Rix's Creek South Continuation of Mining Project

State Significant Development – Final Assessment Report (SSD 6300)

June 2019

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Cover photo

Rix's Creek Mine - Departmental Site Visit, September 2015

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Glossary

Abbreviation	Definition
ANC	Achievable noise criteria
Applicant's Response Report	Bloomfield's report entitled 'Rix's Creek Continuation of Mining Project Review Report Response to IPC Recommendations' and dated December 2018
Approved Methods 2016	*Approved Methods for the Modelling and Assessment of Air Pollutants in NSW*
Ashton SEOC	Ashton South East Open Cut Project approved under MP 08_0182
BBAM	BioBanking Assessment Methodology
BC Act	*Biodiversity Conservation Act 2016*
BCA	Building Code of Australia
BCF	Biodiversity Conservation Fund
BCT	Biodiversity Conservation Trust
Bloomfield	Bloomfield Collieries Pty Limited
CBA	Cost benefit analysis
CCC	Community Consultative Committee
CEEC	Critically endangered ecological community
CHVEFW	Central Hunter Valley Eucalypt Forest and Woodland
CHPP	Coal handling and preparation plant
CIV	Capital investment value
Commission	Independent Planning Commission of NSW
Commission's Review Report	The Commission's report entitled 'Rix's Creek Continuation of Mining Project Review Report' and dated 31 August 2018
Consent	Development consent
Council	Singleton Council
Department	Department of Planning and Environment
DoEE	Commonwealth Department of Energy and Environment
DoI	Department of Industry
DRG	Division of Resources and Geoscience within the Department
EIS	The Environmental Impact Statement prepared for the Project
EPA	Environment Protection Authority
EP&A Act	*Environmental Planning and Assessment Act 1979*
EP&A Regulation	*Environmental Planning and Assessment Regulation 2000*
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999 (Cwth)*
EPI	Environmental planning instrument
EPL	Environment protection licence
ESD	Ecologically sustainable development

FBA	NSW Framework for Biodiversity Assessment
GHGEs	Greenhouse gas emissions
IEA	Independent Environmental Audit
INP	*NSW Industrial Noise Policy*
LEC	NSW Land and Environment Court
Mining Act	*Mining Act 1992*
Mining SEPP	*State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007*
Minister	Minister for Planning
MNES	Matters of National Environmental Significance
MOP	Mining Operations Plan
NAG	Noise assessment group
NEPM	National Environment Protection Measures
NPfI	*NSW Noise Policy for Industry*
NPV	Net present value
OEA	Overburden emplacement area
OEH	Office of Environment and Heritage
PAR	The Department's preliminary assessment report
PCT	Plant community type
$PM_{2.5}$	Fine particulate matter with a diameter of less than 2 microns
PM_{10}	Particulate matter with a diameter of less than 10 microns
POEO Act	*Protection of the Environment Operations Act 1997*
Project	Rix's Creek South Continuation of Mining Project
PRP	Pollution reduction program
PSNL	Project-specific noise limit
Rix's Creek North Mine	Rix's Creek North Open Cut Project approved under MP 08_0102
RMS	Roads and Maritime Services
ROM	Run-of-mine
RTS	Response to submissions
SEPP	State Environmental Planning Policy
SSD	State significant development
TARP	Trigger action response plan
VLAMP	*Voluntary Land Acquisition and Mitigation Policy for State Significant Mining, Petroleum and Extractive Industry Developments*
VPA	Voluntary planning agreement

Executive Summary

The Rix's Creek South Continuation of Mining Project (the Project) proposes to expand and continue open-cut mining operations at Rix's Creek Mine (more recently referred to as 'Rix's Creek South Mine') for an additional 21 years. The Project is located approximately 5 kilometres northwest of the township of Singleton, within the Singleton local government area. The Department of Planning and Environment (the Department) has prepared this final assessment report for the Project for consideration by the Independent Planning Commission of NSW (the Commission). It should be read in conjunction with the Department's preliminary environmental assessment report, dated May 2018.

This report focuses on the 26 recommendations identified in the Commission's *Rix's Creek Continuation of Mining Project Review Report*, dated 31 August 2018. The Commission's Review Report concluded that the Project would have merit, subject to satisfactorily addressing 26 recommendations. These recommendations comprise:

- 3 recommendations on air quality;
- 4 recommendations on noise and blasting;
- 7 recommendations on rehabilitation and mine closure planning;
- 1 recommendation on the final landform;
- 3 recommendations on water issues related to the final void;
- 1 recommendation on biodiversity;
- 3 recommendations on economics; and
- 4 recommendations on heritage impacts.

On 10 December 2018, the applicant, Bloomfield Collieries Pty Limited (Bloomfield), provided a response to the Commission's review (Applicant's Response Report, see Appendix A). In this report, Bloomfield responded to each of the Commission's 26 recommendations and provided details on how the Project has been altered to address them.

The Applicant's Response Report included a study of alternative emplacement options to minimise surface disturbance, instead of constructing a new Western overburden emplacement area (OEA), as originally proposed. As a result of this study, Bloomfield indicated that its preference would be to reduce the southern extent of the proposed Western OEA and emplace the displaced overburden on the existing North Pit and South Pit dumps. Bloomfield opted for this preferred mine plan because it significantly reduces biodiversity impacts and there would be no material difference in air quality, noise and visual impacts, it would be cost neutral compared to its original mine plan, and it would provide Bloomfield with the most operational flexibility. A number of the Project's impact assessments (including noise, air quality, biodiversity, visual and final landform) have been updated by Bloomfield to reflect this revised mine plan.

In addition to the study and associated revised assessments, Bloomfield has also:

- clarified its proposed measures to suitably manage, mitigate and offset the Project's air quality, noise, blasting and biodiversity impacts;
- elaborated on the likely final void groundwater interactions;
- clarified how it would manage and protect the nearby historic Coke Ovens over the long term; and
- provided an updated rehabilitation strategy and committed to further refine this strategy post-determination, including investigating opportunities to refine and improve the mine's proposed final

landform and final void outcomes over time and to facilitate potential post-mining beneficial land uses for the site.

In this report, the Department has considered the Applicant's Response Report and responded to each of the Commission's recommendations. The Department has also addressed a number of residual assessment issues, including providing additional consideration of Aboriginal cultural heritage impacts, Bloomfield's proposed planning agreement with Singleton Council, how the Project would be integrated with Bloomfield's neighbouring Rix's Creek North Mine and additional consideration of the Project's potential greenhouse gas emissions.

The Department considers that Bloomfield has appropriately implemented or otherwise addressed all of the Commission's recommendations. Based on the Applicant's Response Report and additional information provided by Bloomfield, and consultation with key Government agencies, the Department considers that all residual assessment issues have been resolved or can otherwise be conditioned.

The Department considers that the Project is a logical and strategic 'brownfield' extension of the existing open cut mining operations at Rix's Creek South Mine. The Project would recover a significant additional coal resource with fewer environmental impacts than would be expected from an equivalent greenfield project. The Department considers that the proposed management, mitigation and offset measures would appropriately minimise and compensate for the residual adverse social, environmental and economic impacts of the Project. The Project would provide substantial social and economic benefits to the local community and would deliver a net benefit to the State.

The Department's recommended conditions provide a comprehensive, contemporary and precautionary approach to the regulation and management of the Project. The Department considers that these conditions represent current best practice for regulating open cut coal mines in NSW and would protect the environment and the amenity of the local community and promote the orderly development of the State's significant coal resources.

The Department considers that the benefits of the Project outweigh its residual costs and considers that the Project is in the public interest and is approvable, subject to strict conditions of consent.

Contents

1. Introduction

This final assessment report for the Rix's Creek South Continuation of Mining Project (the Project) has been prepared for consideration by the Independent Planning Commission of NSW (the Commission). It should be read in conjunction with the Department's preliminary assessment report (PAR), dated May 2018.

Together, these two reports comprise the Department's environmental assessment for the Project. They have been prepared in accordance with the requirements of the *Environmental Planning and Assessment Act 1979* (EP&A Act) and relevant NSW Government policies and guidelines.

This report considers the;

- recommendations made in the Commission's *Rix's Creek Continuation of Mining Project Review Report*, dated 31 August 2018 (Commission's Review Report);
- the Applicant's response to the Commission's Review Report, *Rix's Creek Continuation of Mining Project Response to IPC Recommendations*, prepared by AECOM and dated December 2018, and additional information provided since (together, the Applicant's Response Report); and
- further advice from Government agencies received following the Commission's review.

1.1 Background

The applicant, Bloomfield Collieries Pty Limited (Bloomfield), a subsidiary of The Bloomfield Group, is seeking approval to expand and continue open-cut mining operations at Rix's Creek Mine (more recently referred to as 'Rix's Creek South Mine') for an additional 21 years (until 2040). The Project is located approximately 5 kilometres (km) northwest of the township of Singleton, within the Singleton local government area. (see **Figure 1**).

Open-cut mining has occurred at Rix's Creek South Mine since the 1990s and coal extraction is currently permitted until 24 June 2019 under development consent DA 49/94 (as modified). Bloomfield has separately sought a minor modification to extend approved coal extraction under DA 49/94 for a further nine months, until 24 March 2020. This modification application is currently with the Commission for determination.

Rix's Creek South Mine is located immediately south of Bloomfield's Rix's Creek North Mine (formerly Integra Open Cut Mine) which is separately approved under MP 08_0102. The two sites are managed by Bloomfield as one mining complex with integrated operations, shared personnel and joint environmental management.

The Project would extend mining operations in Pit 3 (also referred to as the West Pit) to the northwest and in a small area south of Pit 1 known as the 'North Pit Area'. Bloomfield seeks to increase peak run-of-mine (ROM) coal production to 3.6 million tonnes per annum (Mtpa) and produce a total of 25 million tonnes (Mt) of product coal over the life of the Project. Key components of the Project, prior to the Commission's review, are summarised in **Table 1** and depicted in **Figure 2**.

Table 1 | Key components of the Project (prior to Commission's review)

Aspect	Approved under DA 49/94	Proposed under SSD 6300
Development Application and Mining Lease Boundaries	• ML 1432 and CL 352, with a total area of 1,818 hectares (ha)	• Additional 170 ha mining lease area for the new Western out-of-pit overburden emplacement area (Western OEA) (MLA 487)
Mine Life	• 21 years ending in June 2019	• 21 years

Aspect	Approved under DA 49/94	Proposed under SSD 6300
Mining Areas	• Pits 1 ('North Pit' or 'Arties Pit'), 2 ('South Pit') and 3 ('West Pit')	• Extending Pit 3 to the northwest • Mining of the 'North Pit Area' just south of Pit 1
Maximum Extraction Rate	• 16.1 million bank cubic metres (Mbcm) of material, which delivers approximately 2.8 Mtpa of ROM coal	• 3.6 Mtpa of ROM coal
Mining Method	• Open-cut multi-seam bench mining involving blasting and using a truck and excavator fleet	• No change
Mining Depth	• Pit 1 down to Liddell and Arties Seams • Pit 2 down to the Barrett Seam • Pit 3 down to the Barrett Seam	• No change • No change • Increased depth in Pit 3 down to the Hebden Seam
Overburden Emplacement	• Overburden material used to progressively backfill pits and emplaced in out-of-pit OEAs	• No change • New Western OEA to accommodate 17.5 Mbcm of waste from the Project* • No major changes to the existing North Pit and South Pit dumps*
Coal Processing	• On-site coal handling and preparation plant (CHPP) used for processing ROM coal from both Rix's Creek South and Rix's Creek North • 4.5 Mtpa ROM coal processing capacity	• No change • No change
Tailings Management	• Tailings storage facilities in sections of Pits 1 (Tailings Emplacement 4) and 2 (Tailings Emplacement 3)	• Co-disposal of dried tailings with overburden and continued use of Tailings Emplacement 4
Transport	• ROM coal trucked to the on-site CHPP via internal haul roads • Product coal trucked to the rail loading facility on the Integra rail loop and then railed to the Port of Newcastle via the Main Northern Railway	• No change
Operating Hours	• 24 hours a day, 7 days a week	• No change
Employment	• 130 staff	• Maximum of 217 staff
Infrastructure	• Construction and operation of surface facilities including CHPP, coal stockpiles, administration and amenities facilities, workshop and rail loading facilities (previously completed except for rail loop and loading facility) • Construction and operation of a cut and cover tunnel beneath the New England Highway (completed)	• Continued use of existing surface facilities with the exception of no longer constructing the proposed on-site rail loop and loading facility • Construction of a second cut and cover tunnel beneath the New England Highway
Site Access	• Road access available via Rix's Creek Lane off the New England Highway	• No change
Disturbance Areas	• Approximately 1,032 ha (as per agreed Court orders of August 2017)	• Additional 212.8 ha*
Biodiversity Offsets	• Establishment of a 118.32 ha biodiversity offset strategy for the impacts associated with the proposed Rix's Creek rail loop and associated loading facility, as per Mod 5 • Retiring of 2,716 ecosystem credits in accordance with the *NSW Biodiversity Offsets Policy for Major Projects* and Framework for Biodiversity Assessment (FBA), as per the Court's orders	• Establishment of a biodiversity offset strategy to retire 5,808 biodiversity credits in accordance with the FBA*
Rehabilitation and Final Landform	• Progressive rehabilitation of the mine site to pasture and trees over grass • Final landform designed to minimise slope and OEA heights and to merge imperceptibly with adjoining undisturbed lands • Two final voids would remain in the landform • Return the land to a condition suitable for a range of post-mining land uses	• Continued progressive rehabilitation including entirely backfilling Pit 1, leaving one final void in Pit 3

**amendments made post Commission's review (see Table 2)*

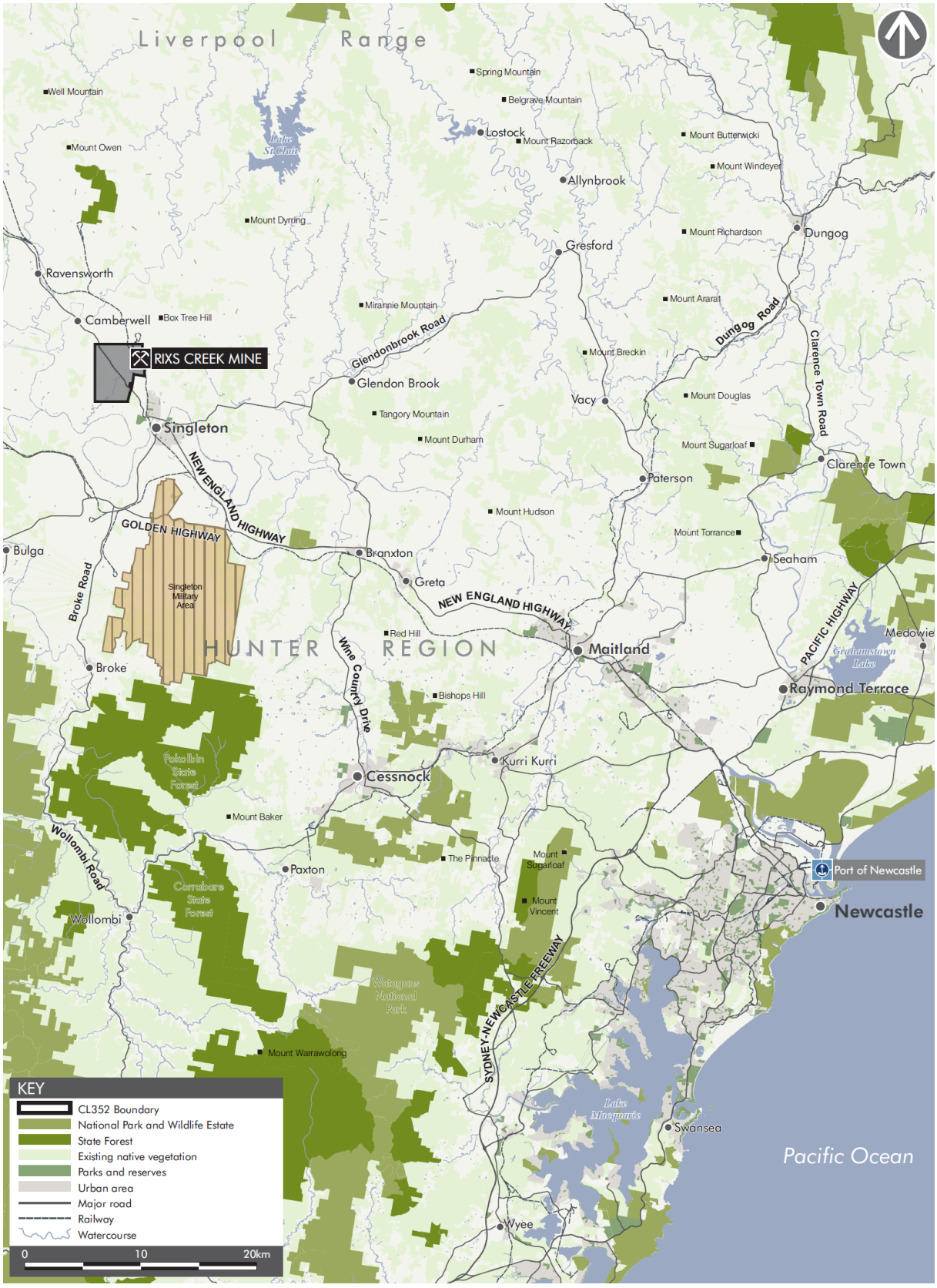


Figure 1 | Regional context

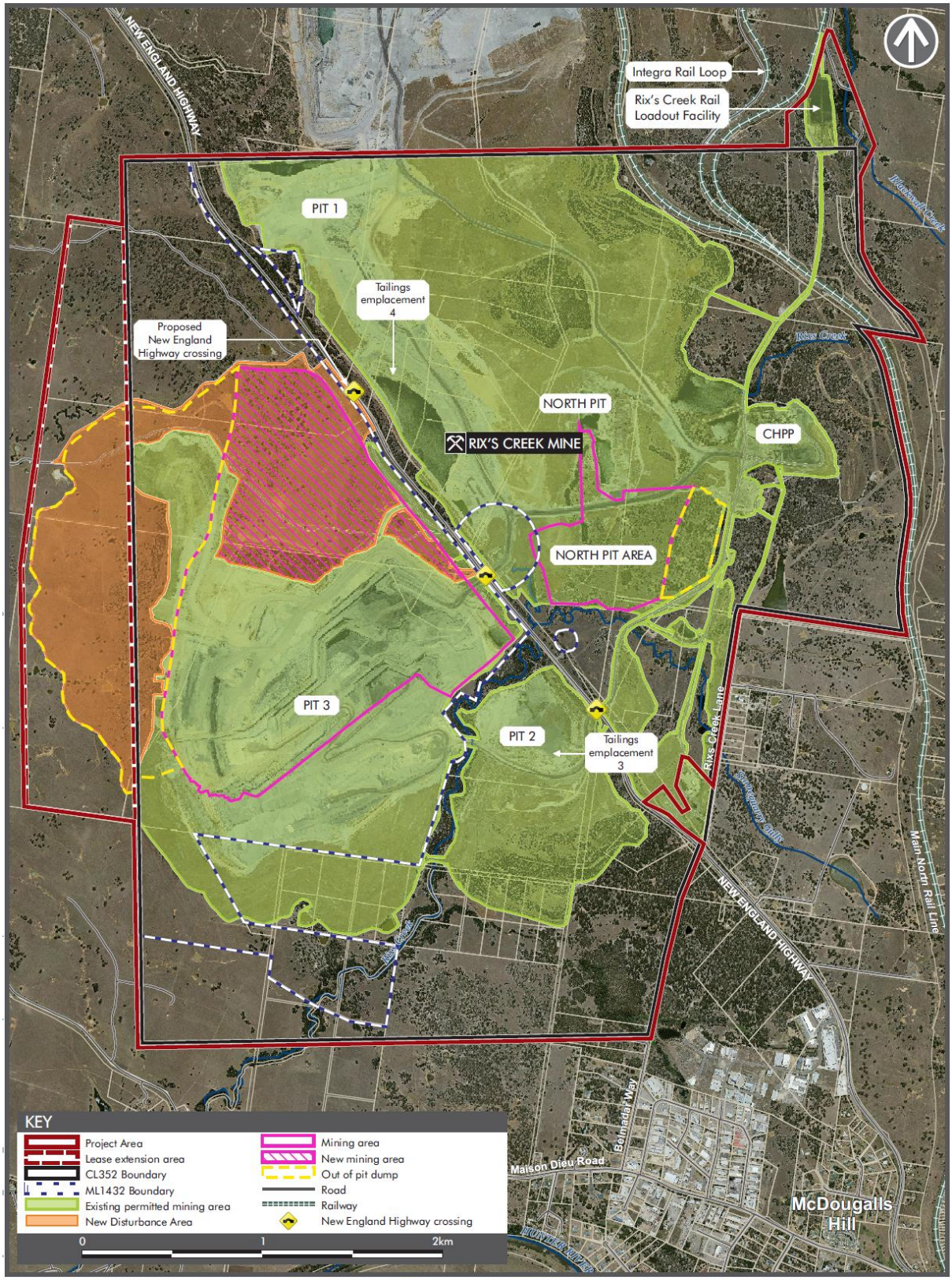


Figure 2 | Proposed Project (prior to Commission's review)

1.2 Department's Preliminary Assessment Report (PAR)

In May 2018, the Department completed its preliminary assessment of the environmental, social and economic aspects of the proposed Project. Overall, the Department considered that the Project represented a logical extension to the existing operations of Rix's Creek South Mine that would allow for efficient recovery of significant coal resources with fewer environmental impacts than would arise from a greenfield project of the same or similar scale. The Department considered that the benefits of the Project would outweigh its costs and that the proposed mine plan achieved an appropriate balance between protecting the environment and local community and realising the significant economic benefits of the Project to the region and the State. Consequently, the Department's preliminary findings were that the Project would be expected to deliver a net benefit, was in the public interest and was approvable, subject to strict conditions.

