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Bloomfield Collieries Pty Limited
17-Jan-2018

Environmental Assessment

Bloomfield Colliery - Life of Mine Extension, Modification 4

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Client: Bloomfield Collieries Pty Limited

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Prepared by

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Table of Contents

List of Tables

List of Figures

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Glossary of Terms

Term	Definition
Aboriginal cultural heritage	The tangible (objects) and intangible (dreaming stories, songlines, places) cultural practices and traditions associated with past and present day Aboriginal communities.
Anticline	Upwards-arched fold in the rock strata where the beds dip outwards in two or more directions from the crest.
Aquifer	Geologic formation, group of formations, or part of a formation capable of transmitting and yielding quantities of water.
Archaeological site	A site with material evidence of past Aboriginal or non-Aboriginal activity in which evidence of past activity is preserved.
Archaeology	The scientific study of human history, particularly the relics and cultural remains of the distant past.
Assessment Background Level	The Assessment Background Level (ABL), as defined by the NSW Industrial Noise Policy 2000, is a measure of the background level for noise, representing discrete assessment periods (i.e. day, evening or night) for each day. It is determined by calculating the 10th percentile (lowest 10%) background noise level over a 90 minute period (L_{A90}).
Background noise level	The NSW Industrial Noise Policy 2000 defines the background noise level as the ambient sound-pressure noise level in the absence of the sound under investigation exceeded for 90% of the measurement period. Normally equated to the average minimum A-weighted sound pressure level.
Bed	Stratum of coal or other sedimentary deposit.
Blast	A controlled explosion which is used to loosen the substance being mined.
Bloomfield	Bloomfield Collieries Pty Ltd – Consent Holder
Bore	A cylindrical drill hole sunk into the ground from which water is pumped for use or monitoring.
Borehole	A hole produced in the ground by drilling for the investigation and assessment of soil and rock profiles.
Catchment	The area from which a surface watercourse or a groundwater system derives its water.
Carbon dioxide equivalents (CO_{2e})	Carbon dioxide equivalents. Used as a standard measurement of the level of effect of various gases on the atmosphere, particularly greenhouse gases.
Clearing	The removal of vegetation or other obstacles at or above ground level.
Coal Handling and Preparation Plant	Treatment by screening coal into various sizes to meet a purchasers requirements and treatment by one or more processes to reduce the amount of waste (ash) present in the coal.
Coking coal	Coal suitable for the manufacture of coke.
Conveyor	A means of transporting coal. It consists of a belt being driven by a motor drum system over a structure roller assembly.
Cover	The overburden above the coal resource.
Critical habitat	A critical habitat as defined under the *Threatened Species Conservation Act 1995* (repealed) includes, the whole or any part or parts of the area or areas of land comprising the habitat of an endangered species, population or ecological community or critically endangered species or ecological community, that is critical to the survival of the species, population or ecological community.
Cumulative impacts	Combination of individual effects of the same kind due to multiple actions from various sources over time.
Cut	Mechanically slice a coal seam to extract the coal resource.
Decibel	A scale unit used in the comparison of powers and levels of sound energy. Used for measuring noise.
Discharge	A release of water from a particular source.
Drainage	Natural or artificial means for the interception and removal of surface or subsurface water.

Term	Definition
Earthworks	Operations involved in loosening, excavating, placing, shaping and compacting soil or rock.
Ecology	The study of the relationship between living things and the environment.
Ecologically sustainable development	As defined by the *Protection of the Environment Administration Act 1991*, requires the effective integration of economic and environmental considerations in decision making processes including: The precautionary principle. Inter-generational equity. Conservation of biological diversity and ecological integrity. Improved valuation, pricing and incentive mechanisms (includes polluter pays, full life cycle costs, cost effective pursuit of environmental goals).
Ecosystem	As defined in the *Environment Protection and Biodiversity Conservation Act 1999*, an ecosystem is a 'dynamic complex of plant, animal and micro-organism communities and their non-living environment interacting as a functional unit.'
Emission	The discharge of a substance into the environment.
Endangered Ecological Community	An ecological community identified by the *Threatened Species Conservation Act 1995* that is facing a very high risk of extinction in New South Wales in the near future, as determined in accordance with criteria prescribed by the regulations, and is not eligible to be listed as a critically endangered ecological community.
Environmental Management Plan	A plan used to manage environmental impacts during each phase of project development. It is a synthesis of proposed mitigation, management and monitoring actions, set to a timeline with defined responsibilities and follow up actions.
Environmental management system (EMS)	A quality system that enables an organisation to identify, monitor and control its environmental aspects. An EMS is part of an overall management system, which includes organisational structure, planning activities, responsibilities, practices, procedures, processes and resources for developing, implementing, achieving, reviewing and maintaining the environmental policy.
Environment	As defined within the *Environmental Planning & Assessment Act, 1979*, all aspects of the surroundings of humans, whether affecting any human as an individual or in his or her social groupings.
Environmental Protection Licence (EPL)	Environment Protection Licence. EPLs are issued by Environment Protection Authority under the *Protection of the Environment Operations Act 1997*. EPLs with respect to scheduled development work or scheduled activities or non-scheduled activities may regulate all forms of pollution (including water pollution) resulting from that work or those activities. EPLs authorising or controlling an activity carried on at any premises may also regulate pollution resulting from any other activity carried on at the premises to which the licence applies.
Extraction height	The heights at which the seam is extracted.
Exploration	The work done to prove or establish the extent of the coal resource.
Greenhouse gases	Gases with the potential to cause climate change (e.g. methane, carbon dioxide and others listed in the *National Greenhouse and Energy Reporting Act 2007*). Expressed in terms of carbon dioxide equivalent.
Groundwater	Water located within an aquifer; that is, held in the rocks and soil beneath the earth's surface.
Habitat	The place where a species, population or ecological community lives (whether permanently, periodically or occasionally).
Hydrocarbon	Any organic compound — gaseous, liquid or solid — consisting only of carbon and hydrogen.
Hydrogeology	The study of subsurface water in its geological context.
Hydrology	The study of rainfall and surface water runoff processes.
Impact	Influence or effect exerted by a project or other activity on the natural, built and community environment.

Term	Definition
Interburden	The rock between two geological features.
Intrusive noise	Intrusive noise, as defined in the NSW Industrial Noise Policy, refers to noise that intrudes above the background level by more than five decibels.
Key threatening process	As defined under the *Threatened Species Conservation Act 1994*, a key threatening process is any listed process under the Act that adversely affects threatened species, populations or ecological communities, or that could cause species, populations or ecological communities that are not threatened to become threatened.
Landscape character	The aggregate of built, natural and cultural aspects that make up an area and provide a sense of place. Includes all aspects of a tract of land – built, planted and natural topographical and ecological features.
Overburden	The geological units and material above the coal seam to be mined.
Pollutant	Any matter that is not naturally present in the environment.
Product coal	Coal that has been processed within the processing plant to remove unwanted waste rock and prepared to customers specifications.
Project Area	The area of land within the mining lease boundary (CCL 761 and ML 1738) which includes the current and proposed extraction areas, the unshaped overburden dump areas, the workshop and the internal roads connecting the open cut pits to the ROM coal stockpile, the CHPP and the workshop.
Rating Background Level (RBL)	The RBL, as defined in the NSW Industrial Noise Policy, is the overall single-figure background level representing each assessment period (day/evening/night) over the whole monitoring period (as opposed to over each 24-hr period used for the assessment background level).
Rehabilitation	The return of disturbed land to a stable, productive and self-sustaining condition, after taking into account beneficial uses of the site and surrounding land.
Revegetation	Direct seeding or planting (generally with native species) within an area in order to re-establish vegetation that was previously removed from that area.
Run-off	The portion of water that drains away as surface flow.
Run of mine	Raw coal production that contains coal and rock.
Seam	Layer or bed of coal.
Sensitive receiver	A location where a person works or resides, including residential, hospitals, hotels, shopping centres, play grounds, recreational centres or similar.
Stockpile	Stored materials such as product coal, soil, sand, gravel and spoil/waste.
Surface water	Water flowing or held in streams, rivers and other wetlands in the landscape.
Water table	The surface of saturation in an unconfined aquifer at which the pressure of the water is equal to that of the atmosphere.
Waterway	Any flowing stream of water, whether natural or artificially regulated (not necessarily permanent).

Acronyms / Abbreviations

Acronym	Term/ Definition
ABS	Australian Bureau of Statistics
ACHMP	Aboriginal Cultural Heritage Management Plan
AEMR	Annual Environmental Management Report
AHIMS	Aboriginal Heritage Information Management System
CCC	Community Consultative Committee
CHPP	Coal Handling & Preparation Plant
CCL	Consolidated Coal Lease
CCWSS	Cessnock City Wide Settlement Strategy
CO	Carbon monoxide
CO_2	Carbon dioxide
DA	Development Application
dB(A)	Decibels using the A-weighted scale measured according to the frequencies perceptible to the human ear.
DoE	Department of Environment (Cth)
DP&E	Department of Planning and Environment
DPI	Department of Primary Industries
DRG	DP&E – Division of Resources and Geosciences (formerly known as Department of Resources and Energy)
EA	Environmental Assessment
EARs	Environmental Assessment Requirements (issued by the Secretary of the Department of Planning and Environment)
EC	Electrical Conductivity
EEC	Endangered Ecological Community
EMS	Environmental Management Systems
EPA	NSW Environment Protection Authority
EP&A Act	*Environmental Planning and Assessment Act 1979* (NSW)
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999* (Cth)
EPL	Environment Protection Licence
ESAP	Energy Savings Action Plan
FBA	Framework for Biodiversity Assessment
g/m^2	grams per square metre
GHG	Greenhouse gas
Ha	Hectare/s
HVAS	High Volume Air Samplers
INP	Industrial Noise Policy
KMA	Koala Management Plan
LEP	Local Environment Plan

Acronym	Term/ Definition
LGA	Local Government Area
ML	Mining Lease
MOP	Mining Operations Plan
µg/m^3	microgram per cubic meter
MIC	Maximum Instantaneous Charge
Mining SEPP	*State Environment Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007*
ML	Mining Lease
MLA	Mine Lease Area
Mtpa	Million tonnes per annum
N_20	Nitrous oxide
NES	Matters of National environmental significance (from the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*).
NMP	
NO	Nitrogen monoxide
NO_2	Nitrogen dioxide
NO_x	Oxides of nitrogen
OEH	Office of Environment and Heritage
PCT	Plant Community Type
PEA	Preliminary Environmental Assessment
POEO Act	*Protection of the Environment Operations Act 1997*(NSW)
PM	Particulate matter
$PM_{2.5}$	Particulate matter less than 2.5 microns in diameter.
PM_{10}	Particulate matter less than 10 microns in diameter.
RBL	Rating Background Level
RMP	Rehabilitation Management Plan
RMS	Roads and Maritime Authority
ROM	Run-of-mine. Coal delivered from the mine that reports to the coal preparation plant. This is raw material for the coal preparation plant and can consist of coal, rocks, middlings, minerals and contamination.
SEPP	State Environmental Planning Policy
TAPM	The Air Pollution Model
TDS	Total Dissolved Solids
TEC	Threatened Ecological Community
TSC Act	*Threatened Species Conservation Act 1995* (NSW) (now referred to as *Biodiversity Conservation Act 2016* (NSW)).
TSP	Total Suspended Particulate

Declaration

Author of the Environmental Impact Statement

Name	Simon Murphy
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	Master of Social Science (Environment and Planning)

Author of the Environmental Impact Statement

Name	Catherine Brady
Address	Level 21, 420 George Street, SYDNEY NSW 2000
Qualification	Bachelor of Arts (Geography and Economics)
	Master of Urban and Regional Planning

Address of the Land to which this EIS Applies

The land subject to this EIS is located north of John Renshaw Drive, Buttai and east of Buchanan Road, Buchanan, in NSW.

Description of the Project to which this EIS Applies

This EIS examines the works that would be required for the Project. The key Project elements include:

- The extension of the existing open cut mining operation for an additional nine years (i.e. until 31 December 2030) beyond the life of the existing consent;
- Continuation of mining within approved extraction areas at existing production limits of up to 1.3 Mtpa of ROM coal; and
- Modification of the previously approved final landform, moving the final void approximately 200 metres to the west.

Assessment of the Environmental Impact of the Project

An assessment of the environmental impact of the Project is contained in this Environmental Impact Statement.

Declaration

Pursuant to clause 6(f), Part 3, Schedule 2 of the Environmental Planning and Assessment Regulation 2000,
I declare that this Environmental Impact Statement:

a. Has been prepared in accordance with the requirements of the Environmental Planning and Assessment Act 1979 and the Environmental Planning and Assessment Regulation 2000;

b. Contains all available information that is relevant to the environmental assessment of the Project to which this Environmental Impact Statement relates; and

c. Contains information that is neither false nor misleading.

Simon Murphy

17 January 2018

Catherine Brady

17 January 2018

Executive Summary

Introduction

The Bloomfield Colliery (the Colliery) is an existing open cut mining operation located approximately 20 kilometres north-west of Newcastle. The Colliery is operated by Bloomfield Collieries Pty Limited (Bloomfield), part of the Bloomfield Group of companies. The Colliery currently operates in accordance with Project Approval 07_0087 issued under Part 3A (repealed) of the *Environmental Planning and Assessment Act 1979,* with approved production levels of 1.3 million tonnes per annum (Mtpa) of Run of Mine (ROM) coal. Mining operations under the existing approval may take place until 31 December 2021.

Based on current annual mining rates and an estimate of remaining coal reserves inside the approved extraction area, mining is expected to extend beyond 2021. Bloomfield is therefore seeking a modification to the Project Approval to allow for the continuation of mining within Consolidated Coal Lease (CCL) 761 and Mining Lease (ML) 1738 beyond the life of its current consent.

The Project would allow the Colliery to continue its open cut mining operations and use existing mine infrastructure to process up to 1.3Mtpa of ROM coal until 31 December 2030. The Project also includes a modification of the previously approved final landform by moving the final void approximately 200m to the west.

The current operations at the Colliery include various mining items and activities that have previously been approved as part of the Abel Project Approval (MP 05_0136) for the Abel Underground Mine, granted by the Minister for Planning to Donaldson Coal Pty Limited on 7 June 2007. These infrastructure items and activities include:

- Coal Handling and Preparation Plant (CHPP) and associated water management;
- Rail loading facility; and
- Coarse reject and tailings disposal and coal handling.

These infrastructure items and activities do not form part of this application, but have been considered as part of the assessment of potential cumulative impacts. While the Abel Underground Mine is currently in care and maintenance, Bloomfield would continue to operate these facilities in accordance with the relevant Abel Project Approval conditions of consent. The Project would synchronise the approval timeframe of Project Approval 07_0087 to coincide with the Abel Project Approval consent limit of 31 December 2030. This would allow common infrastructure to be used by both mines until completion.

Project Need and Benefits

Under the current Project Approval (MP_07_0087) Schedule 2 Condition 5, mining operations may take place on the site until 31 December 2021. However, mining is now predicted to extend beyond 2021 for the following reasons:

- The originally predicted ROM coal production levels of 1.3 Mtpa have been lower than anticipated over the life of the project to-date;
- Changes to the mine fleet have allowed extraction of seams that were not previously considered to be a recoverable resource as part of the *Bloomfield Colliery Completion of Mining and Rehabilitation: Part 3A Environmental Assessment* (2008 EA) prepared by Business Environment Pty Ltd. This has increased the amount of recoverable resource at the Mine and therefore the time required for extraction; and
- Further exploration has been undertaken which has identified other previously unrecoverable resources that the new fleet can now access.

As a result of these factors, Bloomfield has identified up to 13 million tonnes of ROM coal remaining inside the approval area. Approval of the Project would therefore enable Bloomfield to extract the identified resource of saleable coal until 31 December 2030.

The Project would see the existing economic and social benefits of the Colliery operations continue over the life of the extended Project Approval. The Project would prolong the life of the Colliery and provide ongoing direct employment for the existing 93 personnel at the Colliery for an additional nine years beyond the life of the current approval. A number of indirect jobs are also supported through the use of contractors for a variety of services.

Project Description

The Proponent is seeking a modification to the Project Approval MP 07_0087 to extend the life of mining at the Colliery until 31 December 2030. This modification would align the Bloomfield mining operations consent limit to coincide with the Abel Underground Mine consent limit.

Existing mining methods would continue to be employed as part of the Project to extract up to 1.3 Mtpa of ROM coal from within the existing approved extraction area. Changes to the mine fleet have allowed extraction of seams that were not previously considered to be a recoverable resource in the 2008 EA. In addition, further exploration has identified other previously unrecoverable resources that the new fleet can now access. This modification therefore proposes a revised mine plan which includes extraction of deeper coal seams than originally approved.

The revised mine plan proposed as part of this Project would result in a modification of the previously approved final landform by moving the final void approximately 200m to the west.

Alternatives

The feasibility of alternatives to the Project was considered, including alternative mine plans and final landforms, mine scheduling, transport methods, and rehabilitation and final land use.

Alternative mine plans considered including the ‘do nothing’ option which would retain the existing approved final landform, the ‘no final void’ option, the ‘large void plan’ and the ‘flat area plan’ The proposed mine plan was selected as it is the most efficient method of mining the last remaining economically viable coal seams on the site. The resulting final landform offers the best shape and slope for post mining commercial utilisation and there would be no highwalls remaining within the final void (as opposed to the currently approved 2008 EA final landform).

This Project aims to extract up to a maximum of 1.3 Mtpa ROM coal up until 31 December 2030. This rate is the same or similar to historical operations. More rapid extraction could be undertaken to remove more material per year, thereby completing mining on the site over a shorter timeframe. Bloomfield, however, blends coal from both the Bloomfield operations and Rix’s Creek Mine (located near Singleton) to meet market specifications. The scheduling of coals to be mined from the various locations in the Bloomfield mine plan is designed to provide flexibility to meet changes in coal quality from Rix’s Creek and/or changes in market requirements.

An alternative to this current transport method would be to provide an in-pit crushing system feeding a conveyor that transports coal to the ROM coal stockpile pad at the CHPP. However this would require Bloomfield to maintain a central extraction point, which is not possible as flexibility is required in extraction areas due to the multi-seam environment and varying coal quality requirements.

A range of final land uses for the Colliery have previously been considered by Bloomfield and the landowner. Consideration of alternative final land uses beyond the life of mining included residential, industrial, open forest / bushland or undulating grazing land / rural landscape. The Colliery is located at the confluence of several local government boundaries. The wider area incorporating the Colliery is identified in strategic land use planning documents for Newcastle, Maitland and Cessnock councils for further investigations for such uses. An indicative final land use plan has been prepared which includes the future use of the Colliery site for a combination of pasture and trees over pasture with any future higher use being subject to separate assessment and approvals in the future.

Statutory Context

The Colliery currently operates under Project Approval MP 07_0087, issued under Part 3A (repealed) of the EP&A Act. As it was for the purpose of coal mining, the original development was classified as a Major Project under the *State Environmental Planning Policy (Major Projects) 2005* which triggered the former Part 3A approval pathway.

While Part 3A of the EP&A Act was repealed in 2011, transitional arrangements set out in Schedule 6A of the EP&A Act provide that Part 3A continues to apply to approved Part 3A projects, and that section 75W of the EP&A Act continues to apply for the purpose of modifications to Project Approvals. The current Project would therefore be undertaken as a modification to the existing Project Approval (MP 07_0087) under section 75W of the EP&A Act. The approval authority is the Minister for Planning.

It is noted that legislative amendments to the EP&A Act are currently being considered, as set out in the draft *Environmental Planning and Assessment Amendment Bill 2017*. One of the proposed amendments is the removal of transitional arrangements for Part 3A projects. If these proposed amendments are enacted, future modifications to the Project Approval MP 07_0087 would be assessed under section 96 of the EP&A Act.

State Environment Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007 (Mining SEPP) is the principal environmental planning instrument that governs the carrying out of the Project. Clause 7 of the Mining SEPP identifies development which can be carried out only with development consent. The Project is permissible with consent under clause 7 of the Mining SEPP.

The *Cessnock Local Environmental Plan 2011* (Cessnock LEP 2011) applies to the Project Area. The mining area subject to this modification is zoned RU2 Rural Landscape. Mining is not listed as prohibited development in this zone, and is therefore considered permissible with consent. The existing mine rail loop and tailings emplacement area cross the local government area (LGA) boundary and also lie partly within the Maitland LGA. Under the *Maitland Local Environmental Plan 2011* (Maitland LEP 2011) these areas are zoned RU2 Rural Landscape. Open cut mining is permitted with consent within this zone. However, it is noted that the Mining SEPP prevails over the LEPs, and therefore the Project is permissible with consent under the provisions of the Mining SEPP.

This EA supports the application for modification of the Project Approval made by Bloomfield, and has been prepared in accordance with the requirements of the EP&A Act and its Regulation and in accordance with the Environmental Assessment Requirements (EARs) for the Project (issued by the DP&E on the 16 November 2015 and subsequently revised on 22 March 2017).

Environmental Impact Assessment

Biodiversity

A Biodiversity Assessment Report (BAR) was prepared to assess the potential impact of additional clearing proposed as part of the Project and to undertake a gap analysis of previous ecological assessments undertaken within the Project Area.

The 2008 EA included an assessment of potential impacts to flora and fauna, including threatened species, populations and ecological communities. An additional disturbance area was approved to be cleared as part of the MOD 1 modification to the Project Approval to allow for relocation of a powerline corridor and associated infrastructure. The MOD 1 assessment covered 6.12 ha of vegetation which is proposed to be cleared as part of the current Project to allow for further extraction of coal resources. This area is hereafter referred to as the ‘MOD1 Study Area’.

A gap analysis undertaken by EMM Consulting identified that the previous ecology impact assessment undertaken for MOD 1 (Hunter Eco, 2010) did not address the matters of NES listed under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1979* (EPBC Act). EMM Consulting therefore undertook an assessment of the potential impact of vegetation clearance within the MOD1 Study Area on matters of NES listed under the EPBC Act.

An additional 3.5 ha of previously rehabilitated landform (including 0.34 ha of native vegetation) would be cleared as part of the Project for the proposed widening of a haul road and upgrade of a watercourse. This area is hereafter referred to as the ‘Haul Road Study Area’. The BAR included an assessment of likely biodiversity impacts of the Project on the Haul Road Study Area.

MOD1 Study Area

A single vegetation type was identified within the ecological MOD1 Study Area – the *Spotted Gum – Broad leaved Mahogany – Red Ironbark shrubby open forest*. This community does not meet the listing of the Critically Endangered Ecological Community (CEEC) Central Hunter Valley eucalypt forest and woodland (CHVEFW) due to the frequent occurrence of contraindicative canopy species, including Red Ironbark and Forest Oak.

No EPBC listed threatened fauna species or migratory fauna species were recorded during the field surveys. Potential habitat for a number of EPBC listed threatened species, including the Regent Honeyeater, Swift Parrot, Large-eared Pied Bat and Grey-headed Flying Fox and migratory species Satin Flycatcher and Rufous Fantail was identified within the MOD1 Study Area. Significant impact assessments were prepared for these EPBC listed species.

