

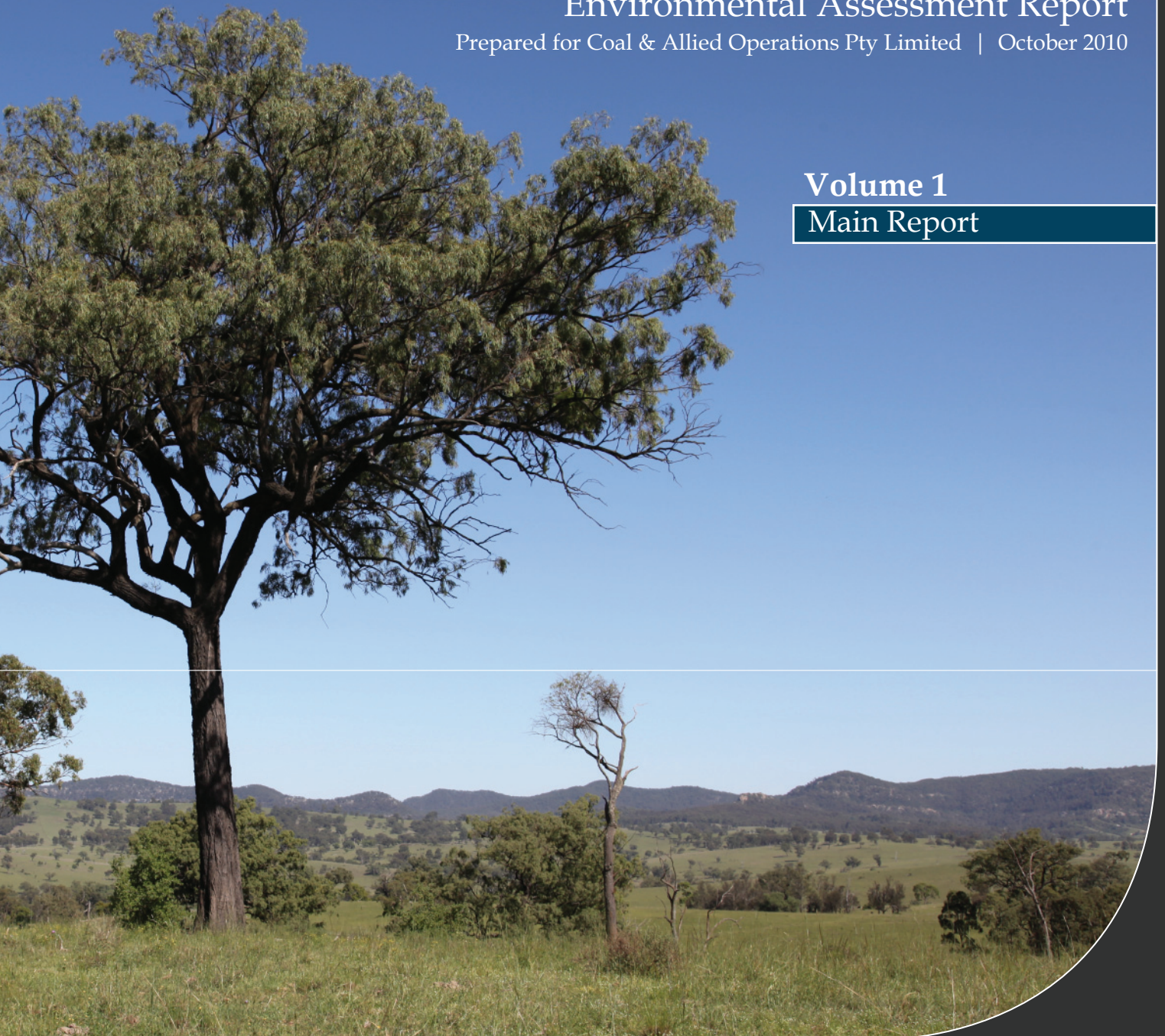
# MOUNT PLEASANT PROJECT MODIFICATION

## Environmental Assessment Report

Prepared for Coal & Allied Operations Pty Limited | October 2010

Volume 1

Main Report



**COAL  
&  
ALLIED**

*Managed by Rio Tinto Coal Australia*



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# Mount Pleasant Project Modification

Environmental Assessment

Volume 1

Prepared for Coal & Allied Operations Pty Limited | 1 October 2010

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## Mount Pleasant Project Modification

Final

J10004 | Prepared for Coal & Allied Operations Pty Limited | October 2010

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Date	1 October 2010	1 October 2010	Date	13 May 2010

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## Executive Summary

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Coal & Allied Operations Pty Limited's (Coal & Allied) Mount Pleasant Project is located approximately four kilometres north-west of Muswellbrook in the Upper Hunter Valley of New South Wales (NSW). A development consent for the Mount Pleasant Project was granted in 1999 which provided for the extraction of approximately 197 million tonnes of run of mine coal over a 21 year period.

Since the grant of the development consent in 1999, Coal & Allied has regularly reviewed the Mount Pleasant Project as part of its normal investment decision-making process. As part of a recent review, changes to the original project design have been identified. For these changes to be incorporated into the project, they require approval under the *Environmental Planning and Assessment Act 1979* (EP&A Act). Such approval is being sought by way of modifications to the original development consent, in accordance with section 75W of the EP&A Act.

The proposed modifications comprise:

- provision of an infrastructure envelope for siting the mine infrastructure, in place of the specific locations detailed in the Environmental Impact Statement (EIS) that supported the original development application for the Mount Pleasant Project. This will provide flexibility during the detailed design and construction of the facilities;
- provision of an optional conveyor/service corridor between the Mount Pleasant Project area and the adjoining Bengalla Mine to the south as an alternative to the approved rail facilities. Only one of the options, i.e. conveyor/service corridor or the rail facilities, would be constructed. The conveyor/service corridor is located within an envelope to provide flexibility during detailed design;
- extension of the remaining consent life by approximately two years until 31 December 2022; and
- amendment to development consent Condition 6.4 to include Department of Environment, Climate Change and Water (DECCW) Industrial Noise Policy (INP) derived criteria, and Condition 7.1(3), to include the optional conveyor/service corridor.

The existing development consent boundary would require modification to include the additional areas for the above changes.

The potential environmental impacts associated with the modifications have been examined assuming plausible 'worst case' conditions. Because the works would be minor and areas affected small, the environmental risks are generally low with the exception of noise, which is rated as moderate. A low risks rating was determined for ecology, air quality, Aboriginal cultural heritage, visual amenity, surface water, soils and land capability, socio-economic issues, traffic and rail transport, groundwater and European heritage.

The findings from the environmental assessment undertaken for the proposed modifications are as follows.

**Noise.** A noise assessment was undertaken in accordance with the DECCW's INP. The study investigated the potential for noise and vibration impacts associated with the proposed modification. In addition, an assessment of a worst case snapshot of the approved mine has also been undertaken to contemporary standards. The INP based noise criteria were derived for the entire project approved under the development consent to update the consent limits to these standards.

The assessment of the proposed modifications found that the conveyor, if pursued, will require elevated gantries to be enclosed and overland sections to be enclosed along the western side with roofing, to meet noise criteria for most residences to the west of the Mount Pleasant Project area.

With this measure in place, the modelling predicted that the proposed modifications would introduce impacts at four identified assessment locations to the south-west not previously identified in the EIS. These additional residential assessment locations have been identified where noise levels are predicted to be above acquisition levels that would typically be set by the Department of Planning (DoP).

As requested by DoP and DECCW, the Mount Pleasant Project has been assessed in its entirety in accordance with the INP, including assessment for adverse weather conditions in accordance with current practice. The noise assessment for the entire project approved under the development consent utilised essentially the same mine plan presented in the EIS, however with the inclusion of reasonable and feasible mitigation measures, most notably sound suppression of mobile plant and equipment at a cost of some \$15-20M. The assessment found that the extent of potential impact during 'calm' weather conditions to be similar to that in the EIS. The main difference when assessing noise to contemporary standards to that in the EIS, is the DoP requirements for upfront acquisition of properties affected under 'adverse' weather conditions.

There are 28 affected properties comprising 34 residences as summarised following:

- fifteen properties listed in the schedule to Conditions 6.2.1 and 6.4.2 are affected, however, there are a total of 18 residences on these properties;
- a further four residences (four properties) are affected due to the proposed conveyor/service corridor; and
- a further 12 residences (from nine properties) are affected due to the broader mining operations.

Coal & Allied will extend the opportunity for upfront acquisition upon request to these additional 13 properties (16 residences), which includes the four properties identified from the assessment of the proposed conveyor/services corridor.

*Ecology.* The landscape of the proposed modification areas has been used for grazing since European settlement and as a result has been heavily cleared and disturbed historically. Notwithstanding this, vegetation communities listed as endangered ecological communities under the *Threatened Species Conservation Act 1995* are located within the modification areas. To provide for flexibility in the detailed design of the infrastructure area and optional conveyor/service corridor, a conservative worst case approach to ecological impact assessment was adopted. Under the worst case scenario, the total modification area footprint would comprise approximately 47.5 hectares (ha) of vegetation clearance, versus approximately 54.8ha of clearance for the approved rail facilities and infrastructure area. Therefore, an approximate 7.3ha reduction in disturbance of vegetation communities would ensue, should the proposed modification options be pursued.

*Air quality.* A review of the dust emissions that would arise if the rail facilities were replaced with a conveyor/service corridor shows that the estimated dust emissions from construction of the conveyor system are negligible relative to the total emissions from the Mount Pleasant Project itself. Once the construction is complete, the operation of the facility would not change the total dust emission from Mount Pleasant Project in any significant or detectable way. The implementation of an infrastructure envelope, rather than specific plant locations for the coal handling and preparation plant (CHPP) facilities, would not result in any detectable change in dust levels at nearby receivers given that the CHPP facilities

represent less than five per cent of total emissions and the relatively small distance changes to sensitive receivers.

*Aboriginal cultural heritage.* There are no identified cultural heritage sites in the proposed infrastructure envelope and optional conveyor/service corridor of such significance that they represent a constraint to the proposed modifications. Careful design and siting of the infrastructure and conveyor/service corridor within the envelopes is likely to decrease the potential impacts on cultural heritage as compared with the approved project. Impacts on cultural heritage are anticipated to be minimal.

*Visual amenity.* The undulating nature and existing vegetation of the local landscape limit viewing opportunities of the proposed modification areas. Furthermore, viewing opportunities of the proposed modifications will be restricted to intermittent views from passing motorists on Wybong Road. However, some parts of the proposed modifications, including associated night lighting, will be visible from some viewscape locations. The implementation of proposed management measures are considered to be sufficient to mitigate potential visual impacts that may result from the proposed modifications.

*Surface water.* The proposed modifications would result in minor alterations to the existing water management system for the operations. The construction works for the proposed optional conveyor/service corridor and the infrastructure area are considered to have a low potential to impact surface water resources and can be adequately managed through the implementation of construction environmental management techniques. Similarly, the operation of the conveyor/service corridor and infrastructure area is considered to have a low potential for adverse surface water impacts to the local receiving environment.

*Other social and environmental aspects.* As determined by the preliminary environmental risk assessment and subsequent investigations, the proposed construction and operation of the optional conveyor/service corridor in place of the rail facilities and modified configuration of the infrastructure area would have a minimal or negligible impact on the other social and environmental aspects over and above the impacts identified for the approved project.

The modifications proposed follow a recent review of the Mount Pleasant Project and they would result in greater efficiencies, mainly by providing more flexibility in the actual siting of coal transport and mine support facilities. The increased flexibility would also reduce environmental disturbance by approximately 7.3ha should the conveyor/service corridor option be pursued.

The proposed modifications provide options, subject to engineering and commercial agreements, that would comprise manageable environmental impacts overall and potentially reduce capital and operational costs. It is considered that, on balance, the overall potential impacts are consistent with the approved development.

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# 1 Introduction

## 1.1 Background

Coal & Allied Operations Pty Limited's (Coal & Allied) Mount Pleasant Project is located approximately four kilometres (km) north-west of Muswellbrook in the Upper Hunter Valley of New South Wales (NSW) (refer to Figure 1.1). Rio Tinto Coal Australia provides management services for the proponent, Coal & Allied.

The Mount Pleasant Project is an open cut coal mine that would extract approximately 197 million tonnes (Mt) of run of mine (ROM) coal over a period of 21 years. The coal would be mined at rates of up to 10.5 million tonnes per annum (Mtpa) of ROM coal. Construction would require approximately 256 employees and the ongoing operations would require an average of 320 workers.

An application for development consent for the Mount Pleasant Project was made in 1997 and supported by an Environmental Impact Statement (EIS) (ERM Mitchell McCotter, 1997). On 22 December 1999, the then Minister for Urban Affairs and Planning, granted Development Consent DA 92/97 to Coal & Allied under Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) for the "*Construction and operation of an open cut coal mine, coal preparation plant, transport and rail loading facilities and associated facilities*" at Mount Pleasant. A copy of the consent, Development Consent DA 92/97, is contained in Appendix A. Development commenced in 2004 with the construction of Environmental Dam 1 (ED1).

Coal & Allied has recently reviewed the Mount Pleasant Project as part of its normal investment decision-making process to ascertain the design and cost of a project that may be constructed and deliver coal to Port by 2014. The design will be generally in accordance with the development consent but certain minor modifications have been identified as necessary for operational effectiveness; these are the subject of this modification and are described in Section 1.3.

Coal & Allied engaged EMGA Mitchell McLennan Pty Limited (EMM) to prepare this Environmental Assessment (EA) for the proposed modifications as part of the development consent modification process.

## 1.2 The locality

The Mount Pleasant Project area is located approximately 4km to the north-west of Muswellbrook. The site is situated directly north of the existing Bengalla Mine with Mount Arthur Mine further south. Dartbrook Mine, the village of Kayuga and the township of Aberdeen are situated beyond the northern boundary of the site. Agricultural land and Muswellbrook are located to the east of the site. Land to the west of the site is generally used for grazing with some agricultural activities undertaken. These local features are shown on Figure 1.2.

Property ownership in the vicinity of the Mount Pleasant Project has been subject to change since the development consent was granted in 1999. Private ownership and mine-owned land on the Mount Pleasant Project area and surrounds is shown in Figures 1.3 to 1.6.

### 1.3 The proposed modifications

The proposed modifications are as follows:

- provision of an infrastructure envelope for siting the mine infrastructure to provide flexibility during the detailed design and construction of the facilities in place of the specific locations detailed in the EIS;
- provision of an optional conveyor/service corridor between the Mount Pleasant Project area and the adjoining Bengalla Mine to the south as an alternative option to the approved rail line and rail loop and loader facilities, including loadout conveyor and bin (collectively referred to herein as the rail facilities). Only one of the options (i.e. conveyor/service corridor or the rail facilities) would be constructed. The conveyor/service corridor is within an envelope to provide flexibility during detailed design;
- extension of the remaining consent life by approximately two years until 31 December 2022; and
- amendment to development consent Condition 6.4 to include Department of Environment, Climate Change and Water (DECCW) Industrial Noise Policy (INP) derived criteria, and Condition 7.1(3), to include the optional conveyor/service corridor.

The existing development consent boundary would require modification to include the additional areas for the above changes, and for minor administrative changes.

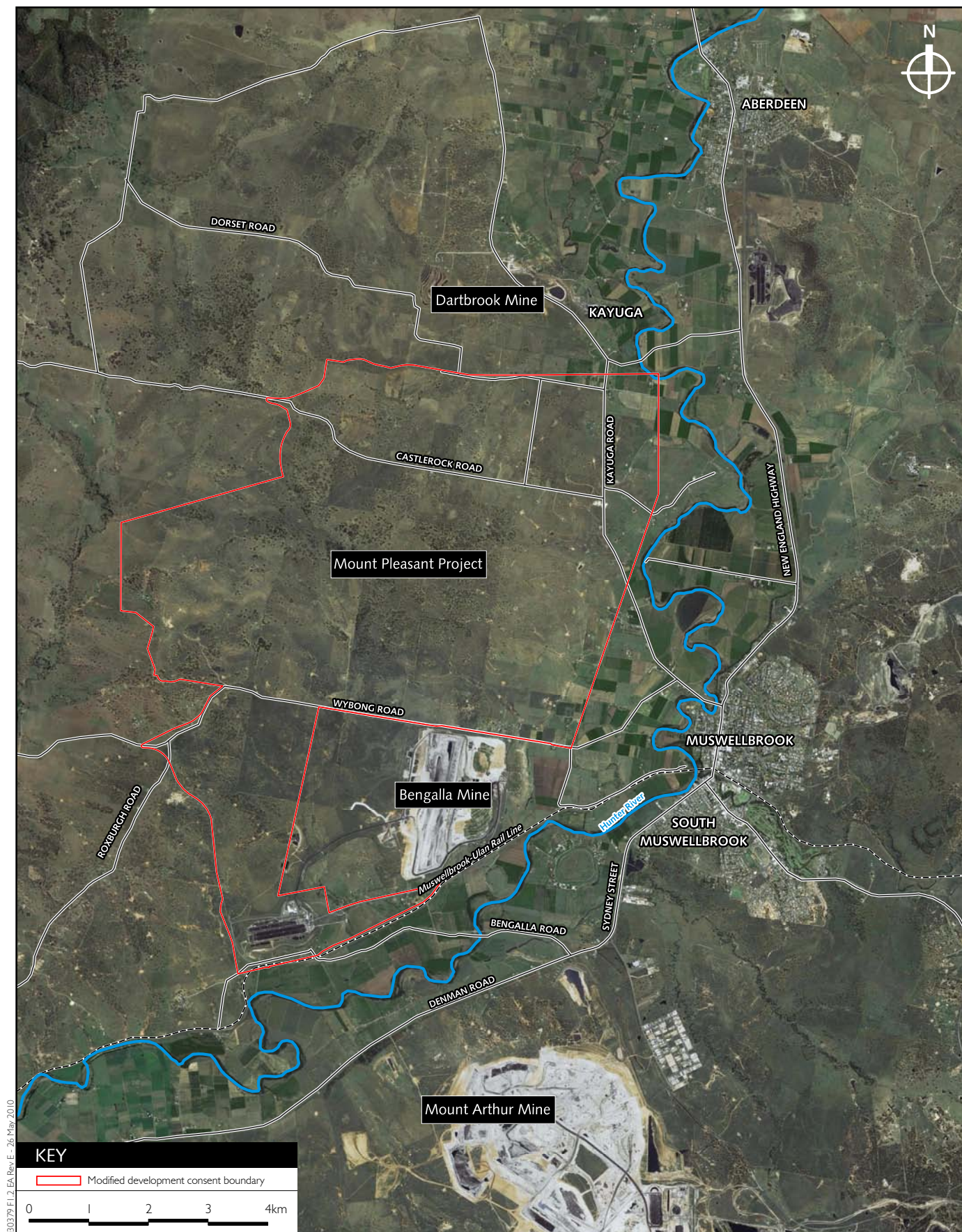
### 1.4 Purpose and content

This EA provides the environmental planning approval framework that applies to the proposed modifications; explains the proposed modifications and their purpose; assesses the potential associated environmental impacts; and identifies measures required to mitigate, manage and/or monitor impacts.

