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 of strains. This is due to LWs 17 to 25 having been designed to remain outside the 26.5^{o} 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**.

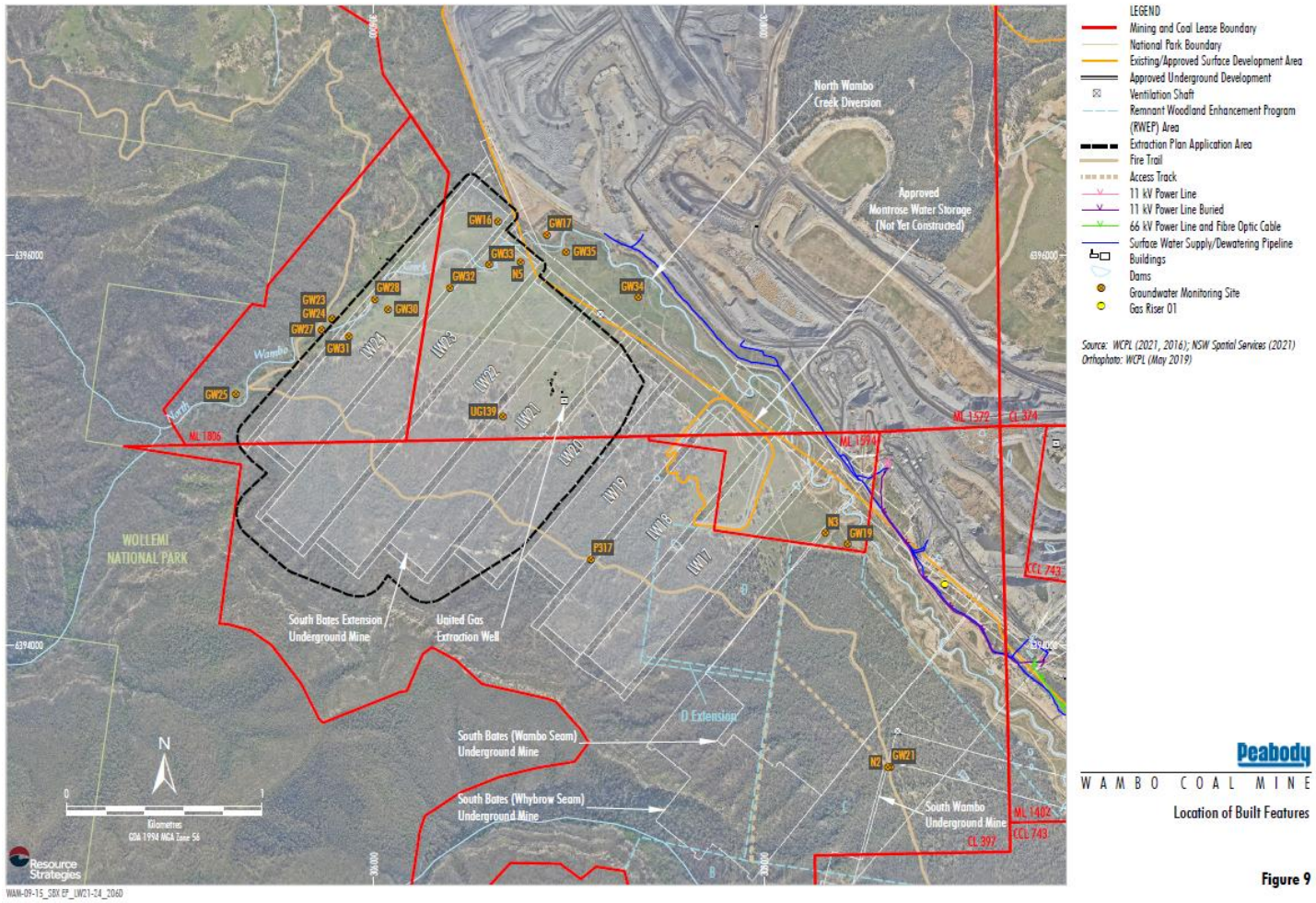

Figure 1 *– Location of Built Features*

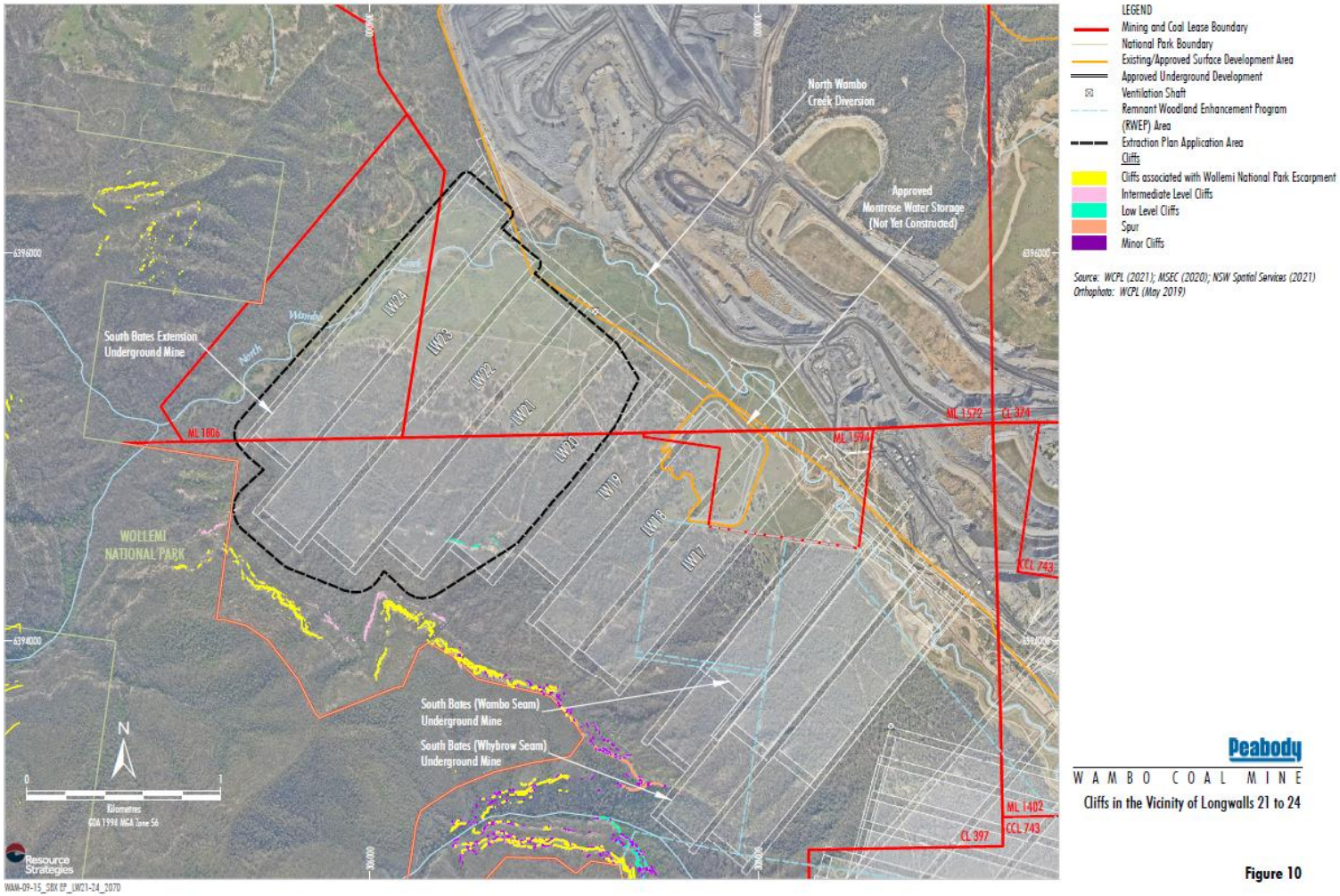

Figure 2 *– Cliffs in the Vicinity of LWs 21 to24*

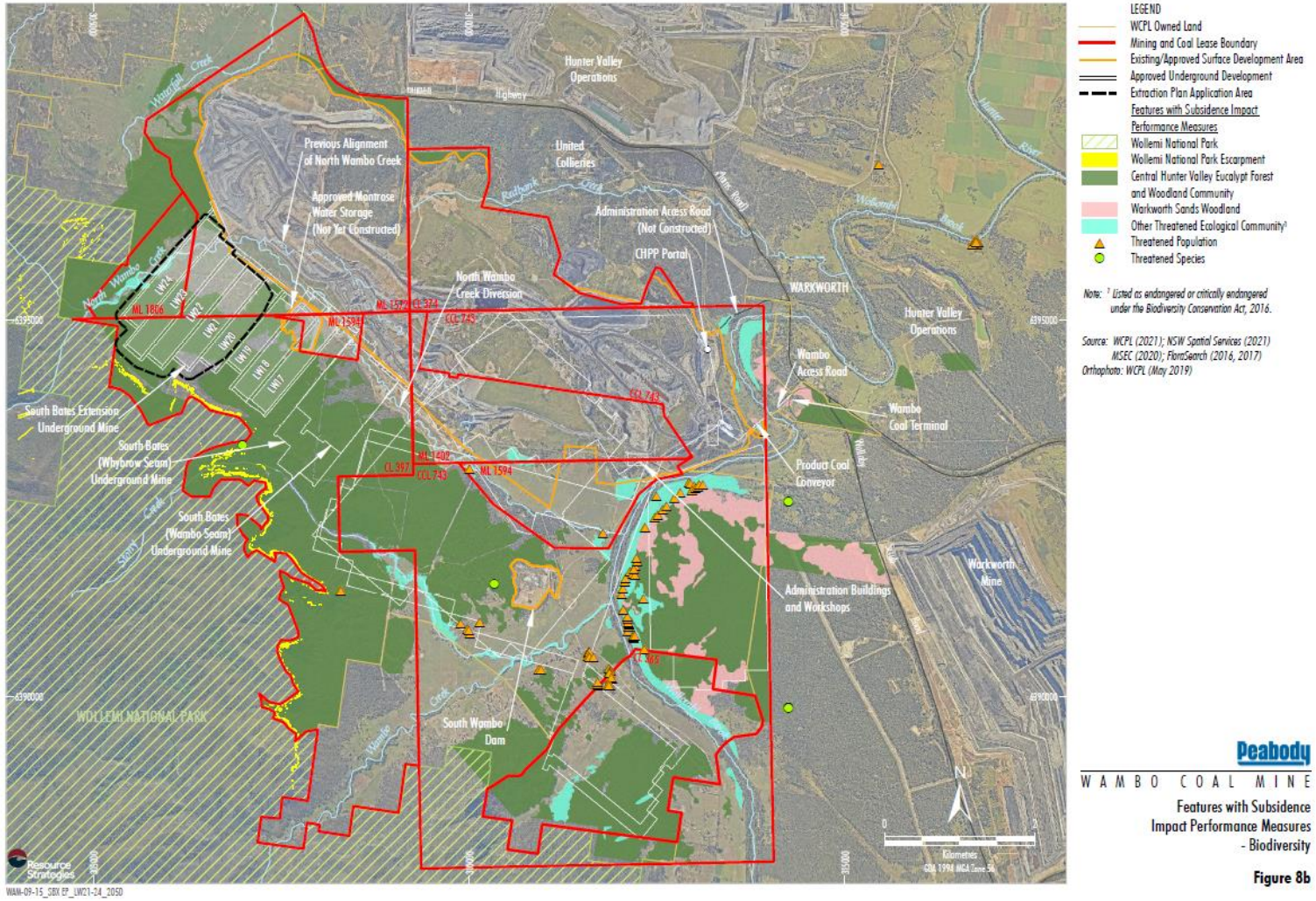

Figure 3 – *Biodiversity Features*

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*
rehabilitation objectives in condition B104, including: (i) a trigger action response plan to identify risks and specific follow up actions to avoid exceedances of the performance measures; and (ii) a contingency plan that expressly provides for adaptive management where monitoring indicates that there has been an exceedance of the performance measures, or where any such exceedance appears likely;		Section 3 of the EP outlines the relevant subsidence management and monitoring processes. Table 5 –Subsidence impact performance measures Table 12 – Water Performance Measures Table 15 – Biodiversity Performance Measures Table 18 – Built Features Performance Measures Figures 8a and 8b show features with subsidence performance measures. Performance measures are also included in Appendix A, B, C, D, E, F, H and I of