Potential habitat for these species was found to be of poor value, primarily due to its condition, fragmented nature, existing threats and location next to an existing operating open cut mine. The habitat is unlikely to support important populations of matters of NES or be critical to the survival of a population or the species. Assessments of significance undertaken for these EPBC listed species concluded that it is unlikely that significant impacts to matters of NES would occur as a result of the Project.

Nonetheless, a precautionary assessment approach has been adopted, and the Regent Honeyeater and Swift Parrot have been assumed to occasionally forage within the ecological study area. Accordingly, measures were recommended to mitigate potential impacts of the Project on potential habitat for the Regent Honeyeater and Swift Parrot.

Haul Road Study Area

The Haul Road Study Area supports 0.34 ha of native vegetation, occurring as small patches. Two Plant Community Types (PCTs) were identified within the Haul Road Study Area, including PCT 1590 – *Spotted Gum – Broad leaved Mahogany – Red Ironbark shrubby open forest* (0.05 ha) and PCT 1592 – *Spotted Gum – Red Ironbark – Grey Gum – grass open forest of the Lower Hunter* (0.29 ha). These PCTs represent the Lower Hunter Spotted Gum – Ironbark Forest in the Sydney Basin Bioregion, which is an Endangered Ecological Community listed under the *Biodiversity Conservation Act 2016* (BC Act). These PCTs were assessed as being in moderate / good condition.

No threatened flora or fauna species listed under the BC Act or EPBC Act were recorded during the targeted surveys. Potential seasonal foraging habitat for a number of EPBC listed threatened species, including the Regent Honeyeater, Swift Parrot, Large-eared Pied Bat and Grey-headed Flying Fox was identified, however the Haul Road Study Area does not provide habitat for an ecologically significant proportion of these species.

The residual impacts of the proposed removal of 0.34 ha of native vegetation would be offset through the purchase of 10 ecosystem credits and a Biodiversity Offset Strategy was prepared. The Colliery has established clearing practices in place as part of its Environment Management System (EMS) and these would continue to be implemented during the Project. Additional mitigation measures recommended to minimise potential impacts of the Project would also be implemented.

Noise, Vibration and Blasting

A Noise and Vibration Impact Assessment (NVIA) was prepared for the Project by SLR Global Environmental Solutions (2017) to assess the potential noise, vibration and blasting impacts associated with the Project.

Predicted noise levels show that generally Project operations have the potential to exceed the relevant Project Specific Noise Levels (PSNLs) and Project Approval noise limits under prevailing noise enhancing weather conditions. However, during reduced night-time operations noise levels were generally predicted to meet the relevant PSNLs and Project Approval noise limits under prevailing noise enhancing weather conditions. The predicted maximum night-time noise levels meet the sleep disturbance criteria and therefore are not likely to cause sleep disturbance at assessed residential locations.

The cumulative impact of mining in the area surrounding the Project, including the Abel Underground Mine, is predicted to comply with the relevant amenity criteria at relevant receiver locations or on more

than 25 percent of, any privately owned land, with the exception of Lot 30/DP1113350 (vacant land owned by JD Hestlow within the mining lease).

Calculations were conducted using blast emission site laws to determine the Maximum Instantaneous Charge (MIC) for blasting. Predicted airblast and ground vibration levels would comply with the relevant criteria at the nearest sensitive receivers. Bloomfield utilises independent technical advice with regards to initiation techniques and timing as well as blast hole loading profiles to control the airblast and ground vibration impacts from mine blasting.

Bloomfield would continue to implement noise and blasting management measures currently utilised at the Colliery to minimise the noise and vibration impacts to surrounding receivers. The Noise Monitoring Plan and Blasting Monitoring Program would continue to be implemented for the duration of the Project and would be updated to reflect the Project as required.

Air Quality

An Air Quality Impact Assessment (AQIA) was prepared for the Project by Todoroski Air Sciences to predict the potential air quality impacts on receivers in the vicinity of the Project and to recommend measures to mitigate the impacts.

As the Project is not seeking changes to the intensity or general extent of mining, or changes in the mining equipment fleet or mining method, the Project is not expected to result in significant changes to the existing level of impact.

Dispersion modelling indicates that dust levels would be below the relevant criterion at the privately-owned receptor locations. The results also indicate that without reactive or predictive mitigation measures, there is some potential for cumulative 24-hour average PM_{10} levels to marginally exceed the EPA impact assessment criteria. However, with the use of the now routine day-to-day reactive and predictive systems at the operations, no unacceptable levels of impact would be expected to arise.

It is noted that the approach taken in the AQIA is conservative, and would overestimate the likely impacts. For example, conservative emission estimation is applied using maximum mining rates, the dispersion modelling does not include the effect of rainfall or in-pit dust retention, and the background levels used mean that existing dust emissions from the Colliery are double counted in the cumulative assessment.

Overall, the potential air quality impacts associated with the Project are not expected to be significantly different from the existing approved operations. Bloomfield would continue to implement air quality management measures currently used at the Colliery to mitigate air quality emissions from its operations, which includes a reactive dust mitigation strategy and forecast management system.

Soils and Water

An assessment of the site's existing soils and surface water environment was undertaken to determine the potential impacts of the Project and to recommend measures to account for these impacts.

The Surface Water Assessment included a review of the existing mine water management system at the Colliery and its integration with neighbouring mine sites as well as the site water balance previously developed by Evans and Peck (2012) for the Abel Underground Mine Environmental Assessment.

Abel Underground Mine is currently in care and maintenance, however the surface water assessment concluded that recent differences in Abel's mine water make, water budget and projections of tailings production (compared to the 2012 projections) are not an impediment to the ongoing operations of Bloomfield through to 2030. Abel's Project Approval includes an allowance for disposal of surplus water to Bloomfield voids in future years and that if Bloomfield is still operational and unable to accept the water, appropriate means are available to dispose of surplus water (if that were to occur) via an reverse osmosis plant if necessary and modifications to the Donaldson Square Pit, which could then be discharged to Four Mile Creek under appropriate conditions.

The Project is not predicted to have significant impacts on water supply or demand, or offsite water quality impacts. The design and operation of the existing water management system allows a high degree of flexibility in and significant capacity to account for variations in climatic conditions and

production rates. No further impacts to surface water management, beyond that approved under the current Project Approval are predicted.

The Project includes modification of the previously approved final landform by moving the final void approximately 200m to the west. The amended final landform would result in the following changes to the existing approved design:

- The final eastern slopes of the overburden dump would drain east towards Four Mile Creek. The catchment area draining towards Four Mile Creek would increase by approximately 40 Ha and the catchment area draining to Buttai Creek and its tributaries by approximately 188 Ha, as compared to the currently approved final landform design; and
- The proposed catchment area draining towards the final void would be approximately 52 Ha, a decrease from the 240 Ha under the currently approved final landscape design.

A reduced catchment draining to the final void would have a positive effect on Four Mile Creek and Buttai Creek and its tributaries, as it would result in less water being removed from the catchment in the post-mining phase, and less water draining to the final mining void.

The Abel and Bloomfield operations have a cumulative impact on the local soil and water environment. The sites are operating within their approved limits, and would continue to do so up until the approved limit of mining in 2030. The minor additional impacts related to soil, water quality and surface water as a result of the Project would be addressed through implementation of the recommended mitigation measures.

Groundwater

A Groundwater Impact Assessment was prepared for the Project by AECOM to assess the potential hydrogeological impacts of the Project including potential changes to the site water balance and water management system at the Colliery. The assessment was based on data from a predictive groundwater model for the Colliery developed independently by HydroSimulations.

The modelling included prediction of mine inflows throughout the operational life of the Project. For licencing purposes the maximum inflow predicted by the model across the life of the proposed Project is 561 ML/year in 2020. However the groundwater model is conservative and applies higher recharge across parts of the model domain. The mine inflows have been recalculated reducing recharge to these areas and the resultant mine inflows are within the licence conditions of 500 ML/year.

The final void will remain a sink and will have a wide spread effect of lowering water levels in the vicinity of the mine in the long term. A hypothetical monitoring point within the final void is predicted to only recover 15 m after 100 years.

Groundwater drawdown as a result of mining activities are expected to reach a maximum in 2025, at which time mining activities are scheduled to cease in the southern end of the approved extraction area and groundwater levels would start to recover. A drawdown of 100 m is predicted in the surficial aquifer in the Bloomfield approved extraction area and final mine void. Drawdown is generally less than 0.5 m outside the Bloomfield lease area apart from the south-west corner where the 2 m drawdown contour extends outside the lease approximately 600 m beneath Buttai Creek. The predicted drawdowns are not expected to negatively impact GDE's as historical mining in the area has lowered water levels far below the ground surface.

Potential impact to groundwater quality as a result of Bloomfield's current and future operations relate to the risks of contamination from disturbed catchments, mine water, and process water being released off site to natural waterbodies. The Project would not increase or decrease the probability of unplanned discharges or water quality risks from Bloomfield's operations.

Predicted surface water impacts were considered negligible, indicating that Bloomfield mining is having an insignificant effect on stream baseflow. Four Mile Creek is predicted to have been converted to a losing stream around 2011, losing an average baseflow of 0.24kL/day.

A minimal impact assessment has been conducted for the groundwater potentially impacted by the project in accordance with the AIP. All predicted impacts are less than Level 1 minimal impact considerations (as defined in the AIP) and are therefore considered acceptable with appropriate monitoring during operation.

Visual and Rehabilitation

An assessment of the visual environment, including lighting, was undertaken as part of the 2008 EA. This previous assessment identified viewing points around the site with the potential to view operations occurring within the site, in particular residences or other places of public access such as roads or public buildings. The existing visual environment of the Project Area would be similar to that assessed in the 2008 EA as there have been no substantial changes to the Colliery infrastructure or operations since the previous visual assessment was prepared.

The previous assessment of visual impact identified a low visual impact level associated with the Colliery operations. Only one viewing location (Location D – Buttai Valley south of John Renshaw Drive) was considered to have moderate-low visual impact during operations, and it was noted that this would diminish over time as the overburden dump and rehabilitation progresses west out of their line of sight behind Elliots Hill.

The previous assessment also included an assessment of the impact of night lighting. Potential impacts of direct lighting are managed through consultation with residents and attention to the direction of fixed site lighting.

The potential visual impacts of the Project relate primarily to the change in final landform which would see a shift in the final void approximately 200m to the west. This means that views to the overburden emplacement area may change compared to that originally assessed. The visual impacts associated with the proposed overburden emplacement area were assessed through the development of photomontages to illustrate the visual effect from two of the most impacted viewing locations. The photomontages indicate that the visual impact of the Project would be minimal.

Rehabilitation at the Colliery is currently undertaken in accordance with the Rehabilitation Management Plan (RMP) and the Mining Operations Plan (MOP) prepared for the Colliery site. The general rehabilitation, landform and vegetation objectives of the current RMP are based on those detailed in the 2008 EA.

Rehabilitation works generally consist of reshaping of overburden dumps and re-establishment of a vegetative cover. Rehabilitation activities are carried out throughout the year, with the aim of timing vegetation seeding operations in spring and autumn. As reported in the Bloomfield 2016 Annual Environmental Management Reports (AEMR), to date 488 hectares have been rehabilitated within the Project area. The practice of rehabilitation of disturbed areas as soon as practical has minimised the visual impact of the Colliery.

The existing rehabilitation methods and monitoring procedures would continue to be implemented across the Project area, and the RMP would be updated to incorporate the Project.

Social and Economic

An assessment of potential social and economic impacts and benefits associated with the Project was undertaken. An assessment of key social impact elements indicated that the Project would not have an adverse impact on the social fabric of the local community.

Potential impacts and community concerns relating to social amenity were identified via CCC meetings minutes and community hotline data (complaints) for 2009 - 2016. Review of the Bloomfield AEMRs indicates a decline in the number of community complaints received over the last seven years, with only five complaints received in 2015 and 2016. The main concerns related to noise and blasting, with fewer community complaints related to air quality (dust and odour), transport, wild dogs and weeds.

The Project involves the continuation of existing mining activities with the existing workforce and would not require construction of new infrastructure or facilities. Therefore the Project would not result in additional impact on accommodation and housing, community facilities and services.

The Project would prolong the life of the Colliery and provide ongoing employment for the existing 93 personnel for an additional nine years beyond the existing life of the mine. Other community benefits would include the continuation of indirect employment, contributions through sponsorship programs and flow on benefits to the local economy. The Project would also have a positive economic impact through payment of mining royalties to the State Government.

If the Project were not to proceed, economic impacts would primarily be negative due to the reduction in employment following closure of the Colliery in 2021 and a reduction in the flow on benefits to the wider community. Payment of royalties to the State Government would cease and the economic benefits of the remaining coal reserves would go unrealised.

Bloomfield currently undertakes a number of monitoring, management and mitigation activities in relation to identified community concerns, which include noise, blasting and air quality monitoring; rehabilitation of land to minimise visual impact; manning of a 24 hour community hotline; and regular meetings of the CCC. It also contributes to wider community needs through the Bloomfield Foundation and other programs. These programs and protocols would continue to be implemented throughout the life of the Project which would ensure that social amenity impacts are minimal and community benefit is maximised.

Other Matters – Aboriginal and Historic Heritage

Aboriginal Heritage

The Aboriginal Heritage Impact Assessment undertaken for the previous 2008 EA included a review of the archaeological background of the Project Area, searches of relevant heritage databases, and field survey of the Project Area. This included a comprehensive program of consultation with the local Aboriginal community, including the Mindaribba Local Aboriginal Land Council (LALC), the Lower Hunter Wonnarua Council and the Awabakal Traditional Owners Aboriginal Corporation.

The Project would have no additional impact on Aboriginal heritage sites as mining would be undertaken within the existing approved extraction area. The previous Aboriginal Heritage Impact Assessment concluded that potential impacts of the mining operations on Aboriginal heritage would be low.

Mining operations are currently undertaken in accordance with the approved Aboriginal Cultural Heritage Management Plan (ACHMP) prepared for the site, which documents the procedures for archaeological survey, collection, documentation and storage of Aboriginal heritage items in consultation with Aboriginal groups and regulatory authorities. The approved ACHMP would continue to be implemented for the management of Aboriginal cultural heritage within the Project Area.

Historic Heritage

The 2008 EA did not identify any heritage listed items in the Project Area, however there are now three heritage items in the vicinity of the Project Area that are listed on the Cessnock LEP 2011 or on the Hunter Water Corporation section170 Register.

The Buttai Reservoir No. 1 and No. 2 are listed on the Hunter Water Corporation section 170 Register and are located approximately 330m from the Project Area at its nearest point and approximately 1km north of proposed extraction areas. The Reservoirs continue to function within the modern water supply system. Given the distance of these items from the existing active mining pits, the Project would not result in direct impact to these items.

The Buttai Cemetery is listed on the Cessnock LEP 2011 as locally significant and is located on Bloomfield owned land adjacent to the Project Area to the south. The cemetery contains a range of monuments dating from 1874 to 1976, documenting the history of the Elliot family. General mining activities, such as the operation of large vehicles and blasting activities, in particular the associated ground vibrations, have the potential to impact the structural integrity of heritage sites, such as the Buttai Cemetery. Blast monitoring results reported in Bloomfield's AEMRs indicate that blasting results at the closest blast monitoring point complied with the blasting criteria set in EPL396.

It is noted that the most vibration-intensive activities south of the Project Area have already occurred, and potential vibration impacts to the Buttai Cemetery would become less likely to occur as mining progresses further north.

Existing management measures would adequately manage potential impacts to Aboriginal and historic heritage items. Mining operations would continue to be undertaken in accordance with the approved ACHMP and relevant legislative requirements. Bloomfield would continue to consult with the Aboriginal community groups and regulatory authorities as per the procedures set out the ACHMP. Blast monitoring would continue to be conducted to confirm that airblast and ground vibration levels meet

relevant blasting criteria. The existing EMS and relevant management plans would be updated to incorporate the Project.

Other Matters – Hazards and Risks

Potential hazards and risks associated with operation of the existing Colliery include the storage of hazardous goods, hydrocarbon contamination, bushfire, spontaneous combustion and mine subsidence.

The Project is not seeking changes to the intensity or general extent of mining, and does not involve changes in the mining equipment fleet or mining method compared to existing operations. Therefore the Project is not expected to pose additional hazards and risks above those associated with the existing operation of the Colliery. These aspects would continue to be managed through implementation of the existing mine management framework.

Other Matters – Waste

Wastes generated at the Colliery are classified and separated in accordance with the EPA's Waste Classification Guidelines (EPA, 2014) and managed in accordance with Bloomfield's Waste Management System.

The Project does not involve an increase in production levels at the Colliery and typical waste types and volumes expected to be generated by the Project would be similar to existing levels

Waste management procedures currently implemented at the Colliery are considered to be sufficient to manage potential waste impacts associated with the Project and as such additional waste mitigation measures would not be required.

Cumulative Impacts

As the impact of the individual factors of the Project would be minimal, no significant cumulative impact is anticipated for the Project provided the measures recommended in the EA are implemented. The cumulative impact of the Project with other known projects currently operating or proposed for the area are considered to be minimal.

Environmental Management and Monitoring

The Colliery currently operates under an EMS to meet the various regulatory requirements of the existing Project Approval and EPL 396. This EMS would continue to be adopted during the Project and would be updated to include the relevant management measures included in this EA.

As part of the detailed assessment of the Project a range of management and mitigation measures have been identified in order to manage the potential impacts to the environment that may occur as a result of the Project. Bloomfield commits to the implementation of those management and mitigation measures as identified in this EA. Bloomfield also commits to the ongoing review of the EMS and subordinate management plans and procedures to maintain appropriate management measures as the Project progresses. Furthermore both the implementation of measures and the preparation of environmental management documentation would be undertaken in consultation with relevant government agencies.

Project Justification

The existing Colliery has a well-established relationship with the local community and surrounding areas. As the Colliery has been operating since the 1960s, its ongoing operation into the future does not represent a significant new disruption to the local community or the wider Hunter Region.

Bloomfield has demonstrated through the operation of the Colliery to date that it is keenly focused on minimising impacts on the environment and community. Bloomfield has also developed a close working relationship with the local community during this time.

This EA has provided a thorough assessment of the potential environmental impacts of the Project and recommended measures to manage impacts to acceptable levels. Subject to the implementation of such measures, the assessment of the Project in accordance with the principals of Ecologically Sustainable Development has concluded that the Project:

- Would be undertaken in a manner which affords due consideration to the biophysical, economic and social environment within which the Project would operate, at local regional and national scales;
- Has appropriately considered and implemented the precautionary principal during planning to minimise and avoid where possible impacts on the environment and community;
- Has demonstrated that the Project would not be expected to result in inequities between generations as a result of undue environmental impact, short term economic gain or a lack of appropriate management measures to prevent or minimise environmental impacts;
- Would be undertaken in a manner that would not result in impacts to biodiversity that would be significant or lead to a loss of integrity to flora or fauna such that significant impacts may occur;
- Would not be undertaken in a manner that degrades the pricing or valuation of resources by present day pricing or knowingly increases the costs of resources in the future; and
- Does not represent a significant contributor to global Greenhouse Gas emissions such that it could significantly impact the processes of climate change or the greenhouse effect.

Based on these findings the Project is considered to represent an ecologically sustainable development that would not result in inequalities between present and future generations.

Conclusion

This EA has assessed the Project against the requirements of the *Environmental Planning and Assessment Act 1979* and the principles of Ecologically Sustainable Development. This assessment has concluded that the Project is consistent with the objectives of the Act and principles of Ecologically Sustainable Development.

In summary the Project would:

- Utilise existing mine infrastructure to continue resource extraction within an established operation;
- Provide continued employment for 93 existing site personnel;
- Contribute to the local and regional economy through ongoing contracts to a range of longstanding suppliers and contractors, servicing of existing customer contracts and payment of royalties and taxes;
- Facilitate increased spending in other sectors, stimulating the demand for goods and services; and
- Provide other social benefits which flow from community engagement and sponsorships programs.

The benefits of the Project would outweigh its potential impacts, with the implementation of the proposed management, mitigation and offset measures, as recommended by this EA, in place. It is considered that it is appropriate and in the public interest to approve the Project.

1.0 Introduction

1.1 Overview

1.1.1 Background to the Project

The Bloomfield Colliery (the Colliery) is an existing open cut mining operation located approximately 20 kilometres north-west of Newcastle (refer to **Figure 1** and **Figure 2**). The Colliery is operated by Bloomfield Collieries Pty Limited (Bloomfield), part of the Bloomfield Group of companies. The Colliery currently operates in accordance with Project Approval 07_0087 issued under Part 3A (repealed) of the *Environmental Planning and Assessment Act 1979 (*EP&A Act*),* with approved production levels of 1.3 million tonnes per annum (Mtpa) of Run of Mine (ROM) coal. Mining operations under the existing approval may take place until 31 December 2021 within the approved Project Area.

Based on current annual mining rates and an estimate of remaining coal reserves inside the approval area, mining is expected to extend beyond 2021. Bloomfield is therefore seeking a modification to the Project Approval to allow for the continuation of mining within Consolidated Coal Lease (CCL) 761 and Mining Lease (ML) 1738 beyond the life of its current consent.

The Project would allow the Colliery to continue its open cut mining operations and use existing mine infrastructure to process up to 1.3Mtpa of ROM coal until 31 December 2030. The Project also includes a modification of the previously approved final landform by moving the final void approximately 200m to the west. The Project includes widening of a haul road and upgrade of an adjacent watercourse and this would require clearing of approximately 3.5 ha of previously rehabilitated landform (refer to **Figure 3**). The area to be cleared includes 0.34 ha of native vegetation and 3.2 ha of non-native vegetation dominated by exotic grasses.

1.1.2 Existing Operations

Coal has been mined on the site for approximately 170 years. The Colliery which has been operating since 1966 produces approximately 0.8 to 1.3 million tonnes of ROM coal by open cut methods per year. Product coal is predominantly thermal coal with some soft coking coal for the Asian export market. Current open cut mining operations are located in the southern portion of the CCL 761 and ML 1738 lease area from within the S Cut and Creek Cut open cut pits (**Figure 3**). Coal is extracted from coal seams within the Tomago Coal Measures, including the Buttai, A, B and C, Whites Creek, Elwells Creek, Donaldson and Big Ben seams.

The current operation includes an on-site Coal Handling and Preparation Plant (CHPP) and rail loading facility approved under the Abel Underground Mine Project Approval (MP 05_0136) ("Abel Project Approval") which was granted to Donaldson Coal Pty Ltd on 7 June 2007. Bloomfield operates the CHPP and rail loading facility under agreements with Donaldson Coal and in accordance with the Abel Project Approval Statement of Commitments. The Abel Underground Mine is located south-east of the Colliery and is currently in 'care and maintenance'.