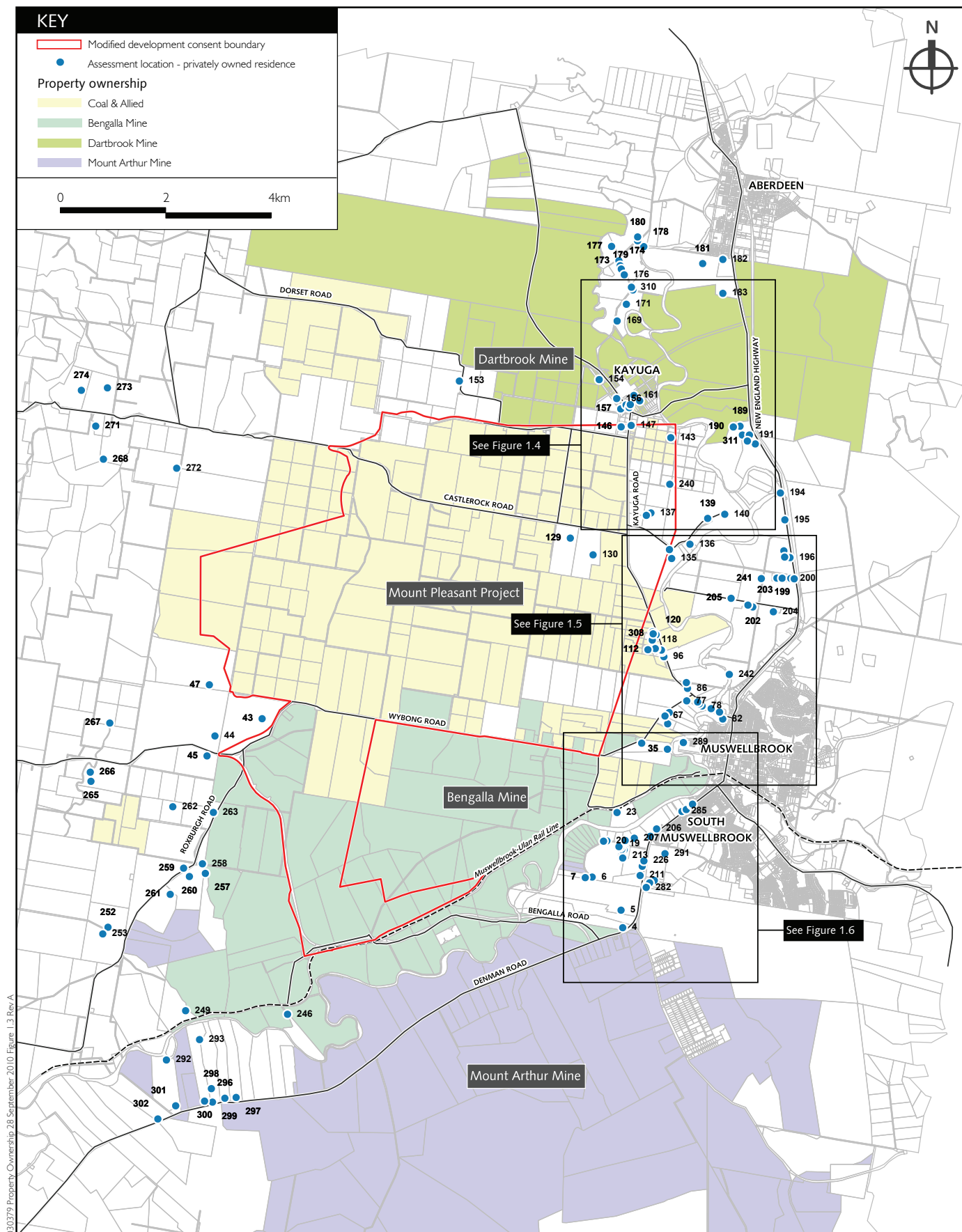






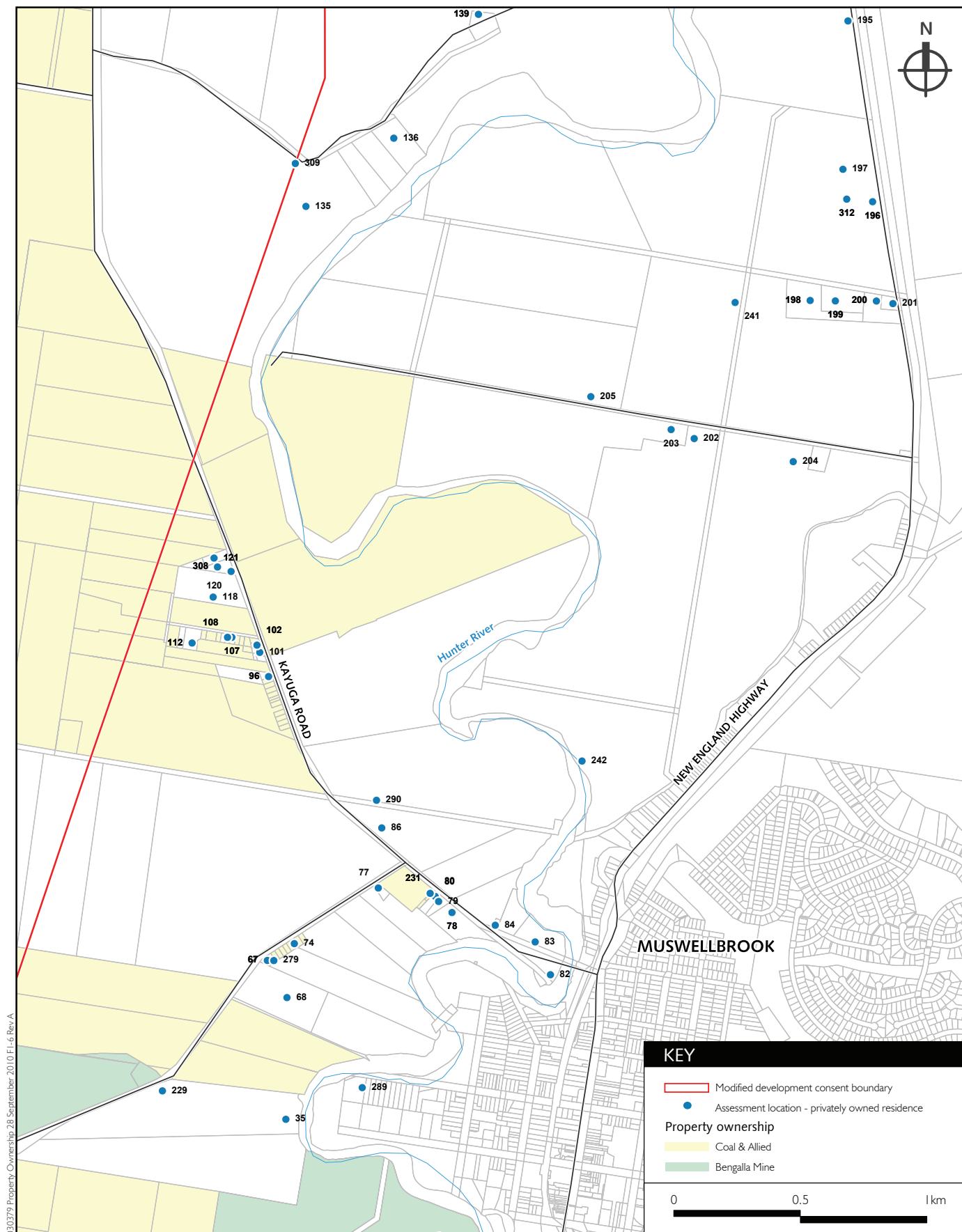








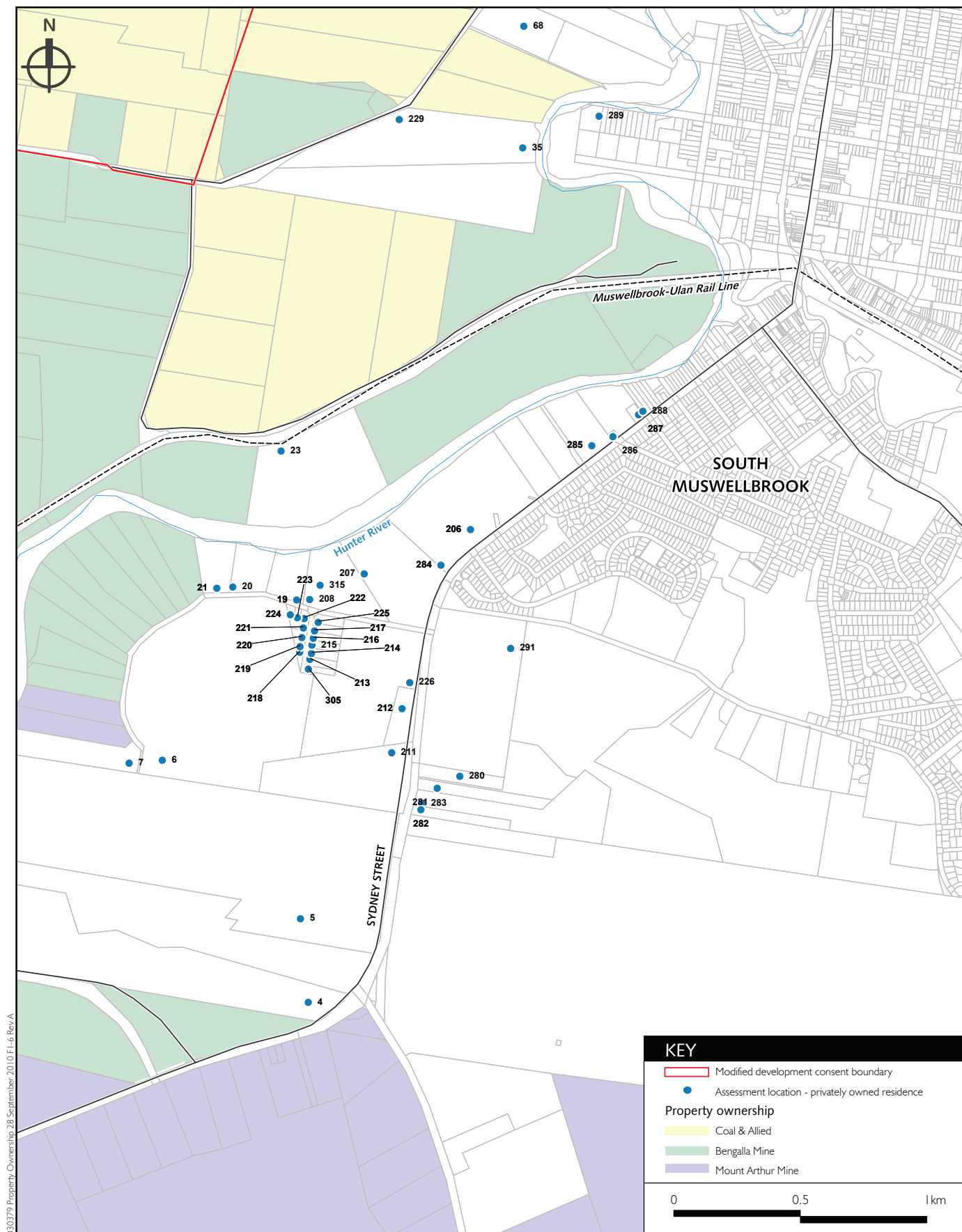
030379 Property Ownership 28 September 2010 FL-4 Rev A



Property Ownership and  
Residence Locations - Muswellbrook

Mount Pleasant Project Modification

FIGURE I.5



030379 Property Ownership 28 September 2010 FL 6 Rev A



## 2 Statutory approval framework

### 2.1 Introduction

This chapter describes the environmental planning approval framework that applies to the proposed modifications. It provides an overview of the environmental planning approval process under NSW and Commonwealth legislation, namely the processes under the EP&A Act and Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). A review of other environmental legislation was undertaken and consideration is also given in this chapter to other NSW legislation relevant to the proposed modifications, including the:

- *Threatened Species Conservation Act 1995* (TSC Act);
- *National Parks and Wildlife Act 1974* (NPW Act);
- *Protection of the Environment Operations Act 1997* (POEO Act); and
- *Water Management Act 2000* (WM Act).

### 2.2 Planning approval history

On 22 December 1999, the then Minister for Urban Affairs and Planning, granted development consent for the Mount Pleasant Project. The development consent followed the preparation of an EIS by ERM Mitchell McCotter (ERM) in 1997 and the conduct of a Commission of Inquiry (Col) that was held over a number of sessions in 1998 and 1999.

The Commissioner's report to the Minister stated the Col was satisfied that the likely impacts of the Mount Pleasant Project on the environment of Muswellbrook and the surrounding areas would not be such as to preclude its operation. The Commissioner stated that ameliorative measures would be necessary to reduce impacts, and acquisition of properties, if requested by owners, and an extensive programme of environmental monitoring and control would be implemented. These management measures were incorporated into a number of recommended conditions, which were subsequently transferred into the development consent.

The development consent contains a number of conditions which aim to:

- “(i) *minimise the adverse impact the development may cause through water and air pollution, noise and visual disturbance;*
- (ii) *provide for environmental monitoring and reporting; and*
- (iii) *set requirements for infrastructure provision.”*

The development consent for the Mount Pleasant Project provides for a 21 year operation (approved to the year 2020), with authorisation for the extraction of 197Mt of ROM coal at a maximum rate of 10.5Mtpa of ROM coal. The development consent boundary is shown on Figure 3.1.

On 21 October 1997, Coal & Allied submitted an application for a mining lease at Mount Pleasant. The extent of the Mining Lease Application 100 (MLA 100) for the Mount Pleasant Project is shown on Figure 3.1. It incorporates the Mount Pleasant Project Authorisation 459 and the three additional areas described in the EIS.

## 2.3 NSW Environmental Planning and Assessment Act 1979

The proposed modifications to the Mount Pleasant Project are to be considered under Part 3A of the EP&A Act. Specifically, they will be considered under section 75W of the Act, which allows a proponent to request that the Minister for Planning modifies an approval for a project. Section 75W of the EP&A Act 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.”*

Whilst the development consent for the Mount Pleasant Project is a consent issued under Part 4 of the EP&A Act, transitional provisions within the *Environmental Planning and Assessment Regulation 2000* (EP&A Regulation) allow for a consent to be modified under section 75W of the EP&A Act as if the consent were an approval under Part 3A. Clause 8J(8) of the EP&A Regulation states:

*“For the purposes only of modification, the following development consents are taken to be approvals under Part 3A of the Act and section 75W of the Act applies to any modification of such a consent:*

- (a) *a development consent granted by the Minister under section 100A or 101 of the Act before 1 July 1998,*
- (b) *a development consent granted by the Minister under State Environmental Planning Policy No 34—Major Employment-Generating Industrial Development,*
- (c) *a development consent granted by the Minister under Division 4 of Part 4 of the Act (relating to State significant development) before 1 August 2005 or under clause 89 of Schedule 6 to the Act,*
- (d) *a development consent granted by the Land and Environment Court, if the original consent authority was the Minister and the consent was of a kind referred to in paragraph (c).*

*The development consent, if so modified, does not become an approval under Part 3A of the Act.'*

Clause 8J(8A) states that:

*"Subclause (8), as in force before its substitution by the Environmental Planning and Assessment Amendment (Miscellaneous) Regulation 2010, continues to apply to any development consent for which approval was given before that substitution for the treatment of the consent as an approval for the purposes of section 75W of the Act."*

The *Environmental Planning and Assessment Amendment (Miscellaneous) Regulation 2010* came into force on 26 March 2010. On 13 April 2007, the Minister for Planning granted approval for Mount Pleasant Project's development consent being treated as an approval for the purposes of section 75W of the Act. As such, in accordance with clause 8J(8A), the version of clause 8J(8) that was in force before its substitution on 26 March 2010 applies to the proposed modifications and therefore, the proposed modifications to the development consent can be considered under section 75W of the EP&A Act.

## 2.4 Other NSW legislation

### 2.4.1 Threatened Species Conservation Act 1995

The TSC Act provides for the conservation of threatened species, populations and ecological communities of animals and plants by setting out a number of specific objects relating to the conservation of biological diversity and the promotion of ecologically sustainable development (ESD). As Coal & Allied has development consent for mining operations at the Mount Pleasant Project, no further approval is required for the clearance of the vegetation communities if undertaken in accordance with the clearance set out in the EIS.

The proposed modifications include an optional conveyor/service corridor and would involve the disturbance of vegetation communities listed as Endangered Ecological Community (EECs) under the TSC Act. If this option is pursued in place of the approved rail facilities, the disturbance would be less (approximately 7.3 hectares (ha) in total area) than that approved by the original EIS for the rail facilities.

Accordingly, given that the proposed modifications would result in less disturbance of the vegetation communities currently listed under the TSC Act over and above the disturbance that would occur if the Mount Pleasant Project proceeds as approved, the proposal is likely to lead to beneficial outcomes for these threatened communities.

### 2.4.2 National Parks and Wildlife Act 1974

The NPW Act governs the establishment, preservation and management of national parks, historic sites and certain other areas, and the protection of certain fauna, native plants and Aboriginal relics or artefacts.

In relation to Aboriginal relics or artefacts, section 87 of the NPW Act requires an Aboriginal Heritage Impact Permit (AHIP) to be obtained to remove any Aboriginal artefacts, whilst section 90 of the NPW Act requires consent from the Director-General of the DECCW to knowingly destroy, deface or damage a relic or Aboriginal place.

Section 90 applications for the removal of the Aboriginal objects impacted by the proposed modifications, and if required, section 87 applications, will be lodged with the DECCW by Coal & Allied.

### 2.4.3 Protection of the Environment Operations Act 1997

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). Schedule 1 of the POEO Act includes open cut coal mines that:

- “(a) have an intended production or processing capacity of more than 500 tonnes per day of coal or carbonaceous material, or*
- (b) have disturbed, are disturbing or will disturb a total surface area of more than 4 hectares of land by:*
  - (i) clearing or excavating, or*
  - (ii) constructing dams, ponds, drains, roads, railways or conveyors, or*
  - (iii) storing or depositing overburden, coal or carbonaceous material or tailings.”*

Schedule 1 also includes coal works such as a coal handling and preparation plant (CHPP) that:

*“... store or handle coal or carbonaceous material (including any coke works, coal loader, conveyor, washery or reject dump) at an existing coal mine or on a separate coal industry site, and that:*

- (1) have an intended handling capacity of more than 500 tonnes per day of coal or carbonaceous material, or*
- (2) store more than 5,000 tonnes of coal or carbonaceous reject material except where the storage is within a closed container or building.”*

The proposed modifications include the provision of an infrastructure envelope to allow for the siting of mining infrastructure such as a CHPP and ROM and product stockpiles. These infrastructure items are deemed to be scheduled activities in accordance with the above provisions and will therefore be required to be licensed.

Following determination of this application for modification, Coal & Allied will submit an application to the DECCW for the EPL. If approved, the EPL is likely to contain conditions relating to requirements to monitor, provide certification of compliance with the licence, and undertake and comply with a mandatory environmental audit programme.

### 2.4.4 Water Management Act 2000

The WM Act regulates water resources and use at the Mount Pleasant Project. It was gazetted in 2000 and governs the issue of new water licences and the trade of water licences and allocations for those water sources (rivers, lakes and groundwater) in NSW where water sharing plans have commenced.

There are currently two water sharing plans within the Hunter Valley and the locality of the Mount Pleasant Project, which are relevant to the project. These are plans for the surface water flows and alluvium of the Hunter River, and are titled the *Water Sharing Plan for the Hunter Regulated River Water Source 2003* and the *Water Sharing Plan for the Hunter Unregulated and Alluvial Water Sources 2009*, respectively.

Following determination of this application for modification, Coal & Allied will submit any relevant applications to DECCW for any relevant licences and/or approvals for the modified Mount Pleasant Project.

## 2.5 Environmental Planning Instruments

### 2.5.1 State Environmental Planning Policy (Major Development) 2005

The Major Development State Environmental Planning Policy (SEPP) declares certain development as a major project which then requires approval under Part 3A. Clause 2 provides that one of the aims of the SEPP is:

*“to facilitate the development, redevelopment or protection of important urban, coastal and regional sites of economic, environmental or social significance to the State so as to facilitate the orderly use, development or conservation of those State significant sites for the benefit of the State”.*

The Mount Pleasant Project involves development of a resource that is of economic significance to the State and, as such, it accords with this provision of the SEPP.

### 2.5.2 State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007

The State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007 (Mining SEPP) 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 Mining SEPP sets out matters for consideration under a development application scenario, together with permissibility provisions that the consent authority has to take into account, however, these matters and provisions do not affect the requirement for approval under Part 3A of the EP&A Act.

### 2.5.3 Muswellbrook Local Environmental Plan 2009

The Mount Pleasant Project is located on land zoned RU1 Primary Production and E3 Environmental Management under the Muswellbrook Local Environmental Plan 2009 (Muswellbrook LEP). Mining is permissible within the RU1 Primary Production Zone with development consent, but prohibited under the E3 Environmental Management Zone.

Notwithstanding the above, clause 7 of the Mining SEPP establishes the permissibility of mining within the State. Clause 7(1)(b)(i) states that mining is permissible with development consent on:

*“... land where development for the purposes of agriculture or industry may be carried out (with or without development consent),”*

Therefore, mining is permissible with development consent in zone E3 Environmental Management Zone under the Muswellbrook LEP.

## 2.6 Commonwealth legislation

### 2.6.1 Environment Protection and Biodiversity Conservation Act 1999

The EPBC Act commenced in 2000 after development consent for the Mount Pleasant Project was granted. One of the objects of the EPBC Act is to protect Matters of National Environmental Significance (MNES). Approval is required for actions that are likely to have a significant impact on a matter of NES. The eight MNES under the EPBC Act are:

- World Heritage properties;
- national heritage places;
- wetlands of international significance (listed under the RAMSAR convention);
- listed threatened species and ecological communities;
- migratory species protected under international agreements;
- Commonwealth marine areas;
- the Great Barrier Reef Marine Park; and
- nuclear actions.

While the EPBC Act did not commence until after development consent was granted for the Mount Pleasant Project, section 43A of the EPBC Act states:

*“A person may take an action described in a provision of Part 3 without an approval under Part 9 for the purposes of the provision if:*

- (a) the action consists of a use of land, sea or seabed; and*
- (b) the action was specifically authorised under a law of the Commonwealth, a State or self-governing Territory before the commencement of this Act; and*
- (c) immediately before the commencement of this Act, nor further environmental authorisation was necessary to allow the action to be taken lawfully.*

*In this section:*

*environmental authorisation means an authorisation under a law of the Commonwealth, a State or a self-governing Territory that has either or both of the following objects (whether express or implied):*

- (a) to protect the environment;*
- (b) to promote the conservation and ecologically sustainable use of natural resources.”*

Immediately before the EPBC Act commenced, further environmental authorisation was required in order for operations at the Mount Pleasant Project to commence, including an EPL under the POEO Act. Therefore exemptions from the EPBC Act are not likely to be available for the Mount Pleasant Project.



Considering this, a referral for the Mount Pleasant Project will be submitted by proponent to the Department of Environment, Water, Heritage and the Arts (DEWHA) under the EPBC Act.

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### 3 Existing development consent and proposed modifications

This chapter provides details of the proposed modifications and an overview of operations approved by the Mount Pleasant Project development consent.

#### 3.1 Existing development consent

##### 3.1.1 Overview

The development consent boundary, including the Mount Pleasant Project Authorisation and the north-west (North Pit) and south-west (South Pit) adjoining areas, can be seen on Figure 3.1.

The Development Consent DA 97/92 provides for the construction and operation of an open cut coal mine with extraction of approximately 197Mt of ROM coal over a period of 21 years at rates up to 10.5Mtpa. In 2004, the development consent was physically commenced through the stage 1 construction works, which involved the construction of ED1 and an associated gravel access track in the western part of the site. In November 2005, further work on ED1 was undertaken to install a high level spillway to cater for a Probable Maximum Precipitation rainfall event.

Figure 3.1 details the approved layout of the Mount Pleasant Project at Year 20, as described in the EIS, where the two principal areas (North Pit and South Pit) would be mined concurrently. Two additional smaller pits, the Piercefield Pit and Warkworth South Pit, would complete the extraction areas.

Coal from the mine (ROM coal) is approved to be trucked to the CHPP hopper and stockpile. The CHPP would then separate waste material from saleable coal. Once the separation has been completed, the product coal would be placed onto the product conveyor, whilst the coarse reject is approved to be trucked to emplacements and fine rejects pumped to the fines emplacement area near the south-west corner of the Mount Pleasant Project area.

Product coal is approved to be stockpiled in the infrastructure area from where it would be fed onto a conveyor leading to the rail facilities.

The following sections outline the existing elements of the Mount Pleasant Project as they were described in the EIS. These elements are subject to the proposed modifications, which are described in Section 3.2. The current status of environmental management requirements for the Mount Pleasant Project is also described in Section 3.1.4.

##### 3.1.2 Infrastructure area

The infrastructure area (refer to Figure 3.1) comprises the industrial area and the ROM and product stockpiles, as detailed following.

###### i Industrial area

As stated in the EIS, the industrial area consists of an administration building that is about 650 square metres in area and would accommodate management, technical and administrative staff. An operations building and changehouse, which would be a multi-function single storey building approximately 2,000 square metres in size. The industrial area would also feature a workshop and warehouse complex. This complex would be housed in a twin bay, steel frame and colourbond metal clad building with a floor area of about 5,500 square metres. Specific locations for this infrastructure are provided in the EIS and shown on Figure 3.1.

## ii Stockpiles of ROM and product coal

Mined coal would be transferred to a ROM coal stockpile located within the infrastructure area or directly into the ROM hopper. Stockpiled coal would be used to minimise the effect of the variations in production or inclement weather on the continuity of supply to the CHPP. From the hopper, it would be crushed and then conveyed to surge bins to even out the rate of coal supply. The EIS allowed for the provision of an additional 100,000 tonnes (t) stockpile equipped with a rail mounted mobile stacker and reclaimer if this proves to be necessary during the lifetime of the project. The stacker and reclaimer would be supported on rail systems along the length of the stockpile. The coal would be conveyed from these stockpiles to the CHPP.

### 3.1.3 Rail loading facility

The product coal reclaiming system and railcar loading facility are approved to load coal into railcars at a nominal rate of 5,000 tonnes per hour (tph). Coal would be fed from the product stockpile onto the underlying reclaim conveyor. The reclaim conveyor would lead about 1km south to a rail loading facility. It would pass underneath Wybong Road but would otherwise be constructed above the surface until it approaches the rail loading bin where it would be elevated to deliver coal to the bin top. The length of ramp and overall bin height would be reduced by placing the rail line in a cutting whilst the conveyor would be fully or partially enclosed. The rail loading bin has an approved capacity of about 1,000t and an overall height of 44 metres (m). The bin would provide storage prior to product coal being loaded out, and would also help to modulate surges in coal delivery from the conveyor. It would hold the contents of the conveyor system. This bin would incorporate a batch weighing system to accurately meter coal into the rail wagons.

The bin would be located on the Mount Pleasant Project rail loop adjacent to the rail line which would enable trains to access the Muswellbrook - Ulan Rail Line. The facilities would be located to the south of the Mount Pleasant Project infrastructure area. The rail line between the bin and the Muswellbrook - Ulan Rail Line is approved to be about 6.1km long.

The rail line and rail loop has approved capacity for two 9,000t capacity trains, one being loaded whilst the other waits. Each train could be filled in less than two hours by the approved rail loading facility.

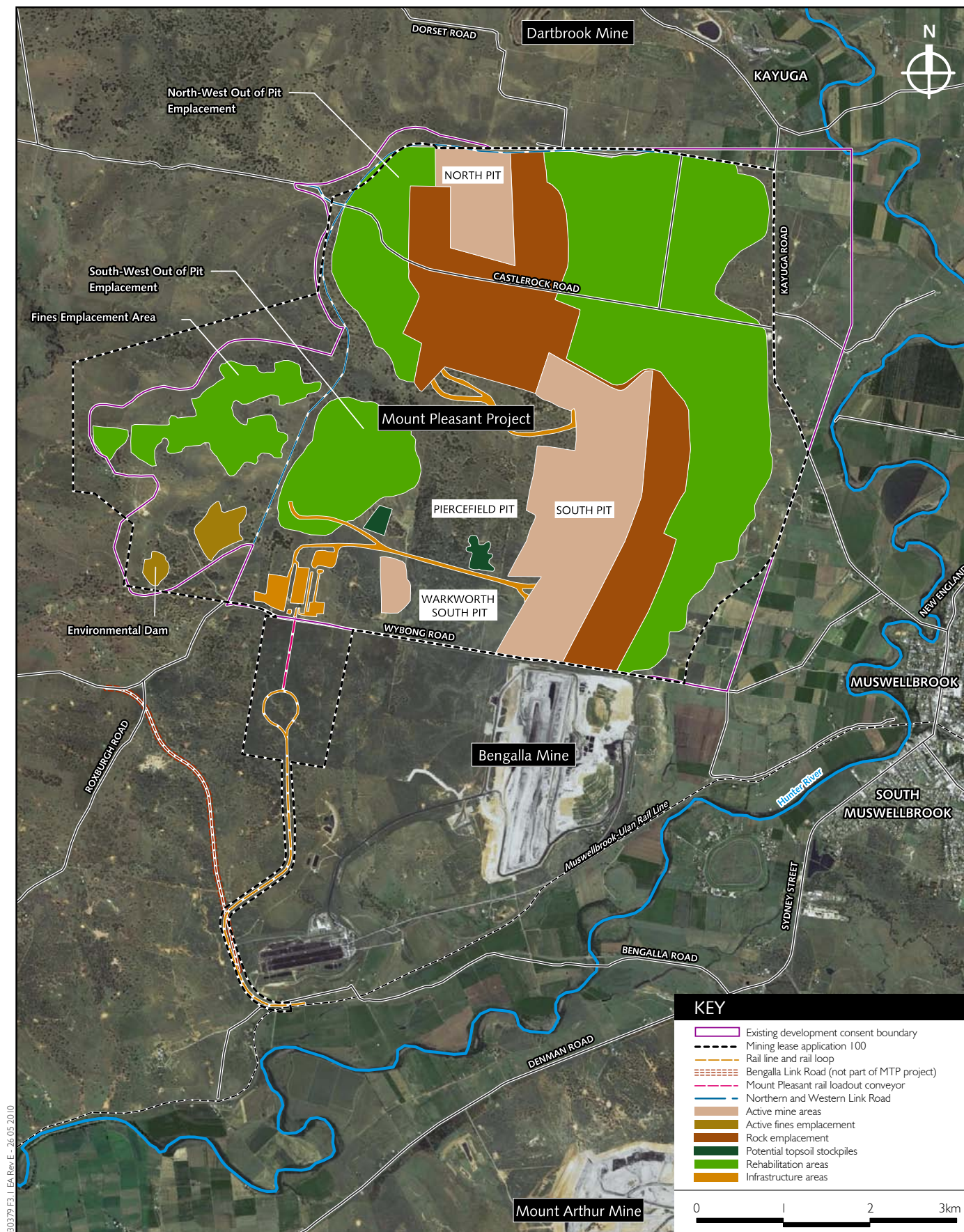
Railway signals would be located at the end of the loop to control trains entering the Ulan Line.

