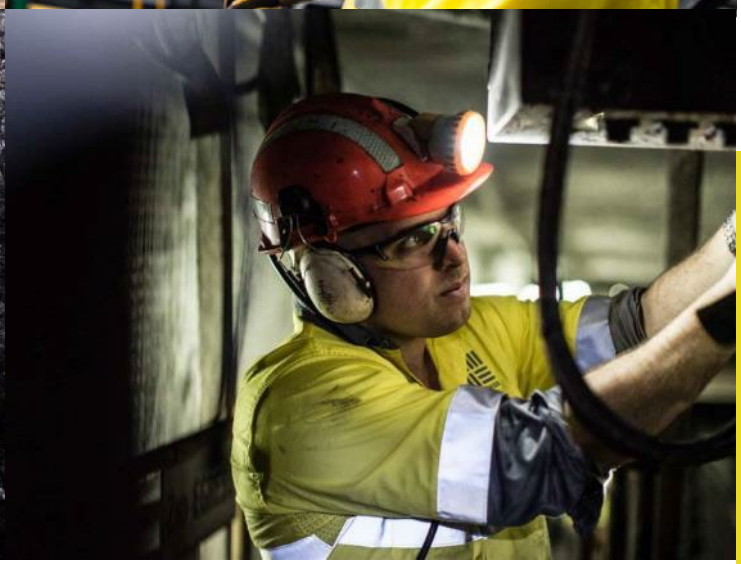
ILLAWARRA METALLURGICAL COAL
DENDROBIUM MINE



WaterNSW
Asset Protection Plan
Longwalls 19A, 22 and 23

Review History

Revision	Description of Changes	Date
4-Draft 1	Updated to cover changes in the APP associated with Area 3A and the modified Development Consent. This revision now only covers WaterNSW Assets	30th July 09
4-Draft 2	Updated to incorporate WaterNSW comments and updated MSEC predictions	23rd Oct 09
4-Draft 3	Updated to incorporate WaterNSW comments	19th Feb 10
4-Draft 4	Updated with new Area 3A layout and incorporated WaterNSW comments on Draft 3	7th April 10
4	Final Plan agreed to by WaterNSW	14th April 10
5-Draft 1	Updated to cover changes in the APP associated with the inclusion of Area 3B (Longwalls 9 & 10 only)	8th August 2012
5-Draft 2	Updated to incorporate WaterNSW comments	12th November 2012
5	Comments and Changes accepted by WaterNSW. Final Plan	20th December 2012
6	Final Plan. Revision 5 has been updated as a result of DSC endorsement and Trade and Investment Approval for Longwall 11 to extract coal in the Avon Reservoir DSC Notification Zone and the SMP approval for Longwalls 9 to 13	21st March 2013
7 – Draft	Updated to cover Longwalls 12 & 13.	November 2014
7a	Incorporating WaterNSW comments	September 2015
7b	Incorporating further WaterNSW comments	February 2016
7c	Update for Longwall 13	August 2016
8	Update for Longwall 14 and 15	August 2017
9	Update for Longwall 16 and 17	November 2019
9a	Incorporating WaterNSW comments	January 2020
10	Update for Longwall 17, including latest groundwater modelling	September 2020
11	Update for Longwalls 19 and 21	April 2022
12	Update for Longwalls 19A, 22 and 23	April 2023
12a	Incorporating WaterNSW comments	July 2023
12b	Clarification of Master Agreement	August 2023
12c	Finalisation of Master Agreement Letter	October 2023

Document Approval

Authorising Officer (Illawarra Coal)	Acceptance of APP (WaterNSW)
Manager Approvals	
Gary Brassington	
Signature:	
Date: 19/10/2023	Date:

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CONTACT LISTING IN ASSOCIATION WITH THIS PLAN

NAME	CONTACT DETAILS	ALTERNATE	ALTERNATE CONTACT DETAILS
Water NSW		Parramatta Office: (02) 9865 2500 *Mt. Annan* Office: (02) 4640 1200 Incident Notification Number: 1800 061 069	
Ravi Sundaram *Mining Catchment Specialist*	Mob: 0428 226 152	Maria Dubikova *Hydrogeologist*	Mob: 0414 532 079
Cameron Scholte *A/Maintenance Team Leader Upper Nepean*	Ph: (02) 4886 9411 Mob: (0457) 520 473	Tony Jensen *Maintenance Supervisor Upper Nepean*	Ph: (02) 4774 4402 Mob: (0408) 236 210
Dams Safety NSW			
Heather Middleton *Manager, Mining Impacts*	Ph: 042 828 8391		
Resources Regulator			
CAU (Central Assessment Unit) Contract point for all events which are notifiable to the Resources Regulator and all enquiries.	Ph: 1300 814 609	Not required. Staffed 24/7.	
Dendrobium Mine			
Peter Quinn *Mining Engineering Manager*	Mob: (04) 1775-9657	Sean Wood *Production Manager*	Mob: 0459 809 780
Simon Thomas *General Manager*	Mob: 0434366246		
Control Officer *Dendrobium Control Room*	Ph: (02) 4255 4402 Mob: (0438) 868 401	Not Required Office always staffed	
South32 Illawarra Metallurgical Coal			
Gary Brassington *Approvals Manager*	Mob: (0438) 042897	Nicola Curtis *Superintendent Infrastructure Protection*	Mob: 0413205561

1 INTRODUCTION

Illawarra Metallurgical Coal (IMC) operates Dendrobium Mine, located in the Southern Coalfield of New South Wales. IMC was granted Development Consent by the NSW Minister for Planning for the Dendrobium Project on 20 November 2001. Under section 75W of the Environmental Planning and Assessment Act 1979, the Minister for Planning modified the original Development Consent (60-03-2001) for Dendrobium Mine on 8 December 2008 with further minor amendments after this date. Condition 7 Schedule 3 of the modified Consent "Specific Environmental Conditions - Mining Area" requires a Subsidence Management Plan (SMP) be prepared, as described below.

"Prior to carrying out any underground mining operations that could cause subsidence in either Area 3A, 3B or 3C, the Applicant must prepare a Subsidence Management Plan (SMP) to the satisfaction of the Secretary and the Resources Regulator. Each such SMP must:

(a) integrate ongoing management of Areas 1 and 2;

(b) integrate the Watercourse and Swamp Impact Monitoring, Management and Contingency Plans required under conditions 4 and 6;

(c) include monitoring of subsidence effects;

(d) include a Water NSW Assets Protection Plan;

(e) include monitoring, management, and contingency plans for all other significant natural features and all significant man-made features which may be impacted by subsidence, including:

- *landscape (including cliffs and steep slopes);*
- *groundwater (see condition 13);*
- *terrestrial flora and fauna and ecology (including all threatened species assessed as being likely to be significantly affected by the development and their habitats);*
- *Aboriginal and other cultural heritage (see condition 12); and*
- *electrical, communications and other infrastructure;*

(f) be prepared in consultation with BCS, WaterNSW and Resources Regulator;

(g) be approved prior to the carrying out of any underground mining operations that could cause subsidence in the relevant Area; and

(h) be implemented to the satisfaction of the Secretary and the Resources Regulator.

Notes:

The WaterNSW Assets Protection Plan required under this condition must also be prepared and implemented to the satisfaction of the WaterNSW.

The contingency plans required under paragraph (e) must address remediation (as appropriate) and be based on a TARP structure."

1.1 PURPOSE & SCOPE

This Asset Protection Plan (APP) is designed to meet the requirements in Schedule 3, Condition 7 (d) of the Dendrobium Development Consent. Specifically, it aims to identify the likely or possible subsidence impacts on WaterNSW's built assets and stored waters from mining of longwalls in Area 3, what triggers will be used to identify when remedial or mitigation works are required, and what actions IMC will take if these triggers are exceeded. The APP includes consideration of dam walls and extends to the management of potential leakages of water from the reservoirs. Specific monitoring and management actions are included as Appendix A and B of this Plan. The APP has been developed in consultation with WaterNSW and relevant regulatory authorities.

Subsidence associated with longwall extraction has been identified as the most likely potential cause of impacts to surface features and structures. Vertical and horizontal subsidence movements are predicted to occur above and adjacent to the longwall extraction. Some mining induced regional horizontal movements are also expected, but the impacts from these movements have been assessed as minimal.

The APP has been updated to address the incremental subsidence effects associated with Longwalls 19A, 22 and 23, however the APP remains applicable to the cumulative impacts from Areas 1, 2, 3A, 3B and 3C. The APP (and associated management plans) will remain in effect for the life of Dendrobium Mine and until impacts after mining in Areas 1, 2, and 3 are assessed as completed and impacts are rehabilitated to the satisfaction of WaterNSW, Dams Safety NSW, the Resources Regulator and Department of Planning and Environment.

It is ***not*** the objective of the APP to address other potential sources of impact on man-made assets such as exploration, construction or surface facilities as these are addressed by other approval processes and Management Plans.

It is also ***not*** the objective of the APP to address natural features such as creeks, steep slopes and flora and fauna, nor to propose mitigation and remediation measures with regard to such features. These aspects are addressed in other Management Plans, required by conditions of Schedule 3 of the Development Consent and are managed separately to the APP.

