID 110 are also entitled to additional air mitigation measures.

Table 8.2 Predicted exceedences using default emission factor

Year	Receptor ID	Ownership (per EA)	PM ₁₀ 24-hour average		PM ₁₀ Annual average	
			Project Only		Project & other sources	
			Per AQIA	Per AQIA plus haul Default Emission Factor	Per AQIA	Per AQIA plus haul Default Emission Factor
		<i>Assessment criteria</i>	<i>50 µg/m³ / 150 µg/m³ ^(a)</i>		<i>30 µg/m³</i>	
Y3	108 ^(b)	VALE P/L and others.	50	55	-	-
Y4	47 ^(c)	B&R Cherry	50	53	-	-
	108 ^(b)	VALE P/L and others.	-	-	30	31
Y6	110 ^(d)	GJ Hall	47	51	-	-

Notes: (a) The EPA assessment criteria are a cumulative criteria i.e. the impact of the Project and other sources. However, the DP&I acquisition criteria for 24-hour average PM₁₀ is assessed against both a Project only criteria of 50 µg/m³ and a cumulative criteria of 150 µg/m³. The DPI acquisition criteria for annual average PM₁₀ is assessed against a cumulative criterion of 30 µg/m³. (b) Residence 108 has been purchased by Vale since the AQIA was completed. It was previously a private residence owned by IM Tisdell. (c) In the current Project Approval for Integra Coal Operations, ID 47 is entitled to acquisition upon request due to subsidence and also entitled to additional noise mitigation measures upon request. (d) In the current Project Approval for Integra Coal Operations, ID 110 is entitled to acquisition upon request due to noise and also entitled to additional dust mitigation measures upon request.

Table 8.3 summarises the estimated dust emissions with and without haulage of coal from the Underground surface facilities to the CHPP, using the emission factor AP-42 TSP. The predicted increase in emissions from the Complex due to the continuation of haulage of ROM coal is less than 4% compared with that currently approved.

Table 8.3 Comparison of total emissions using AP-42 emission factor

Pit	Year 3 modified	Year 4 per AQIA	Year 6 per AQIA	Year 8 per AQIA
SOC and western extension	1,972,350	2,935,367	2,429,178	2,791,261
Underground (exc. haul) ^(a)	80,512	198,084	198,084	198,084
NOC	1,007,661	1,108,991	293874	0
Total (exc. Haul)	3,060,523	4,242,442	2,921,136	2,989,345
Underground haulage	111,523	111,523	111,523	111,523
Total (inc. Haul)	3,172,046	4,353,965	3,032,659	3,100,868
% increase	3.6	2.6	3.8	3.7

Notes: (a) As part of the approvals process, Year 3 emissions were re-calculated to reflect the underground reclaim of the product stockpile. As no changes were made during the approvals process to subsequent years, it has conservatively been assumed the emissions are as per the AQIA.

Table 8.4 presents a summary of receptor where the continuation of hauling is predicted to result in an exceedence of an air quality assessment criterion using the current AP-42 emission factor. Receptors are mine-owned with the exception of ID 47. An increase of up to 2 µg/m³ is predicted at this residence. This receptor is currently entitled to acquisition upon request due to subsidence and additional air mitigation measures.

Table 8.4 Predicted exceedences using AP-42 emission factor

Year	Receptor ID	Ownership (per EA)	PM ₁₀ 24-hour average	
			Project Only	Project Only
			Per AQIA	Per AQIA plus haul Default Emission Factor
<i>Assessment criteria</i>			<i>50 µg/m³ / 150 µg/m³ ^(a)</i>	
Y3	108 ^(a)	VALE P/L and others.	50	54
Y4	47 ^(b)	B&R Cherry	50	52

Notes: (a) Residence 108 has been purchased by Vale since the AQIA was completed. It was previously a private residence owned by IM Tisdell.

(b) In the current Project Approval for Integra Coal Operations, Residence 47 is entitled to acquisition upon request due to subsidence and also entitled to additional noise mitigation measures upon request.

The Dulwich property (receptor ID 153 on Figure 7.1) is currently subject to acquisition on request due to predicted exceedences of the dust deposition and PM₁₀ air quality assessment criteria. The predicted dust emissions at this property are presented in Appendix B of Appendix G of this report. There is expected to be further increases in PM₁₀ 24hr (project only), PM₁₀ annual (project and other sources), and dust deposition (project only) concentrations at receptor ID 153 as a result of the continued road haulage during Year 3 of the operations.