### 3.1.4 Environmental management

Since the development consent was granted, Coal & Allied has been regularly monitoring a range of environmental aspects on and around the Mount Pleasant Project area, including:

- noise;
- air quality;
- surface water; and
- groundwater.

To date, the monitoring has been static, however, as construction recommences and mining operations start, Coal & Allied will supplement this static monitoring with real-time monitoring (as required by the development consent).



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In addition, the Community Consultation Committee (CCC) for the Mount Pleasant Project was formed in 2004 and meets regularly to discuss environmental and community issues associated with the project. Results of the above monitoring and the CCC meetings have been reported within the Annual Environmental Management Report (AEMR), prepared by Coal & Allied annually since 2005. Further details on the CCC are provided in Chapter 4.

In May 2007, Coal & Allied opened a shopfront for the Mount Pleasant Project at 19 Bridge Street, Muswellbrook. The shopfront would form the base for all Mount Pleasant Project personnel until the mining infrastructure and associated administration facilities are constructed on-site. The shopfront has played an important role in providing opportunities for community engagement and consultation. Coal & Allied opened a second shopfront in Singleton in 2008.

## 3.2 Proposed modifications

### 3.2.1 Infrastructure area

To enable flexibility in detailed design, including reduced earthworks, and to optimise operational efficiency, Coal & Allied is seeking approval to locate similar infrastructure within an envelope rather than at the specific locations shown in the EIS.

The layout of the infrastructure area and site selection will vary within this envelope due to other factors, such as the preferred option for the transport of product coal (i.e. the conveyor/service corridor or the construction of the approved rail facilities). The infrastructure area and CHPP design will be modernised to reflect changes in technology and construction methods. These improvements may include such things as:

- use of prefabricated or modular buildings and infrastructure;
- use of new coal preparation technologies (such as reflux classifiers and teetered bed separators, flotation), larger module capacities, and contemporary approaches to CHPP design and layout; and
- use of a larger ROM stockpile to avoid or defer the need to construct a raw coal stockpile.

These improvements will result in changes to the orientation, area, and height of some parts of the design. It should be noted that the envelope includes areas of waste dumps and the south-west out of pit emplacement area. Should the detailed design phase determine that the infrastructure area be sited in these locations, minor adjustments will be undertaken to these project components (ie. waste dumps and/or south-west out of pit emplacement areas) to accommodate the infrastructure area. These adjustments, if required, will be undertaken within the approved footprint as outlined in the EIS (refer to Figure 3.2).

The disturbance footprint in the EIS and the proposed disturbance footprint would be similar in size to the shapes presented in the EIS. The proposed envelope is shown on Figure 3.2. Environmental assessments have been undertaken to support the application for the siting of infrastructure within the proposed envelope.

### 3.2.2 Conveyor/service corridor

The proposal includes provision of the optional conveyor/service corridor as an alternative to the rail facilities. Only one of the two options (i.e rail facilities or conveyor/service corridor) would be constructed. While consent for the rail facilities will be retained, the application seeks approval for a

conveyor/service corridor as an alternative. The preferred option will be selected following further design analysis.

The optional conveyor/service corridor would link the Mount Pleasant Project infrastructure area with the Bengalla Rail Spur to enable transport of product coal. The conveyor would be accompanied by construction of infrastructure (which may include conveyors, a surge bin or bins, train-loading bin, access roads, sediment dams or sumps, and laydown areas) at the Bengalla Rail Spur. The surge bin is expected to be between 30 to 50m in height and lit at night to ensure the safety and efficiency of night-time operations. The design and placement of lighting instalments would minimise potential lighting impacts wherever possible.

The optional conveyor/service corridor is located to the west of the existing Bengalla Mine on land predominately owned by Bengalla Mine and, in some locations, outside the existing Mount Pleasant Project development consent boundary. The conveyor/service corridor would be approximately 6.7km in length and 30m in width (subject to detailed design and infrastructure layout configuration). The corridor would include the conveyor, service road and associated drainage infrastructure. The total disturbance area associated with the conveyor/service corridor would be approximately 20ha. The area of the conveyor and associated infrastructure occupies a disturbance footprint that is approximately 7.3ha less than the approved area of disturbance associated with the rail facilities.

The alignment and final design of the conveyor/service corridor are within an envelope to provide flexibility for siting during detail design, giving consideration to the potential footprint for a future extension of mining at Bengalla Mine as well as environmental, terrain and engineering parameters (refer to Figure 3.2). It is likely that the majority of the conveyor would be overland, with sections elevated as dictated by terrain and engineering parameters.

The conveyor/service corridor is situated over mining leases held by Bengalla Mine. As such, the proposed optional conveyor/service corridor is proposed above a coal resource and if Bengalla Mine applies in the future to extend mining operations into areas of which the conveyor/services are constructed, Mount Pleasant Project will enter into discussions with Bengalla Mine in relation to the infrastructure.

Condition 7.1(3) of the development consent contemplates relocation of the approved rail facilities should Bengalla Mine extend further to the west. Coal & Allied is seeking that this condition be amended to include the optional conveyor/service corridor, as referenced in Section 3.2.4.

Elevated conveyor gantries would be enclosed with external maintenance access provided. Overland sections of the conveyor would be enclosed along the western side with roofing.

As with the currently approved rail loadout conveyor, the conveyor would pass beneath Wybong Road via an underpass structure. Construction of the underpass structure would require temporary diversion of traffic on Wybong Road in the affected area for approximately four to six weeks.

Motor drives would be constructed at the origin and end points of the conveyor and at significant direction changes. Power requirements would range from 280 kilowatts (kW) to 500kW, and are dependent upon detailed design and route selection. Balanced/ low noise idlers would also be utilised.

Minor catch drains and dams would be constructed within the conveyor/service corridor, to capture any runoff containing spillage from the conveyor. Water from these dams would either be pumped to the existing Mount Pleasant Project environmental dams, or discharged into local drainage after the removal of sediment. The adjacent paved service road would be used by light vehicles accessing the infrastructure for operational and maintenance purposes.

Worst case environmental assessments in regards to the alignment of the conveyor/service corridor within the envelope have been undertaken, as discussed in Chapter 6, to enable flexibility in final siting.

Earth works associated with the construction of the conveyor/service corridor would be over a period of approximately twenty weeks, with construction equipment operating generally between 7am and 6pm, Monday to Friday and 8am and 1pm on Saturdays. The total construction period for the conveyor/service corridor would be between six and nine months. Plant utilised during construction would include a compactor, grader, scraper, excavator, backhoes and rollers. The use of a water cart on-site during the construction phase would aid in limiting any dust emissions from the construction operations. Temporary erosion and sedimentation controls would be implemented and maintained during construction in accordance with contemporary standards.

Should the conveyor/service corridor option be pursued, a Plan of Management would be prepared to manage the potential interactions with Bengalla Mine regarding the use of facilities at Bengalla Rail Spur. The Plan of Management would be prepared in consultation with representatives from Bengalla Mine.

### 3.2.3 Extension of development consent life

An extension of the expiry date of the development consent from 22 December 2020 to 31 December 2022 is proposed. The proposed extension to the expiry date would not result in any changes to the approved disturbance footprint, as it would only result in a further two years of the already approved mining schedule being carried out.

Provided both the internal and external requisite approvals are in place, it is anticipated that construction would commence in mid to late 2011. Subject to this commencement date, extraction of ROM coal would commence in mid to late 2013. Mining will progress generally in accordance with approved operations until 2022.

The proposed extension in consent life is considered to have limited environmental consequences beyond the original environmental assessment for the project.

### 3.2.4 Amendment to Conditions 6.4 and 7.1(3)

It is proposed to modify development consent Condition 6.4 to include INP derived criteria, as shown in Table 6.3 and Table 6.4 of this report, and to remove the now outdated L<sub>10</sub> based criteria.

In addition, it is proposed to modify development consent Condition 7.1(3) to read as follows.

*“The Applicant shall enter into an agreement with the Minister for Mineral Resources, in consultation with the operators of the Bengalla Mine, so that if in the future the Bengalla mining operation is to extend further to the west, the Applicant shall undertake to;*

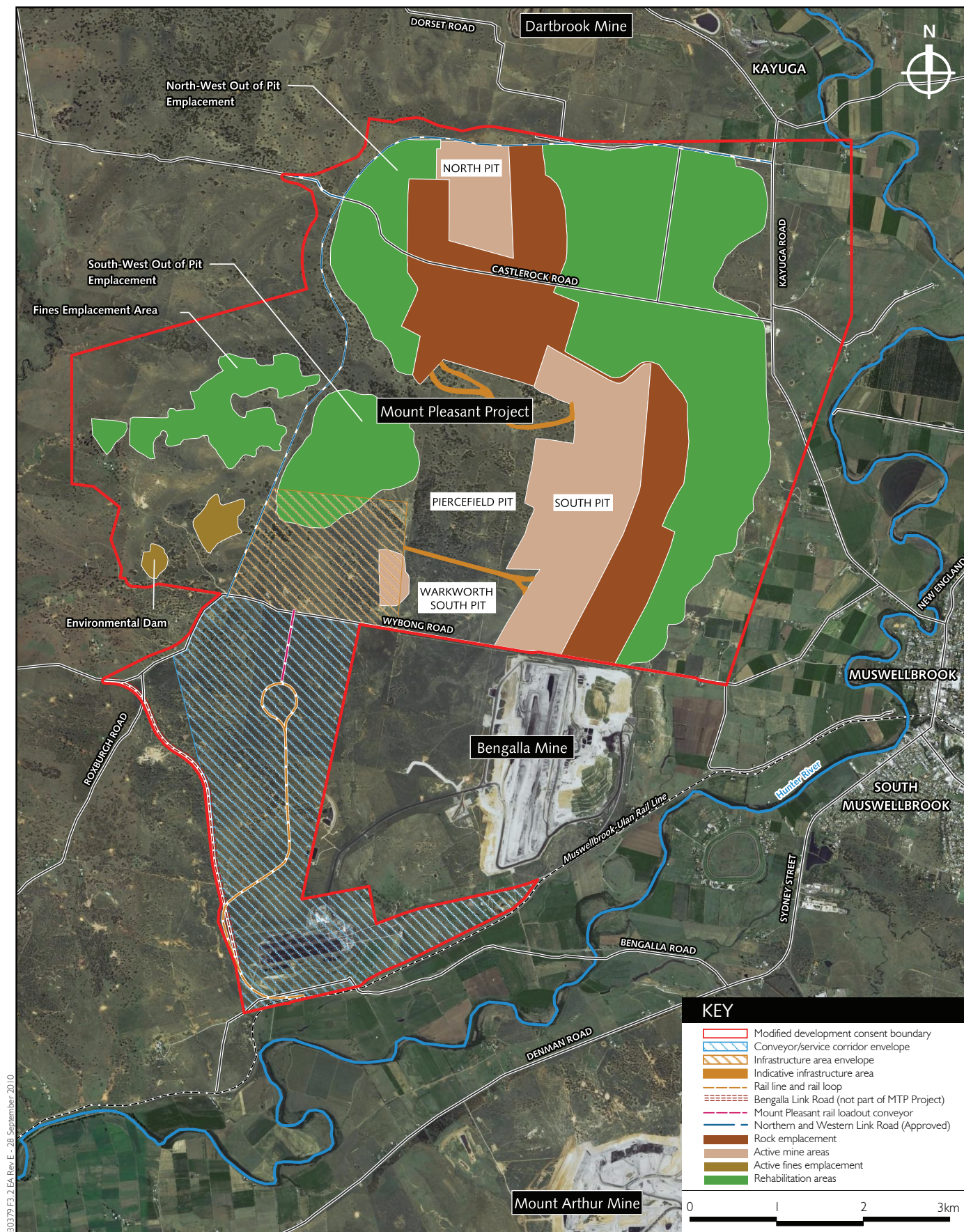
- *relocate the Mount Pleasant rail loop; or*
- *relocate the conveyor / service corridor and related infrastructure.*

*Any relocation may require further approval”.*



### 3.2.5 Development consent boundary

Amendment of the existing development consent boundary is required to include the proposed conveyor/service corridor and minor administrative boundary changes. The proposed changes to the development consent boundary are shown on Figure 3.2.



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## 4 Consultation

Coal & Allied aims to build enduring relationships with the communities in which they operate, characterised by mutual respect, active partnership and long term commitment. A comprehensive stakeholder engagement strategy is in place for the Mount Pleasant Project to assist in achieving this policy. As outlined in the following sections, this strategy has been, and will continue to be, supplemented by activities that apply specifically to the proposed modifications. These stakeholder activities are based on the modest nature and scale of the proposed modifications.

### 4.1 Consultation with government

Consultation during the environmental assessment process was undertaken with State government departments. Muswellbrook Shire Council (MSC) has also been consulted about the proposed modifications as part of Coal & Allied's ongoing briefings regarding the Mount Pleasant Project. A summary of consultation undertaken with these government agencies is provided in Table 4.1.

**Table 4.1 Summary of consultation undertaken with State and Local Government**

Agency	Date consulted	Description
DoP	3 March 2009	Meeting to discuss the background to the modifications, proposal components, appropriate approval pathway, and timing of assessment.
DoP	14 April 2010	Meeting to discuss Government Briefing Report and approach to the noise and vibration assessment.
DoP	7 May 2010	Meeting to provide an update on the progress of the EA, scheduled lodgement date and approach to the noise and vibration assessment.
DoP	19 July 2010	Meeting to further discuss the approach for operational noise management.
DoP and DECCW	11 August 2010	Meeting to provide an update on the progress of the EA and the finalisation of the approach to the noise assessment and operational noise management.
DoP and DECCW	14 September 2010	Meeting to discuss the approach operational management of noise and air quality in accordance with the development consent.
MSC	19 April 2010	Meeting with Mayor and General Manager to discuss the Mount Pleasant Project, including the proposed modifications.
MSC and CCC	7 May 2010	Meeting with CCC Chairperson to discuss the Mount Pleasant Project, including the proposed modifications.

*Notes: DoP – NSW Department of Planning*

Coal & Allied intends to continue consultation with the agencies listed in Table 4.1, including meeting with the MSC Environmental Committee. The DEWHA was also consulted regarding the separate Commonwealth assessment process.



## 4.2 Consultation with community

Community engagement and consultation has been ongoing during the development of the EA, Coal & Allied has a number of existing engagement tools in place to facilitate communication and community feedback about the Mount Pleasant Project and the proposed modifications. These include:

- shopfronts in Muswellbrook and Singleton;
- freecall community information line (1800 727 745) and Coal & Allied website that includes relevant project information ([www.coalandallied.com.au](http://www.coalandallied.com.au));
- quarterly newsletters distributed to all businesses and residences within Muswellbrook, Denman, Aberdeen and surrounding areas. All newsletters provide information about Coal & Allied mining operations in the local government area (LGA), including upcoming projects;
- regular Mount Pleasant Project CCC meetings to discuss mining operations and environmental performance, and comprises representatives of the community, MSC and Coal & Allied. Meeting minutes are available at the Muswellbrook Library and on the Coal & Allied website; and
- regular Upper Hunter Valley Cultural Heritage Working Group (CHWG) meetings to discuss heritage aspects of Coal & Allied operations. The CHWG is comprised of representatives of Coal & Allied and the Upper Hunter Valley Aboriginal community.

A summary of community consultation undertaken is provided in Table 4.2. A more in depth description of consultation undertaken with the local Aboriginal community is provided in Section 6.4.2 of Chapter 6.

**Table 4.2** Summary of meetings with community

Stakeholder	Date consulted	Description
Local community	February, May and August 2010	Newsletter (Muswellbrook edition) stated that Coal & Allied was in the process of identifying required modifications to the Mount Pleasant Project and that related approvals would be sought. The newsletter offered the opportunity for community members to communicate feedback. Next edition is scheduled for November 2010.
	Ongoing	Mount Pleasant Project and proposed modifications information available for members of the community at the Muswellbrook shopfront.
CHWG	February 2010	Meeting which included an introduction to the proposed modifications, scheduled cultural heritage assessment and endorsement of the Terms of Reference for the assessment.
	April 2010	Meeting to discuss the results of the cultural heritage assessment and recommendations.
Mount Pleasant Project CCC	March 2010	Latest information about the Mount Pleasant Project provided. Next meetings are scheduled for July and November 2010.

## 5 Environmental risk assessment

A preliminary environmental risk assessment was undertaken for these proposed modifications to assist with preparing studies for the EA.

The proposed modifications were rated, using two variables, namely:

- the potential severity or consequences of the impact assuming the proposed safeguards, design or management measures are applied; and
- the likelihood of the impact occurring.

In each case, impacts were rated using Rio Tinto's Health Safety Environment and Quality Qualitative Risk Assessment (Level 2) procedures, as given below.

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 5.1 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 preliminary 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 5.1 Preliminary environmental assessment matrix**

		<b>Consequence</b>				
		1 Minor	2 Medium	3 Serious	4 Major	5 Catastrophic
<b>Likelihood of Impact</b>	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)

The results of the preliminary risk assessment for the proposed modifications to the Mount Pleasant Project are provided in Table 5.2.

**Table 5.2 Preliminary environmental risk rating**

Issue	Consequence	Likelihood	Priority
<b>Noise and vibration</b>			
Noise impacts on residential receptors	2	3	5 (Moderate)
Vibration impacts on buildings and structures	1	1	2 (Low)
Cumulative noise impacts	2	2	4 (Low)
<b>Ecology</b>			
Impact upon threatened flora and vegetation communities	2	2	4 (Low)
Impact on threatened fauna	2	2	4 (Low)
Impact on habitat for native species	1	2	3 (Low)
Cumulative ecological impacts	2	2	4 (Low)
<b>Air quality</b>			
Air quality impacts on residential receptors	2	2	4 (Low)
Cumulative air quality impacts	2	2	4 (Low)
<b>Aboriginal Cultural heritage</b>			
Impact on Aboriginal artefacts	1	3	4 (Low)
Impact on cultural heritage	1	3	4 (Low)
<b>Visual amenity</b>			
Impact on surrounding receptors, including Muswellbrook	1	3	4 (Low)
<b>Surface water</b>			
Impacts on Hunter River – water draw	1	1	2 (Low)
Impact on the existing water management system	1	2	3 (Low)
Impacts on Hunter River – water discharge	1	1	2 (Low)
<b>Soils and land capability</b>			
Erosion and soil disturbance	1	3	4 (Low)
<b>Socio-economic</b>			
Impacts during construction	1	3	4 (Low)
Impacts during operation	1	3	4 (Low)
<b>Traffic and rail transport</b>			
Impact on traffic and transport	1	1	2 (Low)
Impact on rail movements	1	1	2 (Low)
<b>Groundwater</b>			
Impact on hard rock fractured aquifer system	1	1	2 (Low)
<b>European heritage</b>			
Impact on European heritage	1	1	2 (Low)

As shown in Table 5.2, all environmental risks from the proposed modifications were considered low, with the exception of potential noise impacts to local residential properties. An environmental assessment of the relevant environmental aspect has been undertaken, commensurate with its risk and is presented in Chapter 6.

Subsequent to the preliminary risk assessment, further consideration was given to the environmental aspects of soils and land capability, socio-economics, traffic and rail transport, groundwater and European heritage regarding the level of risk that the proposed modifications represented. As a result, these aspects were considered to be very minor in that the existing management measures and requirements of the development consent would adequately address potential impacts with respect to the proposed modifications. This information is provided in Section 6.7.



## 6 Environmental assessment and management

This chapter examines the change in the potential impact of the proposed modifications as compared to the approved development. The exception to this is where an assessment is made of the existing approved mine against more recent standards.

The assessment of each environmental aspect follows the order of the preliminary environmental risk rating in Table 5.2 and reflects the outcomes of subsequent environmental assessment. The environmental aspects with the lowest risk have been grouped under 'other social and environmental aspects' in Section 6.7.

### 6.1 Noise and vibration

This section provides a summary of the environmental noise and vibration study prepared by EMM, which is presented in full in Appendix B. The study investigated the potential for noise and vibration impacts associated with the proposed modification. In addition, an assessment of a worst case snapshot of the approved mine has also been undertaken to contemporary standards.

In the time since the Mount Pleasant Project was approved, noise is now assessed under the DECCW's Industrial Noise Policy (INP 2000). The main difference in the assessment under the INP policy is the adoption of the Leq noise metric over the  $L_{10}$  level, and a more thorough and clear assessment approach for adverse weather conditions.

In addition, conditions of development consents/project approvals developed by the DoP in recent years now typically entitle residents affected above acquisition criteria during 'adverse' weather conditions to upfront acquisition upon request. The Mount Pleasant development consent provides for a hierarchy of monitoring, mitigation then acquisition measures during operations for those affected during 'adverse' weather conditions. Only those affected above acquisition levels during 'calm' weather conditions are entitled to seek upfront acquisition upon request.

#### 6.1.1 Existing environment

The existing environment was characterised as part of the EIS. Section 12.1 of the EIS describes the surrounding environment and details the baseline noise survey undertaken at that time.

Residential properties are located in or around the town of Muswellbrook which lies to the east-south-east of the Mount Pleasant Project, South Muswellbrook and Muswellbrook Racecourse which lie to the south-east, and Kayuga which lies to the north-north-east. Residential properties are also spread along the eastern boundary of the Mount Pleasant Project area and more isolated residences are located further to the east, south-west and south.

Rating background levels (RBL) are one measure of the baseline noise environment used for impact assessment purposes. For the mine surrounds, including all the representative residential assessment locations referred to in the preceding paragraph, RBLs were derived from recent long term unattended noise monitoring (conducted quarterly as part of the ongoing baseline surveys) or from published noise assessment from neighbouring operations. The RBL values are summarised in Table 6.1. The locations referred to in the table below are shown on Figure 6.1.

**Table 6.1 Representative background noise levels (RBL)**

Location		Measured RBL, dB(A) <sup>1</sup>			Source
Name	Relative to Site	Day	Evening <sup>2</sup>	Night	
Burtons Lane	Far east (north of Muswellbrook), near the New England Highway	32	37	32	2009 Coal & Allied quarterly data
Aberdeen	North-east	32	34	31	2010 Coal & Allied quarterly data
Kayuga	North north-east	30	30	30	2010 Coal & Allied quarterly data
Kayuga Road	North-east	35	38	32	2009 Coal & Allied quarterly data
Wybong Road	South-west - conveyor area	30	30	30	2009 Coal & Allied quarterly data
Muswellbrook	South-east	36	40	34	2009 Coal & Allied quarterly data
Racecourse Road	South-east	38	37	36	Mount Arthur Coal 2009 EA data <sup>3</sup>
Yammanie	South-east (south-east of Racecourse)	34	33	32	Mount Arthur Coal 2009 EA data <sup>3</sup>
East Antiene, New England Hwy	South-east (applies to residences near New England Hwy east of site)	36	35	34	Mount Arthur Coal 2009 EA data <sup>3</sup>

Notes: 1. Where RBL values below 30dB(A) were measured, the INP's minimum recommended background of 30dB(A) is adopted.  
2. As per the INP application notes, where RBL values for the evening are unjustifiably higher than that for the day, the daytime or night time RBL has been adopted.  
3. Mount Arthur Coal – Consolidated Project Noise and Blasting Impact Assessment (Wilkinson Murray 2009). The raw data was not verified, although the methodology presented in the EA is considered appropriate.

## 6.1.2 Impact assessment

### i Assessment locations

The INP based noise criteria have been derived for 156 identified residential assessment locations around the Mount Pleasant Project area. All of the properties are shown on Figures 6.1 and listed in Table 6.4. Property ownership is presented in Table 3.1 of Appendix B. The previous EIS assessment identified 170 properties and assessed noise at seven representative receptors.

