

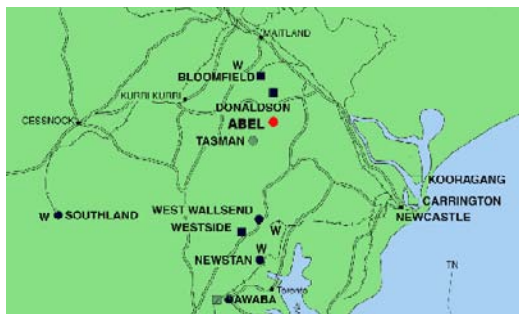
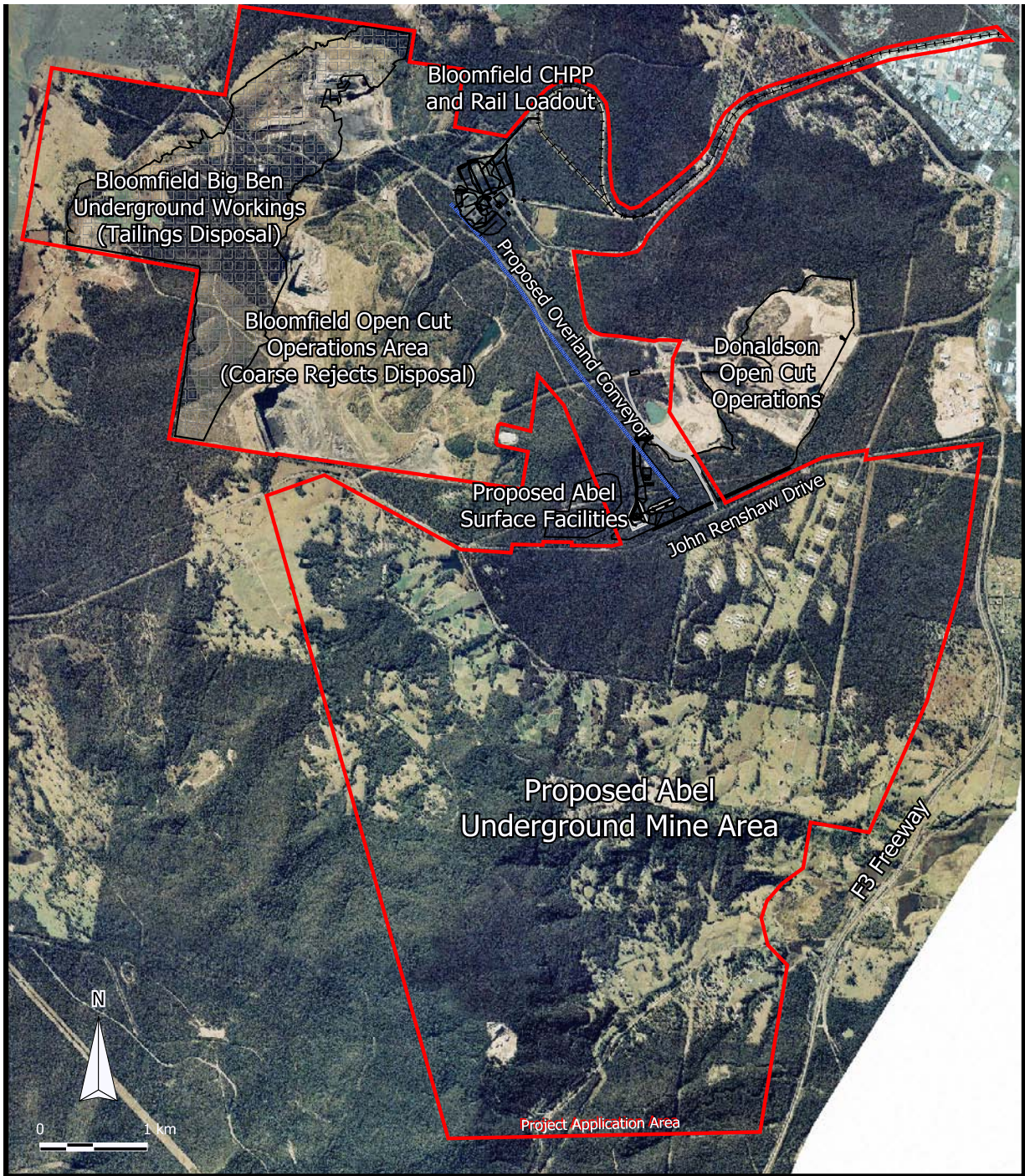
DONALDSON COAL Pty Ltd