However, the Department's PAR identified several matters that required further clarification to strengthen the assessment of the Project, including the approach to staged offsetting and associated disturbance areas, greater clarity around the estimated economic benefits to the State and further details on the proposed Voluntary Planning Agreement (VPA) with Singleton Council. The Department did not expect this information to materially change its preliminary findings on the overall merit of the Project, but rather to assist in the development of robust and specific conditions to govern the Project and ensure the benefits of the Project are realised.

1.3 Overview of the Commission's Review

On 12 December 2017, the Minister for Planning requested that the Commission carry out a review of the Project, subject to the following terms of reference:

a) consider the Environmental Impact Statement (EIS) for the development, the issues raised in submissions, the response to submissions, any other information provided concerning the development by the Applicant and any information provided during the course of the review or as part of the public hearing;
b) consider the likely economic, environmental and social impacts of the development in the locality, the region and the State;
c) assess the merits of the development as a whole, having regard to all relevant NSW Government policies and guidelines; and
d) provide recommendations on any additional reasonable and feasible measures that could be implemented to avoid, minimise and/or manage the potential impacts of the development.

The Minister also requested that the Commission hold a public hearing during its review. A public hearing was held in Singleton on 6 June 2018, with 11 individuals and special interest groups registering to speak. The Commission also received 15 written submissions following the hearing. The Commission's review gave careful consideration to issues raised by the public at the hearing and during the review process.

As part of its review, the Commission also engaged two independent experts to provide advice on the rehabilitation strategy, mine schedule and final landform. This advice was published in the following two reports:

- *Review of rehabilitation strategy for Rix's Creek Mine – Continuation of Mining Project for the Environmental Impact Statement for the IPCN*, prepared by Corinne Unger and dated 5 July 2018 (Unger Report); and
- *Expert Advice on the Mine Schedule and Final Landform*, prepared by Deswik and dated 2 August 2018 (Deswik Report).

During the course of the review, Bloomfield also provided additional material to the Commission in response to direct enquiries, matters raised during the hearing and the two expert reports. The additional material largely focussed on uncertainties around the EIS' economic assessment, assessment of $PM_{2.5}$, mine scheduling and sequencing, the Commonwealth referral, rejects management, alternate final landform and void options,

interactions with Rix's Creek North, the VPA, noise monitoring and management and predictive environmental forecasting.

The Commission completed its review on 31 August 2018 and its findings were published in its Review Report. In this report, the Commission concluded that the Project would have merit, subject to satisfactorily addressing 26 recommendations, which have been grouped as follows:

- **3 recommendations on air quality** – regarding operational procedures to minimise particulate matter emissions, improving communication and stakeholder engagement and tenancy rights for mine-owned residences;
- **4 recommendations on noise and blasting** – regarding adaptive management practices to ensure compliance with nominated noise criteria, improving communication and stakeholder engagement, noise management, equipment noise attenuation and preservation of the Rixs Creek Coke Ovens and Associated Works (Coke Ovens), a local heritage item listed on the Singleton Local Environmental Plan 2013, from blasting impacts;
- **7 recommendations on rehabilitation and mine closure planning** – regarding stakeholder engagement, the rehabilitation strategy, the socio-economic impacts of mine closure, past rehabilitation performance, risks and opportunities for rehabilitation and mine closure, and final void land use opportunities;
- **1 recommendation on the final landform** – requesting that Bloomfield prepare a trade-off study examining alternate overburden emplacement designs instead of constructing the proposed Western OEA;
- **3 recommendations on water issues related to the final void** – regarding final void water re-use opportunities and water impacts associated with backfilling the North Pit void;
- **1 recommendation on biodiversity** – regarding the biodiversity offset strategy for the Project;
- **3 recommendations on economic impacts** – regarding the base case assumptions, sensitivity analysis and downside scenarios; and
- **4 recommendations on heritage** – regarding further opportunities to manage and minimise impacts on the historic Coke Ovens.

1.4 Applicant's Response to the Commission's Review

On 10 December 2018, at the request of the Department, Bloomfield provided a response to the Commission's review (Applicant's Response Report, see **Appendix A**). In this report, Bloomfield responded to each of the Commission's 26 recommendations and provided details of how the Project has been altered to address the recommendations. These changes are further described in **Section 1.5.1** below.

Following review of the Applicant's Response Report and additional consultation with key Government agencies, the Department requested further information from Bloomfield to either clarify aspects of its Response Report or to assist with drafting conditions. These additional responses were provided between February and May 2019.

1.4.1 Project Amendments

Prior to the Commission's review, Bloomfield sought to construct a new 17.5 Mbcm, 165 metre (m) high Western OEA within a new mining lease (MLA 487) to the west of Pit 3 to accommodate the additional waste material generated from extending Pit 3. As part of the Commission-initiated expert review, the Deswik Report identified that there may be opportunities to increase the height and steepness of existing OEAs (North Pit and South Pit dumps) instead of constructing a new OEA, in order to minimise surface disturbance.

Recommendation 16 of the Commission's review therefore requested that Bloomfield prepare a Western OEA study to assess the benefits of removing the proposed Western OEA against the potential environmental impacts associated with increasing the heights of the existing North Pit and South Pit dumps.

In response to this recommendation, Bloomfield considered two alternative emplacement options for the Project's overburden. These options were:

- **Option 1** – complete removal of the proposed Western OEA by emplacing all overburden on the existing North Pit and South Pit dumps; and
- **Option 2** – removing part of the proposed Western OEA and emplacing this displaced overburden on the North Pit and South Pit dumps.

Both options would result in reduced surface disturbance at a cost of increasing dump heights by up to 30 m, re-disturbing existing rehabilitation and increasing haulage distances. The study's findings indicate that there would be no material differences to noise, air quality and visual impacts. Biodiversity and economic impacts were more distinguishable, but even these aspects did not identify a stand-out option. In the end, Bloomfield indicated that Option 2 was its preferred option because it was cost neutral compared to the original proposal, provided the greatest operational flexibility and would avoid any operational delays while awaiting the grant of MLA 487.

The study is further considered in **Section 2.4**; nevertheless, it is important to note that the remainder of this report focuses on Bloomfield's preferred mine plan (which includes Option 2). This has led to a number of the Project's impact assessments (including noise, air quality, biodiversity, visual and final landform) being updated and reconsidered in **Section 2** below.

Key changes to the Project since the Department's PAR are summarised in **Table 2**. The layout of the amended Project (ie the preferred mine plan) is shown in **Figure 3.**

Table 2 | Key changes to the Project (post Commission's review)

Aspect	Original Project	Preferred Mine Plan (Option 2)
Overburden Emplacement	• New Western OEA to accommodate 17.5 Mbcm of waste from the Project • No major changes to the existing North Pit and South Pit dumps	• Reduced extent of Western OEA to accommodate 9 Mbcm of overburden from the expanded Pit 3 • Increasing the size and height of the existing North Pit (+ 6 m) and South Pit dumps (+ 30 m) to accommodate 8.5 Mbcm of overburden from the Project
Additional Disturbance Area	• 212.8 ha	• 155.7 ha • 101.5 ha of re-disturbance on the North Pit dump
Biodiversity Offsets	• Biodiversity offset strategy to retire 5,808 biodiversity credits	• Biodiversity offset strategy to retire 4,428 biodiversity credits

1.5 Additional Consultation

The Department sought feedback from key Government agencies, including Council, on the Applicant's Response Report and draft conditions of consent. The Department also requested that the agencies review and comment on the proposed Project amendments discussed above (ie Option 2). These comments are provided in full in **Appendix B** and are summarised below.

The Department's **Division of Resources and Geoscience** (DRG) requested that every effort is made to ensure that biodiversity offsets for the Project do not sterilise the State's mineral or coal resources. DRG provided comments on the Western OEA study and acknowledged that the revised mine plan would allow the adequate

recovery coal resources. DRG also stated that its previous advice on coal price forecasts and royalty calculations had not changed, despite the additional focus in the Commission's review and the Applicant's Response Report.

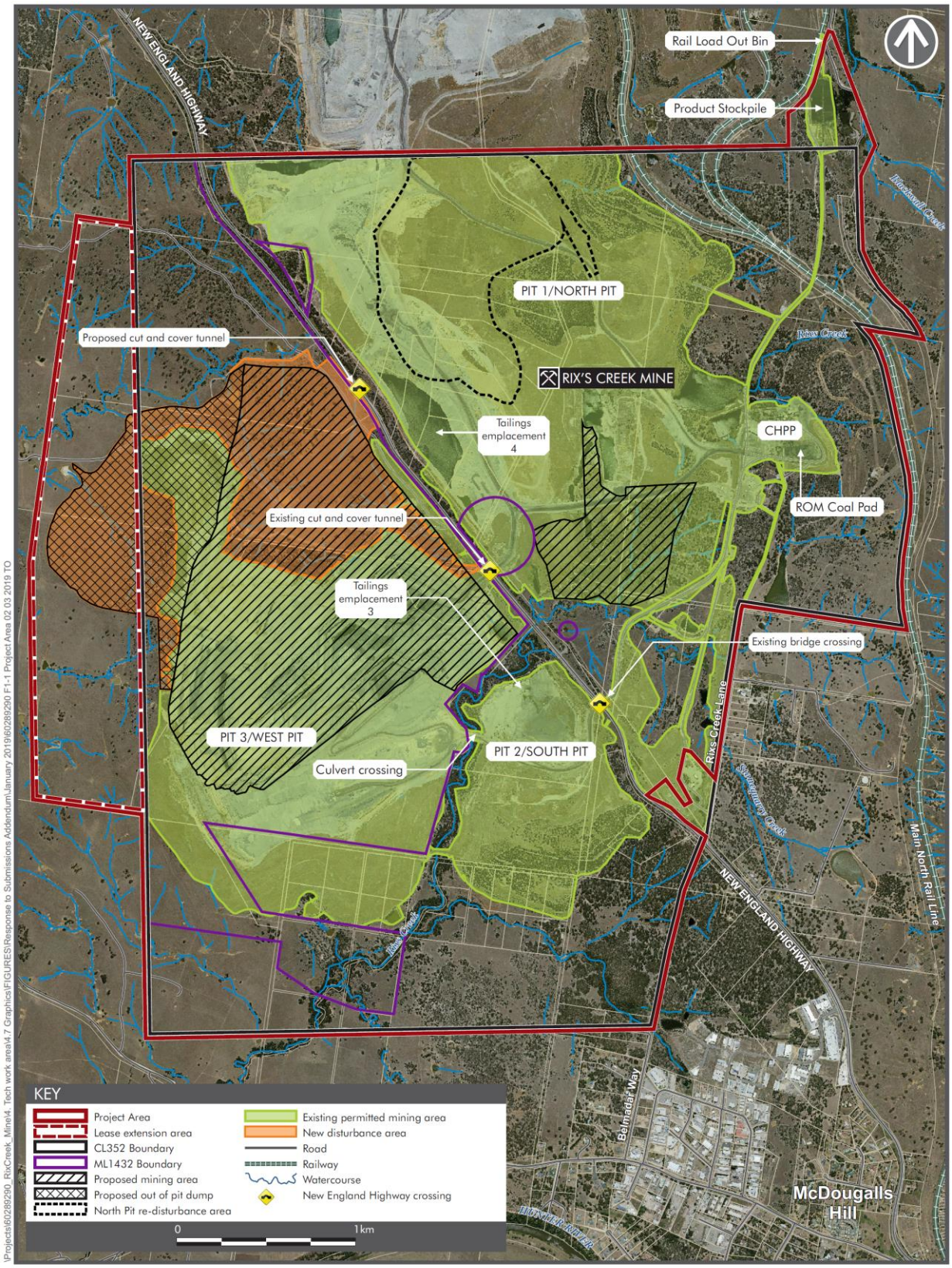


Figure 3 | Proposed Project (post Commission's Review based on Option 2)

Following review of the proposed draft conditions, DRG raised no matters of continuing concern. DRG considered that sustainable, efficient and optimised resource recovery outcomes could be achieved by the Project and that any identified risks or opportunities could be effectively regulated through the conditions of mining leases issued under the *Mining Act 1992*.

The **Resources Regulator** advised that sustainable rehabilitation outcomes could be achieved as a result of the Project but considered that the proposed rehabilitation objectives and completion criteria within Bloomfield's proposed Rehabilitation Strategy (see Attachment E of the Applicant's Response Report) should be further refined post determination. The Department agrees with this advice and has addressed rehabilitation requirements further in **Section 2.3**.

The Resources Regulator also requested further information around how the proposed and existing cut and cover tunnel structures would be managed following mine closure. Bloomfield clarified in its response of 5 February 2019 that its existing Major Works Authorisation Deed with Roads and Maritime Services (RMS) included demolition of the tunnels and reinstatement of the highway, unless otherwise agreed with RMS. Following review of this additional information and the draft conditions, the Resources Regulator advised that it supported the draft conditions and considered them adequate for sustainable rehabilitation outcomes to be achieved by the Project.

The **Environment Protection Authority** (EPA) raised no significant issues with the Applicant's Response Report. The EPA reviewed the Western OEA study and supported Option 2 as the preferred mine plan. The EPA accepted that the revised mine plan would result in negligible changes to predicted air quality and noise impacts, but nevertheless provided further advice on appropriate dust mitigation and noise management. The Department has incorporated this advice in its draft conditions (see **Sections 2.1 and 2.2** below).

The EPA also requested that the development consent include a Statement of Commitments (SoC). The Department accepts that a consolidated list of commitments would be beneficial for this Project to improve transparency, clarify obligations and improve regulation of the site, particularly considering the lengthy assessment period, the volume of material produced and the Project changes that have occurred. At the request of the Department, Bloomfield provided a final SoC on 5 March 2019. The Department considers that the SoC should be given effect by incorporating it within the definition of the 'EIS' in the recommended conditions of consent.

Following review of the draft conditions, the EPA advised that the conditions adequately address the likely environmental impacts of the proposal and, should the Project be approved, Bloomfield would be required to apply for a variation to EPL 3391 to align with the consent conditions.

Council did not provide comment on the Applicant's Response Report. Following review of the draft conditions, Council confirmed that it had reached in-principle agreement with Bloomfield on a VPA for the Project. Council also recommended that a final land use strategy be prepared for the Project, so as to provide long-term certainty to the community that the post-mining land use would be sustainable and consistent with broader regional and local strategic planning objectives. The Department has addressed Council's recommendation in **Section 2.3**, below.

Department of Industry (DoI) advised that Bloomfield should ensure that a sufficient licensed water allocation is obtained should the Project be approved and supported re-use of final void water. Additionally, DoI advised that all Crown lands or roads within Bloomfield's mining leases should be subject to a compensation agreement (or access arrangement for exploration) under the *Mining Act 1992*, prior to any mining activities taking place. The Department has incorporated this advice into the recommended conditions and, following review, DoI had no further comments.

Office of Environment and Heritage (OEH) advised that it had no further comments in relation to Aboriginal cultural heritage or flooding issues. In order to finalise its comments on biodiversity, OEH requested that

Bloomfield provide revised BioBanking Assessment Methodology (BBAM) credit calculations for Option 2. Bloomfield provided this information directly to OEH on 14 January 2019. On 30 January 2019, OEH advised that it was satisfied with the BBAM calculations and had no further comments on the biodiversity assessment.

Following review of the draft conditions, OEH advised that it was satisfied with the conditions for biodiversity offsetting and management, and flooding and flood risk. OEH provided four recommendations to improve the rehabilitation objective for native ecosystem re-establishment and the requirements of the Aboriginal Cultural Heritage Management Plan (ACHMP). The Department has incorporated these recommendations into the final draft conditions.

OEH's **Heritage Division** did not provide comments on the Applicant's Response Report and instead provided advice following review of the draft conditions. The Heritage Division provided suggestions on how to improve the Blast Management Plan (BMP) and Historic Heritage Management Plan (HHMP) to ensure the Coke Ovens are adequately protected. The Department's consideration of the Coke Ovens is addressed in **Section 2.8**.

NSW Health advised that it continued to have concerns over the Project's predicted air quality impacts and Bloomfield's ability to comply with National Environment Protection Measures (NEPM) goals for particulate matter. The Department's consideration of air quality impacts is addressed in **Section 2.1**. Following review of the draft conditions, NSW Health advised its concerns had been addressed.

RMS advised that it had no comments in relation to the Applicant's Response Report. Following review of the draft conditions, RMS recommended that an additional condition be included to ensure that Bloomfield enters into an appropriate access agreement with RMS (or Council) in respect of the on-going use and maintenance of the tunnel and related infrastructure within the road corridor. RMS also advised that the conditions were otherwise satisfactory. The Department has incorporated RMS's recommendation into the final conditions.

1.6 Chronology

A brief chronology of key consultation events that have occurred since the Department completed its PAR is set out in **Table 3**.

Table 3 | Timeline of key consultation events

Date	Event
10 May 2018	Department's PAR on the Project referred to the Commission
6 June 2018	Commission held a public hearing in Singleton
31 August 2018	Commission published its Review Report
3 September 2018	Department requested Bloomfield provide a response to the Commission's Review Report
10 December 2018	Applicant provided its Response Report to address the Commission's Review Report
	Department sought advice from key agencies on the Applicant's Response Report
21 December 2018	Department sought additional information from Bloomfield on rehabilitation, BBAM calculations, biodiversity offset strategy, air quality impacts and the development layout
December - January 2019	Department received comments from DRG, Resources Regulator, DoI, EPA, OEH, NSW Health and RMS on the Applicant's Response Report
5 and 22 February 2019	Department received additional information from Bloomfield
4 March 2019	Department sought feedback from Bloomfield and key agencies on draft conditions of consent

11-25 March 2019	Bloomfield, DRG, Resources Regulator, Council, DoI, EPA, OEH, OEH's Heritage Division, NSW Health and RMS provided feedback on draft conditions of consent
8 March - 16 April 2019	Department sought additional information from Bloomfield on its equipment attention program, Aboriginal cultural heritage and biodiversity impacts, Crown land, tenancy agreements, CHPP cladding, the proposed cut and cover tunnel and the negotiated agreement with receiver R1
11 March - 15 May 2019	Department received additional information from Bloomfield
11 April 2019	Department provided Applicant with final draft conditions of consent
16 April 2019	Applicant accepted the final draft conditions of consent

1.7 Updated Statutory Considerations

Following completion of the Department's PAR and the Commission's Review Report, the matters for consideration under the *State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007* (Mining SEPP) were amended on 21 September 2018. These amendments included updating the non-discretionary standards for noise and air quality under clause 12AB to align with new EPA policies, being the 2016 *Approved Methods for the Modelling and Assessment of Air Pollutants in NSW* (Approved Methods 2016) and the 2017 *NSW Noise Policy for Industry* (NPfI).

