

WAMBO COAL PTY LIMITED



SOUTH BATES EXTENSION UNDERGROUND MINE

EXTRACTION PLAN LONGWALLS 21 TO 24

ATTACHMENT 2 RELEVANT CONSULTATION RECORDS

Peabody

Nicole Dobbins
Senior Environmental Advisor
Wambo Coal Pty Ltd
PMB 1
Singleton NSW 2330

1 April 2021

Dear Ms Dobbins

**Wambo Underground Coal Mine (DA 305-7-2003-i)
Extraction Plan for Longwalls 21 to 24**

I refer to the Extraction Plan for Longwalls (LWs) 21 to 24, which has been prepared in accordance with condition B7 of Schedule 2 of the above development consent and revised to address the Department's comments dated 15 January 2021, to include a revised mining schedule, and to include a number of recently approved supplementary management plans.

The Department has carefully reviewed the Extraction Plan (including its various sub-plans) and is satisfied that it addresses the relevant requirements of the development consent (see **Attachment A**).

Accordingly, the Secretary has approved the Extraction Plan (Revision B, dated January 2021), subject to the following administrative amendments:

- The fourth paragraph on page 26 of the Extraction Plan requires re-wording and states incorrect water volumes for seepage from North Wambo Creek into the underground workings. This same information is presented in paragraph 8 on page 17 of the approved Water Management Plan that forms Appendix A of the Extraction Plan. Please amend as per the email sent to the Department on 31 March 2021.
- The third paragraph on page 27 states that mitigation measures to manage predicted subsidence impacts on North Wambo Creek are summarised in Section 5. However, Section 5 of the EP is the reference section. Section 3.1 summarises water management. Please check all cross references within the EP and update where required prior to issuing the final version of the document.
- On page 36 of the main EP, update references to the Water Management Plan to reflect the currently approved version of the document.
- Include a copy of the MEG (formerly DRG) letter regarding LWs 21 to 24 in Attachment 2 to the EP.

Please forward a final version of the Extraction Plan, incorporating the above amendments, to the Department by **Tuesday 6 April 2021**. The final version of the approved plan should also be placed on the project website as soon as possible.

If you wish to discuss the matter further, please contact Sarah Clibborn on 8837 6095.

Yours sincerely



Lauren Evans
A/Director
Resource Assessments

as nominee of the Planning Secretary

ATTACHMENT A

Consideration of Approval of Extraction Plan for Longwalls 21 to 24

1. As required by condition B7 of the development consent for Wambo Underground Coal Mine (DA 305-7-2003-i), the Extraction Plan (EP) for Longwalls (LW) 21 to 24 consists of an overarching document that describes the proposed mining operations, technical reports and a series of specialist management plans (MPs) including a:
 - Water MP;
 - Land Management MP;
 - Biodiversity MP;
 - Heritage MP;
 - Built Features MP;
 - Public Safety MP;
 - Coal Resource Recovery Plan;
 - Subsidence Monitoring Plan; and
 - Rehabilitation MP.

The EP was submitted by Wambo Coal Pty Ltd (WCPL), a subsidiary of Peabody. The EP was prepared by suitably qualified experts appointed by the Planning Secretary.

2. Many of these MPs have only minor changes from when they were reviewed in June 2019 as part of the Extraction Plan approval process for LWs 17 to 20.
3. In July 2020, the Department sought advice on the draft EP from seven government agencies. Responses from six agencies were received.
4. BCD provided minor comments on the Biodiversity MP which were addressed in a revised version of the Extraction Plan.
5. MEG advised that it was satisfied with the information provided in the Coal Resource Recovery Plan and that the extraction of LWs 21 to 24 would provide an appropriate return to NSW.
6. Heritage NSW advised that it was satisfied that the management measures proposed are adequate and appropriate given the nature of the archaeological record and the range of activities to be undertaken within the operational footprint of the mine.
7. SA NSW advised that it has no comments as the EP indicated that subsidence impacts would be in accordance with the development consent and the application area is located within Wambo mine owned land.
8. The Resource Regulator advised that it had no comment to make in relation to this Extraction Plan.
9. The Natural Resource Access Regulator (NRAR) advised that it had no comment to make in relation to the EP. NRAR also noted that they were in the process of coordinating a response from the Department of Planning Industry and Environment Water branch (DPIE Water). Advice from DPIE Water will be forwarded to WCPL upon receipt.
10. The Planning Secretary approved a reduction in length for LW 19 on 13 November 2019 and LW 20 on 15 April 2020 due to the interception of a previously unidentified geological feature.
11. WCPL propose to commence extraction of LW 21 on 30 March 2021.
12. The extraction of LWs 21 to 24 would recover approximately 6.6 million tonnes of run-of-mine coal from the Whybrow Seam.
13. LWs 21 to 24 would be 261 m wide, with chain pillars between 21 m and 37.2 m wide and lengths ranging from 1505 m to 1870 m. The height of mining is expected to range between 2.3 m and 3.0 m, with a depth of cover ranging between 60 m and 290 m.

14. The subsidence predictions for LWs 21 to 24 are summarised below in **Table 1**. These predictions are equal to or less than those approved under DA 305-7-2003 and its subsequent modifications.

Table 1: Maximum Predicted Total Subsidence, Tilt and Curvatures for Longwalls 21 to 24

Longwalls	Depth of Cover to the Whybrow Seam (m)	Subsidence (mm)	Tilt (mm/m)	Hogging Curvature (km ⁻¹)	Sagging Curvature (km ⁻¹)
Longwall 21	60 to 280	1,750	70	> 3.0	> 3.0
Longwall 22	60 to 290	1,850	80	> 3.0	> 3.0
Longwall 23	70 to 290	1,850	75	> 3.0	> 3.0
Longwall 24	65 to 220	1,850	80	> 3.0	> 3.0
Cumulative Subsidence	60 to 290	1,950	85	> 3.0	> 3.0

15. Key surface features overlying LWs 21 to 24 are shown in **Figure 1**.
16. Overall, it is predicted that direct subsidence impacts to areas above the previous finishing ends of LWs 17 to 24 will be reduced.
17. Longwalls 21 to 24 are adjacent to the Wollemi National Park and its escarpment (**Figure 2**). The subsidence assessment conducted by Mine Subsidence Engineering Consultants (MSEC, 2017) for the South Bates Extension Modification Environmental Assessment (MOD 17 EA) concluded that the cliffs associated with the escarpment were not expected to experience any conventional tilts, curvatures or strains. This is due to LWs 17 to 25 having been designed to remain outside the 26.5° angle of draw from the base of the Wollemi National Park escarpment, therefore mitigating subsidence risk. Vertical subsidence for the cliffs associated with the escarpment is predicted to be less than 20mm, which is consistent with the predictions presented in the EA. It is predicted that the resultant subsidence from the mining of these LWs would have negligible impacts and environmental consequences on the Wollemi National Park and escarpment.
18. Key biodiversity features with subsidence impact performance measures are shown in **Figure 3**.
19. The subsidence modelling for the previous layout of LWs 17 to 24 predicted increased ponding in some areas, with the potential to result in vegetation death. The subsidence modelling for the proposed layout of LWs 21 to 24 indicates that ponding will no longer occur in vegetated areas, and associated impacts on vegetation are therefore unlikely.
20. Changes to the grade of the North Wambo Creek Diversion are not predicted as a result of the proposed layout of LWs 21 to 24. It is no longer predicted that potential subsidence impacts could result in increased connectivity between the North Wambo Creek Diversion and the underground workings.
21. There is potential for there to be additional seepage from the natural North Wambo Creek to the underlying strata as a result of subsidence associated with LWs 21 to 24. The maximum predicted additional seepage is estimated to be up to 0.1ML/day. This is consistent with the predictions presented in the MOD 17 EA.
22. There is potential for a meander cutoff to develop across the finishing ends of LWs 23 and 24, as well as an increase in in-channel storage and ponding at the north-eastern ends of all Longwall panels. WCPL proposes to monitor this area following completion of subsidence of LWs 23 and 24 to identify areas requiring remediation.
23. Modelling suggests that overtopping of the existing drainage bund that overlies LWs 17-24 is now only likely to occur in one location, resulting in the need for only one batter chute to manage overland flows into the North Wambo Creek Diversion.
24. Minor changes to the predicted subsidence impacts on ephemeral drainage lines are predicted above LWs 21 to 24. Modelling suggests that there may be changes to the geometry of flow paths towards the North

Wambo Creek and Creek Diversion. Without appropriate mitigation measures, the streamlines above LW 23 may become discontinuous at the northern end of the panel, no longer meeting North Wambo Creek and resulting in ponding and erosion. The approved Water Management Plan and the Contingency Plan detail the measures that will be implemented to effectively monitor and manage these risks. These measures include regular visual inspections, post-subsidence assessment, and implementation of response plans and remediation works (for example, infilling cracks with soil, grouting, installation of geomembrane, re-compacting and regrading).

25. The potential impacts on Permian Aquifers that may result from extraction of LWs 21 to 24 are expected to be consistent with those presented in the MOD 17 EA.
26. A reduction in direct subsidence impacts to Open Artefact Site 231 is expected in comparison to the predicted impacts detailed in the MOD 17 EA. The predicted impacts on the remaining Aboriginal Cultural Heritage sites are expected to be consistent with those presented in the MOD 17 EA.
27. Predicted subsidence impacts on Historic Heritage sites are anticipated to be consistent with those presented in the MOD 17 EA.
28. Overall, it is considered that the EP satisfies the relevant requirements of the development consent and should be approved, subject to some minor administrative amendments as noted in the attached document review table included as **Attachment B**.

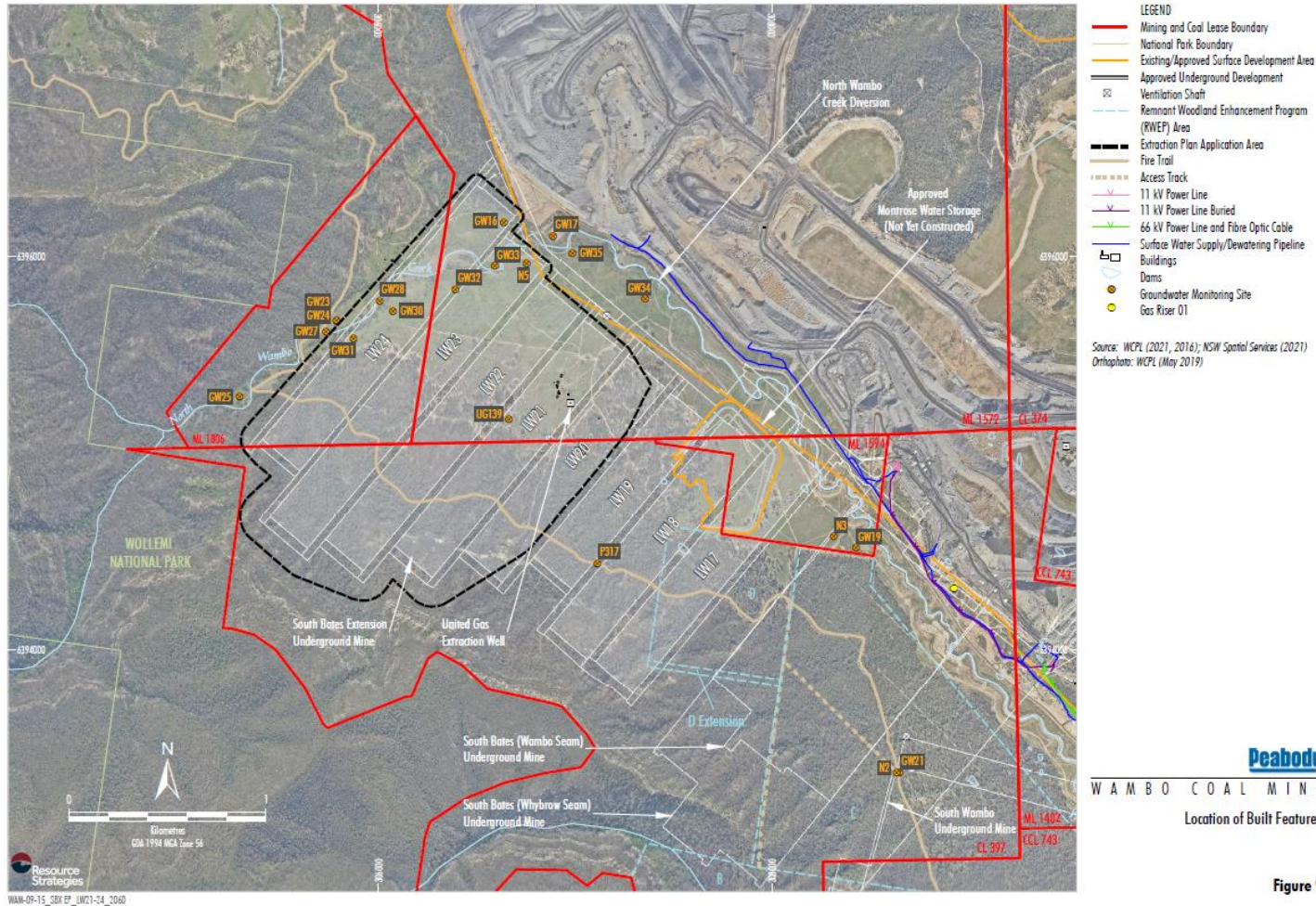


Figure 1 – Location of Built Features

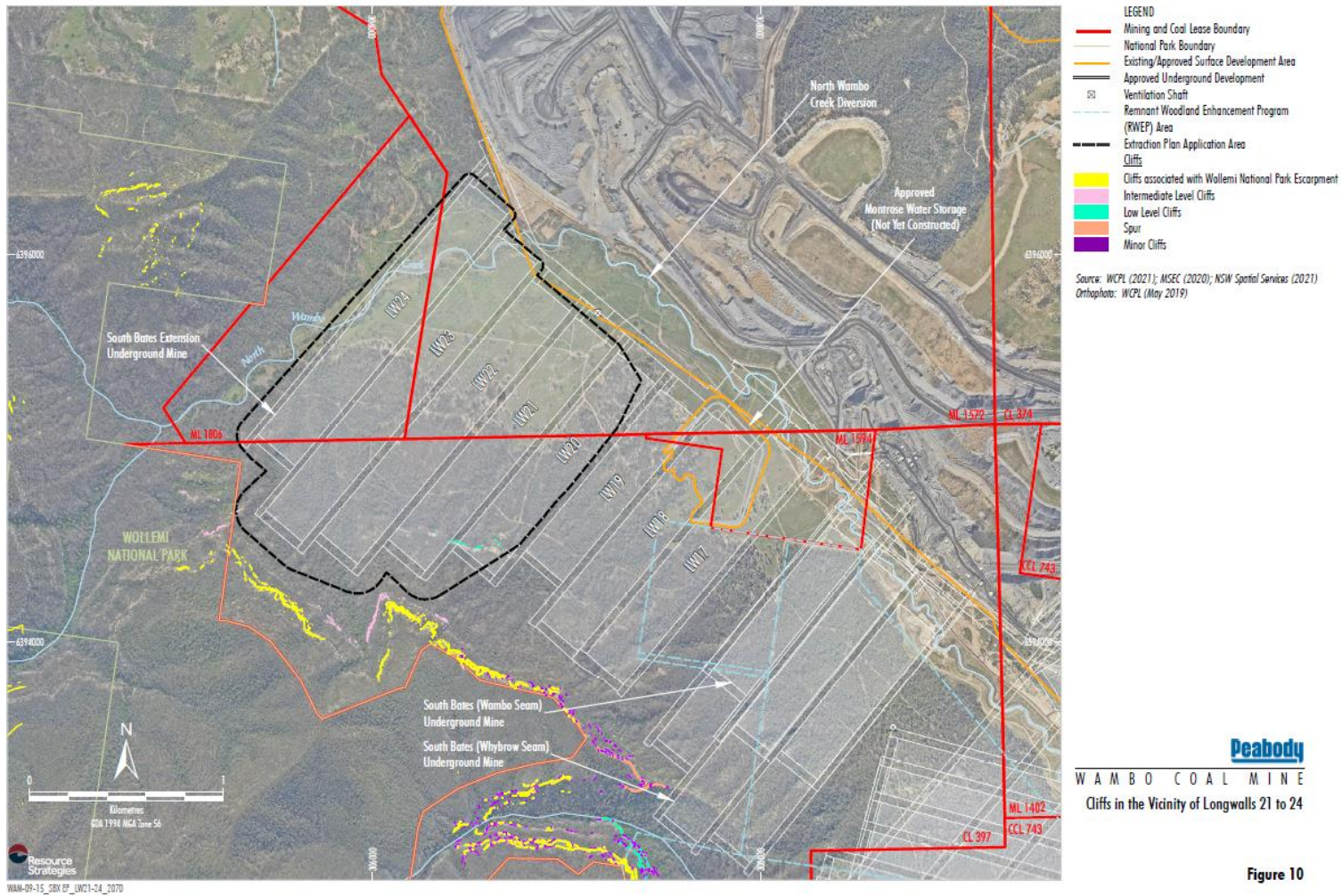


Figure 2 – Cliffs in the Vicinity of LWs 21 to 24

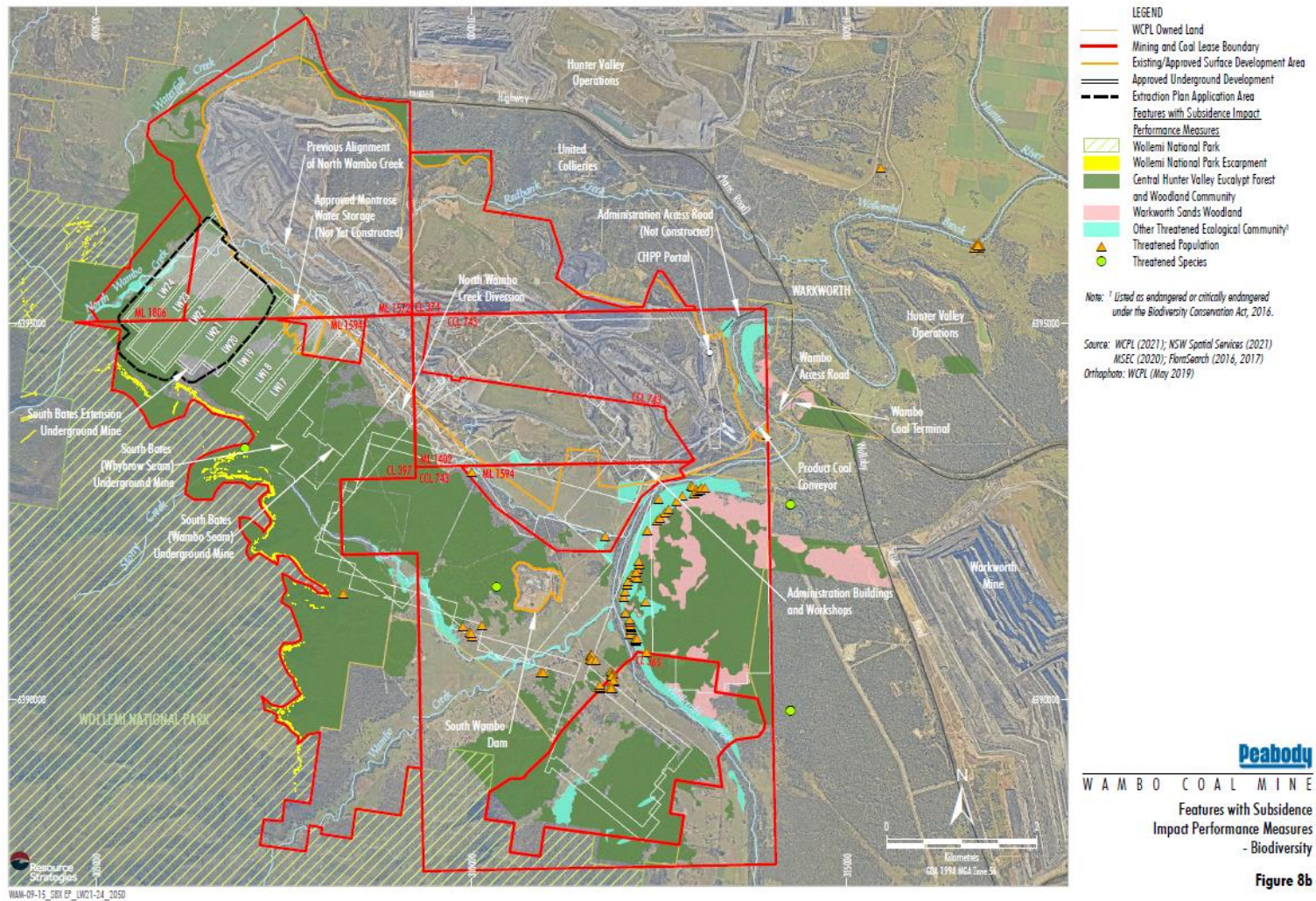


Figure 3 – Biodiversity Features

ATTACHMENT B

Wambo Coal Extraction Plan – Longwalls 21 – 24 dated January 2021 Review Completion Date: 25/3/2021 Reviewer/s: M. Hollis and S. Clibborn

Condition B7 of Schedule 2	Satisfactory (Yes/No)	Comment	Action Required
The Applicant must prepare an Extraction Plan for all second workings on the site to the satisfaction of the Planning Secretary. Each Extraction Plan must:	-	The Extraction Plan (EP) is considered a well-structured and written document, which includes good quality figures. The EP includes clear summaries of subsidence predictions, impacts, monitoring, management and performance measures.	Nil.
(a) be prepared by a suitably qualified and experienced person/s whose appointment has been endorsed by the Planning Secretary;	Yes	Section 1.1 indicates that the EP has been prepared by Wambo Coal Pty Ltd (WCPL) with assistance from six specialised sub-consultants endorsed by the Department of Planning, Industry & Environment (DPIE) (see letter dated 28/2/20 provided in Attachment 2).	Nil.
(b) include detailed plans of existing and proposed first and second workings and any associated surface development;	Yes	Figures 2, 3 and 6 in the main EP document provide general figures of the longwall layout. Figures 8a, 8b, 9 and 10 show the locations of surface features above this group of longwalls. More detailed figures comparing the proposed and existing workings, surface features, seam workings and geological sections are included in the Coal Resource Recovery Plan at Attachment G.	Nil.
(c) provide updated predictions of the potential subsidence effects, subsidence impacts and environmental consequences of the proposed mining covered by the Extraction Plan, incorporating any relevant information obtained since this consent;	Yes	Section 2.1 of the main EP document provides a summary of the revised subsidence predictions, impacts and environmental consequences of the longwall layout for, Longwalls 21 to 24, including a summary of comparisons with the previous predictions. Updated predictions are also provided in Technical Reports 1 to 4. Figure 7 depicts the latest subsidence predictions for longwalls 21 to 24. Table 6 of the EP provides a summary of predicted changes resulting from the updated longwall layout. The subsidence report is considered adequate.	Nil.
(d) describe in detail the performance criteria to be implemented to ensure compliance with the performance measures in Table 1 and Table 2, and manage or remediate any impacts and/or environmental consequences to meet the	Yes	Performance measures, monitoring, management and reporting commitments are summarised in the Overview at the start of the document. Section 1.5 of the EP details the subsidence impact performance measures,	Nil.