Abel Underground Mine

PART 3A ENVIRONMENTAL ASSESSMENT
EXECUTIVE SUMMARY

22nd September 2006







Abel Underground Mine Project
Aerial Site Plan

Figure 1
28/07/06

Cover Photo

Looking South over the proposed Abel Underground Mine area



Introduction

Donaldson Coal Pty Ltd ('Donaldson') proposes to develop a new underground mine south of John Renshaw Drive, approximately 23 kilometres north-west of Newcastle. The proposed mine will extract up to 4.5 million tonnes per year over 21 years using high productivity continuous miner based bord and pillar systems, using pillar extraction techniques. Mine access and associated surface infrastructure will be located within the existing Donaldson Mine open cut void, with transfer of coal to the existing Bloomfield Coal Handling and Preparation Plant immediately to the north for coal washing and rail transport to the Port of Newcastle.

This Executive Summary provides an overview of the Environmental Assessment prepared for the proposed Abel Underground Mine. The Assessment will be publicly exhibited by the Department of Planning for at least 30 days, after which an Assessment Report will be prepared by the Department, taking into consideration submissions received during the exhibition period, prior to the project being determined by the Minister for Planning.

Location

The Project Application Area, including the proposed underground mine area and surface facilities, is shown on Figure 1. The underground mine area is bounded on the eastern side by the F3 Freeway, the western side by a geological feature in the vicinity of Buttai Creek and northern side by John Renshaw Drive.

North of John Renshaw Drive, the Project Application Area is generally disturbed by existing open cut coal mining activities within the Donaldson and Bloomfield mine leases. South of John Renshaw Drive, the proposed underground mine area of approximately 2750 hectares consists of low undulating forested hills with patches of cleared land for 110 rural/residential properties. Large areas of land are owned by Donaldson, Coal and Allied and the Catholic Diocese of Maitland and Newcastle. Black Hill School, various local roads and other infrastructure are located in the area.

A ridgeline associated with Black Hill runs east-west through the proposed underground mine area. Tributaries of Buttai Creek, Viney Creek/Weakleys Flat Creek and Four Mile Creek drain northwards from this ridgeline, with Long Gully/

Blue Gum Creek draining the southern side of the ridgeline eastwards towards Pambalong Nature Reserve, which has been excluded from the proposed mine area. Some limited clifflines and steeper gullies are located along sections of the Black Hill ridge.

The proposed Abel Underground Mine is within Newcastle, Cessnock and Maitland local government areas (LGAs). The majority of the underground mine and surface infrastructure area is within Cessnock LGA. All mining and associated surface activities are permissible with consent by the land zonings applied by the three Councils.

Project Description

Abel Underground Mine proposes to extract up to 4.5 million tonnes of coal over 21 years from the Upper and Lower Donaldson seams, which lie between 30 and 450 metres beneath the surface. Mine planning and design has been able to incorporate several key features that permit coal to be extracted with minimal environmental impact. These features include:

- the use of existing Donaldson and Bloomfield mine infrastructure and areas of disturbance to minimise surface impacts;
- the use of flexible bord and pillar systems with pillar extraction techniques to manage subsidence; and
- development of an integrated multi-site monitoring system to monitor potential impacts over a wider area, with improved data sharing and management.

The existing Donaldson Open Cut Mine, on the northern side of John Renshaw Drive, has approval to operate until 2012, when economic reserves will be exhausted. The remaining void from Donaldson Open Cut Mine will be used as the access point for the proposed Abel Underground Mine. This means that all proposed surface facilities required for Abel Underground Mine, such as buildings, equipment, stockpiles, roads and conveyor systems, can be placed within the existing area of disturbance. No new areas will need to be cleared for surface facilities, and the facilities will be hidden from the majority of views as they will be approximately 30 metres below the ground surface, within the void.