the EP. Performance measures generally reflect those listed in Tables 1 and 2 of the consent. Trigger Action Response Plans are provided in the individual management plans, included in Appendices A, B, C, D, E and F. Adaptive management and contingency plans are described in Sections 4.1 to 4.5 of the main EP. Tables 12,15 and 18 also include contingency measures.	
(e) include the following to the satisfaction of the Resources Regulator (or DRG, as the case may require): (i) a coal resource recovery plan that demonstrates effective recovery of the available resource;	Yes	A Coal Resource Recovery Plan (CRRP) is included as Appendix G. The CRRP has been updated to include Longwalls 21 to 24. MEG (formerly DRG) advised that it was satisfied with the Coal Resource Recovery Plan in the former EP for Longwalls 17-20 on 12 June 2018 and this letter is included. However the most recent correspondence expressing MEG (formerly DRG) satisfaction with the current EP is not included. The Resources Regulator did not provide any comment on the Extraction Plan or its Appendices.	Include a copy of the MEG (formerly DRG) letter regarding LWs 21-24 in Attachment 2 to the EP.
(ii) a **Subsidence Monitoring Program** to: • provide data to assist with the management of the risks associated with subsidence (conventional and non-conventional); • validate the subsidence predictions; and • analyse the relationship between the subsidence effects and impacts under the plan against those predicted and any ensuing environmental consequences;	Yes	Subsidence Monitoring Program (SMP) for LWs 21-24 included in Appendix H. The SMP details the subsidence monitoring to be undertaken and summarises the monitoring of environmental consequences (water, land, biodiversity, built features, etc).	Nil.

Condition B7 of Schedule 2	*Satisfactory (Yes/No)*	*Comment*	*Action Required*
(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: • 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;	Yes	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.	Nil.
(iv) a **Public Safety Management Plan** to ensure public safety in the mining area; and	Yes	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.	Nil.
(v) appropriate revisions to the Rehabilitation Management Plan required under condition B107; and	Yes	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.	Nil.
(f) include a: (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: • 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	Yes	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. 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 (UWWWMP) (Attachment 5). 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	On page 36 of the main EP, update references to the Water Management Plan to reflect the currently approved version of the document. Nil.

Condition B7 of Schedule 2	*Satisfactory (Yes/No)*	*Comment*	*Action Required*
• a program to manage and monitor impacts on privately-owned licensed bores;	Yes	appointment of the team that prepared these reports was endorsed by the Secretary.	Nil.
(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;	Yes	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.	Nil.
(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;	Yes	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.	Nil.
(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	Yes	Heritage Management Plan (HMP) included in Appendix D. HMP updated in July 2020 to include LWs 21-24. Appendix C of HMP provides environmental consequences of subsidence impacts on Aboriginal sites that has been updated to includes 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.	Nil.
g) include a program to collect sufficient baseline data for future Extraction Plans.	Yes	A program to collect baseline data for future extraction plans is included in Attachment 3 and is considered adequate.	Nil.
General comments			
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. 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.			