Condition B7 of Schedule 2	Satisfactory (Yes/No)	Comment	Action Required
<p>(iii) a Built Features Management Plan to manage the potential subsidence impacts and/or environmental consequences of the proposed second workings on built features, and which:</p> <ul style="list-style-type: none"> • addresses, in appropriate detail, all items of public infrastructure and all classes of other built features; and • has been prepared following appropriate consultation with the owner/s of potentially affected feature/s; <p>(iv) a Public Safety Management Plan to ensure public safety in the mining area; and</p> <p>(v) appropriate revisions to the Rehabilitation Management Plan required under condition B107; and</p>	<p>Yes</p> <p>Yes</p> <p>Yes</p>	<p>The Built Features Management Plan (BFMP) is included as Appendix E. The BFMP describes the management of built features located above Longwalls 21 to 24 and includes a Trigger Action Response Plan. WCPL owns all assets within the LWs 21-24 extraction plan area. Assets include wells, fences, access tracks, gates, powerlines, farm dams, drainage culverts, farm buildings, tanks, the South Bates Extension Ventillation Shaft and Whynot Homestead. Management measures for the assets are considered adequate.</p> <p>Public Safety Management Plan (PSMP) included in Appendix F. LWs 21-24 are located wholly within WCPL owned land, therefore risks to public safety are considered limited. Management measures to reduce public safety risks are considered adequate.</p> <p>Rehabilitation Management Plan (RMP) included as a Mine Operations Plan (MOP) in Appendix I. This approach has been endorsed by DPIE. The current approved MOP period is from December 2020 to December 2023, which covers the proposed extraction schedule for LWs 21-24.</p>	<p>Nil.</p> <p>Nil.</p> <p>Nil.</p>
<p>(f) include a:</p> <p>(i) Water Management Plan, which has been prepared in consultation with EPA, DPIE Water and NRAR, which provides for the management of the potential impacts and/or environmental consequences of the proposed second workings on surface water resources, groundwater resources and flooding, and which includes:</p> <ul style="list-style-type: none"> • surface and groundwater impact assessment criteria, including trigger levels for investigating any potentially adverse impacts on water resources (level, yield and quality); • a program to monitor and report on compliance with the surface and groundwater impact assessment criteria; • a program to monitor and report on groundwater inflows to underground workings; and 	<p>Yes</p>	<p>Section 3 of the main EP document provides a summary of the management, monitoring, performance indicators and contingency measures for water, land, biodiversity, heritage, built features and public safety. These are included and expanded upon in the relevant Appendices to the EP and are considered adequate.</p> <p>Water Management Plan (WMP) included as Appendix A and includes a Trigger Action Response Plan (TARP) (Attachment 1), Wambo Water Management Plan (WWMP) (Attachment 2), Surface Water Management Plan (SWMP) (Attachment 3), Groundwater Management Plan (GMP) (Attachment 4) and United Wambo and Wambo Water Monitoring Program (UWWMP) (Attachment 5).</p> <p>Section 1.1 of the main WMP document indicates that the WMP draws on conclusions from reports by Alluvium (2020) and SLR Consulting Pty Ltd (2020) that form part of the Extraction Plan. The</p>	<p>On page 36 of the main EP, update references to the Water Management Plan to reflect the currently approved version of the document.</p> <p>Nil.</p>

Condition B7 of Schedule 2	Satisfactory (Yes/No)	Comment	Action Required
<p>• a program to manage and monitor impacts on privately-owned licensed bores;</p> <p>(ii) Biodiversity Management Plan, which has been prepared in consultation with BCD, which provides for the management of the potential impacts and/or environmental consequences of the proposed second workings on flora and fauna, with a specific focus on threatened species, populations and their habitats, EECs and groundwater dependent ecosystems;</p> <p>(iii) Land Management Plan, which has been prepared in consultation with any affected public authorities, which provides for the management of the potential impacts and/or environmental consequences of the proposed second workings on land in general, with a specific focus on cliffs, minor cliffs, rock face features, steep slopes and agricultural enterprises;</p> <p>(iv) Heritage Management Plan, which has been prepared in consultation with BCD and relevant stakeholders for Aboriginal and non-Aboriginal heritage, to manage the potential impacts and/or environmental consequences of the proposed second workings on heritage items; and</p>	<p>Yes</p> <p>Yes</p> <p>Yes</p>	<p>appointment of the team that prepared these reports was endorsed by the Secretary.</p> <p>Biodiversity Management Plan (BMP) included in Appendix C. Section 2.3 indicates that comments on the BMP were received from OEH regarding the BMP. Evidence of these comments is included in Appendix B, along with a table demonstrating that these comments have been addressed in the BMP. Technical Report 1 advises that the predicted subsidence impacts that could potentially impact flora or fauna would be the same or less than previously predicted.</p> <p>Land Management Plan (LMP) included in Appendix B. No privately owned land or public roads are located in the Longwalls 21-24 extraction plan area. All lands are owned by WCPL, so no external consultation is required. LMP adequately provides for monitoring of cliffs, fences, ground surfaces, etc. A Land Management Plan TARP and Erosion and Sediment Control Plan are appended to the LMP. Land Management Issues, Impacts and Monitoring are summarised in Table 13 of the EP.</p> <p>Heritage Management Plan (HMP) included in Appendix D. HMP updated in July 2020 to include LWs 21-24.</p> <p>Appendix C of HMP provides environmental consequences of subsidence impacts on Aboriginal sites that has been updated to include the extraction area for LWs 21-24, and relevant management and monitoring. These are consistent with previous management and monitoring measures implemented on-site and are considered adequate.</p>	<p>Nil.</p> <p>Nil.</p> <p>Nil.</p>
<p>g) include a program to collect sufficient baseline data for future Extraction Plans.</p>	<p>Yes</p>	<p>A program to collect baseline data for future extraction plans is included in Attachment 3 and is considered adequate.</p>	<p>Nil.</p>
<p>General comments</p>			
<p>The fourth paragraph on page 26 requires re-wording and states incorrect volumes for surface water seepage into the underground workings. This same information is presented in paragraph 8 on page 17 of the approved Water Management Plan that forms Appendix A of the EP. Please amend as per the email sent to the Department on 31 March 2021.</p> <p>The third paragraph on page 27 states that mitigation measures to manage predicted subsidence impacts on North Wambo Creek are summarised in Section 5. However, Section 5 of the EP is the reference section. Section 3.1 summarises water management. Please check all cross references within the EP and update where required prior to issuing the final version.</p>			



**MINING, EXPLORATION & GEOSCIENCE
ADVICE RESPONSE**

Melanie Hollis
Department of Planning, Industry and Environment
GPO Box 39
SYDNEY NSW 2001

melanie.hollis@planning.nsw.gov.au

Dear Melanie

Project: Wambo Mine – Extraction Plan LW 21-24
Stage: Advice on Extraction Plan
Development Application: DA305-7-2003-i-PA-22

I refer to your correspondence dated 30 July 2020 inviting Regional NSW – Mining, Exploration & Geoscience (MEG) to provide comments on the Wambo South Bates Extension Underground Coal Mine – Extraction Plan LW21-24.

The relevant units internal to MEG have been consulted in generating this advice. The Department of Planning, Industry and the Proponent should be aware that matters concerning subsidence, subsidence management, mine operator, safety, rehabilitation and environmental impacts of final landform design are not assessed by MEG and advice should be sought from the Resources Regulator.

MEG has reviewed the information supplied in relation to the abovementioned Project and considers the Extraction Plan for longwalls 21 to 24 (LW21-24) to adequately recover coal resources and provide an appropriate return to the NSW Government. The change is considered reasonable based upon the constraints.

For further advice concerning this matter, please contact Assessment Coordination Unit on 02 4063 6534 or assessment.coordination@planning.nsw.gov.au.

Yours sincerely

Scot Anson
Manager, Assessment Coordination Unit
Resource Operations
Regional NSW – Mining, Exploration & Geoscience
20 August 2020

for
Stephen Wills
Executive Director Resource Operations
Regional NSW – Mining, Exploration & Geoscience

Mr Peter Jaeger
Environment and Community Manager
Wambo Coal Pty Limited
PMB 1
Singleton NSW 2330

28/02/2020

Dear Mr Jaeger

**Wambo Coal Project (DA 305-7-2003)
Endorsement of Experts**

I refer to your letter dated 11 February 2020, requesting the Secretary's approval of suitably qualified persons to prepare the Extraction Plan for Longwalls 21 to 24 for the Wambo Coal Project (DA 305-7-2003).

The Department has reviewed the nominations and information you have provided and is satisfied that these experts are suitably qualified and experienced. Consequently, I can advise that the Secretary approves the appointment of the following experts to prepare the Extraction Plan for Longwalls 21 to 24:

- Mr Joshua Hunt (Resource Strategies) - Extraction Plan preparation;
- Mr James Barbato (Mine Subsidence Engineering Consultants) - Subsidence;
- Mr Rohan Lucas (Alluvium) - Surface Water;
- Dr Noel Merrick (SLR Consulting) - Groundwater;
- Mr Martin Sullivan (Eco Logical Australia) – Biodiversity; and
- Mr Peter Kuskie (South East Archaeology) - Aboriginal cultural heritage.

In relation the upcoming revisions of complex-wide management plans, to align with the commencement of United Wambo Phase 2, it is recommended that the Department's Water Group is consulted on this approach.

If you wish to discuss the matter further, please contact Melanie Hollis on 8217 2043.

Yours sincerely



Matthew Sprott
A/Director
Resource Assessments (Coal & Quarries)

as nominee of the Planning Secretary



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11 February 2020

Department of Planning, Industry and Environment
GPO Box 39
SYDNEY NSW 2001

Attention: Mr Mike Young

Dear Mr Young

**RE: WAMBO COAL MINE DEVELOPMENT CONSENT (DA 305-7-2003) –
APPOINTMENT OF SUITABLY QUALIFIED AND EXPERIENCED
PERSONS AND INTERACTION WITH COMPLEX-WIDE
MANAGEMENT PLANS**

***Interaction between Longwalls 21 to 24 Extraction Plan and Complex-wide
Management Plans***

Wambo Coal Pty Ltd (WCPL) is currently preparing an Extraction Plan for the next set of longwall panels at the South Bates Extension Underground Mine (i.e. Longwalls 21 to 24). Longwall 21 is scheduled for commencement on 19 October 2020. To allow for the 90 business day assessment period, the Longwalls 21 to 24 Extraction Plan is anticipated to be submitted by the end of April 2020.

The modified Development Consent issued after the determination of the United Wambo Joint Venture Project (MOD 16) requires the preparation of updated complex-wide management plans. This includes the Water Management Plan (and associated sub-plans) and Biodiversity Management Plan which are also referenced as components of WCPL's Extraction Plans.

The complex-wide management plans are required to be updated and approved prior to the commencement of Phase 2 of the United Wambo Joint Venture Project. This is currently anticipated to commence in December 2020.

WCPL is developing these plans with the aim of targeting submission to the Department in July 2020 following consultation with the relevant parties specified in the Development Consent. This timing is aimed at providing the Department reasonable time for assessment prior to commencement of Phase 2 in December 2020.

Development of the complex-wide management plans includes time consuming components such as updating modelling (including the groundwater model), incorporating outcomes of the Longwalls 21-24 Extraction Plan and other works required to address new/revised Development Consent conditions.

Given this, WCPL anticipates that the complex-wide management plans will be in the process of being updating after the Extraction Plan for Longwalls 21 to 24 has been submitted (end April 2020).

WCPL does not envisage any issues relating to the South Bates Extension Underground Mine, and specifically the Longwalls 21 to 24 Extraction Plan, to arise during the update of the complex-wide management plans. This is because the updates will be primarily related to removing the open cut aspects of the site following approval of the United Wambo Joint Venture Project

Once the complex-wide management plans are assessed and approved, WCPL will review the Longwalls 21 to 24 Extraction Plan for any material inconsistencies and propose updates, as required. This would be undertaken in consultation with the Department.

Notwithstanding, WCPL is able to include some of the complex-wide management plans that require more simple updates in the Longwalls 21-24 Extraction Plan. A summary table of the plans that will be updated and included in the Longwalls 21-24 Extraction Plan is provided below.

Plan	Updated for LW21-24 Extraction Plan
Longwalls 21-24 Water Management Plan	✓
Surface Water Monitoring Program*	x
Groundwater Monitoring Program*	x
Surface and Groundwater Response Plan*	x
Erosion and Sediment Control Plan*	x
Site Water Balance*	x
Longwalls 21-24 Land Management Plan	✓
Biodiversity Management Plan	✓
Heritage Management Plan	✓
Longwalls 21-24 Built Features Management Plan	✓
Longwalls 21-24 Public Safety Management Plan	✓
Longwalls 21-24 Coal Resource Recovery Plan	✓
Longwalls 21-24 Subsidence Monitoring Program	✓
Rehabilitation Management Plan/Mining Operations Plan	✓

*Currently approved version will be included in the LW21-24 Extraction Plan

Both the Longwalls 21 to 24 Extraction Plan and the complex-wide management plans require endorsement by the Secretary of suitably qualified and experienced person/s. The below sections describe the teams that WCPL propose to prepare these documents.

Extraction Plan for Longwalls 21 to 24 – Suitably Qualified and Experienced Persons

WCPL is currently preparing an Extraction Plan for Longwalls 21 to 24 at the South Bates Extension Underground Mine.

We refer to Condition B7, Schedule 2 of the Development Consent (DA 305-7-2003) for the Wambo Development Project:

B7. The Applicant must prepare an Extraction Plan for all second workings on the site to the satisfaction of the Planning Secretary. Each Extraction Plan must:

(a) be prepared by a suitably qualified and experienced person/s whose appointment has been endorsed by the Planning Secretary;

...

In accordance with Condition B7, Schedule 2 of the Development Consent (DA 305-7-2003), WCPL kindly requests the endorsement of the Secretary of the team outlined in this letter and listed below, as suitably qualified and experienced persons for the review and preparation of the Longwalls 21 to 24 Extraction Plan.

Complex-wide Water Management Plan and Biodiversity Management Plan – Suitably Qualified and Experienced Persons

WCPL is also currently preparing updated versions of the complex-wide Water Management Plan and Biodiversity Management Plan.

We refer to Conditions B66 and B75, Schedule 2 of the Development Consent (DA 305-7-2003) for the Wambo Development Project:

B66. The Applicant must prepare a Water Management Plan for the Wambo Mining Complex to the satisfaction of the Planning Secretary. This plan must:

(a) be prepared by a suitably qualified and experienced person/s whose appointment has been endorsed by the Planning Secretary;

...

B75. The Applicant must prepare a Biodiversity Management Plan to the satisfaction of the Planning Secretary. This plan must:

(a) be prepared by a suitably qualified and experienced person/s;

...

In accordance with Conditions B66 and B75, Schedule 2 of the Development Consent (DA 305-7-2003), WCPL kindly requests the endorsement of the Secretary of the team outlined in this letter and listed below, as suitably qualified and experienced persons for the preparation of the complex-wide Water Management Plan and Biodiversity Management Plan.

Background of Suitably Qualified and Experienced Persons

WCPL considers that the proposed team is suitable for preparation of the Extraction Plan, Water Management Plan and/or Biodiversity Management Plan. The curriculum vitae of the primary contributing suitably qualified and experienced persons are attached with a summary provided below.

Team Member	Role
Dr James Barbato (Mine Subsidence Engineering Consultants)	Preparation of relevant subsidence components, including prediction of subsidence effects and assessment of potential impacts.
Dr Noel Merrick (SLR Consulting Pty Ltd)	Preparation of relevant groundwater components.
Mr Rohan Lucas (Alluvium)	Preparation of relevant surface water components.
Mr Peter Kuskie (South East Archaeology)	Provision of advice on monitoring and management of Aboriginal cultural heritage sites.
Mr Martin Sullivan (Eco Logical Australia)	Provision of advice on biodiversity monitoring and management measures.
Mr Joshua Hunt (Resource Strategies)	Preparation of management plans and overall Extraction Plan documentation.

The following experienced WCPL employees would also be involved in preparation of the Extraction Plan, Water Management Plan and/or Biodiversity Management Plan.

Team Member	Role
Mr Peter Jaeger (Manager: Environment & Community)	Responsible for review, sign-off and implementation of the Extraction Plan.
Mrs Nicole Dobbins (Senior Environmental Advisor)	Review of management plans and overall Extraction Plan documentation.
Mr Michael Berry (Technical Services Manager)	Review of management plans and overall Extraction Plan documentation.
Mr Malcolm Walker (Registered Mine Surveyor)	Preparation of survey plans.

Dr Barbato

Mine Subsidence Engineering Consultants Pty Ltd (MSEC) is a private engineering consultancy company specialising in the fields of mine subsidence prediction and mine subsidence impact assessment. Dr Barbato is an associate director at MSEC and has written or co-written more than 300 subsidence prediction and assessment reports. Dr Barbato has significant experience at Wambo, having undertaken subsidence assessments in support of several Extraction Plan and Modification applications.

Dr Barbato has been involved in recent subsidence studies for the Wambo Coal Mine, including development of the subsidence components of the approved South Bates Extension Underground Mine Extraction Plan for Longwalls 17 to 20.

Dr Merrick

Dr Merrick is a senior groundwater modeller, hydrogeologist and geophysicist with decades of experience in groundwater science. Dr Merrick has extensive experience with numerical modelling, assessment and modelling of groundwater/surface water interactions and groundwater impact assessment for infrastructure and mining projects.

As author of the peer review section of the Murray Darling Basin Commission groundwater flow model guidelines, Dr Merrick has been heavily involved in peer reviewing modelling studies for coal mines in New South Wales, Victoria and Queensland, and he actively builds groundwater models for open cut and longwall mines. Dr Merrick has been involved in recent groundwater studies for the Wambo Coal Mine, including development of the groundwater components of the approved South Bates Extension Underground Mine Extraction Plan for Longwalls 17 to 20, and completion of the Groundwater Assessment for MOD 17.

Mr Lucas

Mr Lucas has 25 years of experience in environmental and natural resource management with a focus on waterways. This experience has been gained in a consulting role to government and industry in Australia and Asia-Pacific. Mr Lucas is a Registered Professional Engineer Queensland (RPEQ).