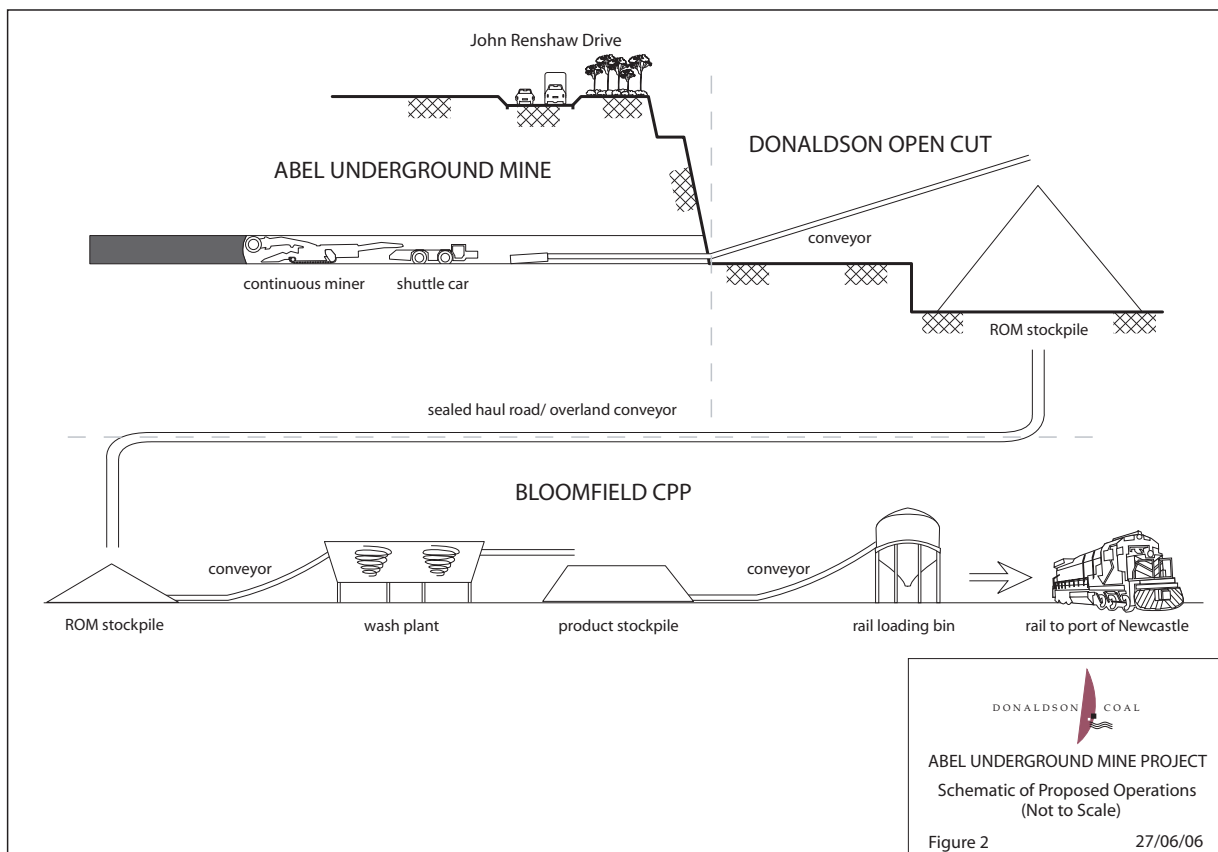
Abel Underground Mine also proposes to use the existing Bloomfield coal handling and preparation plant (CHPP) and rail loading facility. This existing facility requires minor upgrading to cater for this additional coal handling, with the facility accepting coal from the Abel, Tasman, Donaldson and Bloomfield Mines. These improvements and the use of the Bloomfield CHPP, including associated facilities, stockpiles, tailings disposal and rail loop to process 6.5 mtpa ROM coal (5 mtpa product coal) from the proposed Abel Underground Mine as well as the existing Donaldson, Tasman and Bloomfield Mines form part of the project for which approval is sought.