1.2 DEFINITIONS

Assets	In relation to this Plan, "Assets" are items of Built Infrastructure, including roads and dammed water bodies in the WaterNSW Catchment Area, but excluding natural features and items of Archaeological significance.
APP	Asset Protection Plan
DPE	Department of Planning and Environment (previously known as Department of Planning, Industry and Environment)
EP&A Act	*Environmental Planning and Assessment Act 1979*
IMC	Illawarra Metallurgical Coal
WaterNSW	WaterNSW (formerly SCA)
SMP	Subsidence Management Plan (requirement of 2008 Development Consent conditions)

Long-term Limit (Cordeaux)	The Dams Safety imposed limit of daily water losses from Cordeaux Reservoir into Dendrobium Mine directly or indirectly resulting from Dendrobium mining operations for the life of the Reservoir following closure of the mine.
Long-term Limit (Avon)	The Dams Safety imposed limit of daily water losses from Avon Reservoir into Dendrobium Mine directly or indirectly resulting from Dendrobium mining operations for the life of the Reservoir following closure of the mine.
Short-term Limit	The Dam Safety imposed limit of daily water losses from the Reservoirs into Dendrobium Mine during the operation of the mine.
OM	Order of Magnitude (or Log10 cycle)
FSL	Dam Full Supply Level

1.3 THE MINING AREA

The Dendrobium Mine (Figure 1) extracts coal from the Wongawilli Seam using longwall mining techniques. Three separate groups of longwalls will be mined in the areas referred to in Figure 1 as mining Areas 1, 2 and 3. Areas 1, 2 and 3B have been mined. Area 3 consists of Areas 3A, 3B and 3C. This APP particularly addresses issues related to Longwalls 19A, 22 and 23.

Longwalls 19A, 22 and 23 are located between Wongawilli Creek and the western edge of Lake Cordeaux. Longwall 19A is located outside the previously gazetted Lake Cordeaux Notification Area and the western ends of Longwalls 22 and 23 are within the previously gazetted Notification Area (Figure 1). The longwalls are all located outside the Dam Notification Areas gazetted July 1 2022. The longwalls have been designed to avoid longwall extraction under Lake Cordeaux and Wongawilli Creek.

The layout of Area 3 is shown in Figure 2, including the layout of Longwalls 19A, 22 and 23. A summary of dimensions for both extracted and proposed longwalls are provided in Table 1.

Table 1: Dimensions of Longwalls in Area 3

Area	Longwall	Overall Length	Void Width including Headings (m)	Solid Chain Pillar Width (m)
3B	Longwall 9	2200	305	50
3B	Longwall 10	2220	305	45
3B	Longwall 11	2205	305	45
3B	Longwall 12	2602	305	50
3B	Longwall 13	2222	305	50
3B	Longwall 14	1980	305	50
3B	Longwall 15	1963	305	50
3B	Longwall 16	1874	305	50
3B	Longwall 17	2013	305	50
3B	Longwall 18	1928	305	50
3A	Longwall 6	2610	248.5	-
3A	Longwall 7	2220	248.5	40
3A	Longwall 8	2220	305	40
3A	Longwall 19	1765	305	45
3A	Longwall 19A	1051	275	45
3C	Longwall 21	872	256	-
3C	Longwall 22	2561	305	-
3C	Longwall 23	2283	305	42

Longwalls in Area 3 are extracted from the Wongawilli Seam, which underlies the Bulli Seam by approximately 20 metres (m). There is currently no approval or plans to mine the Bulli Seam within Area 3.

The depth of cover to the Wongawilli Seam varies between 290 m and 360 m directly above Longwall 19A.

The depths of cover to the Wongawilli Seam directly above Longwalls 22 and 23 varies between 305 m to 380 m, and 290 m to 395 m respectively.

The Wongawilli Seam is nominally 9 m thick and contains numerous bands of non-coal material. The economic section of the Wongawilli Seam is the basal 3 m to 5 m. In accordance with Schedule 3, Condition 6 of the Longwall 22 and 23 SMP Approval, IMC must not extract the coal seam to a height of greater than 3.9 m.

The Longwalls 22 and 23 SMP Approval was granted 20 December 2022.

The Dendrobium Mine underground workings lie underneath WaterNSW land known as the Metropolitan SpecialArea which is zoned 7(a) Environmental Protection Special (Water Catchment) Area. The infrastructure directly and potentially affected by the mining of Area 3 is shown on Figure 3.

1.4 GEOLOGY

The geology of the Dendrobium area is outlined in the MSEC report WKA77, which was included as Volume 2 of the Environmental Impact Statement for the Dendrobium Mine. Dendrobium Mine has continued to undertake exploration within the area and the description of the geology in the area has been updated in subsequent MSEC Reports, including MSEC1234 specifically for the Longwall 19A SMP, and MSEC1104 specifically for Longwalls 22 and 23. The geology is mainly comprised of sedimentary sandstone, shale and claystone of the Permian and Triassic Periods, which have been intruded by igneous sills in some areas. The actual and inferred geological features in the Longwalls 19A Study Area (shown in Figure 4), including from IMC geology report MG19A, suggests impacts are expected from a sill for the central portion of the panel where the sill occurs in the working section and minor impacts from areas where the sill is present in the upper portion of the seam above the working section..

Mining conditions are expected to be comparable to those previously experienced in Areas 1, 2, 3A and 3B but some impacts from an igneous sill are expected for a central portion of the longwall 19A panel where the sill occurs in the working section. Minor impact may be seen from areas where the sill is present in the upper portions of the Wongawilli seam above the working section.

A generalised sedimentary stratigraphic section is shown in Figure 5. The sandstone units vary in thickness from a few metres to as much as 120 m. The major sandstone units are interbedded with other rocks and, though shale and claystone are quite extensive in places, the sandstone predominates.

The major sedimentary units in the Dendrobium area are, from the top down:

- The Hawkesbury Sandstone;
- The Narrabeen Group; and
- The Illawarra Coal Measures.

The Narrabeen Group contains the Newport Formation (sometimes referred to as the Gosford Formation), the Bald Hill Claystone, the Bulgo Sandstone, the Stanwell Park Claystone, the Scarborough Sandstone, the Wombarra Shale and the Coalcliff Sandstone.

The Bulli Seam is the top unit in the Illawarra Coal Measures. The interval between the Bulli Seam and the Wongawilli Seam is known as the Eckersley Formation which consists of sandstones, shales and minor coal seams. The longwalls are proposed to be extracted from the Wongawilli Seam, which is located directly below the Eckersley Formation.

The major claystone units are the Bald Hill and Stanwell Park Claystones, which lie above and below the Bulgo Sandstone at the base of the Hawkesbury Sandstone.

The Mine sits at the southern end of the Nepean/Kurrajong Fault and Lapstone Monocline system. The area is therefore imprinted with the north-westerly trending structures that connect to these large-scale geological

features to the north. The large north-west and north-north-west displacement faults are the primary deformational set in the area. However, those faults trend north-east in the coastal fault zone.

An igneous sill has intruded into the Wongawilli Seam in and above the working section of Longwall 19A. Other than the sill, there are no other faults or dykes identified within the extents of the proposed Longwalls 19A, 22 and 23. The locations and sizes of the geological structures will be further defined through ongoing investigations and the development of the first workings.