The Colliery is a multi-seam, multi bench system, mining up to 13 seams or splits. Heavy earth moving equipment delivers the ROM coal to the onsite CHPP via internal haul roads. ROM coal is processed at the CHPP including size reduction, washing and screening. Product coal is stockpiled adjacent to the CHPP before being loaded into rail wagons at the Bloomfield rail loading facility, and transported by rail to the Port Waratah Coal Services terminal at the Port of Newcastle.

The Colliery has approval to operate 24 hours per day, seven days per week, and employs 93 personnel over 15 shifts a week across its operations, including the mining, administration and maintenance areas. A range of real time and predictive monitoring is undertaken at the Colliery with the results regularly reviewed and reported annually to ensure the effective and transparent operation of management controls.

1.1.3 Development Consents and Leases

Table 1 provides a summary of the consents, leases and licenses for the Colliery. The Project Approval (MP 07_0087) for mining operations at the Colliery was issued on 3 September 2009. Prior to this, mining operations had previously been carried out pursuant to existing use rights.

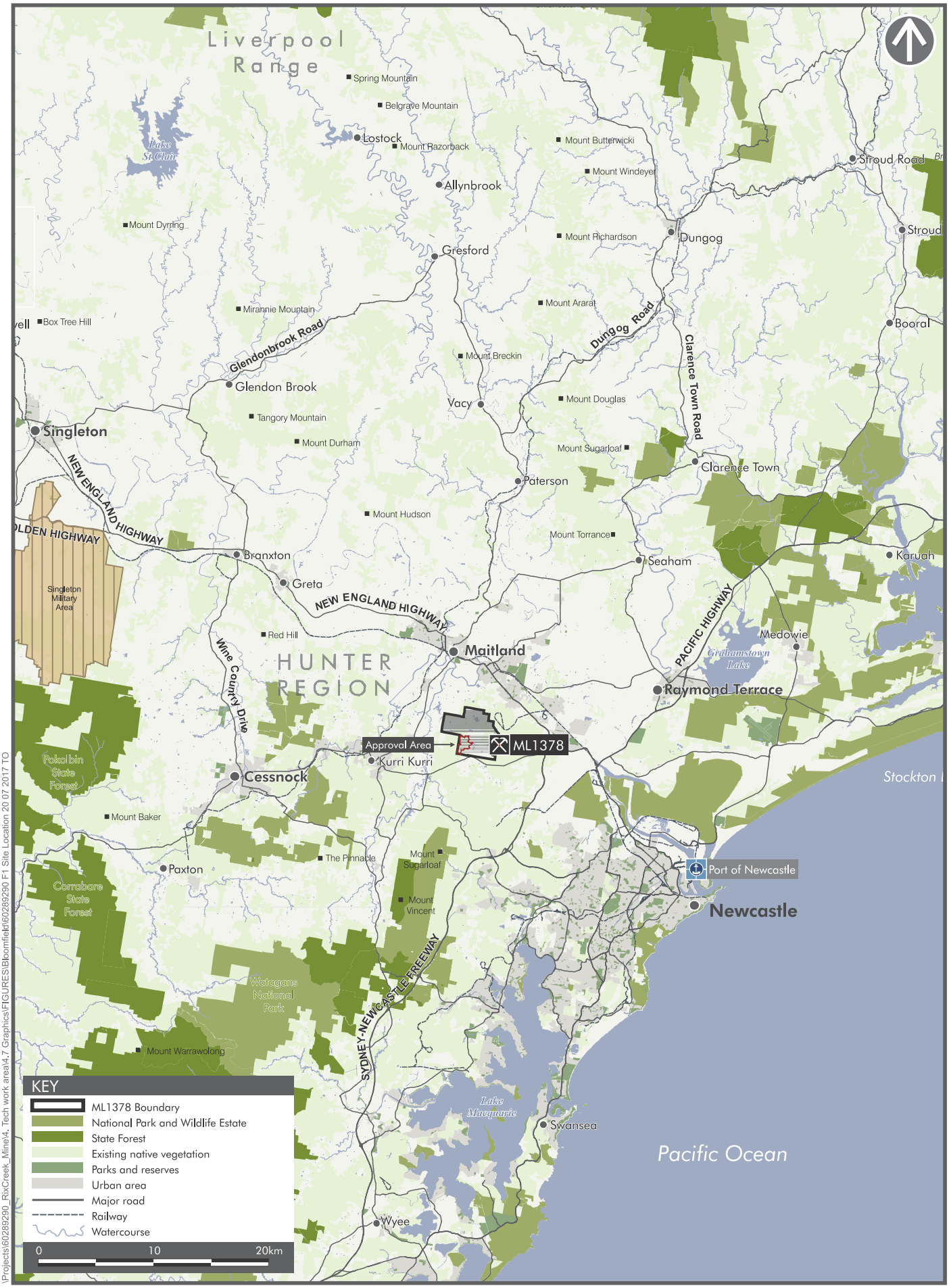
Various mining items and activities at the Colliery have previously been approved as part of the Abel Project Approval (MP 05_0136) for the Abel Underground Mine, granted by the Minister for Planning to Donaldson Coal Pty Limited on 7 June 2007. These infrastructure items and activities include:

- CHPP and associated water management;
- Rail loading facility; and
- Coarse reject and tailings disposal and coal handling.

While the Abel Underground Mine is currently in care and maintenance, Bloomfield Colliery continues to operate these facilities in accordance with the relevant Abel Project Approval conditions of consent. The Project would synchronise the approval timeframe of Project Approval 07_0087 to coincide with the Abel Project Approval consent limit of 31 December 2030.

Table 1 History of Development Consents for the existing Bloomfield Colliery mine operations

Year	Approval and Consent Authority	Detail / Comment
2009	Project Approval 07_0087 Minister for Planning (refer **Appendix A**)	Approval to mine up to 1.3 Mtpa of ROM coal until 31 December 2021.
1991	CCL 761 Granted by Minister for Natural Resources	Granted by the Minister for Mineral Resources under the *Mining Act 1992.*
2007	Project Approval 05_0136 (Abel) Granted by Minister for Planning	Includes certain surface infrastructure (CHPP and rail loading facility) that Bloomfield Colliery relies upon for operation. Approval to operate until 31 December 2030.
2007	Environmental Protection Licence (EPL) 396 Environment Protection Agency	Issued by the Environmental Protection Authority (EPA) under the *Protection of the Environment Operations Act 1997* (POEO Act).
2011	Project Approval Modification, 07_0087_ Mod 1. Minister for Planning	Modification to mine plan and operations including: • Emplacing overburden on, and rehabilitation of previously rehabilitated land south-east of the S Cut pit; • Reshaping and rehabilitating two unvegetated areas, north of the Creek Cut pit and east of the S Cut pit respectively; • Constructing a new haul road east of the Creek Cut pit; and • Constructing an easement and overhead powerline west of the S Cut pit.
2012	Project Approval Modification, 07_0087_ Mod 2. Minister for Planning	Approval to extend the date required for the submission of two Management Plans required by the Project Approval by six months.
2013	Project Approval Modification, 07_0087_ Mod 3. Minister for Planning	Amendment to the area of vegetation clearing covered by the Mine's Biodiversity Offset Area.
2016	ML 1738 granted by Minister for Industry, Resources and Energy	Removal of surface exclusions.



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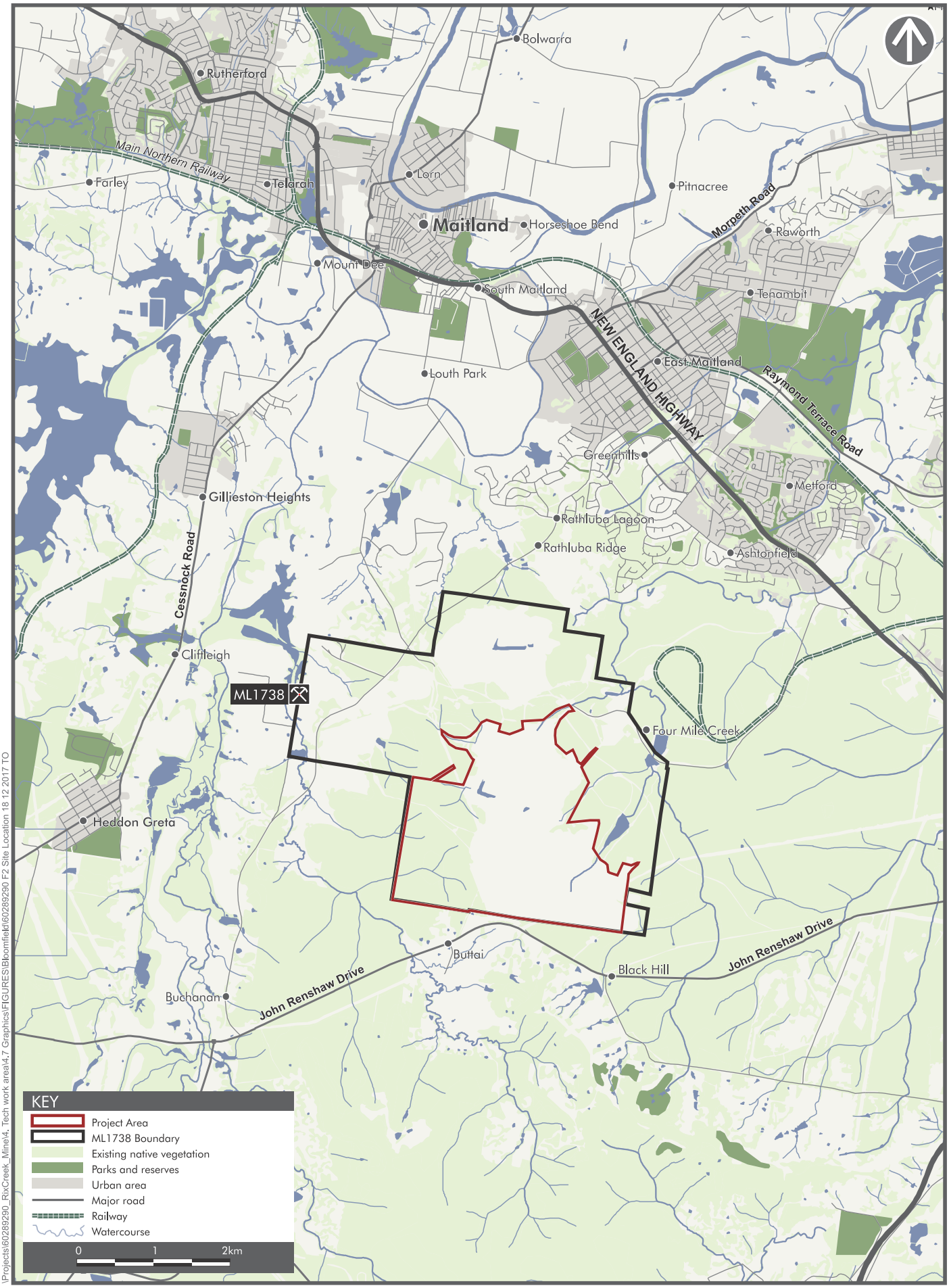
AECOM

REGIONAL CONTEXT

Bloomfield Project

FIGURE 1



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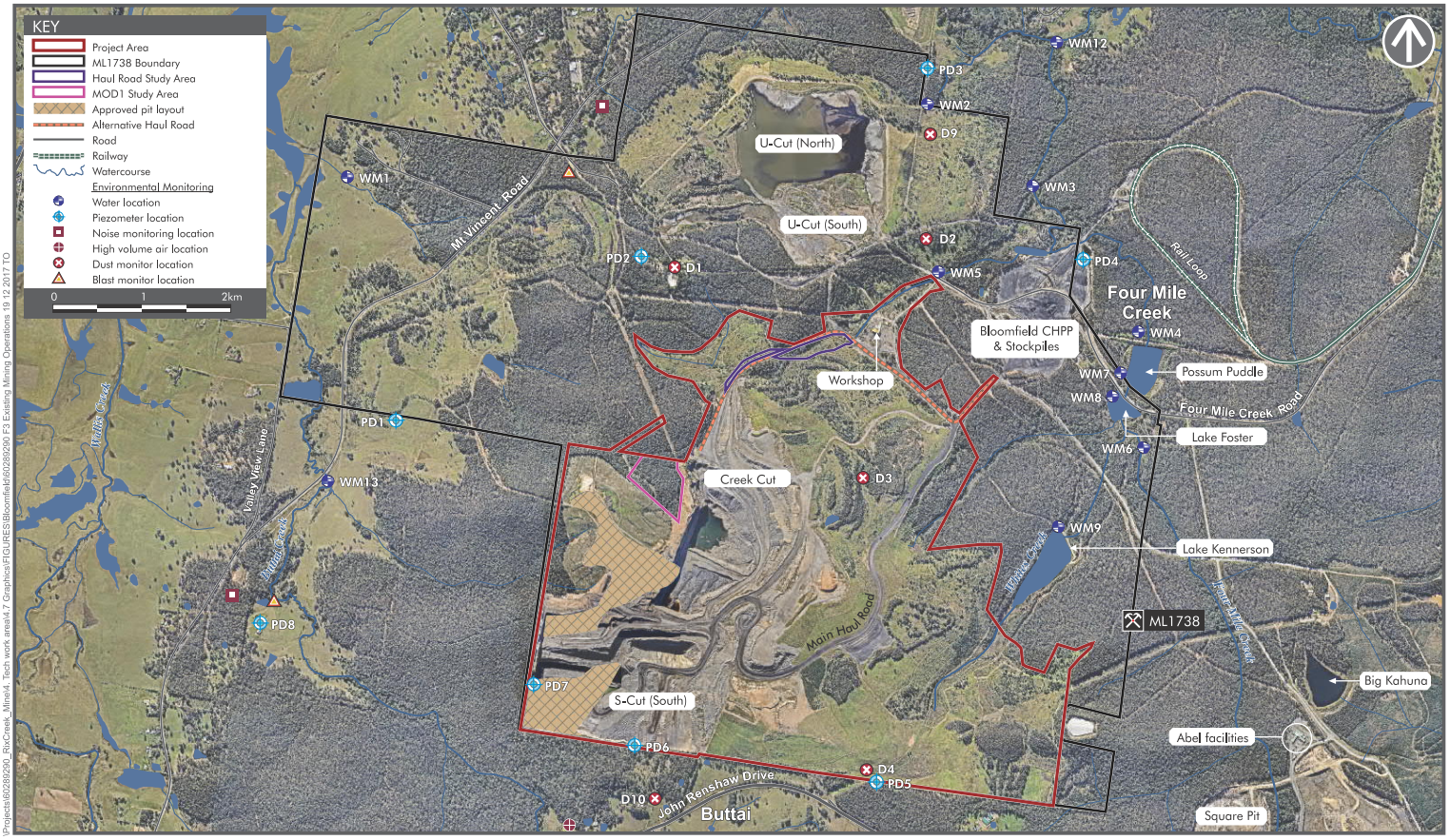
AECOM

SITE LOCATION
Bloomfield Project

FIGURE 2



AECOM

EXISTING MINING OPERATIONS
Bloomfield Project

FIGURE 3

1.2 Modification Outline

1.2.1 Life of Mine

The Proponent is seeking a modification to the Project Approval MP 07_0087 to extend the life of mining at the Colliery until 31 December 2030. This modification would align the Bloomfield mining operations consent limit to the Abel Underground Mine consent limit.

1.2.2 Mining Method

Existing mining methods would continue to be employed as part of the Project. The Colliery currently uses multi-seam bench open cut techniques to extract coal from a variety of seams within the Tomago Coal Measures. The mining process at the Colliery generally comprises vegetation stripping and topsoil removal, drilling and blasting of overburden, removal and stockpiling of overburden, and extraction of coal. Coal is transported by truck to the ROM coal stockpile via internal haul roads. Overburden emplacement areas are reshaped and rehabilitated to create the final landform.

This modification proposes a revised mine plan which includes extraction of deeper coal seams that were not previously considered to be a recoverable resource in the *Bloomfield Colliery Completion of Mining and Rehabilitation: Part 3A Environmental Assessment* (2008 EA) prepared by Business Environment Pty Ltd. The proposed change would result in a modification of the previously approved final landform by moving the final void approximately 200m to the west.

1.2.3 Mine Infrastructure

Existing infrastructure, including the workshop, fuel storage area, offices, bathhouse, internal access roads and water management structures, are considered sufficient for the proposed remaining life of mine. No new infrastructure is proposed to be constructed or brought onto the site.

1.2.4 Production Rates

The Proponent has long standing thermal and semi-soft coking coal contracts with customers predominantly in Japan, Korea and Taiwan. In order to continue servicing these contracts, maximum annual production levels at the Colliery would continue at 1.3 Mtpa ROM coal.

1.2.5 Reject Management

Process waste from the CHPP, including coarse rejects and fine tailings, would be disposed of in the existing tailings emplacement area (U-Cut North and South), i.e. the disused open cut pits. The management and disposal of tailings into the existing tailings emplacement area is approved under the Abel Project Approval and therefore does not form part of this Project. As the current tailings emplacement area is anticipated to reach capacity during the life of the mine extension, future tailings disposal would be undertaken as described in full in **Section 4.3.3**.

1.2.6 Haul Road Expansion

The Project proposes additional clearing of approximately 3.5 ha of previously rehabilitated landform (refer to **Figure 3**), including 0.34 ha of native vegetation and 3.2 ha of non-native vegetation dominated by exotic grasses. The proposed vegetation clearing is required for the widening of a haul road and upgrade of the adjacent watercourse. Further detail is provided in **Section 4.3.4** and an assessment of potential impacts to biodiversity is provided in **Section 8.1**.

2.0 Site Location and History

2.1 Site Location

The Colliery is located approximately 20km northwest of Newcastle, centrally located between the suburbs of Kurri Kurri, East Maitland and Beresfield. The Colliery is situated north of John Renshaw Drive, Buttai and east of Buchanan Road, Buchanan. The land along the western boundary of the Project Area is mainly open forest. To the north and east, the Project Area is generally bounded by rehabilitated mined land. Land adjoining the south of the Project Area, near John Renshaw Drive, has been cleared for grazing. John Renshaw Drive is the nearest public road to the Project Area.

A number of residences are located to the south of the Project Area. These are mainly rural residential properties adjacent to John Renshaw Drive and extending southwards along Lings Road and Browns Road. Residential properties are also located to the west adjacent to Buchanan Road and to the north-west at Louth Park. The nearest urban residential area is Ashtonfield, approximately 2.25 kilometres north-east of the workshop area. The nearest residence to the Project Area not owned by Bloomfield is located approximately 600 metres south of the southern boundary of the Project Area. **Figure 4** shows residences within the vicinity of the Project Area, as well as local land uses.

Mining operations in the vicinity of the Project include:

- Abel Underground Mine south-east of the Colliery (in care and maintenance since June 2016);
- Donaldson Open Cut Mine, on the eastern boundary of the Colliery (in care and maintenance since June 2016);
- Tasman Underground Mine, south of the Colliery (closed, rehabilitation completed in 2014); and
- Bloomfield CHPP and rail loading facility approved as part of the Abel Project Approval.

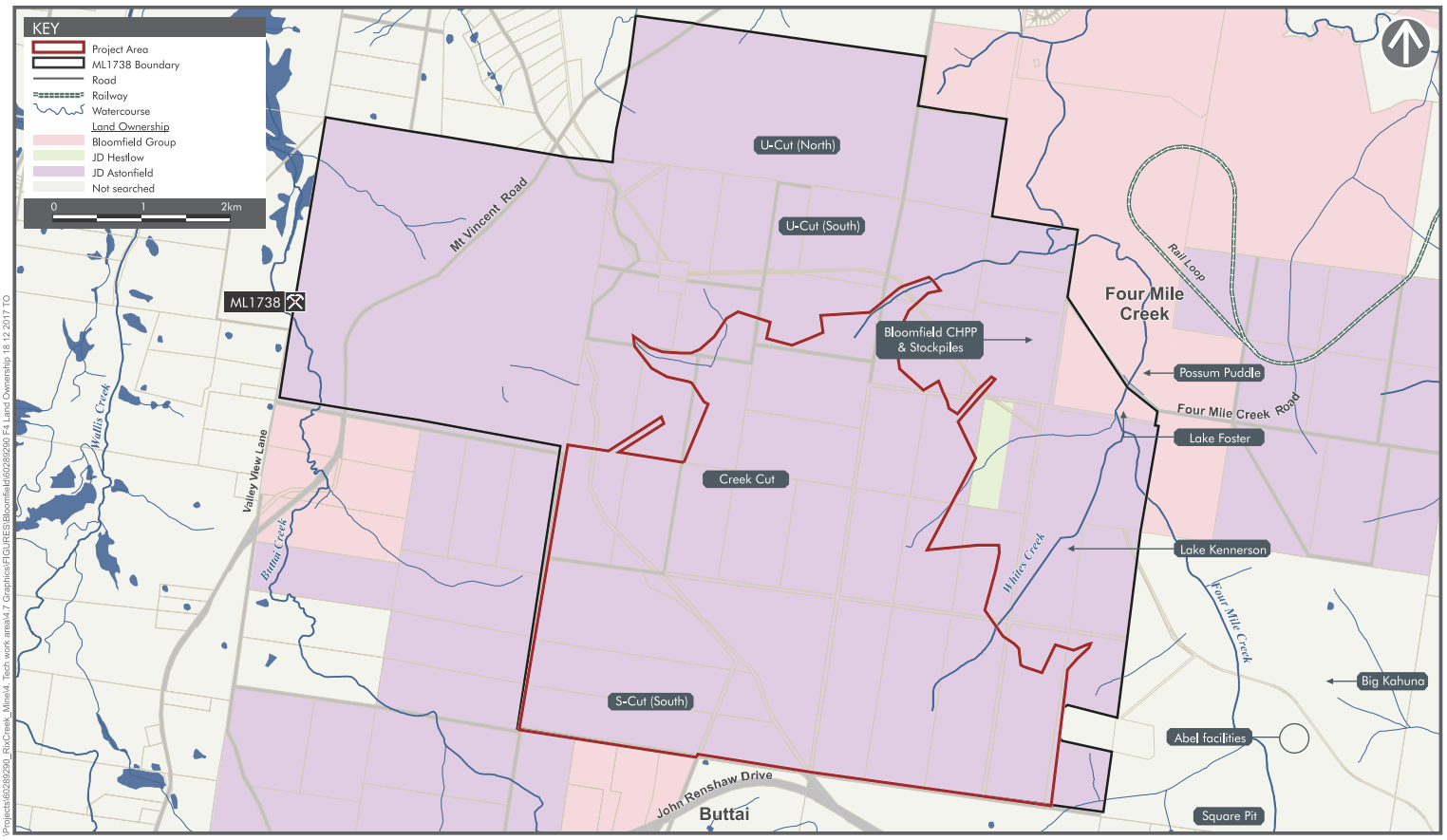
The Project Area is located within CCL 761 and ML 1738 and includes the following:

- The current and proposed active open cut coal mining areas;
- The unshaped and shaped overburden dump areas;
- Workshop and surrounding area used for maintenance and fuel storage;
- Road linking the current and proposed coal mining areas with the ROM coal stockpiles adjacent to the CHPP; and
- Road linking the current and proposed coal mining areas to the workshop.