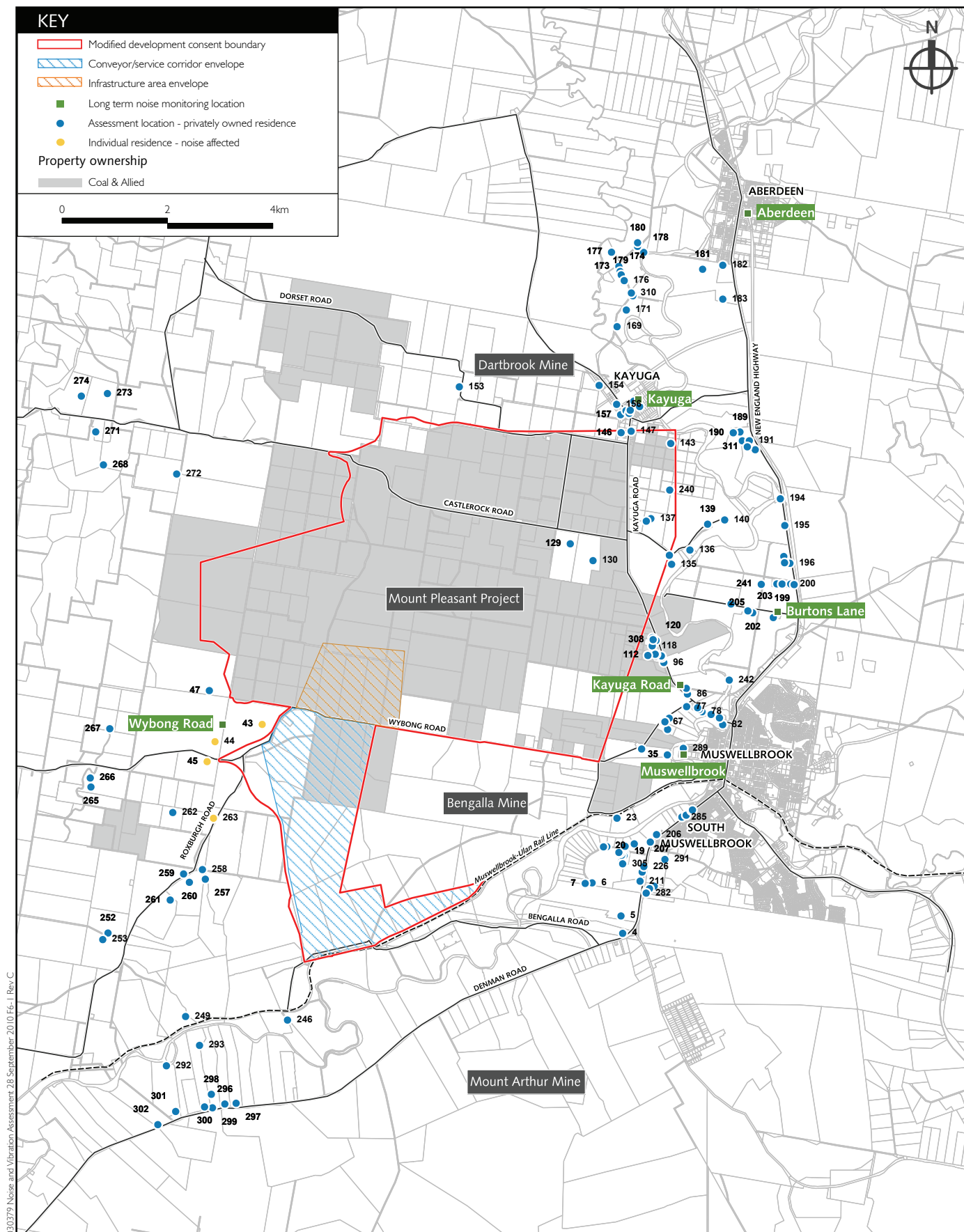
### ii Existing Consent Limits

The existing consent limits outlined in conditions are based on the EIS. The criteria are summarised in Table 6.2 for non-adverse (calm) and adverse conditions.

**Table 6.2 Existing consent noise acquisition limits L<sub>10</sub>**

Location of residence	Time	Non-Adverse	Adverse
Muswellbrook Urban Area	Day (0700-2200)	40	45
	Night (2200-0700)	37	42
Other Areas	Day (0700-2200)	40	45
	Night (2200-0700)	35	40

Under the existing consent, those properties affected above 'acquisition levels' during calm weather conditions outlined in the 1997 EIS were entitled to acquisition upon request. These properties will continue to be protected under the acquisition entitlement.



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As discussed, an assessment in accordance with the DECCW *Industrial Noise Policy* (INP) was undertaken on the proposed modifications, namely the optional conveyor and change to infrastructure area. In addition, at the request of the DoP and DECCW, an INP assessment was undertaken for the entire project approved under the development consent to enable noise monitoring and management of the mine in accordance with contemporary standards.

### iii Noise and vibration criteria

#### *Operational noise criteria*

Industrial sites, including mines, in NSW that are regulated by the DoP usually have a set of conditions for operations, which include noise limits. These limits are normally derived from operational noise criteria that apply at residences and that are based on guidelines stipulated in the INP or are achievable noise limits following the application of all reasonable and feasible noise mitigation.

The current development consent includes operational noise limits based on the guidelines that existed in 1997. However, these guidelines have since been superseded by the DECCW's INP in 2000. The INP has been used for this assessment.

Assessment criteria for private receivers near industry, including mines, are based on protecting the community from excessive intrusive noise and preserving the amenity for specific land uses. To ensure these objectives are met, two criteria are prescribed by the DECCW, namely intrusiveness criteria and amenity criteria. A fundamental difference between the intrusiveness and the amenity criteria is that the former is applicable over 15 minutes in any period, while the latter covers the entire assessment period (day, evening and night).

The intrusiveness criterion requires that  $L_{Aeq,15min}$  noise levels from a newly introduced source during the day, evening and night do not exceed the existing RBL by more than 5dB.

The amenity criterion requires industrial noise to be within an acceptable level for the particular locality and land use. Where ambient noise is already high, the acoustic environment should not be deteriorated significantly. The objective behind the amenity criterion is a holistic approach to noise, where all industrial noise (existing and future) received at a given location does not exceed the recommended goals. Private residences potentially affected by the Mount Pleasant Project are covered by the DECCW's suburban or rural amenity categories. For residences located in and around the towns of Muswellbrook and Kayuga, the suburban category is considered appropriate, while those in more isolated locations would fall into the rural residential category.

The INP requires that both the intrusiveness and amenity criteria are satisfied. However, the more limiting of the two becomes the project specific noise criteria (PSNC) or operational criteria for this site alone. In this case and for all identified assessment locations, the intrusiveness criteria are the more limiting of the two. The DECCW's INP intrusiveness noise criteria are provided in Tables 6.3 and 6.4.

Transient noise sources, such as banging of shovel gates, revving of truck engines and reversing alarms of vehicles, have the potential to cause sleep disturbance. The sleep disturbance criterion adopted for this assessment accords with the DECCW's current policy in that  $L_{max}$  noise from a source should not exceed the existing background noise level by more than 15dB.

The total industrial noise at a receptor from all possible industrial sites is required to satisfy the INP's amenity criteria.

Whilst the operational noise limits have changed, the blast noise and vibration criteria have not changed

since the consent was issued. Hence, the consent criteria will apply to the current proposal. Given that the mining aspect of the current Mount Pleasant Project is the same as the approved operation, the EIS blast noise and vibration assessment remains valid. Accordingly, no further assessment is provided herein.

#### *Construction Noise Criteria*

The aspect of the proposed modifications to which construction noise criteria would apply is the construction of the potential conveyor/service corridor option. All other construction aspects of the proposed modifications including any infrastructure were addressed in the EIS and are therefore not addressed here.

It should be noted that it is accepted practice to adopt operational noise criteria for construction activities at 'brownfield' mine sites since such activities are often indistinguishable from mining type operations. However, the area proposed for the conveyor/service corridor is relatively undeveloped and most sections are geographically separated from the mining activities and given the prevailing wind direction to receptors, is likely to be clearly distinguishable.

The DECCW's *Interim Construction Noise Guideline* (ICNG) (2009) provides the current and most relevant guidance for construction noise assessment. For substantial construction, the ICNG recommends a quantitative noise assessment approach and this has been adopted for this assessment, using the ICNG criteria.

#### **iv**      **Assessment against operational noise criteria**

##### *Methodology*

The prediction of noise from operations was undertaken using the Environmental Noise Model (ENM) software. The ENM predicts total noise levels at residences from the concurrent operation of multiple noise sources. The model includes consideration of factors such as the lateral and vertical location of plant, source-to-receiver distances, ground effects, atmospheric absorption, topography of the mine and surrounding area and meteorological conditions. The mine plan used for modelling was one used and presented in the EIS for Year 10, the year where noise emissions are expected to be highest.

The only changes to the modelling, compared to the EIS, are the introduction of the conveyor/service corridor option in lieu of the rail operation, and adjustment to the possible locations of buildings and plant in the infrastructure area with the provision of an envelope. Both the conveyor/service corridor and the infrastructure scenarios were modelled at the western most extremities of their identified envelope areas. These locations were considered worst case in regards to potential noise impacts facilitating a conservative assessment on areas surrounding the infrastructure. Initial assessment results for the conveyor showed that it would exceed PSNC levels if the noise was not mitigated. Accordingly, a cover and a shield on the western side of the conveyor are proposed at locations where the conveyor would be at ground level. Where the conveyor is elevated, it will be completely enclosed.

Noise levels were projected for calm weather conditions and 'prevailing' weather conditions. During wind and temperature gradient conditions, noise levels at residences may increase or decrease compared with noise during calm conditions. This variability is addressed by the prevailing weather conditions concept, which is based on identifying and combining worst case meteorological conditions at the site and assessing the noise levels against the relevant criteria.

*Comparison with PSNC and property acquisition criteria*

Table 6.3 summarises noise level projections for the identified residential locations for calm and prevailing weather conditions for three stages of mining, Year 3, Year 5 and Year 10 with the operation of the proposed conveyor. The table also lists the PSNC for each location, allowing a comparison as to whether these criteria are met. Additionally, possible acquisition noise level criteria are provided. These acquisition levels correspond to RBLs plus 10dB and are used by the DoP to inform consent conditions regarding property acquisitions due to noise affectation.

Modelling predicts that the introduction of the proposed conveyor and possible reconfiguration of the infrastructure within the infrastructure area envelope introduce impacts at four identified assessment locations to the south-west. These are locations 43, 44, 45 and 263 where noise levels are predicted to be above possible acquisition levels (indicated in bold text in the table and shown in Figure 6.1). Of note, each of the four assessment locations comprise one residence only. Beyond these locations further west, noise levels are shown to be below acquisition levels and no other residences are within the possible acquisition zone due to the introduction of the proposed conveyor.

**Table 6.3** Operational noise at receptors during ‘calm’ and prevailing meteorology - locations closest to conveyor and infrastructure areas (dB(A) Leq,15min)

Receptor	Year 3						Year 5						Year 10						PSNC, Leq,15min, dB(A)				Possible acquisition criteria, Leq,15min, dB(A)			
	Day Calm	Day Mets	Night Calm	Night Mets	Day Calm	Day Mets	Night Calm	Night Mets	Day Calm	Day Mets	Night Calm	Night Mets	Day Calm	Day Mets	Night Calm	Night Mets	Day Calm	Day Mets	Day	Evening/Night	Day	Evening/Night	Day	Evening/Night	Day	Evening/Night
43	37	47	33	48	37	47	33	46	37	48	33	49	35	35	35	35	35	35	35	35	35	35	35	35	35	35
44	32	43	27	45	32	42	24	43	32	43	25	46	35	35	35	35	35	35	35	35	35	35	35	35	35	35
45 <sup>1</sup>	31	40	27	42	31	40	24	40	31	40	30	43	35	35	35	35	35	35	35	35	35	35	35	35	35	35
246 <sup>2</sup>	22	35	22	38	22	35	21	37	22	35	21	38	35	35	35	35	35	35	35	35	35	35	35	35	35	35
249 <sup>1</sup>	19	30	18	32	19	30	17	31	19	31	18	32	35	35	35	35	35	35	35	35	35	35	35	35	35	35
257	26	37	26	40	26	36	25	39	26	38	26	40	38	38	38	40	40	40	40	40	40	40	40	40	40	40
263 <sup>1</sup>	31	39	31	42	30	39	29	41	31	41	31	43	35	35	35	35	35	35	35	35	35	35	35	35	35	35

Notes: 1. These properties were NOT listed in the EIS.

2. This property is listed in BMC's consent for acquisition upon request.



## v Predicted noise levels for the broader assessment locations

The Mount Pleasant Project has been assessed in its entirety in accordance with the INP, including assessment for adverse weather conditions in accordance with current practice. The approved Year 10 EIS mine plan was modelled to enable a conservative assessment. The 1997 EIS demonstrated that the proposed Year 10 operations would result in the worst case impacts of the three scenarios that were investigated.

The mine plan and equipment locations modelled are consistent with the EIS. With the application of all reasonable and feasible mitigation measures, impacts to the broader community will be reduced than those described in the EIS. Once the mine is operational, the noise emissions from the general mine pit area for receivers to the north, east and south-east will be consistent with the approved project. Any differences that may be presented by the current study are purely a function of the current INP assessment.

The assessment of the Mount Pleasant Project under the INP will enable noise monitoring and management at the mine in accordance with contemporary standards. The following items constitute relevant feasible and reasonable measures that will be adopted in the operation of the mine and were included in noise modelling:

- plant will operate in less exposed areas during the more sensitive night period, a measure consistent with the EIS;
- a cover and a shield on the western side of the conveyor at locations where the conveyor would be at ground level. Where the conveyor is elevated, it will be completely enclosed;
- procurement of new and best available technology plant;
- provision of noise suppression on all mobile plant. It anticipated that the noise suppression technology will require an outlay of capital expenditure of between \$15M and \$20M; and
- updating the comprehensive operational noise management plan to include real-time back to base noise monitoring using the best available technology.

The results of the INP assessment for the approved mine are shown in Table 6.4 and Figures 6.2 to 6.5. The assessment has found that no additional properties outside the calm weather envelope from the 1997 EIS are affected (refer to Table 12.10 in the EIS and EIS Figure 50).

As previously discussed, properties affected under 'adverse' weather conditions were entitled under the development consent to a hierarchy of monitoring, mitigation then acquisition measures during operations, rather than the right to seek upfront acquisition. Conditions of development consents/project approvals developed by the Department of Planning (DoP) in recent years now typically entitle residents affected above acquisition criteria during adverse weather conditions to upfront acquisition upon request.

Under 'adverse' weather conditions for the daytime assessment period three residences are predicted to experience noise levels above potential acquisition criteria, due to the modelling of the approved mine plan under adverse winds that were not required to be assessed for the EIS in 1997. It should be noted that two of the three residences were previously identified as only one property in the 1997 EIS. Of the



properties listed in the Schedule to Conditions 6.2.1 and 6.4.2 of the development consent, seven are predicted to be above the INP noise acquisition criteria for the daytime period during 'adverse' conditions (these properties are currently entitled to acquisition upon request).

Under 'adverse' weather conditions for the night time assessment period, nine properties containing 12 residences are predicted to experience noise levels above potential acquisition criteria, due to the modelling of the approved mine plan under adverse winds that were not required to be assessed for the EIS. It should be noted that six of these residences were previously identified as only three properties in the 1997 EIS. Of the properties listed in the Schedule to Conditions 6.2.1 and 6.4.2 of the development consent, seventeen residences are predicted to be above the INP noise acquisition criteria for the night time period during 'adverse' conditions (these properties are currently entitled to acquisition upon request). It should be noted that four of these residences were previously identified as only two properties in the 1997 EIS. Location 67 was also listed in the Schedule to Conditions 6.2.1 and 6.4.2 of the development consent and will continue to be afforded acquisition rights even though the current assessment concludes that this location will not be impacted.

Based on the above, a total of nine properties containing 12 residences are predicted to exceed acquisition criteria under 'adverse' weather conditions. These properties are in addition to those that are currently entitled to acquisition upon request under 'calm' weather conditions in the 1997 EIS and 1999 development consent.

In summary, there are 28 affected properties comprising 34 residences as summarised following:

- fifteen properties listed in the schedule to Conditions 6.2.1 and 6.4.2 are affected, however, there are a total of 18 residences on these properties;
- a further four residences (four properties) are affected due to the proposed conveyor/service corridor; and
- a further 12 residences (from nine properties) are affected due to the broader mining operations.

The predicted noise levels above acquisition criteria for assessment locations are shown in bold text in Table 6.4 (and refer to Figures 6.2 to 6.5).

**Table 6.4 Operational noise at receptors during ‘calm’ and prevailing meteorology (dB(A) Leq,15min)**

Receptor	Predicted Noise Levels, dB(A)				PSNC, Leq,15min, dB(A)		Possible acquisition criteria, Leq,15min, dB(A)	
	Day Calm	Day Mets	Night Calm	Night Mets	Day	Evening/Night	Day	Evening/Night
4	21	33	19	34	39	37	44	43
5	19	34	18	34	39	37	44	43
6	20	36	18	37	41	39	46	44
7	20	36	18	37	41	39	46	44
19	23	38	21	38	41	39	46	44
20	23	39	20	39	41	39	46	44
21	23	39	20	39	41	39	46	44
23	24	40	23	40	41	39	46	44
35	25	42	20	41	41	39	46	44
47	29	<b>42</b>	26	<b>44</b>	35	35	40	40
67 <sup>1</sup>	26	43	21	42	40	37	45	42
68	26	43	20	42	40	37	45	42
74	26	43	20	42	40	37	45	42
77	25	42	21	41	40	37	45	42
78	24	41	20	40	40	37	45	42
79	24	41	21	41	40	37	45	42
80	24	41	21	41	40	37	45	42
82	23	39	20	39	41	39	46	44
83	23	39	20	39	41	39	46	44
84	24	40	20	40	41	39	46	44
86	25	42	21	42	40	37	45	42
96 <sup>1</sup>	27	44	22	<b>43</b>	40	37	45	42
101 <sup>1</sup>	25	45	22	<b>45</b>	40	37	45	42
102 <sup>1</sup>	25	45	22	<b>45</b>	40	37	45	42
107 <sup>1</sup>	25	45	22	<b>45</b>	40	37	45	42
108 <sup>1</sup>	24	44	22	<b>44</b>	40	37	45	42
112 <sup>1</sup>	24	44	22	<b>43</b>	40	37	45	42
118 <sup>1</sup>	24	<b>46</b>	23	<b>46</b>	40	37	45	42
120 <sup>1</sup>	24	45	23	<b>46</b>	40	37	45	42
121 <sup>1</sup>	24	<b>46</b>	23	<b>46</b>	40	37	45	42
129 <sup>1</sup>	<b>57</b>	<b>60</b>	57	<b>60</b>	35	35	40	40
130 <sup>1</sup>	<b>57</b>	<b>60</b>	57	<b>60</b>	35	35	40	40
135 <sup>1</sup>	28	<b>44</b>	28	<b>45</b>	35	35	40	40
136	21	30	21	32	35	35	40	40
137	33	<b>43</b>	34	<b>44</b>	35	35	40	40
138	32	<b>43</b>	33	<b>45</b>	35	35	40	40
139	27	38	28	40	35	35	40	40
140	26	37	27	39	35	35	40	40

**Table 6.4 Operational noise at receptors during ‘calm’ and prevailing meteorology (dB(A) Leq,15min)**

Receptor	Predicted Noise Levels, dB(A)				PSNC, Leq,15min, dB(A)		Possible acquisition criteria, Leq,15min, dB(A)	
	Day Calm	Day Mets	Night Calm	Night Mets	Day	Evening/Night	Day	Evening/Night
143	28	38	29	<b>41</b>	35	35	40	40
146 <sup>1</sup>	26	39	27	<b>42</b>	35	35	40	40
147	27	38	27	<b>42</b>	35	35	40	40
153 <sup>1</sup>	28	38	30	<b>47</b>	35	35	40	40
154	23	35	25	40	35	35	40	40
156	24	37	26	<b>42</b>	35	35	40	40
157 <sup>1</sup>	25	37	26	<b>41</b>	35	35	40	40
158	24	37	26	<b>42</b>	35	35	40	40
159	26	36	27	<b>41</b>	35	35	40	40
161	24	36	26	<b>41</b>	35	35	40	40
169	21	31	22	36	35	35	40	40
171	20	31	21	35	35	35	40	40
172	21	31	22	34	35	35	40	40
173	19	29	20	33	35	35	40	40
174	19	29	21	33	35	35	40	40
175	20	30	21	34	35	35	40	40
176	20	30	21	34	35	35	40	40
177	18	28	19	33	35	35	40	40
178	19	29	20	32	35	35	40	40
179	19	29	20	32	35	35	40	40
180	19	29	20	32	35	35	40	40
181	18	28	20	31	35	35	40	40
182	20	28	21	30	41	39	46	45
183	20	29	21	32	41	39	46	45
189	24	34	25	37	41	39	46	45
190	24	35	25	37	41	39	46	45
191	24	34	25	37	41	39	46	45
192	24	35	25	37	41	39	46	45
193	24	34	24	37	41	39	46	45
194	22	34	22	36	41	39	46	45
195	23	34	23	36	41	39	46	45
196	22	35	22	37	41	39	46	45
197	22	35	23	37	41	39	46	45
198	23	36	23	38	41	39	46	45
199	23	36	23	37	41	39	46	45
200	23	35	23	37	41	39	46	45
201	23	35	23	37	41	39	46	45
202	24	38	23	39	37	37	42	42
203	24	38	23	40	37	37	42	42
204	23	36	22	38	37	37	42	42

**Table 6.4 Operational noise at receptors during ‘calm’ and prevailing meteorology (dB(A) Leq,15min)**

Receptor	Predicted Noise Levels, dB(A)				PSNC, Leq,15min, dB(A)		Possible acquisition criteria, Leq,15min, dB(A)	
	Day Calm	Day Mets	Night Calm	Night Mets	Day	Evening/Night	Day	Evening/Night
205	24	40	24	41	37	37	42	42
206	22	38	22	38	41	39	46	44
207	22	38	21	38	41	39	46	44
208	23	38	22	38	41	39	46	44
211	21	35	19	36	39	37	44	43
212	22	36	20	36	39	37	44	43
213	22	37	19	37	41	39	46	44
214	22	37	20	37	41	39	46	44
215	22	37	20	38	41	39	46	44
216	22	37	20	37	41	39	46	44
217	22	37	21	38	41	39	46	44
218	22	37	19	38	41	39	46	44
219	22	37	20	38	41	39	46	44
220	22	37	20	37	41	39	46	44
221	22	37	21	38	41	39	46	44
222	23	38	21	38	41	39	46	44
223	22	38	21	38	41	39	46	44
224	22	38	21	38	41	39	46	44
225	23	37	21	38	41	39	46	44
226	22	36	21	37	39	37	44	43
229	26	43	21	<b>43</b>	40	37	45	42
231	24	41	21	41	40	37	45	42
236	25	37	27	<b>42</b>	35	35	40	40
237	25	37	26	<b>41</b>	35	35	40	40
240	26	38	26	40	35	35	40	40
241	24	37	24	39	37	37	42	42
242	24	39	22	40	37	37	42	42
249	17	29	17	31	35	35	40	40
252	19	30	18	32	35	35	40	40
253	19	29	18	31	35	35	40	40
258*	26	36	26	40	35	35	40	40
259*	26	35	26	39	35	35	40	40
260*	22	33	22	37	35	35	40	40
261*	21	33	23	37	35	35	40	40
262	19	29	17	35	35	35	40	40
265	18	31	16	34	35	35	40	40
266	18	31	16	35	35	35	40	40
267	19	33	17	35	35	35	40	40
268	20	26	15	32	35	35	40	40
271	16	24	14	31	35	35	40	40
272	18	26	16	36	35	35	40	40

**Table 6.4 Operational noise at receptors during ‘calm’ and prevailing meteorology (dB(A) Leq,15min)**

Receptor	Predicted Noise Levels, dB(A)				PSNC, Leq,15min, dB(A)		Possible acquisition criteria, Leq,15min, dB(A)	
	Day Calm	Day Mets	Night Calm	Night Mets	Day	Evening/Night	Day	Evening/Night
273	16	21	14	30	35	35	40	40
274	16	23	13	29	35	35	40	40
279	26	43	21	42	40	37	45	42
280	21	35	20	35	39	37	44	43
281	20	35	19	35	39	37	44	43
282	20	34	18	35	39	37	44	43
283	20	34	18	35	39	37	44	43
284	22	38	22	38	41	39	46	44
285	22	37	21	38	41	39	46	44
286	22	38	21	38	41	39	46	44
287	22	37	21	37	41	39	46	44
288	22	37	21	37	41	39	46	44
289	24	41	20	40	41	39	46	44
290	25	42	21	42	40	37	45	42
291	21	35	21	35	39	37	44	43
292	13	27	13	29	35	35	40	40
293	13	29	13	31	35	35	40	40
296	17	28	16	29	37	35	42	41
297	17	28	17	30	37	35	42	41
298	15	27	15	29	37	35	42	41
299	16	27	16	29	37	35	42	41
300	16	27	15	29	37	35	42	41
301	14	26	14	28	37	35	42	41
302	14	26	13	27	37	35	42	41
305	22	37	19	37	41	39	46	44
308 <sup>1</sup>	24	<b>46</b>	23	<b>46</b>	40	37	45	42
309 <sup>1</sup>	28	<b>44</b>	29	<b>45</b>	35	35	40	40
310	21	30	22	34	35	35	40	40
311	24	35	25	37	41	39	46	45
312	22	36	22	37	41	39	46	45
315	22	38	21	38	41	39	46	44

Notes: 1. These locations were identified as affected under ‘calm’ weather conditions in the 1997 EIS and are entitled to acquisition upon requested in the Schedule to Conditions 6.2.112 and 6.4.2 of the consent.