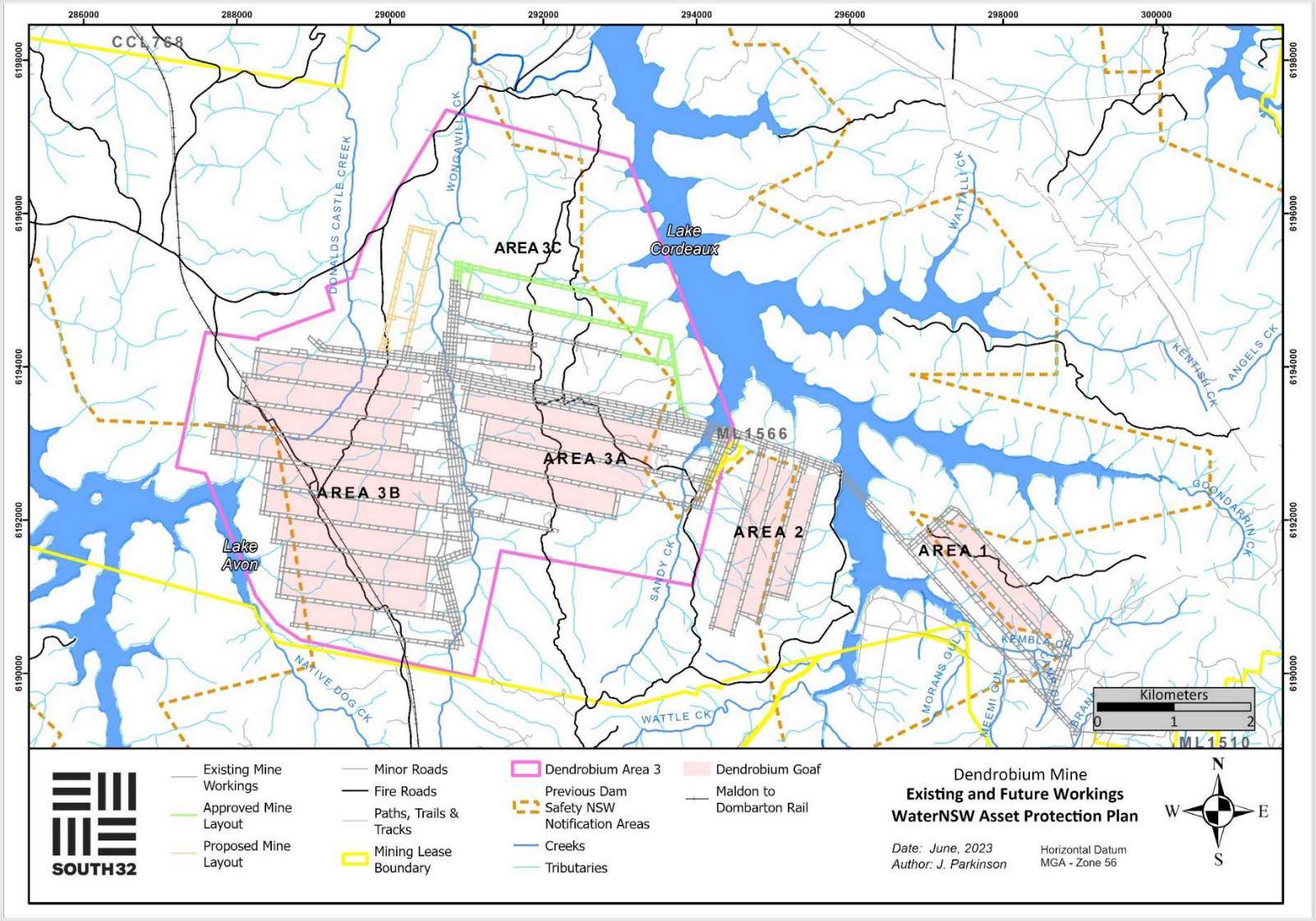

Figure 1: Dendrobium Mine Plan

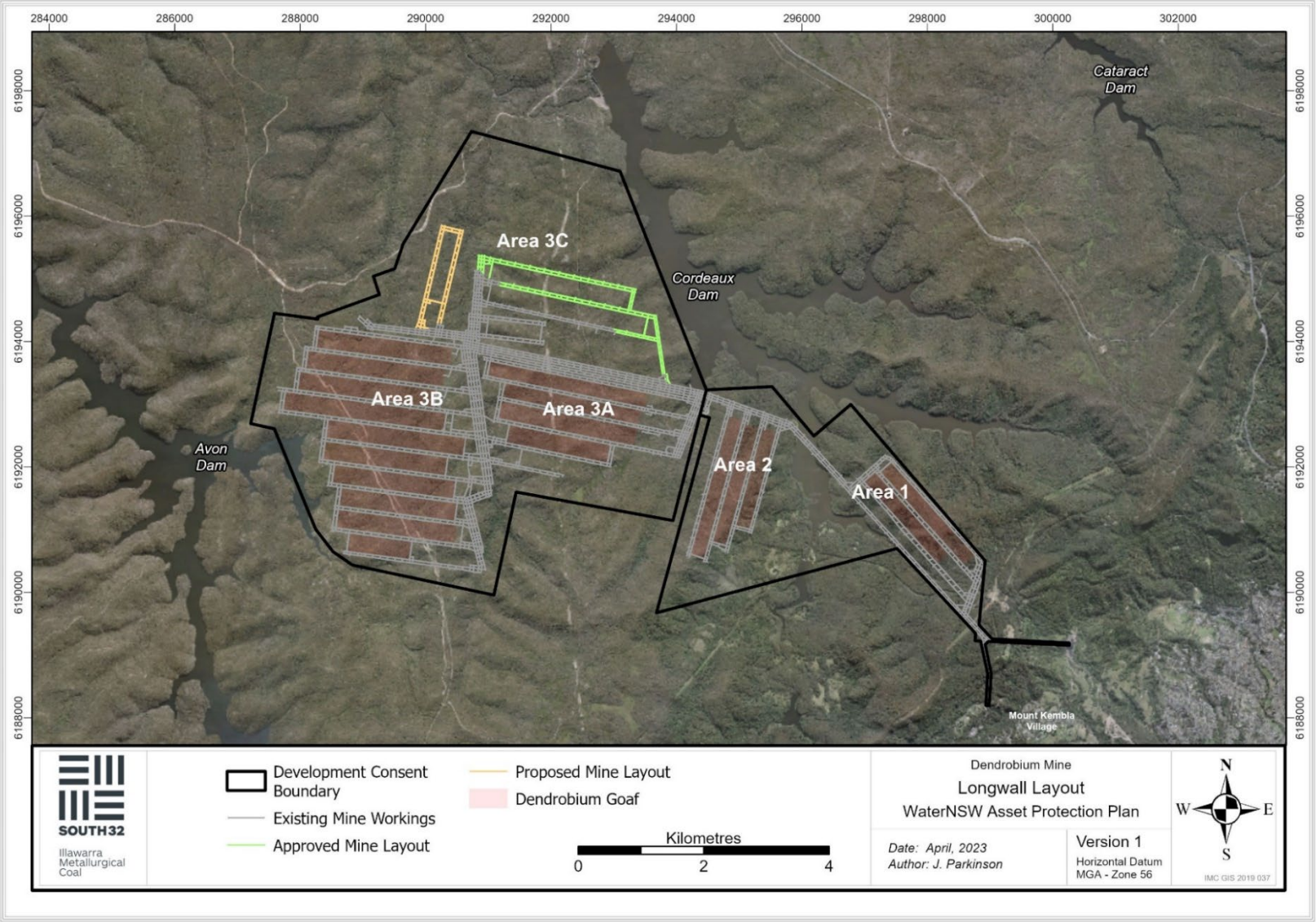

Figure 2: Layout of Longwalls for Dendrobium Mine

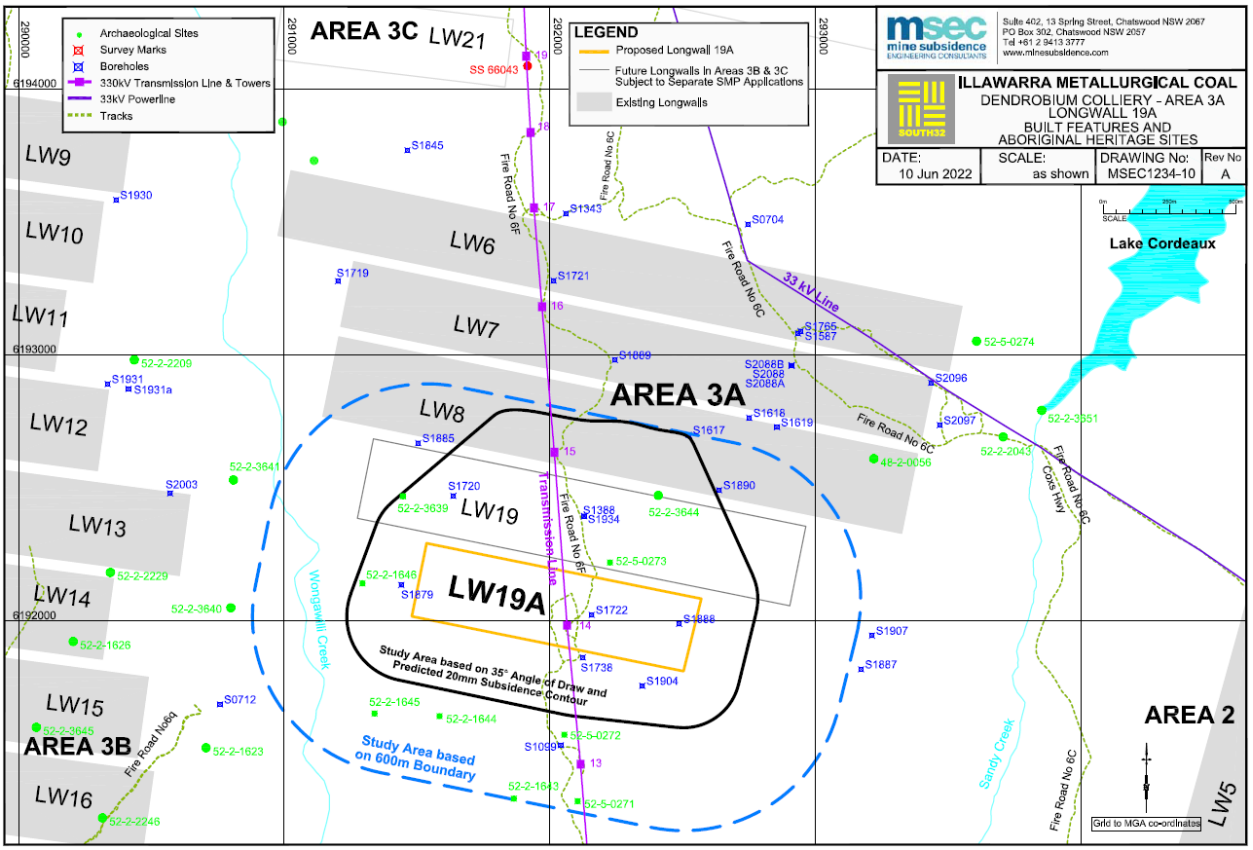

Figure 3: Longwall 19A layout showing infrastructure in the vicinity of Area 3A (MSEC1234-10)