Mr Lucas has significant experience in designing and managing diversions. In addition, he has experience in modelling, assessment, design and documentation of subsidence impact management on waterways and diversions. Alluvium staff (principally Rohan Lucas and Ross Hardie) were the authors of the ACARP diversion projects (C8030 and C9068) in 1999-2002 that have been adopted by the Queensland government as a guideline against which diversions have been assessed and licensed since. This body of work has recently been updated to provide current leading practice guidance on constructed diversions through ACARP projects C20017 and C23030.

Mr Lucas was also principal author of the *Isaac River cumulative impacts assessment of mine developments* (2008). This project developed the hierarchy for assessing subsidence impacts on waterways which has been adopted by Queensland Government as their guidance and is now routinely utilized in subsidence impact assessments, including the extraction plans at Wambo Coal Mine.

Mr Lucas has been involved in recent surface water studies for the Wambo Coal Mine, including development of the surface water components of the approved South Bates Extension Underground Mine Extraction Plan for Longwalls 17 to 20.

Mr Kuskie

Mr Kuskie is the director of South East Archaeology with 29 years experience in Aboriginal cultural heritage issues, Aboriginal community consultation, and legislative requirements. Mr Kuskie's experience includes conducting surface surveys, salvage collections and excavations. He has prepared Indigenous and non-Indigenous components of environmental impact statements, Aboriginal Heritage Impact Permit applications, Aboriginal Heritage Management Plans and Aboriginal Heritage Impact Assessments compliant with Office of Environment and Heritage, Department of Planning and Environment and other Government requirements. Mr Kuskie has strong familiarity with the area, having completed surveys at the Wambo Coal Mine.

Any updates to the Heritage Management Plan based on the advice of Mr Kuskie will be implemented by WCPL and subject to consultation with the Aboriginal community and the Office of Environment and Heritage.

Mr Sullivan

Mr Sullivan is the Principal Ecologist and Discipline Leader Ecology & Impact Assessment for Eco Logical Australia with more than 10 years of experience in biodiversity related issues. Mr Sullivan has been involved in the preparation of multiple Biodiversity Management Plans, Rehabilitation Management Plans and monitoring programs. Eco Logical Australia has been involved at the Wambo Coal Mine for a number of years and has a comprehensive understanding of the site.

Updates to the Biodiversity Management Plan will be based on the advice of Mr Sullivan and subject to consultation with DPIE and the Office of Environment and Heritage.

Mr Hunt

Mr Hunt has extensive experience in environmental impact assessment for the mining sector, and was project manager for the Wambo Development Project Environmental Impact Statement (Resource Strategies, 2003) and the currently approved South Bates Extension Underground Mine Extraction Plan for Longwalls 17 to 20 (as well as other previously approved Extraction Plans at Wambo Coal Mine). Mr Hunt has also managed the preparation of a number of Metropolitan Coal Subsidence Management Plans and Extraction Plans.

Summary

It would be greatly appreciated if the Department would consider the above details regarding the qualifications and experience of the persons proposed to review and prepare the Extraction Plan, Water Management Plan and/or Biodiversity Management Plan and provide the Secretary's endorsement in accordance with Conditions B7(a), B66(a) and B75(a), Schedule 2 of the Development Consent (DA 305-7-2003).

It would also be appreciated if the Department could confirm if the interaction between the Longwalls 21 to 24 Extraction Plan and complex-wide management plans (and associated timing) outlined above is suitable.

If you have any queries or would prefer to organise a meeting to discuss, please do not hesitate to contact Nicole Dobbins, Senior Environmental Advisor on (02) 6570 2209.

Yours faithfully



Peter Jaeger
Manager: Environment & Community
WAMBO COAL PTY LIMITED

- Enclosure 1. Dr James Barbato's Curriculum Vitae.
- Enclosure 2. Dr Noel Merrick's Curriculum Vitae.
- Enclosure 3. Mr Rohan Lucas' Curriculum Vitae.
- Enclosure 4. Mr Peter Kuskie's Curriculum Vitae.
- Enclosure 5. Mr Martin Sullivan's Curriculum Vitae.
- Enclosure 6. Mr Joshua Hunt's Curriculum Vitae.

ENCLOSURE 1

DR JAMES BARBATO'S CIRRICULUM VITAE

Dr James Barbato, Associate Director

Company: Mine Subsidence Engineering Consultants Pty Ltd

Profile: James Barbato has had 8 years' experience as a structural engineer and 15 years' experience as a specialist in mine subsidence engineering. His roles include the prediction, assessment and management of mine subsidence due to underground mining. Specialist advice is provided to manage potential impacts to surface infrastructure and natural features and to minimise risk to public safety.

Education: Bachelor of Engineering (Civil, Hons.), 1995
UNSW – School of Civil Engineering
Doctorate of Philosophy (PhD), 2017
UNSW – School of Mining Engineering

Affiliations: MIEAust, CPEng, NER

James joined Mine Subsidence Engineering Consultants (MSEC) in July 2004 and has worked on many subsidence studies and reports, some of which are listed below. He has extensive experience in the prediction of mine subsidence parameters, the assessment of mine subsidence impacts on natural features and built features and the development of strategies to manage the potential impacts from mine subsidence.

He has been deeply involved in developing the analytical methods to improve the speed and reliability of subsidence predictions. Software has been developed using C++, Java and SQL for the subsidence prediction models, survey database and libraries. The survey database is now one of the largest collections of ground monitoring data for underground longwall mining in Australia.

James has completed post graduate research at the University of New South Wales in 2017. The title of the thesis is *Development of improved methods for the prediction of horizontal movement and strain at the surface due to longwall coal mining*.

He has written or co-written more than 300 subsidence prediction and assessment reports and has been involved in a number of Technical Committees to manage the potential subsidence impacts on natural and built features.

Some recent projects in which James has been involved include the following:

- Appin Longwalls 705 to 710 – co-author of subsidence report to support the SMP Application, including mining beneath the M31 Hume Highway and the Main Southern Railway;
- Appin Longwalls 901 to 904 – subsidence report to support the Extraction Plan Application, including mining beneath the Main Southern Railway;
- Dendrobium Mine – subsidence reports to support the Modification, SMP and Extraction Plan Applications for Areas 2, 3A, 3B, 5 and 6;
- Integra Underground Longwalls 13 to 16 – subsidence predictions and the Management Plans for mining beneath the Mt. Owen Railway and Bridges;
- Maxwell Project – subsidence report to support the Environmental Impact Statement;
- Tahmoor Longwalls 26 to 30 – co-author of the subsidence report to support the SMP Application including mining beneath houses, services and other built infrastructure; and
- Wambo Coal Mine – subsidence reports to support the Modification and Extraction Plan Applications for the North Wambo Underground Mine, South Bates Underground Mine and South Bates Extension Underground Mine.

James is a current member of the Mine Subsidence Technological Society (MSTS) and has been involved in the preparation of the previous four conferences (2007, 2011, 2014 and 2017), which included the review of technical papers, compilation of the conference proceedings and organisation of the presentations.

He has also assisted in two ACARP Research projects and have presented or co-authored a number of technical papers including:

1. Waddington, A.A. and Barbato, J.P. *The Undermining of Railways*. Mine Subsidence Technological Society, Sixth Triennial Conference – Subsidence Management Issues. Maitland, October-November 2004, pp. 173-182.
2. Barbato, J.P., Kay, D.J., Pinkster, H. & de Somer, B. *Monitoring of subsidence movements at major infrastructure*. Seventh AusIMM Australasian Institute of Mining and Metallurgy Underground Coal Operators Conference on Sustainable Coal Mine Development. University of Wollongong, 2006, pp. 305-312.
3. Kay, D.J., Barbato, J.P., Brassington, G. & de Somer, B. *Impacts of Longwall Mining to Rivers and Cliffs in the Southern Coalfield*. Seventh AusIMM Australasian Institute of Mining and Metallurgy Underground Coal Operators Conference on Sustainable Coal Mine Development. University of Wollongong, 2006, pp. 327-336.
4. Kay, D.R., Barbato, J.P. & Mills, K.W. *Review of Mechanisms resulting in Observed Upsidence and Closure Movements*. Mine Subsidence Technological Society, Seventh Triennial Conference, University of Wollongong, Nov. 2007, pp. 197-205.
5. Barbato, J.P. & Sisson, S.A. *Analysis of Mining Induced Strains*. Mine Subsidence Technological Society, Eighth Triennial Conference, Management of Subsidence: State of the Art, Pokolbin, 15 to 17 May 2011, pp. 15-24.
6. Barbato, J.P. & Garlinge, S. *Continuous Monitoring of Longwall Undermining – Blakefield South LW1*. Mine Subsidence Technological Society, Eighth Triennial Conference, Management of Subsidence: State of the Art, Pokolbin, 15 to 17 May 2011, pp. 131-136.
7. Waddington, A.A., Barbato, J.P., Bullock, D.W. & Kay, D.J. *The Assessment of Subsidence Impacts on Building Structures*. Mine Subsidence Technological Society, Eighth Triennial Conference, Management of Subsidence: State of the Art, Pokolbin, 15 to 17 May 2011, pp. 155-166.
8. Barbato, J.P., Brassington, G. and Walsh, R. *Valley Closure Impact Model for Rockbar Controlled Streams in the Southern Coalfield*. Mine Subsidence Technological Society, Ninth Triennial Conference, Mine Subsidence: Risk Management in Action, Pokolbin, NSW, 11 to 13 May 2014.
9. Barbato, J., B. Hebblewhite, R. Mitra, and K. Mills (2016). *Review of horizontal surface movements due to longwall coal mining using numerical modelling*. In: Proceedings of the Coal Operators Conference. University of Wollongong, 10-12 February 2016, pp. 213-223.
10. Barbato, J., B. Hebblewhite, R. Mitra, and K. Mills (2016). *Prediction of horizontal movement and strain at the surface due to longwall coal mining*. In: International Journal of Rock Mechanics and Mining Sciences, Volume 84, April 2016, pp. 105-118. <https://doi.org/10.1016/j.ijrmms.2016.02.006>.
11. Barbato, J., B. Hebblewhite, R. Mitra, K. Mills, and A. Waddington (2017). *Development of predictive methods for strain at the surface due to longwall coal mining*. In: Mining Technology, October 2017. <http://dx.doi.org/10.1080/14749009.2017.1386815>.
12. Barbato, J., et al. (2017). *Development of Predictive Methods for Horizontal Movement and Strain at the Surface due to Longwall Mining*. Proceedings of the tenth triennial Mine Subsidence Technological Society Conference, Pokolbin, Hunter Valley, NSW, 5-7 November 2017. pp. 207-222.

ENCLOSURE 2

DR NOEL MERRICK'S CURRICULUM VITAE

CURRICULUM VITAE



NOEL MERRICK

TECHNICAL DIRECTOR

HYDROGEOLOGY, Asia-Pacific

QUALIFICATIONS

PhD	2000	PhD, Groundwater Management, University of Technology, Sydney, NSW, Australia
Grad Dip	1980	Graduate Diploma, Data Processing, NSW Institute of Technology, NSW, Australia
M Sc	1977	Master of Science, Research (Geophysics), University of Sydney, NSW, Australia
B Sc	1971	Bachelor of Science, University of Sydney, NSW, Australia

EXPERTISE

- Peer Reviewer using groundwater flow modelling guidelines for mines in NSW, VIC, WA, QLD
- Groundwater modeller
- Hydrogeologist and geophysicist
- Water Resource Investigations
- Environmental Impact Assessment
- Contaminated Site Assessment
- Quarry Projects

Noel is a groundwater modeller, hydrogeologist and geophysicist with over 45 years of experience in groundwater science. He retired in May 2009 from the University of Technology, Sydney where he was Associate Professor and Director of the National Centre for Groundwater Management. He ran courses in Groundwater Modelling, Groundwater Geophysics and Groundwater Policy and Management. As a researcher, he pioneered methods for resource sustainability quantification and management, particularly using optimisation techniques and has been engaged in research projects with the Aquaculture, Rice, Cotton and Contaminant CRCs. He was a member of the NSW working group that drafted the State Groundwater Policy documents and advised the Office of Water on prescriptive elements of the Aquifer Interference Policy (2012).

Noel has participated on a number of expert panels as the water expert for the NSW government. He regularly reviews groundwater resource models for Commonwealth, WA, QLD, VIC and SA government departments. He has been longtime member of the Murray-Darling Basin Independent Audit Group – Salinity, covering the ACT and the basin States and on a Technical Advisory Panel for the Department of Environment, Land, Water and Planning (Victoria)

Currently, he is a member of the Surat CMA Technical Advisory Panel for the Office of Groundwater Impact Assessment (Queensland). He has presented expert witness opinions at several court cases; NSW Land and Environment Court (Sydney, Singleton), QLD Land Court (Brisbane, Townsville), New Zealand High Court (Wellington) and NZ Environment Canterbury Water Allocation Hearing (Christchurch).

Having authored the peer review section of MDBC groundwater flow modelling guidelines, he has been heavily involved in peer reviewing modelling studies for mines in New South Wales Victoria, Western Australia and Queensland.

PROJECTS

	Suitably Qualified Expert
Foxleigh Mine Groundwater Monitoring Plan	Federal Department of the Environment.

Wilpinjong Coal Surface and Ground Water Response Plan	Department of Planning and Environment.
Metropolitan Mine, Extraction Plans	Department of Planning and Environment – Metropolitan Mine LW20-22, LW23-27, LW301-303 Extraction Plans.
Stratford Coal Mine Groundwater Management Plan	Department of Planning and Environment.
	Mining Projects
Development of Longwall Coal Models	South Galilee and Galilee (QLD), Metropolitan, Bulli Seam Operations. Dendrobium and Tahmoor (Southern Coalfield), Ulan and Wilpinjong (Western Coalfield), Narrabri and Caroonia (Gunnedah Coalfield), Wambo, Spur Hill and Doyles Creek (Hunter Coalfield, NSW).
Development of Open Cut Models	Duralie and Stratford (Gloucester), Tarrawonga and Vickery (Gunnedah), Ensham (QLD).
Development of Lithium Mine, Argentina	Development of density-coupled solute model for lithium mine.
Peer Reviews of numerous mining models	Carmichael (Galilee, Qld), Clermont Qld, Kestrel Gregory Crinum Qld, Coppabella Qld, Latrobe Vic, Phulbari (Bangladesh), Bickham, Abel, Moolarben, Wilpinjong, Boggabri, Ulan, Dendrobium, Ashton, Narrabri, Maules Creek, Caroonia, Watermark, Mt Owen, Liddell, Drayton South, West Wallsend, Neubeck, Mandalong, Werris Ck, Airly, United, Gloucester Gas Project, Brandy Hill, Bylong, Awaba, Dartbrook, United, Integra, Mangoola, Glendell (all NSW), etc.
	Quarrying Projects
Somersby Fields Project (Sand Quarry)	Membership of the IHAP Panel for the Somersby Fields Project.
Calga Sand Quarry	Development of a groundwater model
Expert Witness Testimony	Rocla's Calga Sand Quarry; Carwell Limestone Quarry, East End Limestone Quarry.
Peer Review of groundwater assessments	Central Coast Sands Quarry, Somersby; Brandy Hill Quarry, Raymond Terrace; Balranald mineral sands; Hawsons iron.
	Water Resource Investigations
Development of Finite element groundwater flow model	Port Botany reclamation; Sydney Airport Third Runway; Eastern Distributor & Airport Link tunnels (Sydney)
Development of Regional Water Resource Models	Lower Namoi, Mooki, Botany Sands, Buronga (all NSW).

<p>Development of Solute Transport Models</p>	<p>Buronga, Helensburgh.</p>
<p>Peer Reviews of numerous models and groundwater investigations</p>	<ul style="list-style-type: none"> ▪ Infrastructure (Badgery’s Creek airport, Epping-Chatswood Rail Link), ▪ Water supply: Parkes-Forbes, Upper Namoi, Murrumbidgee, Upper Nepean (NSW); Perth, Pilbara, Albany (WA); Bribie Island, North Stradbroke Island, Pioneer (Qld); Adelaide Plains (SA); Corangamite, Loddon, Campaspe, Anglesea (Vic); Murray-Darling Basin (3 states); Canterbury (NZ); Baruun Naran (Mongolia), ▪ Sewage (Gerringong; Cronulla) and waste (Castlereagh), ▪ Contamination (Botany; Mascot; Homebush; Pasmenco & Incitec Newcastle), ▪ Irrigation (Swagman-Farm software; Coleambally NSW; Werribee Vic) and salinity (Padthaway SA, Eastern Mallee NSW/Vic), ▪ Seawater intrusion (Pioneer Qld; Uley SA; Albany WA), swamps (Newnes NSW).
<p style="text-align: center;">Environmental Impact Assessment</p>	
<p>Preparation of groundwater assessments</p>	<p>Baralaba, Galilee and South Galilee (Qld); Metropolitan, Bulli Seam</p>
<p>Development of water level and water quality triggers management plans</p>	<p>Metropolitan Mine NSW; Duralie NSW; Stratford NSW; Springvale NSW; Angus Place NSW. Peer review: Foxleigh, Qld.</p>
<p style="text-align: center;">Contaminated Site Assessment</p>	
<p>Development of groundwater contamination models</p> <p>PROFESSIONAL TRAINING</p>	<p>Botany Sands (Orica); Boolaroo (Pasmenco); Boolaroo (Incitec); Sydney Domestic Airport; Mt Piper (Delta Electricity); Blenheim (NZ).</p>
<p>Supervisor</p>	<p>Supervision of 20 PhD research projects</p>
<p>Supervisor</p>	<p>Supervision of 72 Masters research projects.</p>
<p>Presenter</p>	<p>Specialist introductory and advanced modelling short courses from 1997</p>
<p>Chairman/presenter</p>	<p>“Water in Coal Mining” schools 2011 (Brisbane), 2012 (Newcastle)</p>
<p>Chairman/presenter</p>	<p>“Water in Mining” school 2013 (Adelaide)</p>
<p>Academic Lecturer</p>	<p>From 1987 to 2009</p>
<p>Presenter</p>	<p>National Groundwater Schools (1975+)</p>

PUBLICATIONS

Insert details of any publications here. Delete section if not required

Keynote Speaker at seven conferences (four international)

500 report and journal publications.

Associate Editor for international *Hydrogeology Journal* (5 years)

ENCLOSURE 3

MR ROHAN LUCAS' CURRICULUM VITAE

Rohan Lucas

Education and training:

Bachelor of Engineering (Honours) (Environmental)
University of Melbourne, 1996
Bachelor of Science (Earth Sciences)
University of Melbourne, 1994
Other ongoing training in river sciences and engineering

Industry affiliations:

Registered Professional Engineer Queensland (RPEQ)
Engineers Australia
Professionals Australia
Institute of Engineers in Papua New Guinea



Rohan is a Principal Consultant – Environmental Engineering and Geomorphology and Director of Alluvium Consulting. He has over 20 years’ experience in environmental and natural resource management with a focus on waterways. This experience has been gained in a consulting role to government and industry in Australia and Asia-Pacific for the assessment, design, review and implementation of waterway management and rehabilitation programs and of the interactions of resource and infrastructure projects with surface water systems and the risks posed to each other.

Rohan has had extensive involvement in the planning and implementation of catchment and watercourse management programs for Catchment Management Authorities or equivalents in Queensland, Victoria, South Australia and New South Wales. Rohan also has extensive experience with private industry clients including mining and gas companies and infrastructure developers and associated regulator engagement across Australia and parts of the Asia-Pacific.