2.2 Ownership and Legal Description

All land within the Project Area is owned by Ashtonfields Pty Limited (Ashtonfields), an independent third party with a long standing relationship with Bloomfield, and is held by Bloomfield under a commercial lease. Land use within the Project Area is exclusively associated with the extraction, stockpiling and transport of coal. The land consists of active mining areas and associated infrastructure (that is, hardstands, laydown areas, roadways, overburden stockpiles, dams, drains), rehabilitated mined areas and undisturbed vegetated areas.

Figure 4 shows land ownership within the Project Area, as well as land owned by the Proponent adjacent to the Project Area.



AECOM

LAND OWNERSHIP
Bloomfield Project

FIGURE 4

2.3 Site History

Coal has been mined on the site by both underground and open cut means for approximately 170 years. Bloomfield purchased the operation in 1937, and commenced underground mining of the Donaldson, Big Ben and Rathluba seams. Underground mining on the site ceased in 1992.

Bloomfield's open cut mine commenced in 1966, using bulldozers and tractor scrapers. CCL 761 was granted on 20 November 1991 and forms the boundary of the Colliery. ML 1738 was granted 29 June 2016, to remove surface exclusions from within areas of CCL 761. The open cut has continued to expand and develop with the introduction of new machinery and technology.

Mining operations at the adjacent Abel Underground Mine (now in care and maintenance) required the use of certain Bloomfield infrastructure (the CHPP and rail loading facility). To enable this use, the Abel Project Approval granted on 7 June 2007 includes approval for the operation of Bloomfield CHPP and rail loading facility, including associated water management and process waste management. An Integrated Water Management System for the three adjoining mines of Bloomfield, Abel and Donaldson was approved on 5 May 2008.

Project Approval (MP 07_0087) for the Colliery was granted on 3 September 2009 for the staged completion of mining and progressive rehabilitation of the disturbed land. Prior to this, the Colliery had operated pursuant to existing use rights.

Mining operations are currently undertaken in open cut pits known as S Cut and Creek Cut (refer to **Figure 3**). Mining in S Cut is progressively moving west, while extraction within Creek Cut is moving towards the south and west. These pits mine a range of coal seams within the Tomago Coal Measures.

Areas within CCL 761 and ML 1738 where mining has been completed have been progressively stabilised and rehabilitated over time. To date, approximately 488 hectares of land within the Project Area has been rehabilitated. Areas of the rehabilitated land are being used for cattle grazing and for the control of surface runoff to water storage dams or natural watercourses.

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3.0 Project Need and Benefits

3.1 Project Objectives

The objectives of this Project are to:

- Complete the program of open cut mining within the Colliery, including operation of the associated workshop, haul road and access road that links the workshop, open cut pits and CHPP;
- Undertake rehabilitation of the site in accordance with commitments to the landowner, relevant regulatory requirements and planning considerations; and
- Liaise with local landholders to ensure community concerns are identified and addressed in the design and operation of the mining activities.

3.2 Project Needs

Under the current Project Approval (MP_07_0087) Schedule 2 Condition 5, mining operations may take place on the site until 31 December 2021. However, mining is now predicted to extend beyond 2021 for the following reasons:

- The originally predicted ROM coal production levels have been lower than anticipated over the life of the project to-date;
- Changes to the mine fleet have allowed extraction of seams that were not previously considered to be a recoverable resource as part of the original 2008 EA. This has increased the amount of recoverable resource at the Mine and therefore the time required for extraction; and
- Further exploration has been undertaken which has identified other previously unrecoverable resources that the new fleet can now access.

As a result of these factors, Bloomfield has identified up to 13 million tonnes of ROM coal remaining inside the approval area. Approval of the Project would therefore enable Bloomfield to extract the identified resource of saleable coal until 31 December 2030.

The Project would see the existing economic and social benefits of the Colliery operations continue over the life of the extended Project Approval.

3.3 Project Benefits

3.3.1 Land Use and Existing Operations

The key benefit of using existing mine infrastructure for ongoing mining activities is the ability to continue resource extraction within an established operation with significant environmental management initiatives in place and the majority of the required disturbance area already cleared, or approved for clearance. In addition the entire land holding designated for future mining is under operational control of the Proponent and has been managed with this intent over many years. Further acquisition of land in the surrounding area is not required.

3.3.2 Employment and Social Benefits

The Project would prolong the life of the Colliery and provide ongoing direct employment for the existing 93 personnel at the Colliery for an additional nine years beyond the life of the current mine approval. Further to the direct employment benefits the Colliery generates, a significant number of indirect jobs are supported through the use of contractors for a variety of services.

In addition to the social benefits that secure employment provides to the community, other social benefits which flow from community engagement and sponsorships programs are detailed in **Section 8.7**.

3.3.3 Economic Benefits

The Project would provide a range of ongoing economic benefits at the local, regional and State level through:

- Ongoing contracts to a range of longstanding suppliers and contractors;
- Servicing of existing contracts and the potential to service future coal markets;
- The payment of royalties and taxes; and
- Local and regional benefits from capital investment and purchasing carried out by a wholly owned Hunter Valley private company, where all profits are subjected to the Australian taxation system. Bloomfield has no overseas based companies.

Without approval of this modification, operations at the Colliery would cease in 2021 which would prevent further economic benefits of the Colliery being realised. Conversely, if approved, the Project would prolong the life of the Colliery and enable recovery of a greater proportion of the existing resource, which in turn would enable ongoing supply to existing customers and direct employment for the existing employees for a further nine years.

4.0 Existing Operations and Proposed Modification

4.1 Overview

The Proponent is seeking a modification to the Project Approval MP 07_0087 to extend the life of mining at the Colliery until 31 December 2030. The modification is not seeking to amend the currently approved annual tonnage limits, which would continue to be up to 1.3 Mtpa of ROM coal.

Open cut mining methods would be used to extract coal from within the existing approved extraction area. A number of seams of the Tomago Coal Measures would be mined, from the surface to the Big Ben seam. Once the coal has been extracted, it would be processed at the Colliery's existing CHPP, stockpiled at the rail loading facility, and then transported via the Mine's approved rail loop to the Port of Newcastle for export.

This application to modify the Project Approval MP 07_0087 relates to those infrastructure items and activities at the Colliery which are not included in the Abel Project Approval. These include:

- The current and proposed open cut mine areas;
- The unshaped and shaped overburden dump areas;
- The workshop;
- The road between the open cut pit areas and the ROM coal stockpile at the CHPP; and
- The road that links the workshop, open cut pits and CHPP.

The above areas that are the subject of this Application are referred to throughout this document as the 'Project Area' (refer **Figure 3**). Operation of the CHPP associated water management, the rail loading facility, and coarse reject and tailings disposal are approved under the Abel Project Approval and do not form part of this modification application.

4.2 Existing Mining Operations

4.2.1 Mining Method

Mining at Bloomfield is generally undertaken as a multi-seam truck and excavator / face shovel operation, conducted in sequential mining blocks. The existing mining process for each block includes:

- Vegetation removal;
- Topsoil/pre-strip;
- Drilling and blasting;
- Overburden removal and stockpiling;
- Coal removal (followed by interburden removal and coal removal for lower seams); and
- Overburden reshaping and rehabilitation.

The majority of the area to be mined has previously been cleared of vegetation, with grasses and low vegetation allowed to regenerate to stabilise the surface until it is required for mining. Topsoil material is pushed up with dozers and loaded onto haul trucks with front-end loaders, or excavated and loaded directly onto haul trucks with an excavator. It is then placed on reshaped overburden dumps in preparation for rehabilitation. Topsoil stockpiling is avoided where possible for operational and topsoil quality reasons.

Following topsoil/pre-strip removal, blast hole patterns are drilled into the overburden, in preparation for blasting. Blast pattern and hole depth is designed in accordance with excavator capability and safe blast design. The holes are then loaded with explosives and detonated. After blasting, loose overburden material is removed by excavator/face shovel and placed onto rear dump haul trucks for hauling to overburden emplacements.

The exposed coal seam is then ripped and pushed up with dozers, loaded onto coal trucks and transported to the ROM coal stockpile via internal haul roads.

The interburden/coal extraction process is repeated for each seam until the basal Big Ben seam has been removed. The resultant void is then available for backfilling with the overburden from subsequent mining blocks. Emplacements are reshaped by dozer to create the final contour shape.

4.2.2 Mine Access

The Project would use the existing infrastructure at the Mine for employee and material access. This includes temporary internal mine roads constructed as required to access mine areas, and permanent access roads linking major infrastructure components such as the CHPP and ROM coal stockpile pad (as shown on **Figure 3**). The primary site access is via Four Mile Creek Road off the New England Highway, with secondary access available via Buttai Road. The secondary site access is restricted with a locked gate and is not used as a daily access point.

4.2.3 Approved Mine Production Schedule

The Colliery has approval to extract up to 1.3 Mtpa of ROM coal. A Mining Operations Plan (MOP) was prepared for the Project and approved by the Department of Primary Industries (DPI). The MOP covers the period 2012 – 2016, however in December 2016 the MOP period was extended to June 2017 and in April 2017 the MOP period was further extended to 31 December 2017. In consultation with Division of Resources and Geosciences (DRG)[1], a MOP Amendment has been submitted to DRG to extend the MOP period to June 2018 to allow time for this modification application to be processed. The mining production schedule outlined in the approved MOP 2012-2016 is shown in **Table 2**.

Table 2 Approved Mine Production Schedule

Material	2012	2013	2014	2015	2016	2017[2]
Stripped topsoil (m^3)	40,000	40,000	40,000	40,000	40,000	10,000
Overburden (m^3)	5,500,000	5,500,000	5,500,000	5,500,000	5,500,000	5,985,000
Ore (Kt)	900	900	900	900	900	1211
Processing Waste[1] (Kt)	1830	1830	1830	1830	1830	581
Product coal (Kt)	500	500	500	500	500	630

1. Abel Underground Mine currently under care and maintenance. Processing waste figure may increase if Abel operations resume during MOP period.
2. Figures taken for 2017 from the draft 2017 – 2019 MOP update which is yet to be approved.

4.2.4 Existing Plant and Equipment Fleet

Bloomfield currently uses an excavator or face shovel and a fleet of rear dump trucks for the removal of topsoil, pre-strip, overburden and interburden material. Previous extraction machinery used a large shovel which was unable to separate thinner seams from overburden. Bloomfield has since acquired an excavator that allows thinner seams to be extracted.

Two drill rigs are used for blast-hole drilling. A coaling fleet comprising a front-end loader or excavator, rear-dump trucks and a fleet of road trucks is used to transport the ROM coal. It is proposed that the same, or similar, equipment would be used for the Project. As Bloomfield also operates the Rix's Creek North and South Mines it sometimes rotates equipment based on the production needs at each of its mines.

4.2.5 Mine Infrastructure and Facilities

Major infrastructure components in the Project Area, all of which currently exist, consist of the following:

- Open cut workshop, fuel storage area, offices and bathhouse;
- Temporary internal mine roads constructed as required to access mine areas;
- Permanent access roads linking major infrastructure components such as the workshop, and the ROM coal stockpile pad;

[1] Formerly known as the Department of Resources and Energy (DRE)

- Water management system including 'clean' and mine water management structures; and
- Dust suppression water tank storage.

The CHPP and associated facilities and the rail loading facility are approved under the Abel Project Approval and do not form part of this Project.

Existing infrastructure is considered sufficient for the proposed remaining life of mine. No new infrastructure is proposed to be constructed or brought onto the site.

4.2.6 Overburden and Rejects Management

Overburden Emplacement

Overburden is the strata between the surface and the upper-most coal seam, and is removed prior to accessing the coal. For the purpose of this EA, management of overburden also includes the management of interburden which is the non-resource material located between coal seams.

Overburden is stockpiled in emplacement areas for use as backfill and for rehabilitation purposes. Overburden is placed in progressive spoil dumps which are subsequently reshaped to re-establish a landscape that blends with the surrounding undisturbed topography. Overburden dumps are typically reshaped with a maximum slope of 18 degrees. Where steep slopes are constructed, suitable erosion and sediment control banks are incorporated to provide stability.

Reshaping of overburden emplacement areas is undertaken in accordance with the procedures documented in the Rehabilitation Management Plan prepared for the Colliery.

Rejects Management

Reject material is generated from the CHPP during the cleaning and preparation of coal for transport. Management of process waste from the CHPP is approved under the Abel Project Approval and does not form part of this Project. The following information is provided for background purposes only.

Process waste from the CHPP consists of breaker reject (large diameter (>150mm) rocks and coal rejects), coarse rejects and fine rejects (tailings). Breaker reject is hauled by truck to operational open cut pits and placed under advancing overburden dumps. Coarse rejects are currently disposed of under advancing overburden dumps. Fine tailings are currently pumped out as 20% solids slurry to the Tailings emplacement area (a disused open cut pit in the north of the mine site). Reject fines settle out of the slurry, gradually backfilling the pit, whilst the decant water is returned to the CHPP for re-use in processing.

4.2.7 Water Management

The Colliery's surface water management system (further discussed in **Section 8.4**) integrates water management for the open cut and the CHPP and has been assessed and approved under the Abel Project Approval. The Bloomfield water management system forms part of the Integrated Water Management System approved on 5 May 2008 for the three adjoining mines of Bloomfield, Abel and Donaldson.

A specific Water Management Plan has been prepared for the Colliery to address the water management issues within the Project Area covered by the Project Approval MP 07_0087 (that is, it does not include water management related to operation of the CHPP, which is covered in the Abel Project Approval). The current Water Management Plan includes:

- A Site Water Balance prepared in accordance with the conditions of consent which details the sources and security of water supply, water use and on site management, and measures to minimise overall water use;
- An Erosion and Sediment Control Plan which identifies the potential sources of sediment during mining operations, the control measures to be implemented, and the monitoring and maintenance requirements to ensure control structures are operating effectively;
- Surface Water Monitoring Plan, which provides the baseline hydrology and assessment criteria and details the locations and schedule for monitoring of surface water in accordance with the Colliery's EPL 396;

- Groundwater Monitoring, which provides baseline data for groundwater levels and quality, impact assessment criteria, and details the monitoring program for the ongoing measurement of groundwater quality and levels against baseline levels; and
- Surface and Groundwater Response Plan, which describes the measures that would be implemented in the event of unexpected adverse impacts or water quality degradation.

The Project would continue to operate under the existing water management system and Water Management Plan.

4.2.8 Service Infrastructure

Service infrastructure at the Colliery has adequate capacity to accommodate the Project. No additional servicing or utility infrastructure connections would be required for the Project.

A modification to the Project Approval MP 07_0087 was approved on 16 May 2011 enabling the relocation of a 330m section of powerline located northwest of the Project Area. Relocation of the powerline and associated infrastructure was required to enable mining within Creek Cut to be completed, as the original powerline corridor was within the path of approved works. These works were completed in 2011 and the powerline currently provides power for site equipment.

4.2.9 Workforce and Hours of Operation

The Colliery currently employs approximately 93 personnel across its operation and has approval to operate 24 hours a day, seven days per week but typically operates an eight hour shift roster five days per week, with additional production during the weekend using overtime if required. The Project would continue to operate within the approved limits.

Blasting activities at the Colliery are regulated by EPL 396. In accordance with the EPL, blasting is carried out between 09:00 and 17:00 Monday to Saturday. Blasting would continue to be undertaken where feasible during these standard hours. No blasting would be undertaken on Sundays or public holidays without prior approval from the EPA. No changes to blasting time are proposed as part of the Project.

4.2.10 Rehabilitation and Landscape Management

Rehabilitation aims, objectives and procedures were discussed in detail in Section 3 of the 2008 EA. Rehabilitation works are closely integrated with mine production and are undertaken progressively as mining proceeds in accordance with the approved Rehabilitation Management Plan (RMP). The approved final landform for the mine as described in the 2008 EA is shown in **Figure 5**.

Bloomfield has demonstrated through its progressive rehabilitation efforts a successful rate of vegetation growth on existing rehabilitation areas. A total of 488 ha have been rehabilitated within the mine lease area to date.

An indicative final land use plan (further discussed at **Section 4.4.4**) has been developed by the Stony Pinch Group, a consortium established by the major landowners in the area including Bloomfield, Ashtonfields, and Yancoal to develop the large combined landholdings of the member companies post mining. A legal agreement between the landowners ensures that individual landowner interests in the site are replaced by a single, shared interest in all land use and development outcomes.

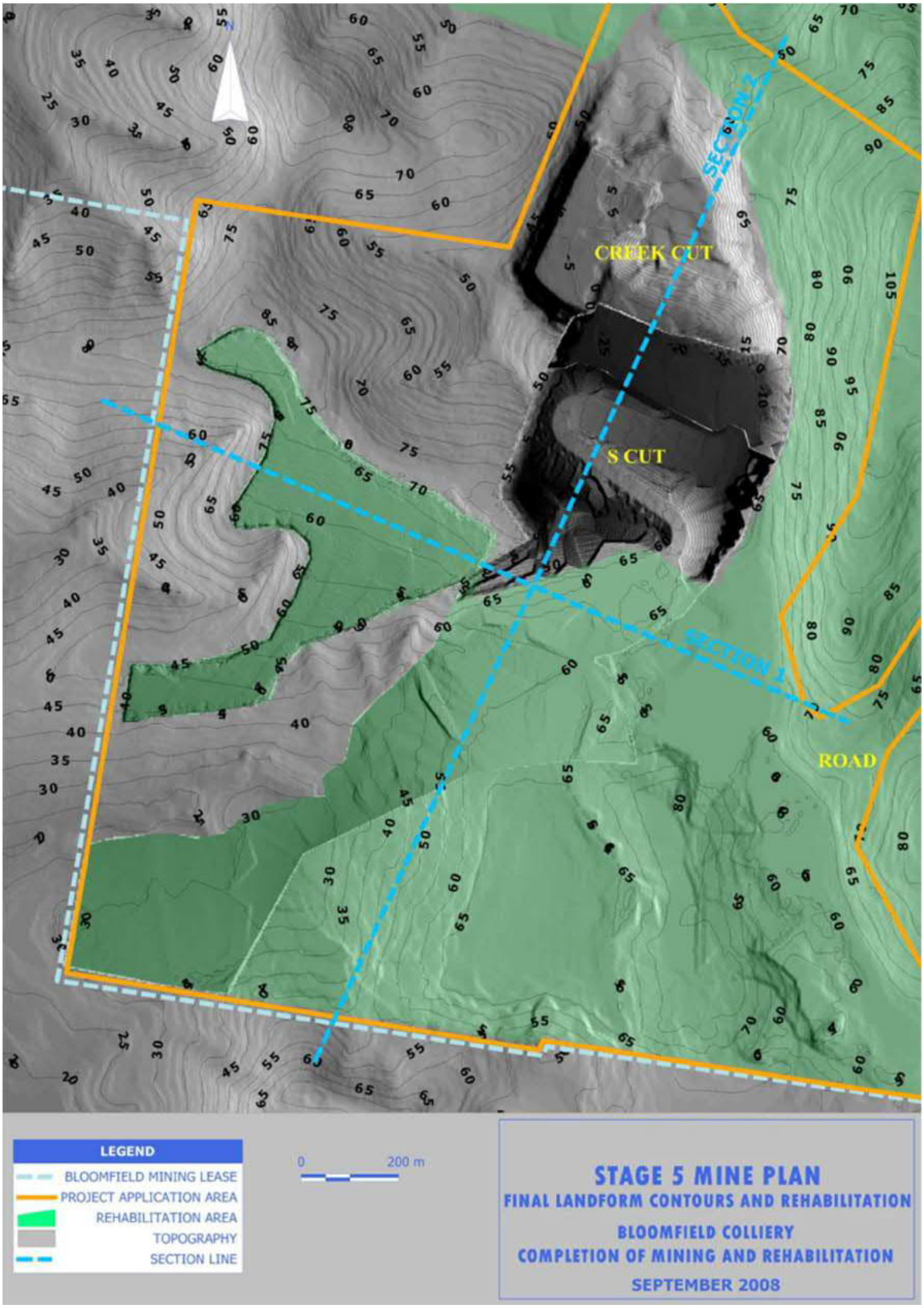


Figure 5 Approved Final Landform (2008 EA) (Source: Business Environment (2008))

4.2.11 Environmental Management and Monitoring (Operations)

The Bloomfield Mining Operations Environmental Management System (EMS) has been developed in general accordance with the principles of Australian Standard *AS/NZS ISO 14001:2016 Environmental Management Systems*. It contains an Environmental Policy as well as relevant environmental systems and procedures to guide current operations. This EMS would continue to be applied to Project operations, until the completion of mining. Any additional requirements resulting from conditions of the Project Approval or Mining Lease would be incorporated into the existing EMS.

Existing systems and procedures that have been developed to manage the impacts and operation of activities on the site include:

- Environmental Management Strategy;
- Noise Monitoring Plan;
- Aboriginal Cultural Heritage Management Plan;
- Air Quality Monitoring Program;
- Blast Monitoring Program;
- Water Management Plan;
- Landscape Management Plan;
- Rehabilitation Management Plan;
- Final Void Management Plan;
- Mine Closure Plan;
- Biodiversity Offset Management Plan; and
- Energy Savings Action Plan.

4.3 Proposed Modification

4.3.1 Overview

Bloomfield is seeking a modification to the Project Approval MP 07_0087 to extend the life of mining at the Colliery until 31 December 2030. This modification would align the Bloomfield mining operations consent limit to coincide with the Abel Underground Mine consent limit.

Existing mining methods would continue to be employed as part of the Project to extract up to 1.3 Mtpa of ROM coal from within the existing approved extraction area. Changes to the mine fleet have allowed extraction of seams that were not previously considered to be a recoverable resource in the 2008 EA. In addition, further exploration has identified other previously unrecoverable resources that the new fleet can now access. This modification therefore proposes a revised mine plan which includes extraction of deeper coal seams than originally approved.

The revised mine plan proposed as part of this Project would result in a modification of the previously approved final landform by moving the final void approximately 200m to the west.

4.3.2 Revised Mine Plan

The Project is seeking approval to continue mining at the currently approved maximum annual tonnage of 1.3 Mtpa ROM coal until 31 December 2030. Indicative upper coal production rates for each year of mining are shown in **Table 3**. Note that these are upper limits of potential production out to 2025. Experience has indicated that due to market conditions actual production rates may vary. Low productions rates which have occurred in recent years have partly resulted in the need to extend the current life of mining. Similarly through seeking a new end of mining date of 31 December 2030 Bloomfield would have the flexibility to reduce production rates in response to market forces without having to seek further mine of life extensions in the future.

Table 3 Indicative Production Rate over the Life of the Project

Year (ending March)	ROM Coal (Mtpa)	Saleable Coal (Mtpa)
2018	1.0	0.6
2019	1.1	0.6
2020	1.1	0.6
2021	1.3	0.7
2022	1.1	0.6
2023	1.1	0.6
2024	1.1	0.6
2025	0.55	0.3

Figure 6 details the existing and proposed layout of the mine in 2018, assuming mining activities proposed under this modification are commenced in 2018. Note that this represents the continuation of the existing mining activities as currently being progressed by the mine.