8.3.3 Vacant land changes

Vacant land ID 363 is now recognised as a receptor and was assessed against the modelling undertaken in the AQIA (PAEHolmes 2009). As with the noise assessment, receptor ID 53 is considered to be representative of receptor ID 363 for the purpose of this assessment. Receptor ID 53 was not predicted to experience any exceedences of the relevant air quality criteria under the approved project or continuation of road haulage. Accordingly, no air quality impacts are predicted at receptor ID 363.

8.3.4 Cumulative impacts

The AQIA for the 2009 Open Cut Project EA considered dust emissions from all operations at the Complex (including open cut and underground operations) as well as from neighbouring mines operational at the time including Ravensworth East, Rix’s Creek, Ashton, Mt Owen and Glendell and other potential sources. These sources have been considered in the assessment undertaken for the proposed modifications with contributions from the project and cumulative sources resulting only in an exceedance of the PM₁₀ annual average criteria at the mine owned receptor ID 108 under the default emission factor, as shown in Table 8.2. Under the AP-42 emission factor, contributions from the project and cumulative sources would not result in any exceedences of the air quality criteria.

The continuation of road haulage is predicted to have negligible impact on fugitive emissions within Camberwell Village with an increase of between 1 – 2 µg/m³ in maximum 24-hour average PM₁₀ concentrations. Further, a review of cumulative impacts of the Complex and other projects was undertaken by PAEHolmes in 2010 (see Appendix D of Appendix G to this report). This review concluded that the predicted impacts of the cumulative assessment undertaken for the AQIA and other projects, were higher than measured concentrations and that, therefore, the AQIA provided a conservative assessment of impacts. Similarly, the cumulative assessment for the continuation of road haulage can also be considered conservative.

8.4 Greenhouse gas emissions

The GHG emissions generated by the Complex over the life of the Integra Open Cut Project were determined as 54.64 million tonnes of carbon dioxide-equivalent emissions (CO₂-e) (PAEHolmes 2009). A comparison of the level of GHG emissions resulting from continued road haulage and the overland conveyor is presented in Appendix G. The assessment found that continued road haulage would generate 1,400 t of CO₂-e annually and the overland conveyor would generate 1,602 t of CO₂-e annually. Therefore, the proposed modifications would generate 202 t of CO₂-e less than the approved project annually which represents a positive environmental outcome.

8.5 Management and monitoring

Although it is expected that the impact of fugitive emissions from the continuation of haulage would remain negligible, regular watering of unsealed access roads takes place to minimise airborne emissions, and hence impact, and will continue to form part on Integra's ongoing air quality management.

An Air Quality and Greenhouse Gas Management Plan for the Complex has been prepared in accordance with Schedule 3 Condition 26 of the Project Approvals and is currently under review following receipt of comments from DP&I. This plan identifies management measures and a monitoring program for the Complex to achieve compliance with criteria as well as to promote a proactive approach in the management of dust. The plan also contains specific procedures to be followed in the event of a dust complaint, including the possible movement or cessation of particular operations.

No specific monitoring is proposed in respect of dust emissions from the continued road haulage between the Underground surface facilities and the CHPP. The current dust monitoring arrangements for the Complex will continue. However, the plan will be reviewed and updated, if required, to incorporate the proposed modifications.

8.6 Summary

A review of the dust emissions arising from the continuation of hauling of ROM coal from the Underground operations at the Complex shows that the estimated dust emissions are negligible relative to the total emissions from the Complex.

Only two private receptors (ID 47 and ID 110) are predicted to experience an exceedence of any of the air quality criteria as a result of the continuation of haulage when using the default emission factor and only one private receptor (ID 47) using the AP-42 emission factor. Both these receptors are currently entitled to acquisition and additional mitigation measures upon request. Cumulative impacts as a result of continued haulage are predicted to have negligible impacts in Camberwell Village and other receptors. Management of air quality at these and other receptors will continue to be undertaken in accordance with the Complex's air quality management practices including those detailed within the recently prepared Air Quality and Greenhouse Gas Management Plan which is currently in draft form.

Air quality monitoring data in the vicinity of the site, which includes the impacts of dust emission generated from the current hauling of ROM coal from the Underground, has generally demonstrated compliance with all relevant criteria.

The proposed modifications would result in a minor reduction in project related GHG emissions.

It is concluded, therefore, that the continuation of hauling of ROM coal from the underground operations would not cause any discernable change to dust levels in the area, relative to the approved operations at the Complex as a whole.

9 Other environmental considerations

The main environmental impacts that would result from the proposed modifications have been dealt with in Chapters 7 and 8. The other environmental, social and economic aspects which require consideration for each modification element are assessed in Table 9.1 and compared with approved impacts. Impacts on these aspects are projected to be negligible to none at all.