In parallel, clause 12A of the Mining SEPP and the accompanying *Voluntary Land Acquisition and Mitigation Policy for State Significant Mining, Petroleum and Extractive Industry Developments* (VLAMP) were revised to reflect these contemporary noise and air quality standards. The VLAMP describes the NSW Government's policy for granting voluntary acquisition and mitigation rights to private properties that are predicted to experience noise and air quality impacts above the non-discretionary standards set in clause 12AB of the Mining SEPP.

The Mining SEPP amendments and revised VLAMP apply immediately to all development applications that have been made but not yet determined. This is not an issue for air quality because the Project had already been assessed against the contemporary air quality standards under the Approved Methods 2016. For noise, the Project falls under the EPA's transitional arrangements for the NPfI which means that the former 2000 *NSW Industrial Noise Policy* (INP) has been used, therefore the related former VLAMP has also been applied. These policy settings are further discussed in **Section 3**, below.

2. Responses to the Commission's Review

The Department has completed its consideration and assessment of residual matters related to the Project, with a specific focus on addressing and responding to the Commission's recommendations. The following sections should be read in conjunction with the PAR. Each of the Commission's recommendations is considered below, with some related recommendations considered collectively to provide an integrated response.

2.1 Air Quality

The Commission made three recommendations on air quality impacts. These recommendations relate to continuous improvement of operational procedures to minimise particulate matter emissions, improving communication and stakeholder engagement, and tenancy rights for mine-owned residences. These recommendations have been considered in detail below.

This section also includes the Department's reconsideration of the Project's air quality impacts based on the preferred mine plan (Option 2) and a discussion on the proposed air quality-related conditions of consent.

2.1.1 Continuous Improvement

Recommendation 1

That the Applicant demonstrate how its operational procedures will incorporate continual improvement to further reduce the generation and dispersion of particulate matter.

Summary of Response

Bloomfield has committed to continually revise and update its air quality mitigation and management measures to reflect operational changes and advancements in technology, and to document these improvements in its Air Quality and Greenhouse Gas Management Plan (AQGGMP).

The Department is satisfied with this approach and has recommended conditions to ensure that Bloomfield continues to implement best practice over the life of the mine and document these measures in the AQGGMP.

Bloomfield has committed to continually revise and update its air quality mitigation and management measures to reflect operational changes and advancements in technology. These continuous improvements would be documented in Bloomfield's AQGGMP and their effectiveness would be reported in Annual Reviews and audited every three years as part of the Independent Environmental Audit (IEA), as required under the proposed conditions of consent.

In its Response Report, Bloomfield provided extracts of its current AQGGMP to indicate the management and mitigation measures currently used on the site. These include activity-specific measures for business as usual operations (eg watering unsealed roads and controlling truck speeds during hauling), and additional proactive and reactive measures that are implemented during adverse weather conditions to ensure compliance with short-term (24 hour) criteria. The proactive system uses regular (hourly and daily) air quality predictions based on weather forecasts and considers the daily proposed mining activities to identify potential elevated dust scenarios, so that additional dust controls can be prepared and implemented in advance. The reactive system uses real-time weather and dust monitoring supported by a trigger action response plan (TARP) to rapidly identify and respond to elevated dust levels. The TARP includes a series of gradual triggers with commensurate risk-based actions, commencing with additional water application and progressing to decreasing, relocating and/or stopping dust generating activities.

The Department supports an adaptive approach to air quality management, recognising that best practice environmental management changes over time, particularly over a 21-year mine life. For this reason, the Department's standard conditions require that all management plans include a program to investigate and implement ways to improve the environmental performance of the mine over time. As part of its AQGGMP, Bloomfield would also be required to describe how it is taking all reasonable steps to minimise particulate matter emissions and how best practice air quality management is being continually employed on the site.

The Department notes that the EPA also regulates particulate matter emissions under the *Protection of the Environment Operations Act 1997* (POEO Act) and can, if needed, require mines and other sites to improve their mitigation and management measures under a Pollution Reduction Program (PRP). In 2011, the EPA commissioned Katestone Environmental to undertake a study of best practice dust controls in the NSW coal mining industry (the *NSW Coal Mining Benchmarking Study: International Best Practice Measures to Prevent and/or Minimise Emissions of Particulate Matter from Coal Mining*). As a result, the EPA introduced a Dust Stop Program and issued multiple PRPs to all NSW coal mines to ensure that they implemented the study's findings, wherever reasonable

and feasible. These controls included regular watering of haul roads and applying chemical dust suppressants to minimise wheel-generated dust, altering activities during adverse weather conditions, minimising drop heights and water spraying during loading and reducing the extent of exposed surfaces to minimise wind erosion.

The Department considers that Bloomfield's current and proposed air quality management measures align with contemporary best practice for NSW coal mines but recognises that further improvements should be pursued over time to improve the Upper Hunter Valley airshed by reducing all major industrial sources of dust. This need is reinforced by the ongoing concerns raised by the community, special interest groups and NSW Health over air pollution and associated social and health impacts.

Considering the concentration of open cut coal mines in the Upper Hunter Valley, the Department recognises the importance of both regulator-led initiatives and collaborative forums to assist in identifying and implementing best practice. This has been demonstrated through the EPA's Dust Stop Program and forums such as the Upper Hunter Air Quality Advisory Committee and the Upper Hunter Mining Dialogue. These forums would assist Bloomfield in keeping abreast of changes in best practice air quality management. The recommended conditions would ensure that Bloomfield continuously implements best practice, wherever it is reasonable and feasible to do so. The Department also undertakes rigorous and comparative reviews of all management plans for coal mines in the Upper Hunter Valley, and its Compliance Team would routinely inspect the site to ensure that these contemporary measures are appropriately implemented. These reviews and inspections would ensure that Bloomfield and other mining companies remain 'in step' in applying contemporary best practice management.

2.1.2 Stakeholder Engagement

Recommendation 2

That the Applicant develop a protocol to assist those stakeholders concerned about air quality impact to better:

- **access the data from the Upper Hunter Air Quality Network; and**
- **provide instruction on how to use the Environment Line provided by the NSW Government.**

Summary of Response

There are a number of channels to obtain information on air quality in the Upper Hunter. Stakeholders can contact Bloomfield or Government regulators to make an enquiry, lodge a complaint, review monitoring data or learn more about air pollution. To assist concerned or interested stakeholders in finding this information, Bloomfield has recently updated its company website with links to the Upper Hunter Air Quality Network and the Government's Environment Line (131 555 or submit an online request via www.epa.nsw.gov.au/about-us/contact-us/environmentline).

The Department considers that, between the company and Government agencies, there is sufficient information/data available, either online or over the phone, to enable all interested or concerned stakeholders to make an informed judgement and/or a complaint over air quality.

In its Response Report, Bloomfield advised that it maintains three main channels to share air quality information with stakeholders:

- consulting with and providing information to the Rix's Creek Community Consultative Committee (CCC);
- receiving and responding to questions or complaints made via the Rix's Creek 24-hour Community and Blasting Hotline (02 4930 2665); and
- providing information on its company website (see www.bloomcoll.com.au), which has been recently updated with links to the Upper Hunter Air Quality Monitoring Network and the Government's Environment Line.

The Department recognises that there are a number of existing avenues for community members to find information on air quality in the Upper Hunter. Most specifically, project-specific concerns can be raised directly with Bloomfield via its community hotline. Site-specific management plans and air quality monitoring results (published monthly) can also be viewed on Bloomfield's company website.

However, in certain circumstances, stakeholders may not know which of a number of local mines to contact or they may prefer to make a general complaint to a Government regulator. In these circumstances, stakeholders can either contact the Department's Compliance Team or the Government's Environment Line, which handles general inquiries about environmental issues and pollution incidents in NSW for both OEH and the EPA.

The EPA's website also includes a wealth of information on air quality, including explaining air pollution and what the Government is doing to improve air quality in NSW (see https://www.epa.nsw.gov.au/your-environment/air). This website has dedicated pages for 'Upper Hunter air quality' and 'Minimising particulate pollution at coal mines'. OEH coordinates the Upper Hunter Air Quality Network (see https://www.environment.nsw.gov.au/aqms/uhunteraqmap.htm), which was established in 2012 in partnership with all Upper Hunter coal mines and power stations in response to community concerns over the effect of these industries on regional air quality. This network currently includes 14 monitors, with data published hourly to allow the public to stay readily informed of air pollutant levels. Mining companies also rely on these monitors to support their compliance monitoring networks.

The Department considers that, between the company and Government agencies, there is sufficient information/data available, either online or over the phone, to enable all interested or concerned stakeholders to make an informed judgement and/or a complaint over air quality.

2.1.3 Tenancy Rights

Recommendation 3

That the Applicant provide further evidence of the policies and protocols in place to manage mine-owned residences, including clarification as to whether termination rights are only triggered in relation to dust exceedances, or whether termination at any time is a general at will right of occupancy of a mine owned residence.

Summary of Response

Bloomfield leases a number of its unused residential properties and manages these via negotiated tenancy agreements and informal consultation. Bloomfield also clarified in its Response Report that tenants can terminate these agreements at any time without penalty due to air quality concerns.

The Department supports mining companies leasing out their mine-owned properties, so long as the tenants are made aware of the potential health risks and are able to terminate their tenancy agreement without penalty at any time. The Department considers that these tenancy rights can be provided through strict conditions of consent.

The Commission raised concerns that tenants of mine-owned residences may not be properly informed of the potential health risks from living near a mine or have adequate lease termination rights. Bloomfield leases a number of its mine-owned properties and, in its Response Report, advised that these properties are managed via negotiated tenancy agreements and informal consultation. Bloomfield considered that is has established successful collaborative relationships with its tenants and that it would continue to take all practicable steps to remedy any issues or concerns raised by them. In October 2018, Bloomfield also provided all its tenants with an updated hardcopy of NSW Health's fact sheet entitled "*Mine Dust and You*" and clarified that the tenants could terminate their lease at any time without penalty due to air quality concerns. Following review of an example tenancy agreement, the Department considers that the conditions include sufficiently flexible termination rights.

The Department recognises that Bloomfield and other nearby mining companies own and tenant a number of residences in the surrounding area, and that there are no applicable air quality criteria for these mine-owned residences. However, it is important to note that dust emissions at these properties would still be constrained by way of having to comply with air quality criteria at nearby private-properties. The Department remains supportive of making these mine-owned properties available for lease to interested parties, so long as the tenants are sufficiently informed and protected. This arrangement supports maintenance of the residences and farm buildings, continued productive use of farmland and reduced driving time for mine workers.

To address health risks related to poor air quality, the Department's standard conditions require applicants to notify landowners and/or tenants of any property that is predicted to be significantly affected by dust of the possible health and amenity impacts of those emissions and provide them a copy of the "*Mine Dust and You*" fact sheet. The conditions also allow tenants of mine-owned properties to terminate their tenancy agreements without penalty at any time, for any reason, subject to reasonable notice, and they require the applicant to undertake regular air quality monitoring and inform landowners and/or tenants of the likely dust levels at their residence.

The Department has recommended that these standard conditions be applied to the consent for this Project. With these measures in place, the Department considers that all current and future tenants would be made sufficiently aware of the potential health risks from occupying mine-owned land and that they could terminate their lease without penalty if concerns arose.

2.1.4 Revised Air Quality Impact Assessment (Option 2)

As part of its Western OEA study (see **Section 2.4**), the Applicant's Response Report stated that there would likely be a minor increase in dust emissions due to increased haul distances but that there would be no significant or reasonably measurable change in dust levels at any off-site receiver. These conclusions were supported by figures showing revised $PM_{2.5}$ and PM_{10} contours against similar contours from the EIS. The Department could not fully assess the changes from these figures and therefore requested Bloomfield to also provide revised numeric predictions for specific receiver locations.

Bloomfield's air quality consultant then provided revised particulate matter predictions reflecting Bloomfield's preferred Option 2 for a representative set of receivers surrounding the mine for the worst-case year 2023 only (see Bloomfield's response of 5 February 2019). The predictions demonstrated that there would be negligible changes from the revised mine plan (+/- 1 $\mu g/m^3$) for both 24-hour and annual average $PM_{2.5}$ and annual average PM_{10} emissions. However, there would be minor changes to 24-hour PM_{10} emissions, with increases to the east and northwest by up to 10% and reductions to the south and west by up to 13% (see **Figure 4**). The Department considers that these minor changes are acceptable.

Updated worst-case predictions (see **Table 4**) show that there would be no effect on previously assessed mitigation and acquisition rights (see Section 6.1.3 of the PAR). As a result, the Department remains of the view that a total of 10 receivers and vacant land holdings should be afforded voluntary acquisition rights in accordance with the VLAMP, these being:

- R1 to east of the site and Lot 2 DP 804005, Lot 52 DP 252692, Lot 53 DP 252692 and Lot 54 DP 252692 to the southwest of the site; and
- R170, R171, Lot 3 DP 1111313, Lot 1 DP 121623 and Lot 1 DP 1136411 to the northwest of the site, but only if acquisition cannot be activated under the project approvals for Ashton SEOC and/or Rix's Creek North.

The Department also remains of the view that four receivers (R173, R175, R176 and R177) located near Camberwell should only be afforded air quality mitigation rights under the consent, due to the Project's small contribution to the cumulative exceedances they are predicted to experience. Further, these receivers already have acquisition rights under Bloomfield's Rix's Creek North project approval.

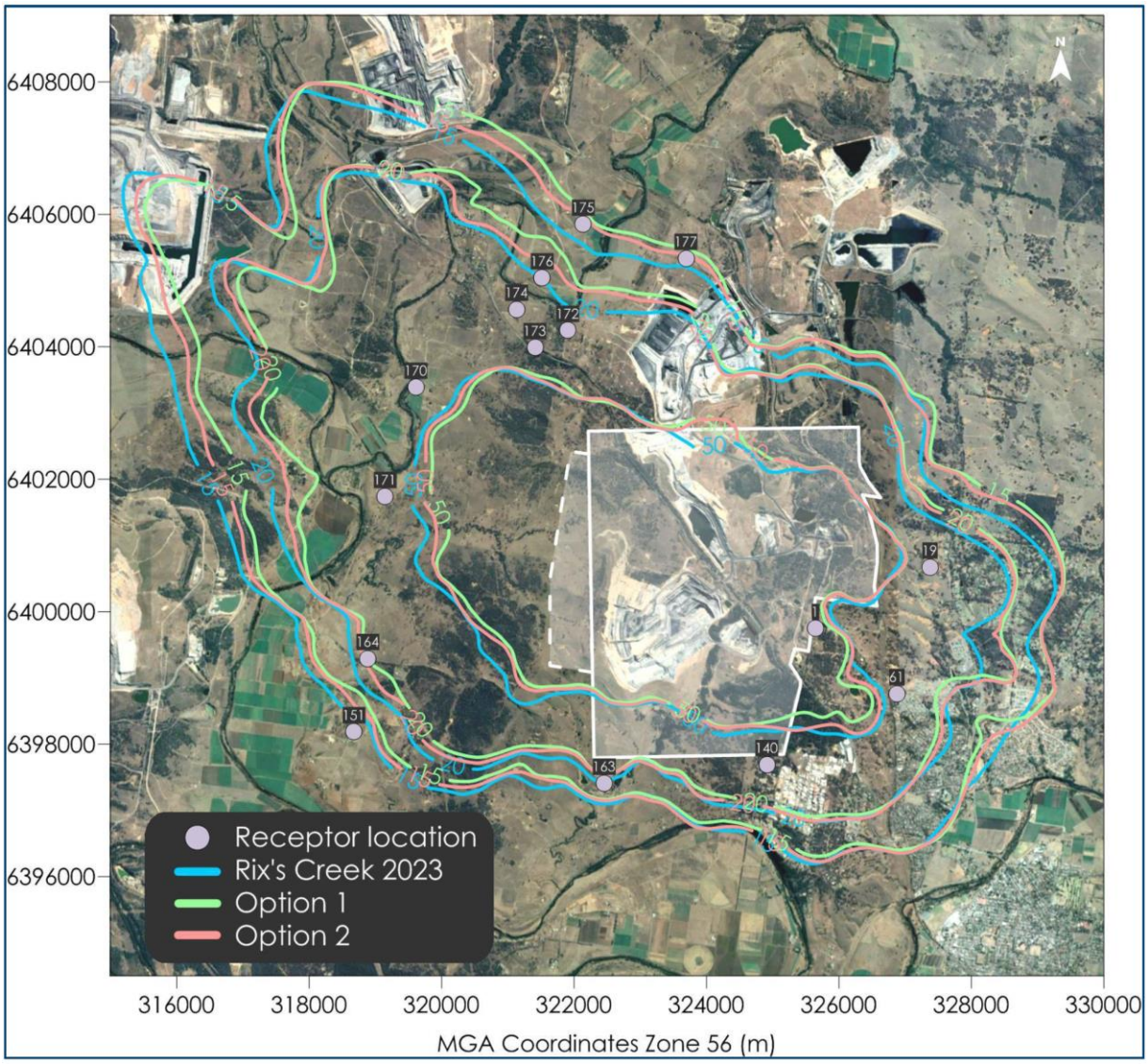


Figure 4 | Comparison of incremental 24-hour PM_{10} concentrations during Year 2023

2.1.5 Air Quality Conditions

The Department has recommended comprehensive air quality conditions to ensure that Bloomfield complies with contemporary air quality criteria, minimises cumulative amenity and health impacts, operates an appropriate air quality management system and prepares and implements a suitable AQGGMP.

In drafting these conditions, the Department has given careful consideration to addressing the EPA's advice on the Project and its broader dust mitigation initiatives. The EPA advised that Bloomfield should demonstrate increased vigilance in mitigating trackable (ie wheel-generated) haul road dust and stabilising exposed areas susceptible to dust generation. Noting that these are two of the focus areas in the PRPs discussed in **Section 2.1.1** above, the Department agrees with this advice and has tailored the recommended conditions to pay particular attention to these issues. Further, in line with the EPA's initiatives to reduce emissions from 'non-road' diesel combustion engines, the Department has also recommended a condition requiring Bloomfield to ensure that all non-road mobile diesel equipment with engines >30 litres used on the site include reasonable and feasible diesel emissions reduction technology.

Table 4 | Summary of highest air quality predictions (only receivers with exceedances are shown)

Receiver	$PM_{2.5}$		PM_{10}		TSP	Dust impacts on more than 25% of land (24-hour PM_{10} used as proxy)	Existing Acquisition Entitlement (and relevant receiver numbers)	Acquisition Recommended
	24-hour Incremental $\mu g/m^3$	Annual Average Cumulative (Incremental) $\mu g/m^3$	24-hour Incremental $\mu g/m^3$	Annual Average Cumulative (Incremental) $\mu g/m^3$	Annual Average Cumulative (Incremental) $\mu g/m^3$			
Applicable Criterion	25	8 (-)	50	25 (-)	90 (-)			
R1 Lot 1 DP 1137660	10	8 (2)	71	34 (16)	80 (27)	Yes	Rix's Creek Mine (current negotiated agreement)	*Yes*
R170 Lot 2 DP 1111313	5	16 (1)	39	101 (9)	219 (13)	Yes	Ashton SEOC (129) Rix's Creek North (351)	*Yes, if acquisition cannot be activated under Ashton SEOC or Rix's Creek North*
R171 Lot 75 DP 1124347	6	8 (1)	44	32 (9)	77 (16)	Yes	Ashton SEOC (130)	*Yes, if acquisition cannot be activated under Ashton SEOC*
R173 Lot 30 DP 1018512	7	9 (1)	49	43 (9)	92 (13)	No	Ashton SEOC (121) Rix's Creek North (111)	*No, mitigation recommended*
R175 Lot 1 DP 745211	2	8 (0)	18	36 (2)	84 (3)	No	Rix's Creek North (87)	*No, mitigation recommended*
R176 Lot 11 DP 1169092	3	9 (1)	22	39 (4)	87 (6)	No	Rix's Creek North (106)	*No, mitigation recommended*
R177 Lot 8 DP 246434	2	14 (0)	15	80 (2)	185 (2)	No	Rix's Creek North (153)	*No, mitigation recommended*
Vacant Land Lot 3 DP 1111313		-	-	-		Yes	Ashton SEOC (129) Rix's Creek North (351)	*Yes, if acquisition cannot be activated under Ashton SEOC or Rix's Creek North*
Vacant Land Lot 1 DP 121623		-	-	-		Yes	Ashton SEOC (130)	*Yes, if acquisition cannot be activated under Ashton SEOC*
Vacant Land Lot 1 DP 1136411		-	-	-		Yes	Ashton SEOC (130) Rix's Creek North (352)	*Yes, if acquisition cannot be activated under Ashton SEOC or Rix's Creek North*
Vacant Land Lot 2 DP 804005		-	-	-		Yes	n/a	Yes
Vacant Land Lot 52 DP 252692		-	-	-		Yes	n/a	Yes
Vacant Land Lot 53 DP 252692		-	-	-		Yes	n/a	Yes
Vacant Land Lot 54 DP 252692		-	-	-		Yes	n/a	Yes

In drafting these conditions, the Department has also given careful consideration to ensuring that surrounding landowners and tenants are given appropriate rights under the consent The Department has recommended specific conditions to protect nearby landowners and tenants from the air quality impacts of the development. This includes conditions to protect tenants of mine-owned land (see **Section 2.1.3**), acquisition and mitigation procedures for the 14 receivers and vacant landholdings discussed in **Section 2.1.4**, and the ability for landowners to request an independent review of air quality impacts at their residence or property.