Key skill areas:

- Fluvial geomorphology, hydrology and hydraulics
- Design, rehabilitation and monitoring of waterway diversions for mining companies
- Watercourse rehabilitation program priority setting, design and implementation of works
- Waterway crossing assessments for large linear infrastructure projects
- Mining related subsidence impact assessment and management measures for waterways
- Development impact assessment on waterways
- Programs – RORB, HECRAS, 12d Model, Chute, RipRap

Relevant projects:

Project	Description	Role	Client	Year
Surface Water Technical Report for South Bates Underground Extraction Plan	Geomorphology and surface water existing conditions and impact assessment of longwalls LW11-16 at Wambo Coal Mine.	Project Director, Geomorphologist	Wambo Coal	2016-17
North Wambo Creek Diversion review of condition	Development and implementation of a monitoring program to understand diversion condition and condition trajectory.	Principal Engineer /Geomorphologist	Wambo Coal	2016-18
Wilpinjong Mine final landform	Regional assessment of geomorphology of valley and waterway character and behaviour to inform design of final landforms and their hydrologic and geomorphologic characteristics.	Principal Engineer /Geomorphologist	Wilpinjong Coal	2016-18

Project	Description	Role	Client	Year
waterway requirements				
Murrumbidgee and Eastern Creek diversion designs	Concept designs of diversions at Moolarben Coal Mine that optimise environmental outcomes associated with the mine plan and final landforms	Principal Engineer /Geomorphologist	Moolarben Coal	2017
Sydney Basin Bioregional Assessment	Workshop to determine impacts of underground coal mining on water resources of the Sydney Basin Bioregion	Technical expert	Australian Government	2017
Sydney drinking water catchment audit	As required by legislation an audit of Sydney's drinking water supply catchments is required every three years.	Mining impacts chapter	NSW Government	2017
Western Slopes Pipeline EIS	Geomorphologic and flood behaviour assessments to inform the EIS of the Western Slopes Pipeline EIS from Narrabri to central southern NSW.	Geomorphologist	APA	2017-18
MRA diversion of Walker Creek	To allow continuation of the South Walker Creek mine in central Queensland a significant diversion of Walker Creek was required. This was undertaken from concept design, detail design, approvals and construction. Capital cost ~\$25M.	Technical Director and principal Owners Engineer	BHP	2014-2017
Diversions at Roy Hill Mine	Review of designs, development and implementation of monitoring programs for diversions	Project Director, Engineer, Geomorphologist	Roy Hill	2016
Marillana Creek diversion	Expert review of proposed diversions of Marillana Creek at Yandi Mine	Project Director, Engineer, Geomorphologist	BHP Billiton	2016
Design and rehabilitation criteria for Bowen Basin River Diversions	Undertaken for the Australian Coal Association Research Program (ACARP) this project (C9068) developed design and rehabilitation criteria for diversions in mining in Australia. Prior to that design of diversions was often undertaken to empirical northern hemisphere rules of thumb. This resulted in very poor performance and a moratorium from the Queensland Government for 5 years. The criteria developed in the project have been adopted and utilised by the Queensland Government since as their guidelines.	Geomorphologist	ACARP	2001-2
Criteria for functioning river landscape units in mining and post mining landscapes	ACARP (http://acarp.com.au/abstracts.aspx?repld=C20017). This project reviewed the performance of diversions implemented since the C9068 project a decade earlier and incorporated best practice improvements internationally into a revised set of criteria for diversions in the mining industry. The project clearly demonstrated those implemented to the C9068 standard are performing much better than those which don't meet the standard.	Project director, geomorphologist	ACARP	2012-14
Collaborative performance trajectories for diversion approvals relinquishment	ACARP (http://acarp.com.au/abstracts.aspx?repld=C23030). This project developed a stakeholder assessment tool for assessing diversion condition and suitability for relinquishment of approvals by mining companies. The project also developed a vegetation condition trajectory tool to assist in the relinquishment process.	Project director	ACARP	2014-16
Subsidence Management Plans	Modelling, assessment, design and documentation of subsidence management plans for 4 major underground coal mines in central Queensland. These focus on the management of impacts to the waterways impacted by subsidence.	Project Director, Engineer, Geomorphologist	AAMC, Peabody, BMA	2011-2016
Waterway rehabilitation programs	Investigation, prioritisation, design and implementation of waterway rehabilitation programs for Victorian Catchment Management Authorities and River Murray Water	Geomorphologist, Engineer	CMA's	1998-2006
Isaac River cumulative impact assessment of mine developments	See https://www.ausimm.com.au/publications/epublication.aspx?ID=5407 as an explanation of project outcomes. QLD government have adopted the outcomes to utilise in a set of guidelines for subsidence impact assessment and management (Draft Central West Water Management and Use Regional Guideline 'Watercourse Subsidence – Central Qld Mining Industry')	Project manager, Geomorphologist	BHP Billiton Mitsubishi Alliance, Anglo American Metallurgical Coal and QLD government	2007-2009
Grosvenor EIS	Specialist waterway impact assessment input to EIS for proposed Grosvenor underground longwall mine near Moranbah, central	Project Director / Geomorphologist	AAMC	2010-2011

Project	Description	Role	Client	Year
	Queensland. Baseline condition assessment, monitoring program and modeling of potential impacts of proposed mine development.			
Murray River scoping study and implementation of management programs	A scoping study to manage the Murray River downstream of the major water storages and upstream of major offtakes. Development of actions plans with multi-stakeholder drivers to mitigate the impacts regulated river flow on river health, landholder values and economic benefit.	Project Engineer and Geomorphologist	River Murray Water	2000-2003
PNG-Queensland Gas Pipeline Feasibility Study	Geomorphic and hydrologic assessment of waterway crossings on pipeline route from Cape York to Gladstone and Charters Towers to Ballera (over 3,500km). Assessment of untreated and treated risk to the environmental values of the waterway and the in-service integrity of the pipe for in excess of 1,000 waterway crossings. Assessment involved digital aerial photography assessment in GIS, helicopter and ground survey.	Project Engineer and Geomorphologist	AGL-Petronas consortium	2005-06
Wallace South surface water management (Cloncurry)	Assessment of hydrologic, hydraulic and geomorphic character and behaviour of surface water systems at proposed mine development. Assessment and design of potential watercourse diversions to facilitate development.	Project Director and Geomorphologist	Copperchem and Exco	2015-
Cannington Mine open cut expansion studies	Surface water studies for the EIS involving hydrology, hydraulics, geomorphology and ecology of the surface water systems in the vicinity of the mine. Included assessment and design of multiple options for diversion of local river.	Project Director and Geomorphologist	BHP Billiton	2007-2011 and 2015-
Lady Annie Mine – Anthill project	Assessment of hydrologic, hydraulic and geomorphic character and behaviour of surface water systems at proposed mine development. Assessment and design of potential watercourse diversions to facilitate development.	Project Director and Geomorphologist	CST Minerals	2012-2014
Monitoring program for waterways and diversions in central Queensland mines	Development and application of best practice guidelines for design and rehabilitation of waterway diversions in central Queensland. Associated baseline condition and impact assessment, monitoring and evaluation.	Project director, Geomorphologist /Engineer	Mining companies and ACARP	Ongoing
Caval Ridge Diversions – Horse & Caval Creeks	Functional and detailed design of waterway diversions to facilitate open cut mine development. Following regulatory approval, diversions and associated levees are currently under construction with Alluvium providing oversight.	Project Director / Geomorphologist	BMA/Bechtel	2010 - ongoing
Back Creek Diversion detailed design and monitoring	Back Creek diversion attempts to recreate the natural features of the existing Back Creek as best as possible and includes a low flow channel, floodplain and terrace features constructed through spoil. A revegetation plan for the Diversion was developed and baseline monitoring undertaken in 2008. The diversion is being progressively constructed with the first round of construction monitoring undertaken in 2013.	Project Director / Geomorphologist	Millmerran Power Partners	2007 - ongoing
Bath Creek & Breaker Creek diversion design	Functional and detailed design of realignment options for existing diversions to meet new mining requirements and site closure requirements at Blair Athol mine.	Project Director / Geomorphologist	Rio Tinto	2009 - 2012
Foxleigh Plains EIS & Cockatoo Creek Diversions	Surface water component of EIS including, baseline assessment of waterway condition and processes through the proposed Foxleigh Plains MLA and existing Foxleigh mine operation. Project also included concept and functional designs for watercourse diversions on Cockatoo Creek, flood protection requirements and cumulative impact assessment.	Project Director / Geomorphologist	AAMC	2009 - 2012
Carlo Creek Diversion	Baseline condition assessment, monitoring program implementation, functional and detailed design of a diversion for Carlo Creek to allow open cut mine expansion.	Project Director / Geomorphologist	Ensham Resources	2008 - ongoing
Waterway Rehabilitation	Assessment, development of strategies and design of works to address impacts of flood event in early 2008 on the Nogoia River system through the mine site.	Project Director / Geomorphologist	Ensham Resources	2008
Spring Creek Diversion	Functional design of options to divert Spring Creek around proposed mining operations and rehabilitate an old reach of diverted creek. Geomorphic, hydrologic and hydraulic assessment of Spring Creek in	Project Director / Geomorphologist	BMA	2004-2005

Project	Description	Role	Client	Year
	the vicinity of the mine. Detailed design, technical specification and construction drawings.			
Boggy Creek Diversion Rehabilitation	Functional design of rehabilitation options for Boggy Creek diversion (2005). Design of rehabilitation measures for rock chutes in the diversion to meet licensing requirements, risk to mining operations and improved environmental management.	Project Director / Geomorphologist	Ensham Resources	2005
Crossbed Creek Diversion Rehabilitation	Functional design of rehabilitation options to meet environmental and mining requirements. Detailed design and implementation of monitoring program.	Project Director / Geomorphologist	BMA	2004 - 2007
Cherwell Creek Diversion Rehabilitation	Functional design of rehabilitation options to meet environmental and mining requirements for Cherwell Creek Diversion 1. Implementation of ongoing monitoring.	Project Director / Geomorphologist	BMA	2006
New Chum Creek Diversion Design	Functional design of options to divert New Chum Creek around proposed open cut coal mining operations. Geomorphic, hydrologic and hydraulic assessment of existing creek and potential diversion options.	Geomorphologist /Engineer	BMA	2005-2006
Harrow Creek Diversion Rehabilitation	Functional design of rehabilitation options to meet environmental and mining requirements. Detailed design, monitoring programme, technical oversight of construction, identifications of maintenance requirements for the Harrow Creek diversion through the mine site.	Geomorphologist /Engineer	BMA	2003-2006
Burdekin fish barriers	Fish barrier assessment and prioritisation project for the Burdekin River catchment	Geomorphologist	Dry Tropics NRM	2006-8
Bohle River environmental values	Assessment of values and threats in the Bohle River catchment, Townsville	Geomorphologist	Townsville City Council	2007

ENCLOSURE 4

MR PETER KUSKIE'S CURRICULUM VITAE

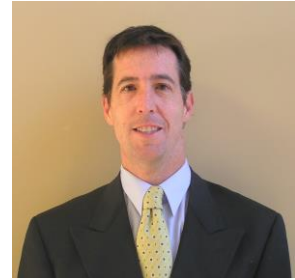
CURRICULUM VITAE

NAME: (Mr) KUSKIE, PETER JAMES

Position: Director, South East Archaeology Pty Limited

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Email: peter@southeastarchaeology.com.au
Web: www.southeastarchaeology.com.au



Relevant Employment Experience:

Consultant Archaeologist, South East Archaeology, 1989 - present.

Key projects as principal consultant include:

- ❑ Part 3A assessment of Ulan Coal Mine's Continued Operations Project near Mudgee, involving extensive survey of a 50 square kilometre area over 21 weeks, with in excess of 900 Aboriginal sites recorded, including open artefact sites, rock shelters, grinding grooves, scarred trees, stone arrangements and art sites (UCML/Glencore);
- ❑ Survey over a five week period, with over 1,000 Aboriginal sites recorded, and salvage excavations over a 27 week period at the 37 square kilometre Mount Arthur North Coal Mine (URS Australia, BHP Billiton);
- ❑ Part 3A and Part 4.1 State Significant Development assessments of major coal mining Projects, Extensions and Modifications including at Spur Hill (Spur Hill Management / Resource Strategies), Tasman (Donaldson Coal), Abel Mine (Ellembay Resources / Donaldson Coal), Bloomfield (Bloomfield Colliery), Wilpinjong (Peabody) and Moolarben (Yancoal);
- ❑ Part 3A assessment of the Australian Rail Track Corporation's 32 kilometre Maitland to Minimbah and 11 kilometre Minimbah to Wittingham rail upgrades in the Hunter Valley, involving surveys and mitigation measures (Hunter 8 Alliance);
- ❑ Pacific Highway Upgrades, including extensive survey and test excavations of the 37 kilometre Oxley Highway to Kempsey route near Port Macquarie and survey of the 27 kilometre Woolgoolga to Wells Crossing route near Coffs Harbour (GHD/RTA);
- ❑ Surveys, test excavations and salvage excavations for large residential developments at Thornton North in the Hunter Valley (Investa Property Group, County Property Group and Defence Housing Australia);
- ❑ Surveys and mitigation projects for numerous water and sewerage pipeline routes in the Hunter Valley and Central Coast (GHD, Hunter Water Corporation, Department of Commerce, Wyong Shire Council);
- ❑ Surveys and mitigation projects for The Vintage residential golf course (Stevens Group);
- ❑ Salvage and test excavations over an 18 week period for 'The Dairy' ('The Lakes') residential development near Ulladulla (Elderslie Property Investments) and over a 10 week period for Australian Property Growth Fund;

- ❑ Salvage excavations over a 12 week period at Lemington Mine, near Singleton (Lemington Coal Mines);
- ❑ Salvage excavations over a 14 week period of two Aboriginal sites along the F3 Freeway (M1) at Black Hill, near Maitland (RTA);
- ❑ Survey of BHP Petroleum and Westcoast Energy Australia's 740 kilometre long Eastern Gas Pipeline, from Longford, Victoria, to Wilton, NSW;
- ❑ Surveys of Optus Communications' mobile telecommunications network throughout NSW and Queensland and fibre optic cable network from Sydney to Brisbane and Cootamundra to Canberra (Optus Communications, Landscan);
- ❑ Survey for Dorrigo Three Year Environmental Impact Study (State Forests of NSW);
- ❑ Heritage studies at Coffs Harbour (Coffs Harbour and District Local Aboriginal Land Council), Bingie Bingie Point (Cobowra LALC) and the Hunter Valley (Mindaribba LALC);
- ❑ Excavations in Guam, Micronesia, USA (Dames and Moore, National Heritage Studies);
- ❑ Acting Senior Conservation Officer, Australian Heritage Commission (1993);
- ❑ Additional sub-surface investigations and salvage projects in NSW at numerous locations, including Rothbury (RTA), Thornton (GHD, Beechwood Homes, CPG, UrbisJHD), St. Georges Basin (Shoalhaven City Council), Cudmirrah National Park (DECCW), Bewong (Cowman Stoddart), Wollongong (Wollongong City Council), Merimbula (Ridge Consolidated, Bega Valley Shire Council, RTA and Bega Traditional Aboriginal Elders Council), Old Errowal Bay (Matrix Planning), Fishermans Paradise (Matrix Planning) and various locations (Optus Communications).
- ❑ Additional surveys throughout NSW, including:
 - Hunter Valley - numerous locations, such as Anna Bay, Bayswater, Beresfield, Cessnock, Fishermans Bay, Jerrys Plains, Lemington, Maitland, Rothbury, Singleton, Thornton, Tomago, Wambo and Wyong - for clients including Egis, Devine Erby Mazlin, GHD, HWC, Lemington Mine, MPE, Newcastle City Council, Rail Access Corporation and Umwelt;
 - Central Coast - numerous locations, including Wyong, Warnervale, Mardi, Wamberal, Ourimbah, Dora Creek, Toronto, Fennell Bay, Boolaroo, West Wallsend and Woy Woy - for clients including GHD, Department of Commerce, Wyong Shire Council and Connell Wagner;
 - South Coast - numerous locations, including Batemans Bay, Bendalong, Berry, Bewong, Broulee, Callala Beach, Cobargo, Congo, Conjola, Cudmirrah, Dapto, East Nowra, Eurobodalla NP, Fishermans Paradise, Jervis Bay NP, Kangaroo Valley, Lake Conjola, Milton, Moruya, Nowra, Potato Point, St. Georges Basin, West Dapto, Wollongong - for clients including Bullock Walters & Associates, Cowman Stoddart, Crescent Home Plan & Design Service, Eurobodalla Shire Council, Forbes Rigby, Glenshaw Holdings, Grenon-Walker, Horseshoe Pastoral Company, Matrix Planning, Maunsell, Miltonbrook, Niche Environmental Information, DECCW, P.W. Rygate & West, Shoalhaven City Council, State Forests of NSW, Town & Country Real Estate and Travers Morgan;
 - Far South Coast - numerous locations, including Bournda NP, Dalmeny, Bega, Merimbula, Tuross Falls - for clients including Bega Valley Shire Council, Great Southern Energy, GHD, Caddey Searl and Jarman, DECCW and RTA;
 - Southern and Central Tablelands - numerous locations, including Goulburn, Marulan, Yass, Snowy Mountains, Tallaganda, Gundagai, Cowra and Ulan - for clients including Ulan Coal Mine, Cowra Shire Council, Matrix Planning, Cowman Stoddart, SMEC, State Forests of NSW, DECCW and Gundagai Shire Council;
- ❑ Surveys in the ACT at Mitchell, Hume, Conder, Banks, Gungahlin and West Belconnen (ACT Government) and ACT site mapping project (Canberra Archaeological Society).

Professional Skills:

- ❑ Managing and conducting large-scale and small-scale Aboriginal heritage projects;
- ❑ Planning and conducting archaeological surveys of Aboriginal and non-indigenous heritage sites;
- ❑ Planning and conducting archaeological excavations of Aboriginal sites, including artefact scatters, shell middens and rock shelters;
- ❑ Preparation of OEH Section 90 applications and the conduct of sub-surface investigations and mitigation measures;
- ❑ Preparing Aboriginal heritage management plans and Aboriginal heritage impact assessment reports compliant with the OEH, Department of Planning and Environment and other Government requirements;
- ❑ Liaising with Aboriginal communities, clients and government agencies;
- ❑ Assessing heritage site significance;
- ❑ Analysing shell midden deposits and stone artefacts; and
- ❑ Statistical analysis of archaeological data.

Academic Qualifications:

Tertiary degree: Bachelor of Arts (Honours) Australian National University
Result, 1989 Prehistory IV Honours: H2A

ENCLOSURE 5

MR MARTIN SULLIVAN's CURRICULUM VITAE



Martin Sullivan PRINCIPAL ECOLOGIST, DISCIPLINE LEADER ECOLOGY & IMPACT

ASSESSMENT

Principal Ecologist and Discipline Leader Ecology & Impact Assessment with a high level of technical expertise, I am responsible for leading large multidisciplinary teams to deliver nationally significant projects for key clients in Government, resources, infrastructure and urban development sectors. I'm motivated by delivering the best possible environmental and project outcomes with no compromises. With each project I seek to understand our clients' unique challenges and objectives and use an innovative and robust scientific approach to solve problems and navigate complex regulatory requirements. Responsive and timely project management is always at the centre of every project I undertake, with the highest standards applied to each deliverable, ensuring a quality result from start to finish. My specialities include: Vegetation mapping, Major Project Ecological Impact Assessment, biodiversity offsets including Bio-Banking and Bio-certification projects, federal approvals, revegetation and landscape management, biodiversity monitoring and species habitat modelling. Passion: I'm passionate about all aspects of ecology, but particularly in applying innovative techniques (such as 3D vegetation mapping), threatened species survey and habitat modelling, and definitely orchids. My latest passion is leading the ecology and impact assessment discipline and working with such an amazing team of ecologists across the country. Regions of expertise include: all of NSW (with particular specialisation in western NSW), northern Victoria and southern QLD.

QUALIFICATIONS

- Bachelor of Science (Biodiversity and Conservation), Macquarie University, 2004
- Biodiversity Assessment Method (BAM) Accredited Assessor

PROJECT EXPERIENCE

MANAGEMENT PLANS/ STRATEGIES

- Narrabri Gas Project Biodiversity Management Plans (draft), Santos Limited
- Mt Arthur Coal Biodiversity Management Plan Update, BHP
- Ingleside Chase Escarpment Plan of Management (PoM), Pittwater Council
- Warriewood and Nareen Wetlands Plans of Management, Pittwater Council.
- Central West Catchment Environmental Weeds Strategy, Central West Catchment Management Authority.

REHABILITATION PLANS / STRATEGIES

- Narrabri Gas Project Rehabilitation Strategy, Santos Limited
- Authority to Prospect (ATP) 940P Rehabilitation Strategy, Cooper Creek QLD, Drillsearch Limited
- Lower Hunter Recycled Water Initiative – Tree planting for carbon offsetting, Hunter Water
- Rockley Falls Quarry Rehabilitation and Vegetation Offset Management Plan, Abigroup
- Hume Highway Duplication, Table Top to Mullengandra – Landscape Manager and Botanist, RTA.

MONITORING

- Narrabri Gas Project Rehabilitation Monitoring 2012-2019, Eastern Star Gas and Santos Limited
- Drayton Mine Annual Biodiversity Monitoring, Drayton Management
- Dewhurst and Bibblewindi Biodiversity Monitoring 2014-2019, Santos Limited
- Baseline waterway monitoring Gunnedah and Narrabri, Santos Limited
- Liddell Coal Operations Annual Flora and Fauna Monitoring, Xstrata NSW
- Greta Train Support Facility Project Ecologist, Abigroup

- Rockley Falls Quarry Annual Vegetation Offset Monitoring 2009-2013, Hume Highway Woomargama Alliance
- Metropolitan Colliery - Vegetation Monitoring, Metropolitan Coal.
- Pre and Post Flow Release Vegetation Monitoring at Avon Dam, Sydney Catchment Authority.