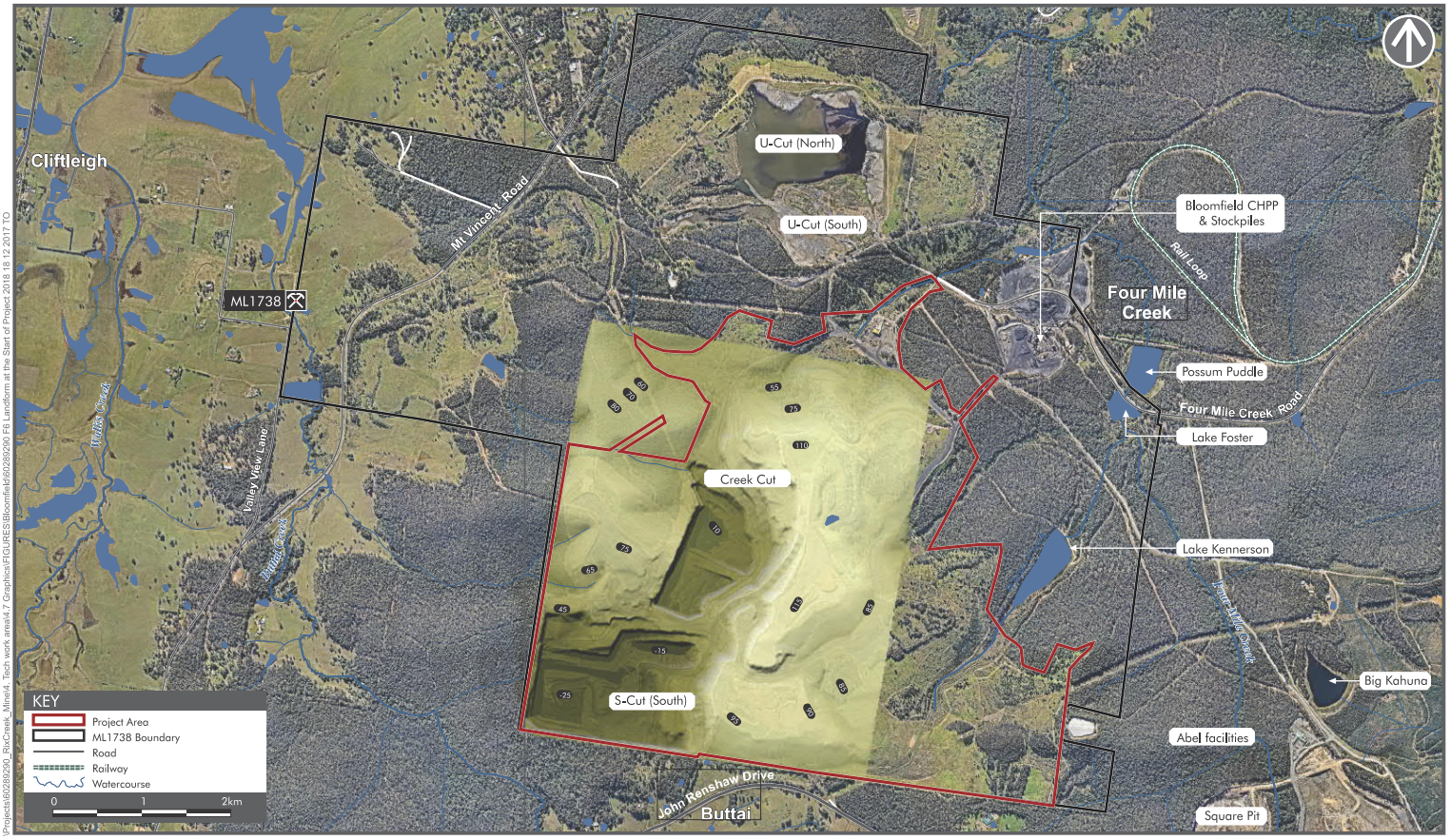
With 2021 scheduled to be the year of greatest material movement and given it falls approximately halfway through the proposed life of mine extensions, it has been used as a basis for calculating worst case air quality and noise impacts in this EA as detailed in **Section 8.0**. The progression of mining in 2021 is detailed in **Figure 7.**

The approved final landform incorporates a final void on the Colliery site to be used as a tailings facility for the ongoing operations at Abel Underground Mine. With the Abel Underground Mine currently in care and maintenance, the final landform proposed as part of this modification would depend on whether the Abel Underground Mine resumes operations. Therefore final landform designs have been prepared for two scenarios:

- One which assumes the Abel Underground Mine remains in care and maintenance; and
- A second scenario which assumes Abel Underground Mine resumes operations.

The indicative final landform for both of these scenarios is shown in **Figure 8** and **Figure 9**.

Specific details regarding the rehabilitation process on the Colliery site and the management of post mining land is detailed in **Section 8.6** of this EA and Section 3 of the 2008 EA. The final landform presented in this EA may change over time depending on the status of the Abel Underground Mine or with the advent of new technologies. Any changes to the final landform would be subject to discussion with the relevant agencies (including DRG).



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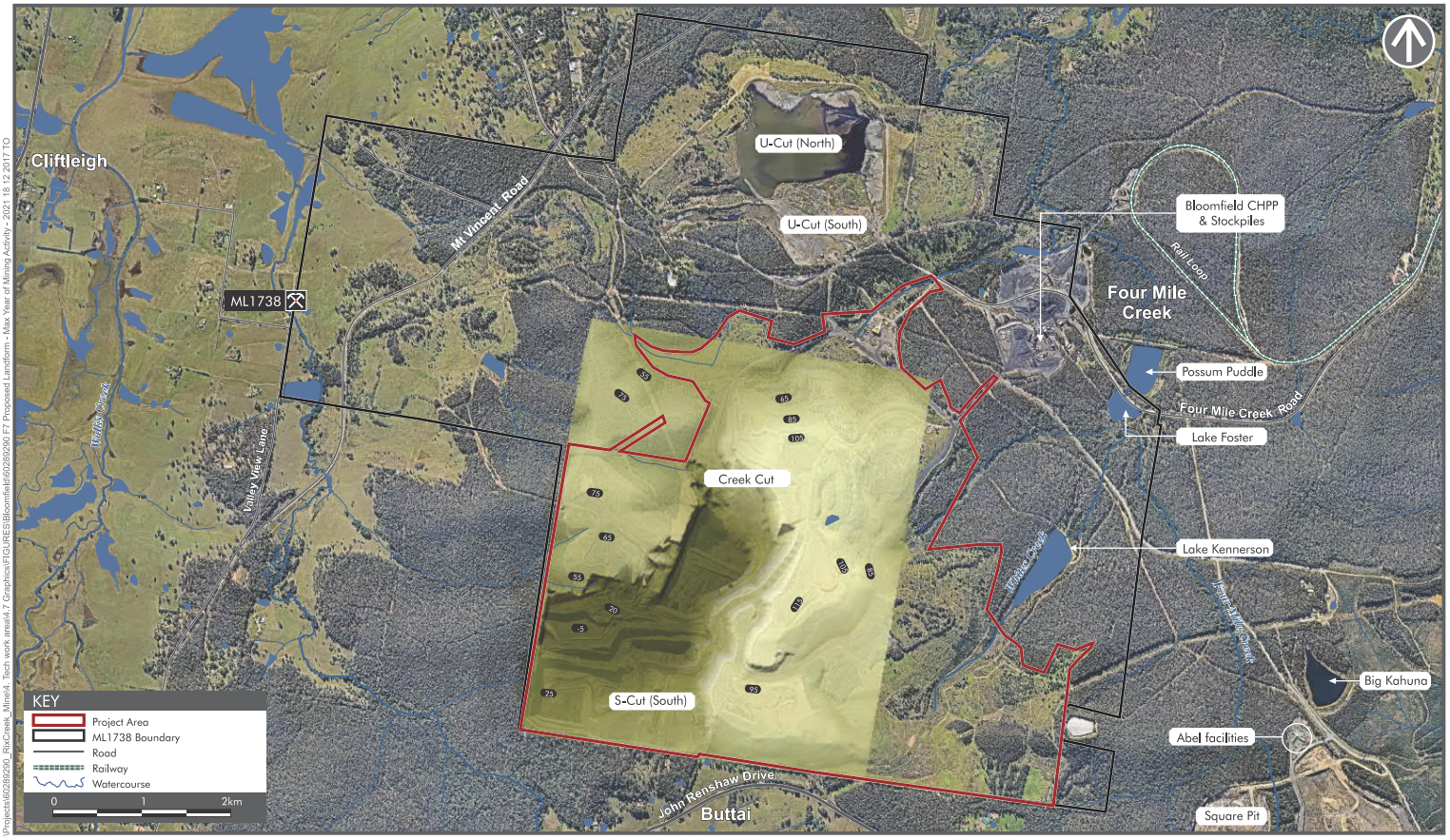
LANDFORM AT THE START OF PROJECT - 2018

Bloomfield Project

FIGURE 6



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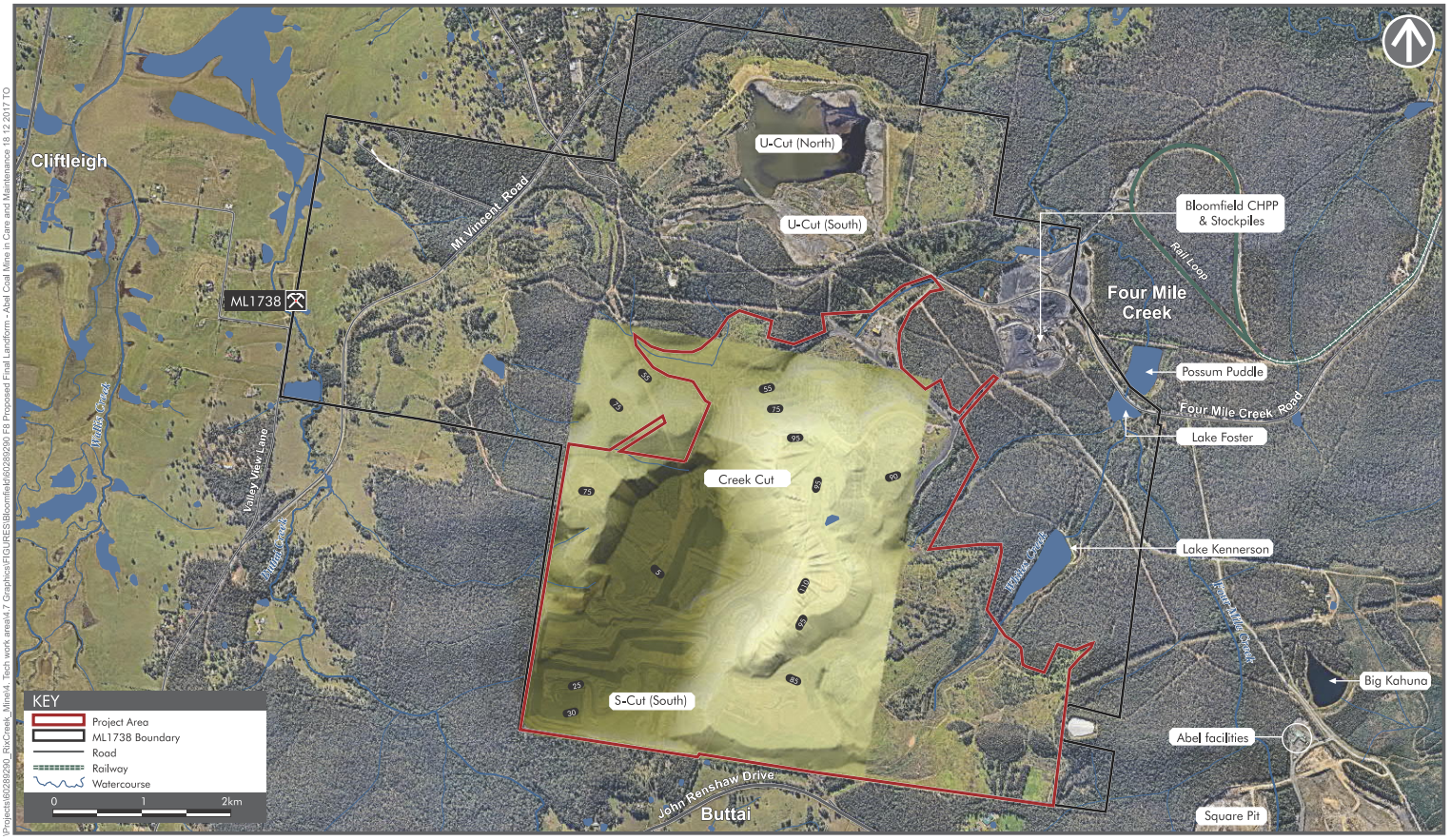
PROPOSED LANDFORM - MAXIMUM YEAR OF MINING ACTIVITY - 2021

Bloomfield Project

FIGURE 7



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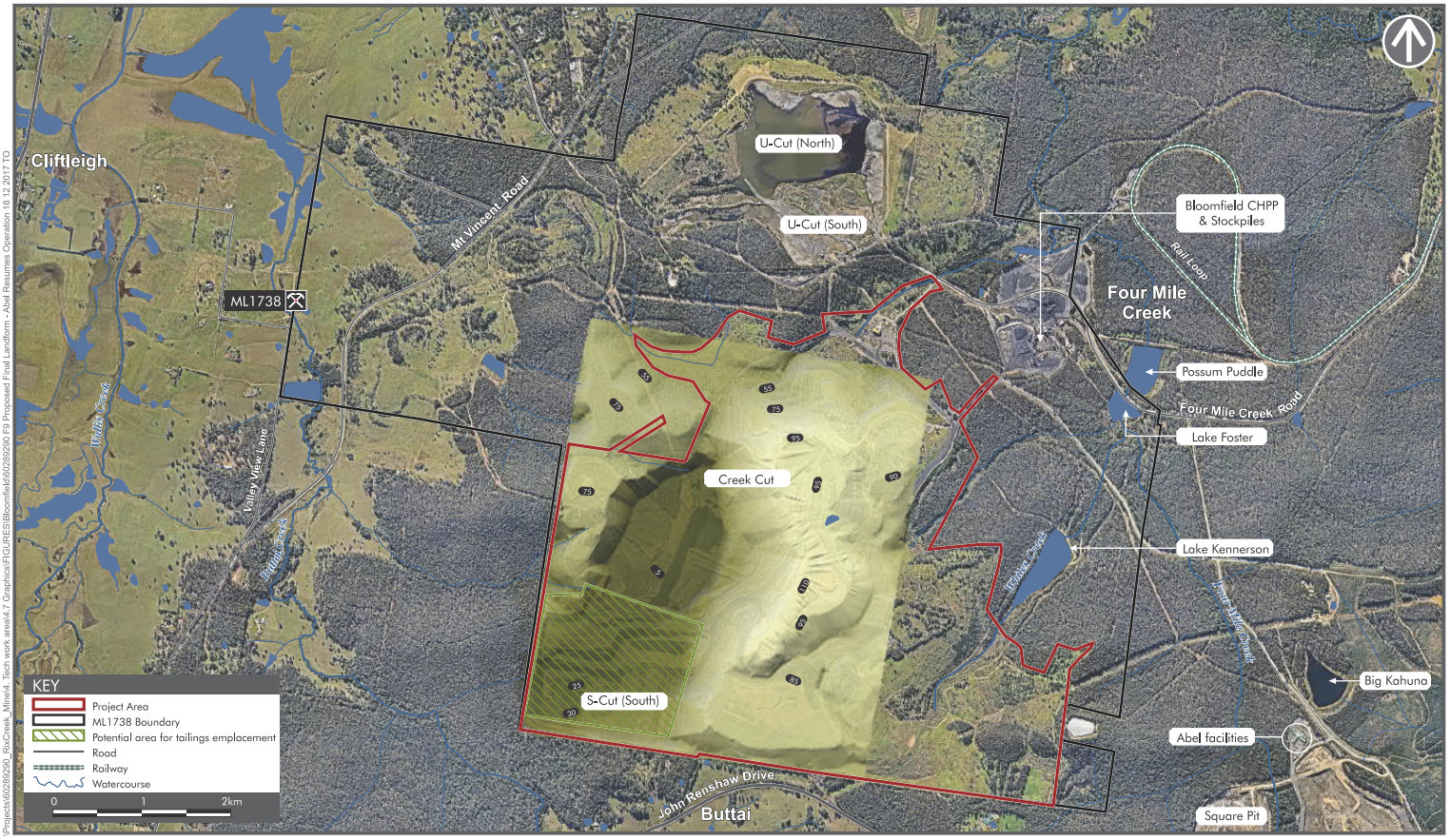
PROPOSED FINAL LANDFORM - ABEL COAL MINE IN CARE AND MAINTENANCE
Bloomfield Project

FIGURE 8



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PROPOSED FINAL LANDFORM - ABEL RESUMES OPERATION

Bloomfield Project

FIGURE 9

4.3.3 Tailings Emplacement

The current tailings emplacement area (U-Cut North and South, as shown on **Figure 3**) has approval under the Abel Project Approval. At current production levels (i.e. with Abel in care and maintenance) the current emplacement area is expected to be filled during 2019. Bloomfield has approval from the Dam Safety Committee to raise the wall on the current tailings emplacement area (a prescribed dam) which, if constructed, would provide enough tailings capacity for Bloomfield process waste throughout the remainder of the Project (assuming no tailings from Abel Underground Mine).

As it is currently unknown if Abel Underground Mine would commence operations in the future, there are a number of variables with regard to tailings emplacement. The future tailings emplacement strategy would therefore need to be reassessed on a regular basis to consider the status of the Abel Underground Mine. A potential tailings disposal area has therefore been established within the current approval area (refer **Figure 10**), inside which tailings disposal could occur over the modified consent period. This would allow the flexibility required to continue mining in the open cut pits while retaining the option to create tailings emplacement areas throughout the modified consent period.

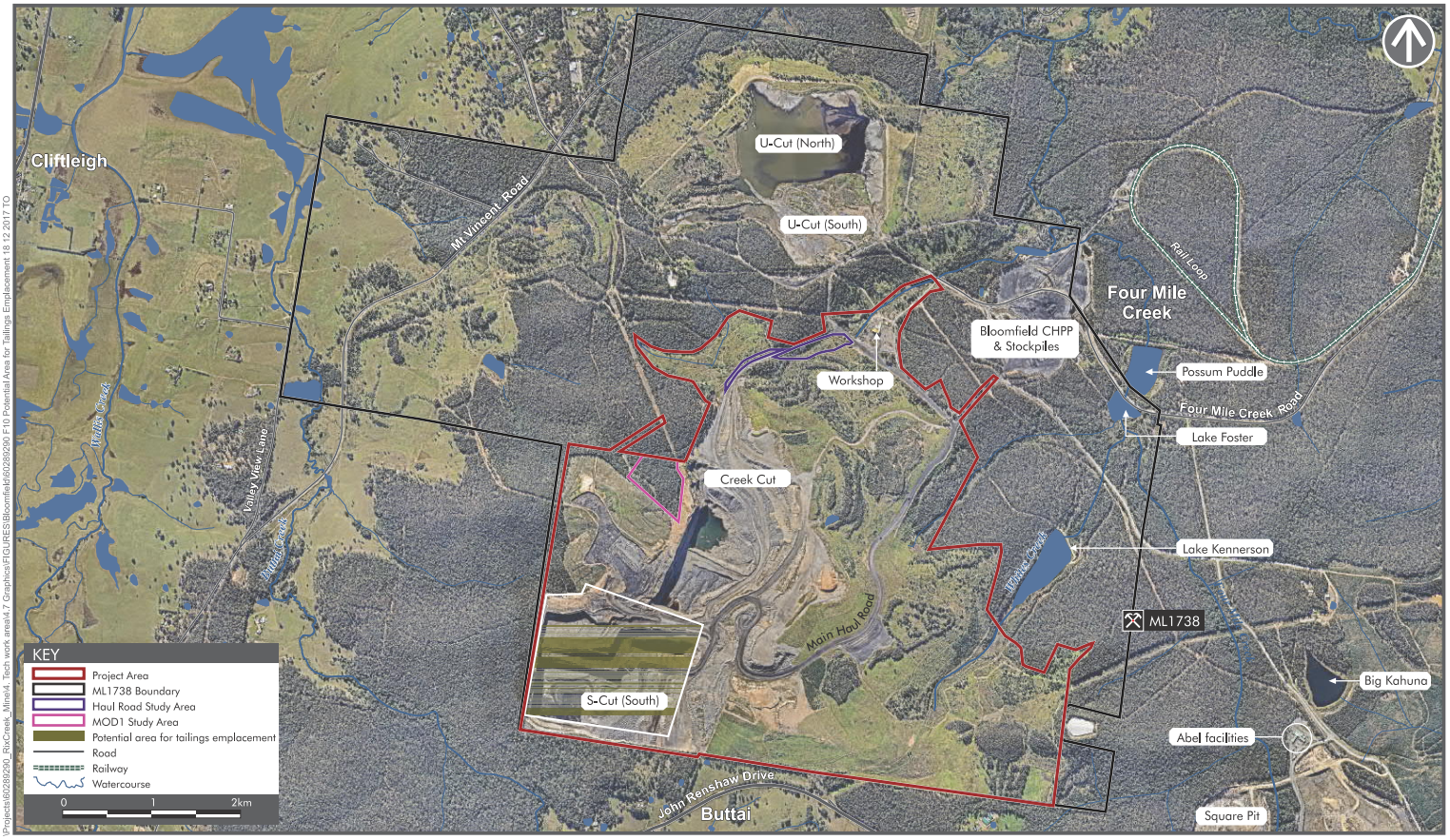
Mining operations would move progressively north which means the lowest point of the pit floor would remain down-dip (lower in the pit) of operations, allowing mining operations to continue in isolation of tailings and decant water facilities. The potential tailings area is bound by a combination of high-walls generally at an inclination of 75 degrees and spoil material at a natural rill angle (37 degrees). The in-pit tailings emplacement areas would be dewatered via a decant wall (refer **Figure 11**). This means that free surface water would be kept to a minimum as the water would drain through the decant wall and be pumped back through the mine dirty water system.

This methodology has previously been used successfully on site in the U-North tailings facility. The decant walls would be limited to 65m high resulting in overall tailings depths similar to the current U-Cut North tailings facility.

The likely strength and capping capability of future tailings was modelled using shear test results and geotechnical advice obtained from studying the current U North Tailings facility. The seams mined at the Colliery have remained largely consistent over many years and as such there is confidence that going forward the tailings will display similar strength characteristics to that shown in the existing tailings dam. A Preliminary Geotechnical Assessment (Lambert Geotech, 2017) was undertaken for the capping of the existing tailings emplacement area (U-Cut North and South). This assessment included shear testing and stability analysis. Lambert Geotech (2017) indicates that there are generally three strength zones of tailings emplacement areas (refer **Figure 12**).