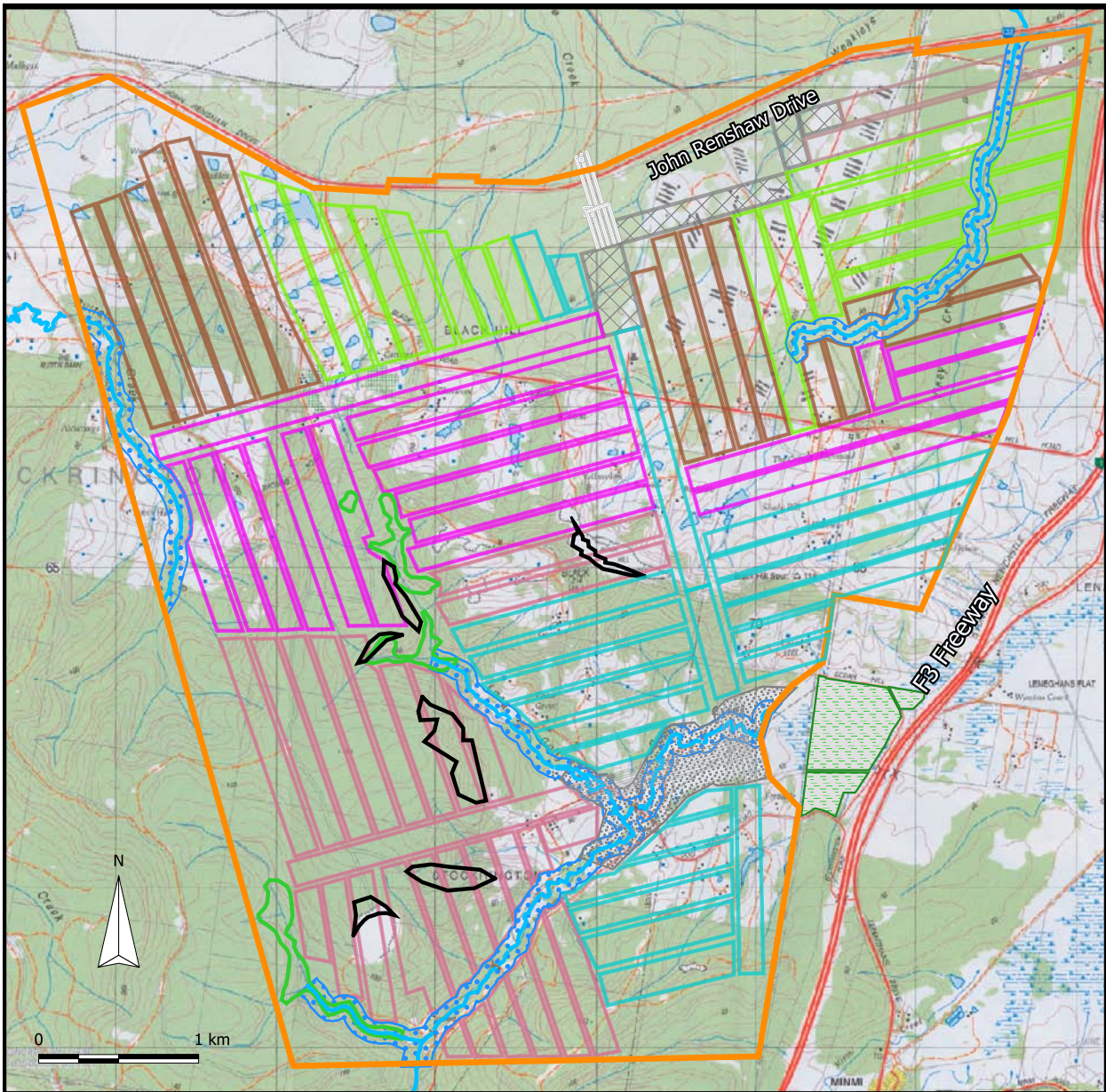
Coal brought to the surface will be transported initially by truck on a private, sealed road and later by conveyor, through the previously disturbed Donaldson Mine to the existing Bloomfield facility, enabling coal to be transported without using public roads. Use of the Bloomfield facility also reduces the distance coal travels by rail to the Port of Newcastle, as this facility is one of the closest to the Port in the Hunter Valley. This environmental assessment also includes the disposal of coarse reject and tailings within former Bloomfield underground workings from the Bloomfield CHPP and open cut voids. Figure 2 provides a schematic of the various stages of coal extraction, processing and transport.

Longwall mining will not be used by Donaldson for this proposal as it does not enable flexible mine planning to protect specific surface features. A high productivity bord and pillar system using continuous miners and pillar extraction was selected as it enables subsidence to be controlled at the surface in varying degrees and locations. Identified structures such as Black Hill School and Church, principal residences and particular creeklines will be protected by reducing the amount of extraction that occurs beneath them. A detailed inventory of surface features was prepared during the planning and consultation process and specific protection measures have been applied as required to ensure that any impact is acceptable.