ECOLOGICAL IMPACT ASSESSMENT

- Nine Corehole Project, Santos NSW (Eastern) Pty Ltd
- Bonshaw Solar Farm Preliminary Environmental Assessment, APA Group
- Narrabri South Mine Baseline Biodiversity Assessment, Whitehaven Coal
- Western Slopes Pipeline Preliminary Environmental Assessment, APA Group
- Narrabri Gas Project, Santos NSW (Eastern) Pty Ltd
- Dewhurst and Bibblewindi CSG Pilots Ecological Assessment, Eastern Star Gas
- E&A Program, Santos NSW (Eastern) Pty Ltd
- Cumulative Impact Assessment, Santos limited
- Oceanic Coal Continued Operations Project, OCAL Pty Ltd
- Liddell Coal Operations MOD 5 expansion, Glencore Xstrata
- Boco Rock Wind Farm Transmission Line Ecological Constraints Study, Wind Prospect.
- Great Western Highway Upgrade (Mount Victoria to Lithgow) Preliminary Ecological Assessment, RTA.
- Edmondson Park Release Area Ecological Constraints Investigation, Sydney Water.
- Erskine Park Link Road Network Flora and Fauna Impact Assessment, Department of Planning.
- Caloundra Mooloolaba Road (MMTC) Ecological Impacts Study, Main Roads Queensland.
- Gunning Windfarm Transmission Line Ecological Impact Assessment, Gunning, Acciona Energy.
- Leonay/ Emu Plains - Wallacia Borefield Investigation Study, Sydney, Sydney Catchment Authority.
- Ecological and hydrogeological Investigation for a Proposed Irrigation Development, Avoca Station, Wentworth

VEGETATION SURVEY AND MAPPING

- Central Coast Local Government Area Plant Community Type Equivalences, Central Coast Council
- Vegetation Survey, Analysis & Mapping in Barool National Park, Linton Nature Reserve, Hobden Hill National Park, Woodsreef State Conservation Area and Serpentine Ridge National Park, NPWS/OEH
- Goonoo Reserves vegetation survey and mapping, NPWS/OEH
- Validation and accuracy assessment of Groundwater Dependent Ecosystem vegetation across the Hunter, Namoi and Lachlan Catchments, NSW DPI, Water
- Breealong and Drillwarrina National Parks vegetation survey and mapping, NPWS/OEH
- Narrabri Gas Project vegetation survey and mapping, Santos NSW (Eastern) Pty Ltd
- Baseline Biodiversity Assessment, ATP940P far south-west QLD, Drillsearch Limited
- Murrumbidgee Plot Data Collection. Vegetation survey across the South West Slopes, DEWHA.

BIOBANKING AND BIOCERTIFICATION

- Nooroo Biodiversity Stewardship Agreement, Hillbrad Pty Ltd
- Wyong Strategic Lands Biocertification Assessment, Wyong Shire Council
- Clarencetown BioBank Agreements, HillBrad Pty Ltd
- Narrabri Gas Project Major Project Credit Calculations, Santos Limited

ENCLOSURE 6

MR JOSHUA HUNT'S CURRICULUM VITAE

JOSHUA HUNT

mine project approvals
environmental management
regulatory approvals
environmental impact assessment

EDUCATION

Bachelor of Engineering (Civil)

PROFESSIONAL HISTORY

- Resource Strategies (Brisbane), Principal, 1999 to present.
- Woodward-Clyde (Brisbane), Civil Engineer, 1996 to 1997.
- Mouchel Consulting Limited (London), Environmental Engineer, 1998 to 1999.
- Fujita Corporation (Singapore), Project Engineer 1994 to 1996.
- Resource Strategies (Brisbane), Environmental Project Manager, 1997 to 1998.
- MPA Williams & Associates (Melbourne), Civil Engineer.

EXPERIENCE

Josh has extensive professional experience as a civil and environmental engineer. He has specialist experience in environmental impact assessment in the mining industry.

A civil engineer with a broad range of experience in engineering and environmental management for the mining industry, including:

- broad based environment studies and environmental impact assessment in relation to the approval and ongoing statutory requirements of mining projects.
- project feasibility and risk assessment studies.
- environmental auditing and compliance reporting.
- conceptual design of environmental management systems (particularly water management systems).
- management of consultation and negotiation processes with government and non-government stakeholders.

PROFESSIONAL EXPERIENCE – RELEVANT ENVIRONMENTAL/SUBSIDENCE ASSESSMENTS

Bulli Seam Operations – Appin and West Cliff Mines (BHP Billiton - Illawarra Coal)

- Bulli Seam Operations Environmental Assessment (NSW).
- Bulli Seam Operations Environmental Impact Statement (Commonwealth).
- Submission to the Bulli Seam Operations Review Panel of the Planning Assessment Commission.

Tasman Extension Project, NSW

- Tasman Extension Project Environmental Impact Statement.

Metropolitan Coal Mine, NSW

- Metropolitan Coal Project Environmental Assessment.
- Submission to the Metropolitan Coal Project Review Panel of the Planning Assessment Commission.
- Metropolitan Mine Longwalls 20-22 Extraction Plan.
- Metropolitan Mine Longwalls 23-27 Extraction Plan.
- Metropolitan Colliery Longwalls 18-19A Subsidence Management Plan Application.
- Metropolitan Colliery Longwalls 14-17 Subsidence Management Plan Application.

Wambo Coal Mine, NSW

- Wambo Development Project Environmental Impact Statement.
- Various modification applications for the North Wambo Underground Mine.
- North Wambo Underground Mine Longwalls 1 to 6 Subsidence Management Plan Application.
- North Wambo Underground Mine and South Bates Underground Mine Extraction Plan Applications.
- Referral of the Wambo Development Project under the Commonwealth *Environment Protection and Biodiversity Conservation Act, 1999*.

Abel Underground Mine, NSW

- Contributions to modifications and Subsidence Management Plan approvals.



Regional
NSW

AREQ0009792

Peter Jaeger, Manager Environment & Community
Wambo Coal Pty Ltd
PMB 1
Singleton, NSW, 2330
By email: PJaeger@peabodyenergy.com

Dear Peter

Subject: South Bates Extension Underground Mine – First Workings for Longwalls 22 to 24, Schedule 2 Condition 6B of DA 307-7-2003

I refer to your letter dated 29 May 2020 and associated attachments in relation to the proposed mining of first workings for Longwalls 22 to 24.

The Resources Regulator is satisfied that the applicant can achieve the required outcomes of Schedule 2, Condition 6B, of Development Consent DA 307-7-2003, subject to the following condition:

1. The mine operator must undertake adequate monitoring of the stability of first workings in the subject area and to implement appropriate ground support of the roadways in accordance with the results of the said monitoring, to ensure compliance with the outcome requirements of Schedule 2, Condition 6B of the Development Consent for DA 305-7-2003.

Note, this advice does not constitute any form of endorsement of the proposed mining in relation to work health and safety laws.

Yours sincerely

A handwritten signature in black ink, appearing to read 'G Burns'.

Garvin Burns
Chief Inspector of Mines

07 July 2020



WAMBO COAL PTY LTD

ABN: 13 000 668 057

100 Melbourne Street
South Brisbane Qld 4101

PMB 1
Singleton NSW 2330
Australia
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Fax + 61 (0) 2 6570 2290

29 May 2020

NSW Department of Planning, Infrastructure and Environment
Resource Regulator
PO Box 344
Hunter Region Mail Centre NSW 2320

Attention: Mr Alex Love, Advisory Officer Assessment Coordination

By email to cau@planning.nsw.gov.au
nswresourcesregulator@service-now.com
alex.love@planning.nsw.gov.au

Dear Alex,

**RE: SOUTH BATES EXTENSION UNDERGROUND MINE – FIRST WORKINGS
FOR LONGWALLS 22 TO 24**

The South Bates Extension Underground (SBEU) Mine is a component of the approved Wambo Coal Mine. The SBEU Mine was approved in December 2017 and involves extraction of coal by longwall mining methods from the Whybrow Seam. The approved South Bates Extension Underground Mine comprises Longwalls 17 to 25.

Wambo Coal Pty Ltd (WCPL) operates the Wambo Coal Mine in accordance with Development Consent DA 305-7-2003. Condition B6, Schedule 2 of the Development Consent states:

B6. The Applicant may carry out first workings within the underground mining areas of the approved mine plan, other than in accordance with an approved Extraction Plan, provided that the Resources Regulator is satisfied that the first workings are designed to remain stable and non-subsiding in the long-term, except insofar as they may be impacted by approved second workings.

Note: The intent of this condition is to ensure that first workings are built to geotechnical and engineering standards to ensure long term stability, with negligible direct subsidence impacts.

Approval was received for first workings of longwall 17 to longwall 21 (TG17 to MG21) on 27 March 2018 (your ref OUT18/5435). WCPL has progressed the mine plan to allow for continued safe and efficient resource extraction from Longwalls 22 to 24 (MG22 to MG24 in attached Figure). The pillar design is consistent with the Mine Advice Pty Ltd document *WAM37-01 Preliminary Coal Pillar Design Recommendation for the South Bates Underground Extension Project*. Pillar design exceeds legislative requirements to ensure pillars remain stable and non-subsiding in the long-term. To date there have been no roadway or pillar failures and subsidence monitoring has shown no subsidence over first workings areas.

In accordance with Condition B6, Schedule 2 of the Development Consent, WCPL requests confirmation from the Resources Regulator that the proposed first workings are stable and non-subsiding in the long-term.

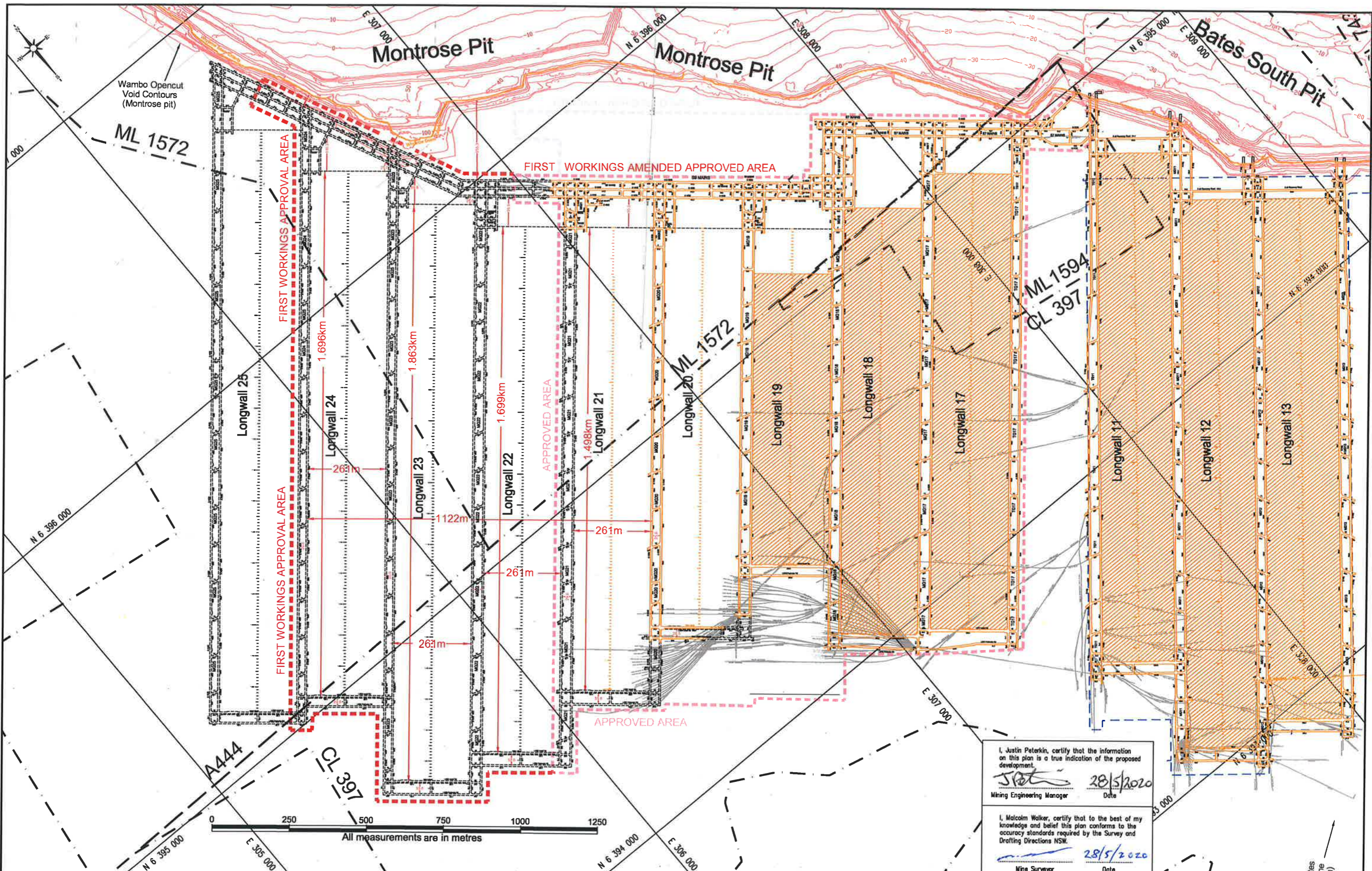
Please do not hesitate to contact me on (02) 6570 2206 if you have any queries in regard to the above or if you require additional information.

Yours faithfully,

A handwritten signature in blue ink, appearing to read 'P. Jaeger', with a horizontal line drawn through it.

Peter Jaeger
Manager: Environment & Community
WAMBO COAL PTY LTD

Attached Figure - First Workings Approval MG22 to MG24 (DWG2734 Rev C)



I, Justin Peterkin, certify that the information on this plan is a true indication of the proposed development.
 J.Peterkin 28/5/2020
 Mining Engineering Manager Date

I, Malcolm Walker, certify that to the best of my knowledge and belief this plan conforms to the accuracy standards required by the Survey and Drafting Directions NSW.
 M.Walker 28/5/2020
 Mine Surveyor Date

 Development Consent DA305-7-2003 Condition 22E First Workings Approval Area
 Development Consent DA305-7-2003 Condition 22E First Workings APPROVED First Workings (Amended)
 South Bates Extension Underground Proposed Workings (Whybrow seam)
 South Bates Extension Underground Workings (Whybrow seam)
 Lease Boundary
 South Bates Underground Mine Outline (Wambo Seam)
- - - - -15 - Opencut Void Contours (5m)

REV.	DATE	BY	DESCRIPTION	CHK.	REV.	DATE	BY	DESCRIPTION	CHK.
A	2/02/2018	MW	INITIAL ISSUE - TAILGATE 17 TO MAINGATE 21	JFA					
B	12/03/2018	MW	STEPPED MAINS AMENDMENT - MAINGATE 18 TO MAINGATE 21	PJ					
C	27/4/2020	MW	MAINGATE 22 TO MAINGATE 24	ND					

Peabody WAMBO COAL PTY LIMITED
 ABN 13 000 688 057
 Jerry's Plains Rd, Warkworth Phone: 02 65 702200
 Via Singleton, NSW, 2330 Fax: 02 65 702290
 Prepared by NWU Survey Ph: 02 65 702318

South Bates Extension Underground (Whybrow Seam) Development
 Consent DA-305-7-2003 Condition B6
 First Workings Approval MG22 to MG24.

Date: 27/4/2020 Scale: 1:4000 Drawn: MJW Checked: PJ Approved: JP

Drawing No: 2734
 Revision No: C
 Sheet Size: A0

Subject: FW: Wambo Coal South Bates Underground Extension_Amended First Workings LW17-21

From: Jaeger, Peter F <PJaeger@peabodyenergy.com>
Sent: Friday, 15 March 2019 7:51 AM
To: Alex Love <alex.love@planning.nsw.gov.au>
Cc: Dobbins, Nicole <NDobbins@peabodyenergy.com>
Subject: Wambo Coal South Bates Underground Extension_Amended First Workings LW17-21

Dear Alex,

Please find attached file transfer link to correspondence relating to amended first workings for the Wambo Coal South Bates Underground Extension Longwalls 17 to 21. Changes to the first workings are required to step around geological structures. The changes have been included in the amended Extraction Plan recently submitted.

<https://securefile.peabodyenergy.com/w/WR5o36vT>

If you have any difficulty downloading the file or require anything further, please contact myself at the details below or Nicole Dobbins on 0408969988.

Kind regards,

Peter Jaeger

Manager: Environment & Community

Wambo Coal

PMB 1 | Singleton, NSW 2303

Office Phone: +61 2 6570 2206 | Mob: +61 417 527 585

pjaeger@peabodyenergy.com



Mr Peter Jandzio
Mining Engineering Manager
North Wambo Underground Mine
PMB1
Singleton, NSW 2330

By email: pjaeger@peabodyenergy.com

Dear Mr Jandzio

Requirements under Schedule 4, Condition 22E Development Consent DA 305-7-2003(MOD 12) South Bates Underground Extension

I refer to your letter dated 5 February 2018 subject Wambo Coal South Bates Underground Extended – First Workings Update and attachments.

The Division of Resources and Energy is satisfied that the Leaseholder can achieve the required outcomes of the first workings condition of Development Consent DA 305-7-2003 (MOD 12) Schedule 4 Condition 22E subject to the following condition:

“The Mine Manager must undertake adequate monitoring of the stability of first workings in the subject area and to implement appropriate ground support of the roadways in accordance with the results of the said monitoring, to ensure compliance with the outcome requirements of Schedule 4, Condition 22E of the Development Consent for DA 305-7-2003 (MOD12).”

The proposed mine workings are shown in the forwarded plan titled “South Bates Underground Extension (Whybrow Seam) Development Consent DA-305-7-2003 Condition 22C (sic) First Workings Application for the Main Headings, TG17 to MG21” Dwg. No. 2367, signed by the Mining Engineering Manager on 2 February 2018.

If you have any further enquiries do not hesitate to contact Mr Alex Love, Project Coordinator, on 02 9842 8582.

Yours sincerely



Matt Gagan
A/Manager Royalty & Advisory Services
Division of Resources and Geosciences
27 March 2018



Peter Jaeger
Environment & Community Manager
Wambo Coal Pty Ltd
PMB 1
Singleton NSW 2330

15/04/2020

Dear Mr Jaeger

**Wambo Coal Mine (DA 305-7-2003)
South Bates Extension - Shortening of Longwall 20**

I refer to your letter dated 26 February 2020 and 25 March 2020, requesting the Secretary's approval to shorten Longwall 20 by a total of 187.5 metres compared to the longwall layout in Extraction Plan (EP), approved 4 June 2019, due to the presence of a previously unidentified fault intersecting the longwall's commencing end.

The Department notes that the reduction in longwall length would likely result in reduced or negligible changes to subsidence impacts and environmental consequences on the surface and therefore would not significantly change predicted impacts to natural and built features as described in the Environmental Assessment for Modification 17.

The Department considers that the subsidence impacts and environmental consequences would be similar or less than compared to the approved layout.

Considering the above, the Secretary agrees that the proposed modified layout would still comply with condition A2 of Schedule 2 of the Wambo Coal Mine development consent (DA 305-7-2003).

The Department also considers the management and mitigation measures described in the approved EP remain appropriate. However, the Department requests that relevant figures in the EP are updated to reflect the changed layout.

If you wish to discuss the matter further, please contact Melanie Hollis on 8217 2043.

Yours sincerely

A handwritten signature in black ink, appearing to read 'M Sprott'.

Matthew Sprott
Director
Resource Assessments (Coal & Quarries)

as nominee of the Planning Secretary



WAMBO COAL PTY LTD

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25 March 2020

Department of Planning, Industry and Environment
Locked Bag 5022
PARRAMATTA NSW 2124

Attention: Executive Director Energy and Resources

By email: mike.young@planning.nsw.gov.au
Cc: melanie.hollis@planning.nsw.gov.au

Dear Mr Young,

**SOUTH BATES EXTENSION UNDERGROUND MINE – FURTHER
SHORTENING OF LONGWALL 20**

On 22 February 2020, Wambo Coal Pty Limited (WCPL) wrote to the Department of Planning, Infrastructure and Environment (the Department) requesting approval to shorten Longwall 20 by 176.5 metres (m).

Since the identification of the fault requiring the shortening of Longwall 20, WCPL has continued to conduct in-seam drilling operations. Drilling has confirmed the commencing (south-western) end of Longwall 20 is required to be shortened by an additional 11m, resulting in a total shortening of **187.5 m**.

Environmental features directly overlying or in the vicinity of the commencing (south-western) end of Longwall 20 are shown in Table 1 and Enclosure 1. Shortening Longwall 20 by an additional 11 metres will not increase previously assessed impacts to any of these features.

Please do not hesitate to contact me on (02) 6570 2206 if you have any queries in regard to the above or if you require additional information.