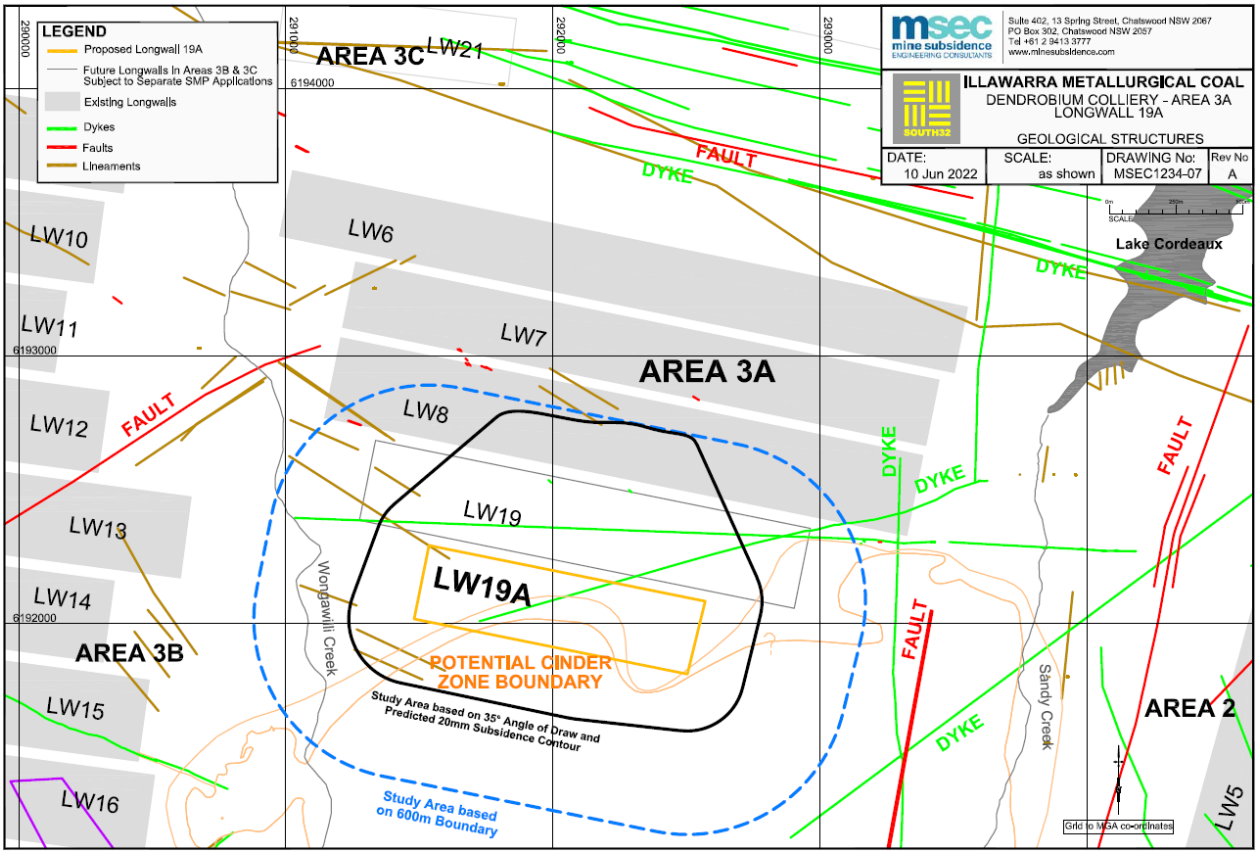

Figure 4 : Geological Features in Area 3A (MSEC1234-07)

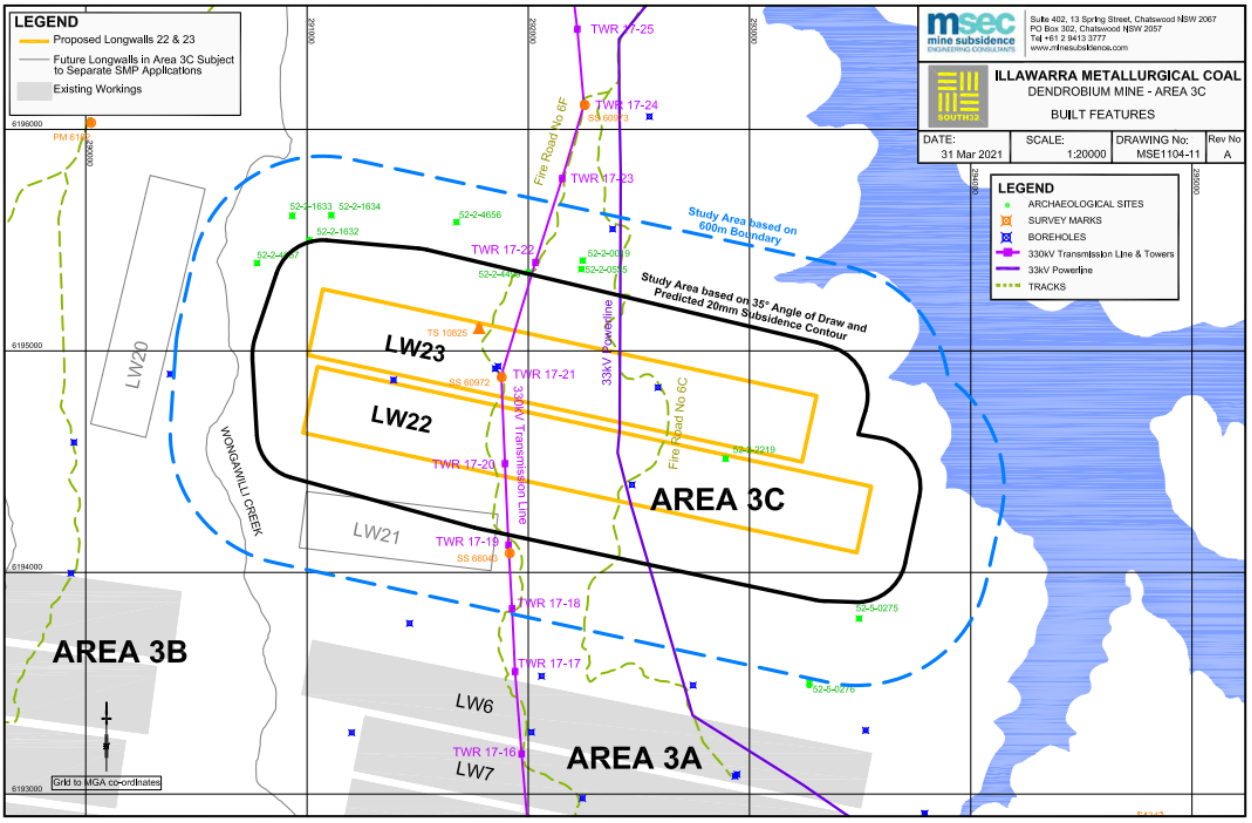

Figure 5 Longwalls 22 & 23 layout showing infrastructure in the vicinity of Area 3C (MSE1104-11)

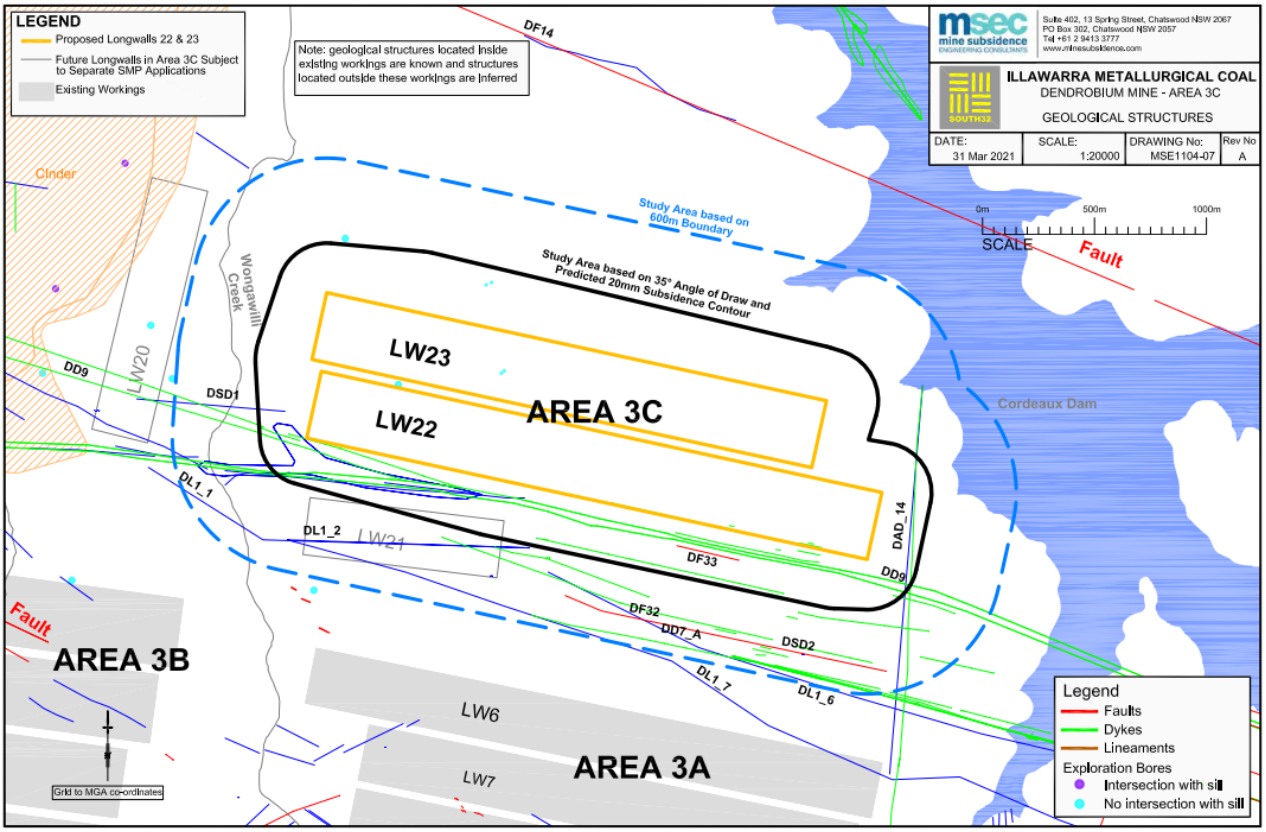

Figure 6 Geological features in Area 3C (MSE1104-07)