The proposed mine sequence is shown on Figure 3. Mining will commence in the north, near John Renshaw Drive, in an area with minimal housing, cliffs and creeklines. Therefore, for the first five years, any subsidence and other potential impacts can be carefully monitored and the mine plan and techniques calibrated and varied if required, prior to mining beneath areas to the south.

The Abel Underground Mine project includes an integrated monitoring network from Mount Sugarloaf to Ashtonfield, incorporating the Tasman, Abel, Donaldson and Bloomfield CHPP lease areas. This network co-ordinates monitoring





LEGEND

MINING SEQUENCE	ENVIRONMENTAL FEATURES
Construction Workings	Pambalong Nature Reserve
Development Workings	Blue Gum Creek Alluvium
Production Panels:	
Years 1 - 2	Schedule 2 Creeks
Years 3 - 4	Schedule 2 Creek Zones
Years 5 - 6	Rainforest
Years 7 - 10	Cliff Areas/Quarries
Years 16 - 20	

Abel Underground Mine Project



Indicative Mine Plan Showing
Mining Sequence and
Sensitive Environmental Areas

Figure 3 22/09/2006

points and data between the four sites, enabling co-operative sharing and reporting of more meaningful regional data sets for issues such as noise, dust and water quality.

Risk Assessment Process

The Abel Underground Mine proposal has used a risk assessment process to identify, assess, minimise and manage associated potential risks. Identification of potential risks has assisted in identifying and focussing on the key issues associated with the proposal.

The Abel Project Environmental Risk Assessment, developed using the Risk Management Guidelines Companion to AS/NZS 4360:2004, identified all proposed aspects of the mine and potential environmental impacts for both construction and operational phases. It then allocated risk values to these aspects based on Environmental Consequence Descriptions, together with a five level probability rating for each aspect. Ratings were then provided on the basis of no controls, current controls and proposed controls.

The Environmental Risk Register developed from the above process showed that many aspects of the proposed development, even with no controls, had a low or medium risk rating. Environmental risk associated with subsidence, if no controls were proposed, was considered to be high. When controls were introduced, risk associated with all aspects, including subsidence, reduced to low.

The Environmental Risk Assessment process was used to focus on key issues where the risk of environmental impact was considered higher. Although, after implementation of controls, all aspects were categorised as low level risk, focus was also directed to those aspects that, without controls, presented a higher level of risk.

The risk assessment was renewed and updated following the completion of the majority of the specialist reports and the risk ratings for the key project issues revised. The outcome of this risk assessment is that with the mitigation measures proposed in this EA the project has a low risk ranking for all key issues.

Environmental Assessment – Key Issues

The Environmental Assessment has been prepared in accordance with the requirements of Part 3A of the NSW *Environmental Planning and Assessment Act, 1979*. A Project Application with Preliminary Assessment was prepared and

Consultation

Consultation has been undertaken with government authorities and the local community throughout the planning phase of the Abel Project. Consultation aimed to:

- Inform the local community of the proposal, and address and include their issues in the assessment process;
- Explain technical information to the local community to assist with their decision making and provide a forum for open questions and dialogue; and
- Involve government authorities in the planning process to best address their key considerations in the preliminary project planning phase.

Community consultation consisted of the formation of an Abel Community Liaison Committee, a series of community information sessions chaired by an independent facilitator, together with letter box drops and door knocks with all land holders on the proposed underground mine area. Each landholder who wished to discuss the proposal was spoken with and a preliminary site inspection undertaken to identify principal residences and other improvement structures. This information was used to ensure correct data on residences and structures was used in the assessment process. The proposal has also been discussed with the Donaldson Community Consultative Committee. Minutes of all community information sessions are provided as an Appendix in the Environmental Assessment.



Small pond in Long Gully Creek



lodged with the Department of Planning (DOP) in December 2005. After a Planning Focus Meeting (24 November 2005) attended by various government departments, the Director-General of DOP issued the Environmental Assessment Requirements for the project (issued 6 January 2006) that have been addressed in this Environmental Assessment.