Yours faithfully,

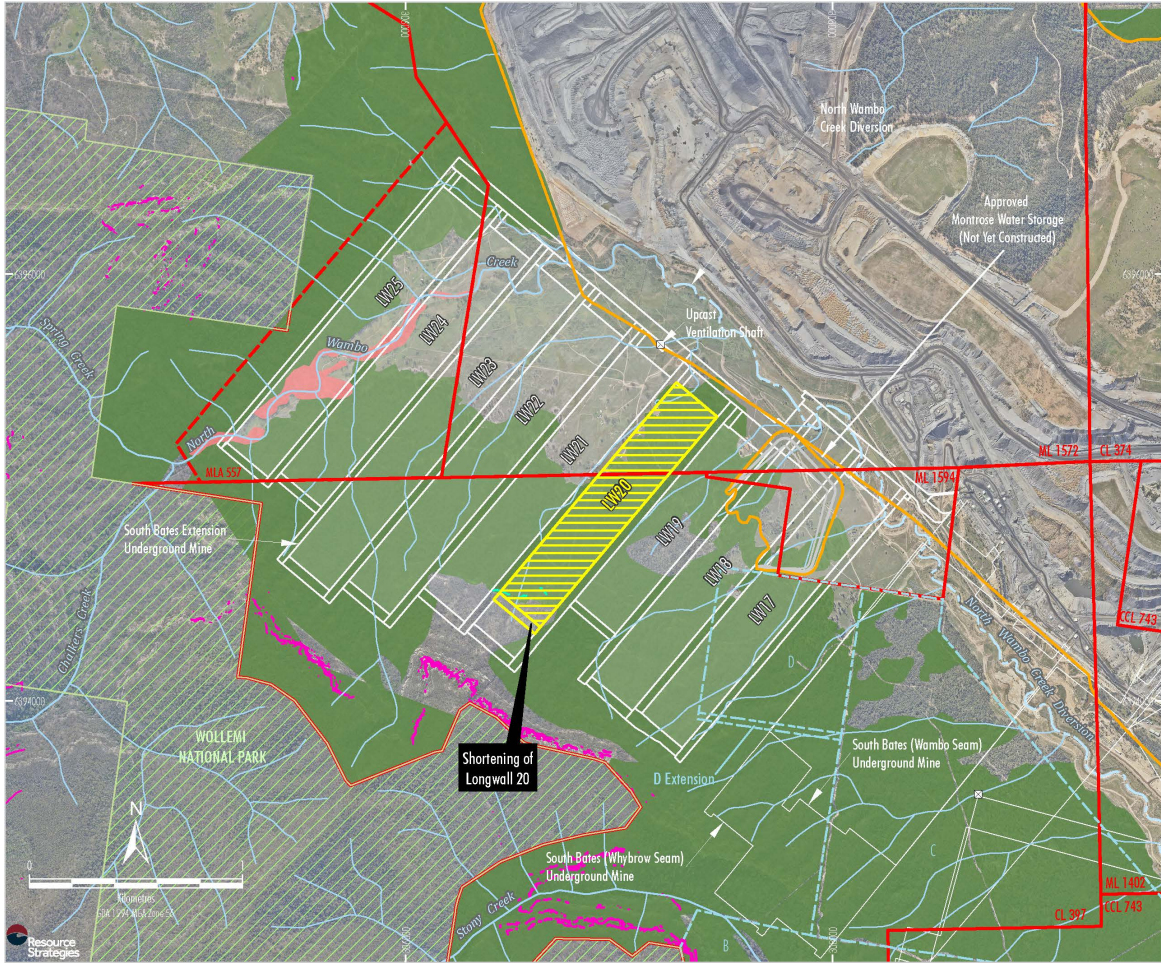
Peter Jaeger
Manager: Environment & Community
WAMBO COAL PTY LTD

Table 1 – Environmental Features in the Vicinity of Longwall 20

Environmental Feature	Full Length Longwall 20	Shortened Longwall 20
Central Hunter Valley Eucalypt Forest and Woodland Community	Directly overlying.	Reduced area directly overlying.
	Direct subsidence impacts predicted.	Reduced area of direct subsidence impacts.
Small and unimportant ephemeral drainage lines	Directly overlying.	Reduced length of drainage lines directly overlying.
	Direct subsidence impacts predicted.	Reduced direct subsidence impacts anticipated.
	No ponding predicted.	No change.
Wollemi National Park	Approximately 286 m to the south-west.	Approximately 469 m to the south-west.
	Outside of 26.5° angle of draw.	No change.
	No material subsidence predicted.	No change.
Wollemi National Park Escarpment	Approximately 196 m to the south-west.	Approximately 384 m to the south-west.
	Outside of 26.5° angle of draw.	No change.
	Negligible subsidence impacts and environmental consequences predicted.	No change.
Low level cliffs	Directly overlying Longwall 20.	No change.
	Direct subsidence impacts predicted from Longwall 20.	No change.
	Indirect subsidence impacts predicted from Longwall 19.	No change.

ENCLOSURE 1

ENVIRONMENTAL FEATURES OVERLYING LONGWALL 20



- LEGEND**
- Mining and Coal Lease Boundary
 - - - Mining Lease Application Boundary
 - National Park Boundary
 - Existing/Approved Surface Development Area
 - Approved Underground Development
 - Ventilation Shaft
 - - - Remnant Woodland Enhancement Program (RWEF) Area
 - Features with Subsidence Impact Performance Measures
 - Wollemi National Park
 - Wollemi National Park Escarpment
 - Low Level Cliffs
 - Central Hunter Valley Eucalypt Forest and Woodland
 - Other Threatened Ecological Community ¹

¹ Listed as endangered or critically endangered under the Biodiversity Conservation Act, 2016.

Source: NSW Department of Industry (2017); WCP (2020); FloraSearch (2017); MSEC (2014)
 Orthophoto: WCP (May 2019)

WAM-09-15_SRX_EP_IW17-20_Shortened IW 20_2018 (23/03/2020)



WAMBO COAL PTY LTD

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South Brisbane Qld 4101

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Australia
Tel + 61 (0) 2 6570 2200
Fax+ 61 (0) 2 6570 2290

26 February 2020

Department of Planning, Industry and Environment
Locked Bag 5022
PARRAMATTA NSW 2124

Attention: Executive Director Energy and Resources

By email: mike.young@planning.nsw.gov.au
Cc: melanie.hollis@planning.nsw.gov.au

Dear Mr Young,

SOUTH BATES EXTENSION UNDERGROUND MINE – VARIATION TO LONGWALL 20

On 15 October 2019, Wambo Coal Pty Limited (WCPL) wrote to the Department of Planning, Infrastructure and Environment (the Department) requesting approval to shorten Longwall 19 at the South Bates Extension Underground Mine due to the identification of a previously unknown fault intercepting Longwall 19's commencing end. The size and orientation of the fault rendered the first 369 metres (m) of Longwall 19 un-mineable.

On 13 November 2019, the Department approved the request to shorten Longwall 19 by 369 m.

WCPL flagged in the correspondence regarding Longwall 19 that it was likely, although not certain, that the fault intercepting Longwall 19 would also effect the commencing end of Longwall 20. WCPL has undertaken additional in-seam drilling operations which have confirmed the fault will require the shortening of Longwall 20 by 176.5 m.

WCPL is notifying the Department of the required change to the commencing position of Longwall 20.

Could you please advise if we can now update the Longwalls 17-20 Extraction Plan with the updated figures showing the shortened Longwalls 19 and 20 and replace the version currently available on our website.

Background

The South Bates Extension Underground Mine is a component of the approved Wambo Coal Mine. The South Bates Extension Underground Mine was approved in December 2017 and involves extraction of coal by longwall mining methods from the Whybrow Seam. The approved South Bates Extension Underground Mine comprises Longwalls 17 to 25.

WCPL lodged an Extraction Plan for Longwalls 17 to 20 at the South Bates Extension Underground Mine with the Department of Planning and Environment (now Department of Planning, Industry and Environment) (herein referred to as the Department) in April 2018 for review and approval.

Subsequent to the submission of the Longwalls 17-20 Extraction Plan:

- WCPL encountered geological structures that required changes to the main headings and the finishing ends of Longwalls 18, 19 and 20.
- Accordingly, on 4 September 2018, WCPL requested that the Department approve the Extraction Plan for extraction of Longwall 17 only.
- On 7 September 2018, the Department approved the extraction of Longwall 17 only, on the basis that WCPL would prepare an amended Extraction Plan for Longwalls 18, 19 and 20.
- On 1 March 2019, WCPL submitted an amended Extraction Plan for Longwalls 17-20.
- On 4 June 2019, the Department approved the amended Longwalls 17-20 Extraction Plan.
- On 11 October 2019, WCPL submitted a request for approval to shorten the commencing end of Longwall 19.
- On 13 November 2019, the Department approved the request to shorten the commencing end of Longwall 19.

Consistent with the correspondence regarding Longwall 19, WCPL notes that the Modification 17 Development Consent (applicable to the Longwalls 17-20 Extraction Plan) states that:

Note: With the approval of the Secretary, longwall panels may be shortened or narrowed, providing that the proposed variations do not result in increased subsidence impacts or environmental consequences.

Shortening of Longwall 20

Since the identification of a previously unknown fault requiring the shortening of Longwall 19, WCPL has continued to conduct in-seam drilling operations. Exploration drilling from other locations has proven the fault to be a normal fault with a displacement of 8 m coinciding with the commencing end of Longwall 20. The size and orientation of this fault makes it un-mineable with current longwall mining methods and equipment.

As a result of the identified fault, the commencing (south-western) end of Longwall 20 is required to be shortened by 176.5 m (Enclosure 1).

Environmental Features in the Vicinity of Longwall 20

The depth of cover in the vicinity of the commencing end of Longwall 20 is between 290 m and 310 m. Environmental features directly overlying or in the vicinity of the

commencing (south-western) end of Longwall 20 are summarised in Table 1 and shown in Enclosure 1.

Shortening Longwall 20 will not increase previously assessed impacts to any of these features.

Please do not hesitate to contact me on (02) 6570 2206 if you have any queries in regard to the above or if you require additional information.

Yours faithfully,

A handwritten signature in blue ink, appearing to read 'P. F. Jaeger', with a stylized flourish at the end.

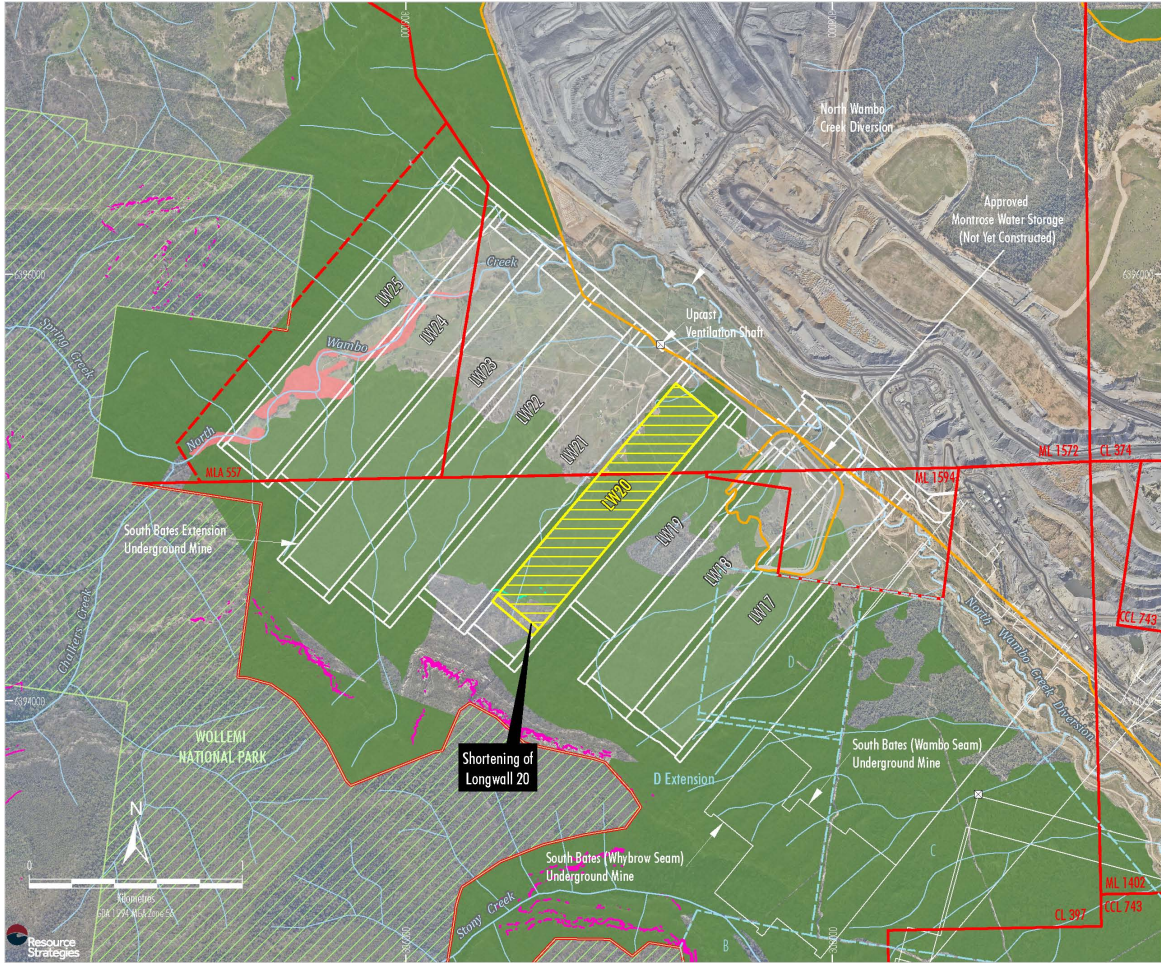
Peter Jaeger
Manager: Environment & Community
WAMBO COAL PTY LTD

Table 1 – Environmental Features in the Vicinity of Longwall 20

Environmental Feature	Full Length Longwall 20	Shortened Longwall 20
Central Hunter Valley Eucalypt Forest and Woodland Community	Directly overlying.	Reduced area directly overlying.
	Direct subsidence impacts predicted.	Reduced area of direct subsidence impacts.
Small and unimportant ephemeral drainage lines	Directly overlying.	Reduced length of drainage lines directly overlying.
	Direct subsidence impacts predicted.	Reduced direct subsidence impacts anticipated.
	No ponding predicted.	No change.
Wollemi National Park	Approximately 286 m to the south-west.	Approximately 458 m to the south-west.
	Outside of 26.5° angle of draw.	No change.
	No material subsidence predicted.	No change.
Wollemi National Park Escarpment	Approximately 196 m to the south-west.	Approximately 373 m to the south-west.
	Outside of 26.5° angle of draw.	No change.
	Negligible subsidence impacts and environmental consequences predicted.	No change.
Low level cliffs	Directly overlying Longwall 20.	No change.
	Direct subsidence impacts predicted from Longwall 20.	No change.
	Indirect subsidence impacts predicted from Longwall 19.	No change.

ENCLOSURE 1

ENVIRONMENTAL FEATURES OVERLYING LONGWALL 20



- LEGEND**
- Mining and Coal Lease Boundary
 - - - Mining Lease Application Boundary
 - National Park Boundary
 - Existing/Approved Surface Development Area
 - Approved Underground Development
 - Ventilation Shaft
 - - - Remnant Woodland Enhancement Program (RWEF) Area
 - Features with Subsidence Impact Performance Measures
 - Wollemi National Park
 - Wollemi National Park Escarpment
 - Low Level Cliffs
 - Central Hunter Valley Eucalypt Forest and Woodland
 - Other Threatened Ecological Community ¹

¹ Listed as endangered or critically endangered under the Biodiversity Conservation Act, 2016.

Source: NSW Department of Industry (2017); WCPA (2019); FloraSearch (2017); MSEC (2016)
 Orthophoto: WCPA (May 2019)

WAM-09-15_SRX_EF_IW17-20_Shortened LW 20_201A



Peter Jaeger
Manager Environmental & Community
Wambo Coal Pty Ltd
PMB 1
SINGLETON NSW 2330

Dear Mr Jaeger

**South Bates Extension Underground Mine
Variation to Longwall 19**

I refer to your correspondence of 16 October 2019 seeking the Secretary's approval to reduce the length of Longwall 19 by approximately 369 metres compared to the longwall layout in Extraction Plan (EP), approved 4 June 2019, and without the need to further amend this EP.

The Department understands that the reduction is being sought due to exploration drilling identifying a previously unknown fault intercepting the commencing end of Longwall 19.

The Department notes that the reduction in longwall length would likely result in reduced or negligible changes to subsidence impacts and environmental consequences on the surface and therefore would not significantly change predicted impacts to natural and built features as described in the Environmental Assessment for Modification 17.

The Department considers that the subsidence impacts and environmental consequences would be similar or less than compared to the approved layout. The Department also considers the management and mitigation measures described in the approved EP remain appropriate.

Considering the above, the Secretary agrees that the proposed modified layout would still comply with condition A2 of Schedule 2 of the Wambo Coal Mine development consent (DA 305-7-2003). Please update the relevant figures of the revised South Bates Extension Longwalls 17 to 20 EP to reflect this updated layout.

If you wish to discuss this matter further, please contact Melanie Hollis at the details listed above.

Yours sincerely

Steve O'Donoghue
Director
Resource Assessments
as the Secretary's nominee



WAMBO COAL PTY LTD

ABN: 13 000 668 057

100 Melbourne Street
South Brisbane Qld 4101

PMB 1
Singleton NSW 2330
Australia
Tel + 61 (0) 2 6570 2200
Fax+ 61 (0) 2 6570 2290

15 October 2019

Department of Planning, Industry and Environment
Level 22, 320 Pitt St
SYDNEY NSW 2000

Attention: Executive Director Energy and Resources

By email: mike.young@planning.nsw.gov.au

Dear Mr Young

SOUTH BATES EXTENSION UNDERGROUND MINE – SHORTENING OF LONGWALL 19

Wambo Coal Pty Limited (WCPL) has recently identified a previously unknown fault intercepting the commencing end of Longwall 19 of the South Bates Extension Underground Mine. The size and orientation of the fault renders the first 369 metres (m) of Longwall 19 un-mineable. Longwall 18 is approximately 50% complete and the commencement of Longwall 19 is scheduled for 12 December 2019.

WCPL is notifying the Department of Planning, Industry and Environment of the required change to the commencing position of Longwall 19. It is likely, although not yet certain, that the fault intercepting Longwall 19 will also affect the commencing end of Longwall 20. WCPL will notify the Department if a subsequent shortening of Longwall 20 is also required.

Background

The South Bates Extension Underground Mine is a component of the approved Wambo Coal Mine. The South Bates Extension Underground Mine was approved in December 2017 and involves extraction of coal by longwall mining methods from the Whybrow Seam. The approved South Bates Extension Underground Mine comprises Longwalls 17 to 25.

WCPL lodged an Extraction Plan for Longwalls 17 to 20 at the South Bates Extension Underground Mine with the Department of Planning and Environment (now Department of Planning, Industry and Environment) (herein referred to as the Department) in April 2018 for review and approval.

Subsequent to the submission of the Longwalls 17-20 Extraction Plan:

- WCPL encountered geological structures that required changes to the main headings and the finishing ends of Longwalls 18, 19 and 20.
- Accordingly, on 4 September 2018, WCPL requested that the Department approve the Extraction Plan for extraction of Longwall 17 only.
- On 7 September 2018, the Department approved the extraction of Longwall 17 only, on the basis that WCPL would prepare an amended Extraction Plan for Longwalls 18, 19 and 20.
- On 1 March 2019, WCPL submitted an amended Extraction Plan for Longwalls 17-20.
- On 4 June 2019, the Department approved the amended Longwalls 17-20 Extraction Plan.

WCPL notes that the Modification 17 Development Consent (applicable to the Longwalls 17-20 Extraction Plan) states that:

Note: With the approval of the Secretary, longwall panels may be shortened or narrowed, providing that the proposed variations do not result in increased subsidence impacts or environmental consequences.

Shortening of Longwall 19

WCPL is currently conducting in-seam drilling operations for the purpose of gas drainage and exploration. Whilst drilling from maingate (MG) 17 16 cut-through (ct) an exploration hole was drilled into the Longwall 19 mining area and a previously unknown fault was discovered (Enclosure 1).

Subsequent exploration drilling from other locations has proven the fault to be a normal fault with a displacement of 8 m. The size and orientation of this fault makes it un-mineable with current longwall mining methods and equipment.

As a result of the identified fault, the commencing (south-western) end of Longwall 19 is required to be shortened by 369 m (Enclosure 2).

Environmental Features in the Vicinity of Longwall 19

The depth of cover in the vicinity of the commencing end of Longwall 19 is between 280 m and 300 m. Environmental features directly overlying or in the vicinity of the commencing (south-western) end of Longwall 19 are summarised in Table 1 and shown in Enclosure 3. Mine Subsidence Engineering Consultants (MSEC) have prepared revised subsidence contours for the longwalls as shown in Enclosure 4.