\* The predicted noise levels for these locations do not include suppression on mobile plant as it was considered that potential noise from the conveyor will dominate at these properties and mobile plant operating in the mine would not materially alter their predictions.

### *Sleep Disturbance Assessment*

The worst case scenario was assessed for sleep disturbance at the assessment locations where the loudest intermittent noise ( $125\text{dB(A)}_{L_{\max}}$  from a haul truck) occurred under prevailing weather conditions. The assessment indicates that predicted noise levels under prevailing weather conditions are within the DECCW's conservative sleep disturbance criterion at the majority of assessment locations shown. Exceedances are predicted for assessment locations 43, 44, 45 and 135. These locations were also identified earlier as predicted to experience noise levels above potential acquisition criteria.

### *Other Noise Emissions*

Currently, there is a number of noise sources located at the Bengalla Rail Spur, such as the CHPP, loading bin, loading of coal onto trains and rail operations. This is consistent with the noise levels from the proposed Mount Pleasant Project modifications operations as only one train can be loaded at any one time. A maximum of five trains would be loaded per day on the Bengalla Rail Spur (Hansen Bailey, 2006). The approved Mount Pleasant Project rail loop is similarly designed to load one train with one waiting to be loaded.

The closest residence (location 246) is approximately 3km southwest from the Bengalla Rail Spur, less than 1km north from the boundary of Mount Arthur Mine and approximately 1.5km south from the proposed conveyor. Location 246 is listed within Bengalla Mine's development consent for acquisition upon request. The operational noise at location 246 from the surrounding mining operations under prevailing weather conditions is predicted as follows:

- Bengalla Mine –  $40\text{dB(A)}_{\text{Leq, 15 minute}}$ ;
- Mount Arthur Mine – less than  $41\text{dB(A)}_{\text{Leq, 15 minute}}$ ;
  - If this wind is prevailing, it will mean that noise from Bengalla Mine and Mount Pleasant Project is reduced due to the direction; and
- Mount Pleasant Project –  $38\text{dB(A)}_{\text{Leq, 15 minute}}$ ;
  - Dominated by the proposed conveyor and drive motors which produce  $35\text{dB(A)}$ .

The above demonstrates that the conveyor option (if pursued) would contribute  $35\text{dB(A)}$  of the total noise at location 246 and Bengalla Mine would contribute  $40\text{dB(A)}$  for prevailing wind conditions. However, if the approved rail facilities were constructed, it would contribute approximately  $40\text{dB(A)}$ . Accordingly, the cumulative noise of Bengalla Mine and Mount Pleasant Project at location 246 is predicted to be higher if Mount Pleasant Project were to proceed with the approved rail facilities rather than the proposed conveyor.

As previously stated in this report, the movements and loading associated with the respective activities of Bengalla Mine and the Mount Pleasant Project would not be cumulative. Due to one train only being loaded at any one time, the noise levels experienced at location 246 will not change due to the proposed Mount Pleasant Project modifications. Locomotive noise (approximately  $40\text{dB(A)}$  contribution) and load bin noise ( $38\text{dB(A)}$  contribution) is present during loading activities and is currently experienced between five and 10 hours per day, as a maximum of five trains are loaded per day. Subject to approval of the proposed Mount Pleasant Project modifications, this duration would increase by approximately five to 10 hours.



The next closest privately owned receivers are located further south and southwest to the Bengalla Rail Spur and noise levels at these locations are not expected to be above possible acquisition limits for either Bengalla Mine or Mount Pleasant Project modifications. Hence, the current zone of affectation for Bengalla Mine is highly unlikely to increase as a result of the Mount Pleasant Project.

The conditions in Section 11.3 of the Mount Pleasant Project consent provides relevant procedures to be followed in the event of cumulative impacts (refer to Appendix A of Volume 2).

#### *Cumulative noise assessment*

Ambient noise at receivers will also be influenced by adjoining industrial operations. There are two existing mining operations in the area that could contribute to noise at receivers of relevance to the Mount Pleasant Project. These are Bengalla Mine to the immediate south and Mount Arthur Mine, south of Bengalla Mine.

The cumulative noise received at residences surrounding the Mount Pleasant Project area was projected for both calm and prevailing weather and for the worst case year of operation for the Mount Pleasant Project and Bengalla and Mount Arthur Mines facilitating a conservative assessment. Details regarding the mining operations for Bengalla and Mount Arthur Mines were drawn from documents in the public domain.

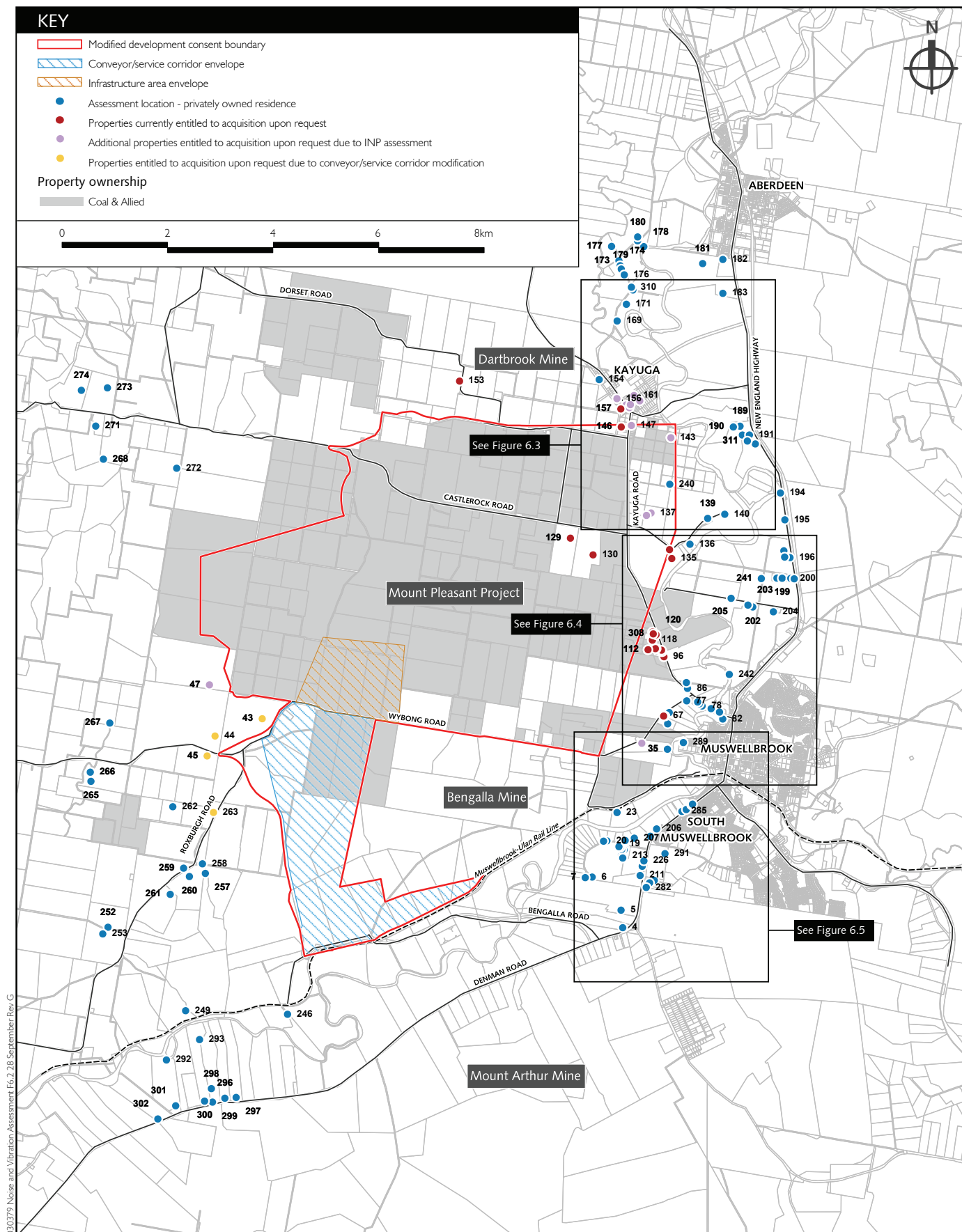
The results of the cumulative assessment indicate that the Mount Pleasant Project only dominates the noise environment at one assessment location (location 43, to the west of the conveyor) during calm weather. However, during prevailing weather conditions, Mount Pleasant Project is a significant contributor, at several of the assessment locations (43, 44, 45, and 289). This is not unexpected given that these locations were selected on the expectation that they are potentially the most exposed to the proposed modifications.

#### vi Assessment against construction noise criteria

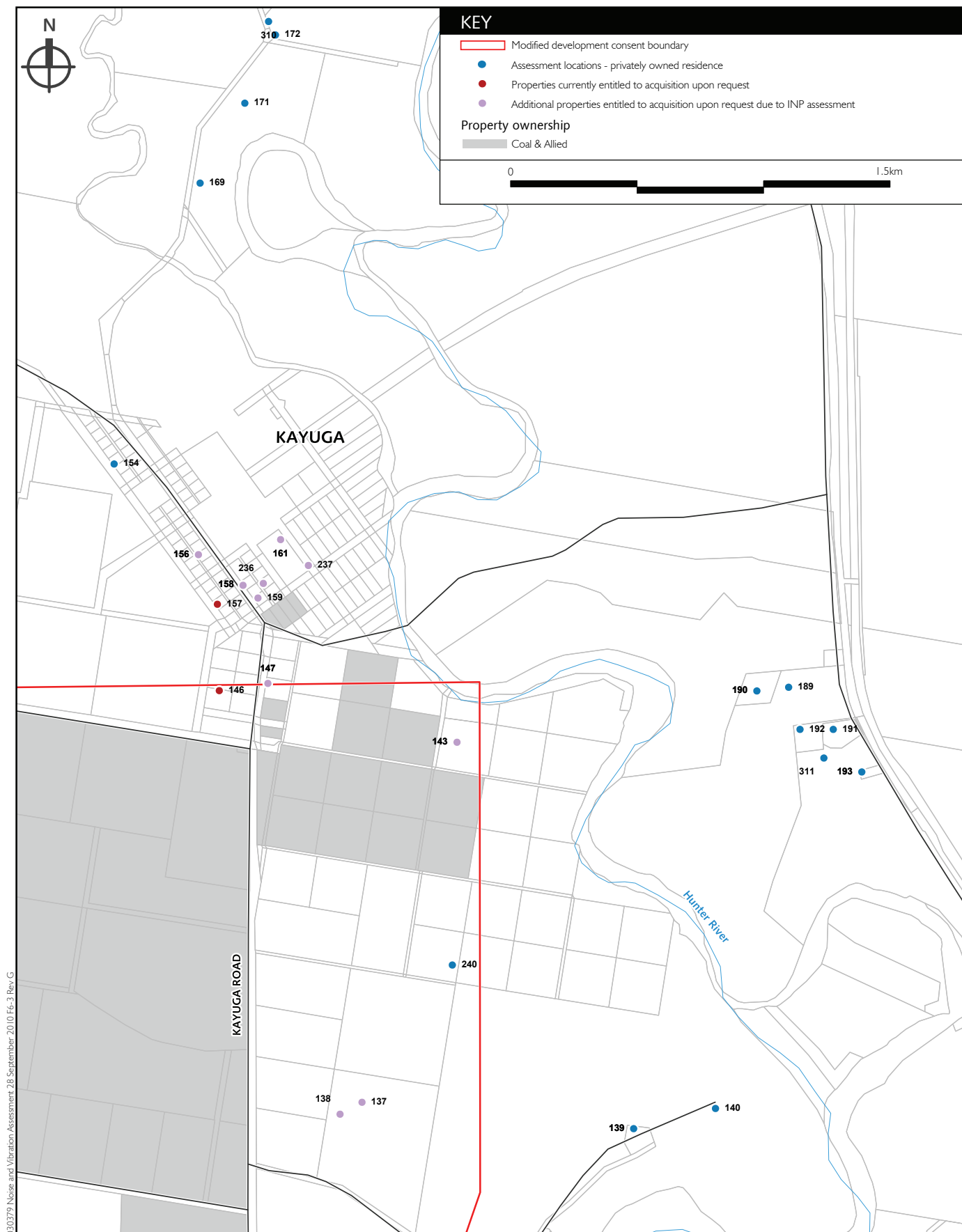
As discussed earlier, the conveyor/service corridor option, if pursued, will be the only construction activity not previously addressed in the EIS. The following statements will apply if this option is pursued.

The construction hours for the conveyor/service corridor will generally be consistent with the requirements in the DECCW's ICNG of 7am to 6pm Monday to Friday, and 8am to 1pm on Saturdays, with no work on Sundays or public holidays. This will satisfy the main objective of the ICNG. The exceptions would be emergency work or similar or low impact activities where noise is inaudible or less than 5dB above background.

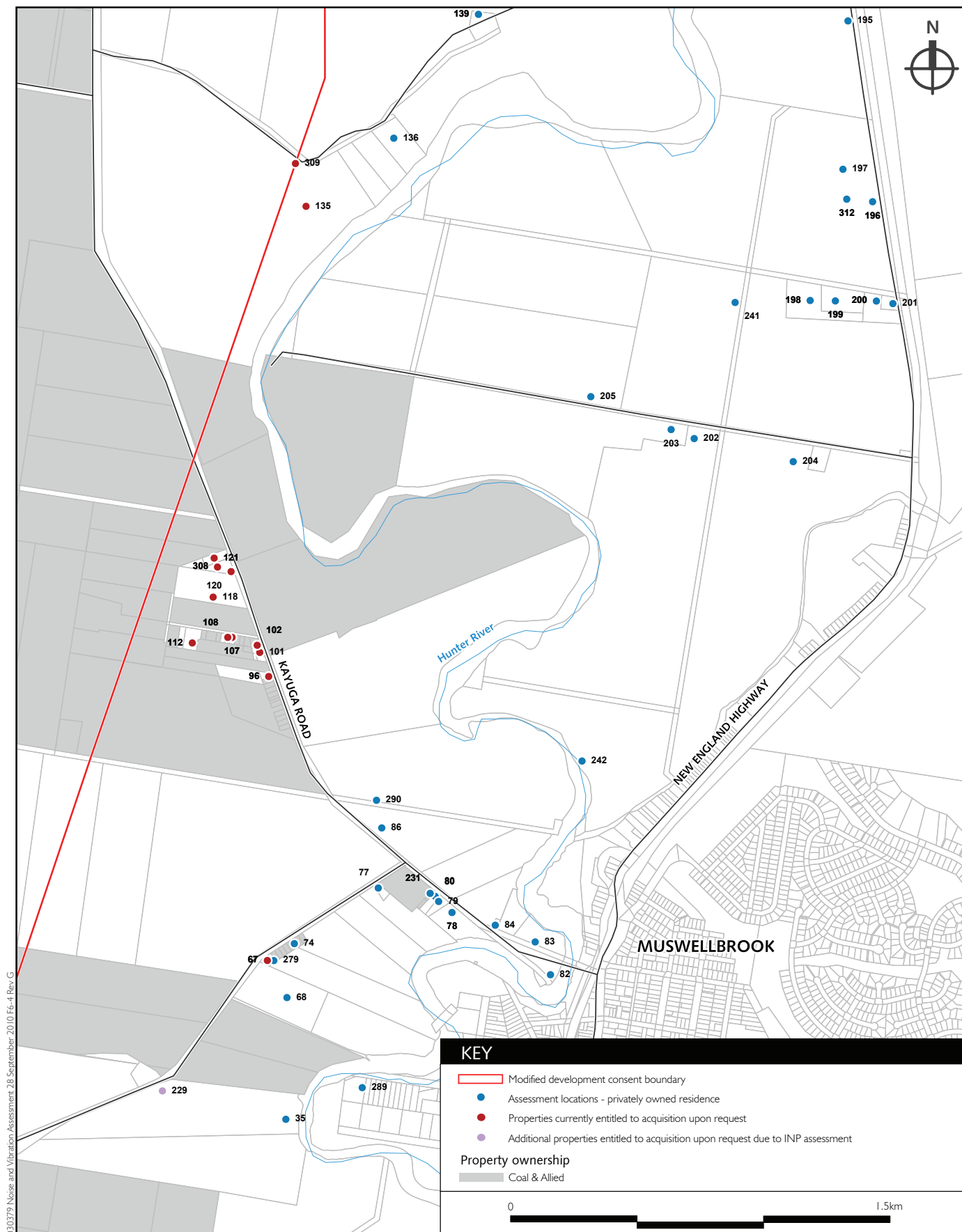
Based on the concurrent operation of the three or four items of construction equipment, a combined typical emission value of not more than 117dB(A) is expected. Applying this typical sound power level for construction activity, the construction noise levels were predicted for the closest and potentially the most exposed residences to the conveyor corridor. The DECCW's ICNG suggests that if construction noise exceeds the background noise level by more than 10dB residences may be considered as 'noise affected', whilst construction noise levels above 75dB(A) at residences are defined as 'highly noise affected'. Predicted results indicate that residents will not be highly noise affected according to the definition in DECCW's ICNG, however, there may be some receivers that experience levels above the 'noise affected' definition. To that end, the ICNG recommends application of all reasonable and feasible work practices and that the proponent should inform all potentially impacted residents of the nature of the work to be carried out, the expected noise levels and duration (likely to be between six and nine months), as well as provide contact details.

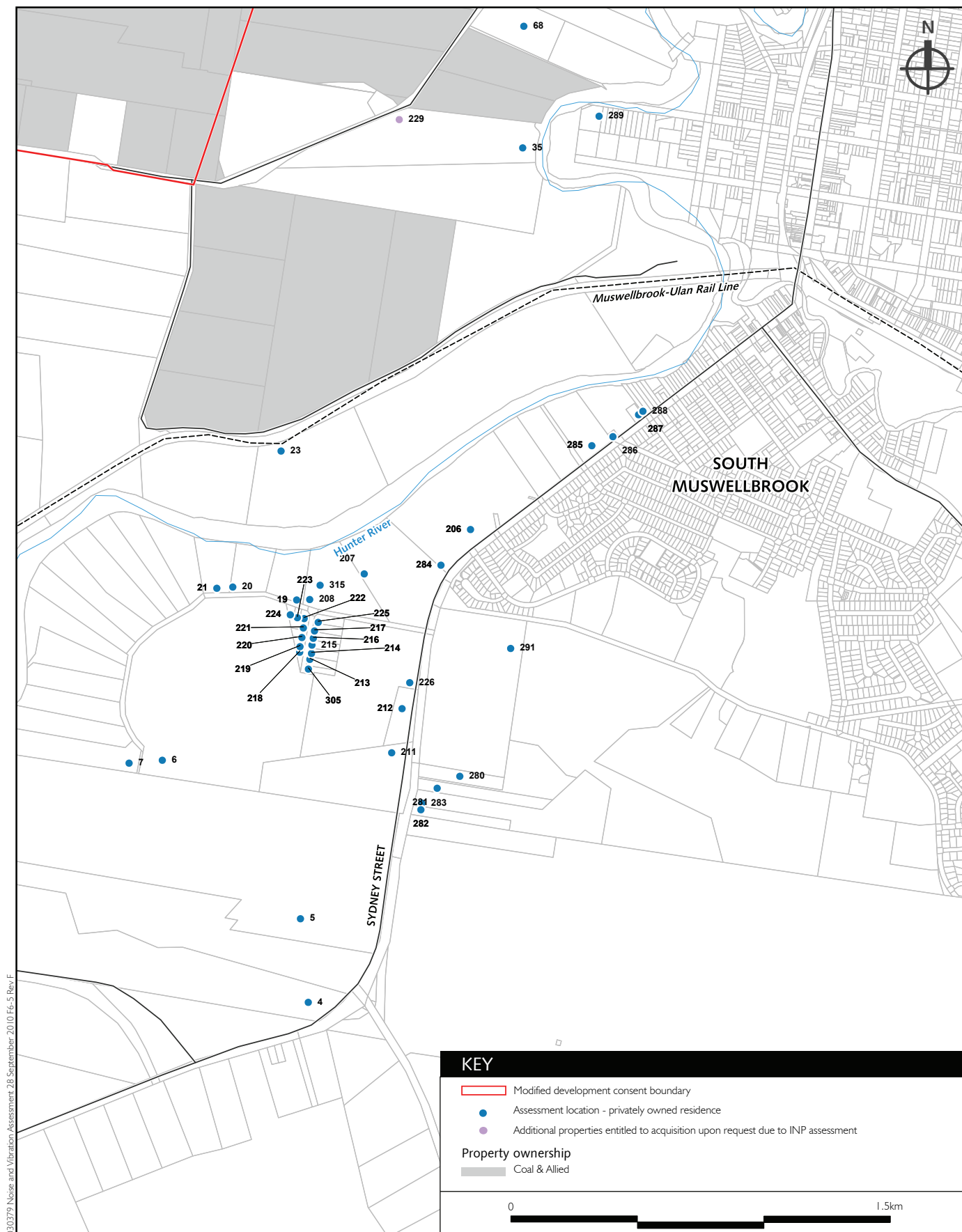


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### 6.1.3 Management and monitoring

The existing consent conditions for the Mount Pleasant Project include practical management measures and protocols that will continue to be adopted should the proposed modification obtain approval. These conditions include Condition 6.4 (Noise Control) and Condition 11.1 (Area of Affection – Land Acquisition including resolution of disputes). However, the now outdated  $L_{10}$  based noise criteria outlined in Condition 6.4 and Table 6.2 of this report will be replaced by the INP derived  $Leq$  noise criteria. These criteria are referenced in Table 6.3 and Table 6.4 of this report. These new criteria will also form part of the detailed noise monitoring programme for the Mount Pleasant Project.

As part of the existing development consent (Condition 8.4), a Noise Management Plan (NMP) must be prepared prior to commencement of construction. The current quarterly monitoring undertaken (refer to Section 3.1.4) around the surrounding areas of the mine will be continued as a component of the NMP.

#### i Proposed modifications

In addition to the feasible and reasonable mitigation measures outlined earlier which includes cladding the proposed conveyor, properties 43, 44, 45 and 263 will be provided with the opportunity of upfront acquisition rights.

#### ii Broader mine context

Although the mine plan and operations are not changing from those in the EIS, the proponent is committed to the procurement of best available technology plant and mobile equipment including noise suppression on all mobile plant. This is the single most affective management measure that will be adopted.

In addition, nine properties identified in this study will be provided with the opportunity of upfront acquisition rights. This is in addition to those properties in the Schedule to Conditions 6.2.1 and 6.4.2 of the development consent.

#### iii General and whole of operations

The NMP will include the following management actions:

- identify noise affected properties and relevant noise limits consistent with the EA;
- specify procedures for undertaking independent noise investigations;
- specify protocols for routine, regular attended and unattended noise monitoring of the Project. This would include real time noise monitoring on a permanent basis at Kayuga, Muswellbrook and to the south-west of the site;
- outline the procedure to notify property owners and occupiers that could be affected by noise from the Mount Pleasant Project;
- establish a protocol to handle noise complaints that includes recording, reporting and acting on complaints;
- include appropriate mechanisms for community consultation;
- outline mitigation measures to be employed to limit noise;



- identify longer term strategies to mitigate noise that exceeds the DECCW target noise criteria;
- outline measures to reduce the impact of intermittent, low frequency and tonal noise (including truck reversing alarms); and
- specify measures to document any higher level of impacts or patterns of temperature inversions, and detail actions to quantify and ameliorate enhanced impacts if they occur.

The NMP will include measures for the management of potential noise emissions associated with the construction of the conveyor. The plan will also consider pro-active and predictive modelling and management, and protocols for managing noise during adverse meteorological conditions.

#### 6.1.4 Conclusions

##### i Proposed modification

The conveyor, if pursued, will require elevated gantries to be enclosed and overland sections to be enclosed along the western side with roofing, to meet noise criteria for most residences to the west of the Mount Pleasant Project area.

The noise assessment indicates that operational noise will comply with DECCW's operational criteria at all assessment locations during calm weather conditions for both day and night periods with the exceptions of assessment location 43, which is located approximately 400m west of the proposed conveyor/service corridor, and locations 129 and 130, which are within the development consent boundary. For prevailing weather conditions, the modelling predicts that the introduction of the proposed conveyor and possible reconfiguration of the infrastructure within an infrastructure envelope introduce impacts at receiver locations to the south-west not previously identified in the EIS. A total of four assessment locations (43, 44, 45 and 263) have been identified where noise levels are predicted to be above possible acquisition levels. Of note, these four assessment locations each comprise one residence only and acquisition beyond these properties to the west is not predicted.