Key issues are those issues that were identified by the Risk Assessment process undertaken for the Preliminary Assessment, comments raised by various government agencies at the Planning Focus meeting and the Director-General of the Department of Planning as issues requiring detailed assessment to determine their potential impact. They include:

- Subsidence;
- Soil and water;
- Noise and vibration;
- Air quality;
- Flora and fauna;
- Heritage;
- Waste;
- Transport; and
- Visual.

Each of these key issues has been assessed and a summary provided as follows.

Water Management

Water related assessment studies focussed on the potential for any regional lowering of groundwater levels in hard rock or alluvial aquifers or nearby wetlands, any impact on the water supply of existing groundwater or surface water users, and any potential impact on groundwater dependent ecosystems. A water balance for the proposed mine operation was also determined, as well as ongoing water monitoring regimes.



Blackhill Orchard

Subsidence Management

A Subsidence Impact Assessment has been completed for the project to determine the potential impacts associated with subsidence above the proposed pillar extraction panels.

The assessment included the identification of surface features including residences, sheds, dams, telecommunications, water and gas supplies as well as sub-surface features such as groundwater aquifers, to determine any potential subsidence impacts on these items.

Maximum expected and credible worst case magnitudes of surface deformation due to total extraction pillar mining on the natural and man-made surface and sub-surface features have been determined.

A preliminary assessment of the tolerable subsidence limits for the natural surface features indicates that the impacts can be managed by a range of strategies that will be implemented via the preparation of the subsidence management plans.

With the implementation of management strategies such as a reduction in the amount of pillar extraction in particular areas, strengthening or repair works, it is expected that 'safe and serviceable' subsidence tolerance limits for man made surface features will be met.

The Subsidence Impact Assessment concludes that levels of impact and damage to all significant natural features and items of infrastructure are manageable and can be controlled by the preparation and implementation of detailed Subsidence Management Plans.

Detailed Subsidence Management Plans are required to be prepared prior to the commencement of mining. These will include individual landowner Subsidence Management Plans, as well as detailed description and analysis of all surface and sub-surface features for each stage of mining.

Principal Residences and Dams

Donaldson Coal has committed to protecting all Principal Residences above the proposed underground mine by leaving long-term stable pillars beneath each residence. A Principal Residence is defined as an existing building capable of being occupied as a separate domicile and used for such purpose. Black Hill School and the Black Hill Church and associated cemetery are to be protected in the same way as Principal Residences. Individual Subsidence Management Plans will be prepared for each residence.

Approximately 175 farm and stock/domestic dams are located over the Abel project area. Subsidence and strain may cause movement and cracking of dam walls that could lead to destabilisation of the wall with gradual leakage or more instantaneous loss of water and erosion of the wall. The potential for this to occur generally reduces where mining is deeper beneath the surface.

A Dam Monitoring and Management Strategy (DMMS) will be formulated for site dams. Each dam will be inspected before, during and after undermining to determine any dam changes due to subsidence. If monitoring indicates a significant potential for dam wall failure, the dam water will be pumped out to lower the water level if required, prior to being reinstated after mining. Any dams damaged by mining will be repaired, with replacement water provided by the mine until repairs are completed.

Studies investigated potential impacts on creeklines and other surface water features such as Pambalong Nature Reserve, as well as groundwater aquifers and registered bores. Monitoring from creeks and groundwater piezometers, modelling of potential groundwater changes and investigation of potential interactions between surface and groundwaters was undertaken.

The groundwater study found that there was negligible hydraulic connection between the surface and near surface water resources, with minimal impacts predicted on either the near surface groundwater or surface flow in the creek system overlying the mine area.

The mine will have a maximum inflow of water of approximately 3 megalitres/day which will create some localised drawdown in groundwater levels. There are no registered groundwater use bores on the site.

No adverse impacts on Pambalong Nature Reserve, or downstream Hexham Swamp or groundwater dependant ecosystems on the site is predicted.

Water quantity and quality will continue to be monitored throughout the project as part of the Integrated Monitoring Network.

Noise and Air Quality

Potential noise and air quality impacts will be minimised through the use of underground mining techniques, limiting any potential noise and dust sources to surface infrastructure areas. The noise and air quality studies undertaken for this project therefore focussed on the area north of John Renshaw Drive, within the existing Donaldson and Bloomfield mine leases.