Recommendations for each zone include:

- Zone 1 (lowest strength) - Tailings of insufficient strength to support capping load. This would require advancing a high spoil face (approximately 10m) to displace the tailings. Large settlements and cracking of tip head anticipated; would require close survey control and geotechnical oversight;
- Zone 2 (intermediate strength) - Tailings suitable to support 1.5m of capping pushed out with a dozer; and
- Zone 3 (highest strength) – Tailings suitable to support 2.5m of capping pushed out with a dozer.



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POTENTIAL AREA FOR TAILINGS EMPLACEMENT
Bloomfield Project

FIGURE 10

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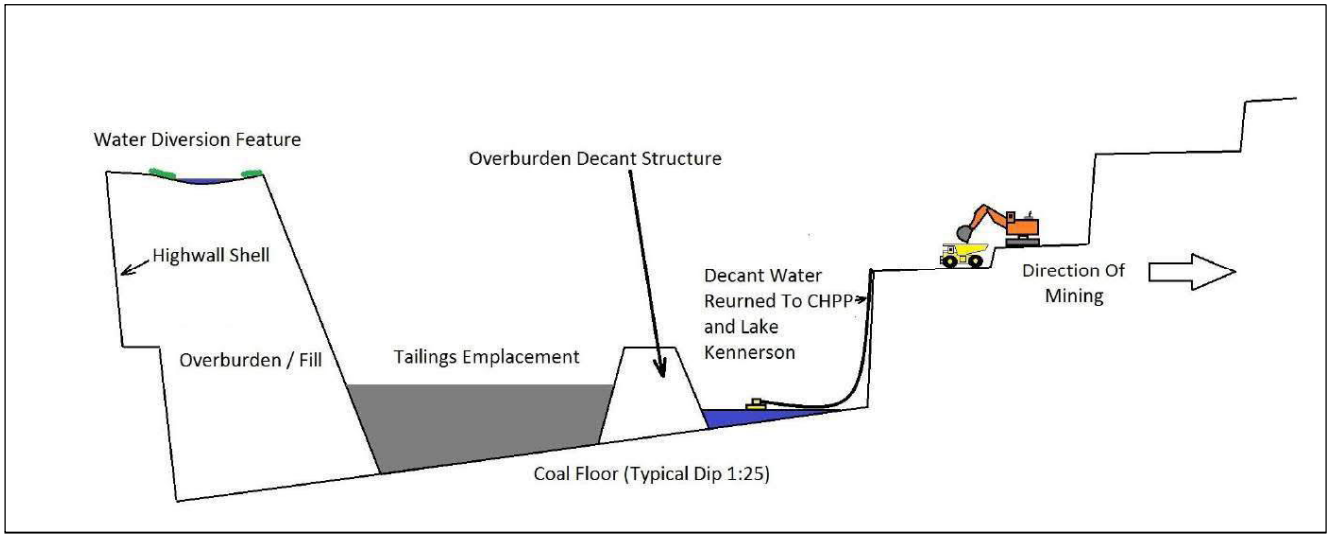

Figure 11 Typical In-pit Tailings Emplacement Area

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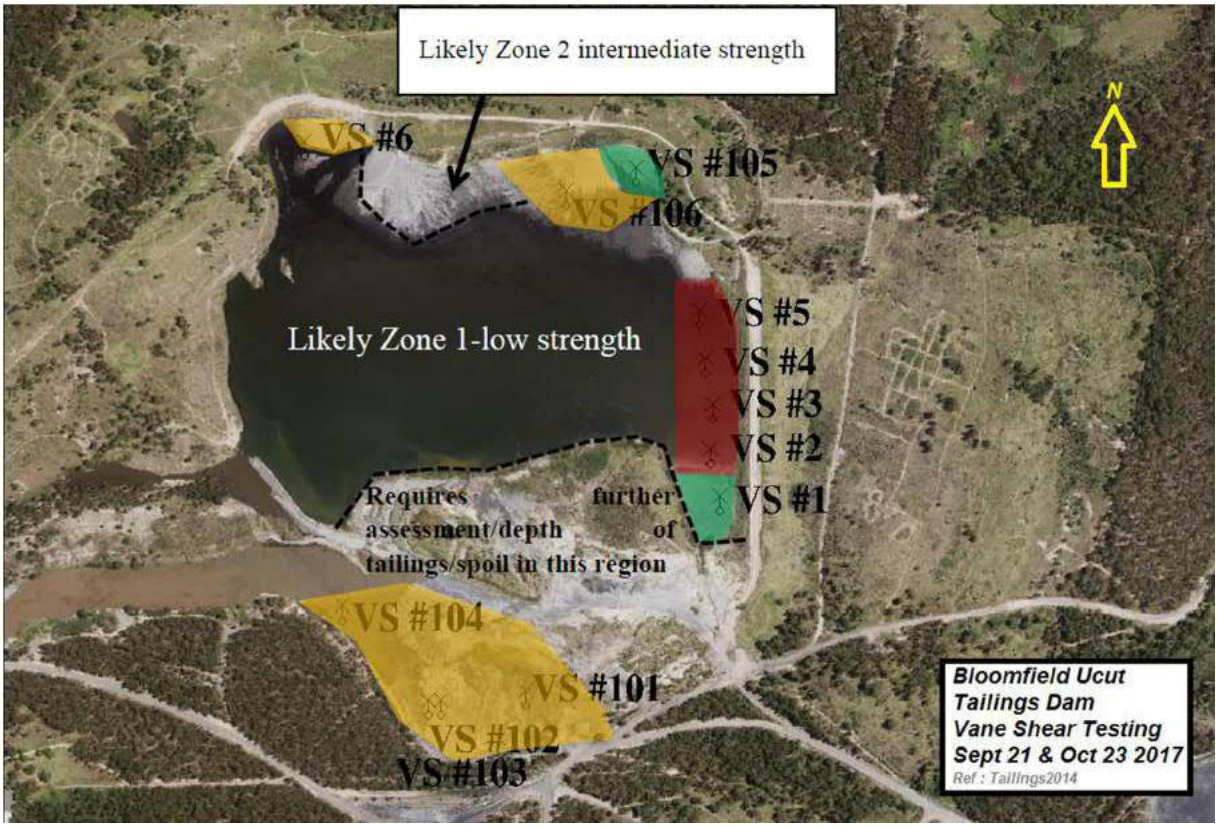

Figure 12 Strength Zones Within the Existing Tailings Emplacement Area

Note: Red shading = Zone 1 lowest strength. Amber shading = Zone 2 intermediate strength. Green shading = Zone 3 highest strength

Results of the geotechnical investigations for the existing tailings emplacement area (Lambert Geotech, 2017) indicate dried tailings can potentially hold 2.5m of inert cover. Given that a similar source of material (that is, the Colliery and Abel Underground Mines) would be used for tailings emplacement as part of the Project compared to that of the existing tailings emplacement area, similar characteristics are expected. The recommended management strategies for each zone (as detailed above) would be implemented for the Project.

However the in pit emplacement areas may have significantly higher capping loads, with large dumps progressing over top as the rehabilitation progresses. The depth of capping would depend on the future status of the Abel Underground Mine and the timing and volumes of coal being processed through the CHPP. As the existing tailings have displayed reasonable shear strength, it's feasible to assume that smaller capping depths would allow for traditional capping methodologies to be applied (refer to **Figure 13**).

However, in the event that larger capping depths are required (i.e. Abel resumes operations) an alternative capping method would be applied, which would allow the lower strength tailings (that is, zone 1 tailings emplacement) to rise in elevation and mix with the newly deposited spoil (refer to **Figure 14**). This new material would require monitoring to ensure it remains within the approved emplacement areas.

4.3.4 Haul Road Expansion

As part of the Project approximately 3.5 ha of previously rehabilitated landform (refer **Figure 3**) would be cleared for the proposed widening of a haul road and upgrade of the adjacent watercourse. The area to be cleared includes 0.34 ha of native vegetation and 3.2 ha of non-native vegetation dominated by exotic grasses. Two areas of land adjacent to the haul road would be impacted for the expansion and upgrade works, which would comprise:

- Widening of the haul road to allow for two way travel of large rear dump trucks. This would impact upon 0.8 ha of rehabilitated landform that is located to the north of the current haul road; and
- Widening of the same haul road and upgrade of adjacent previously rehabilitated watercourse. This would impact upon 2.7 ha of rehabilitated landform located to the south of the current haul road.

The potential ecological impacts associated with these works are assessed in **Section 8.1**.

4.3.5 Interfaces with Abel Underground Mine

The Colliery and the Abel Underground Mine share a range of infrastructure and processes, including the Bloomfield CHPP and associated water management; the Bloomfield Rail loading facility; and coarse reject and tailings disposal.

Integration of the Colliery operations with the adjacent mining operation has been a key consideration in mine planning and impact assessment studies. Key aspects of the Project that are integrated with the operations of the adjacent Abel Underground Mine include:

- Delivery of coal from the Project and other mines to the ROM coal stockpile areas adjacent to the CHPP;
- Water management system components utilised by multiple operations, such as the Bloomfield and Abel coal mines and the Bloomfield CHPP, with the open cut water management forming part of the overall integrated water balance;
- Integrated rehabilitation planning, considering the final land use proposed for multiple sites; and
- Integrated environmental monitoring program for the adjacent sites.

Although the Abel Underground Mine is currently in care and maintenance, for the purposes of assessing worst case potential impacts, relevant technical studies (for example, air quality and noise) have considered the cumulative impacts of the Project with the Abel Underground Mine operational.

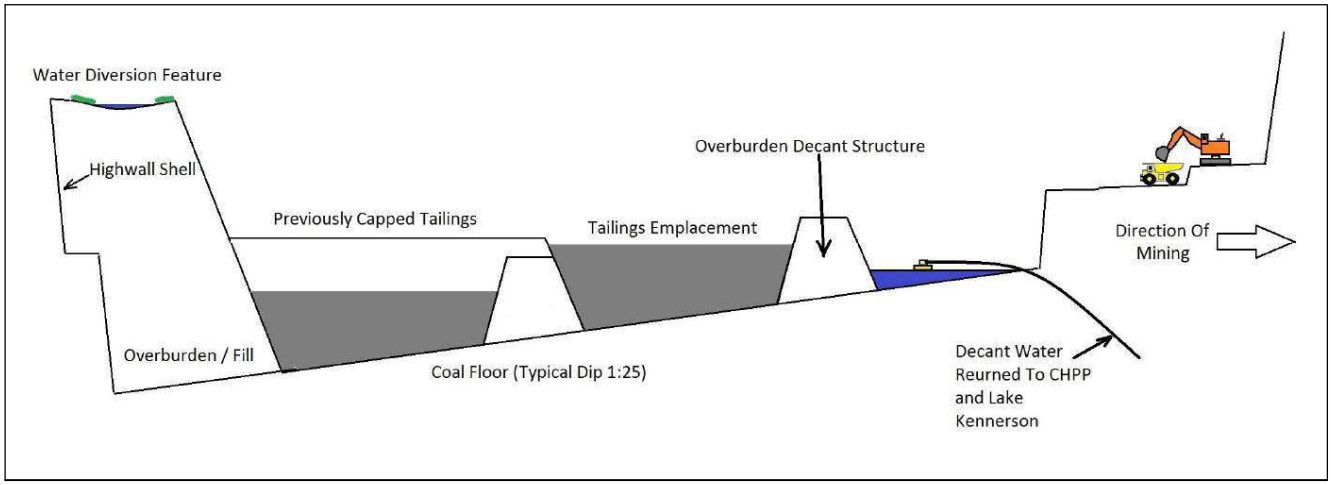

Figure 13 Traditional Capping Methods

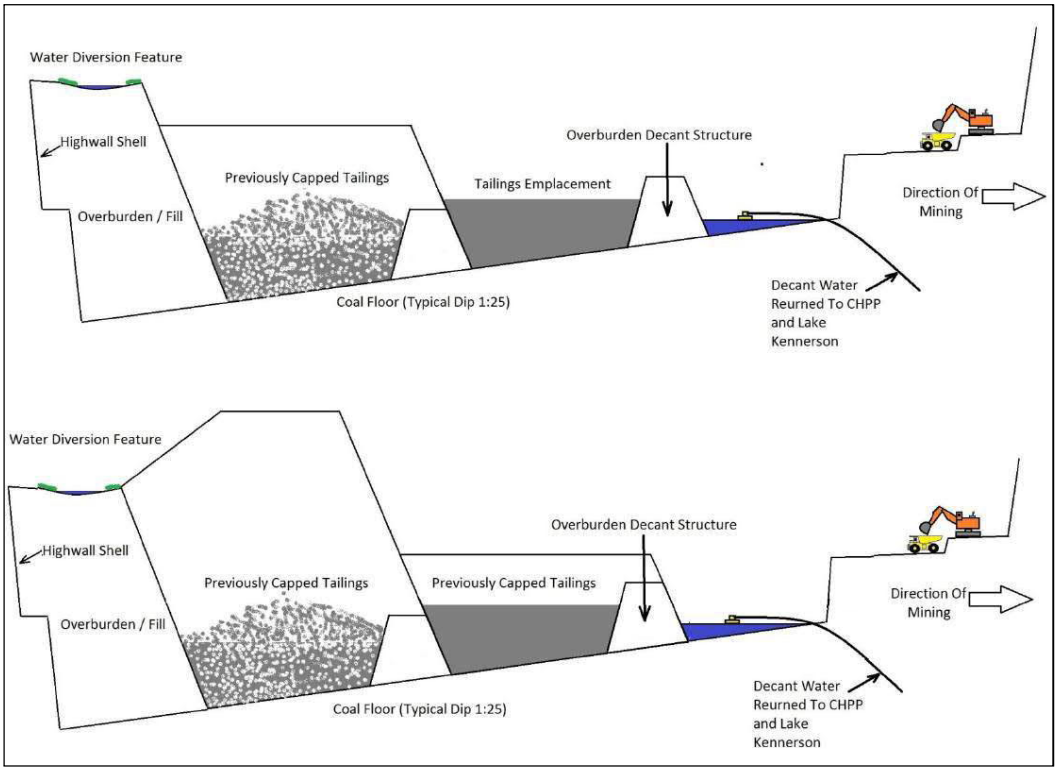

Figure 14 Alternative capping method for larger capping depths (applicable for lower strength tailings)

4.4 Alternatives

4.4.1 Mine Plan and Final Landform Options

The following options have been considered in the development of the proposed mine plan and subsequent final landform:

- Option 1 – Existing approved final landform (do nothing scenario);
- Option 2 – No final void;
- Option 3 – The large void plan; and
- Option 4 – The flat area plan.

Each of these options is discussed further below.

Option 1 – Existing approved final landform (the 'do nothing' option)

Option 1 represents the current approved final landform under the Project Approval 07_0087 (shown on **Figure 5**). Following closure of the Colliery in 2021, the final void within the combined S Cut and Creek Cut is to be utilised as a tailings emplacement area by Abel Underground Mine under the Abel Project Approval 05_0136. Rehabilitation of the final void would occur following completion of Abel Underground Mine operations and forms part of the Abel Project Approval.

This plan allows for open cut operations with minimal haul lengths and therefore has many economic advantages compared to other options. However this option does not allow for the mining of the remaining 13 million tonnes of ROM coal that can be accessed within the deeper coal reserves and potential benefits to the local community and economy would not be realised.

Without the Project, the extraction of coal at the Colliery could not continue beyond the time limit set by the Project Approval MP 07_0087 (that is, 31 December 2021). Option 1 would therefore lead to closure of the Colliery in 2021 and the loss of approximately 93 jobs.

Under this option closure of the Colliery would mean that a large portion of the 13 million tonnes of ROM coal identified within the approval area would remain undeveloped. This represents a potential loss to local, regional and State economies through the loss of: revenue from mining royalties, direct and indirect employment and flow on effects to the local economy. Coal is a major commodity export for Australia and Option 1 would prevent Bloomfield from continuing to supply thermal and metallurgical coal to the global market.

Under Option 1 the final landform would include a relatively large final void which is intended for use as a tailings emplacement area for Abel Underground Mine. This final void is not likely to be filled completely by future tailings emplacement from Abel Underground Mine and would remain relatively large following use as a tailings emplacement. Further to this if Abel Underground Mine does not recommence operations, the void under this option would not be used as a tailings emplacement and would remain significantly larger. The 2008 EA stated that '*if the objectives of the Abel Project altered in future or were not met, rehabilitation to appropriate final landforms would be completed with material from within the site*'. There would not be sufficient quantities of material within the site to achieve this objective and imported material would be required to create the final landform. Therefore Option 1 would not meet the previous 2008 EA commitment.

The final landform under this option also includes approximately 1.1 km of highwall (greater than 18 degrees slope) on the western side of the void which would remain in place following closure of the Abel Underground Mine. For reasons such as public safety and stability, options that include a highwall were considered to be less preferable to options that do not include a highwall (e.g. Option 4 below).

The negative consequences associated with Option 1 include loss of employment opportunities, sterilisation of the remaining coal resource and unrealised financial benefits to the local and regional communities and to the State Government. The final landform as currently approved includes a large final void and approximately 1.1km of highwall. For the reasons set out above, Option 1 was not considered to be the preferred option.

Option 2 – No final void;

Option 2 includes continued operations to extract the additional 13 million tonnes of ROM coal identified within the approval area and to fill the remaining void following extraction of the coal reserves.

The benefit of this option is that no final void would remain within the final landform. However this option has several disadvantages. Following extraction of the remaining coal reserves, approximately 13.5 million cubic metres of spoil would be required to completely fill the remaining void. This would equate to more than two years of concentrated overburden operations with no economic return during this period. Option 2 is therefore not considered to be economically feasible.

The coal mining operations would not generate enough spoil to completely fill the final void. The only other source of spoil on the site would be the currently rehabilitated land. Disturbance of rehabilitated land would prolong air quality, noise and ecological impacts for the duration of these additional works. This is not considered to be consistent with the rehabilitation objectives for the site.

Option 2 would be excessively cost prohibitive and would extend air quality, noise and ecological impacts through disturbance of currently rehabilitated land and therefore is not considered to be the preferred option.

Option 3 – The large void plan

The Option 3 final landform features two voids within the combined S Cut and Creek Cut, including a temporary void to the south which would be used for tailings emplacement from Abel Underground Mine (if required) and a larger final void to the north (shown on **Figure 15**). In the event that Abel Underground Mine does not recommence operations, the temporary void to the south would be filled and the remaining final void to the north would be larger.

One benefit of this option is that the final void would not contain any highwalls. However, this option would require longer and higher haul routes for open cut operations as more spoil would be used to form the larger footprint of high dumps. Final landform shaping would then require relocation of this spoil to achieve the final landform in the lower slope areas. This would greatly increase the mining cost and would restrict progressive final landform shaping and rehabilitation, leaving more exposed spoil with potential for air quality impacts from dust generation.

With Abel Underground Mine in care and maintenance and its future uncertain, hauling spoil along longer and higher haul routes to leave such a significant final void is not economically viable. The resulting higher and steeper final landforms are also not compatible with the landowner's future commercial development plans (refer **Section 4.4.4**). The final landform is required to deliver land surfaces that would encourage commercial and residential development.

Whilst Option 3 is considered to be an improvement over Option 1, disadvantages include a higher and steeper final landform with a significant final void and expensive long and high haul routes during mining operations. Option 3 is therefore not considered to be the preferred option.

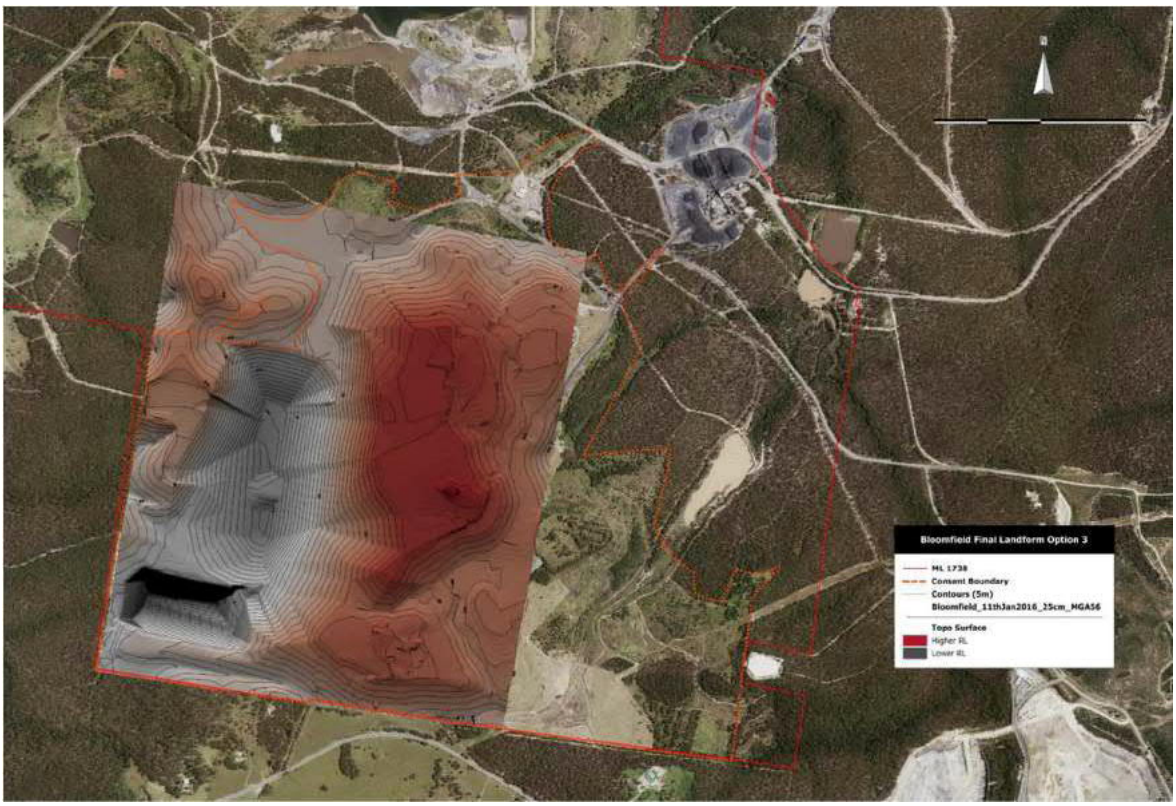

Figure 15 Option 3 – Large Void Plan

Option 4 – The flat area plan

Option 4 is characterised by a large flat area and also features two voids within the combined S Cut and Creek Cut. These include a smaller temporary void to the south which would be used for tailings emplacement from the Abel Underground Mine (if required) and a larger final void to the north, with an associated reduction in the slopes of the final landform. In the event that Abel Underground Mine does not reopen, the temporary void to the south would be filled and the final void to the north would be slightly larger. Option 4 is the preferred option and forms the basis of this modification application. The final landforms associated with both scenarios (that is, with Abel Underground Mine remaining in care and maintenance and with Abel Underground Mine recommencing operations) are shown on **Figure 8** and **Figure 9**.