Table 1 – Environmental Features in the Vicinity of Longwall 19

Environmental Feature	Full Length Longwall 19	Shortened Longwall 19
Central Hunter Valley Eucalypt Forest and Woodland Community	Directly overlying.	Reduced area directly overlying.
	Direct subsidence impacts predicted.	Reduced area of direct subsidence impacts.
Small and unimportant ephemeral drainage lines	Directly overlying.	Reduced length of drainage lines directly overlying.
	Direct subsidence impacts predicted.	Reduced direct subsidence impacts anticipated.
	No ponding predicted.	No change.
Wollemi National Park	Approximately 286 m to the south-west.	Approximately 658 m to the south-west.
	Outside of 26.5° angle of draw.	No change.
	No material subsidence predicted.	No change.
Wollemi National Park Escarpment	Approximately 225 m to the south-west.	Approximately 594 m to the south-west.
	Outside of 26.5° angle of draw.	No change.
	Negligible subsidence impacts and environmental consequences predicted.	No change.
Low level cliffs	Approximately 118 m to the north.	Approximately 135 m to the north-west.
	Directly overlying Longwall 20.	No change.
	Direct subsidence impacts predicted from Longwall 20.	No change.
	Indirect subsidence impacts predicted from Longwall 19.	No change.

Please do not hesitate to contact me on (02) 6570 2206 if you have any queries in regard to the above or if you require additional information.

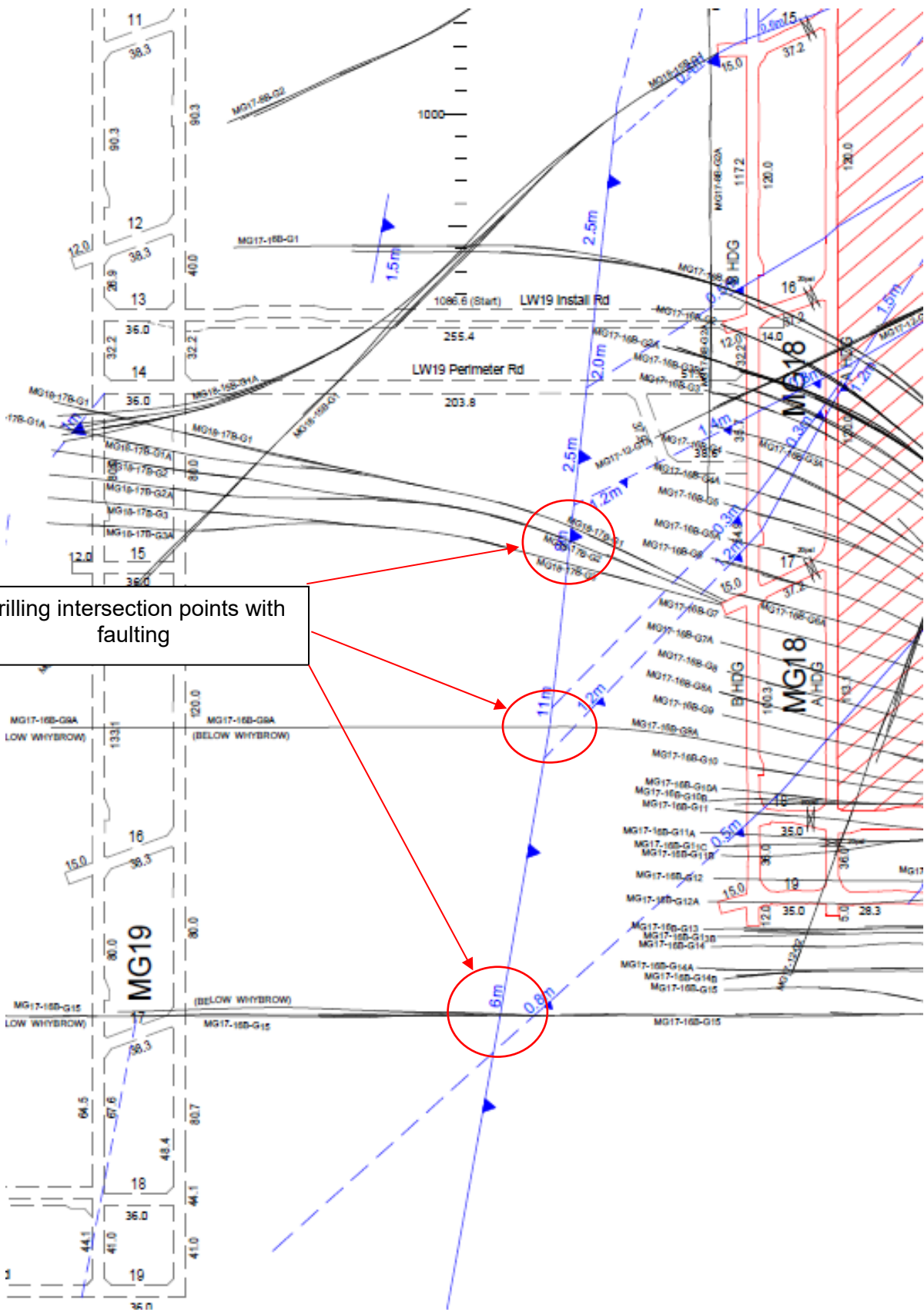
Yours faithfully,

A handwritten signature in blue ink, appearing to read "P. Jaeger", with a large, sweeping flourish underneath.

Peter Jaeger
Manager: Environment & Community
WAMBO COAL PTY LTD

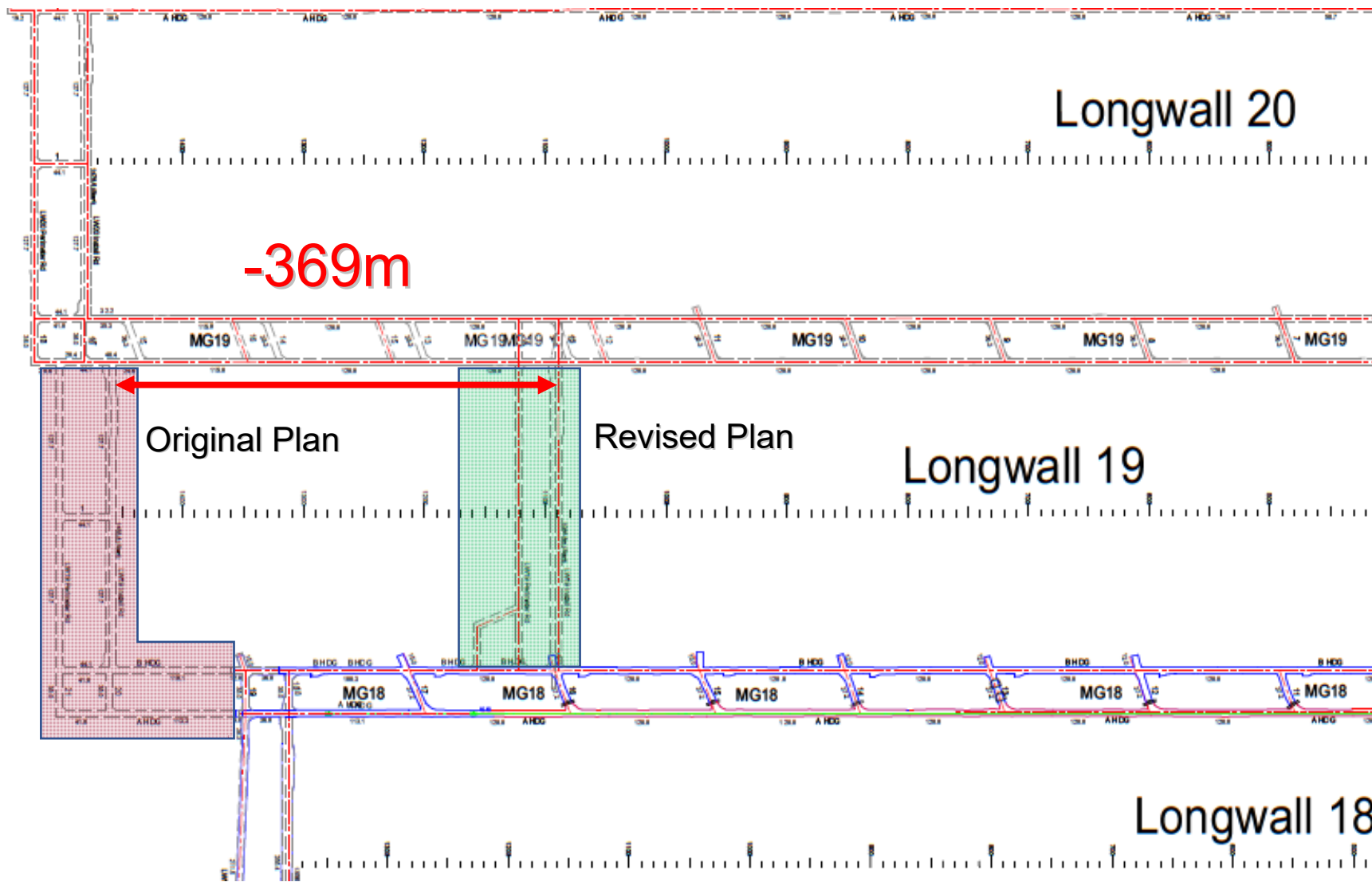
ENCLOSURE 1

FAULT IDENTIFIED IN LONGWALL 19 VIA INSEAM DRILLING OPERATIONS



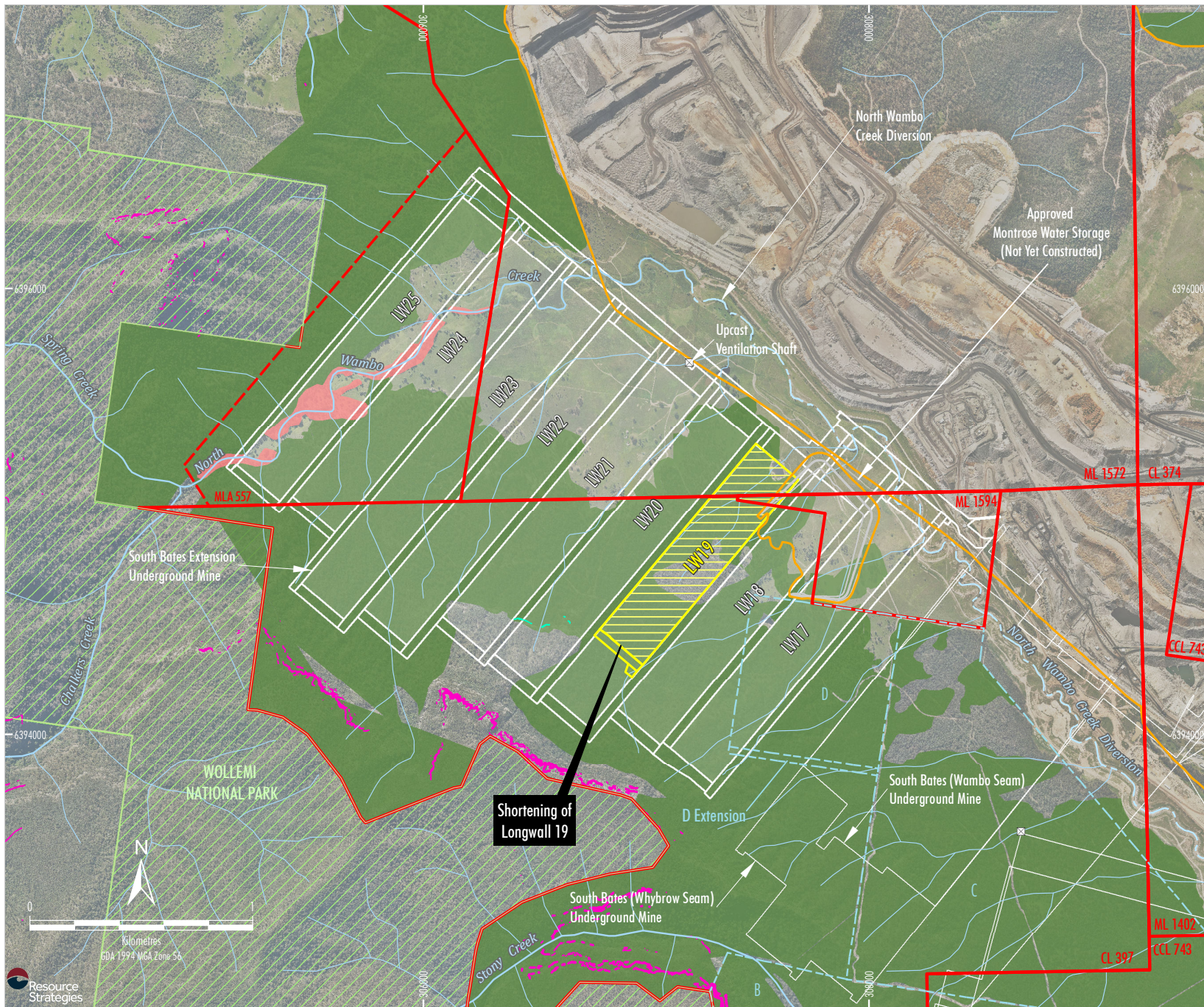
ENCLOSURE 2

PROPOSED CHANGES TO LONGWALL 19



ENCLOSURE 3

ENVIRONMENTAL FEATURES OVERLYING LONGWALL 19



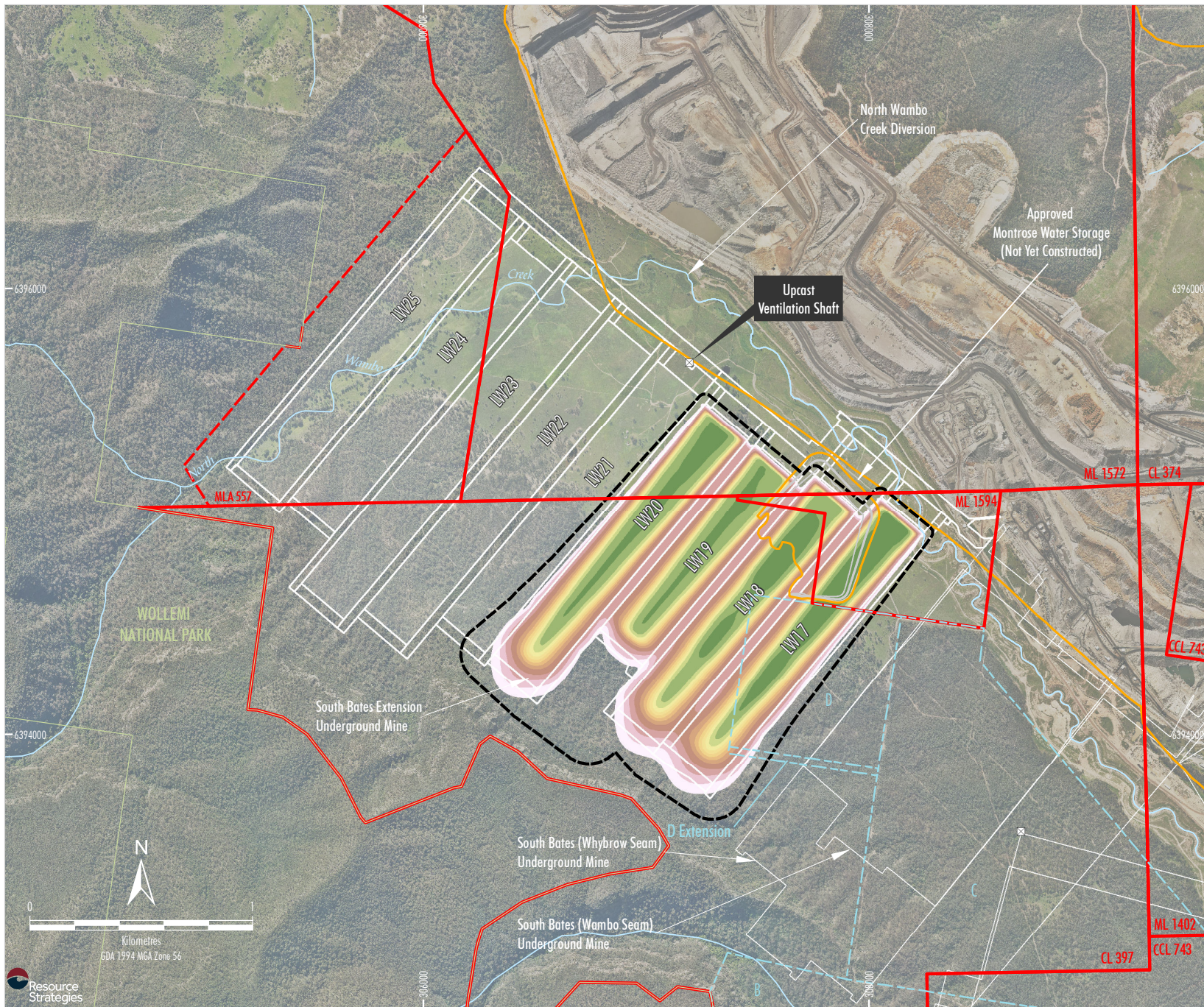
- LEGEND**
- Mining and Coal Lease Boundary
 - - - Mining Lease Application Boundary
 - National Park Boundary
 - Existing/Approved Surface Development Area
 - Approved Underground Development
 - ⊠ Ventilation Shaft
 - - - Remnant Woodland Enhancement Program (RWEF) Area
 - Features with Subsidence Impact
 - Performance Measures
 - Wollemi National Park
 - Wollemi National Park Escarpment
 - Low Level Cliffs
 - Central Hunter Valley Eucalypt Forest and Woodland
 - Other Threatened Ecological Community ¹

¹ Listed as endangered or critically endangered under the Biodiversity Conservation Act, 2016.

Source: NSW Department of Industry (2017); WCPL (2019); FloraSearch (2017); MSEC (2016)
 Orthophoto: WCPL (May 2017)

ENCLOSURE 4

PREDICTED SUBSIDENCE FROM THE SOUTH BATES EXTENSION UNDERGROUND MINE



LEGEND

- Mining and Coal Lease Boundary
- - - Mining Lease Application Boundary
- National Park Boundary
- Existing/Approved Surface Development Area
- Approved Underground Development
- ⊠ Ventilation Shaft
- - - Remnant Woodland Enhancement Program (RWEPP) Area
- - - Extraction Plan Application Area

Subsidence Contour Colour Scale (mm)

20
50
100
200
400
600
800
1000
1200
1400
1600
1800

Source: NSW Department of Industry (2017); WCPL (2019); MSEC (2019)
 Orthophoto: WCPL (May 2017)

Peabody
 WAMBO COAL MINE
 Predicted Subsidence from the
 South Bates Extension Underground Mine

Figure 7



Our ref: DOC20/240325-4

Your ref: DA/305-7-2003

Nicole Dobbins

Senior Environmental Advisor
Wambo Coal Mine
Peabody Australia
ndobbins@peabodyenergy.com

Dear Ms Dobbins

Wambo Coal Mine Heritage Management Plan

I refer to your e-mail dated 23 March 2020 in which you invited the Biodiversity and Conservation Division (BCD) of the Department of Planning, Industry and Environment to review the new Heritage Management Plan for the Wambo Mine. BCD understands that the plan has been revised following the update to Development Consent for the South Bates Extension Underground Mine (DA 305-7-2003), and that the new plan has been prepared as part of the Extraction Plan for Longwalls 21 to 24.

BCD is unable to provide comments on the Heritage Management Plan at this time. This does not represent BCD support for the proposal. Aboriginal cultural heritage matters may still need to be considered by the consent authority.

If you have any further questions in relation to this matter, please contact Robert Gibson, Regional Biodiversity Conservation Officer, on 4927 3154 or via email at rog.hcc@environment.nsw.gov.au

Yours sincerely

A handwritten signature in black ink, appearing to read 'S. Cox'.

03 May 2020

STEVEN COX
Senior Team Leader Planning
Hunter Central Coast Branch
Biodiversity and Conservation Division



WAMBO COAL PTY LTD

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South Brisbane Qld 4101

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Singleton NSW 2330
Australia
Tel + 61 (0) 2 6570 2200
Fax + 61 (0) 2 6570 2290

23 March 2020

Janet Fenwick
PO Box 62
SINGLETON NSW 2330

Dear Janet

**RE: SOUTH BATES EXTENSION UNDERGROUND MINE LONGWALLS 21 TO 24
HERITAGE MANAGEMENT PLAN**

The South Bates Extension Underground Mine is a component of the approved Wambo Coal Mine. The South Bates Extension Underground Mine was approved in December 2017 and involves extraction of coal by longwall mining methods from the Whybrow Seam. The approved South Bates Extension Underground Mine comprises Longwalls 17 to 25.

Wambo Coal Pty Limited (WCPL) is preparing an Extraction Plan for Longwalls 21 to 24 at the South Bates Extension Underground Mine. The Extraction Plan has been prepared in accordance with Condition B7(f), Schedule 2 of Development Consent (DA 305-7-2003) granted for the Wambo Development Project.