Table 9.1 Other environmental considerations

Environmental aspects	Proposed modification elements			
	Continuation of road haulage	Change in operating hours	Receptor changes	Revised timeframe for providing for long-term security of offset areas
Socio-economics	<p>Negligible changes to the amenity of potentially affected receptors resulting from potential noise impacts.</p> <p>Only two privately owned residences, receptor IDs 47 and 110, are predicted to experience an exceedence of the air quality assessment criteria. Both these residences are currently entitled to acquisition and ID 110 is entitled to additional air mitigation measures (see Chapter 8).</p> <p>As discussed in Section 3.2.2, construction of the conveyor is not economically viable. Further construction of the conveyor would result in significant disruption to existing operations. Therefore, continuation of road haulage would improve the mine's economic position, providing benefits such as enhanced security of employment.</p>	<p>Positive economic outcome resulting from improved operational efficiencies.</p> <p>Negligible impact to amenity associated with noise emissions (see Chapter 7).</p>	<p>Affected landowners are to be notified of amendments.</p>	<p>No change. However, as detailed in Section 3.5.2, extension of this timeframe will enable potential participation under UHSA which may provide for an improved biodiversity outcome. It would also ensure that sterilisation of a significant coal reserve worth approximately \$6.2 billion would not occur. This resource has the potential to provide substantial positive economic impacts on a local, regional, state and national level.</p> <p>Any alteration in the currently approved offset strategy would be fully assessed and approval sought in consultation with the relevant stakeholders at the appropriate time.</p>
Biodiversity	<p>Positive outcome as potential vegetation disturbance resulting from construction of the conveyor would not be required.</p>	<p>No change</p>	<p>No change</p>	<p>As detailed in Section 3.5.1, UHSA aims to provide regional conservation benefits. Therefore, extension of this timeframe has the potential to allow for an improved biodiversity outcome. Any alteration in the currently approved offset strategy would be fully assessed and approval sought in consultation with the relevant stakeholders at the appropriate time.</p>
Waste management	<p>The differences between wastes derived from road haulage versus conveyor construction and operation are considered negligible in the context of the Complex.</p>	<p>No change</p>	<p>No change</p>	<p>No change</p>

Table 9.1 Other environmental considerations

Environmental aspects	Proposed modification elements			
	Continuation of road haulage	Change in operating hours	Receptor changes	Revised timeframe for providing for long-term security of offset areas
Aboriginal heritage	Positive outcome as potential disturbance of unidentified artefacts resulting from construction of the conveyor would not eventuate.	No change	No change	No change
Historic heritage	No change as no historic heritage items exist in the potential footprint of the conveyor.	No change	No change	No change
Surface water	Water used for dust suppression of the haul road would continue to be required. This would continue to be managed within the Complex's existing water management system.	No change	No change	No change
Soils and land capability	Positive outcome as disturbance of soil associated with construction of the conveyor would not be required.	No change	No change	No change
Visual amenity	Positive outcome as continuation of haulage via the haul road would have less visual impact than the conveyor as it has intermittent impacts in comparison to the conveyor which would be an elevated, permanent fixture.	No change	No change	No change
Traffic and transport	No change in external traffic movements. Internal traffic movements will continue as per existing practice.	Would not result in additional staff traffic movements. Existing movements would be more 'spread out' with NOC employees arriving outside of morning peak periods which are around 9am and 11am on Sundays (Corkery 2007).	No change	No change

Table 9.1 Other environmental considerations

Environmental aspects	Proposed modification elements			
	Continuation of road haulage	Change in operating hours	Receptor changes	Revised timeframe for providing for long-term security of offset areas
Groundwater	No change	No change	No change	No change
Rehabilitation	No change	No change	No change	No change
Blasting	No change	No change	No change	No change

10 Statement of commitments

The measures proposed to manage the potential impacts resulting from the proposed modifications are summarised in Table 10.1. These measures have been considered in the context of the approved operations and the management plans required by the project approvals. The statement of commitments details those controls that are specific to the proposed modifications.

Table 10.1 Statement of commitments

Environmental attribute	Commitment
Noise	<ul style="list-style-type: none">• Maintain 3 m bund wall along the western side of the RL100 haul road.• D & L Bynon will be informed of their rights to noise mitigation measures at their property.• S & C Ernst will be notified of the changes to the night time RBL and criterion applicable to their property.
Air Quality	<ul style="list-style-type: none">• The Air Quality and Greenhouse Gas Management Plan will be reviewed and updated, if required, to incorporate the proposed modifications.