Subject to these conditions, the Department and EPA consider that the air quality impacts of the Project are acceptable. Consideration of greenhouse gas emissions (GHGEs) is discussed further in **Section 3.4** below.

2.2 Noise and Blasting

The Commission made four recommendations on noise impacts. These recommendations relate to adaptive management, equipment attenuation and potential blast impacts on the Coke Ovens, which are a local heritage item listed in the *Singleton Local Environmental Plan 2013* as 'Rixs Creek Coke Ovens and Associated Works'. These recommendations have been considered in detail below. The four specific heritage-related recommendations for the Coke Ovens have been separately addressed in **Section 2.8**, below.

This section also includes the Department's reconsideration of the Project's noise impacts based on the preferred mine plan (Option 2) and a discussion on the proposed noise and blasting-related conditions of consent.

2.2.1 Noise Management

Recommendation 4

That the Applicant make available on a timely basis information relating to how it is managing noise impacts, including its adaptive management practices and how it proposes to use such practices to manage the Project's noise impacts to conform to the ANC. Such information should include the Noise Management Plan, which should be made available to the public on the Applicant's website or in hard copy where requested. The Noise Management Plan (NMP) published by the Applicant should outline the process to be undertaken by the Applicant in modifying operations where noise exceedances occur, and include a 24/7 contact number for the Applicant and details of the Environment Line provided by the NSW Government.

Summary of Response

Bloomfield's adaptive management practices would be described in its NMP for the Project. In its Response Report, Bloomfield provided a draft NMP to show what type of proactive and reactive measures would be implemented to ensure compliance with the ANC.

Bloomfield is currently required under DA 49/94 to make key documents/information available on its company website to ensure that interested or concerned stakeholders can stay appropriately informed of the mine's operations and environmental performance. Bloomfield's company website includes a copy of its approved NMP, instructions for obtaining a hard copy of the NMP, noise monitoring results (updated monthly), a 24/7 company contact number (Rix's Creek Community and Blasting Hotline - 4930 2665) and contact details for the Government's Environment Line.

Bloomfield has committed to maintaining a similar website for the Project. The Department has recommended its standard 'access to information' condition to ensure that this occurs.

Adaptive Management

As discussed in Section 6.2 of the PAR, Bloomfield has proposed achievable noise criteria (ANC) rather than project-specific noise limits (PSNLs) as the statutory noise compliance limits for the Project. Use of ANC is allowed under the INP in circumstances where PSNLs cannot practicably be achieved despite implementing all reasonable and feasible mitigation measures. In this circumstance, the EPA and Department accept the use of ANC because Bloomfield has demonstrated that all reasonable and feasible mitigation measures have been applied to the Project (including cladding the CHPP) and because the proposed criteria are notably below the current criteria

under DA 49/94. Further, it would not be practicable for Bloomfield to comply with contemporary PSNLs due to the age of the mine and its setting near the expanding northwestern suburbs of Singleton.

To comply with the ANC during noise-enhancing weather conditions, Bloomfield would commonly have to modify the mine's operations, including progressive shutdowns of plant and equipment. This would require Bloomfield to operate an adaptive noise management system that can identify scenarios when exceedances may be likely and then promptly adjust the mine's operations accordingly. In response to the Commission's recommendation, Bloomfield committed to further describe how noise impacts would be managed in its NMP for the Project.

As part of the Applicant's Response Report (Appendix B of that report), Bloomfield provided a draft NMP for the site which describes its noise management system. This system relies on daily noise predictions based on weather forecasts and proposed mining operations which proactively identify noise sensitive areas (ie areas where there is a risk of an exceedance) so that daily mining operations can be adjusted, if appropriate. Daily attended noise monitoring would be undertaken at these noise sensitive areas to ensure compliance with the ANC. If this monitoring identifies that noise levels are nearing the ANC, Bloomfield would begin to modify its operations in accordance with its noise TARP. Re-monitoring would occur every 75 minutes and modifications would continue to be implemented until there is no continuing risk of an exceedance. Examples of modifications to mining operations include initially reducing dozer activities and reducing haul truck speed followed by shifting dumping to shielded locations and progressively shutting down other plant and equipment.

The Department considers that the proposed proactive and reactive measures in the draft NMP demonstrate that Bloomfield is capable of adaptively managing its operations to ensure compliance with the ANC, and to quickly return to compliance in the rare event that noise levels should exceed the ANC. These adaptive measures align with contemporary best practice employed at other mines in NSW. The Department agrees that these measures should be further described in the NMP and has recommended conditions accordingly, including requiring the NMP to include a protocol for identifying and responding to noise exceedances.

To assist Government regulators in overseeing the Project's noise management, the Department has also recommended conditions requiring Bloomfield to:

- monitor and record all major equipment use and make this data readily available at the request of the Department or the EPA;
- record the daily adaptive management measures implemented on the site, including how operations were modified or stopped to comply with the ANC, and make these records readily available at the request of the Department or the EPA; and
- regularly publish, on its website, a comprehensive summary of monitoring results.

This would allow Government regulators access to information in a timely manner, particularly if they needed to investigate a community complaint, incident or non-compliance.

Publicly Available Information

The Commission's recommendation emphasised the importance of making noise management information publicly available in a timely manner. Under DA 49/94 Bloomfield is currently required to share key documents via its company website. This website includes a copy of the approved NMP for Rix's Creek, instructions for obtaining a hard copy of the approved NMP, noise monitoring results (updated monthly), a 24/7 company contact number (Rix's Creek Community and Blasting Hotline - 4930 2665) and contact details for the Government's Environment Line. As recommended by the Commission, Bloomfield has also included its contact details and those for the Environment Line in the draft NMP for the Project.

The Department agrees that companies should openly share key documents such as management plans, monitoring data and Annual Reviews with the community and for many years has required this information to be

made publicly available on company websites. The Department has therefore recommended applying its standard administrative condition which would require Bloomfield to continue making key documents available on its company website to ensure that interested or concerns stakeholders remain appropriately informed.

2.2.2 Plant and Equipment Attenuation

Recommendation 5

That the Applicant provides a full and detailed list of all equipment to be used at the mine, including a schedule for noise attenuation, where it is planned.

Recommendation 6

That the Applicant commits to completing the cladding of the Coal Handling and Preparation Plant prior to the extraction of any coal under the Project consent, if approved.

Summary of Response

Bloomfield has recently completed cladding the CHPP and has committed to progressively updating its equipment so that its mining fleet is fully attenuated by Year 6 of the Project.

The Department has recommended conditions to ensure that the remaining fleet attenuation program be further detailed in the NMP for the Project.

As part of the EIS and a previous noise PRP imposed by the EPA, Bloomfield committed to implementing a number of mitigation measures to reduce the noise impacts of the mine. These included:

- designing the OEAs and haul roads to maximise topographical shielding;
- constructing an acoustic bund on the southern side of the primary coal haul road;
- installing an acoustic barrier adjacent to the ROM coal bin;
- cladding the east and south sides of the CHPP; and
- attenuating mobile equipment through progressive retrofitting or replacement.

With the recent completion of the CHPP cladding in early June, all of these measures have been implemented.

In respect of its fleet attenuation program, Bloomfield has committed to operating a half-attenuated fleet by Year 3 of the Project and a fully attenuated fleet by Year 6 of the Project. Attenuation upgrades would be undertaken progressively, via either retrofitting or replacement. Wherever possible, un-attenuated equipment would be operated in shielded locations, such as deep in the pit, until it is replaced.

In its Response Report (Appendix C of that report), Bloomfield provided a current list of plant and equipment including details of installed and proposed sound attenuation. This included installing mufflers, radiator louvres and engine panels on the remaining 793-type haul trucks, which has since been undertaken. The Department understands that this list was provided to demonstrate how Bloomfield progressively updates its fleet. The Department considers that a more detailed fleet attenuation program to achieve the Year 6 commitment of operating a fully attenuated fleet should be further detailed in the Project's NMP and has recommended a condition accordingly.

2.2.3 Revised Noise Impact Assessment (Option 2)

As part of the Western OEA study (see **Section 2.4**), the Applicant's Response Report concluded that Option 2 would result in similar noise impacts to the original mine plan. There would be no material difference to the overall noise impact assessment outcomes and a similar degree of operational noise management would be required to ensure compliance with the ANC during adverse weather conditions. These conclusions were supported by a Trade-off Study Noise Assessment prepared by Global Acoustics.

This assessment included updated predictions for a representative set of receivers from each noise assessment group (NAG) during the Project's Year 4 (2020), Year 7 (2023) and Year 10 (2026) under noise enhancing weather conditions. The predictions show that there would be +/- 1 dB(A) changes during evening and night periods and +/- 2 dB(A) changes during the day period as a result of the revised mine plan. The changes are largely attributable to truck noise and the redistribution of waste haulage from the Western OEA to the South Pit and North Pit dumps.

As was the case with the original mine plan, exceedances of the ANC are predicted if the mine was to operate all equipment at maximum sound power levels. However, further modelling of Option 2 modified operations (Night 2) demonstrated that its adaptive management measures (including progressive shutdowns) would be capable of reducing noise levels by up to 7 dB(A). This would bring Night 2 noise levels within the ANC for nearly all NAGs. The exception is NAG J, located just south of the Project near Belmadar Way and Maison Dieu Road, which has predicted exceedances of 2 dB(A) during the early years of the Project. As discussed in the PAR, the Department remains confident that Bloomfield could further reduce its noise levels through applying continued adaptive management measures and the attenuation program in order to prevent these predicted occasional exceedances.

Based on review of the updated noise assessment, the Department accepts that pursuing Option 2 would not significantly alter the noise emissions or impacts of the Project.

2.2.4 Receiver R1

In finalising its assessment of the Project, the Department became aware that the negotiated agreement between Bloomfield and the owners of Lot 1 DP 1137660 (identified as receiver R1) had expired. The Department understands that Bloomfield is currently renegotiating an agreement with these owners. However, in the absence of a current agreement, the Department has added R1 to the noise criteria table to ensure that noise emissions from the Project are kept to acceptable levels until a new agreement is in place. The Department notes that R1 currently has acquisition rights under DA 49/94 and the Department has recommended that these rights are carried over into this consent.

2.2.5 Noise Conditions

The Department has recommended comprehensive noise conditions to ensure that Bloomfield complies with the ANC; minimises operational, low frequency and construction noise emissions; operates an adaptive noise management system; shares noise-related information/data in a timely manner; and prepares and implements a suitable NMP for the site.

It is important to note that Bloomfield's EPL (EPL 3391) was varied by the EPA on 30 August 2017 to include noise criteria based on the ANC. Since this time, Bloomfield's monthly attended monitoring results show that noise levels from the mine have complied with all relevant and applicable criteria at all monitoring locations. Noise complaints over this same period have also significantly reduced. This further indicates that the ANC are achievable and that improvements have already been made on the site.

Based on advice from the EPA, the Department has recommended relatively simple noise criteria for the consent that are based on the ANC. These are day/evening/night $L_{Aeq\ (15\ min)}$ criteria of 42 dB(A) for NAGs A, B and C, 40 dB(A) for all other NAGs and 35 dB(A) for all other privately-owned residences. Similarly, the Department recommends sleep disturbance criteria $L_{A1\ (1\ min)}$ of 47 dB(A) for all NAGs and 45 dB(A) for all other privately-owned residences.

Lastly, the Department remains of the view that three vacant lots should be afforded acquisition rights under the VLAMP due to noise impacts. As discussed in **Section 2.1.4**, these same three lots should also receive acquisition rights due to air quality impacts. Two of these lots (Lot 1 DP 121623 and Lot 1 DP 1136411) should be afforded acquisition rights due to exceedances of the night-time amenity criterion of 45 dB(A) across more than 25% of the land, but only if acquisition cannot be activated under the project approvals for Ashton SEOC and/or Rix's Creek

North. The remaining lot (Lot 54 DP 252692) should be afforded acquisition rights due to exceedances of the day-time amenity criterion of 55 dB(A) across more than 25% of the land.

Subject to these conditions, the Department and the EPA consider that the noise impacts of the Project are acceptable.

2.2.6 Blasting Impacts

Recommendation 7

That the Applicant update its Blast Impact Assessment (BIA) to provide additional monitoring and management measures specifically related to the preservation of the Coke Ovens.

Summary of Response

Bloomfield provided an updated BIA in its Response Report (see Appendix D of that report) which included specific recommendations on how to monitor and manage the Coke Ovens to ensure they are protected from blasting-related damage. These recommendations would be further detailed in the BMP for the Project.

Bloomfield provided an updated BIA in its Response Report (see Appendix D of that report). The updated BIA included further specialist assessment and recommendations to monitor, manage and eliminate risk of damage to the locally-listed historic Coke Ovens. The updated BIA indicated that previous nearby blasting has had no detrimental impact on the structure or stability of the Coke Ovens. The updated BIA also recommended an interim ground vibration limit of 10 mm/s, based on recent studies, site knowledge and blasting technology. It stated that the Coke Ovens may be able to withstand a higher limit but this would require further survey work. The updated BIA also recommended that a series of monitors be installed near the Coke Ovens and that this monitoring should be combined with post-blast visual inspections and routine dilapidation assessments.

The Department considers that Bloomfield has sufficiently updated its BIA to address the IPC's recommendation. The Department has recommended that Bloomfield comply with a blasting criterion of 10 mm/s ground vibration unless further surveys identify an acceptable higher criterion. In consultation with the Heritage Division, the Department has also recommended that the monitoring and management measures recommended in the BIA be further detailed in a BMP for the Project which would include a specific strategy to monitor, mitigate and manage the effects of blasting on the Coke Ovens.

2.2.7 Blasting Conditions

The Department has recommended comprehensive blasting conditions to ensure that Bloomfield complies with contemporary airblast overpressure and ground vibration criteria; ensures the safety of people and livestock; minimises blasting impacts to privately-owned residences and buildings, heritage items and infrastructure; minimises the release of flyrock, dust and noxious fumes; operates an appropriate blast management system; and prepares and implements a comprehensive BMP for the site.

In drafting these conditions, the Department has also included specific conditions providing additional rights for owners of privately-owned land within 3 km of the mining area. These conditions require Bloomfield, at the request of the landowner, to engage a suitably qualified, experienced and independent person to undertake a pre-blasting property inspection and/or a property investigation during the course of mining, if suspected damage occurs. If blasting-related damage is confirmed during a property investigation, Bloomfield would be required to repair this damage.

Subject to these conditions, the Department considers that the blasting impacts of the Project are acceptable.

2.3 Rehabilitation and Mine Closure Planning

The Commission made seven recommendations on rehabilitation and mine closure planning. These recommendations relate to stakeholder engagement, the rehabilitation strategy, the socio-economic impacts of mine closure, past rehabilitation performance, risks and opportunities for rehabilitation and mine closure, and final void land use opportunities.

These recommendations have been considered in detail below along with additional consideration of the final land use.

2.3.1 Rehabilitation Strategy

Recommendation 8

That in order to address the principles of *Strategic Framework for Mine Closure,* the Applicant implement the recommendations of the Unger Report requiring the Applicant to prepare a stakeholder engagement strategy that ensures that stakeholders' specific issues of rehabilitation and closure are addressed appropriately in the Rehabilitation Strategy.

Recommendation 9

That the Applicant records all targeted consultation on mine rehabilitation and closure planning within the Rehabilitation Strategy and demonstrate where issues raised in community consultation have been considered in the development of the Rehabilitation Strategy.

Recommendation 10

That the Applicant collates and includes all relevant rehabilitation objectives and practices identified within the MOP and other EIS documents into the Rehabilitation Strategy so that it is a consolidated reference for the rehabilitation and closure of the mine.

Recommendation 11

In order to address the principles of *Strategic Framework for Mine Closure,* the Commission recommends that the Rehabilitation Strategy:

a) identify all mine closure domains;
b) label and describe all domains including the proposed post-mining land use;
c) ensure that rehabilitation and closure objectives, performance standards and completion criteria exist for all domains;
d) consider sudden unplanned closure and temporary closure (care and maintenance);
e) include a detailed commitment register;
f) identify and consult with stakeholders to explore closure risks and opportunities further; and
g) include a plan to ensure that the Rehabilitation Strategy is updated and refined regularly to reflect changes in mine development and operational planning, and environmental conditions.

Recommendation 12

That the Applicant carry out an evaluation of the socio-economic impacts of mine closure during the preparation of, and in the regular updates to, a Detailed Mine Closure Plan.

Recommendation 13

That the Applicant include a section within the Rehabilitation Strategy outlining the knowledge base around past rehabilitation performance. This is intended to demonstrate that the site is able to achieve the proposed post-mining land use. This knowledge base should be a summary of all existing baseline aspects as they relate to mine closure and demonstrate the outcomes from past rehabilitation showing where any lessons learnt have been incorporated into the rehabilitation and mine closure planning for the site. The inclusion of this information in the Rehabilitation Strategy could further improve the provision of information to the community on progressive rehabilitation performance and site knowledge which would support the proposed post-mining land uses.

Recommendation 14

That the Rehabilitation Strategy be revised to demonstrate a risk based approach to rehabilitation and closure. This would include the preparation of a register outlining the risks and opportunities relating to the closure of the mine. This should include not only the risks and opportunities relating to the physical

closure and rehabilitation works, but also give regard to any existing legacy or residual (future) risks in accordance with the Principles of the *Strategic Framework for Mine Closure*.

Summary of Response

To address the Commission's recommendations, Bloomfield provided an updated rehabilitation strategy in its Response Report (Appendix E of that report). The Department has reviewed the updated rehabilitation strategy and acknowledges that it should continue to be refined post-determination, in a Rehabilitation Strategy required by conditions of consent. The Rehabilitation Strategy would be supported a rolling series of 3-yearly Rehabilitation Management Plans. Within this framework, the Department has developed draft conditions of consent to reflect the Commission's recommendations.

For context, it is first necessary to clarify the difference between Bloomfield's assessment-related 'rehabilitation strategy' (hereafter referred to in lower case) and the post-approval 'Rehabilitation Strategy' to be required under the proposed conditions of consent (hereafter referred to in upper case). Bloomfield's rehabilitation strategy was originally provided in the EIS to address the Secretary's Environmental Assessment Requirements (SEARs) and to enable the Department to assess the development in accordance with clause 17 of the Mining SEPP.

Since 2014, the Department has also required, by way of conditions of consent, large open-cut coal mines to prepare a comprehensive Rehabilitation Strategy, post-determination. This Strategy is intended to provide the overarching standard for rehabilitation of the site and provide a strategic framework for life-of-mine rehabilitation to ensure that rehabilitation and mine closure are an integrated part of the life-of-mine planning process. This Strategy would build on the EIS's rehabilitation strategy, satisfy specific requirements of conditions and be routinely refined and adapted over the course of the development. This Strategy would be required in addition to a Rehabilitation Management Plan/Mining Operations Plan which would include specific rehabilitation measures to be undertaken on the site over relatively short-term periods under a condition of the applicable mining lease. The Rehabilitation Management Plan is intended to "operationalise" the Rehabilitation Strategy in a rolling series of 3-year forward plans.