Following approval of the United Wambo Joint Venture Project (Modification 16) in August 2019, the Department of Planning, Industry and Environment (DPIE) updated the entirety of the Development Consent (DA 305-7-2003). To avoid administrative complications, WCPL has prepared a new iteration of the Heritage Management Plan (Version 0) (HMP) and undertaken a full review and update. This iteration of the HMP builds upon the content in, and consultation undertaken for, the previous iteration of the HMP.

WCPL is required to prepare the HMP in consultation with the Biodiversity and Conservation Division and relevant stakeholders for Aboriginal and non-Aboriginal heritage. The enclosed USB includes the following documents:

- a complete copy of the HMP (including all appendices);
- a tracked change version of the HMP, identifying the updates made in this iteration; and
- a tracked change version of the HMP for Remnant Woodland Enhancement Area A, identifying the updates made in this version.

WCPL would appreciate any comments you would like to make on the enclosed Heritage Management Plan.

Please provide any feedback to WCPL via the following contact details:

Nicole Dobbins
Senior Environmental Advisor
Wambo Coal Pty Ltd
PMB1, SINGLETON NSW 2303
Phone: (02) 6570 2209
Email: ndobbins@peabodyenergy.com

Please submit any comments you may have on the Heritage Management Plan (either verbally or in writing) by **5.00pm Monday 13th April 2020**.

Yours faithfully,



Peter Jaeger
Manager: Environment and Community
WAMBO COAL PTY LTD

Subject: FW: Wambo Coal Mine Heritage Management Plan

From: Dobbins, Nicole

Sent: Monday, March 23, 2020 2:05 PM

To: 'rog.hcc@environment.nsw.gov.au' <rog.hcc@environment.nsw.gov.au>; 'heritage@heritage.nsw.gov.au' <heritage@heritage.nsw.gov.au>

Subject: Wambo Coal Mine Heritage Management Plan

Good afternoon,

Wambo Coal Pty Limited (WCPL) is preparing an Extraction Plan for Longwalls 21 to 24 at the South Bates Extension Underground Mine. The Extraction Plan has been prepared in accordance with Condition B7(f), Schedule 2 of Development Consent (DA 305-7-2003) granted for the Wambo Development Project.

Following approval of the United Wambo Joint Venture Project (Modification 16) in August 2019, the Department of Planning, Industry and Environment (DPIE) updated the entirety of the Development Consent (DA 305-7-2003). To avoid administrative complications, WCPL has prepared a new iteration of the Heritage Management Plan (Version 0) (HMP) and undertaken a full review and update. This iteration of the HMP builds upon the content in, and consultation undertaken for, the previous iteration of the HMP.

WCPL is required to prepare the HMP in consultation with the Biodiversity and Conservation Division and relevant stakeholders for Aboriginal and non-Aboriginal heritage. The link below includes the following documents:

- a complete copy of the HMP (including all appendices);
- a tracked change version of the HMP, identifying the updates made in this iteration; and
- a tracked change version of the HMP for Remnant Woodland Enhancement Area A, identifying the updates made in this version.

Sharefile link to download: <https://resourcestrategies.sharefile.com/d-s63b493b1d4f43ce9>

WCPL would appreciate any comments you would like to make on the Heritage Management Plan.

Kind regards,

Nicole Dobbins

Senior Environmental Advisor
Contract

Peabody Australia

PMB 1, Singleton NSW 2330

Office: +61 (02) 6570 2209

ndobbins@peabodyenergy.com



Subject: FW: Wambo Coal Mine Revised Biodiversity Management Plan [SEC=OFFICIAL]

From: Vaughn Cox <Vaughn.Cox@awe.gov.au>
Sent: Thursday, March 26, 2020 2:27 PM
To: Dobbins, Nicole <NDobbins@peabodyenergy.com>
Subject: RE: Wambo Coal Mine Revised Biodiversity Management Plan [SEC=OFFICIAL]

****This Message originated from a Non-Peabody source****

Hi Nicole,

Thanks for taking my call. As discussed, if the revised BMP is a revision of a management plan approved under one or more of the project's EPBC Act conditions of approval the revised plan needs to be submitted to the Department for review and approval by the Minister or delegate.

Given the plan is being reviewed/approved by NSW then its probably best you first satisfy NSW's requirements, then forward the revised plan and NSW review comments to the Dept for review/approval. I'll leave the juggling act to you, but my experience is NSW tends to have more prescriptive conditions of consent, which are best worked through first.

Thanks again. Any questions please call me on 0422 369 431.

Vaughn Cox

From: Dobbins, Nicole <NDobbins@peabodyenergy.com>
Sent: Thursday, 26 March 2020 7:59 AM
To: Vaughn Cox <Vaughn.Cox@awe.gov.au>
Subject: RE: Wambo Coal Mine Revised Biodiversity Management Plan [SEC=OFFICIAL]

Hi Vaughn,

Wambo Mine has three EPBC Act approvals EPBC 2003/1138, EPBC 2016/7636 and EPBC 2016/7816. As required by Condition 5 of EPBC 2003/1138, the Wambo Coal Biodiversity MP was previously approved by the Commonwealth 16 November 2016.

Let me know if you need anything further.

Thanks
Nicole

From: Vaughn Cox <Vaughn.Cox@awe.gov.au>
Sent: Wednesday, March 25, 2020 9:05 AM
To: Dobbins, Nicole <NDobbins@peabodyenergy.com>
Subject: FW: Wambo Coal Mine Revised Biodiversity Management Plan [SEC=OFFICIAL]

****This Message originated from a Non-Peabody source****

Hi Nicole,

Thanks for your email. Can you please advise whether this project has an EPBC Act approval? Our interest is that the revised BMP may need to be approved by the Minister or delegate.

If the above is not the case then I believe the department will not take up the opportunity to comment on the revised plan.

Cheers

Vaughn Cox
Post Approvals Section
0422 369 431

From: Dobbins, Nicole <NDobbins@peabodyenergy.com>
Sent: Friday, 20 March 2020 4:21 PM
To: Post Approval <PostApproval@environment.gov.au>
Subject: Wambo Coal Mine Revised Biodiversity Management Plan

Good afternoon,

The South Bates Extension Underground Mine is a component of the approved Wambo Coal Mine. The South Bates Extension Underground Mine was approved in December 2017 and involves extraction of coal by longwall mining methods from the Whybrow Seam. The approved South Bates Extension Underground Mine comprises Longwalls 17 to 25.

Wambo Coal Pty Limited (WCPL) is preparing an Extraction Plan for Longwalls 21 to 24 at the South Bates Extension Underground Mine. The Extraction Plan has been prepared in accordance with Condition B7(f), Schedule 2 of Development Consent (DA 305-7-2003) granted for the Wambo Development Project.

Following approval of the United Wambo Joint Venture Project (Modification 16) in August 2019, the Department of Planning, Industry and Environment updated the entirety of the Development Consent (DA 305-7-2003). To avoid administrative complications, WCPL has prepared a new iteration of the Biodiversity Management Plan (Version 0) (BioMP) and undertaken a full review and update. This iteration of the BioMP builds upon the content in, and consultation undertaken for, the previous iteration of the BioMP.

In accordance with Conditions B75 and B7(f), Schedule 2 of DA305-7-2003, WCPL is required to prepare the BioMP in consultation with relevant agencies. Please see below a sharefile link to download the following documents:

- a complete copy of the BioMP (including all appendices); and
- a tracked change version of the BioMP, identifying the updates made in this iteration.

Link to download the revised Biodiversity Management Plan: <https://resourcestrategies.sharefile.com/d-s731b5f4e98b453ba>

Please provide any comments on the enclosed documentation to the undersigned at your earliest convenience.

Kind regards,

Nicole Dobbins
Senior Environmental Advisor
Contract
Peabody Australia
PMB 1, Singleton NSW 2330
Office: +61 (02) 6570 2209
ndobbins@peabodyenergy.com



Our ref: DOC20/238396-3

Your ref: DA 305-7-2003

Nicole Dobbins

Senior Environmental Advisor
Wambo Coal Mine
Peabody Australia
ndobbins@peabodyenergy.com

Dear Ms Dobbins

Wambo Coal Mine Revised Biodiversity Management Plan

I refer to your e-mail dated 20 March 2020 in which Biodiversity and Conservation Division (BCD) of the Department of Planning, Industry and Environment was invited to review the revised Biodiversity Management Plan for the South Bates Extension Underground Mine prepared by Wambo Coal Pty Limited (dated March 2020). The Biodiversity Management Plan forms part of the Extraction Plan for the South Bates Extension Underground Mine, Longwalls 21 to 24, but covers all biodiversity issues for the Wambo Mine site.

BCD has reviewed the revised Biodiversity Management Plan and BCD's recommendations are provided in **Attachment A**. Detailed comments are provided in **Attachment B**. If you require any further information regarding this matter, please contact Robert Gibson, Regional Biodiversity Conservation Officer, on 4927 3154 or via email at rog.hcc@environment.nsw.gov.au

Yours sincerely

A handwritten signature in black ink, appearing to read 'S. Cox', with a long horizontal stroke extending to the right.

03 May 2020

STEVEN COX
Senior Team Leader Planning
Hunter Central Coast Branch
Biodiversity and Conservation Division

Enclosure: Attachments A and B

BCD's recommendations

Wambo Coal Mine Revised Biodiversity Management Plan

1. BCD recommends that changes are made to the colour ramp in the vegetation communities map, Figure 3, to make it easier for the reader to identify each vegetation community shown.
2. BCD recommends that the same colour scheme from Figure 3 is applied to Figure 9 to allow ready comparison between both figures.
3. BCD recommends that the revised Biodiversity Management Plan includes a figure showing the location of threatened species recorded on the Wambo Mine land.
4. BCD recommends that at least two BioMetric plots are established to take a representative sample of areas of riparian rehabilitation, and that floristic data is collected in areas of pasture rehabilitation in order to better understand Landscape Function Analysis results, and to gauge whether rehabilitation goals are likely to be met.
5. BCD recommends that Table 9 and Table 13 include the minimum and maximum values measured in each zone as well as the average value.
6. BCD recommends that all BioMetric field data collected from the rehabilitation areas is provided in the Annual Review.

BCD's detailed comments

Wambo Coal Mine Revised Biodiversity Management Plan

1. The colour ramp for the vegetation map includes colours that are difficult to distinguish

Figure 3 'Floristic Communities' of the Biodiversity Management Plan (BMP) has a colour ramp with some colours that are difficult to distinguish on the map. This is so for the two yellow shades in the current map (Coastal Myall Shrubland and Weeping Myall Woodland), the two pale blue shades (Narrow-leaved Ironbark – Grey Box Woodland and Native Quince – Rust Fig Dry Rainforest) and the two pink tones (Forest Red Gum – Rough-barked Apple – River Sheoak Forest (Disturbed) and Spotted Gum – Narrow-leaved Ironbark – Grey Box Woodland).

Recommendation 1

BCD recommends that changes are made to the colour ramp in the vegetation communities map, Figure 3, to make it easier for the reader to identify each vegetation community shown.

2. Inconsistent colours for vegetation communities in Figure 5 are confusing

Figure 9 'RWEA A – E Flora Communities' of the BMP uses different colours to represent the same vegetation communities within the six Remnant Woodland Enhancement Areas (RWEAs).

Recommendation 2

BCD recommends that the same colour scheme from Figure 3 is applied to Figure 9 to allow ready comparison between both figures.

3. A map of threatened species recorded on the Wambo Mine Land will flag areas for different management

Sections 3.6.1 and 3.6.2 of the BMP list threatened flora species and fauna species, that are known or are considered likely to occur on the Wambo Mine lands. However, the report does not include a figure showing the locations of the threatened species. Such a figure would help identify areas of higher biodiversity values that may require different management, as per the *Wambo Coal Threatened Species Management Protocol* given in Appendix L of the BMP.

Recommendation 3

BCD recommends that the revised Biodiversity Management Plan includes a figure showing the location of threatened species recorded on the Wambo Mine land.

4. Species composition and plant structure data add value to Landscape Function Analysis results

Section 3.6.5 of the BMP discusses how Landscape Function Analysis (LFA) is used to measure and monitor rehabilitation success. LFA is an index of surface stability, water infiltration and nutrient cycling but it does not collect or present data on the plant species on a site. Therefore, a positive trend in LFA values may be due to an increase in the cover and abundance of an invasive exotic grass species, or the persistence of annual species, rather than the establishment of perennial species, which may not meet overall rehabilitation objectives. Figure 12 (Floristic and Habitat Monitoring Sites) and Figure 13 (LFA Monitoring

Locations) shows that floristic data is collected near LFA sites near areas of woodland regeneration.

Recommendation 4

BCD recommends that at least two BioMetric plots are established to take a representative sample of areas of riparian rehabilitation, and that floristic data is collected in areas of pasture rehabilitation in order to better understand Landscape Function Analysis results, and to gauge whether rehabilitation goals are likely to be met.

5. Completion Criteria needs to be applied to individual sites rather than an average of sites

Section 5 of the BMP discusses Completion Criteria for rehabilitation areas using averaged values of sites in each plant community type or other management zone. However, using average values can mask problem areas. Including the minimum and maximum values measured in each zone as well as the average value in Table 9 and Table 13 would identify rehabilitation zones that are all performing well, and any zones where there may be some areas that require additional management.

Recommendation 5

BCD recommends that Table 9 and Table 13 include the minimum and maximum values measured in each zone as well as the average value.

6. Background data behind monitoring provides more meaning to monitoring results

Chapter 7 of the BMP describes the biodiversity monitoring program for rehabilitation areas of the Wambo Mine. It includes the collection of data using the BioMetric method. The BioMetric method collects data for ten attributes. The presentation of the background data for the BioMetric method, such as the flora species found and their cover and abundance, enables the BioMetric results to be better understood. This in turn helps identify if rehabilitation issues may be present, and whether rehabilitation outcomes are likely to be met.

Recommendation 6

BCD recommends that all BioMetric field data collected from the rehabilitation areas is provided in the Annual Review.

Subject: FW: Wambo Coal Mine Revised Biodiversity Management Plan

ATTN – Mr STEVEN COX
Senior Team Leader Planning

Dear Mr Cox,

The South Bates Extension Underground Mine is a component of the approved Wambo Coal Mine. The South Bates Extension Underground Mine was approved in December 2017 and involves extraction of coal by longwall mining methods from the Whybrow Seam. The approved South Bates Extension Underground Mine comprises Longwalls 17 to 25.

Wambo Coal Pty Limited (WCPL) is preparing an Extraction Plan for Longwalls 21 to 24 at the South Bates Extension Underground Mine. The Extraction Plan has been prepared in accordance with Condition B7(f), Schedule 2 of Development Consent (DA 305-7-2003) granted for the Wambo Development Project.

Following approval of the United Wambo Joint Venture Project (Modification 16) in August 2019, the Department of Planning, Industry and Environment updated the entirety of the Development Consent (DA 305-7-2003). To avoid administrative complications, WCPL has prepared a new iteration of the Biodiversity Management Plan (Version 0) (BioMP) and undertaken a full review and update. This iteration of the BioMP builds upon the content in, and consultation undertaken for, the previous iteration of the BioMP.

In accordance with Conditions B75 and B7(f), Schedule 2 of DA305-7-2003, WCPL is required to prepare the BioMP in consultation with relevant agencies. Please see below a sharefile link to download the following documents:

- a complete copy of the BioMP (including all appendices); and
- a tracked change version of the BioMP, identifying the updates made in this iteration.

Link to download the revised Biodiversity Management Plan: <https://resourcestrategies.sharefile.com/d-s731b5f4e98b453ba>

Please provide any comments on the enclosed documentation to the undersigned at your earliest convenience.

Kind regards,

Nicole Dobbins

Senior Environmental Advisor
Contract

Peabody Australia

PMB 1, Singleton NSW 2330
Office: +61 (02) 6570 2209

ndobbins@peabodyenergy.com



Subject: FW: Wambo Coal Mine - Longwalls 21 to 24 Water Management Plan

From: Dobbins, Nicole <NDobbins@peabodyenergy.com>
Sent: Friday, 20 March 2020 3:54 PM
To: NRAR ServiceDesk <nrar.servicedesk@industry.nsw.gov.au>; water.enquiries@dpi.nsw.gov.au; EPA RSD Hunter Region Mailbox <hunter.region@epa.nsw.gov.au>
Cc: Ellie Randall <ellie.randall@dpi.nsw.gov.au>; 'Natasha Ryan' <Natasha.Ryan@epa.nsw.gov.au>
Subject: Wambo Coal Mine - Longwalls 21 to 24 Water Management Plan

Good afternoon,

The South Bates Extension Underground Mine is a component of the approved Wambo Coal Mine. The South Bates Extension Underground Mine was approved in December 2017 and involves extraction of coal by longwall mining methods from the Whybrow Seam. The approved South Bates Extension Underground Mine comprises Longwalls 17 to 25.

Wambo Coal Pty Limited (WCPL) is preparing an Extraction Plan for Longwalls 21 to 24 at the South Bates Extension Underground Mine. The Extraction Plan has been prepared in accordance with Condition B7(f), Schedule 2 of Development Consent (DA 305-7-2003) granted for the Wambo Development Project.

In accordance with Condition B7(f), Schedule 2 of DA305-7-2003, WCPL is required to prepare a Water Management Plan for the Longwalls 21 to 24 Extraction Plan in consultation with relevant agencies. Please see below a sharefile link to download the following documents:

- a complete copy of the Longwalls 21 to 24 Water Management Plan (including all appendices); and
- a tracked change version of the Longwalls 21 to 24 Water Management Plan, identifying the updates made from the preceding Longwalls 17 to 20 Water Management Plan.

Link to download Longwalls 21 to 24 Water Management Plan: <https://aresourcestrategies.sharefile.com/d-s2e4ddc10b90428fa>

Please provide any comments on the enclosed documentation to the undersigned at your earliest convenience.

Kind regards,

Nicole Dobbins
Senior Environmental Advisor
Contract
Peabody Australia
PMB 1, Singleton NSW 2330
Office: +61 (02) 6570 2209
ndobbins@peabodyenergy.com





11 November 2019

Peter Jaeger
Wambo Coal Pty Limited
PMB 1
Singleton NSW 2330

Our ref: RR19/249680

By email: pjaeger@peabody.com

Dear Peter

CL 365 (1973), CL 374 (1973), CL 397 (1973), CCL 743 (1973), ML 1402 (1992), ML 1572 (1992), and ML 1594 (1992), Wambo Coal Pty Limited, Approval of Mining Operations Plan

NOTICE OF APPROVAL

Pursuant to Condition 2 of ML1572 and ML1594 and Condition 3 of CL365, CL374, CL397 and CCL743, the Mining Operations Plan (MOP) that was submitted to the Resources Regulator within the Department of Planning, Industry & Environment (Resources Regulator) on 23 October 2020 (Department Reference: RR19/948702) is approved for the period from the date of this approval until 31 December 2020.

It is the responsibility of the Authorisation Holder to ensure that all mining and mining related operations described in this MOP are as approved within the relevant Project Approval or Development Consent and all necessary approvals, consents or permits required under the relevant NSW or Commonwealth regulations have been obtained prior to carrying out the operations.

It is the responsibility of the Authorisation Holder to fulfil their obligations and commitments to the rehabilitation outcomes and performance standards as approved by the relevant consent authority to ensure the rehabilitation outcomes identified are achieved.

ASSESSED DEPOSIT

Approval of this MOP has triggered a review of the assessment of the security deposit required to secure funding for the fulfilment of rehabilitation obligations under **Coal Lease 365 (Mining Act 1973), Coal Lease 374 (Mining Act 1973), Coal Lease 397 (Mining Act 1973), Consolidated Coal Lease 743 (Mining Act 1973), Mining Lease 1402 (Mining Act 1992), Mining Lease 1572 (Mining Act 1992), and Mining Lease 1594 (Mining Act 1992)**.

Notice of the change in the security deposit condition related to this MOP approval will be provided separately.

DEFINITIONS

In this letter, words have the meaning given to those terms in the *Mining Act 1992*, unless otherwise specified below.

Authorisation Holder means the holder of the relevant authorisation(s).

Mining Operations Plan means the project, mining and mining related operations described in the “Wambo Coal Mining Operations Plan Name September 2019 – 31 December 2020 prepared by Wambo Coal Pty Limited, dated 23 September 2020, and submitted 23 October 2019 (RR19/948702).

If you have any questions about this Notice, please contact the Resources Regulator by email: nswresourcesregulator@service-now.com, referencing MAAG0004471 in the subject line.

Yours sincerely,



MONIQUE MEYER

Manager Environmental Operations

Mining Act Inspectorate

Resources Regulator

NSW Department of Planning, Industry & Environment

Signed under delegation from the Minister for Resources.

Signed under delegation from the Secretary of the NSW Department of Planning, Industry & Environment.