This assessment also concludes that construction of the conveyor will need to be managed to minimise the potential for construction noise nuisance to neighbouring residences.

##### ii Update of noise predictions to INP assessment

The Mount Pleasant Project has been assessed in its entirety in accordance with the INP contemporary noise standards. The differences in the INP assessment compared to that undertaken in the 1997 EIS include the adoption of the Leq noise metric over the L<sub>10</sub> level, and a more thorough and clear assessment approach for adverse weather conditions.

The assessment found that the extent of potential impact during 'calm' weather conditions to be similar to that in the 1997 EIS.

The main difference when assessing noise to contemporary standards to that in the 1997 EIS, is the DoP requirements for upfront acquisition of properties affected under 'adverse' weather conditions. While the 1997 EIS gave consideration to such weather conditions, the development consent provided a hierarchy of monitoring, mitigation and then acquisition during operations. Conditions of development consents/project approvals granted in more recent times entitle residences where predictions exceed acquisition criteria during adverse weather conditions to the right to upfront acquisition upon request.

This assessment has found nine properties containing 12 residences are predicted to exceed acquisition criteria during 'adverse' weather conditions. These properties are in addition to those entitled to acquisition upon request listed in the Schedule to Conditions 6.2.1 and 6.4.2 of the development consent due to the 1997 EIS which predicted exceedances under 'calm' weather conditions. These predictions are made on the same mine plan presented in the 1997 EIS, however with considerable additional reasonable and feasible mitigation measures, most notably sound suppression of mobile plant and equipment at a cost of some \$15-20M.

Coal & Allied is committed to working with the communities in which it operates and extends the opportunity for upfront acquisition upon request to the additional 13 properties, which includes the four properties identified from the assessment of the proposed conveyor/services corridor, affected under adverse conditions.

## 6.2 Ecology

This section provides a summary of an ecological study for the proposed modifications undertaken by Cumberland Ecology, which is presented in full in Appendix C.

### 6.2.1 Existing environment

All available literature pertaining to ecology within the proposed modification areas was reviewed and relevant data collated.

Database analysis was conducted for the locality (within 10km) using both the DECCW Atlas of NSW Wildlife Database (DECCW, 2009) and DEWHA Protected Matters Search Tool (DEWHA, 2009a). The lists generated from these databases were used to assist in designing surveys for threatened species considered to have the potential to occur in the proposed modification areas, as well as structuring habitat assessments to further assist in the determination of the likelihood of occurrence.

Flora and fauna surveys were conducted in February 2010 focussing on the quality of fauna habitat within the proposed modification areas and vegetation mapping of the conveyor/service corridor envelope. It should be noted that no separate fauna surveys were undertaken within the proposed conveyor/service corridor and were not considered necessary due to the prevalence of previous surveys, low likelihood of occurrence of fauna species within the vegetation communities and the low level of clearing requirements due to the proposed conveyor/service corridor.

#### i Vegetation communities

The landscape of the proposed modification areas has been used for grazing since European settlement and as a result has been heavily cleared and disturbed historically. Notwithstanding this, the landscape is largely dominated by scattered patches of woodland of various sizes and ages, and broad expanses of what is referred to in this report as 'Derived Native Grassland', that is grassland dominated by native plants that has been derived from the clearing of the original tree cover.

As shown on Figure 6.6, other vegetation communities occurring commonly within the proposed modification areas comprise the Upper Hunter Hills Exposed Ironbark Woodland, Grey Box/White Box Intergrade Grassy Woodland, Low Diversity Derived Native Grassland and Exotic Pasture, Upper Hunter White Box – Ironbark Grassy Woodland, and Grassland (Upper Hunter Hills Exposed Ironbark Woodland).

The Derived Native Grassland, Grey Box/White Box Intergrade Grassy Woodland and Upper Hunter White Box – Ironbark Grassy Woodland are listed as EECs under the TSC Act.

## ii Flora

Flora within the proposed modification areas is dominated by grasses (Poaceae) and other families of herbaceous ground cover plants. No species listed under the TSC Act have been identified within the proposed modification areas.

## iii Fauna

The threatened species recorded within the Mount Pleasant Project area and those considered likely to use the modification areas include woodland birds, bats and non-flying mammals, as follows.

- Brown Treecreeper (*Climacteris picumnus*) (Vulnerable under the TSC Act).
- Grey-crowned Babbler (*Pomatostomus temporalis*) (Vulnerable under the TSC Act).
- Speckled Warbler (*Pyrrholaemus saggitatus*) (Vulnerable under the TSC Act).
- Diamond Firetail (*Stagonopleura guttata*) (Vulnerable under the TSC Act).
- Varied Sittella (*Daphoenositta chrysoptera*) (Vulnerable under the TSC Act).
- Black-chinned Honeyeater (*Melithreptus gularis*) (Vulnerable under the TSC Act).
- Squirrel Glider (*Petaurus norfolcensis*) (Vulnerable under the TSC Act).
- Eastern Bent-wing Bat (*Miniopterus schreibersii oceanensis*) (Vulnerable under the TSC Act).
- Large-eared Pied Bat (*Chalinolobus dwyeri*) (Vulnerable under EPBC and TSC Acts).
- Eastern Free-tail Bat (*Mormopterus norfolkensis*) (Vulnerable under the TSC Act).
- Little Bent-wing Bat (*Miniopterus australis*) (Vulnerable under the TSC Act).
- Large-footed Myotis (*Myotis macropus*) (Vulnerable under the TSC Act).
- Grey-headed Flying-fox (*Pteropus poliocephalus*) (Vulnerable under EPBC and TSC Acts).

These threatened species, which are predicted as likely to occur within suitable habitats in the proposed modification areas, are typical for woodland and grassy open forest remnants in the upper Hunter Valley.

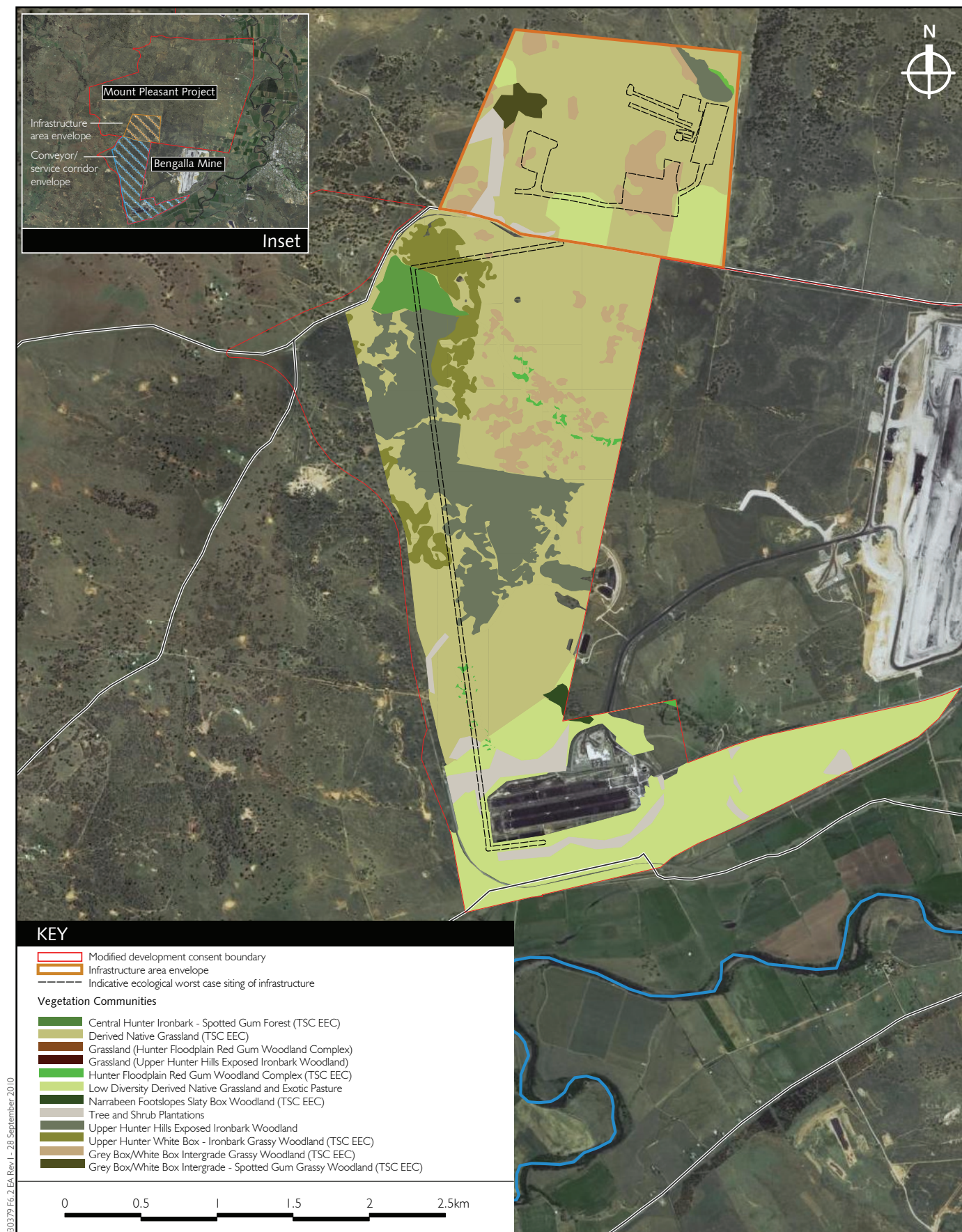
### 6.2.2 Impact assessment

The primary impact from the proposed modifications will be the clearing of vegetation. 'Clearing of Native Vegetation' is listed as a Key Threatening Process and has been identified as a direct cause of the decrease in biodiversity (NSW Scientific Committee, 2004). However, it should be noted that the proposed modifications relate to options of already approved infrastructure and may lead to reductions in clearing, as discussed further below.

A conservative worst case approach to the ecological impact assessment has been adopted in which it has been assumed that:

- the maximum areas of highest quality native vegetation will be cleared within the infrastructure and conveyor/service corridor envelopes; and





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- a 30m disturbance area has been included along the entire length of the conveyor/service corridor.

Table 6.5 shows the comparative areas and types of vegetation communities to be cleared by the approved rail facilities and specific locations of infrastructure within the infrastructure area (as detailed in the EIS), versus the proposed modification components assuming worst case alignment of the optional conveyor/service corridor and configuration of infrastructure within the infrastructure envelope (refer to Figure 6.6). These are termed 'approved disturbance' and 'proposed disturbance' respectively. Approved for the purposes of this report relates to Development Consent DA 92/97.

Under the proposed worst case scenario, the proposed disturbance would require approximately 47.5ha of vegetation clearing compared to approximately 54.8ha of clearing that would be required for the approved project, resulting in a reduction in the clearing requirements by approximately 7.3ha. The proposed worst case scenario (refer to Figure 6.6) results in total disturbance of approximately 35.5ha of vegetation communities currently listed under the TSC Act, compared with approximately 41.6ha under the approved disturbance footprint.

**Table 6.5**      **Vegetation communities potentially impacted by approved and proposed disturbance**

<b>Vegetation community</b>	<b>Approved disturbance (ha)</b>	<b>Proposed disturbance (ha)</b>
Upper Hunter White Box – Ironbark Grassy Woodland	-	1.3
Grey Box/White Box Intergrade Grassy Woodland	2.0	9.1
Central Hunter Ironbark - Spotted Gum Forest	-	0.9
Hunter Floodplain Red Gum Woodland Complex	0.2	0.2
Tree and Shrub Plantations	1.1	0.8
Upper Hunter Hills Exposed Ironbark Woodland	1.6	4.2
Derived Native Grassland	39.6	24.0
Grassland (Hunter Floodplain Red Gum Woodland Complex)	0.5	0.6
Grassland (Upper Hunter Hills Exposed Ironbark Woodland)	1.4	1.3
Low Diversity Derived Native Grassland and Exotic Pasture	8.4	5.1
<b>Total</b>	<b>54.8</b>	<b>47.5</b>

The removal of vegetation from within the modification areas is not considered to constitute a significant impact to the fauna listed in Section 6.2.1, due to highly mobile nature of these species allowing them to be able to continue to forage and breed in the area. The proposed disturbance footprint is not considered sufficiently extensive to cause population and/or genetic isolation as a result of fragmentation.

Indirect impacts are a result of secondary processes and often occur around the periphery of a development. They include such things as weed invasion, increases in feral animals, erosion, and changes in habitat connectivity. The potential for indirect impacts that would result from the conveyor/service corridor being preferred to the approved rail facilities and modified configuration of infrastructure within the infrastructure area envelope is considered minimal.

### 6.2.3 Management and monitoring

The DECCW has well established principles (DECC 2008) regarding the assessment of potential ecological impacts of proposed developments and how they should be managed. Essentially, these principles can be categorised into: avoid, mitigate, and compensate.

Should the conveyor/service corridor option be pursued, the approved development footprint would reduce by approximately 7.3ha and this reduces the disturbance of vegetation communities currently listed under the TSC Act.

During the construction phase, pre-clearance surveys of relevant forest and woodland areas for threatened flora and fauna species will be undertaken. Details of the rehabilitation of the infrastructure area and conveyor/service corridor (should this option be pursued) upon decommissioning will be provided in the Rehabilitation and Environment Management Plan (REMP).

Overall, ecological management of the proposed modifications will be incorporated into the development of the Flora and Fauna Management Plan as required under Condition 3.4 of the development consent. Additionally, identified monitoring locations associated with the construction and operation of the proposed modifications, will be included in the AEMR as per Condition 8.6 of the development consent.

### 6.2.4 Conclusions

The landscape of the proposed modification areas has been used for grazing since European settlement and as a result has been heavily cleared and disturbed historically. Notwithstanding this, vegetation communities listed as EECs under the TSC Act are located within the modification areas, including; Derived Native Grassland, Grey Box/White Box Intergrade – Spotted Gum Grassy Woodland, Upper Hunter White Box – Ironbark Grassy Woodland, Grey Box/White Box Intergrade Grassy Woodland, Central Hunter Ironbark – Spotted Gum Forest, Hunter Floodplain Red Gum Woodland Complex and Narrabeen Footslopes Slaty Box Woodland.

To provide for flexibility in the detailed design of the infrastructure area and optional conveyor/service corridor, a conservative worst case approach to ecological impact assessment was adopted. Under the worst case scenario, the total modification area footprint would comprise approximately 47.5ha of vegetation clearance, versus approximately 54.8ha of clearance for the approved rail facilities and infrastructure area. The proposed worst case scenario would result in total disturbance of 35.5ha of vegetation communities currently listed under the TSC Act compared with 41.6ha under the approved disturbance footprint.

The DECCW principles on management of potential ecological impacts have been considered with the proposed modifications resulting in an approximate 7.3ha reduction in disturbance of vegetation communities, should the conveyor/service corridor option be pursued.

## 6.3 Air quality

This section provides a summary of the air quality study for the proposed modifications prepared by PAEHolmes, which is presented in full in Appendix D.

### 6.3.1 Existing environment

There are two local meteorological stations relevant to the Mount Pleasant Project. An automatic weather station (AWS) is located in the Mount Pleasant Project area and collects information on wind



speed, wind direction, temperature and rainfall and there is another AWS located at McLeans Hill owned by Mount Arthur Coal.

Consolidated results (refer to Appendix D) indicate that the prevailing winds for the Mount Pleasant AWS are aligned on an axis running north-northwest and south-southeast. During summer, winds are predominantly from the south-eastern quadrant, with fewer winds originating from the north-western quadrant. During winter, this pattern is reversed and winds from the north-west are dominant. Data from the McLeans Hill AWS has a similar distribution of wind but the alignment is rotated by nearly 45 degrees anti-clockwise relative to the distribution shown by Mount Pleasant AWS. In addition, there is evidence of a drainage flow from north and north-east in the McLeans Hill data.

As reported within the Bengalla Mine AEMR, a number of High Volume Air Samplers (HVAS) are within the locality of the Mount Pleasant Project area. There are four HVAS PM<sub>10</sub> monitors and five HVAS total suspended particulate (TSP) monitors. These monitors are located in areas that include all emission sources in the vicinity of the Mount Pleasant Project, including any contribution from existing mines.

Monitoring results from these locations since 1996 show that the majority of the annual average PM<sub>10</sub> concentrations for each of the monitoring locations were below the DECCW criterion of 30 micro-grams per cubic metre (µg/m<sup>3</sup>). There were two exceptions in the period between 1996 and 2010, with one exceedance likely to be attributed to very localised activities, possibly earthworks on the school oval adjacent to the monitoring location. The second exceedance can be attributed to the series of severe dust storms experienced in late 2009 which blanketed most of the south-east of NSW with dust.

## 6.3.2 Impact assessment

### i Infrastructure area

The provision of envelope areas to contain the required mine infrastructure and conveyor for the Mount Pleasant Project represents a minor change from the prescribed footprint outlined in the EIS.

The wind patterns of the local area are such that changes to the approved layout are not likely to be significant for the township of Muswellbrook and receivers in the vicinity of the proposed modifications, as winds do not generally blow from the infrastructure area towards these areas for significant periods of time. Therefore, the potential air quality impacts resulting from the modified configuration of infrastructure within the proposed infrastructure envelope are considered negligible, considering the meteorology and the relative change of the proposed modifications.

### ii Conveyor / service corridor

Provision of the optional conveyor/service corridor in place of the approved rail facilities would mean that dust emissions due to activities would not change in any significant way.

The net result is predicted to be the emission of 1,463 kilograms (kg) of additional dust per annum out of predicted 12,649,900kg from total annual emissions generated by the Mount Pleasant Project in Year 15 of operations (ERM 1997). This represents a change of 0.01 per cent in total dust levels. There would be some spatial variation to the emissions from loading the coal to train wagons, as it would be taking place at the Bengalla Mine Rail Spur. However, these emissions would be small and would not result in any detectable change in dust levels at sensitive receivers. These emissions are shown in Table 6.6 below.

In summary, the estimated emission from the construction of the optional conveyor/service corridor are predicted to be insignificant (equal to or less than 0.1 per cent) from the total emissions from the Mount Pleasant Project.

**Table 6.6 Emissions breakdown**

Activities related to product coal	Emission factor *	Estimated emissions (kg/yr)	EIS emissions (kg/yr)	Proposed emissions (kg/yr)
Maintenance, wind erosion (product stockpile)	1.8 kg/ha/hr	80,400	80,400	80,400
Conveyor stacking at CHPP	0.000026 kg/t	200	200	200
Reclamation at CHPP	0.00019 kg/t	1,463	1,463	1,463
Conveyor transfer at CHPP	0.00019 kg/t	1,463	1,463	1,463
Loading coal to train at Mount Pleasant Project rail loop	0.00019 kg/t	1,463	1,463	-
Conveyor transfer to surge bin at Bengalla Mine	0.00019 kg/t	1,463	-	1,463
Loading coal to train at Bengalla Mine Rail Spur	0.00019 kg/t	1,463	-	1,463
<b>Total</b>			<b>84,989</b>	<b>86,542</b>
<b>Increase in emissions</b>				<b>1,463</b>
<b>Per cent change in total emissions for Year 15</b>				<b>0.01</b>

Notes: \*Emission factors used are the same as those used in the Year 15 of operations scenario assessed in the EIS (ERM, 1997).

### 6.3.3 Management and monitoring

The design of an enclosed western side and roof for overland sections and full enclosure of the conveyor system at elevated sections has afforded the proposed modification reductions in potential emissions. The use of a water cart on-site during the construction phase will aid in limiting dust emissions from the construction activities.

Air quality management for the Mount Pleasant Project will be undertaken in accordance with the Air Quality Management Plan which is a requirement under the existing development consent (Condition 6.1).

### 6.3.4 Conclusions

A review of the dust emissions that would arise if the rail facilities were replaced with a conveyor/service corridor shows that the estimated dust emissions from construction of the conveyor system are negligible relative to the total emissions from the mine itself. Once the construction is complete, the operation of the facility would not change the emission total dust burden of Mount Pleasant Project in any significant or detectable way. There would be some very minor changes in the spatial variation of emissions due to the loading of the coal to trains, however, this would be insignificant.

The implementation of an infrastructure envelope, rather than specific plant locations for the CHPP facilities, would not result in any detectable change in dust levels at nearby receivers.

It is concluded, therefore, that replacement of the rail facilities with the optional conveyor/service corridor and the potentially modified configured infrastructure area would not cause any discernible change to dust levels in the area, relative to the approved operations as a whole.

## 6.4 Aboriginal cultural heritage

This section provides a summary of the Aboriginal cultural heritage study for the proposed modifications prepared by Central Queensland Cultural Heritage Management, which is presented in full in Appendix E.

### 6.4.1 Existing environment

Rio Tinto Coal Australia provides Aboriginal cultural heritage management services to Coal & Allied at its Hunter Valley operations, including the Mount Pleasant Project. The key cultural heritage assessment and management activities conducted at the Mount Pleasant Project to date have been in compliance with the conditions of the development consent. Management activities and assessment of cultural heritage material on the Mount Pleasant Project area, including areas affected by the proposed modifications, can be summarised as follows.

- Supplementary Aboriginal cultural heritage assessments conducted over lands (owned by Coal & Allied, Bengalla Mine and private owners) in the Mount Pleasant Project area, including in the proposed infrastructure envelope.
- Preparation of a draft Cultural Heritage Management Plan (CHMP) (September 2007) for the entire Mount Pleasant Project area.
- Aboriginal cultural heritage assessment of the proposed Voluntary Conservation Areas (VCAs).
- Aboriginal cultural heritage assessment of the proposed optional conveyor/service corridor.

Between 2006 and 2009 Rio Tinto Coal Australia commissioned a series of supplementary Aboriginal cultural heritage assessments to upgrade the quality of the cultural heritage data derived from the survey undertaken for the EIS in 1995 and to inform discussions with the Aboriginal community and State government on the development of an Aboriginal CHMP as a condition (2.3.3.1a) of the existing development consent. These assessments were conducted in stages over lands within the Mount Pleasant Project area as they were acquired by Coal & Allied. The assessments included the area of the proposed infrastructure area envelope. Cultural heritage sites in this area have been mapped and are recorded in the Mount Pleasant Project Aboriginal cultural heritage management Geographic Information System (GIS) database.

A draft CHMP was endorsed in September 2007 by the Aboriginal community through the auspices of the CHWG and submitted to the DECCW and the DoP for review. The CHMP establishes the guiding management principles and regime for the entire Mount Pleasant Project area and will be applied to the development activities that are the subject of the proposed modifications.

The majority of the proposed optional conveyor/service corridor, however, lies outside of the areas assessed for Aboriginal cultural heritage within the Mount Pleasant Project, therefore Rio Tinto Coal Australia commissioned a specific cultural heritage study for this area (Scarp Archaeology, 2010). The purpose of the study was to ascertain what Aboriginal cultural heritage objects, sites or places existed within the study area to inform the design and construction of the proposed conveyor/service corridor to minimise disturbance to these objects, sites or places. To provide flexibility in the final design of the optional conveyor/service corridor, the survey assessment methodology required the assessment of the

entire envelope so that various alignment options could be reviewed to minimise both cultural heritage and environmental disturbance.

## 6.4.2 Impact assessment

### i Consultation with the Aboriginal community

In September 2005, Coal & Allied established the CHWG comprised of company representatives and representatives from Upper Hunter Valley Aboriginal community groups, corporations and individuals. The CHWG was established so that Rio Tinto Coal Australia, Coal & Allied and the Aboriginal community could develop and implement a new cultural heritage consultation and management process in the Upper Hunter Valley. This approach involves ongoing direct engagement between Coal & Allied personnel and the Aboriginal community rather than outsourcing the consultation relationship to a third party. Coal & Allied's objectives are to develop a robust relationship with the Aboriginal community and to cooperatively develop Aboriginal cultural heritage management programmes which the Aboriginal community are encouraged to jointly design, implement and manage with the company.

The CHWG provides a regular forum for discussions on all matters pertaining to cultural heritage associated with company owned lands, projects and operations in the Upper Hunter Valley. The CHWG regularly reviews the progress and outcomes of Coal & Allied's cultural heritage process and management programme in the Upper Hunter, revising and refining elements of the process by consensus.

The conveyor/service corridor survey was carried out between 24 March 2010 and 29 March 2010, in accordance with the CHWG endorsed Terms of Reference. A community consultation meeting was conducted by the independent technical advisor on 20 April 2010 prior to the completion of the survey and management recommendations for the report.

All CHWG meetings were advertised in the local press and those persons and corporations on the CHWG register were advised by letter of all meetings and other activities. The CHWG members all received copies of the draft documentation for the project and presentations discussed at CHWG meetings. In the meetings conducted to date, consultation discussions have occurred with 29 individual members of the Aboriginal community.