The Commission made a number of recommendations to improve the EIS's rehabilitation strategy, based on the findings of the Unger Report (see **Section 1.4**), and to align with best practice and the requirements of the *Strategic Framework for Mine Closure*. To address the Commission's recommendations and the Unger Report, Bloomfield provided an updated rehabilitation strategy in its Response Report (Appendix E of that report). The Department has carefully considered each of the Commission's recommendations and detailed how they have been incorporated into the proposed conditions of consent (see **Table 5**).

Table 5 | Summary of Rehabilitation Strategy recommendations

Recommendation		Comment	Relevant Condition
R8	Include a stakeholder engagement strategy	The Department has incorporated into the recommended requirements of the Rehabilitation Strategy.	*B77(n) The Rehabilitation Strategy must include a stakeholder engagement plan to guide rehabilitation and mine closure planning processes and outcomes.*
R9	Record consultation	The Department's standard administrative conditions include a requirement that all management plans or strategies include evidence of any required consultation.	*A20 The applicant must provide details of the consultation undertaken, including: (i) the outcome of that consultation, matters resolved and unresolved; and (ii) details of any disagreement remaining between the party consulted and the Applicant and*

			how the Applicant has addressed the matters not resolved.
R10	Consolidate all rehabilitation objectives	The Rehabilitation Strategy should detail the overall long-term rehabilitation objectives and outcomes for the site. However, a separate and detailed Rehabilitation Management Plan which would contain short-term objectives is still required by the Department and Resources Regulator for regulatory purposes.	*B77(d) The Rehabilitation Strategy must describe the overall rehabilitation outcomes for the site, and address all aspects of rehabilitation including mine closure, final landform (including final voids), post-mining land use/s and water management.*
R11	• Identify all mine closure domains; • Label and describe all domains including the proposed post-mining land use • Ensure that rehabilitation and closure objectives, performance standards and completion criteria exist for all domains • Consider sudden unplanned closure and temporary closure (care and maintenance) • Include a detailed commitment register • Identify and consult with stakeholders to further explore closure risks and opportunities further • Include a plan to ensure that the Rehabilitation Strategy is updated and refined regularly to reflect changes in mine development and operational planning, and environmental conditions	The Department has incorporated most of these recommendations into the requirements of the Rehabilitation Strategy. The Department considers that a 'commitments register' would be better placed in the Rehabilitation Management Plan, as this plan would detail the specific measures to improve the rehabilitation knowledge base over a 3-year planning cycle.	• *B77 (g) The Rehabilitation Strategy must identify and describe all mining and rehabilitation domains, and define completion criteria for each.* • *B77(j) The Rehabilitation Strategy must describe how rehabilitation will be integrated with the mine planning process, including a plan to address premature or temporary mine closure.* • *B79 (j) The Rehabilitation Management Plan must describe any further studies, work, research or consultation that will be undertaken to expand the site-specific rehabilitation knowledge base, reduce uncertainty and improve rehabilitation outcomes.* • *B77(l) The Rehabilitation Strategy must include a risks and opportunities assessment and risk register.* • *B77(p) The Rehabilitation Strategy must include a program to periodically review and update this strategy at least every three years.*
R12	Evaluate socio-economic impacts of mine closure	The Department has recommended that the Rehabilitation Strategy incorporates measures to address socio-economic impacts of mine closure and notes that it has also separately recommended that Bloomfield prepare and implement a Social Impact Management Plan to manage and mitigate social impacts over the life of the Project.	*B77(m) The Rehabilitation Strategy must investigate ways to minimise adverse socio-economic effects associated with rehabilitation and mine closure.*

R13	Outline the knowledge base around past rehabilitation performance	As part of each Annual Review, Bloomfield would be required to report on its rehabilitation performance and consider ways to improve its performance moving forward. Further, specific rehabilitation measures would be detailed in the Rehabilitation Management Plan and these measures would be carefully reviewed by the Department and the Resources Regulator to ensure that best practice techniques are being implemented on the site.	NA
R14	Prepare a register outlining the risks and opportunities relating the rehabilitation and mine closure	The Department has recommended that the Rehabilitation Strategy identify risks or threats to rehabilitation and opportunities to improve or strengthen rehabilitation.	*B77(l) The Rehabilitation Strategy must include a risks and opportunities assessment and risk register.*
R15	Include final void details and potential beneficial re-use opportunities	Addressed separately in **Section 2.5**	*B77(k) The Rehabilitation Strategy must investigate opportunities to refine and improve the final landform and final void outcomes over time.*

2.3.2 Final Land Use

In addition to addressing the Commission's recommendations, the Department has also expanded on the Rehabilitation Strategy requirements to include final land use planning. As discussed in Section 6.6.1 of the PAR, it is important that the post-mining land use is sufficiently adaptive to cater for the future needs of Singleton and surrounds in the year 2040 and beyond. The approach taken is to set a minimum expectation that the land is returned to grassland for grazing with areas of open woodland for native ecosystem re-establishment. This approach reflects the fact that Class V (or better) agricultural land is versatile and would allow for a range of possible post-mining land-uses, including attracting post-mining land uses.

Bloomfield has committed to investigating a range of beneficial land use opportunities (eg residential, industrial and commercial uses) in consultation with Council, with the final land use options to be further developed in the Project's Rehabilitation Strategy. As recommended by Council, the Department has recommended that the Rehabilitation Strategy includes a post-mining land use strategy to investigate and facilitate potential beneficial final land uses for the site (including the final void), that:

- align with regional and local strategic land use planning objectives and outcomes;
- support a sustainable future for the local community;
- utilise existing mining infrastructure, where practicable; and
- avoid disturbing self-sustaining native ecosystems, where practicable.

2.4 Final Landform

The Commission made one recommendation requesting that Bloomfield prepare a Western OEA study examining alternate overburden emplacement designs, instead of constructing the Western OEA as proposed in the EIS. This recommendation has been considered in detail below.

Recommendation 16

That the Applicant prepare a trade-off study assessing the benefits of removing the western overburden emplacement area against the potential environment impacts associated with increasing the heights of the existing North Pit Dump and South Pit Dump. Any outcomes of the trade-off study, including an assessment of any environmental impacts, would need to be submitted and considered as part of the of final assessment of the Project.

Summary of Response

As recommended by the Commission, Bloomfield undertook a Western OEA study which considered two alternative emplacement options: Option 1 being the full elimination of the Western OEA and Option 2 being a reduced Western OEA. Both options rely on increasing the height of the existing North Pit and South Pit dumps to provide additional overburden capacity. The study compared the air quality, noise, biodiversity, final landform, final land use, visual and economic impacts of each option against the original mine plan. As a result, Bloomfield identified that its preferred option was to proceed with Option 2, which is largely cost neutral, provides greater operational flexibility and significantly reduces biodiversity impacts.

The Department accepts that the preferred mine plan (Option 2) would provide an improved environmental outcome by reducing the area of remnant vegetation disturbance. The Department supports Bloomfield's decision to proceed with Option 2 and considers that the revised landform would continue to facilitate sustainable post-mining land use outcomes.

As introduced in **Section 1.4**, the Commission engaged Deswik to undertake an expert review of Bloomfield's proposed mine schedule and final landform. In particular, the Commission requested Deswik to evaluate if Bloomfield had achieved its stated objectives, which included:

- minimising out-of-pit dump requirements, spoil rehandling and haulage;
- minimising final void size; and
- planning for closure.

The Deswik report concluded that there may be opportunities to increase the height and steepness of the mine's existing OEAs (North Pit and South Pit dumps) instead of constructing a new Western OEA and that this would minimise surface disturbance.

As recommended by the Commission, the Applicant's Response Report included a study of two alternative emplacement options for the Project's overburden (see **Figure 5**). These options were:

- **Option 1** – complete removal of the proposed Western OEA by emplacing all overburden on the existing North Pit and South Pit dumps; and
- **Option 2** – removing part of the proposed Western OEA and emplacing this displaced overburden on the North Pit and South Pit dumps.

The study compared the air quality, noise, biodiversity, final landform/ land use, visual and economic impacts of each option with those of the original mine plan (see **Table 6**).

Table 6 | Western OEA study findings

Aspect		Original Mine Plan	Option 1	Option 2 (Preferred)
Dump height (mRL)/additional volume of material (Mbcm)	North Pit dump	154 / -	170 / 16.11	160 / 7.09
	South Pit dump	115 / -	145 / 1.41	145 / 1.41
	Western OEA	165 / 17.51	- / -	165 / 9.01

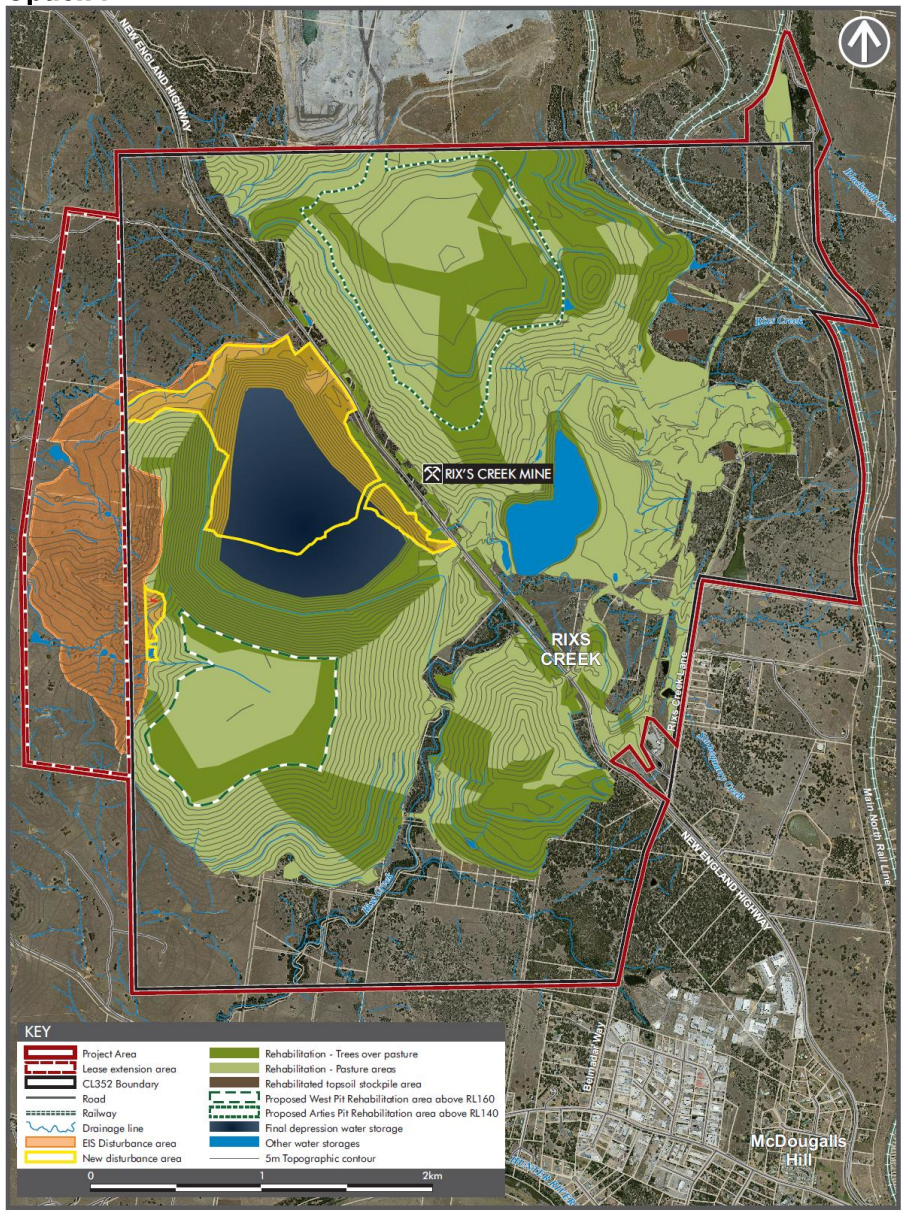
Surface disturbance (ha)	Native vegetation	212.79	129.24	159.36
	Disturbed/exotic vegetation	-	105.13	97.81
	Total	212.79	234.37	257.17
Air quality	As assessed in the EIS		No significant change	No significant change
Noise	As assessed in the EIS		No significant change	No significant change
Visual	As assessed in the EIS		No significant change	No significant change
Biodiversity	FBA Credits	5,808	3,824	4,428
Rehabilitation	Additional land to be rehabilitated (ha)	-	21.6	44.4
Haulage	Average number of trucks required to haul 17.5 Mbcm overburden	7.5	11.2	8.6
Additional costs ($million)	Biodiversity credits	-	($2.7)	($1.9)
	Rehabilitation	-	$0.2	$0.5
	Haulage	-	$10.4	$2.6
	Total	-	*$7.9*	*$1.2*

Both options would result in reduced overall dump footprint, but at a cost of re-disturbing established rehabilitation and increasing the height of the existing dumps closer to Singleton. With Option 1, emplacing the overburden material on the existing North Pit and South Pit dumps would mean that they are active and exposed for a longer period of time. The additional haul distances from Pit 3 to these dumps would be significantly longer and costlier compared to establishing the Western OEA. Option 1 would require 50% more haul trucks to maintain the same production rates, due the additional haul distances and elevation changes. Option 1 would result in reduced disturbance of remnant vegetation and a 34% reduction in biodiversity offset obligations, at a cost of re-disturbing 23.86 ha of established planted woodland on the North Pit dump. There is no additional re-disturbance required for the South Pit dump because it remains an active dumping site. Using the existing dumps may provide Bloomfield with an opportunity to incorporate contemporary natural landform features (ie micro and macro relief) over these older dumps, however it would likely result in reduced Class 4 and 5 land available post-mining due to the increased area of sloping land. This would also potentially limit beneficial post-mining land uses in some areas.

With Option 2, the three active dumps would provide some additional operational flexibility but would still marginally increase costs due to the added haul distance. Option 2 would reduce Bloomfield's biodiversity credit obligations by 12% and would only require re-disturbance of 3.69 ha of established planted woodland on the North Pit dump. The revised biodiversity impacts associated with Option 2 are further considered in **Section 2.6.1**, below.

Bloomfield's findings indicate that there would be no material differences to air quality, noise and visual impacts between the three options considered. As discussed in **Section 2.1.4** and **Section 2.2.3** above, the additional haulage and revised emplacement activities would not significantly alter the predicted air quality or noise impacts of the Project, particularly at a receiver level. Similarly, the increased heights of the North Pit (+6 m up to 160 mRL) and South Pit (+30 m up to 145 mRL) dumps would not be visually distinguishable. Based on the findings of the Western OEA study, Bloomfield indicated that Option 2 was its preferred option because it was cost neutral compared to the original mine plan and the multiple dump areas would provide the greatest operational flexibility.

Option 1



Option 2

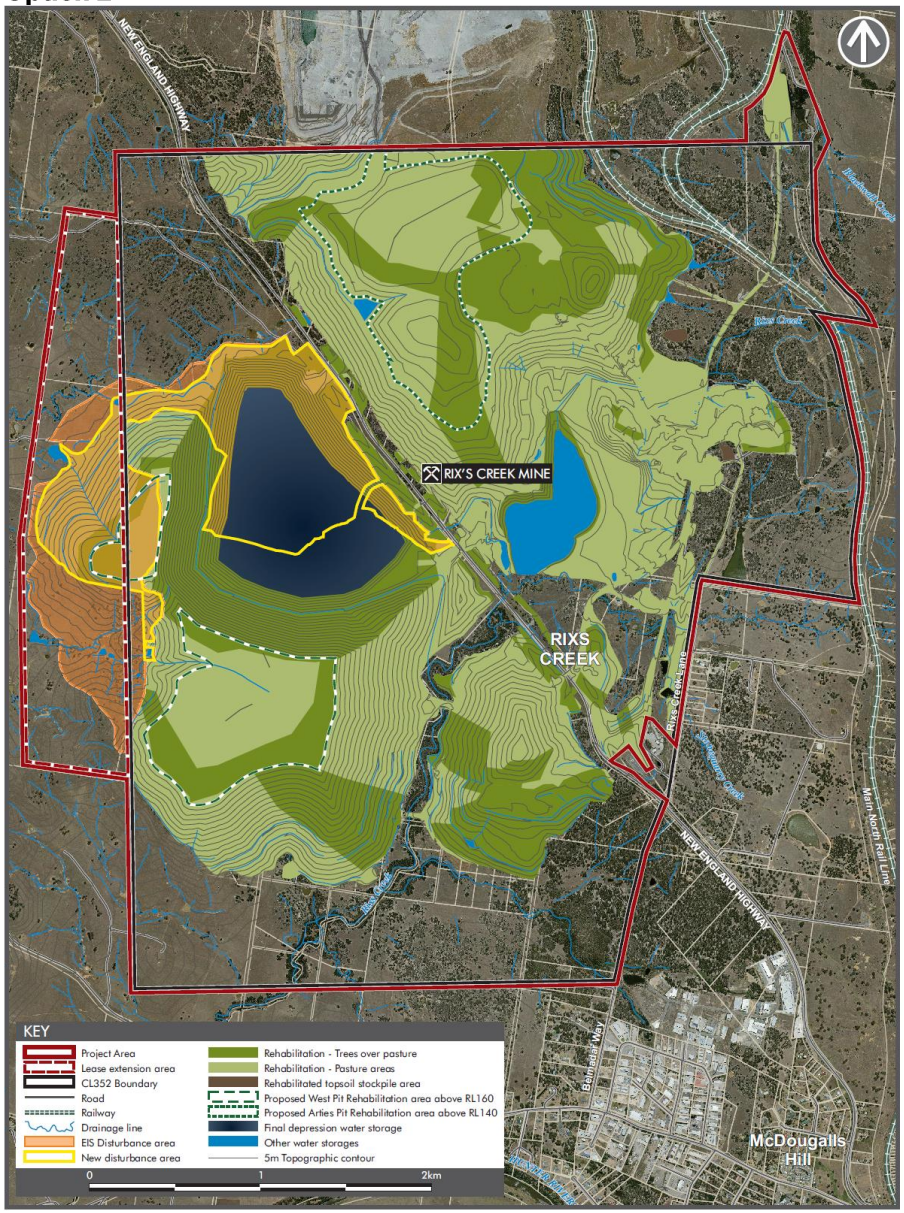


Figure 5 | Western OEA study options

DRG noted that neither Option 1 or 2 would change the overall coal resource recovery proposed in the EIS. However, both options would reduce operational efficiency and increase operational expenditure, due to longer haul distances to the revised overburden emplacement areas. DRG also considered that the preferred mine plan would adequately recover coal resources, as previously advised. The Resources Regulator also did not raise any concerns over the preferred mine plan and considered that sustainable rehabilitation outcomes could continue to be achieved.

The Department accepts that the preferred mine plan (Option 2) would provide an improved environmental outcome by reducing the area of remnant vegetation disturbance. The Department supports Bloomfield's decision to proceed with Option 2 and considers that the revised landform would continue to facilitate sustainable post-mining land use outcomes.

2.5 Final Void Water

The Commission made three recommendations on water issues related to the final void. The recommendations relate to final void water re-use opportunities and water impacts associated with backfilling the North Pit void. These recommendations have been considered in detail below along with a discussion on the proposed water management conditions of consent.

2.5.1 Final Void Land Use Opportunities

Recommendation 15

That the rehabilitation strategy be revised to include additional detailed information around the final void water levels and water quality, including an assessment of any potential beneficial uses for the water that could be considered following closure of the mine.

Recommendation 17

That the Applicant explore opportunities to undertake an assessment of void water re-use. Where opportunities are identified, these should be included in the Rehabilitation Strategy.

Summary of Response

In its Response Report and the updated rehabilitation strategy in Appendix E of that report, Bloomfield has committed to investigating design alternatives for the final void and investigating opportunities to reuse the void water.

The Department accepts this approach and has recommended that the Rehabilitation Strategy for the Project includes a requirement to investigate opportunities to refine and improve the final landform and final void outcomes over time and to improve the post-mining beneficial land uses for the site (including the final void).

Bloomfield is proposing to retain a single final void in the post-mining landform. This void in Pit 3 (which the Commission has also referred to as the 'South Pit Void') would function as a groundwater sink. This void was considered in detail in Section 6.4.4 of the Department's PAR and the Department concluded that retention of the void would minimise environmental impacts, including preventing the release of saline water into the surrounding environment.