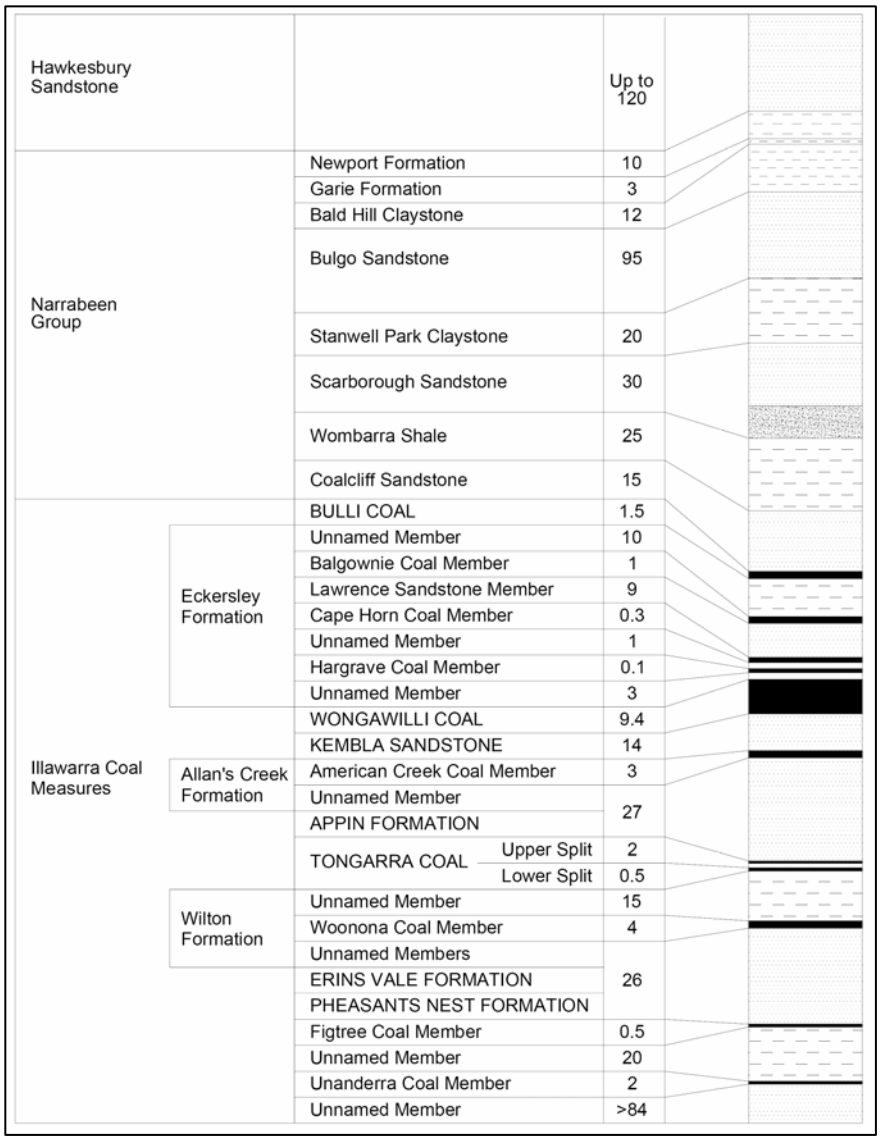

Figure 7 : Generalised Stratigraphic Column (after Williams, 1979)

1.5 SUBSIDENCE PREDICTIONS

Subsidence predictions for the extraction of Longwall 19A were reported in MSEC1234, which was included in the SMP Application for Longwall 19A. Subsidence predictions for the extraction of Longwalls 22 and 23 were reported in MSEC1104, which was included in the SMP Application for Longwalls 22 and 23.

The predicted subsidence parameters for Longwalls 19A, 22 and 23 have been obtained using the Incremental Profile Method (IPM). The IPM has been calibrated for the local conditions at Dendrobium Mine using the available ground movement monitoring data.

The maximum predicted subsidence effects for the existing and proposed longwalls in Area 3A (i.e. Longwall 6 to Longwall 8, Longwall 19 and Longwall 19A) and for proposed longwalls in Area 3C (i.e. Longwalls 22 and 23) are less than the maximum predicted values for the existing and approved longwalls in Area 3B (i.e. Longwall 9 to Longwall 18). The predicted subsidence effects are less, as the maximum mining height for Area 3A and Area 3C of 3.9 m is less than the maximum mining height for Area 3B of 4.6 m.

1.6 PREDICTED SUBSIDENCE TILT AND CURVATURE

The maximum predicted conventional subsidence resulting from the extraction of the proposed longwalls were determined using the IPM, which is described in MSEC1234 and MSEC1104.

A summary of the maximum predicted values of incremental conventional subsidence, tilt and curvature, due to

the extraction of each of the proposed longwalls, is provided in Table 2.

Table 2: Maximum predicted incremental vertical subsidence, tilt and curvature resulting from extraction of the longwalls (MSEC1234 and MSEC1104).

Due to longwall	Maximum predicted incremental vertical subsidence (mm)	Maximum predicted incremental tilt (mm/m)	Maximum predicted incremental hogging curvature (km^{-1})	Maximum predicted incremental sagging curvature (km^{-1})
LW19A	2500	35	0.9	0.9
LW22	2550	35	0.9	0.9
LW23	2500	35	0.9	0.9

A summary of the maximum predicted values of total conventional subsidence, tilt and curvature, after the extraction of each of the proposed longwalls, is provided in Table 3.

Table 3: Maximum predicted total vertical subsidence, tilt and curvature resulting from extraction of the longwalls (MSEC1234 and MSEC1104).

After longwall	Maximum predicted total vertical subsidence (mm)	Maximum predicted total tilt (mm/m)	Maximum predicted total hogging curvature (km^{-1})	Maximum predicted total sagging curvature (km^{-1})
LW6 to LW8 and LW19 (Area 3A)	3000	40	1.0	1.0
LW19A (Area 3A)	3250	40	1.0	1.0
LW22 and 23 (Area 3C)	3000	40	1.0	1.0

1.7 PREDICTED STRAINS

The maximum predicted conventional strains resulting from the mining of Longwall 19A, based on applying a factor of 15 to the maximum predicted curvatures, are 15 mm/m tensile and compressive. The maximum predicted conventional strains resulting from the extraction of proposed Longwalls 22 and 23, based on applying a factor of 15 to the maximum predicted curvatures, are 15 mm/m tensile and compressive.

These strains represent typical values when the ground subsides regularly with no localised or elevated strains due to near-surface geological structures or valley closure effects. The maximum strains can be much greater than these typical values, especially in the locations of near-surface geological structures, on steep slopes or within valleys.

At a point, however, there can be considerable variation from the linear relationship, resulting from non-conventional movements or from the normal scatters which are observed in strain profiles. When expressed as a percentage, observed strains can be many times greater than the predicted conventional strain for low magnitudes of curvature. Therefore, MSEC provided a statistical approach to account for the variability, instead of just providing a single predicted conventional strain.

1.8 PREDICTED TILT

The maximum predicted conventional tilt for the proposed Longwall 19A is 40 mm/m. The maximum predicted conventional horizontal movement, therefore, is approximately 600 mm, i.e. 40 mm/m multiplied by a factor of 15. The maximum predicted conventional tilt for the proposed Longwalls 22 and 23 is 40 mm/m. The maximum predicted conventional horizontal movement, therefore, is approximately 600 mm, i.e. 40 mm/m multiplied by a factor of 15. Greater movements can develop in incised terrain, due to the increased horizontal movements that develop in the downslope direction.

1.9 PREDICTED FAR FIELD HORIZONTAL MOVEMENTS

The predicted far-field horizontal movements resulting from the extraction of the proposed longwalls are very small and could only be detected by precise surveys. Such movements tend to be bodily movements towards the extracted goaf area, and are accompanied by very low levels of strain, which are generally less than survey tolerance. The impacts of far-field horizontal movements on the natural features and items of surface infrastructure within the vicinity of the SMP Areas is not expected to be significant, except where they occur at large structures which are sensitive to small differential movements (MSEC1234 and MSEC1104).

2 MAJOR ITEMS OF INFRASTRUCTURE

MSEC1234 and MSEC1104 identify the surface features, including built assets of interest to WaterNSW that could be affected by the mining of Longwall 19A in Area 3A and Longwalls 22 and 23 in Area 3C. The APP addresses the following WaterNSW assets:

- Unsealed roads;
- Drainage culverts; and
- The stored water contained by the Avon and Cordeaux Reservoirs.

Comprehensive descriptions of these items are provided in MSEC1234 as part of the Longwall 19A SMP, and MSEC1104 as part of the Longwall 22 and 23 SMP.

2.1 UNSEALED ROADS

There are no public roads within the Dendrobium 3A and 3C SMP Areas. There are, however, unsealed fire trails and four-wheel drive tracks within this area, which are used by WaterNSW and other groups for firefighting and other activities. Fire Road 6F crosses directly above the existing Longwall 6 to Longwall 8, Longwall 19 and the proposed Longwall 19A. Fire Roads 6C and 6F cross directly above Longwalls 22 and 23.

The locations of the fire roads are shown in Figure 3 and Figure 5. Smaller tracks created for temporary purposes are not shown on the plans.