John Renshaw Drive Intersection under construction for entrance to Donaldson Mine



Pambalong Nature Reserve and Major Creeks

Pambalong Nature Reserve has been excluded from the mine plan, which includes a 50 metre mining exclusion zone from the Reserve boundary.

Subsidence beneath Schedule 2 creeks will be managed in accordance with DIPNR (2002) guidelines to minimise subsidence impacts.

Many of the identified Aboriginal heritage items are located within Schedule 2 creek lines and are therefore protected as per Schedule 2 creeks.

Most rainforest gully ecosystems are also located around Schedule 2 creeklines.

Noise levels from prediction modelling have determined that noise would only exceed project specific criteria by 1dB(A) at one residence, and only at night when there was a north-westerly wind. This residence has an existing agreement with Donaldson. All other residential noise predictions, including residential areas at Ashtonfield and Thornton, are below determined project noise criteria. Maximum noise levels from the project are unlikely to cause sleep disturbance at any location, and any increase in rail noise will not be discernable. Construction noise is predicted to comply with construction noise criteria at surrounding receivers.

The Air Quality Assessment indicated that no residences are likely to experience any exceedances of long-term assessment criteria for air quality as a result of the Abel Underground Mine project.

Flora and Fauna

The flora and fauna study investigated areas above the proposed underground mine area to determine any impact from proposed subsidence. Areas to the north of John Renshaw Drive where surface infrastructure will be located were also investigated. Some areas around the Bloomfield coal handling and preparation plant that will require clearing to cater for Abel coal were also investigated.

Tests of significance for both the NSW *Threatened Species Conservation Act 1995* and the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* indicate that

there will be no significant impact on any threatened species or endangered ecological communities resulting from surface infrastructure activities.

Areas of dry forest on ridges and slopes within the proposed underground lease area would not be impacted by the amount of subsidence proposed. Populations of *Tetratheca juncea* would not be placed at risk by a small change in ground level and there would be no impact on the fauna of the area.

Pambalong Nature Reserve has been excluded from the mine plan and subsidence beneath rainforest gullies along Long Gully Creek and its upper tributaries will be limited by reducing the amount of extraction that occurs beneath these areas. Consequently, there will be negligible subsidence risk to these areas. As the major gullies that supply water to Pambalong Nature Reserve contain the rainforest areas, there is not expected to be a loss of water flowing into the Reserve as a result of the Abel Project.

Archaeology

Due to comprehensive surface inspections for Aboriginal Heritage objects north of John Renshaw Drive undertaken over recent times for Donaldson Open Cut Mine, the potential for evidence other than a widespread distribution of stone artefacts is considered very low. A single grinding groove site located along Four Mile Creek where mitigation measures will be implemented to protect the site.

Impacts from underground mining in the area south of John Renshaw Drive are limited to mining induced subsidence which could affect rock shelters and grinding groove sites. Some grinding groove sites were located along Long Gully, which is to be protected from subsidence. Further detailed



Water sampling in local creek

surveys will be undertaken and mitigation measures implemented ahead of each mining stage. These will determine any archaeological evidence and measures to be put in place to protect the site if required. These actions will be included in the Aboriginal Heritage Management Plan, to be formulated in consultation with the relevant Aboriginal stakeholders to specify policies and actions to mitigate and manage the potential impacts of the proposal on Aboriginal heritage. With implementation of the management and mitigation measures detailed in the archaeological study, the risk of residual impact to Aboriginal heritage from the proposal is considered to be low.

Other Issues

The proposed Abel Underground Mine will employ 375 people. Access to the surface facilities will be via a new intersection with John Renshaw Drive, constructed as part of the Tasman Mine development to the south of George Booth Drive.

A traffic assessment has determined that traffic flows on John Renshaw Drive will not be adversely affected by turning movements to and from this intersection, associated with increased traffic from the Abel Underground Mine.

A visual assessment was undertaken to determine any change in the visual environment due to the proposed Abel Underground Mine. As mining will be underground, any visual change will be restricted to the area of surface infrastructure north of John Renshaw Drive, together with alterations required to the Bloomfield coal handling and preparation plant, such as additional stockpiles, to cater for Abel coal. With controls on mining beneath clifflines and other identified surface features, any subsidence from underground mining is not expected to affect the visual landscape. The visual assessment undertaken for the project considers that any change to the visual environment as seen from some residences in Ashtonfield to the north of the Bloomfield rail loader will be minimal.