During the Commission's review, Bloomfield engaged RPS to provide additional information on the dynamic hydrogeological conditions associated with the void, and how the groundwater sink would work to contain and mitigate potential regional impacts after mine closure (see RPS memo dated June 2018). This study clarified the functionality of the void and that the hydraulic gradient would be towards the void, as it is positioned below the regional groundwater table (see **Figure 6**). The primary inflows would be rainfall recharge and groundwater inflows, and the primary outflows would be evaporation and minor localised density-driven seepage of saline pit lake water into backfilled overburden material. The study also confirmed the findings of the EIS's Groundwater

Impact Assessment, which found that the pit lake would equilibrate around 50 m AHD. Salinity levels would slowly rise to 9,000 mg/L after 200 years and 21,000 mg/L after some 2,000 years. Lastly, this study confirmed that, due to the groundwater sink conditions of the void and the folded syncline structure in the basement rocks, the risk of adverse impacts to the surrounding regional groundwater system would be negligible.

In its Response Report and the updated rehabilitation strategy in Appendix E of that report, Bloomfield committed to investigating design alternatives for the final void and investigating opportunities to re-use the void water. As part of these investigations, Bloomfield would undertake further hydrological and geochemical assessments to more accurately predict long-term final void water levels and water quality. These investigations would be undertaken as part of the mine closure planning process and would be detailed in the Project's Rehabilitation Strategy.

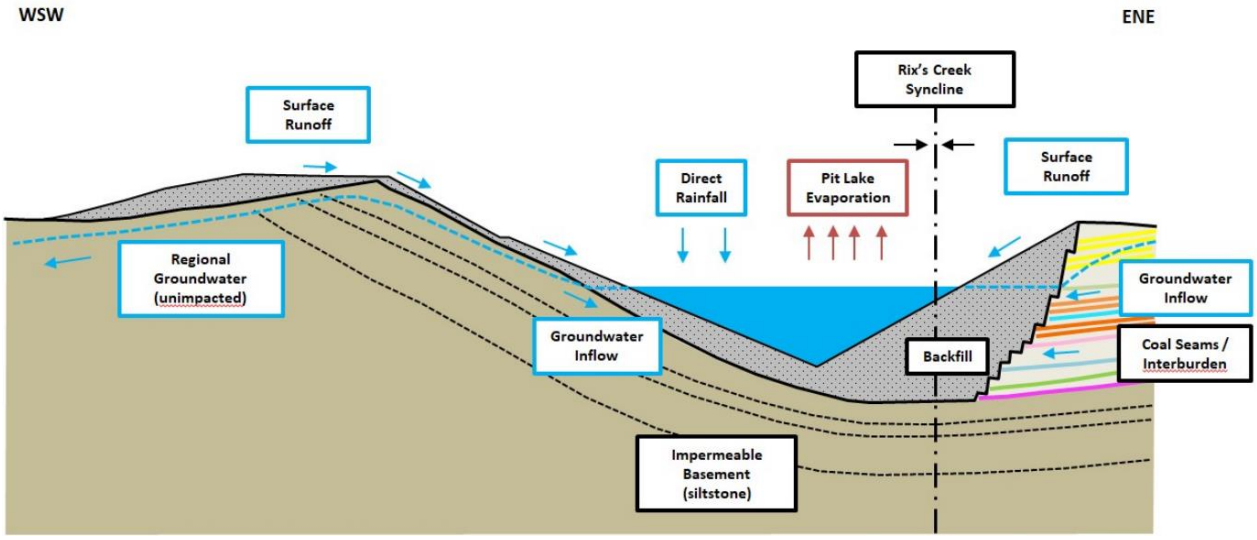


Figure 6 | Schematic illustration of the proposed South Pit Void

The Department accepts this approach and has recommended that the Rehabilitation Strategy includes a requirement to investigate opportunities to refine and improve the final landform and final void outcomes over time and to improve the post-mining beneficial land uses for the site (including the final void). As discussed in **Section 2.3**, the Department maintains that post-mining land uses should be adaptive to ensure they cater to the needs of the community in 2040 and beyond.

The Department also supports Bloomfield's commitment to investigate options for the continual refinement of the design and beneficial use of the final void post-mining. The Department also maintains the view, expressed in its PAR, that the retention of a final void is an acceptable (and at times appropriate) environmental outcome.

The Department considers that any further opportunities to optimise the void can be investigated post-approval, as the mine progresses. To reflect this, the Department has included a condition requiring Bloomfield to periodically review and refine its proposed final landform and final void outcomes. This review should critically analyse Bloomfield's updated staged mine plans over the remaining mine life, in order to ascertain potential opportunities to minimise the size, extent and depth of the void, and maximise (to the greatest extent practicable), opportunities for the beneficial re-use of any residual final void catchment areas and pit lakes. The Department considers that any potential improvements in final void design and land use outcomes must be managed under the development consent and are most suitably addressed by regularly reviewing and updating the Rehabilitation Strategy for the Project. The Department has reflected this in its recommended conditions.

2.5.2 North Pit Void

Recommendation 18

That the Applicant investigate water impacts related to any interaction with the backfilled North Pit Void consistent with those undertaken for the South Pit Void[1].

Summary of Response

As part of its Response Report, Bloomfield provided an additional groundwater study to demonstrate that the North Pit Void would have negligible impact on the regional groundwater system (see Appendix I of that report). The Department accepts this finding and maintains that using the North Pit Void as a fresh water dam would be an acceptable outcome for the post-mining landform.

The Commission's Review Report concluded that Bloomfield had adequately considered the water-related impacts of the South Pit Void, which would act as a groundwater sink post-mining. However, the Commission considered that inadequate information had been provided on the water-related impacts associated with backfilling the North Pit Void. For context, the North Pit Void would be backfilled to at least 5 m above the regional groundwater table and then used as a clean water dam, post-mining. Bloomfield's EIS and related assessment material has therefore, to date, intentionally referred to this depression as a water storage rather than a 'final void'.

To address the Commission's recommendation, Bloomfield engaged RPS to provide additional information and discussion on the dynamic hydrogeological conditions associated with the North Pit Void and how the resulting hydraulic dynamics would operate after mine closure (see Appendix I of the Applicant's Response Report). This RPS report found that:

- the groundwater system would naturally recover to regional equilibrium levels (see **Figure 7**); and
- the floor of the dam (ie the top layer of backfilled material) should be lower permeability material, to avoid surface water seepage into the groundwater system;
- the remaining depression (or dam) would fill with rainfall and surface run-off;
- the dam would be a maximum of 9 m deep and would take a number of years to fill;
- dam water would be lost to evaporation, seepage, and periodic overflows into the Rix's Creek drainage line (once fully filled/equilibrated); and
- these inflows and outflows would ensure that the dam maintains fresh water quality and would therefore be suitable for a variety of uses.

Based on this additional information, the Department considers that the North Pit Void would have negligible impact on the regional groundwater system. The Department still considers that using this landscape depression as a fresh water dam would be an acceptable outcome for this part of the post-mining landform.

2.5.3 Water Conditions

The Department has recommended comprehensive water management conditions to ensure that Bloomfield carefully manages soil erosion, water supply and discharges; compensates landowners if their bores are impacted by the development; complies with strict water performance measures; and prepares and implements a detailed Water Management Plan (WMP). The WMP would include a site water balance, salt balance, erosion and sediment control plan, surface water management sub-plan and groundwater management sub-plan. Subject to these conditions, the Department considers that the water-related impacts of the Project are acceptable.

[1] The Department understands that the 'South Pit Void' is the final void that would remain in Pit 3 (West Pit) post-mining.

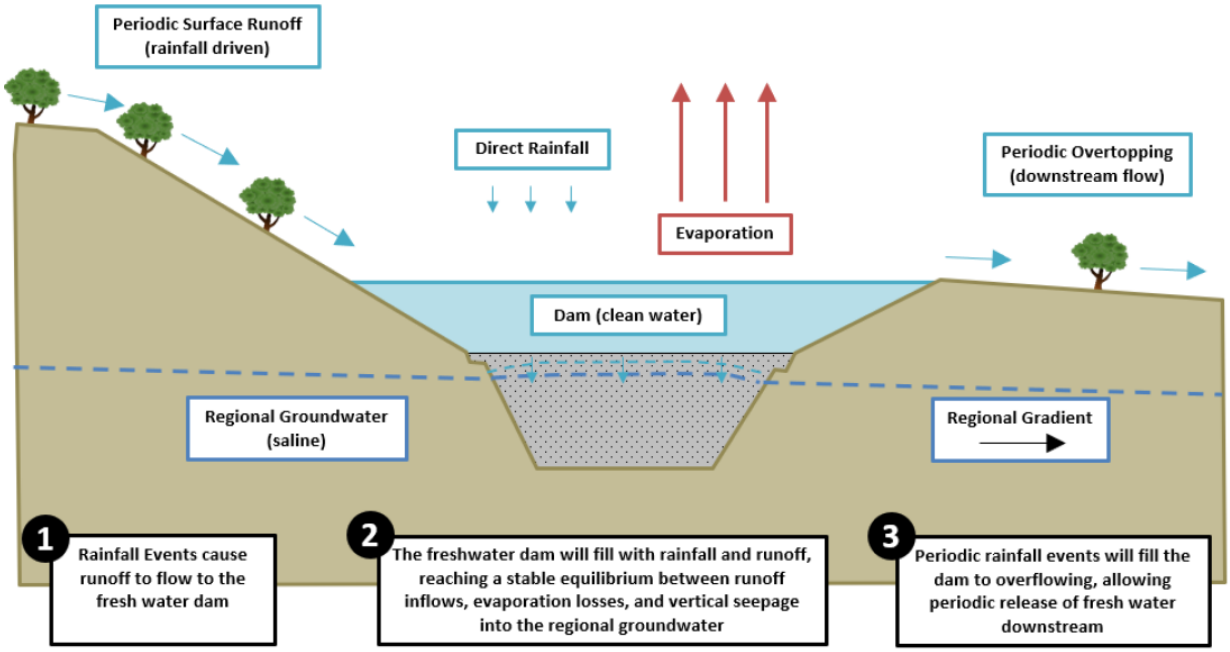


Figure 7 | Schematic illustration of the proposed North Pit Void

2.6 Biodiversity

The Commission made one recommendation regarding the biodiversity offset strategy for the Project. This recommendation has been considered in detail below, following reconsideration of the Project's biodiversity impacts based on the preferred mine plan (Option 2). The Department has also included further consideration of impacts on Squirrel Glider habitat and the recommended biodiversity-related conditions of consent.

2.6.1 Revised Biodiversity Assessment (Option 2)

As part of the Western OEA study (see **Section 2.4**), the Applicant's Response Report included an updated biodiversity assessment based on the revised disturbance footprint associated with Option 2. The study concluded that reducing the extent of the Western OEA would significantly reduce the biodiversity impacts of the Project. By prioritising overburden emplacement at existing cleared and disturbed areas within the North Pit and South Pit dumps instead of over native vegetation west of Pit 3, the Project would reduce its biodiversity credit obligations by 24% compared to the original mine plan (see **Table 7** and **Figure 8**). The key changes are a 54.43 ha reduction in loss of derived native grassland and a 2.68 ha reduction in loss of native woodland.

However, Option 2 would require 101.5 ha of re-disturbance at the North Pit dump, comprising 3.69 ha of planted woodland and 97.81 ha of exotic grassland. Bloomfield is proposing to offset re-disturbance of the planted woodland and has calculated biodiversity credits based on the original vegetation type, this being PCT 2150. The biodiversity assessment of the North Pit dump area also concluded that it was unlikely that threatened flora or fauna species would be present and therefore there would continue to be no species credit requirements for the Project. The additional emplacement proposed for the South Pit would be constrained to existing disturbed but unrehabilitated areas. Therefore, consideration of biodiversity impacts in this part of the site is not required.

CHANGES TO CEECS/EECS

Table 7 also shows that Option 2 would significantly reduce impacts to endangered ecological communities (EECs) listed under the *Biodiversity Conservation Act 2016* (BC Act) and a critically endangered ecological community (CEEC) listed under the Commonwealth's *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). The Project would no longer impact 0.22 ha of Hunter Lowlands Redgum Forest EEC and there would be a significant reduction in disturbance to the Central Hunter Valley eucalypt forest and woodland (CHVEFW) CEEC, from 47 to 38 ha.

Table 7 | Comparison of biodiversity impacts between the original mine plan and the preferred mine plan (Option 2)

Location	Vegetation Zone	PCT	EEC under the BC Act	CEEC under the EPBC Act	Original Design		Option 2	
					ha	credits	ha	credits
Pit 3 and Western OEA	HU812 Moderate/Good Zone 1: Forest Red Gum grassy open forest on floodplains of the lower Hunter	PCT 1598	Conforms to Hunter Lowlands Redgum Forest EEC	-	0.22	13	-	-
	HU906 Moderate/Good Zone 2: Bull Oak grassy woodland of the central Hunter Valley	PCT 1692	-	Conforms to CHVEFW CEEC	0.1	4	0.1	4
	HU819 Moderate/Good Zone 4: Narrow - leaved Ironbark - Native Olive shrubby open forest of the central and upper Hunter	PCT 1605	Conforms to Central Hunter Ironbark-Spotted Gum-Grey Box Forest EEC	Conforms to CHVEFW CEEC	17.62	872	15.16	750
	HU962 Moderate/Good Zone 5: Grey Box grassy open forest of the Central and Lower Hunter Valley	PCT 1748	Conforms to Central Hunter Grey Box-Ironbark Woodland EEC	Conforms to CHVEFW CEEC	0.76	28	0.76	28
	HU819 Moderate/Good derived grassland Zone 7: Narrow - leaved Ironbark - Native Olive shrubby open forest of the central and upper Hunter	PCT 1605	-	-	164.58	4,057	116.78	2,879
	HU819 Moderate/Good derived grassland Zone 8: Narrow - leaved Ironbark - Native Olive shrubby open forest of the central and upper Hunter	PCT 1605	-	Conforms to CHVEFW CEEC	29.5	834	22.87	647
North Pit dump	HU818 Moderate/Good established Zone 9: Narrow - leaved Ironbark - Grey Box - Spotted Gum shrub - grass woodland of the central and lower Hunter	PCT 2150	-	-	-	-	-	-
	HU818 Moderate/Good Young Zone 10: Narrow - leaved Ironbark - Grey Box - Spotted Gum shrub - grass woodland of the central and lower Hunter	PCT 2150	-	-	-	-	3.69	120
North Pit and South Pit dumps	Disturbed/exotic				-	-	97.81	0
Total					**212.79**	**5,808**	**257.17**	**4,428**

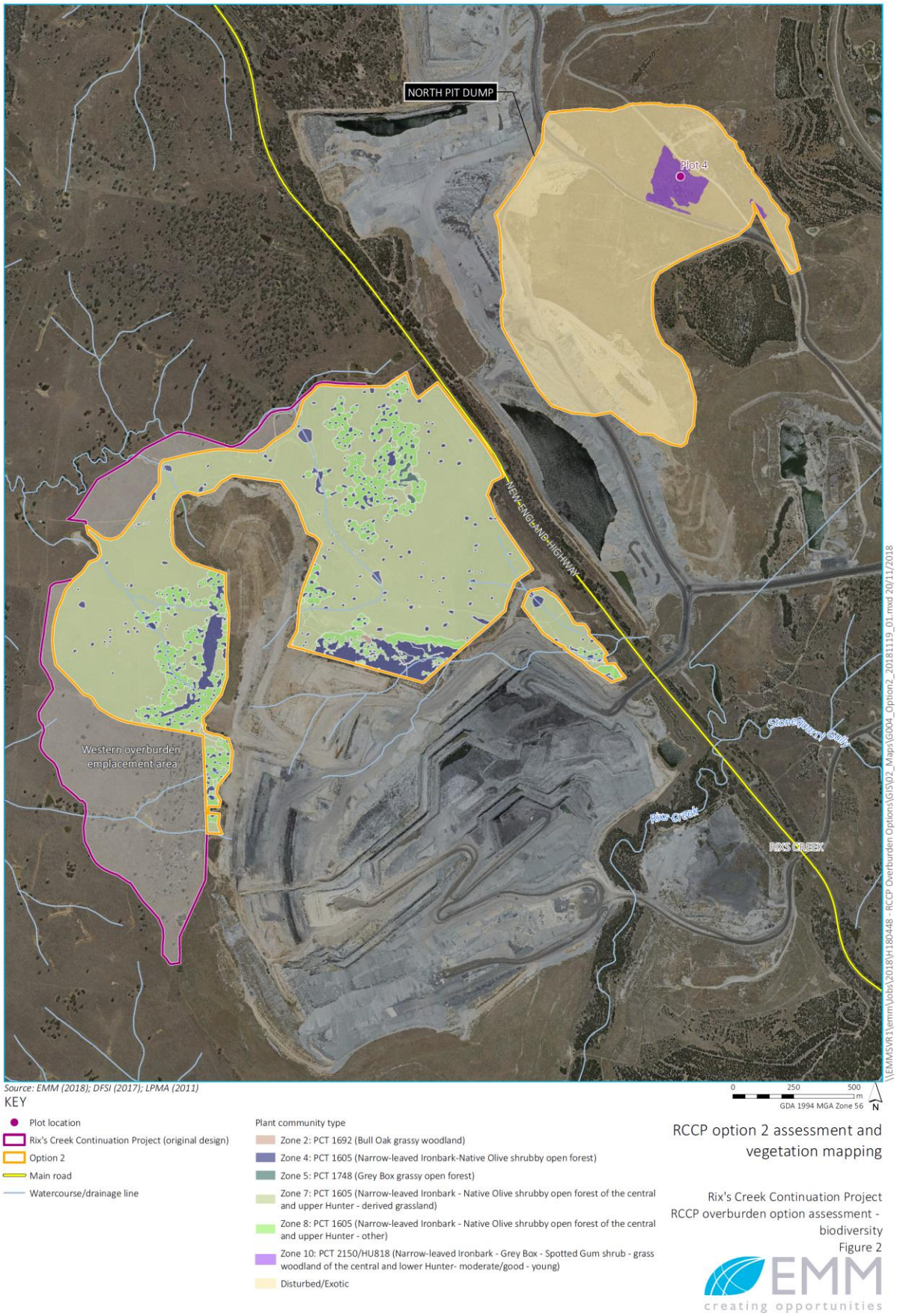


Figure 8 | Revised vegetation mapping based on Option 2

According to DoEE's guidance on CHVEFW; it is an open forest or woodland, typically with a tree canopy dominated by eucalypt species, an open to sparse mid-layer of shrubs and a ground layer of native grasses, forbs and small shrubs. CHVEFW provides habitat for a large number and variety of native plants and animals and remnant patches provide wildlife corridors and refuges in a fragmented landscape. The key threat affecting this community is vegetation clearing and landscape fragmentation from mining, agricultural and horticultural activities, grazing and rural-residential development.

The Department notes that CHVEFW was listed by the Commonwealth under the EPBC Act on 7 May 2015, following the Commonwealth's decision of 21 November 2014 that the Project was 'not a controlled action' (NCA). In accordance with section 158A of the EPBC Act, the later CHVEFW listing event does not apply to the Project because the NCA decision had already been made.

Nevertheless, the Department recognises the importance of considering impacts to this CEEC despite it not being considered a matter of national environmental significance (MNES). The Department also notes that, even if the listing applied to the Project, not all patches of CHVEFW are considered MNES as they must meet minimum diagnostic characteristic and condition thresholds. However, all patches of CHVEFW have biodiversity value and therefore must be considered under State legislation. The Department considers that impacts to CHVEFW have been properly considered from the State's perspective, via assessment of the applicable corresponding PCTs assessed under the FBA and the *NSW Biodiversity Offset Policy for Major Projects* (now Biodiversity Offsets Scheme).

The Department has recommended that the Biodiversity Management Plan for the Project include measures to be implemented on the site to minimise impacts to threatened ecological communities listed under either the BC Act or EPBC Act and contribute to conservation strategies for these communities.

2.6.2 Staged Disturbance and Offsetting

Recommendation 19

That the Applicant detail and commit to an offsetting approach for consideration by the consent authority, which includes, if necessary, details of how its approach will be staged, the timing, offset value and how it could be successfully undertaken.