The preliminary results of the assessment survey and community consultation feedback from the 20 April meeting were provided to community members at the CHWG meeting on 22 April 2010. There was consensus within the CHWG that there appear to be no major cultural heritage constraints to the proposed modifications, based upon avoiding disturbance to cultural heritage and that the proposed optional conveyor/service corridor should have less impact on cultural heritage than the approved rail facilities. Community members expressed a desire to conduct a further field inspection of the area when the alignment of the conveyor/service corridor is determined (if the conveyor/service corridor option is pursued), so that the nature of the disturbance and management measures could be confirmed.

All consultation has been conducted in conformance with the DECCW Interim Community Consultation Requirements for Applicants (2005) through the auspices of the CHWG, with discussions and outcomes recorded in minutes of meetings, correspondence, terms of reference reports, and associated documents. The archaeological studies that underpin the cultural heritage technical report were conducted with the advice and active participation of the Aboriginal community and constitute the basis of this Aboriginal cultural heritage assessment. Table 3 in Appendix E clarifies how the CHWG consultation process is benchmarked against the DECCW's interim Community Consultation Requirements for Applicants (2005).

Coal & Allied acknowledges that the DECCW has introduced the Aboriginal Cultural Heritage Consultation Requirements 2010 (2010 Consultation Requirements), effective 12 April 2010. Under the transitional

arrangements, the meeting conducted on 22 April conforms with the 2010 Consultation Requirements. It also noted that all further consultation will be implemented in a manner that conforms with the new 2010 Consultation Requirements.

Consultation meetings with CHWG on the proposed modifications and issues associated with the VCA areas and the proposed Aboriginal Cultural Heritage Conservation Areas Strategy for the Upper Hunter will continue.

## ii Proposed modifications survey

The Aboriginal cultural heritage study was carried out in accordance with a Terms of Reference developed in consultation with the CHWG and was conducted by a team of six Aboriginal cultural heritage field officers assisted by an independent technical advisor archaeologist. The assessment methodology involved conducting a 100 per cent pedestrian transect survey coverage across the entire study area.

The Mount Pleasant Project Aboriginal cultural heritage assessments have identified 48 cultural heritage sites within the boundaries of the proposed infrastructure area envelope (see Figure 6.7), which are as follows:

- one scarred tree – site MTP-99 (verified); and
- 47 isolated artefact/s.

All of the sites were assessed as having either low or moderate archaeological significance.

The 2010 conveyor/service corridor cultural heritage study recorded a total of 64 cultural heritage sites comprising the following.

- three scarred trees at Sites MTP-1419, MTP-1441 & MTP-1446;
- five artefact scatters; and
- fifty six isolated artefact sites.

A small number of sites such as the scarred trees and some of the artefact scatters were assessed by the technical advisor as being of moderate archaeological significance. All other sites were assessed as being of low archaeological significance.

The potential scarred trees have yet to have their cultural origins verified under the agreed process set out in the CHMP which requires them to be inspected by community nominated Elders assisted by an experienced arborist. Once the cultural verification process has been concluded if any of these trees are verified as not being of cultural origin, they would be re-classified as not being a cultural heritage site, and accordingly, not subject to any further cultural heritage management requirements.

Together with cultural heritage sites recorded during the initial EIS survey undertaken in 1995 and the supplementary cultural heritage assessments, there are a total number of 170 cultural heritage sites in the proposed conveyor/service corridor (refer to Figure 6.8) as follows.

- Seven scarred trees;
- Ten artefact scatters;

- One hundred and fifty three isolated artefact sites.

There are no sites in the proposed modification areas (i.e. the infrastructure area envelope and the conveyor/service corridor envelope) where the archaeological/scientific values are such that they constitute a constraint on the development as planned.

Aboriginal community representatives engaged in the 2010 survey and in CHWG meetings have expressed the view that cultural heritage material and sites of all kinds are of significance to them as they represent one of the few remaining tangible links that they have with their ancestors and their country. The position that they generally express is that they would prefer development disturbance avoid Aboriginal cultural heritage wherever possible. Community members involved in consultations with the technical advisor for this study expressed their understanding of the archaeological significance assessments and understood the range of mitigation strategies that may need to be employed, should Coal & Allied be limited in designing the layout of infrastructure that may result in an application to disturb Aboriginal Sites located by this survey.

### iii Assessment

Impacts on Aboriginal cultural heritage resulting from the development and mining activities associated with the proposed modifications would not differ substantially from what was assessed and considered within the CHMP developed under the existing development consent. All development impacts would be managed and mitigated under the processes, procedures and management methodologies detailed in the CHMP and as approved under subsequent AHIPs issued by the DECCW under Part 6 of the NPW Act.

With respect to the proposed infrastructure envelope and optional conveyor/service corridor, it is considered that the proposal would have a relatively minor impact on Aboriginal cultural heritage through careful and informed design and construction, based on the management principle of avoiding disturbance of Aboriginal cultural heritage sites where possible.

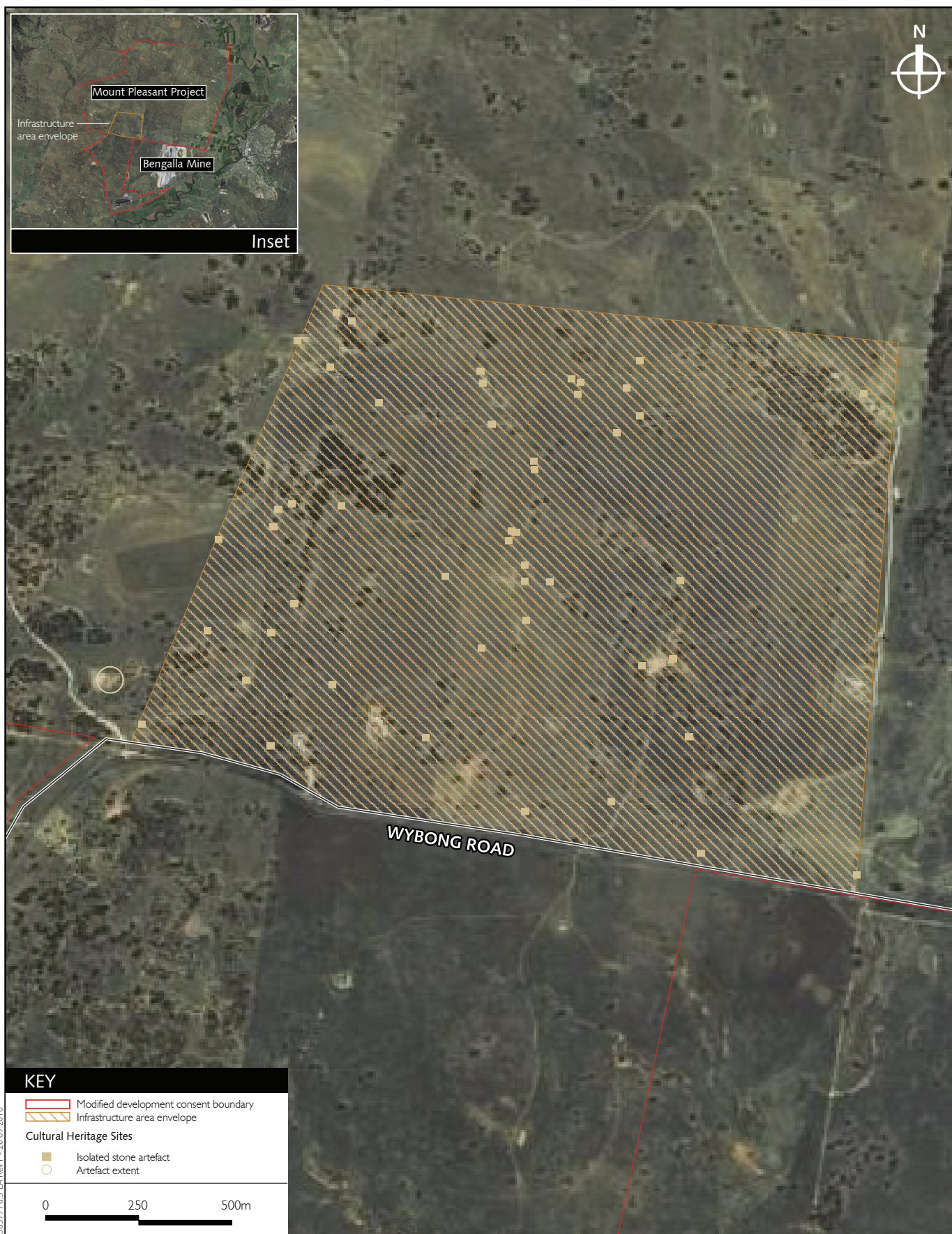
The infrastructure that would be constructed in the infrastructure area envelope would be similar in scale and footprint to those infrastructure items previously approved. Given that the sites recorded within the infrastructure area envelope are considered of low to moderate archaeological significance, potential impacts of a modified configuration of the infrastructure within the envelope are considered of low to moderate risk.

Moreover, should the conveyor/service corridor option be constructed and remove the need for the rail facilities, those Aboriginal cultural heritage sites that would have been disturbed by the construction of the rail facilities will be left undisturbed by the Mount Pleasant Project.

The conveyor/service corridor disturbance footprint will be approximately 6.7km in length and up to 30m in width. The corridor would include the conveyor, service road and associated drainage infrastructure. The total disturbance area associated with the conveyor/service corridor would be approximately 20ha. This is approximately 7.3ha less than the approved area of disturbance associated with the rail facilities and this is likely to, depending on the final alignment of the optional conveyor/service corridor, result in less disturbance to cultural heritage sites should this option be pursued.

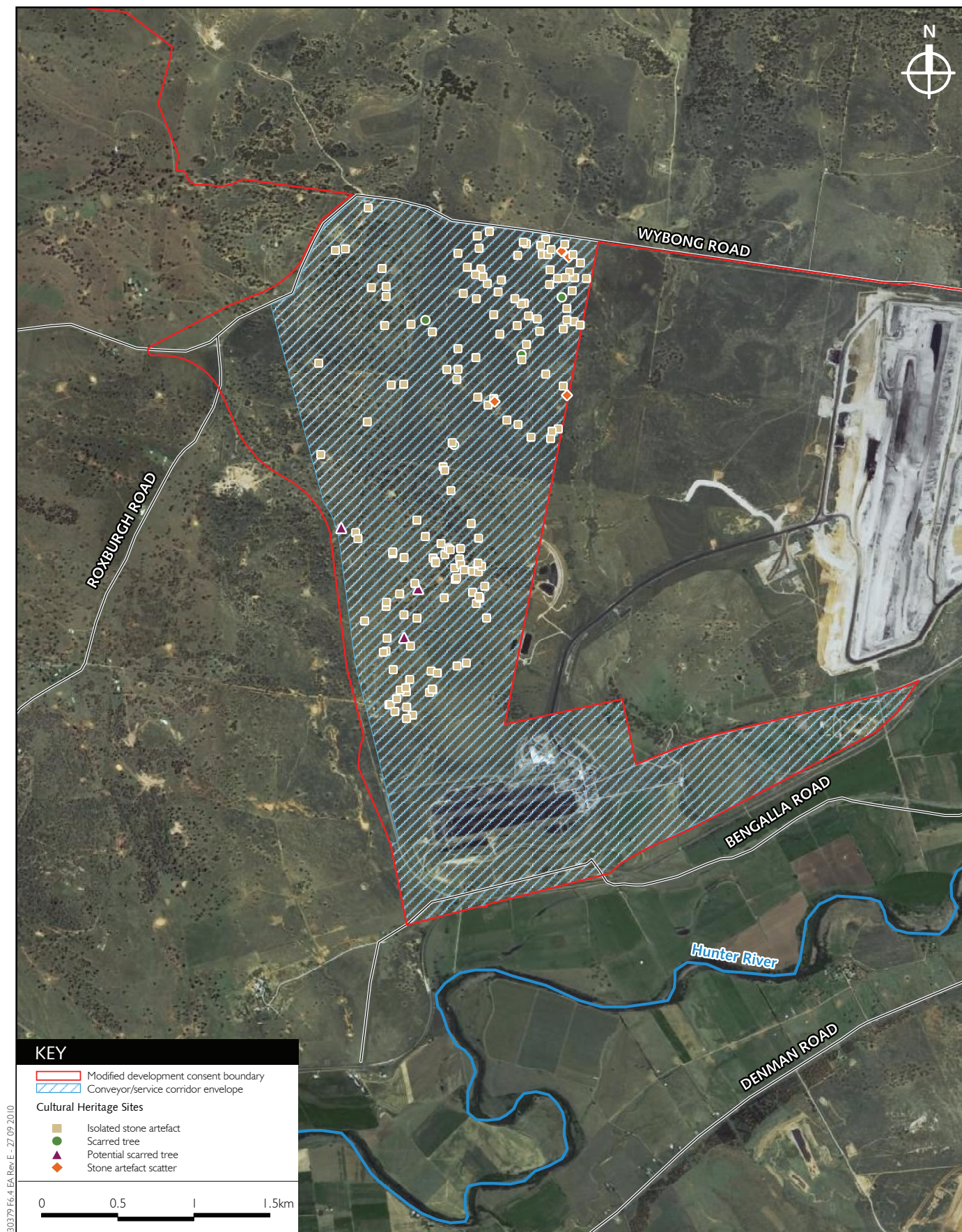
If the infrastructure proposed for the infrastructure area envelope and conveyor/service corridor envelope cannot be designed or constructed without impacting one or more Aboriginal cultural heritage sites, then the provisions of the CHMP will apply and an AHIP consent sought from DECCW in consultation with the CHWG.





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### 6.4.3 Management and monitoring

Aboriginal cultural heritage management is, and will continue to be, undertaken in accordance with Rio Tinto Coal Australia guidelines and relevant Coal & Allied procedures. In summary, management of cultural heritage impacts will be achieved by:

- applying the principle of site avoidance as a key element in infrastructure design and construction; and
- where site avoidance is impossible, applying the cultural heritage management approaches that are set out in the CHMP for the Mount Pleasant Project area. This will include lodging an application for the relevant AHIPs under section 90 of the NPW Act.

Specifically, management actions for the proposed modifications (based on the assumption that the conveyor/service option is pursued) comprise the following.

- A field inspection of both the infrastructure and conveyor/service corridor envelopes will be conducted with CHWG members to finalise the design, alignment and protective management measures and to identify any unavoidable impacts associated with the proposed modifications.
- Aboriginal cultural heritage sites that cannot be avoided will be mitigated by standard salvage collection measures in accordance with the CHMP, following the issue of an AHIP (section 90, NPW Act).
- The CHMP will be revised to include the proposed modifications and any requirements specified by the regulator.
- Any mitigation salvage will be staged over time based upon mine operation plan requirements and the zoning regime of the CHMP.
- All cultural materials collected will be stored in the temporary cultural heritage storage facility at Coal & Allied's Hunter Valley Services or at a facility to be established at the Mount Pleasant Project or VCA under an approved Care and Control Permit.
- All cultural heritage sites not affected by the proposed modifications will be managed in-situ in accordance with the Rio Tinto Coal Australia Cultural Heritage Management System procedures for long-term protective management and to minimise future development disturbance.
- Sites that are assessed as vulnerable to damage due to proximity to roads and tracks or other operational infrastructure will be appropriately buffered and barricaded in accordance with existing site protection protocols including monitoring protocols.

### 6.4.4 Conclusions

There are no identified cultural heritage sites in the proposed infrastructure envelope and optional conveyor/service corridor of such significance that they represent a constraint to the proposed modifications. Careful design and siting of the infrastructure and optional conveyor/service corridor within the envelopes is likely to decrease the potential impacts on cultural heritage as compared with the approved project. Impacts on cultural heritage are anticipated to be minimal. Coal & Allied will comply with the CHWG members requirement that any sites that cannot be avoided should be mitigated in accordance with the CHMP, following application for, and issue of, AHIPs under Part 6 of the NPW Act.



## 6.5 Visual amenity

This section describes the existing visual character of the proposed modification areas and surrounds, identifies potentially sensitive viewpoints in relation to these areas, and assesses the potential visual impacts of the proposed modifications on visual amenity. Measures proposed to minimise and mitigate the potential for the identified visual impacts are also stipulated.

### 6.5.1 Existing environment

The regional landscape surrounding Muswellbrook and the Mount Pleasant Project area is dominated by existing mining activities, namely those of Bengalla Mine and Mount Arthur Mine. Interspersed amongst the remaining areas are regions of different land use including rugged, forested landforms incised by numerous tributaries of the Hunter and Goulburn Rivers, undulating pasture lands and the distinct chequered pattern of crops, vineyards and orchards within the broader floodplain.

East of the Mount Pleasant Project area are the Hunter River and associated alluvials. This flood plain contains agricultural uses, separating the undulating foothills to the west and east. Land to the west is used mostly for pasture and grazing, with varying amounts of remnant woodland. Distinctive features on the southern horizon include the dominant features of the Bengalla Mine and Mount Arthur Mine and the high ranges of the Wollemi National Park. Other notable visual elements include various industrial activities such as mining, electricity generation and electricity transmission.

The visual catchment of the proposed modifications is defined as the areas in which the proposed modifications would be visible. There are limited viewing opportunities of the proposed modification areas due to their location and undulating nature of the intervening landscape and vegetation that provides a natural barrier to viewers. The visual catchment boundaries for this assessment are deemed to be Bengalla Road and Bengalla Link Road to the south and south-west, Roxburgh Road to the west and north-west, Wybong Road to the north and New England Highway to the west. Only certain sections on these roads would have views of the proposed modifications. The infrastructure area and conveyor/service corridor will not be visible from Racecourse Road, South Muswellbrook or Muswellbrook.

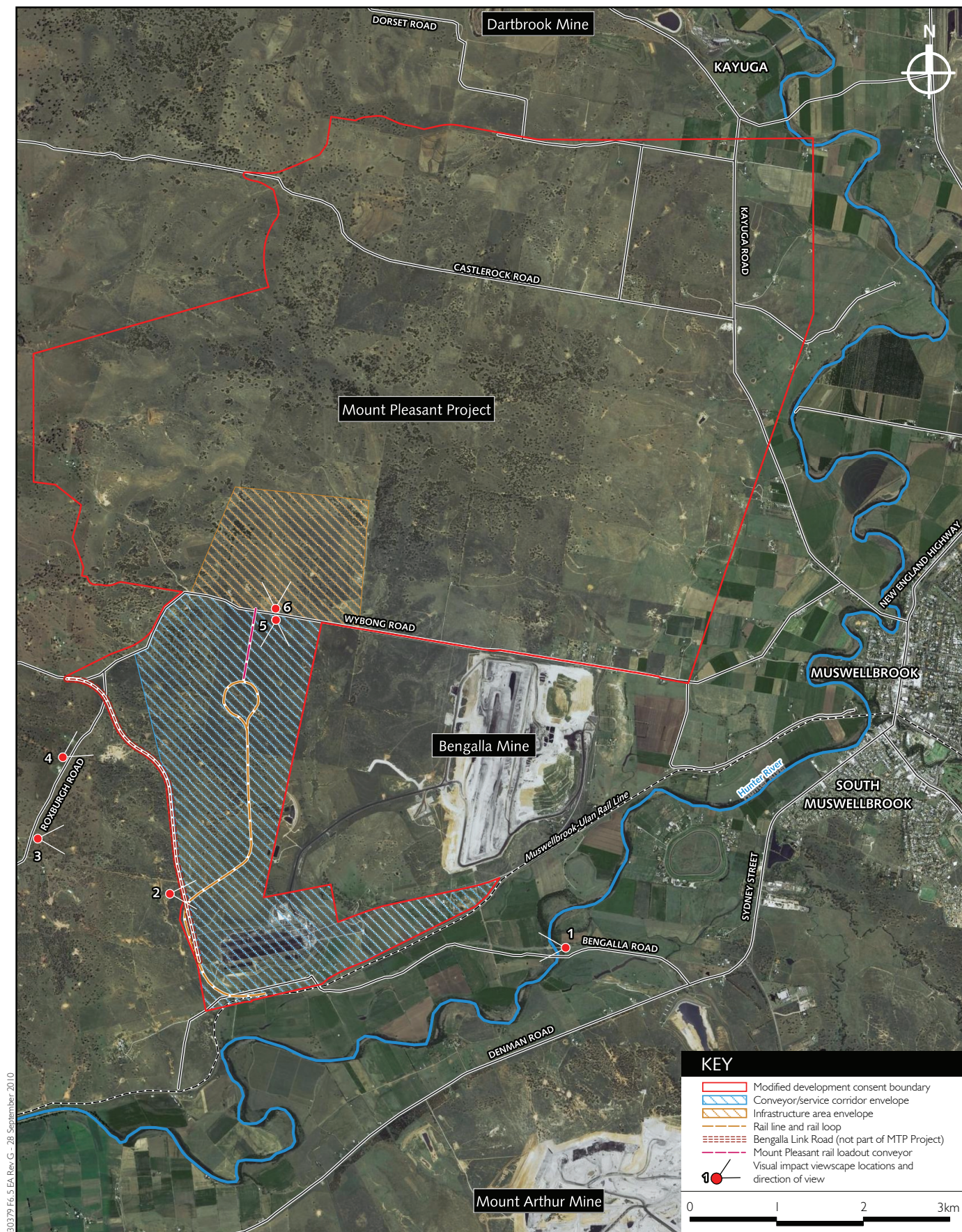
### 6.5.2 Impact assessment

Six viewscape locations were selected as representative locations where the proposed modifications would be visible. The six viewscape locations are located on public roads as it was considered that nearby private residences, including those within Muswellbrook, would not have high visibility of the proposed modifications. These viewscape locations are shown on Figure 6.9.

Potential impacts have been assessed by considering the visibility of the proposed modification components to surrounding areas, the visual absorption capacity of the area with respect to these components, and the visual sensitivity of the viewscales.

Visual absorption capacity is the ability of a landscape to be changed and still retain its existing visual characteristics, such as rural, built or natural character. It is determined by considering the visibility of the proposed modifications and the degree of contrast between the proposed modifications and the local regional viewscales.





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Visual sensitivity is a measure of the level of concern attached by the surrounding land users to a change in the landscape character. It is based on factors including the number of people affected, land use, visibility, the current degree of exposure to the style of development proposed, distance of viewers from the proposed modification areas, and the duration of viewing time.

The visual characteristics of each viewscape are described in terms of three horizontal sections. These are:

- foreground of the viewscape - this is the lowest horizontal section;
- mid-section of the viewscape - this is the middle section of viewscape; and
- upper section of the viewscape - this is the top horizontal section of viewscape.

This assessment has been undertaken on the optional conveyor/service corridor. The potential visual impacts of the conveyor/service corridor would not differ significantly from those approved for the rail facilities.

The modified configuration of the infrastructure within the infrastructure envelope is anticipated to result in a negligible change to the potential impacts to visual amenity in comparison to the specific locations of the infrastructure detailed in the EIS, regardless of its position within the envelope area. Accordingly, this assessment has focussed on the potential impacts to visual amenity from the optional conveyor/service corridor.

A summary of the visual impact assessment findings for each of the six viewscape locations is presented in Table 6.7.