2.2 DRAINAGE CULVERTS

There are small drainage culverts located across the Dendrobium 3A SMP Area associated with the unsealed fire trails and four-wheel drive tracks. The culverts comprise small pipes (concrete and other typical construction materials) which are located at drainage lines. The culverts could experience the full range of predicted subsidence movements. MSEC1234 and MSEC1104 identifies there are no culverts located within the Longwall 19A, 22 and 23 SMP Areas.

2.3 STORED WATERS IN THE AVON AND CORDEAUX RESERVOIRS

There are two reservoirs in the area, being Lake Cordeaux and Lake Avon, the locations of which are shown in Figure 1. The eastern ends of Longwalls 22 and 23 are partially located within the previous Lake Cordeaux Notification Area and located 2.9 km outside the Previous Notification Area for Lake Avon, at its closest point. Longwall 19A is located outside the previous Lake Cordeaux or Lake Avon Notification Area. The longwalls are located outside the Notification Areas gazetted July 1 2022.

Lake Cordeaux is 1.4 km north-east of Longwall 19A, at its closest point. The Cordeaux Dam Wall is more than 5 km north of the proposed longwall. The Upper Cordeaux No. 1 and No. 2 Dams are more than 3 km south-east of Longwall 19A.

The Cordeaux Reservoir is located east of Longwalls 22 and 23. The Upper Cordeaux No. 1 and No.2 Dams are more than 4 km south-east of Longwall 22.

Lake Avon is located more than 3 km west of Longwall 19A, at its closest point. The existing longwalls in Area 3B are located between Longwall 19A and the reservoir. The Avon Dam Wall is more than 5 km north-west of Longwall 19A.

3 SUBSIDENCE IMPACT ASSESSMENTS

Comprehensive subsidence impact assessments are provided in MSEC1234 and MSEC1104. Predicted subsidence parameters for items of surface infrastructure within the Longwalls 19A, 22 and 23 SMP Areas are provided in these reports. Impact assessments have been made for items of surface infrastructure based on the predicted subsidence parameters. All significant items of surface infrastructure located outside the SMP Areas, which may be subjected to far-field movements and may be sensitive to these movements, have also been included as part of these assessments.

Actual subsidence movements can be greater or less than those predicted for specific features, depending on their relative position within the subsidence trough, so an additional factor of safety is applied to the predicted maximum values of subsidence by predicting the tilt, curvature and strain within 20 m of the perimeter of each feature. The predictions should, therefore, provide the best available indication of the overall subsidence parameters that are likely to be experienced at each feature.

Subsidence models and predictions are used by other experts to predict impacts and potential consequences for specific features. The APP incorporates these assessments and where required any recommendations from the experts in relation to the management of specific features. This is particularly the case for the stored waters where the assessment and management actions draw on the Dendrobium regional groundwater model which has been developed and is supported by mathematical modelers, hydrogeologists and hydrogeochemists. The key assessments used to develop the APP are provided in the reference list.

3.1 UNSEALED ROADS

3.1.1 Predictions for Unsealed Roads

Fire Roads 6F and 6C are located directly above the Longwalls 22 and 23 SMP Areas and Fire Road 6F crosses directly above Longwall 19A, and therefore, are expected to experience the full range of predicted subsidence movements. A summary of the maximum predicted values of total vertical subsidence, tilt and curvatures for the unsealed roads and tracks is provided in Table 4.

Table 4: Maximum predicted total vertical subsidence, tilt and curvatures for the unsealed roads and tracks

Location	Longwall	Maximum predicted total vertical subsidence (mm)	Maximum predicted total tilt (mm/m)	Maximum predicted total hogging curvature (km-1)	Maximum predicted total sagging curvature (km-1)
Fire roads	LW6 to LW8, LW19 and LW19A	3250	40	1.0	1.0
Unsealed roads and tracks	LW22 and LW23	3000	40	1.0	1.0

The predicted tilts provided in Table 4 are the maxima after the completion of Longwall 19A and Longwalls 22 and 23.

The maximum predicted conventional hogging and sagging curvatures for the unsealed roads and tracks, resulting from the extraction of the proposed longwalls, are all1.0 km-1, which represents a minimum radius of curvature of 1 km.

The maximum predicted conventional strains for the fire roads above Area 3A and Area 3C, based on applying a factor of 15 to the maximum predicted conventional curvatures, are 15 mm/m tensile and compressive. The distribution of the predicted strains due to the extraction of the longwalls is described in Section 4.4 of MSEC1234 and MSEC1104. The predicted strains directly above the mining area are 8 mm/m tensile and compressive based on the 95 % confidence levels.

Non-conventional movements can also occur and have occurred in the NSW Coalfields as a result of, amongst

other things, anomalous movements and downslope movements.

3.1.2 Impact Assessments for Unsealed Roads

Fire Road 6F is located directly above the proposed Longwall 19A. Fire Roads 6C and 6F cross directly above the proposed Longwalls 22 and 23.

The estimated crack widths in Fire Road 6F, based on the maximum predicted conventional tensile strain of 15 mm/m and a typical bedrock joint spacing of 10 m, is in the order of 150 mm (MSEC1234 and MSEC1104). However, wider cracks could develop along the road above longwalls 22 and 23 due to topographic effects. It is possible that a series of smaller cracks, rather than one single crack, could develop in the road surfaces.

It is expected that Fire Road 6C and 6F can be maintained in safe and serviceable conditions throughout the mining period using normal road maintenance techniques.

Fire Road 6C is outside the SMP study area for proposed Longwall 19A. It is unlikely, therefore, that impacts would develop along this fire road due to the mining.

There are also other unsealed roads and tracks located in the area that are used by WaterNSW and other groups for access to the catchment, fire fighting and for exploration activities. However the smaller tracks are often created for a temporary purpose and then closed when no longer needed, and therefore are not shown on plans. It is likely that cracking and heaving of the unsealed road surfaces would occur where they are located directly above the longwall. It is expected that these features can be maintained in safe and serviceable condition using normal road maintenance techniques.
The unsealed roads in Dendrobium Areas 1, 2, 3A and 3B have been maintained in a safe and serviceable condition during mining using normal road maintenance techniques. It is expected that the unsealed roads above the proposed longwalls would also be maintained using similar remediation measures, including re-grading and re-compacting the unsealed road surfaces during mining.

The unsealed roads will be monitored as the proposed longwall is mined beneath them, so that any impacts can be identified and rectified accordingly. IMC will develop in consultation with WaterNSW, management strategies for the unsealed roads if impacts are observed. With these strategies in place, it is likely that the unsealed roads can be maintained in a safe and serviceable condition throughout the mining period. Inspections will be undertaken by IMC survey and field crews in conjunction with other routine activities.

3.2 DRAINAGE CULVERTS

There are no drainage culverts located across the Longwall 19A, 22 and 23 SMP Areas. However there may be small pipes and open drainage works associated with the unsealed fire trails and four-wheel drive tracks. The drainage could experience the full range of predicted subsidence movements, which are summarised in MSEC1234 and MSEC1104.

Any impacted drainage would be repaired or, where required, would be replaced. It would not be expected that the strain would impact pipes of steel or poly construction.

3.3 AVON AND CORDEAUX RESERVOIRS

The Cordeaux and Avon Reservoirs are located at minimum distances of 1.4 km and more than 3 km, respectively, from the proposed Longwall 19A. At these distances, the reservoirs are not predicted to experience measurable conventional or valley related effects.

The dam walls associated with the Cordeaux and Avon Reservoirs are located more than 3 km from the proposed Longwall 19A. At these distances, the dam walls are not predicted to experience measurable conventional or far-field effects.

Longwalls 22 and 23 are located at a distance of 300 m from the FSL of the Cordeaux Reservoir, at the closest points, and are within the previous Lake Cordeaux Notification Area. Avon Reservoir is located more than 3 km from proposed Longwalls 22 and 23 and are outside the previous Lake Avon Notification Area. Minor and

isolated fracturing could occur in the bedrock beneath the Cordeaux Reservoir within a distance of approximately 400 m from the proposed mining. However, the fracturing is unlikely to be visible at the surface due to the alluvial deposits.

The Cordeaux Dam Wall is located approximately 2.8 km north of Longwall 23 and the Avon Dam Wall is located more than 8 km west of the proposed longwalls. At these distances, the dam walls are not expected to experience measurable differential horizontal movements over their lengths. It is not anticipated that adverse impacts would occur to the dam walls due to the proposed mining.

The predicted vertical and horizontal movements at the Cordeaux and Avon Reservoirs and their associated dam walls are very small and are unlikely to be measurable. Previous experience of mining in Areas 1, 2, 3A and 3B has not resulted in adverse impacts on these structures.

Subsidence impacts due to mining near reservoirs are discussed in the hydrogeological conceptual model of the groundwater-related effects of longwall mines presented in Watershed Hydrogeo 2021 and 2022. Key issues from Watershed Hydrogeo 2021 are presented below.

At Dendrobium, some mode of fracturing due to mining subsidence occurs from the seam to the surface. This fracturing encourages groundwater to move out of storage and drain downwards towards the goaf.

At distances exceeding approximately 500-600 m from the mine, strata are assumed to be relatively unaffected. Within approximately 600 m of the longwall goaf minor enhancements to horizontal hydraulic conductivity (Kh) may arise at specific horizons due to shearing along bedding planes. This enhancement is considered more likely in the upper parts of the strata offset from longwalls. In the lower sections above chain pillars the compression of overlying strata is likely to restrict the potential for secondary porosity and permeability to develop (HGEO, 2020a), and may even reduce Kh in these areas.