11 Justification and conclusion

11.1 Suitability of the site

The Complex is an existing underground and open cut mine that has successfully operated for over 20 years. An overview of the site is provided in Section 1.2. The Complex operates under a variety of approvals, MOPs etc, with well established environmental management systems.

The modifications will improve efficiencies, the mine's economic position and potentially prevent the sterilisation of a significant resource. If alternative biodiversity areas are sought, it is intended that these would be sourced under OEH's UHSA subject to assessment and approval. It is considered that utilising this mechanism will provide for an enhanced biodiversity outcome.

Existing infrastructure will continue to be utilised and no new infrastructure is required to be constructed. Therefore, the site is compatible with the proposed modifications.

11.2 Objects of the Environmental Planning and Assessment Act 1979

The consistency of the proposed modifications with key relevant objects of the EP&A Act is considered below.

"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 Complex is an approved operation with a substantial coal resource. Further, there is a significant coal resource under the current offset areas which has an estimated revenue of \$6.2 Billion. The proposed modifications would enable the continued approved extraction of this valuable natural resource and prevent the sterilisation of the future potential resource extraction in this area, by potentially replacing existing offset areas with offsets under the UHSA. The alternative offsets areas would be conserved in the long term, located on land with no potential future mining and would provide regional conservation benefits.

"The promotion and co-ordination of the orderly and economic use and development of land."

The proposed modifications allow for the continued orderly and economic development of land and resource already approved for the purposes of mining.

"The protection of the environment, including the protection and conservation of native animals and plants, including threatened species, populations and ecological communities, and their habitats."

The impacts of the Underground and Open Cut Projects, as originally proposed, have been fully assessed and were determined to be acceptable by the then Minister for Planning. The environmental impact assessments presented in this document have examined the potential impacts of the proposed modifications. Potential impacts were generally assessed as negligible. In relation to air quality, two privately owned residences, receptor IDs 47 and 110, are predicted to experience exceedences of the PM₁₀ 24-hour average criterion only. Both these receptors are currently entitled to additional air mitigation measures and acquisition for subsidence impacts. It is noted that the continuation of road haulage would result in a minor decrease in GHG emission levels in comparison to the conveyor option.

“Ecologically sustainable development”

The principles of ecologically sustainable development (ESD) are outlined in Section 6 of the NSW *Protection of the Environment Administration Act 1991* and Schedule 2 of the EP&A Regulation 2000. The consistency of the proposed modification with each of these principles is discussed below.

Precautionary Principle: in practice this means that development should not cause serious or irreversible environmental impact. Such impact can be avoided by, firstly, understanding the potential for environmental impact to occur by undertaking a full environmental assessment and, secondly, ensuring effective mitigation or compensation measures are incorporated into development proposals. The approved Underground and Open Cut operations have fulfilled both of these requirements and incorporate the full range of necessary safeguards. This EA has been prepared on the basis of the most recent and accurate scientific data relevant to the modification. Technical studies have adopted conservative assumptions to enable the upper limit of potential impacts to be determined. This proposal to modify the Project Approvals will be assessed by the Minister and additional conditions to address the proposed modifications will be imposed as part of any determination to approve the modification application. Thus, the proposed modifications are consistent with the precautionary principle.

Social equity including intergenerational equity: the proposed modifications will ensure that existing employment, both direct and indirect, is ongoing and secure which, in turn, contributes towards social and intergenerational equity. Royalties received by government from mining activities also result in State wide social benefits.

Conservation of biological diversity and maintenance of ecological integrity: the approved Underground and Open Cut operations include measures to conserve biological diversity and maintain ecological integrity through the provision of biodiversity offset areas. The offset areas are currently being managed for conservation outcomes in accordance with Integra’s Offset Strategy. The proposed modification seeks approval for the extension of the timeframe for long term security of the offset areas. Should alternative offsets be identified under UHSA, it is anticipated that this would provide for an enhanced biodiversity outcome. Any alteration to the current offset strategy would be the subject of a separate approval.

Improved valuation and pricing of environmental resources: the Complex was granted project approval in 2010 and, to this extent, the government has valued and priced the environmental resources relevant to the Complex. The proposed modifications would have a minimal or neutral effect in the application of this principle.

While the proposed modifications alone would be of little consequence in terms of ESD, they would provide for an improved economic outcome, providing benefits such as enhanced security of employment, and prevent the serialisation of a significant natural resource.