Summary of Response

In its Response Report and additional information provided on 4 February 2019, Bloomfield clarified that its biodiversity offset strategy would involve a combination of land-based offsets, credit purchases and/or payments into the Biodiversity Conservation Fund (BCF). This strategy seeks to retire the credits in four stages, each linked with the progress of mining operations and progressive disturbance of native vegetation. Bloomfield has identified and purchased two land-based offset sites which would fulfil 84% of the total credits required for the first stage. The remaining Stage 1 credits would be satisfied through purchasing credits from the market, or if not available, by paying into the BCF. For Stages 2 to 4, Bloomfield has committed to fulfilling all offsetting requirements prior to the commencement of clearing for each respective stage, if not earlier.

The Department considers that Bloomfield's additional offsetting information sufficiently clarifies how and when biodiversity impacts would be offset for the Project. The Department also considers that the proposed staged approach minimises risk and provides sufficient certainty that the biodiversity impacts of each stage would be offset prior to (or soon after, in the case of the Stage 1 land-based offsets) the impacts occur. OEH also raised no issues with the proposed offsetting strategy.

Bloomfield has investigated a number of options under OEH's Biodiversity Offsets Scheme for meeting the Project's offset requirements, including purchasing credits from the market, establishing land-based offsets, applying variation rules and paying into the BCF. At the time of finalising the PAR, Bloomfield had had little success identifying suitable land-based offsets and therefore indicated that its preference was to pay into the BCF. The

Department accepted this approach as permissible and advised that retiring credits via payment into the fund or market purchases would need to be completed prior to the actual impacts occurring. Alternatively, the Department would consider allowing land-based offsets to be secured within 18 months of the impacts occurring, to allow for administrative time to finalise a Biodiversity Stewardship Agreement with the BCT under the BC Act.

Bloomfield initially proposed retiring its biodiversity credits in two stages, in line with the staging of its anticipated impacts. As discussed in Section 6.5.5 of the PAR, the Department considered that a staged approach to offsetting may be acceptable in light of the progressive impacts on biodiversity that would occur over the 21-year mine life. However, the Department considered that Bloomfield would need to provide additional information on its proposed staged offsetting approach and clarify the associated disturbance areas for each of the stages prior to determination of the Project.

The Commission agreed that Bloomfield had not provided sufficient information on its proposed approach(es) for offsetting the Project's biodiversity impacts and asked Bloomfield to provide further information to enable finalisation of the biodiversity assessment.

In its Response Report, Bloomfield reiterated that it was committed to achieving its offsetting requirements and that its offset strategy included the following key steps:

1. identifying and purchasing suitable credits through the market;
2. finding on-site or off-site properties with sufficient biodiversity values and establishing Biodiversity Stewardship Sites at these properties.
3. applying the variation criteria rules of the FBA and finding other suitable offsets to meet these requirements; and
4. paying into the BCF.

Bloomfield also advised that it had recently purchased two properties to put towards its offsetting requirements (although no details of these properties were provided at that time) and considered that a majority of its credit obligations could now be satisfied using these land-based offsets. Bloomfield stated that it would seek to secure all required offsets for the Project within three years of consent being granted.

The Department was not satisfied with this response because it did not include an updated staging plan for the preferred mine plan (Option 2). Further, Bloomfield's commitment to secure the offsets within three years did not align with the Department's initial expectation that land-based offsets be secured no later than 18 months after associated disturbance. This expectation was clearly set out in Section 6.5.5 of the PAR. The Department therefore requested that Bloomfield reconsider its offsetting proposal, provide more detail on the proposed offsetting stages (including associated disturbance area for each stage), and provide more detail on the proposed land-based offsets.

Updated Biodiversity Offset Strategy

Bloomfield provided additional information on offsetting in its response of 4 February 2019, including a staging proposal prepared by its biodiversity consultants, EMM. Bloomfield confirmed that its offsetting strategy would involve a combination of pursuing land-based offsets, credit purchasing and/or payment into the BCF. The method of offsetting would be dependent upon the affected ecosystem credit type. For example, it may be easier to satisfy the smaller credit obligations by purchasing credits through the market or by paying into the BCF, whereas it may be more cost-effective for Bloomfield to pursue land-based offsets to satisfy a larger credit obligation. On this basis, the likely method for each credit type would be:

- HU906/PCT 1692 Bull Oak (4 credits): purchase credits off the market or pay into the BCF;
- HU819/PCT 1605 Narrow-leaved Ironbark (4,276 credits): land-based offsets;

- HU962/PCT 1748 Grey Box Grassy Woodland (28 credits): purchase credits off the market or pay into the BCF; and
- HU818/PCT2150 Spotted Gum (120 credits): land-based offsets to be investigated, if not identified in conjunction with other credit requirements, then purchase credits through the market or pay into the BCF.

Bloomfield's revised strategy seeks to retire the required credits in four stages, each linked with the progress of mining operations and progressive disturbance of native vegetation (see **Figure 9**). **Table 8** provides a summary of these stages including approximate timing, disturbance area and location, and associated credit requirements.

Table 8 | Proposed offset staging and associated disturbance

Stage	Timing	Surface Disturbance Location	Surface Disturbance Area (ha)	Credits
Stage 1	2020	• Western OEA (northwestern face) • haul roads • North Pit dump	156.26 (54.76 remnant, 3.69 planted native woodland and 97.81 non-credit - generating exotic grassland)	1,563 (35%)
Stage 2	2023	• Pit 3 expansion area (southern and eastern sections) • Western OEA (southeastern face)	34.04	1,010 (23%)
Stage 3	2026	• Pit 3 expansion area (centre section) • Western OEA (centre section)	45.16	1,241 (28%)
Stage 4	2029	• Pit 3 expansion area (northern section)	21.99	614 (14%)

Bloomfield has identified and purchased two offset sites ('Berewin' in Rouchel and 'Ranch Road' near Scone Mountain) which would fulfil 92% of the like-for-like credit requirements for HU819/PCT 1605 for Stage 1, which equates to 84% of the total credits required for this stage (ie at least until 2023). The first offset site, Berewin, is also being used to satisfy the LEC's August 2017 consent orders (see Section 1.3 of the PAR). However, there are a significant amount of surplus credits that can be used for this Project.

The remaining Stage 1 credits for HU819/PCT 1605 and HU962/PCT 1748 would be satisfied through purchasing credits from the market, or if not available, by paying into the BCF. Bloomfield is also intending to investigate land-based offsets to satisfy the HU818/ PCT 2150 credit requirements associated with re-disturbing planted woodland on the North Pit dump under Option 2. To allow sufficient time to identify, survey and secure these offsets, Bloomfield has requested 18 months to fulfil the Stage 1 offsetting requirements.

For Stages 2 to 4, Bloomfield has committed to fulfilling all offsetting requirements prior to the commencement of clearing for each respective stage, if not earlier.

The Department considers that Bloomfield's additional offsetting information sufficiently clarifies how and when biodiversity impacts would be offset for the Project and it is consistent with the Biodiversity Offsets Scheme. The Department also considers that this staged approach minimises risk and provides sufficient certainty that the biodiversity impacts of each stage would be offset prior to (or soon after, in the case of the Stage 1 land-based offsets) the impacts occur. OEH also raised no issues with the proposed offsetting strategy.

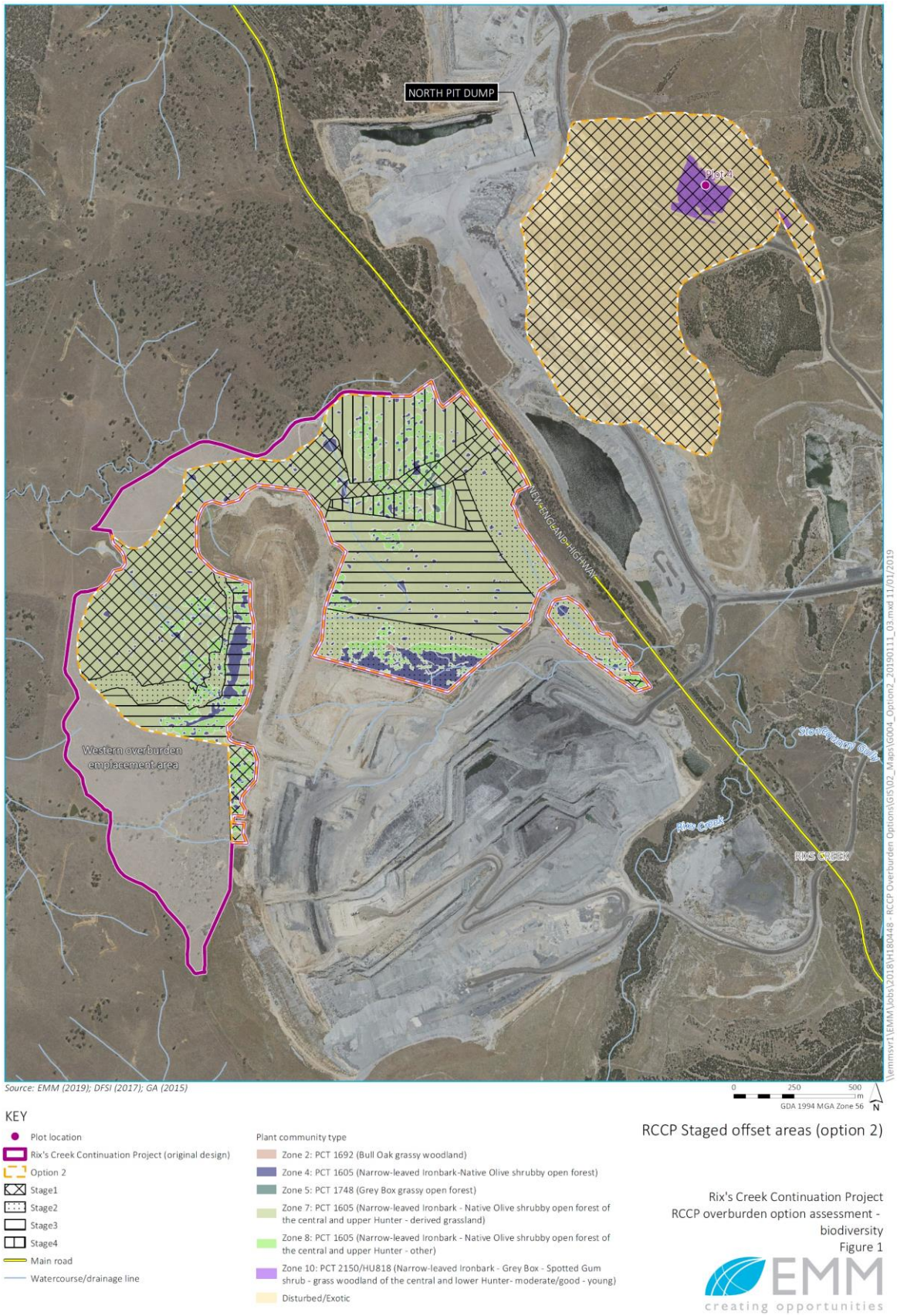


Figure 9 | Disturbance areas associated with offsetting stages

The Department considers that 12 months is a more acceptable timeframe to satisfy the Stage 1 credit requirements and that the remaining stages should be linked to commencement of clearing of that stage to both protect

biodiversity and incentivise Bloomfield to promptly fulfil its commitments and avoid interruptions to its mining operations.

The Department has therefore recommended conditions requiring Bloomfield to retire all Stage 1 credits within 12 months of commencement of development under this consent and to retire all Stages 2 to 4 credits prior to commencement of vegetation clearance associated with these later stages. Bloomfield would also be required to describe in its Biodiversity Management Plan how these biodiversity credits would be identified, secured and retired for the Project and identify potential risks to successful implementation of its biodiversity offset strategy.

BIODIVERSITY OFFSETS SCHEME

With commencement of the new BC Act on 25 August 2017, the NSW Government released a new Biodiversity Assessment Method, replacing the BBAM used for this Project. As a result, the credit requirements for this Project require conversion to reasonably equivalent biodiversity credits under the BC Act to facilitate retirement under the new legislation. The Department has included a note in the conditions accordingly. OEH has developed a calculator to assist with this conversion.

Similarly, the NSW Government has also released its new Biodiversity Offsets Scheme which essentially replaces the previous *NSW Biodiversity Offset Policy for Major Projects*. With the new scheme in place, the Department sees no reason to condition how Bloomfield would satisfy its offset obligations, other than by making reference to the Scheme. Bloomfield has demonstrated that it can achieve the necessary offset obligations (as outlined above). The Department also considers that the Project's biodiversity offset strategy should be adaptive and sufficiently flexible to fit within the parameters of the Scheme and would be described in detail in the Project's Biodiversity Management Plan.

2.6.3 Squirrel Glider Habitat

A number of public submissions raised concerns over the Project's potential impacts on threatened fauna species, particularly the Squirrel Glider. Squirrel Glider is the only threatened fauna species that was recorded within the Project area during the targeted surveys undertaken for the EIS. The Department's PAR requested that Bloomfield clarify the proposed disturbance area of potential Squirrel Glider habitat. Bloomfield clarified this directly with the IPC on 13 June 2018 and confirmed that 18.7 ha of potential Squirrel Glider habitat would be removed. The Department notes that this area has been further reduced to 16.02 ha under Option 2. As discussed in Section 6.5.3 of the PAR, these potential habitat impacts would be sufficiently offset as part of the ecosystem credit requirements and therefore additional species credits are not required.

Nevertheless, the Department has recommended conditions to ensure that Bloomfield undertakes pre-clearance surveys to identify threatened species and their habitats prior to clearing and to safely relocate/translocate them to reduce impacts. Bloomfield would also be required to introduce naturally scarce fauna habitat features such as nest boxes and salvaged tree hollows and promote the use of these features by threatened fauna species such as the Squirrel Glider. These activities would be detailed in the Project's Biodiversity Management Plan.

2.6.4 Proposed Cut and Cover Tunnel

In finalising its assessment of the Project, the Department identified that Bloomfield had not adequately assessed the potential disturbance area (<0.5 ha) for the proposed cut and cover tunnel. The subject area was previously identified as 'rehabilitation' (ie already disturbed), however it is now evident that this area was only subject to minor landscaping activities rather than major mining-related rehabilitation. As such, it is likely to retain some biodiversity value (albeit minimal) that should still be considered under this Project.

While this is a relatively small area of additional disturbance, the Department has recommended conditions to ensure that this area is assessed for biodiversity and Aboriginal cultural heritage prior to commencing construction of the proposed cut and cover tunnel. If the biodiversity assessment identifies that biodiversity credits are required

to offset the associated impacts, then Bloomfield must also retire these credits to the satisfaction of OEH prior to commencing construction of the tunnel. Similarly, if the Aboriginal cultural heritage assessment identifies any Aboriginal objects within this disturbance area, then Bloomfield must address these in its ACHMP, which must be prepared in consultation with OEH.

2.6.5 Biodiversity Conditions

The Department has recommended comprehensive biodiversity management conditions to ensure that Bloomfield satisfies its offset obligations in a timely manner and minimises biodiversity impacts on the site. Bloomfield would be required to prepare and implement a detailed Biodiversity Management Plan that describes management and mitigation measures to be undertaken within the approved disturbance areas and across the site. Subject to these conditions, the Department and OEH consider that the biodiversity impacts of the Project are acceptable.

2.7 Economic Impacts

The Commission made three recommendations related to economic impacts, regarding the Project's economic impact assessment's base case assumptions, sensitivity analysis and downside scenarios considered in the cost benefit analysis (CBA). These recommendations have been considered in detail below.

Recommendation 20

That the Applicant provide further information in relation to how it has determined its "base case" financial parameters, including the assumptions relating to commodity price and exchange rate forecasts, and references to other available commodity price and exchange rate forecasts.

Recommendation 21

That the Applicant provide a more detailed discussion of the likelihood and range of feasible alternatives to the "base case" referred to above, including, but not limited to its selection of the downside coal price scenario of 25% and the World Bank commodity price scenario.

Recommendation 22

That the Applicant provide further information (including relevant risk minimisation strategies) in relation to how it has considered severe downside scenarios (including, but not limited to, the World Bank commodity price scenario), in accordance with the *Guideline for the Use of Cost Benefit Analysis in Mining and Coal Seam Gas Proposals 2012* and accompanying Technical Notes.

Summary of Response

Bloomfield provided an addendum report to the 2018 Economic Assessment (EA), prepared by KPMG (see Appendix J of the Applicant's Response Report). This report clarified that the same financial parameters had been used in the base case and the Project case, provided additional background on the coal price assumptions and AUD/USD exchange rate used in that EA, included additional sensitivity analysis of severe downside risks and elaborated on Bloomfield's corporate risk minimisation strategies.

This additional information demonstrates that the Bloomfield has considered significant downside parameters. While this is ultimately a matter for Bloomfield, the additional analysis demonstrates that the Project would remain economically viable under downside coal price and exchange rate scenarios and Bloomfield has in place sufficient risk mitigation strategies to withstand these scenarios. The Department remains of the view that the Project would generate significant economic benefits to the NSW community and would contribute to employment and expenditure in both the local and regional economies.

In March 2018, Bloomfield provided an updated economic assessment (EA 2018) which accounted for changes made to the Project's capital expenditure, employment generation, production profile, air quality and GHGE estimates. The EA 2018 also included updated assumptions regarding coal prices, foreign exchange rates and operating costs as the original assumptions dated largely from 2014. The EA 2018 estimated that the Project would

result in an overall benefit for the NSW community of $272.1 million net present value (NPV). This benefit included $104.3 million in royalties, $116.9 million in wage premium and $50.9 million in company tax attributable to NSW.

Under the worst-case assumptions provided in the EA 2018 and the independent expert review undertaken for the Department by the Centre the International Economics (CIE), the Department considered that the Project would generate a minimum net benefit to the NSW community of approximately $120 million NPV. This was based on CIE's higher estimate of environmental costs of $26.6 million, reduced royalties of $99.5 million based on allowable deductions for coal washing, and a zero-wage premium. Because of the differing CBA estimates, the Department recommended in its PAR that Bloomfield provide further information on the quantum of benefits to reduce this uncertainty.

In its review, the Commission also raised concerns over Bloomfield's CBA. The Commission stated in its Review Report that it was not satisfied that the economic assessment had adequately considered a range of high impact but low probability (ie downside) scenarios nor transparently disclosed or justified the financial parameters of its base case. The Commission's three recommendations seek to clarify these matters.

In its response, Bloomfield provided an addendum report to the 2018 EA prepared by KPMG (see Appendix J of the Applicant's Response Report). Firstly, this addendum report clarified that the same financial parameters were used in both the base case (ie if the Project did not proceed) and the Project case, to ensure adequate comparison.

Secondly, this addendum report provided additional background on the coal price assumptions and AUD/USD exchange rate used in the 2018 EA. Bloomfield explained that it relied on Macquarie Bank's forecast coal prices largely because they better reflect the export coal products produced at Rix's Creek (high-quality thermal coal and semi-soft coking coal) and have a strong historic correlation with actual coal prices. These Macquarie Bank forecasts are notably higher than both the World Bank and International Monetary Fund (IMF) forecasts for Australian export thermal coal. For example, the World Bank long-term coal price forecast is approximately 20% lower than Macquarie Bank's long-term thermal coal forecast and approximately 45% lower than Macquarie Bank's long-term semi-soft coking coal forecast.

Because of the variations in coal price forecasts, the 2018 EA used the lower World Bank and IMF forecasts in its sensitivity analysis (see Section 3.4 of that report). The 2018 EA also used Macquarie Bank's AUD/USD exchange rate of 0.75 and the sensitivity analysis considered +/- 1000 basis points variations in the exchange rate (ie a high of 0.85 and a low of 0.65). The purpose of a sensitivity analysis is to assess the sensitivity of the CBA to changes in key assumptions to quantify the best and worst outcomes based on upside and downside risks. The 2018 EA's sensitivity analysis found that the Project would still be economically viable (ie result in positive Project NPV) under the lowest World Bank coal price assumptions or the higher +1000 basis points exchange rate assumption. It should be noted, however that these scenarios were not run simultaneously, each scenario was run by varying a single parameter, holding all other parameters constant.