Basal shear planes, as identified in the analysis of Walsh *et al*. (2014) and SCT (2015), can extend laterally in strata at an elevation of or just beneath the base of incised valleys. These features can be natural or enhanced by mining subsidence. It is possible that shear planes may act as a conduit for groundwater flow, and that these might enhance horizontal connection between watercourses and waterbodies (specifically the Avon and Cordeaux Reservoirs) with the fractured zone extending upward from the longwall goaf, therefore potentially providing a rapid and transmissive pathway for surface water to enter the mine. It is unclear at what distance from the fractured zone above the goaf these shear planes might be able to extend. However, data from Sandy Creek indicated that shear planes were mobilised when Longwall 8 was some 670 m from the valley (Walsh *et al.*, 2014), so conceptually there may be connection when the longwall edge is about 600 m from a watercourse or reservoir.

Recent testing at the Lake Avon monitoring bores (SCT, 2017; HGEO, 2019b) did not consistently detect highly permeable discrete zones in the pre- or post-mining strata. SCT detected one at S2314, although “it is not considered to be a significant conduit for flow from the reservoir into the mine” (SCT, 2017). The development and/or enhancement of shear planes resulting from mining is the subject of ongoing assessment at Dendrobium.

There is potential for the modification or enhancement of Kh beyond the mine footprint. The extraction of a longwall results in the collapse and subsidence of overlying strata, causing both vertical and horizontal movement of overlying and nearby strata. Outside the longwall footprint, where such horizontal movements occur, the effect can be an enhancement of Kh through horizontally-bedded strata, especially in areas where the topographic relief is such that parts of the landscape (strata) are not supported or buttressed against such horizontal movements (SCT, 2015). Hydraulic conductivity testing at bores located between Area 3B longwalls and Lake Avon suggests that Kh might be enhanced 2-3 times, or more, the host (pre-mining) value (~0.3 log units). However, this is not definitive and possibly not significant as often the post-mining permeabilities measured at Lake Avon monitoring sites have been within the expected range of (pre-mining) Kh.

Condition 2, Schedule 4 of the Longwalls 22 and 23 SMP approval requires a Seepage Validation Report to be prepared which includes:

a) results of field studies and permeability/seepage modelling of the strata between Area 3B and the Avon

Reservoir;

b) *modelling and validation of the predicted permeability/seepage of the strata between Area 3C longwalls and the Cordeaux Reservoir; and*
c) *confirmation of the appropriateness of the setback of Longwalls 22 and 23 from the Cordeaux Reservoir.*

Part (a) has been completed with (b) and (c) to be completed prior to extraction of Longwalls 22 or 23. Key outcomes of the investigations in Avon (HGEO, 2023) are summarised below:

The change in strata permeability at each of the sites is assessed by comparing the average permeability over a defined depth interval before and after longwall extraction. The analysis shows:

- A significant increase in strata permeability is observed at 4 of the 8 sites investigated, where a significant change is more than 0.5 orders of magnitude. At those 4 sites the average increase in permeability is in the order of 1.0 OM. The other four sites show little or no change in strata permeability as a result of mining.

- There is no consistent relationship between post-mining strata permeability and distance from the goaf footprint. Rather, the sites that record a significant increase in permeability tend to be those within tributary valleys, suggesting topographical effects such as valley-closure play a role.

Time-Domain Reflectometry (TDR) monitoring identified strata movement or shear at single or multiple levels at four out of the five Avon Dam monitoring locations. Strata movement has been detected in holes located up to several hundred metres from the active longwall. Typically, anomalies develop within a month of the start of a longwall and may reactivate during subsequent longwalls. At three sites, significant TDR anomalies occur at depths corresponding with the top of the Newport Formation. The correlation of anomalous TRD responses and strata permeability across several holes at this stratigraphic level may indicate the presence of a basal shear plane related to valley-closure within the Newport Formation. There is no evidence for strata movement at site AD5 located between Longwall 17 and Lake Avon, including during and following extraction of Longwall 18.

Groundwater monitoring in the Lake Avon barrier zone shows widespread depressurisation of all strata in response to mining in Area 3B and a general hydraulic gradient towards Area 3B, consistent with numerical model predictions. Groundwater levels at the base of the HBSS were likely near or just above the lake level prior to mining and have since declined to be below the lake level. There is evidence for recovery in groundwater pressures in the CVSS at AD1, AD2, AD7, and to a lesser extent, at AD6. The closest AD series monitoring bore to Longwall 18 (AD5) recorded slight depressurisation in 2379_108 m from the start of Longwall 18. Otherwise there are no significant adverse groundwater responses associated with extraction of Longwall18.

A local-scale numerical model was updated to reflect the observations following the extraction of Area 3B up to and including Longwall 17. The estimated average seepage rate for the 1.93 km of shoreline adjacent to Longwalls 12 to 17 is 0.36 ML/day/km. Extrapolated over the length of shoreline adjacent to Area 3B, it is estimated that the seepage associated with Longwalls 12 to 18 will be no more than 0.89 ML/day. The estimate remains below the DS Tolerable storage loss limit of 1ML/day.

Over goaf investigation bores proposed for Longwalls 22 and 23 are described in Section 3.5 and Figure 3-5 of the Dendrobium Area 3C Watercourse Impact, Monitoring, Management and Contingency Plan (South32, 2021). Pre-mining and post-mining monitoring holes have been installed within Area 3C to investigate and monitor highly connected fracture network above the goaf and the upwards migration of the phreatic surface.

3.3.1 Estimated Leakage from Reservoirs

The Dendrobium Regional Groundwater Model has evolved from that of Coffey (2012) through numerous iterations and updates (HydroSimulations, 2014, 2016, 2018, 2019a and 2019b; SLR 2020, Watershed HydroGeo 2021 and 2022), and further work to improve the model is on-going, as recommended by IEPMC and IAPUM. (2018, 2019a and 2019b).

The model has been reviewed a number of times by NSW Government Agency staff (e.g. WaterNSW, Dams Safety NSW, OEH and DPE) and the IAPUM. The Dendrobium Regional Groundwater Model has been the subject of multiple Peer Reviews by Kalf and Associates, who has made specific comments and recommendations about the analysis of data, the development of the conceptual model, as well as features of the numerical model including the need for conservative representation of the zone of connected fracturing and the method for including basal shears and valley closure processes.

The estimated total leakage losses from Avon and Cordeaux Reservoirs, and incremental losses due to the extraction of Longwall 19A (Watershed HydroGeo 2022) and Longwalls 22 and 23 (Watershed HydroGeo 2021) are shown in Table 5 and Table 6 respectively.

The estimated incremental leakage losses from both reservoirs as a result of extraction of Longwall 19A is estimated to be negligible, or effectively nil. This is due to the distance of the longwall from both reservoirs and the effects of previously extracted longwalls on the intervening strata.

Table 5: Estimated leakage from reservoirs due to extraction of Longwall 19A (Watershed HydroGeo 2022)

Reservoir	Whole mine cumulative loss (ML/day)	Incremental loss due to LW19A (ML/day)
Lake Avon	0.09 – 0.45	Negligible
Lake Cordeaux	0.12 – 0.30	Negligible

The estimated incremental leakage losses from Avon Reservoir as a result of extraction of Longwalls 22 and 23 is estimated to be nil, due to the distance from that reservoir. The incremental effect of Longwalls 22 and 23 on leakage from Lake Cordeaux is 0.08 and 0.05 ML/d.

Table 6: Estimated leakage from reservoirs due to extraction of Longwalls 22 and 23 (Watershed HydroGeo 2021)

Reservoir	Whole mine cumulative loss (ML/day)	Incremental loss due to LW22 (ML/day)	Incremental loss due to LW23 (ML/day)
Lake Avon	0.09 – 0.45 (mean 0.18)	<0.01	<0.01
Lake Cordeaux	0.11 – 0.36 (mean 0.23)	0.08	0.05

A local groundwater model will be developed for Cordeaux Reservoir, similar to the Avon Reservoir model developed for Area 3B mining. This model can only be developed once sufficient data is collected to support model inputs. Monitoring bores are being established, and these bores will be reinstalled following mining to determine pre and post mining permeability changes. Assessments using a local scale model will be reported to WaterNSW and Dams Safety NSW as part of the End of Panel reporting process.

3.3.2 Subsurface fracturing models

The fracture zone comprises in-situ material lying immediately above the caved zone which have sagged downwards and consequently suffered significant bending, fracturing, joint opening and bed separation (Singh and Kendorski, 1981; Forster, 1995). Where the panel width-to-depth ratio is high and the depth of cover is shallow, the fracture zone would extend from the seam to the surface. Where the panel width-to-depth ratio is low, and where the depth of cover is high, the fracture zone would not extend from the seam to the surface.

It should be noted that the theoretical height of the fracture zone should be viewed in the context of fracturing only and should not necessarily be directly associated with an increase in connected permeability.

The assessment of surface water flow and quality effects for the Dendrobium Longwalls (HGEO 2021 and 2022) included a summary of subsurface fracturing models used to provide guidance in the assessment of

height of connective fracturing over Dendrobium longwalls. The empirical methods of Ditton and Merrick (2014) and Tammetta (2013) yielded results that were significantly different. It is agreed that there is uncertainty associated with both the Tammetta and the Ditton height of complete drainage equations. It was recommended by IEPMC (2018) to err on the side of caution and defer to the Tammetta equation until field investigations quantify the height of complete drainage and/or geomechanical modelling of rock fracturing and fluid flow is utilised.