11.3 Conclusion

Integra seeks approval from the Minister for Planning and Infrastructure to modify Project Approvals PA 08_0101 and PA 08_0102 under Section 75W of the EP&A Act. The proposed modifications are in response to recent investigations conducted by Integra which:

- identified significant coal resource under the existing biodiversity offset areas which would be sterilised if mechanisms for the long-term security of the offset areas were implemented. Further, it is intended that, should alternative offsets be sought, they would be developed under OEHS’s UHSA. Participation in the UHSA will allow for an improved biodiversity conservation outcome on a regional scale and an improved selection process for offset areas;

- indicated that the overland conveyor required under Condition 48 is not economically viable and its construction would result in significant disruption to the existing operations, with only very minor environmental benefits to air quality;
- identified a need to increase the operating hours for the operations at the NOC to improve efficiency; and
- identified an inaccuracy in the identification of vacant land and the RBL at receptor ID 112.

In accordance with the DGRs, this chapter considers the suitability of the site, potential impacts of the proposed modification against applicable objects of the EP&A Act and determines whether the proposed modifications are justified from a public interest perspective.

The proposed modifications can be managed under the Complex's existing management systems which will be revised as necessary subject to approval of the proposed modifications. It is considered that, on balance, the overall potential impacts of the proposed modifications are consistent with the approved development and the objects of the EP&A Act.

References

EMGA Mitchell McLennan Pty Limited (2011a) *Integra Mine Complex Modification – Preliminary Environmental Assessment* prepared for Integra Coal Operations Pty Limited.

EMGA Mitchell McLennan Pty Limited (2011b) *Integra Mine Complex Modification 1 –Environmental Assessment* prepared for Integra Coal Operations Pty Limited.

ERM Australia Pty Limited (2009a) *Proposed Integra Underground Coal Project – Environmental Assessment* prepared for Integra Coal Operations Pty Limited.

ERM Australia Pty Limited (2009b) *Integra Underground Coal Project – Noise Impact Assessment* in ERM Australia Pty Limited (2009a) *Proposed Integra Underground Coal Project – Environmental Assessment*.

Geoff Cunningham Natural Resource Consultants Pty Limited (2007) *Flora Assessment of the Glennies Creek Open Cut Coal Mine* in R.W. Corkery & Co. Pty Limited (2007) *Specialist Consultant Studies Compendium - Environmental Assessment Glennies Creek Open Cut Coal Mine*.

Glennies Creek Coal Management Pty Limited (2006) *Glennies Creek Colliery Environmental Assessment of Surface Facilities and Activities*.

Global Acoustics Pty Limited (2012) *Ravensworth Underground Mine, Proposed Modification 9, Environmental Noise Impact Assessment*.

Heggies Pty Limited (2007) *Glennies Creek Open Cut Coal Mine – Noise and Blasting Assessment* in R.W. Corkery & Co. Pty Limited (2007) *Specialist Consultant Studies Compendium Part 2 - Environmental Assessment Glennies Creek Open Cut Coal Mine*.

Heggies Pty Limited (2009a) *Integra Open Cut Project – Operational Noise and Blasting Assessment Report 10-5202-R1 Revision 3* in URS Australia Pty Limited (2009) *Environmental Assessment Integra Open Cut Project*.

Heggies Pty Limited (2009b) *Integra Open Cut Project – Operational Noise and Blasting Assessment Report 10-5202-R1 Revision 4* in URS Australia Pty Limited (2009) *Submissions Report Integra Open Cut Project*.

Holmes Air Sciences Pty Limited (2009) *Integra Open Cut Project – Air Quality Impact Assessment* in URS Australia Pty Limited (2009) *Environmental Assessment Integra Open Cut Project*.

Office of Environment and Heritage (2000) *NSW Industrial Noise Policy* NSW Government.

PAEHolmes (2010) “Additional Cumulative Air Quality Assessment for Proposed Ashton Coal Operations Ltd, Integra Coal Operations Pty Ltd and Ravensworth Operations Pty Ltd”, 1 July 2010. Prepared for Ashton Coal Operations Ltd, Integra Coal Operations Pty Ltd and Ravensworth Operations Pty Ltd

R.W. Corkery & Co. Pty Limited (2007) *Environmental Assessment Glennies Creek Open Cut Coal Mine* prepared on behalf of Integra Coal Operations Pty Limited.

Spectrum Acoustics Pty Limited (2009) *Noise and Vibration Impact Assessment, Ashton South East Open Cut Project, Camberwell NSW*.

URS Australia Pty Limited (2009) *Environmental Assessment Integra Open Cut Project* prepared on behalf of Integra Coal Operations Pty Limited.

URS Australia Pty Limited (2010) *Submissions Report Integra Open Cut Project* prepared on behalf of Integra Coal Operations Pty Limited.

Wilkinson Murray Pty Limited (2010) *Independent Review of Cumulative Noise Impacts – Camberwell Village* prepared for Major Project Assessment – Industry and Mining NSW Department of Planning.