Under Option 4, the higher dump footprint is minimised compared to Option 3 and open cut operations would not require any abnormally long or high haul routes. Therefore from an economic perspective, Option 4 is preferable to Option 3. Another benefit of Option 4 is that it doesn't contain highwalls, which reduces public safety and stability risks. Also importantly this option has the smallest final depression when compared to Option 1 and Option 3.

The extent of higher elevation land in the Option 4 final landform is reduced compared to that of Option 3, which would lessen the visual impact for surrounding landholders. The slope of the final landform is not as steep as that of Option 3 and is more suitable for inclusion into the development plans for the final land use (refer to **Section 4.4.4**). The landforms would be stabilised and sown to pasture to ensure a continuing stable landform and post mining grazing would allow consolidation of the landforms.

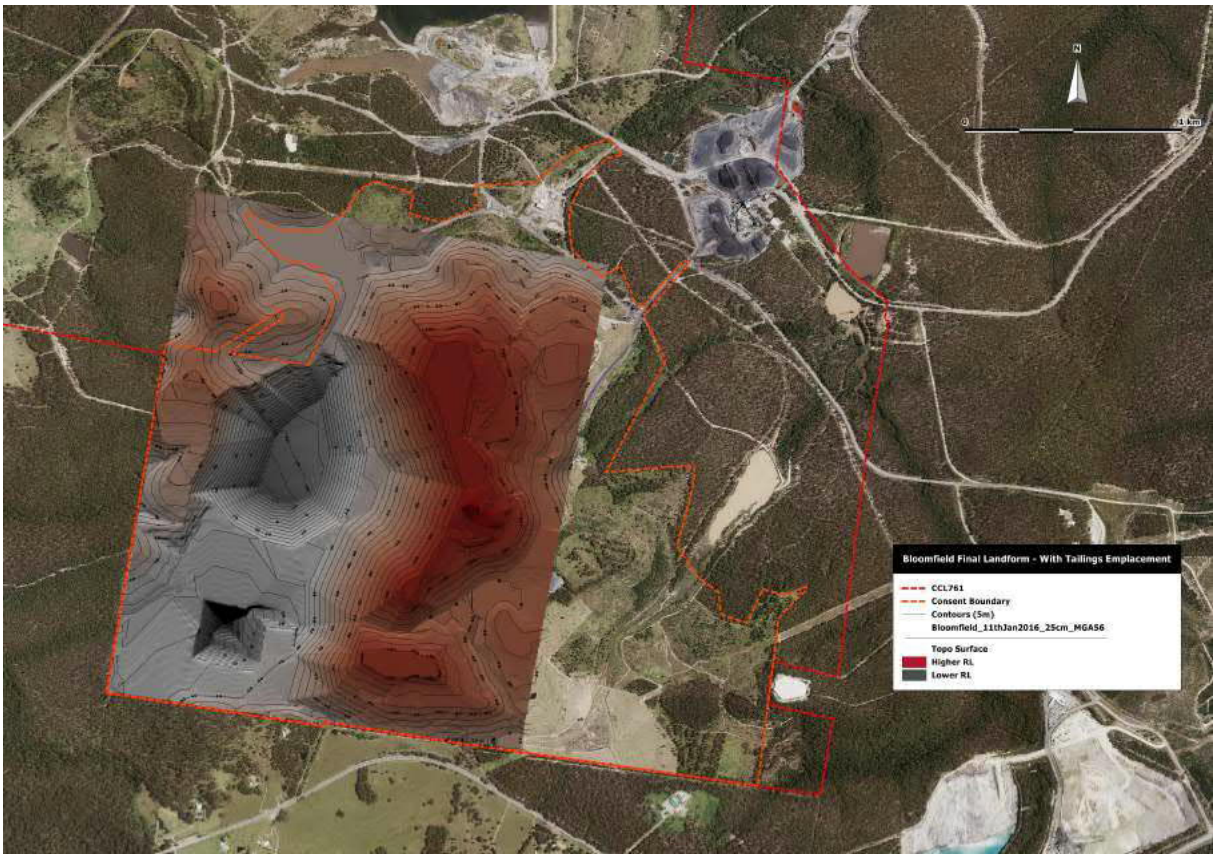

Figure 16 Option 4 - The Flat Area Plan

Preferred Option

Option 4 is the preferred option as assessed in this EA. As described above, Option 4 was considered to be the best option as it achieves the following:

- Allows Bloomfield to offer continued employment on the site and to service existing contracts and provides the economic and flow on benefits to the local community by developing the remaining coal reserves (as opposed to the 'do nothing' option);
- A resulting landform which offers the best shape and slope for post mining commercial utilisation by the land owner;
- Removal of highwalls from the final landform which reduces the public safety risk; and
- Reduction in the extent of higher elevation land which reduces the visual impact for surrounding landholders.

4.4.2 Mine Scheduling

This Project would include approval to extract up to a maximum of 1.3 mtpa ROM coal up until 31 December 2030. This rate is the same or similar to historical operations. While this represents the maximum annual tonnage limit, extraction may be undertaken at a slower rate, depending on market requirements.

An alternative option to the Project would be more rapid extraction, to remove more material per year thereby completing mining on the site over a shorter timeframe. Bloomfield, however, blends coal from both the Bloomfield operations and Rix's Creek Mine (located near Singleton) to meet market specifications. Rix's Creek and Bloomfield are both multi seam, open cut mining operations with varying coal qualities and yields.

The scheduling of coals to be mined from the various locations in the Bloomfield mine plan is designed to provide flexibility to meet changes in coal quality from Rix's Creek and/or changes in market requirements. Minor variations to the sequencing and scheduling of mining blocks may be required

over the life of the Project, to meet individual shipments and fulfil Bloomfield and Rix's Creek market volume and quality obligations. Therefore the Project proposes to continue mining operations within the existing approved maximum annual tonnage limits.

4.4.3 Transport Methods

Overburden is currently removed from the pit via dump truck and placed on emplacement areas which are then shaped and rehabilitated. Coal is removed from the pits by the coaling fleet and transported via an internal haul road to the ROM coal stockpile at the CHPP.

An alternative to this current transport method would be to provide an in-pit crushing system feeding a conveyor that transports coal to the ROM coal stockpile pad at the CHPP. This would require Bloomfield to maintain a central extraction point, which is not possible as flexibility is required in extraction areas due to the multi-seam environment and varying coal quality requirements.

It is therefore proposed to continue using the existing transport methods and haul road. This haul road provides direct access to the ROM coal stockpile and its impact in terms of potential noise and air quality impacts has been modelled and use of the haul road considered to have minimal impact outside the Project Area (refer to **Sections 8.2** and **8.3**).

4.4.4 Rehabilitation and Final Land Use Considerations

A range of final land uses for the Project Area have previously been considered by Bloomfield and the landowner. Selection of an appropriate post-mining land use and development of a suitable post mining landform is discussed in the 2008 EA and the current MOP. Factors influencing the selection of an appropriate post-mining landform and land use are:

- DRG requirements with regard to landform stability and safety;
- The Hunter Regional Plan 2036 (DP&E, 2016) a 20 year blueprint for the future of the Hunter region. The vision is to create a leading regional economy in Australia with a biodiversity-rich natural environment, thriving communities and greater housing choice and jobs. Therefore any decisions regarding the post-mining landform and land use would need to take this, and any additional detailed plans that may be prepared in the future, into consideration;
- The majority of the mining lease area is owned by Ashtonfields and any decision regarding post mining landform and land use would need to take the obligations under the commercial lease agreement between Bloomfield and Ashtonfields into consideration;
- The Stony Pinch Group has been established by the major landowners of the site and surrounding areas to act as a coordinated and single entity in the planning and development of the overall site. An indicative final land use plan has been developed (**Figure 17**) and this plan has been issued to Council and regulatory authorities for consideration; and
- The Bloomfield CHPP, rail loading facility and associated infrastructure would continue to operate after the mining as currently approved is scheduled to be completed, so active CHPP infrastructure and transport would continue in the mining lease area.

Alternative final land uses considered in the 2008 EA and the current MOP include residential, industrial, open forest / bushland or undulating grazing land / rural landscape. While the final landform would depend on the future operational status of the Abel Underground Mine, the Project Area would be rehabilitated to a standard acceptable to DPI and the landowner. Following consideration of these options and the requirements under the commercial lease agreement with the landowner, Bloomfield determined that rehabilitated land suitable for a variety of future land uses, whilst enabling the retention of habitat areas, is the most appropriate choice.

As the site and surrounding area has been identified as having potential for industrial-type uses in the future, Bloomfield considers that the mine site area should be rehabilitated in such a way that does not conflict with this future land use. Such rehabilitation would mean providing a flat to undulating topography suitable for mixed use industrial, seeded with grasses to stabilise, together with areas of trees for habitat, until such time as detailed determinations are made regarding any future industrial use of the site. Should no such future development eventuate, the site would remain as a stable, rural landscape. Bloomfield therefore proposes to rehabilitate the land to create a stable, undulating landscape with a mix of pasture and tree areas suitable for grazing and general habitat.

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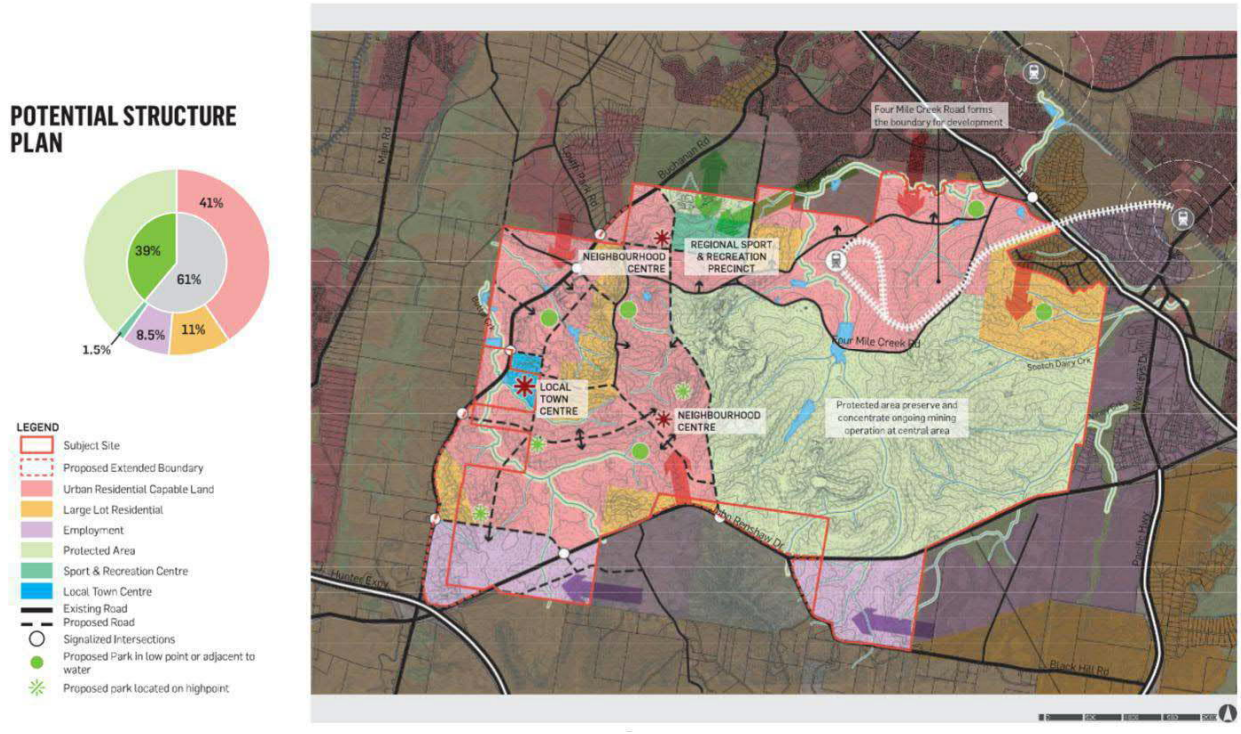

Figure 17 Indicative Final Land Use Plan (Stony Pinch Group, 2017)

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5.0 Statutory Context

5.1 Conditions Requiring Modification

A review of the existing conditions of consent for Project Approval 07_0087 as modified was undertaken. The review found that the following conditions would need to be amended if the Project is approved. Those conditions and suggested modifications are detailed below. Proposed additions or modifications are shown in **bold** and proposed deletions are shown in ~~strikethrough.~~

Schedule 2, Condition 2

2. The Proponent shall carry out the Project generally in accordance with the:

(a) EA;

(b) Statement of Commitments;

(c) modification application 07_0087 Mod 1 and Environmental Assessment titled Extension of the Project Approval Area for Out-of-Pit Overburden Emplacement and Rehabilitation, Alternative Haul Road and Powerline Relocation, prepared by Business Environment and dated September 2010;

(d) the Biodiversity Offset Strategy titled Bloomfield Colliery Project Modification 07_0087 MOD 1 – Proposed Offset Strategy, dated 31 March 2011;

(e) the modification application 07_0087 MOD 2 and letter entitled Bloomfield Coal Project – Modification of PA 07-0087, dated November 2011;

(f) the modification application 07_0087 MOD 3 as requested by letter entitled Bloomfield Coal Project – Modification of PA 07-0087, dated 17 December 2012; ~~and~~

(g) the modification application 07_0087 MOD 4 and Environmental Assessment for the proposed life of mine extension; and

(h) conditions of this approval

Schedule 2, Condition 5

5. Mining operations may take place on the site until 31 December ~~2021~~ **2030**.

5.2 Commonwealth Matters

5.2.1 Environment Protection and Biodiversity Conservation Act 1999

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) requires approval from the Commonwealth Minister for the Environment where an action has, or would have, a significant impact on a matter of National Environmental Significance (NES). The EPBC Act lists nine matters of NES that must be addressed.

A Protected Matters Search of NES Matters was undertaken on 7 April 2017 to determine what NES features may be present within 10 km of the Project Area. The results of this database search are summarised in **Table 4** and provided in full in the Biodiversity Assessment Report prepared for the Project (refer to **Section 8.1**).

Table 4 Consideration of Matters of NES under the EPBC Act

NES Matters	Comment
World Heritage properties	Nil
National Heritage places	Nil
Ramsar wetlands of international importance	The Hunter Estuary Wetlands Ramsar site is located approximately 11 km from the south-eastern point of the mining lease boundary. Given the distance from the Project site, there are no anticipated impacts to this Ramsar site.
Nationally threatened species and ecological communities	There are 44 listed threatened species and three threatened ecological communities which may occur within the Project area. Potential ecological impacts to matters of NES are assessed in **Section 8.1**. The biodiversity assessment prepared by EMM Consulting concluded that significant impacts to matters of NES would be unlikely to occur as a result of the proposed Project.
Migratory species listed under the EPBC Act	There are 33 listed migratory species which may occur within the vicinity of the Project area. Potential ecological impacts to matters of NES are assessed in **Section 8.1**. The biodiversity assessment prepared by EMM Consulting concluded that significant impacts to matters of NES would be unlikely to occur as a result of the proposed Project.
Commonwealth marine areas	Nil
Great Barrier Reef Marine Park	Nil
Nuclear actions (including uranium mining)	Nil
Water resources impacted on by a coal seam gas of large coal mining development	The Project involves operation of a coal mining development. Potential surface water and groundwater impacts are assessed in **Section 8.4** and **8.5**). The assessments concluded that the Project is unlikely to significantly impact surface water and groundwater resources.

The matters of NES of relevance to the Project include the potential impacts to listed threatened species, ecological communities and migratory species, and potential groundwater and aquifer impacts. Specialist studies were undertaken to assess potential biodiversity and groundwater impacts that may occur as a result of the Project (**Section 8.1** and **8.5**) and concluded that the Project would not significantly impact matters of NES. Nonetheless, Bloomfield has submitted an EPBC Act referral (reference number 2017/8132) to the Commonwealth Department of the Environment and Energy (DEE) seeking confirmation that the Project does not represent a Controlled Action requiring approval under the EPBC Act. A decision was pending on this referral at the time of lodgement of this environmental assessment. DP&E would be advised of the outcomes of the referral when a response is received from DEE.

5.3 State Matters

5.3.1 Environmental Planning and Assessment Act 1979

The overarching environmental planning approval framework in NSW is provided by the EP&A Act. Supporting this primary piece of legislation is the *Environmental Planning and Assessment Regulation 2000* (the EP&A Regulation) and environmental planning instruments, including State Environmental Planning Policies (SEPPs) and Local Environmental Plans (LEPs).

The Colliery currently operates under Project Approval MP 07_0087, issued under Part 3A (repealed) of the EP&A Act. As it was for the purpose of coal mining, the original development was classified as a Major Project under the *State Environmental Planning Policy (Major Projects) 2005*, which triggered the former Part 3A approval pathway.

While Part 3A of the EP&A Act was repealed in 2011, transitional arrangements set out in Schedule 6A of the EP&A Act provide that Part 3A continues to apply to approved Part 3A projects, and that section 75W of the EP&A Act continues to apply for the purpose of modifications to Project Approvals. The current Project would therefore be undertaken as a modification to the existing Project Approval (MP 07_0087) under section 75W of the EP&A Act. The approval authority is the Minister for Planning.

It is noted that legislative amendments to the EP&A Act are currently being considered, as set out in the draft *Environmental Planning and Assessment Amendment Bill 2017*. One of the proposed amendments is the removal of transitional arrangements for Part 3A projects. If these proposed amendments are enacted, future modifications to the Project Approval MP 07_0087 would be assessed under section 96 of the EP&A Act depending on the status of this application at the time of the amendment bill coming into effect.

5.3.2 Mining Act 1992

The overarching objective of the *Mining Act 1992* is to encourage and facilitate the discovery and development of mineral resources in NSW, having regard to the need to encourage ecologically sustainable development. The *Mining Act 1992* controls the granting of exploration and mining titles and, amongst other legislative instruments, places controls on methods of exploration and extraction, the disposal of mining waste, rehabilitation and environmental management activities.

An authorisation under the *Mining Act 1992* is required prior to mining or carrying out a mining purpose in NSW. Examples of mining purposes relevant to the Project include the construction, maintenance or use of tailings emplacement areas, and the removal, stockpiling or deposition of overburden. The existing Colliery currently operates under authorisation CCL 761 and ML 1738. The Project disturbance area is located within the boundary of CCL 761 and ML 1738 and therefore a new mining lease or lease extension would not be required.

5.3.3 Protection of the Environment Operations Act 1997

Mining for coal is listed as a scheduled activity under clause 28(2)(a), Schedule 1 of the *Protection of the Environment Operations Act 1997* (POEO Act). The Project meets the definition of 'mining for coal', being mining for coal with a capacity to produce more than 500 tonnes of coal per day and is a 'scheduled activity' under Schedule 1 of the POEO Act requiring an EPL.

The Colliery currently operates in accordance with the conditions of EPL 396 issued by the EPA under the POEO Act. A variation to EPL 396 to accommodate the Project would be sought from the EPA if required, in order to take account of the amended operations resulting from the Project.

Potential also exists for the current noise, air quality, greenhouse gas, and water quality licence conditions to be modernised during the modification of EPL 396. Detailed noise, air quality, greenhouse gas, and water quality impact assessments have been undertaken as part of this EIS (refer to the relevant sections in **Part F**).

5.3.4 Dams Safety Act 2015

The Dams Safety Committee is the State's regulator for dam safety under the NSW *Dams Safety Act 2015* (DS Act). It is responsible for the development and implementation of policies and procedures for effective dam safety management to protect life, property and the environment from dam failures.

The Dams Safety Committee acts to prevent or mitigate any damage to a prescribed dam. A listing of prescribed dams is provided within Schedule 1 of the DS Act. Prescribed dams are surrounded by a Notification Area, within which mining companies are required to address risks of damage to dam structures. Bloomfield Colliery utilises a notified dam under the DS Act as detailed in **Table 5.**

Table 5 Dams Safety Committee Notification Area at Bloomfield Colliery

Object ID	Name	Plan Number	Gazettal Date	Gazettal Number	Dam Name
162	Bloomfield U Cut	204	13/08/2010	100	Bloomfield U Cut Tailings Dam

5.3.5 Water Management Act 2000 / Water Act 1912

The *Water Management Act 2000* sets out the water management principles and water sharing provisions relative to water sources across NSW. Water sources are currently managed in accordance with water sharing plans established under the *Water Management Act 2000* which are being progressively developed and enacted across NSW. In areas where a water sharing plan has not yet commenced, the *Water Act 1912* governs the issue of water licences.

Water sharing plans establish annual limits on water extraction, set water allocations through the issuing of water licences and determine trading rules surrounding water licences. Two water sharing plans are enacted in proximity to the Project:

- *Water Sharing Plan for the Hunter Unregulated and Alluvial Water Sources 2009*; and
- *Water Sharing Plan for the North Coast Fractured and Porous Rock Groundwater Sources 2016*.

The Project would involve water supply works and drainage works, as well as the taking of groundwater. The Mine has an existing licence for its current operations and this would be modified to accommodate the Project over its life.

Section 89J of the EP&A Act states that a water use approval under section 89, a water management work approval under section 90, or an activity approval under section 91 of the *Water Management Act 2000* are not required for an approved project.

NSW Aquifer Interference Policy

The *NSW Aquifer Interference Policy* (DPI Water, 2012) was released in September 2012. It defines the requirements for assessing the impacts of aquifer interference activities on water resources, with the aim of striking a balance between the water use requirements of towns, farmers, industry and the environment.

Under the requirements of the *NSW Aquifer Interference Policy*, the predicted impacts of an activity are considered acceptable if they do not exceed the Level 1 thresholds provided within the Policy by no more than the accuracy of an otherwise robust model.

A detailed assessment of potential impacts of the Project on relevant groundwater resources as part of this EIS indicates that the Project would not exceed the Level 1 thresholds and the impact on groundwater is considered minimal (refer to **Section 8.5**).

5.3.6 National Parks and Wildlife Act 1974

The *National Parks and Wildlife Act 1974* governs the establishment, preservation and management of national parks, historic sites and certain other areas, and the protection of Aboriginal relics. Section 86 of the *National Parks and Wildlife Act 1974* identifies offences relating to knowingly harming or desecrating Aboriginal objects. Section 87(1) of the *National Parks and Wildlife Act 1974* requires a permit to be obtained to remove any artefacts, while section 90 of the Act requires consent from the Director General of OEH to knowingly destroy, deface or damage a relic or Aboriginal place.

A comprehensive Aboriginal Heritage Impact Assessment was undertaken for the 2008 EA. Mining operations are currently undertaken in accordance with the approved Aboriginal Cultural Heritage Management Plan (ACHMP). The Project would have no additional impact on Aboriginal heritage sites as mining would be undertaken within the existing approved extraction area. Measures implemented to manage impacts to Aboriginal artefacts are described in **Section 8.8.1**.

5.3.7 Heritage Act 1977

The *Heritage Act 1977* aims to protect and conserve non-Aboriginal cultural heritage, including scheduled heritage items, sites and relics. The *Heritage Act 1977* is administered by the Heritage Council of NSW. The *Heritage Act 1977* makes provision for a place, building, work, relic, moveable object, precinct, or land to be listed on the State Heritage Register. If an item is the subject of an interim listing, or is listed on the State Heritage Register, a person must obtain approval under Section 58 of the *Heritage Act 1977* for works or activities that may impact on these items.