Thirdly, to address the Commission's comments over severe downside risk, the addendum report included additional sensitivity analysis of simultaneous changes in multiple key parameters, such as 15% higher costs and 25% lower gross mining revenue. This analysis found that the Project would still generate a minimum overall Project benefit of $130 million NPV under the worst-case dual scenario. To show just how sensitive the Project would be to coal price and exchange rate fluctuations, the addendum report also looked at what these parameters would need to be to result in a Project NPV of zero. For example, coal prices would need to be 8.6% below the World Bank forecast and the AUD/USD exchange rate would need to rise to 1.27 (increase by 52 basis points) for the Project NPV to be zero. Whilst the likelihood of this severe downside scenario was not estimated, the addendum report asserts that the risk is low because:

- there remains a strong demand from Asian markets for product coal from Rix's Creek;

- most of Bloomfield's coal is sold via long-term contracts which would be less sensitive to short-term or spot market price fluctuations and Bloomfield has strong commercial relationships; and
- these levels of change are generally outside the range of historical fluctuations. Because there is a strong correlation (0.81) between historic coal prices and the AUD/USD exchange rate, it is unlikely for prices to drop and for the exchange rate to rise simultaneously.

Bloomfield further elaborated on its corporate risk minimisation strategies, which include:

- setting aside prudent cash reserves in financially profitable or stable economic periods;
- debt avoidance and conservative working capital management;
- capital rationing (or freezing);
- targeting lower than average strip ratio mining areas when AUD received coal prices fall below a sustainable level and, conversely, mining higher ratio areas when prices rebound; and
- taking advantage of the cyclical nature of pressures in the mining sector to renegotiate with the broader supply chain.

The Department considers that this additional information demonstrates that Bloomfield has appropriately considered severe downside parameters, that the Project would remain economically viable under severe downside coal price and exchange rate scenarios, and that Bloomfield has in place sufficient risk mitigation strategies to withstand these scenarios. From the perspective of benefit to the NSW community, the Department notes that that even a Project NPV of zero would still deliver a minimum benefit for the NSW community of $37 million NPV, largely from coal royalties which are calculated based on revenue rather than profit.

The Department also notes that DRG has not raised any concerns over the additional information provided. In conclusion, the Department remains of the view that the Project would generate significant economic benefits to the NSW community and would contribute to employment and expenditure in both the local and regional economies.

2.8 Historic Heritage

The Commission made four recommendations related to historic heritage impacts, all relating to opportunities to manage and minimise impacts on the Coke Ovens. These recommendations have been considered below.

Recommendation 23

That the Applicant prepare a HHMP to provide the Applicant with further opportunities to minimise impacts on the Coke Ovens.

Recommendation 24

That the Applicant's HHMP include an evaluation of the options available to minimise the impact of any tree roots on the integrity of the Coke Ovens.

Recommendation 25

That the HHMP identify what additional research should be undertaken regarding the Coke Ovens to determine whether salvage and recording is necessary and/or possible.

Recommendation 26

That the Applicant's HHMP and Rehabilitation Strategy detail how the Coke Ovens will be better accessed by the public given the historical significance of the site and provide options on how the site can be managed throughout the life of the Project and beyond mine closure.

Summary of Response

Bloomfield has committed to preparing a HHMP for the Coke Ovens and to address each of the IPC's recommendations in this plan. The Department accepts this approach and has prepared strict blast and heritage management conditions, in consultation with OEH's Heritage Division, to ensure that the Coke Ovens are managed and protected over the long-term.

The Coke Ovens represent historical evidence of early mining operations in the Hunter Valley. Dating back to the 1880s, the Coke Ovens and nearby mining operations were a key source of work for local residents. The Coke Ovens are considered historically significant because their beehive type structure was important in the early industrial development of NSW and the site provides a material record of the complete operation of a small coke-works. The Statement of Significance in Appendix T of the EIS states that:

> *"The Rixs Creek Coke Ovens & Associated Works have local and State significance for their historical links, research potential, rarity and representativeness. As example of an early mining related activity in the Rixs Creek area, it provides material evidence of the development of industrial development and coke manufacturing processes. It is one of five locally listed coke ovens in NSW, but is the only one listed with its design type, place and period of use. This item demonstrates the principal characteristics of a coke oven site, also having subsurface archaeological potential due to the associated works that surrounded the coke ovens during their period of operation."*

As discussed in **Section 2.2.6** above, the Coke Ovens have the potential to be indirectly impacted by ground vibration from Project-related blasting activities. Bloomfield has committed to investigating ways to minimise potential blasting impacts as well as exploring ways to preserve and maintain the site, considering other potential impacts such as vegetation growth, weathering and erosion. In addition to the monitoring and management measures proposed under the BMP, Bloomfield has committed to preparing a HHMP for the site that would further describe the mitigation and management measures to preserve historic heritage values. Bloomfield has already engaged a structural engineer who specialises in conservation of historical structures to prepare this plan. Within this plan, Bloomfield has committed to including:

- a research program to evaluate further options to improve the integrity of the Coke Ovens, such as by removing encroaching tree roots;
- a research program to determine potential for salvage and recording of some or all components of the Coke Ovens; and
- reviewing potential ways to provide public access to the Coke Ovens, following mine closure.

The Department recognises the significance of the Coke Ovens and the importance of protecting this heritage site and has therefore recommended conditions based on the IPC's recommendations, Bloomfield's commitments, and advice from OEH's Heritage Division. The Department has recommended that Bloomfield prepare a HHMP for the Project which includes specific conservation measures for the Coke Ovens to:

- minimise impacts of the development and to improve the integrity of the Coke Ovens;
- identify if there is any association with other nearby heritage items (ie the 'Mound with Historic Material' and the 'Linear Embankment');
- ensure full recording of the Coke Ovens;
- provide public access; and
- manage the Coke Ovens over the life of the development and post-mining.

Subject to these conditions and the proposed blast-specific conditions, the Department considers that appropriate mitigation and management measures would be implemented to ensure that the Coke Ovens are managed and protected over the long-term.

3. Other Matters

3.1 Aboriginal Cultural Heritage

Aboriginal cultural heritage impacts were not directly considered in Bloomfield's Western OEA study (see **Section 2.4**); however, it is important to recognise that there would be less impact on Aboriginal cultural heritage as a result of pursuing Option 2. Sites 37-6-3847 (RCAS11) and 37-6-3860 (RCIA8) would no longer be disturbed, reducing the sites to be disturbed from 16 to 14. These remaining 14 sites, along with two additional sites within the approved disturbance footprint near Dead Mans Gully, would be salvaged prior to disturbance. Bloomfield has also committed to undertaking further archaeological excavations at two sites holding moderate significance, prior to salvage in consultation with representatives of the Aboriginal community (see **Figure 10**).

The Department has recommended detailed Aboriginal cultural heritage management conditions to allow for effective management of these known sites and the mitigation of any future impacts on Aboriginal cultural heritage. As discussed in **Section 2.6.4**, the Department has also recommended conditions to ensure that any additional surface disturbance required for the proposed cut and cover tunnel is surveyed for Aboriginal objects prior to commencing construction. With these conditions in place, the Department and OEH remain of the view that the Project's impacts on Aboriginal cultural heritage are minor and acceptable.

3.2 Planning Agreement

VPAs are commonly used in conjunction with mining developments to provide for or fund a public purpose, such as public amenities, services or infrastructure. The Department supports the use of VPAs to provide community benefits to contribute towards current and future local community needs.

Bloomfield has committed to entering into a VPA with Council, which would include contributions towards maintaining or improving local facilities and services. Bloomfield's EIS identified the Alroy Oval and the Singleton Heights Sports Centre as local facilities potentially in need of funding for upgrades. However, the Department understands that more recent discussions between Bloomfield and Council led to an agreement that the contributions would be better placed in the Singleton Community and Economic Development Fund. This fund is used towards facilitating the future security, prosperity and wellbeing of the shire's community by investing in community enhancement proposals and strategies to support post-mining development and diversification.

Following successful discussions between Bloomfield and Council over the size and use of the proposed contributions, Bloomfield provided Council with a draft VPA on 27 June 2018. The terms of the draft VPA included a contribution of $432,000 to the Singleton Community and Economic Development Fund. The Department notes that this amount equates to 0.99% of the capital investment value (CIV) of the Project and therefore aligns with Council's November 2017 resolution to calculate mine-related development contributions based on a basis of either cents per tonne or 1% CIV. Council advised on 21 March 2019 that it had reached in principle agreement with Bloomfield over the proposed VPA.

The Department considers that the proposed development contributions are reasonable in terms of quantum and use and has therefore recommended a condition requiring Bloomfield to finalise the VPA with Council within 6 months of commencement of development under SSD 6300.

3.3 Integration with Rix's Creek North

The Department recognises that Bloomfield operates the Rix's Creek South Mine in conjunction with its neighbouring Rix's Creek North Mine and that this would continue if the Project is approved. The Department

Figure 10 | Identified heritage sites

supports this approach and recognises the operational efficiencies and environmental management benefits that can accrue from this integrated management. The Department has therefore recommended conditions that would allow Bloomfield to:

- transfer ROM coal between the two operations to enable coal to be processed at either CHPP;
- integrate the water management systems of the two sites and share water between them;

- combine management strategies, plans or programs across the two sites; and
- operate a joint CCC.

The Department also recognises that integrated management and mine planning would provide opportunities for Bloomfield to minimise cumulative impacts, integrate final landforms and improve rehabilitation outcomes.

3.4 Greenhouse Gas Emissions

The Department recognises that coal mines are large initiators and progenitors of greenhouse gas emissions, whether these are Scope 1 and Scope 2 emissions released during mining and processing of ROM coal or downstream Scope 3 emissions released during the transportation and combustion of product coal either in Australia or overseas. The Department also recognises the importance of reducing these emissions to limit continued climate change. The Department notes that the Commission did not raise any concerns over Bloomfield's assessment of or the Department consideration of GHGEs. However, since this time, GHGEs have attracted additional attention following the Land and Environment Court's (LEC's) recent judgment of 8 February 2019 concerning the Rocky Hill Coal Project merit appeal (*Gloucester Resources Limits vs Minister for Planning [2019] NSWLEC 7*) (Rocky Hill appeal). For this reason, the Department has further addressed and summarised its consideration of GHGEs below.

The Project EIS included an assessment of GHGEs (see its Appendix L). This assessment estimated that, over the 21-year mine life, the Project would generate a total of 823,790 tonnes (t) carbon dioxide equivalent (CO_2-e) of Scope 1 emissions, 167,485 t CO_2-e of Scope 2 emissions and 71.452 Mt CO_2-e of Scope 3 emissions. Annually, this equates to an average of 0.047 Mt CO_2-e of Scope 1 and 2 emissions, which is approximately 0.009%[2] of Australia's annual emissions and 0.011% of Australia's 2030 commitment[3] under the 2015 Paris Agreement.

The EA 2018 also included an assessment of the associated environmental costs of GHGEs, undertaken in accordance with the Department's *Guidelines for the economic assessment of mining and coal seam gas proposals*. This assessment estimated that the cost of Scope 1 and 2 GHGEs from the Project would be $4.7 million present value (PV). These costs did not significantly affect the outcomes of Bloomfield's CBA, which estimated that the Project would generate an overall net benefit of approximately $270 million NPV to NSW. The Department's PAR (see Section 6.7.2) relied on a GHGE cost estimate of $6.3 million PV from the former March 2017 EA. Even this more conservative estimate would not significantly influence the overall CBA outcomes, which the Department considered, at a minimum, would deliver an overall net benefit of $120 million NPV to NSW.

On 2 April 2019, Bloomfield provided the Department with additional information on potential direct and indirect impacts of GHGEs associated with the Project. This information included an overview of GHGE assessments completed to date and additional consideration of these impacts relative to the current policy framework, including further consideration of its customers' national commitments to reduce GHGEs.

Bloomfield exports all its product coal, primarily to long-standing customers in Japan, Taiwan and the Republic of Korea (South Korea). Both Japan and South Korea are signatories to the Paris Agreement and have developed GHGE reduction targets. While not a signatory to the Paris Agreement, Taiwan has also developed GHGE reduction targets, enforced under its *Greenhouse Gas Reduction and Management Act*.

2 Based on the Commonwealth Department of Environment and Energy's latest quarterly report, Quarterly Update of Australia's National Greenhouse Gas Inventory for September 2018, Australia's national inventory is currently estimated to be 536.0 Mt CO2-e.

3 Under the United Nations Framework Convention on Climate Change Paris Agreement, the Australian Government committed to a nationally determined contribution (NDC) to reduce national emissions by between 26 and 28 percent from 2005 levels by 2030. Based on the September 2018 Quarterly Update, a 26% reduction would equate to approximately 447.5 Mt CO2-e.

Bloomfield states that its metallurgical coal customers have advised that demand for coal for steel manufacturing would continue for at least the proposed term of the Project. Similarly, Bloomfield's thermal coal customers have indicated that demand for thermal coal is predicted to continue and even increase as older coal-fired power plants are replaced by new Ultra Super Critical power plants.

Bloomfield argues that, if this demand was met by an alternate source producing equivalent coal volumes of identical quality to Rix's Creek coal, there would be no net increase in global emissions.

Overall Bloomfield considers that the Project is not inconsistent with the climate change policies either of the Australian or NSW Governments; the impacts of its direct GHGEs to Australia and NSW are negligible; and GHGEs resulting from consumption of the Project's product coal is accounted for within the reduction targets set by Japan, South Korea and Taiwan.

The Department has carefully considered GHGEs, from both an environmental and economic perspective, in accordance with clause 14 of the Mining SEPP and the requirements and objects of the EP&A Act. Subclause 14(1) of the Mining SEPP requires the consent authority to consider whether conditions should be attached to consents to ensure that the development is undertaken in an environmentally responsible manner, including conditions to ensure that GHGEs are minimised to the greatest extent practicable. Under subclause 14(2), the consent authority, in determining a development application, must also consider an assessment of GHGEs (including downstream emissions) from the development, and must do so having regard to any applicable State or national policies, programs or guidelines concerning GHGEs.

Under the 2015 Paris Agreement, the Australian Government made a commitment to reduce national GHGEs by between 26 and 28 percent from 2005 levels by 2030. Australia has committed to meeting this target through initiatives that focus on expanding renewable energy sources, supporting low emissions technologies, improving energy efficiencies and incentivising companies to reduce their emissions without compromising economic growth and driving up energy prices.

The NSW Climate Change Policy Framework (CCPF) outlines the State's long-term aspirational objectives of achieving net-zero emissions by 2050 and making NSW more resilient to a changing climate through implementing emissions saving policies that are in the public interest and consistent with and compliment national actions. It is important to note that the CCPF does not set any prescriptive emission reduction criteria, targets, or other outcomes that have application to the private sector or to development assessment and control. The CCPF seeks to manage decisions made by the NSW Government in relation to government assets and services.

In conclusion, the Department remains of the view that the Project's GHGEs have been adequately considered and that these emissions are acceptable, particularly when weighed against the socio-economic benefits of the Project. The Project represents a continuation of existing mining operations. Therefore, this brownfield expansion would not notably add to Australia's annual contributions. Even if the Paris Agreement or the CCPF was considered applicable, the Department considers that this Project is unlikely to prevent Australia and NSW from achieving its emissions reduction commitments. The Department is also satisfied that it has adequately considered Scope 3 emissions and that these emissions would be further accounted for in the consumers' NDCs. Further, refusal of the Project would be unlikely to assist in reducing global GHGEs because the supply gap would most likely be readily filled by another coal supplier. There is no shortage of coal producers and consumers in the world and coal supply is therefore a very active and competitive market.

The Department recognises the importance of requiring Bloomfield to continue to investigate opportunities to reduce its Scope 1 and 2 GHGEs over the life of the mine and has therefore recommended a condition requiring Bloomfield to take all reasonable steps to improve energy efficiency and to reduce the Project's GHGEs. Bloomfield would be required to detail these measures in its AQGGMP and report on GHGEs in Annual Reviews.

With these conditions in place, the Department considers that the Project's GHGEs would be satisfactorily minimised and appropriately managed.

4. Recommended Conditions

In making its recommendations to the Commission, the Department has drafted recommended conditions of consent (see **Appendix C**) that reflect the Commission's review recommendations, the Applicant's Response Report, the Department's preliminary and final assessment reports, public submissions, advice from Government agencies and final comments received from Bloomfield.

The Department considers that these recommended conditions reflect best practice and provide a clear framework for the environmental management of the site. The Department considers that these recommended conditions are reasonable and achievable and would provide an appropriate level of protection to ensure that the Project can be undertaken in an environmentally sustainable manner.

In addition, the Department has endeavoured to carry over all significant outstanding obligations, ongoing commitments and project-specific conditions from DA 49/94 to the recommended conditions of consent, in order to ensure that Bloomfield retains responsibility for all previously imposed but not-yet-completed requirements. This would enable DA 49/94 to be surrendered following commencement of the new consent.

Bloomfield has reviewed and accepted the recommended conditions of consent.

4.1 Structure of Conditions

The recommended conditions of consent are divided into five parts:

- Part A – Administrative Conditions; including conditions that set out the key obligations and limits of the consent;
- Part B – Specific Environmental Conditions; including strict performance measures and standards, operating and management conditions for noise, blasting, air quality, water, biodiversity, historic heritage, Aboriginal cultural heritage, visual amenity, waste, dangerous goods, bushfire management, rehabilitation, social impacts and transportation;
- Part C – Construction Specific Environmental Conditions; including specific operating and management conditions for the proposed cut and cover tunnel under the New England Highway;
- Part D – Additional Procedures; including procedures for notifying and engaging with landowners/tenants potentially impacted by the Project, such as procedures for acquisition and mitigation on request; and
- Part E – Environmental Management, Reporting and Auditing; including overarching requirements for environmental management; incident and non-compliance notifications; annual reporting; independent audits; monitoring; and public access to information.

Parts A, D and E are based on the Department's indicative standard (ie template) administrative and reporting conditions for State significant development, which were first released in August 2018 and have been subsequently been updated in a number of minor aspects.

5. Conclusion

The Department has carefully considered all recommendations in the Commission's Review Report, the Applicant's Response Report and additional information provided by Bloomfield and advice from key Government agencies. Additionally, the Department has consulted with Bloomfield and key Government agencies regarding the recommended conditions of consent in **Appendix C**.

The Department considers that Bloomfield has addressed all of the Commission's recommendations in its Response Report, including revising its mine plan (ie Option 2) to improve environmental outcomes. The Department also considers that all residual assessment issues have been resolved or can otherwise be conditioned. The Department considers that its assessment process has been detailed, extensive and informed by community views, relevant agency input and technical experts. The Department is therefore confident that its preliminary and final assessment reports together provide a robust assessment of the merits of the Project.

The Department considers that the Project is a logical and strategic brownfield extension of the existing open cut mining operations at Rix's Creek South Mine. The Project would recover a significant additional coal resource with fewer environmental impacts than would be expected from an equivalent greenfield project. The Department considers that the proposed management, mitigation and offset measures would appropriately minimise and compensate for the residual adverse social, environmental and economic impacts of the Project. The Project would provide substantial social and economic benefits to the local community and the Department considers that it would deliver a net benefit to the State.

The Department considers that its recommended conditions provide a comprehensive, contemporary and precautionary approach to the regulation and management of the Project. These conditions require appropriate and strict compliance with relevant performance measures and standards to ensure that the Project's impacts are effectively mitigated. The Department considers that these conditions represent current best practice for regulating open cut coal mines in NSW. These conditions also provide a high level of protection for the environment and the amenity of the local community and promote the orderly development of the State's significant coal resources.

The Department considers that the benefits of the Project outweigh its residual costs and considers that the Project is in the public interest and is approvable, subject to strict conditions of consent.

6. Recommendation

Following its final assessment of the Project, the Department of Planning and Environment considers that the development application (SSD 6300) is approvable, subject to the conditions outlined in **Appendix C**.

This final assessment report is hereby presented to the Independent Planning Commission for determination of the development application.

Recommended by:

Howard Reed
Director
Resource Assessments

19.6.19

Recommended by:

Mike Young
A/Executive Director
Resource Assessments & Compliance

19.6.19

Appendix A – Applicant's Response to the Commission's Review

Refer to the Department's website:

http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=6300

Appendix B – Agency Advice on Applicant's Response Report and Draft Conditions

Refer to the Department's website:

http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=6300

Appendix C – Recommended Conditions

Refer to the Department's website:

http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=6300