**Photograph 6.1**      **Viewscap location 5 (Wybong Road) - facing south**



**Table 6.7** Viewscope locations: visual impact assessment results

Viewscope location	Existing viewscope details	Proposed modification components potentially visible	Visual sensitivity	Visual absorption capacity	Significance of visual impacts
1: This viewscope is located on Bengalla Road, on the eastern side of the Hunter River, facing west.	The foreground of this viewscope features relatively flat agricultural land. The mid-section of this viewscope comprises a narrow band of dense vegetation, associated with the Hunter River flowpath through this area and parts of the stacks associated with the Bengalla Mine infrastructure area are visible.	Sections of the conveyor/service corridor and surge bin (and associated night lighting) may potentially be visible in the area where the existing stacks of Bengalla Mine infrastructure area are currently visible. Any potential views of the proposed modifications would comprise only a minor increase in the existing mining component of the viewscope.	Low	High	This potential visual impact is considered minor.
2: This viewscope is located on Bengalla Link Road a short distance past the entrance to the Bengalla Mine, facing east.	The foreground, mid-section and upper section of this viewpoint comprises an existing visual screen consisting of an earth bund and a line of vegetation on top of this bund. The Bengalla Mine surge bin is present behind this bund and is not visible. The surge bin is of similar height (between 30-50m) to that proposed as part of the proposed modifications.	The top section of the surge bin (and associated night lighting) may potentially be visible above the existing bund if the surge bin is in the upper range of the potential construction height.	Low	Moderate	This potential visual impact is considered minor.
3: This viewscope is located on Roxburgh Road, facing east.	The foreground of this viewscope comprises open agricultural land, sloping downwards to the east. The mid-section of this viewscope comprises a dense line of vegetation, above which the infrastructure area of the Bengalla Mine is visible. The upper section of this viewscope contains the Bengalla Mine pit as a dominant feature, behind which an undulating ridgeline is visible, with patches of interspersed vegetation.	Sections of the conveyor/service corridor (and associated night lighting) may potentially be visible as a thin line in front of the existing infrastructure area of the Bengalla Mine, which is currently visible through a small gap in the intervening vegetation.	Moderate	High	This potential visual impact is considered minor.
4: This viewscope is located on Roxburgh	The foreground of this viewscope is the same as that of viewscope location 3. The mid-section of this viewscope is	As per viewscope location 3.	Moderate	High	This potential visual impact is

**Table 6.7** Viewscope locations: visual impact assessment results

Viewscope location	Existing viewscope details	Proposed modification components potentially visible	Visual sensitivity	Visual absorption capacity	Significance of visual impacts
Road, a short distance north of viewscope location 3, facing north-east.	dominated by a small hill, covered with vegetation. The south-east component of this mid-section viewscope contains the Bengalla Mine infrastructure area. The upper section of this viewscope contains the Bengalla Mine pit as a dominant feature, behind which an undulating ridgeline is visible, with patches of interspersed vegetation.				considered minor.
5: This viewscope is located on Wybong Road, facing south.	The foreground of this viewscope comprises relatively flat agricultural land. The mid-section of this viewscope comprises moderately sized, undulating hills with scattered vegetation. The south-east area of the upper section of this viewscope comprises some areas of the Bengalla Mine pit and associated activities visible, behind which a distant ridgeline is visible. All other areas of the upper section are dominated by ridgelines with scattered vegetation, extending from the mid-section of this viewscope (refer to Photograph 6.1).	The conveyor/service corridor and infrastructure area (and associated night lighting) will be visible from this viewscope.	Low	Moderate	Moderate visual impacts are projected to result to this viewscope.
6: This viewscope is located on Wybong Road, facing north.	The foreground, mid-section and upper section of this viewscope comprises undulating agricultural land with limited vegetation (refer to Photograph 6.2).	The conveyor/service corridor and infrastructure area (and associated night lighting) will be visible from this viewscope.	Moderate	Moderate	Moderate visual impacts are projected to result to this viewscope.



**Photograph 6.2** Viewscape location 6 (Wybong road) - facing north

### 6.5.3 Management and monitoring

Visual amenity management will be undertaken in accordance with Condition 3.8 of the development consent, which requires the preparation of a Landscape Management Plan. This plan will include actions for plantings, infrastructure design and maintenance, and maintenance of visual amenity through landscaping and rehabilitation. Additionally, Condition 6.5 of the development consent requires the preparation of an engineering report regarding lighting, including on-site flood-lighting. Should the conveyor/service corridor option be pursued, these operations would be incorporated into this engineering report.

Specifically, the Landscape Management Plan will include, where appropriate, provision for the establishment of trees and shrubs in areas, as agreed to by Coal & Allied, for the maintenance of satisfactory visual amenity. It should also be noted that the future planned closure of Wybong Road would also assist in reducing visible areas of the optional conveyor/service corridor and infrastructure area.

### 6.5.4 Conclusions

The undulating nature and existing vegetation of the local landscape limit viewing opportunities of the proposed modification areas. Furthermore, viewing opportunities of the proposed modifications will be restricted to intermittent views from passing motorists on Wybong Rd. However, some parts of the proposed modifications including associated night lighting will be visible from the viewscape locations identified in Table 6.7.

The implementation of the management measures presented in Section 6.5.3 is considered to be sufficient to mitigate the potential visual impacts that would result from the proposed modifications.

## 6.6 Surface water

This section describes the potential surface water impacts of the proposed modifications. Measures proposed to minimise the potential for surface water impacts are also stipulated.

### 6.6.1 Existing environment

The primary watercourse in the vicinity of the Mount Pleasant Project is the Hunter River. The Hunter River flows within 1km generally to the east of the Mount Pleasant Project and is also located within 1km south of the proposed surge bin for loading product coal onto train wagons associated with the conveyor/service corridor option.

The proposed modification areas are located a considerable distance from the Hunter River itself, with the closest edge being approximately 4km to the west of the 1 in 100 year Hunter River flood Average Recurrence Interval.

The Mount Pleasant Project area comprises numerous drainage lines and catchment areas. These drainage lines and catchment areas and their interactions with the Mount Pleasant Project were assessed within the EIS and form the basis of the existing Water Management System. The Water Management System provides for the management of water supply and pollution control across the operations and is expected to be generally in accordance with that described in the EIS.

### 6.6.2 Impact assessment

#### i Infrastructure area

The construction of the infrastructure area will be undertaken in accordance with the descriptions outlined in the EIS. Similarly, the key aspects of the Water Management System outlined within the EIS will incorporate the final layout of the infrastructure area and the associated management requirements to maintain the clean water and mine water circuits across the operations.

As stated in the EIS, potable water for the industrial area will be sourced from the Hunter River or trucked to site and treated on-site to the required standards. The final configuration of the infrastructure area will be generally in accordance with this requirement. The proposed modifications are not expected to result in additional demands from, or discharge to the Hunter River.

There would be negligible change to the potential surface water impacts associated with siting of similar infrastructure within the infrastructure envelope rather than at specific locations shown in the EIS.

#### ii Conveyor/service corridor

Soil disturbance from construction can temporarily increase the sediment load of runoff from disturbed surfaces. As the potential alignment of the conveyor system traverses varying topography, there is the potential for areas of cut and fill requirements to enable its construction. However, in order to minimise potential areas of disturbance, the final alignment of the conveyor may utilise elevated footings to minimise the extent of cut.

Disturbance associated with the earthworks for the conveyor would be similar to the approved potential construction impacts associated with the rail facilities. Potential impacts to surface water during

construction would be readily managed through standard erosion and sediment controls, as contemplated by the rail facilities. Therefore, any additional sediment load generated by the construction works would be minimal and would have negligible impact on receiving waterbodies.

The operation of the conveyor/service corridor would require the installation of minor catch drains and catch dams at selected locations along the final alignment. These catch drains and catch dams would be designed to collect runoff potentially containing coal dust or minor spillage from the conveyor during rain events and either pump the collected water back into the mine water circuit within the Water Management System or hold the collected water before releasing the water into the surrounding catchments. The implementation of these elements would be determined during the detailed design process. Condition 4.1 of the development consent requires the preparation of a Water Management Plan prior to construction. As such, the design and implementation of the catch drains and dams will be incorporated into the Water Management Plan and overall Water Management System for the Mount Pleasant Project in order to efficiently manage water across the operations and minimise potential for off-site impacts.

### 6.6.3 Management and monitoring

As stated in the section above, Condition 4.1 of the development consent requires the preparation of a Water Management Plan prior to construction. The proposed modifications of the conveyor/service corridor (if this option is pursued) and the infrastructure area and the resultant water management design features would require incorporation into the Water Management System for the Mount Pleasant Project. These features will include the design of the catch drain and catch dam locations required for the final alignment of the optional conveyor/service corridor.

### 6.6.4 Conclusions

The proposed modifications to the Mount Pleasant Project would have minor alterations to the existing Water Management System for the operations. The construction works for the proposed optional conveyor/service corridor and the infrastructure area are considered to have a low potential to impact surface water resources and can be adequately managed through the implementation of construction environmental management techniques. Similarly, the operation of the conveyor/service corridor and infrastructure area is considered to have a low potential for adverse surface water impacts to the local receiving environment.

## 6.7 Other social and environmental aspects

As determined by the environmental risk assessment undertaken for the proposed modifications (refer to Chapter 5) and subsequent investigations, the proposed construction and operation of the optional conveyor/service corridor in place of the rail facilities and modified configuration of the infrastructure area would have a minimal or negligible impact on the environmental aspects listed in Table 6.8. The table outlines assessment outcomes, and where applicable management measures, for these issues that are incorporated into the Statement of Commitments (refer to Chapter 7).

**Table 6.8** Other social and environmental aspects

Environmental aspect	Issue description	Management measures
Soils and land capability	<p>The conveyor/service corridor alignment would result in approximately 7.3ha less disturbance than that of the approved rail facilities should this option be pursued. Accordingly, this option would result in a reduction of potential impacts to soils and land capability.</p> <p>The siting of similar infrastructure within the infrastructure envelope rather than at specific locations shown in the EIS would result in reduced earthworks. The EIS shows this area being comprised of Class IV, V and VI land. No other potential soils and land capability impacts additional to those approved would result from the proposed modifications.</p>	The final alignment of the conveyor/service corridor will be incorporated into the Soil Stripping Plan (refer to development consent Condition 3.5) and the Erosion and Sediment Control Management Plan (refer to development consent Condition 3.5).
Socio-economic	The proposed modifications do not alter the predicted economic outcomes of the EIS for either construction or operation of the Mount Pleasant Project. The modification may lead to a reduction in capital costs due to the optimisation of infrastructure.	No specific additional management required.
Traffic and rail transport	<p>The construction of the optional conveyor/service corridor may create minor traffic generation with the delivery of the required plant and equipment. However, potential impacts are expected to be similar or less than the construction of the approved rail facilities and manageable within the existing road network.</p> <p>As with the currently approved rail loadout conveyor, the optional conveyor would pass beneath Wybong Road via an underpass structure. Construction of the underpass structure would require temporary diversion of traffic on Wybong Road in the affected area for approximately four – six weeks.</p> <p>The proposed modifications would not result in any additional rail movements on the Muswellbrook – Ulan Rail Line as anticipated by the EIS.</p>	No specific additional management required.
Groundwater	The construction of the conveyor/service corridor in place of the rail facilities and modified configuration of the infrastructure area would not impact groundwater. The required depth of disturbance for the construction of the conveyor/service corridor and infrastructure area is such that it is not expected to interact with identified groundwater aquifers (as referenced within the EIS) and result in adverse groundwater impacts.	No specific additional management required.
European heritage	A review of local, state and national heritage registers indicates that there are no listed heritage items within the proposed modification areas.	No specific additional management required.



Table 6.8 Other social and environmental aspects

Environmental aspect	Issue description	Management measures
Rehabilitation	The proposed conveyor/service corridor in place of the rail facilities would result in a smaller disturbance footprint for the Mount Pleasant Project. Following the completion of mining, these lands will require rehabilitation. The rehabilitation objectives and requirements, as outlined in the EIS, will remain applicable to the lands associated with the conveyor/service corridor and infrastructure area.	No specific additional management required.

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## 7 Statement of commitments

This chapter describes the commitments that will be made by the Mount Pleasant Project throughout the life of the proposed modifications to manage potential impacts identified within this EA. Commitments include management, mitigation and/or monitoring measures.

All Rio Tinto managed operations and business units are required to have and maintain a certified Environmental Management System conforming to the ISO 14001 international standard, which is certified to the business by an accredited body.

The ISO 14001 provides a framework for an organisation to identify and manage the environmental impact of its activities, products and services, and to improve its environmental performance continually.

In conforming with the adopted international Environmental Management System standard, the following environmental aspects, as required by the development consent, are considered:

- emissions to air;
- greenhouse gas emissions;
- noise and vibration;
- releases to underground and surface waters;
- mineral and non-mineral waste generation and disposal;
- land use;
- use of hazardous materials;
- use of natural resources;
- changes to ecosystems; and
- product life cycle.

Monitoring, corrective action and management review is then put in place to ensure environmental management remains at its highest.

Procedures throughout Coal & Allied have been put in place to handle non-conformances and sites regularly undergo internal and external audits to ensure they comply with their Environmental Management System, Rio Tinto Environmental Management System standard and ISO 14001.

As required in Condition 9.2 of the development consent, an AEMR is produced each calendar year in accordance with the existing consent conditions. The Mount Pleasant Project's environmental performance with respect to the relevant monitoring requirements is documented in the AEMR, and made available to the community on the Coal & Allied website.

The technical reports recommend a number of management and control measures to minimise the potential impacts resulting from the proposed modifications. These measures have been considered in the context of the approved Mount Pleasant Project operations and the management plans to be

developed as required by the development consent. This Statement of Commitments details those controls that are specific to the proposal.

**Table 7.1**      **Commitments**

<b>Environmental aspect</b>	<b>Commitment</b>
Noise and vibration	<ul style="list-style-type: none"> <li>• A NMP will be prepared in accordance with Condition 8.4 of the development consent.</li> <li>• The NMP will be extended to include management of potential noise emissions associated with the construction of the conveyor. The plan will also consider pro-active and predictive modelling and management, and protocols for managing noise during adverse meteorological conditions.</li> <li>• Noise monitoring will continue to be undertaken in accordance with development consent Condition 6.4.3 of the development consent.</li> <li>• Implementation of the following feasible and reasonable mitigation measures: <ul style="list-style-type: none"> <li>- a cover and a shield on the western side of the conveyor at locations where the conveyor would be at ground level. Where the conveyor is elevated, it will be completely enclosed;</li> <li>- plant will operate in less exposed areas during the more sensitive night period;</li> <li>- procurement of new and best available technology plant;</li> <li>- provision of noise suppression on all mobile plant. It anticipated that the noise suppression technology will require an outlay of capital expenditure of between \$15M and \$20M; and</li> <li>- updating the comprehensive operational noise management plan to include real-time back to base noise monitoring using the best available technology.</li> </ul> </li> <li>• Coal &amp; Allied is committed to working with its communities and extend the opportunity for upfront acquisition upon request to the additional 13 properties affected under adverse conditions.</li> </ul>
Ecology	<ul style="list-style-type: none"> <li>• During the construction phase pre-clearance surveys of relevant forest and woodland areas for threatened flora and fauna species will be undertaken.</li> <li>• Details of the rehabilitation of the infrastructure area and conveyor/service corridor (should this option be pursued) upon decommissioning will be provided in the REMF.</li> <li>• Ecological management for the Mount Pleasant Project will be undertaken in accordance with the Flora and Fauna Management Plan which is a requirement under the existing development consent (Condition 3.4).</li> </ul>
Air quality	<ul style="list-style-type: none"> <li>• Air quality management for the Mount Pleasant Project will be undertaken in accordance with the Air Quality Management Plan which is a requirement under the existing development consent (Condition 6.1).</li> </ul>
Aboriginal cultural heritage	<ul style="list-style-type: none"> <li>• Aboriginal cultural heritage management will continue to be undertaken in accordance with Rio Tinto Coal Australia guidelines and relevant Coal &amp; Allied procedures.</li> <li>• Site avoidance will be considered as part of the detailed design process to determine the final location for the siting of the infrastructure within the infrastructure envelope</li> </ul>

**Table 7.1**      **Commitments**

Environmental aspect	Commitment
	<p>and the alignment of the optional conveyor/service corridor.</p> <ul style="list-style-type: none"> <li>Where site avoidance is impossible, cultural heritage management approaches that are set out in the CHMP for the Mount Pleasant Project area will be applied. This will include lodging an application for the relevant AHIPs under section 90 of the NPW Act.</li> <li>A field inspection of both the infrastructure and conveyor/service corridor envelopes will be conducted with CHWG members to finalise the design, alignment and protective management measures and to identify any unavoidable impacts associated with the proposed modifications.</li> <li>Aboriginal cultural heritage sites that cannot be avoided will be mitigated by standard salvage collection measures in accordance with the CHMP, following the issue of an AHIP (section 90, NPW Act).</li> <li>The CHMP will be revised to include the proposed modifications and any requirements specified by the regulator.</li> <li>Any mitigation salvage will be staged over time based upon mine operation plan requirements and the zoning regime of the CHMP.</li> <li>All cultural materials collected will be stored in the temporary cultural heritage storage facility at Coal &amp; Allied's Hunter Valley Services or at a facility to be established at the Mount Pleasant Project or VCA under an approved Care and Control Permit.</li> <li>All cultural heritage sites not affected by the proposed development will be managed in situ in accordance with the Rio Tinto Coal Australia Cultural Heritage Management System procedures for long-term protective management and to minimise future development disturbance.</li> <li>Sites that are assessed as vulnerable to damage due to the proximity to roads and tracks or other operational infrastructure will be appropriately buffered and barricaded in accordance with existing site protection protocols including monitoring protocols.</li> </ul>
Visual amenity	<ul style="list-style-type: none"> <li>Visual amenity management will be undertaken in accordance with Condition 3.8 of the development consent, which requires the preparation of a Landscape Management Plan.</li> <li>Lighting management will be undertaken in accordance with Condition 6.5 of the development consent, which requires the preparation of an engineering report regarding light emissions.</li> </ul>
Surface water	<ul style="list-style-type: none"> <li>Water management for the proposed modifications will be incorporated into the Water Management System for the Mount Pleasant Project, as per Condition 4.1 of the development consent. These features will include the design of the catch drain and dam locations required for the final alignment of the optional conveyor/service corridor.</li> </ul>
Other environmental aspects	<ul style="list-style-type: none"> <li>The final alignment of the optional conveyor/service corridor will be incorporated into the Soil Stripping Plan (refer to development consent Condition 3.5) and the Erosion and Sediment Control Management Plan (refer to development consent Condition 3.5).</li> <li>All other aspects will be managed in accordance with Mount Pleasant Project environmental management system, and the relevant environmental licensing and</li> </ul>

**Table 7.1**      **Commitments**

Environmental aspect	Commitment
Operational Management	development consent requirements.
	<ul style="list-style-type: none"> <li>Should the conveyor/service corridor be pursued, a Plan of Management will be prepared in consultation with Bengalla Mine in order to manage activities associated with the facilities at Bengalla Rail Spur. The Plan of Management would include:</li> </ul>
	<ul style="list-style-type: none"> <li>- details of responsibilities for Bengalla Mine and Mount Pleasant Project;</li> </ul>
	<ul style="list-style-type: none"> <li>- commitments regarding compliance with relevant and respective development consents; and</li> </ul>
	<ul style="list-style-type: none"> <li>- details of management protocols to be performed by Bengalla Mine and Mount Pleasant Project ensuring compliance with consent conditions.</li> </ul>



## 8 Project justification and conclusions

### 8.1 Introduction

This report has examined the potential environmental impacts of the proposed modifications to the Mount Pleasant Project. The Project is being considered under section 75W of the EP&A Act.

In this chapter the impacts of the proposed modifications are weighed up to determine whether the proposed modifications are justified from a public interest perspective, providing consideration to the applicable objects of the EP&A Act.

### 8.2 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 approved Mount Pleasant Project area contains a substantial coal resource of approximately 1,423Mt (ERM 1997) with approximately 439Mt being recoverable by open cut mining (ERM, 1997). The approved project is for the extraction of approximately 197Mt of ROM coal over a 21 year period. The open cut resources alone represent some nine per cent of total recoverable reserves in the Hunter coal field which in turn is the major coal field in NSW containing some 45 per cent of the State’s recoverable coal (estimated from data in ERM 1997). It is clear that this resource is of State significance. The current consent, together with the proposed modifications, would enable the resource to be efficiently and effectively extracted. The proposed modifications would contribute to the *“proper development of valuable natural resources”*.

The proposed modifications will be important components in the development and operation of the mine. Whilst the Mount Pleasant Project has development consent and could potentially be developed without the modifications discussed in this document subject to the attainment of further approvals, the modifications provide options that may enable reduced capital cost, efficiencies in operations and a reduction in the footprint of disturbance, subject to further engineering assessments and commercial agreements. These modifications will contribute to a lower mine development cost and provide for greater mine operation efficiency.

The impacts of the Mount Pleasant Project, as originally proposed, have been fully assessed and were determined to be acceptable by the then Minister for Urban Affairs and Planning. The environmental assessment presented in this document has examined the potential impacts of the proposed modifications and has found that they would be less than those forecast for the original proposal for some environmental aspects, with the exception of noise. If the conveyor option is pursued, the DECCW’s operational criteria are predicted to be exceeded at one residential assessment location to the west under calm weather. For prevailing weather conditions, modelling predicts that three additional residential assessment locations have been identified where noise levels are predicted to be above acquisition levels that would be typically set by the DoP. The disturbance footprint may be approximately 7.3ha less should the conveyor option be pursued. The modifications provide options that may enable

reduced capital cost, efficiencies in operations and a reduction in the footprint of disturbance, subject to further engineering assessments and commercial agreements enabling the options to be pursued.

*"Ecologically sustainable development"*

Ecologically sustainable development is defined by the Commonwealth government as: "using, conserving and enhancing the community's resources so that ecological processes, on which life depends, are maintained, and the total quality of life, now and in the future, can be increased."

The modified proposal satisfies the intent of ESD in that it would provide options, subject to engineering and commercial agreements, that may minimise the footprint of disturbance at lower capital and operational costs.

Each of the individual principles of ESD is considered 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 Mount Pleasant Project has fulfilled both of these requirements and incorporates the full range of necessary safeguards. The Minister will impose any necessary additional conditions to address the proposed modifications. Thus, the proposed modified project meets the precautionary principle.

*Social equity including intergenerational equity:* the proposed modifications provide options, subject to engineering and commercial agreements, for the more efficient and cost effective development and operation of the Mount Pleasant Project.

*Conservation of biological diversity and maintenance of ecological integrity:* the proposed modifications provide options, subject to engineering and commercial agreements, that may result in less ecological impacts than the approved project should the conveyor option be pursued. It would, thus, enable better conservation of biodiversity.

*Improved valuation and pricing of environmental resources:* the Mount Pleasant Project was granted development consent in 1999 and, to this extent, the government has valued and priced the environmental resources relevant to the Mount Pleasant Project. The proposed modifications would have a minimal or neutral effect in the application of this principle.

While the modifications alone would be of little consequence in terms of ESD, they would provide options, subject to engineering and commercial agreements, that may reduce capital and operational costs and lessen the footprint of disturbance.

The overall conclusion is that the proposed modifications are consistent with key relevant objects of the EP&A Act.

### 8.3 Conclusions

The modifications proposed follow a recent review of the Mount Pleasant Project and they would result in greater efficiencies, mainly by providing more flexibility in the actual siting of coal transport and mine support facilities. The increased flexibility would also reduce environmental disturbance by approximately 7.3ha should the conveyor/service corridor option be pursued.

The proposed modifications provide options, subject to engineering and commercial agreements, that would comprise manageable environmental impacts overall and potentially reduce capital and operational costs. It also provides an opportunity to update the development consent with INP based noise limits and more significantly, provides modern day rights to those additional 13 properties affected under adverse weather conditions to upfront acquisition upon request, whereas the existing development consent requires monitoring and mitigation during operations.

It is considered that, on balance, the overall potential impacts are consistent with the approved development.

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## Acronyms

$\mu\text{g}/\text{m}^3$	micro-grams per cubic metre
AEMR	Annual Environmental Management Report
AHIP	Aboriginal Heritage Impact Permit
AWS	Automatic Weather Station
CCC	Community Consultative Committee
CHMP	Cultural Heritage Management Plan
CHPP	Coal Handling and Preparation Plant
CHWG	Cultural Heritage Working Group
Coal & Allied	Coal & Allied Operations Pty Limited
CoI	Commission of Inquiry
DA	Development Application
DECC	Department of Environment and Climate Change
DECCW	Department of Environment, Climate Change and Water
DEWHA	Department of Environment, Water, Heritage and the Arts
DoP	Department of Planning
EA	Environmental Assessment
ED1	Environmental Dam 1
EEC	Endangered Ecological Community
EIS	Environmental Impact Statement
EMM	EMGA Mitchell McLennan Pty Limited
EP&A Act	Environmental Planning and Assessment Act 1979
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999
EPL	Environment Protection Licence
ERM	ERM Mitchell McCotter
ESD	Ecologically Sustainable Development
GIS	Geographic Information System
ha	hectares
HVAS	High Volume Air Samplers
ICNG	Interim Construction Noise Guidelines
INP	Industrial Noise Policy
kg	kilograms
$\text{kg}/\text{ha}/\text{yr}$	kilograms per hectare per year
$\text{kg}/\text{t}$	kilograms per tonne
$\text{kg}/\text{yr}$	kilograms per year
km	kilometres
kW	kilowatts
LEP	Local Environmental Plan
LGA	Local Government Area

## Acronyms

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m	metres
m/s	metres per second
MLA	Mining Lease Application
MNES	Matters of National Environmental Significance
MSC	Muswellbrook Shire Council
Mt	million tonnes
Mtpa	million tonnes per annum
NES	National Environmental Significance
NMP	Noise Management Plan
NPW Act	National Parks and Wildlife Act 1974
NSW	New South Wales
PM <sub>10</sub>	Particulate matter with equivalent aerodynamic diameters of 10 µm or less
POEO Act	Protection of the Environment Operations Act 1997
PSNC	Project Specific Noise Criteria
REMP	Rehabilitation and Environment Management Plan
RBL	Rating Background Levels/Representative Background Noise Levels
ROM	run of mine
SEPP	State Environmental Planning Policy
t	tonnes
tph	tonnes per hour
TSC Act	Threatened Species Conservation Act 1995
TSP	Total Suspended Particulate
VCA	Voluntary Conservation Area
WM Act	Water Management Act 2000

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