Given that mining has occurred on the site for approximately 170 years, there is potential for various relics to be on the site in the form of buried or disused equipment of other infrastructure. It is noted that

under section 89J of the EP&A Act, the Project is exempt from the requirements for approvals administered under the *Heritage Act 1977*.

5.3.8 Threatened Species Conservation Act 1995 (repealed)

The *Threatened Species Conservation Act 1995* (TSC Act) was the key piece of legislation providing for the conservation of threatened species, populations and ecological communities and their habitats. The TSC Act also established a system for biodiversity certification and established the Biodiversity Banking and Offsets Scheme. For all major projects, impacts to biodiversity are assessed in accordance with the Framework for Biodiversity Assessment (FBA).

The TSC Act was repealed and replaced by the *Biodiversity Conservation Act 2016* (BC Act) on 25 August 2017, however transitional arrangements for major projects set out in the *Biodiversity Conservation (Savings and Transitional) Regulation 2017* provide that development applications can be considered under the previous legislation (the TSC Act) if assessment requirements have been issued or substantial environmental assessment was undertaken before the 25 August 2017. SEARs for the Project were issued on 22 March 2017 (refer to **Section 6.1**) and therefore the Project would be assessed in accordance with the TSC Act.

EMM Consulting prepared a Biodiversity Assessment Report (refer to **Section 8.1**) to assess the potential impacts associated with the vegetation clearing required for expansion of the haul road and upgrade of the watercourse. Recommendations to avoid, minimise and mitigate impacts, including offsetting requirements, are provided at **Section 8.1.4**.

5.3.9 Biodiversity Conservation Act 2016

The BC Act repealed and replaced the TSC Act with effect from 25 August 2017. The BC Act provides for the conservation of threatened species, populations, and ecological communities of animals and plants. This conservation is achieved, in part, by protecting critical habitat of threatened species, populations and ecological communities, and eliminating or managing certain processes that threaten the survival or evolutionary development of threatened species, populations and ecological communities. The BC Act also provides a framework to ensure that the impact of any action affecting threatened species is assessed.

The BC Act changes the way impacts to biodiversity are assessed and offset in NSW. However as discussed in **Section 5.3.8**, transitional arrangements for major projects provide that the Project can be assessed under the former provisions of the TSC Act (repealed).

5.4 State Environmental Planning Policies

State Environmental Planning Policies are all legal documents enacted under Part 3 of the EP&A Act that regulate land use and development. The following State Environmental Planning Policies enacted under Part 3 of the EP&A Act are considered relevant to the Project:

- State Environment Planning Policy (State Significant Precincts) 2005;
- State Environmental Planning Policy (Mining Petroleum Production and Extractive Industries) 2011;
- State Environmental Planning Policy No 33—Hazardous and Offensive Development;
- State Environmental Planning Policy No. 44 – Koala Habitat Protection; and
- State Environmental Planning Policy No. 55 – Remediation of Land.

5.4.1 State Environmental Planning Policy (State Significant Precincts) 2005

The *State Environmental Planning Policy (Major Projects) 2005* is now known as the *State Environmental Planning Policy (State Significant Precincts) 2005*. This SEPP previously provided the framework for major projects and identified those projects to which the Part 3A approval process would apply. Following the repeal of Part 3A of the EP&A Act, certain provisions of this SEPP were also repealed and the SEPP is subject to the transitional arrangements set out in Schedule 6A of the EP&A Act. The repeal of these provisions does not affect the declaration of the Project as a transitional Part 3A project. Therefore the Project can be assessed as a section 75W modification under the Part 3A transitional provisions.

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

State Environment Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007 (Mining SEPP) is the principal environmental planning instrument that governs the carrying out of the Project. The Mining SEPP recognises the importance of mining, petroleum production and extractive industries within the State. Clause 7 of the Mining SEPP identifies development which can be carried out only with development consent. The Project is permissible with consent under clause 7 of the Mining SEPP as it is classified as:

(b) mining carried out:

(i) on land where development for the purposes of agriculture or industry may be carried out (with or without development consent).

The aims of the Mining SEPP include:

a. *To provide for the proper management and development of mineral, petroleum and extractive material resources for the purpose of promoting the social and economic welfare of the State, and*

b. *To facilitate the orderly and economic use and development of land containing mineral, petroleum and extractive material resources, and*

c. *To establish appropriate planning controls to encourage ecologically sustainable development through the environmental assessment, and sustainable management, of development of mineral, petroleum and extractive material resources.*

The Project would involve the extraction of up to 1.3 Mtpa of ROM coal from a number of seams of the Tomago Coal Measures, from the surface to the Big Ben seam. Through careful design and management, the Project would facilitate the orderly and economic use and development of land containing this coal resource within the existing and extended mining lease areas.

Additionally, the Project would support the social and economic welfare of the State by benefiting local, regional and State economies and communities through direct and indirect employment opportunities and the procurement of services, as well as through the payment of coal royalties, consistent with the aims of the Mining SEPP.

Table 6 responds to clauses 12 to 17 of the Mining SEPP which stipulates matters that the consent authority must consider before determining an application for consent for the purposes of mining.

Table 6 Heads of Consideration under Part 3 of the Mining SEPP

Matter for Consideration	Corresponding Assessment
Clause 12AB: non-discretionary development standards for mining	Clause 12AB identifies development standards the following matters that, if complied with, prevents the consent authority from requiring more onerous standards: • Cumulative noise level (refer to **Section 8.2**); • Cumulative air quality level (refer to **Section 8.3**); • Airblast overpressure (refer to **Section 8.2**); • Ground vibration (refer to **Section 8.2**); and • Aquifer interference ((refer to **Section 8.4**).
Clause 12: compatibility of the proposed development with other land uses	**Section 2.1** and **Section 3.3.1** describe the existing land uses in the vicinity of the Project, which include a number of open cut and underground coal mines, areas of open forest and rehabilitated mine land, grazing land and rural residential properties. The Project is considered to be appropriate with regard to existing and approved land uses
Clause 12A: consideration of voluntary land acquisition and mitigation policy	This clause applies to State Significant Development (SSD) applications for mining, petroleum and extractive industry development. This Project is a transitional Part 3A project and therefore not SSD. Nonetheless, this policy has been considered in the assessment of noise (**Section 8.2**) and air quality impacts (**Section 8.3**).

Matter for Consideration	Corresponding Assessment
Clause 13: Compatibility of proposed development with mining, petroleum production or extractive industry	**Section 1.0 - 4.0** of this EIS show the mining leases associated with the Project and outline the context of the Project within the Hunter Coalfields and surrounding resource projects.
Clause 14: Natural resource management and environmental management	Clause 14 relates to natural resource and environmental management and minimisation of impacts on water resources, ecology and greenhouse gas emissions. **Section 8.0** of this EIS provides a detailed assessment of the Project in relation to environmental impacts and management including the management of impacts to natural resources.
Clause 15: Resource recovery	The mine planning process for the Project has optimised the efficiency of resource recovery within the context of environmental and geological constraints. The mine planning process that was undertaken in consultation with DRG is presented in **Section 4.0**. **Section 8.7** describes the economic benefits of extraction of the resource. Indicative economic figures are provided in relation to royalties, capital expenditure, employment and overall importance of the Project to the economy.
Clause 16: Transport	**Section 8.8.4** discusses potential traffic impacts associated with the Project and details the measures proposed to mitigate and manage potential impacts of the transport of materials on local roads. As the Project involves the transport of coal by rail and there is no proposed changes or additions to road connections, this clause is not applicable.
Clause 17: Rehabilitation	**Section 8.6** of this EA and Section 3 of the 2008 EA describe the proposed rehabilitation and mine closure elements of the Project. In addition, a Mine Closure Plan, a Rehabilitation Management Plan and Final Void Management Plan have been developed for the Project and detail the proposed end use and final landform once rehabilitated.

Biophysical Strategic Agricultural Land

Part 4AA of the Mining SEPP makes provisions for SSD projects to meet certain assessment requirements if they have the potential to impact on Biophysical Strategic Agricultural Land. The Project Area is not located within the Upper Hunter Region of the Strategic Agricultural Land Map and is not on land mapped as Biophysical Strategic Agricultural Land. Additionally, this Project is a transitional Part 3A project and not an SSD project and no change to the established mining lease area is proposed. Therefore Part 4AA of the Mining SEPP does not apply to the Project.

5.4.3 State Environmental Planning Policy 33 – Hazardous and Offensive Development

State Environmental Planning Policy No 33 – Hazardous and Offensive Development (SEPP 33) requires a consent authority to consider whether a development may constitute a hazardous or offensive industry as defined by SEPP 33. The instrument dictates that proposed mitigation measures are to be taken into account when determining whether a development is a hazardous or offensive industry, and that the consent authority must have sufficient information to make its determination and impose conditions to minimise impacts.

In order to determine whether the Project constitutes an 'industry' under SEPP 33, the definition of 'industry' under the Mining SEPP needs to be applied. The definition of 'industry' adopted by the Mining SEPP specifically excludes 'mines, petroleum production facilities, and extractive industries', and as a consequence the Project is not considered an 'industry' for the purposes of SEPP 33.

5.4.4 State Environmental Planning Policy 44 – Koala Habitat Protection

State Environmental Planning Policy No. 44 – Koala Habitat Protection (SEPP 44) applies to all Local Government Areas (LGAs) listed in Schedule 1 of the SEPP and requires a consent authority to consider whether land subject to a development application is classified as potential koala habitat and/ or core koala habitat. Before development consent can be granted on land defined as core koala habitat, a plan of management must be prepared for that land.

SEPP 44 applies to the Cessnock Local Government Area (LGA). A Biodiversity Assessment Report prepared for the Project (refer to **Section 8.1**) including consideration of SEPP 44 and assessment of Koala habitat in impacted areas of the Project Area.

Two Koala feed trees were identified within the Haul Road Study Area (the vegetation clearing area for haul road expansion as defined in **Section 8.1**). However they do not make up greater than 15% of the tree species within the Haul Road Study Area. Therefore the vegetation within the Haul Road Study Area is not considered to be potential Koala habitat as defined under SEPP 44.

One Koala feed tree was identified within the MOD1 Study Area (the approved MOD 1 clearing area as defined in **Section 8.1**). However it did not constitute greater than 15% of the tree species within the MOD1 Study Area. Therefore the vegetation within the MOD1 Study Area is also not considered potential Koala habitat as defined under SEPP 44.

5.4.5 State Environmental Planning Policy 55 – Remediation of Land

State Environmental Planning Policy No. 55 – Remediation of Land (SEPP 55) requires a consent authority, when assessing and determining a development application, to consider whether the land subject to the development is contaminated and if so, whether the land requires remediation before the intended land use can proceed.

There are no known major contaminated sites in the vicinity of the Project and contaminated land is not expected to be a significant constraint. However, in order to meet the requirements of SEPP 55, the EA has considered the potential for contaminated land to be encountered based on historical land use, and appropriate mitigation measures have been identified where required (refer **Section 8.4** and **Section 8.8.2**).

5.5 Local Matters

Local statutory and strategic environmental plans are considered below.

5.5.1 Cessnock Local Environmental Plan 2011

The *Cessnock Local Environmental Plan 2011* (Cessnock LEP 2011) applies to the Project Area. The mining area subject to this modification is zoned RU2 Rural Landscape. Mining is not listed as prohibited development in this zone, and is therefore considered permissible with consent. The Project aligns to the zoning objectives which seek to ensure that the mineral extraction potential within this zone is preserved. However, as discussed in **Section 5.4.2**, the Mining SEPP prevails over the LEP, therefore the Project is permissible with consent under the provisions of the Mining SEPP.

5.5.2 Cessnock City Wide Settlement Strategy

The Cessnock City Wide Settlement Strategy (CCWSS) was adopted by Cessnock City Council on 15 September 2010. The CCWSS acknowledges the continued importance of coal mining in the Hunter region, including the Bloomfield mining operations and recommends that known resources should be protected from sterilisation by inappropriate zoning or development on adjoining lands. The Project is consistent with the CCWSS in that it enables extraction of the remaining coal resource.

5.5.3 Maitland Local Environmental Plan 2011

The existing mine rail loop and tailings emplacement area (which are outside the Project Area and form part of the Abel Project Approval) extend beyond Cessnock LGA and lie partly within the Maitland LGA. Under the *Maitland Local Environmental Plan 2011* (Maitland LEP 2011) these areas are zoned RU2 Rural Landscape. Open cut mining is permitted with consent within this zone.

5.6 Summary of Approvals and Licences

The current operations at the Colliery are governed by the approvals and licenses detailed in **Table 7**.

Table 7 Existing Mine Approvals and Licences

Statutory Requirement	Licence / Approval Detail	Approval / Licence to continue to operate
Environmental Planning and Assessment Act 1979	Project Approval (MP 07_0087).	Yes. The existing Project Approval MP 07_0087 would continue to operate subject to any necessary modifications to accommodate the Project.
	MP 07_0087 MOD 1 – Modification to mine plan and operations.	
	MP 07_0087 MOD 2 – Extension of submission date for two management plans required by the Project Approval.	
	MP 07_0087 MOD 3 – Amendment to the area of vegetation clearing.	
Protection of the Environment Operations Act 1997	EPL 396 for coal works and mining for coal.	Yes. The existing EPL would continue to operate subject to any necessary modifications to accommodate the Project.
Water Act 1912 / Water Management Act 2000	Water Licence 20BL172035 licences abstraction of groundwater from the open pit	Yes. This licence would continue to operate during the Project.
Mining Act 1992	Consolidated Coal Lease 761 Mining Lease 1738	Yes. The Project would continue to operate within the existing CCL 761 and ML 1738 boundaries.

As detailed in the relevant sections of this EA, the approvals and licenses detailed in **Table 7** would be maintained for the ongoing operation of the Mine. No new approvals or licenses would be required for the Project

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6.0 Consultation

6.1 Director Generals Environmental Assessment Requirements

Following Bloomfield's initial consultation with the DP&E regarding the Project, DP&E compiled the Environmental Assessment Requirements (EARs) for the Project (issued 16 November 2015 and subsequently revised 22 March 2017). A copy of the EARs is attached as **Appendix B**. The key matters raised by the DP&E to be considered in the EIS are outlined in **Table 8**, together with the relevant section of the EIS which addresses that matter.

Table 8 Environmental Assessment Requirements for the EA as revised 22 March 2017

Description	Reference in EA
Preliminary requirements	
The EA for the modification application should include: • a clear description of the existing approved operation and the proposed development	**Section 4.0**
• the likely interactions between the development and any other existing, approved or proposed developments in the vicinity of the site	**Section 9.0** and **Section 1.1.3**
• a list of any approvals that must be obtained before the development may commence	No new approvals or licences would be required (refer to **Section 5.6**)
• an assessment of the likely impacts of the development on the environment, focussing on the specific issues identified below, including: - a description of the existing environment likely to be affected by the development, using sufficient baseline data; - an assessment of the likely impacts of all stages of the development, including any cumulative impacts, taking into consideration any relevant laws, environmental planning instruments, guidelines, policies, plans and industry codes of practice; - a description of the measures that would be implemented to mitigate and/or offset the likely impacts of the development, and an assessment of: ▪ whether these measures are consistent with industry best practice, and represent the full range of reasonable and feasible mitigation measures that could be implemented; ▪ the likely effectiveness of these measures; and ▪ whether contingency plans would be necessary to manage any residual risks; and - a description of any measures that would be implemented to monitor and report on the environmental performance of the development if it is approved	**Section 8.0**
• consideration of the development against all relevant environmental planning instruments (including Part 3 of the *State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007)*	**Section 5.0**
• the reasons why the modification should be approved having regard to biophysical, economic and social considerations, including the principles of ecologically sustainable development	**Section 11.0**
Key Issues - Biodiversity	
• An assessment of any likely biodiversity impacts of the Project having regard to any advice and/or guidelines (eg. the Framework for Biodiversity Assessment) from OEH or the Commonwealth Department of Environment and Energy • Any resulting offset strategy, prepared in accordance with OEH and DoEE	**Section 8.1**

Description	Reference in EA
requirements	
Key Issues - Noise	
• A noise and blasting impact assessment of the likely operational noise impacts of the development under the *NSW Industrial Noise Policy* (INP), paying particular attention to the obligations in Chapters 8 and 9 of the INP	**Section 8.2**
Key Issues - Air Quality	
• An assessment of the likely air quality impacts of the development in accordance with the current *Approved Methods for the Modelling and Assessment of Air Pollutants in NSW*	**Section 8.3**
Key Issues - Soil and Water	
• The EA is required to demonstrate that the existing water management system is adequate in its existing, or in an upgraded form to accommodate the development. This should be in accordance with the *Managing Urban Stormwater: Soils & Construction Guideline Volume 2E: Mines and Quarries*. A new soil and water management plan may be required	**Section 8.4**
Key Issues - Groundwater	
• The EA is required to assess whether the recovery of deeper coal seams would cause any change to the groundwater resources intercepted by the development and any resultant changes to the site's water balance and water management system	**Section 8.5**
Key Issues - Visual Impacts and Rehabilitation	
• The EA should discuss any visual impacts that may be greater than approved due to the increased extraction of coal and movement of overburden and any changes to the proposed rehabilitation of the site • Changes to the final landform and how this may affect the rehabilitation of the mine need to be clearly shown in the EA. In particular, the EA should demonstrate that all reasonable and feasible measures have been implemented in mine planning to maximise the use of additional overburden from extracting deeper coal seams to minimise the size of final voids. This should include a scenario that assumes Abel Underground Mine does not recommence operations and transfer tailings for backfilling pits at Bloomfield	**Section 8.6** **Section 4.3.2** and **Section 4.4**
Key Issues - Social and Economic	
• The EA should identify the economic benefits (such as jobs) of the proposal and any implications on the demand for local infrastructure and services	**Section 8.7**
Consultation	
Finally, you should also consult with relevant local and State government authorities in particular, including Council, EPA, OEH, DRG and DoEE, any local landholders and/or residences who may be affected by the proposal, and any interested community groups. The EA should report on this consultation	**Section 6.0**

6.2 Consultation with Statutory Agencies and Groups

Consultation was undertaken with local, State and Commonwealth bodies listed in **Table 9.** Copies of meeting minutes from these consultation meetings are provided in **Appendix C.**

Table 9 Agency Consultation

Consultation / Date	Comment
Cessnock City Council	
Project Briefing meeting on 2 August 2017.	Items discussed included: • Background and need for Project; • Details of Project; • Status of neighbouring mines; • Road access arrangements; • Land ownership; and • Consultation requirements. Cessnock City Council had no specific requirements at the time of meeting however indicated feedback would be provided during the formal EA exhibition and referral from DP&E.
Maitland Council	
Project Briefing meeting on 23 August 2017	Items discussed included: • Background and need for Project; • Details of Project; • Timing of closure and post closure use of tailings emplacement area; • Status of neighbouring mines; • Proposed future developments nearby; • Mine access roads; • Land ownership; and • Consultation requirements. Maitland Council had no specific requirements at the time of meeting. Further opportunity to comment would be provided during the formal EA process.
Environment Protection Authority	
Consultation by email dated 12 October 2017 (offer to meet in person was declined).	• The EPA indicated it would review the environmental assessment through the planning referral process and use that as an opportunity to provide feedback on the Project. • The EPA advised that acceptance of a waste at a premises must only occur under a valid Resource Recovery Order or Exemption (refer to **Section 8.8.3**). • The EPA indicated that the proponent should consider the transport of course reject from one premises to another and co-disposal pursuant to the requirements of the EPAs Resource Recovery Order and Exemptions (refer to **Section 8.8.3**).
Department of Planning and Environment – Division of Resources and Geosciences (DRG)	
Project Briefing meeting on 12 September 2017. Site inspection and Project update on 16 October 2017	Items discussed include: • Background and need for Project; • Details of Project. DRG requires the EA to include an analysis of alternative mine plans and final land forms considered and justification of the chosen mine plan (refer **Section 4.4**). • Timing of closure and post closure use of tailings emplacement area and tailings strategy for use of pit areas for tailings disposal (Refer **Section 4.3.3**). • Status of Abel Underground Mine. • Final void reuse options and final landform. • The timing for the preparation and submission of a revised MOP for the Project. • Rehabilitation. The EA needs to address each of the headings listed in Section E: Rehabilitation of the Indicative SEARs for SSD mining projects (NSW Government, 2015) (refer **Section 8.6.3**).

6.3 Community Consultative Committee

The Proponent operates the Bloomfield Community Consultative Committee (CCC) which meets three times a year to provide opportunities for the Mine, Councils and the community to have an open discussion regarding a range of matters in relation to the Mine.

From the inception of the Project and during the preparation of the EA, the CCC was briefed on the Project and mine plan. Minutes from CCC meetings are available for public viewing on Bloomfield's website.

6.4 Mindaribba Local Aboriginal Land Council

As part of the consent process for Project Approval 07_0087, Bloomfield entered into an agreement with the Mindaribba Local Aboriginal Land Council (LALC) for the provision of funds to support programs such as operation of Mindaribba's pre-school. The current agreement is scheduled to lapse in 2018.

Representatives from Bloomfield met with Mindaribba LALC on 20 June 2017 regarding the current agreement and Project. The Mindaribba LALC Board is currently formulating a proposal to Bloomfield for the continuation of the current agreement as well as review of the updated ACHMP. A draft version of the updated ACHMP (updated to include the previously salvaged artefacts) was supplied to the LALC for review on 11 September 2017.

7.0 Identification and Prioritisation of Issues

An Environmental Risk Assessment (ERA) was undertaken as part of the original 2008 EA to identify environmental risks associated with the coal operations at the Colliery. The risk assessment process included a workshop session attended by key personnel with knowledge, experience and understanding of the Colliery site, the Project operations, and the environmental effects of the activities undertaken at the site. The ERA provided the preliminary screening of potential environmental impacts to identify those impacts that have higher levels of risk and those impacts unlikely to result in significant risks to the environment.

As the activities proposed in this modification application would be similar to the activities currently undertaken on the site, and were subject to risk assessment as part of the 2008 EA, the previous ERA has been used as the basis for the prioritisation of issues for this modification application.

The ERA prioritises environmental issues in the absence of appropriate safeguard measures to manage environmental effects. This analysis was then used to inform the environmental assessment and the engineering and environmental design of the Project and in the identification of appropriate safeguards. The prioritisation of environmental issues relating to the Project is provided below.

Key issues:

- Biodiversity;
- Noise and vibration;
- Air quality and greenhouse gases;
- Soils and water;
- Groundwater;
- Visual impacts and rehabilitation; and
- Social and economic.

Other issues:

- Aboriginal and historic heritage;
- Hazards and risks;
- Traffic and transport; and
- Waste.

An assessment of the potential impacts of the Project in relation to each of the key and other issues is provided in **Section 8.0.**

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