Waste management from surface facilities will follow existing Donaldson procedures. Coarse reject from the coal washing process will be disposed of within Bloomfield Colliery's existing pits, with fine reject (tailings) pumped into the Colliery's former underground workings and used to fill open cut voids. Studies have been undertaken to determine that there is sufficient room for these tailings within the former workings, and that there will be minimal impact on regional

aquifer quality. As tailings management areas fill up they will be rehabilitated.

All studies undertaken for the proposed Abel Mine took into consideration any cumulative impact from the operation of the Abel Underground Mine together with the Donaldson Mine, Bloomfield Mine and Tasman Mine to the south. There were no adverse conclusions resulting from these studies of cumulative impact.

Environmental Management and Statement of Commitments

The Abel Underground Mine will continue to build on the environmental management system and procedures used for the Donaldson Open Cut Mine. Additional procedures will be introduced for underground mining aspects, such as subsidence management, and additional items such as the use of Bloomfield facilities.

Environmental assessment studies will continue to monitor conditions during the life of the mine so that further baseline information ahead of mining can be collected and mining methods adjusted if necessary. The Environmental Risk Assessment process will remain an integral part of this decision making process.

An integrated monitoring network has been developed as a key component of the Abel Underground Mine proposal. Current and proposed environmental monitoring undertaken for the Tasman, Abel, Donaldson and Bloomfield CHPP sites was investigated to remove data duplication and add sites where data is currently not being collected. Sharing of data between the four sites and reporting on a larger geographical area will assist sites to manage their potential environmental impacts and make decisions for the benefit of all four sites. For example, dust data



Farm Dam



will be collected and reported in a co-ordinated way across the four sites and reported together in one report to provide more comprehensive regional air quality picture.

The Environmental Assessment includes a draft Statement of Commitments. These are Donaldson's commitments to prevent, control and manage potential impacts and provide ongoing management and mitigation of impacts if required. It includes a commitment to monitor subsidence, surface and groundwaters, noise and vibration, air quality, flora and fauna, archaeology and other items and to continue to inform and discuss site activities with the local community.



Blackhill School

Conclusion

The proposed Abel Underground Mine will employ approximately 375 people and create significant royalties and taxes for the NSW Government. Up to 4.5 million tonnes of high quality coal will be extracted using an underground extraction process that enables the mine to protect identified surface features such as residences, the school, church, major creeklines and rainforest habitat.

A risk assessment process has been used to identify all activities associated with the proposal and their potential environmental impacts. Mitigation measures and controls have been identified and applied to these activities, and a resulting environmental risk rating applied to determine the key project issues. Studies on these key issues have been completed to determine potential impacts and develop mitigation and management strategies.

All studies undertaken and the continued operation of the Bloomfield CHPP and associated transport and tailings disposal for the proposed Abel Underground Mine predict that the risk of environmental impact from underground mining or use of surface facilities will be low. Studies will continue to be updated through further investigation and monitoring to ensure predictions remain accurate. This enables the maximum amount of data to be applied to prediction modelling ahead of mining.

The Abel Project has key features that provide a unique opportunity to remove high grade coal with minimal environmental impact. These are:

- the use of existing Donaldson and Bloomfield Mine infrastructure and areas of disturbance to minimise surface impacts;
- the selection of flexible bord and pillar techniques with secondary extraction that enables the amount of extraction that occurs in particular areas to be varied so that subsidence can be reduced; and
- development of an integrated monitoring system to monitor potential impacts over a wider area, with greater data sharing and management to assist in providing a more comprehensive regional data set for items such as air and water quality.

Key decisions were made early in the mine planning process to not use longwall mining so that subsidence could be minimised and managed. Exclusion areas such as Pambalong Nature Reserve were also determined, and monitoring systems installed to collect baseline data. The mine plan was designed to include the needs of landowners, in particular to ensure minimal impact to principal residences, and to also be compatible with the draft Lower Hunter Regional Strategy and future reservation of environmentally protected lands in this locality.

Approval of the Abel Underground Mine will enable the extraction of a high grade coal resource located close to the Port of Newcastle in a manner that minimises environmental impact and maximises the use of existing facilities in accordance with the principles of ecologically sustainable development.

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