The update to the model used in the latest Groundwater Assessment (Watershed HydroGeo 2021 and 2022) does not rely on the geomechanical modelling by SCT, which was previously used in HydroSimulations (2019c). The studies have concentrated on constraining the model where possible using recently acquired field data. Over goaf investigations and groundwater monitoring undertaken by IMC between 2018 and 2022 support this approach. Outcomes of the study are described in HGEO 2020, 2021a and summarised in HGEO 2022 as follows:

IMC drilled 21 holes above nine extracted longwalls in Areas 3A and 3B to assess the nature and extent of fracturing above the goaf. The study concluded that mining-induced fracturing is highly variable but appears to extend to the surface above longwalls of width 249 m in Area 3A and 305 m in Area 3B. The density of fracturing and the proportion of high-angle fractures, decreases with height above the goaf, with anomalous fracturing within the BACS and within 120 m of the goaf. Packer tests indicate an increase in permeability of 2 to 3 orders of magnitude relative to pre-mining conditions throughout most strata above the longwall goaf. Vibrating wire piezometers (VWP) installed after longwall extraction indicate significant depressurisation throughout all strata, with near zero pressure heads recorded in most piezometers.

The Regional Groundwater Models at Dendrobium use site specific data to determine the height of desaturation. Dendrobium monitors in excess of 1,000 piezometers in ~100 boreholes and has analysed many thousands of samples for field parameters, laboratory analysis, algae and isotopes.

In accordance with Schedule 3, Condition 19(c) of the Area 3B SMP Approval, height of connective fracturing investigations across longwalls in Area 3B were undertaken prior to each longwall extraction. The most recent report, Hebblewhite (2020) states:

… comments and conclusions are drawn in relation to the overall concept of height of depressurisation, and the status of predictive models:

… mining-induced impacts are occurring above all panels throughout the overburden sequence, through to, or very close to the surface in all cases. This includes increased defect/fracture impacts; significant increases in permeability; and reduction to near-zero pressure head throughout the strata.

There is some evidence of very localised retained groundwater in perched aquifers at some locations, and at different vertical horizons, but these are not extensive.

On the basis of this evidence, it is reasonable to conclude that the height of depressurisation is close to, or equal to the total depth of overburden above the working coal seam, i.e. extending to the surface in each instance.

In spite of the reduced longwall panel width in Area 3A (LW6 and LW7), the height of depressurisation has still effectively extended to the surface, albeit with a reduced strata fracture density above the mined panels. It is likely that a more significant panel width reduction and or mining height reduction would be necessary to cause a significant reduction in height of depressurisation in this particular mining region.

The lack of significant differential in height of depressurisation with the reduced panel widths means that the range of the dataset available to assist with developing an improved prediction model remains inconsistent, and insufficient to enable any further model development based on empirical methods.

There is strong evidence at all locations of significant depressurisation occurring ahead of under-mining, due to the effect of adjacent mining panels, and earlier mining development. These effects are evident at most of the strata horizons, extending towards the surface.

… the Tammetta model is clearly the most appropriate one to continue using in the future. It provides a reasonably accurate prediction – given the variability of factors such as depth across any particular panel.

3.3.3 Recommendations for the Reservoir

IMC will consult with WaterNSW and Dam Safety NSW in relation to management of any potential impacts on Avon and Cordeaux Reservoirs. Management strategies have been developed and implemented to ensure that there is no unacceptable water loss from the lakes. With these management strategies and actions in place, it is unlikely that there would be any significant impacts on the lake resulting from the mining.

Monitoring, Contingency and Closure Management Plans have been developed and endorsed by Dams Safety NSW for the Cordeaux and Avon Reservoirs. The current version is:

Illawarra Metallurgical Coal 2023. *Dendrobium Mine – Avon and Cordeaux Reservoirs Dams Safety NSW Notification Area Management, Closure and Contingency Plan*, DENMP0078, May 2023

3.3.4 Risk Assessments and Management Plans

IMC carried out separate risk assessments for the Dendrobium Longwall 19A SMP and Longwalls 22 and 23 SMP applications in accordance with the recommendation from the IEPMC that SMP applications consider the potential implications of mining within a risk assessment context, and in particular any implications for water quantity as a result of faulting, basal shear planes and lineaments.

Potential failure mechanisms assessed as being credible, which may lead to such a loss of water were identified. Controls were identified for each potential hazard and these formed the basis of the Management and Action Response Plans (listed in Section 3.3.3) that direct operations to limit losses from the Cordeaux and Avon Reservoirs to within limits imposed by Dams Safety NSW.

These are described by Dams Safety NSW as “Tolerable Loss of Dam Water” and are a loss of no more than 1 ML/day long-term and 2 ML/day short-term for the Cordeaux Reservoir and a sustained loss of 1 ML/day for Avon Reservoir (Dams Safety Committee, 2014).

The following hazards have been previously identified as potential causes for impacts to and loss of water from the reservoirs into Dendrobium Mine:

- Inflow from sub-vertical, through-going geological structure connected to the Reservoirs (such as diatreme, fault, dyke, fault associated with dyke, joint or joint swarm). A specific plan has been prepared for the potential inflow along the Dendrobium Dyke into Area 3A at the request of Dams Safety NSW;
- Inflow from low angle through-going geological structure connected to the reservoirs (faults, sills, bedding, bedding plane shears) resulting from intersection during extraction of longwall panels and goaf formation;
- Inflow through the longwall caved zone due to:
  - Intersection with high permeability strata or zones that connect with the reservoirs, or
  - Inflow from fractures associated with valley closure and upsidence with high permeability zones, or
  - ‘Through going’ structure;
- Inflow via exploration or monitoring borehole(s);
- Underground mining in a regional context impacting on reservoir walls;
- Seal bypass or failure as a result of increased head of water against seal or strata failure or leakage around seal resulting in outflow of stored water from the mine portals;
- Inflow through fractured rockmass associated with igneous intrusions, causing hydrogeological connection with the reservoirs (e.g. Cordeaux Crinanite);
- Inflow through horizontal shear planes that exist naturally and others that are likely to form as a result of downslope movements and valley closure associated with mining subsidence;
- Inflow through natural permeability within the rock strata between the mine workings and the Reservoirs or increased permeability as a result of downslope movements and valley closure associated with mining subsidence; and

- Failure of the Inundation or Inrush of any Subsidence Principal Hazard Management Plan (IMP) and/or the Contingency Plan to reduce flows to acceptable levels.

Prior to the installation of permanent hydraulic seals all closure options will be reviewed and recommend actions to be endorsed by Dams Safety NSW.

The potential for loss of water from the Cordeaux and Avon Reservoirs whilst mining Areas 3A and 3C was considered in risk assessments conducted by AXYS Consulting (conducted in June 2021 for Longwalls 22 and 23 and in September 2022 for Longwall 19A). The objective of the assessment was to assist IMC control identified risks associated with the mining of the proposed longwalls, which may cause the loss of stored water.

The Avon and Cordeaux Reservoirs Notification Area Management, Closure and Contingency Plan (DENMP0078) defines the standards, procedures and responsibilities required to:

- Clearly describe the monitoring requirements to detect potential impacts on the Cordeaux and Avon Reservoirs;
- Maintain a system for effectively managing the risk of inflow of stored water into mine workings; and
- To protect the long term security of the dams and stored waters from any deterioration that may be caused directly or indirectly by operations associated with Dendrobium Mine.

The Plan applies to all development and longwall extraction – i.e. first and second workings within the previous Avon and Cordeaux Reservoirs Notification Areas and other underground areas and operations at Dendrobium Mine.

The successful mining within Dendrobium Area 1, Area 2, Area 3A and Area 3B with no significant inflow of water from the Cordeaux or Avon Reservoirs provides confidence that mining adjacent to the Reservoirs has an acceptable risk.

Areas 3A and 3C consist of a relatively simple sequence of sedimentary stratigraphy and there are no complications associated with overlying workings. The longwall domain is between geological features that have negligible risk of providing a conduit from the reservoir to the workings.

Dendrobium has installed and is currently monitoring an extensive array of piezometers in the area. In addition, the underground water balance and chemistry sampling provides data that can be used to trigger actions within the Avon and Cordeaux Reservoirs Notification Area Management, Closure and Contingency Plan.

4 PREVENTATIVE AND REMEDIAL MEASURES

Table 7 summarises the predicted subsidence impacts and proposed preventative or remedial measures.

Table 7:Summary of Subsidence Impacts with Associated Preventative or Remedial Measures

WaterNSW Infrastructure	Predictions for Longwalls 19A, 22 and 23 extraction	Reference	Management Strategy
Unsealed Roads and Tracks (including small pipes and open drainage works)	Longwall 19A • Maximum predicted total subsidence along Fire Trail 6F of 3250 mm. • Maximum predicted travelling tilt along Fire Trail 6F of 40 mm/m. Longwalls 22 and 23 • Maximum predicted total subsidence along Fire Trail 6F of 50 mm. • Maximum predicted travelling tilt along Fire Trails 6F of 30 mm/m.	Longwall 19A - MSEC1234 Longwalls 22 and 23 - MSEC1104	• Actions will be carried out in accordance with the SMP and associated Trigger Action Response Plans (TARP). This will include: ○ Monitoring during extraction of Longwalls 19A, 22 and 23 ○ Baseline survey and monitor condition of road as mining occurs ○ Repair, replacement and/or re- grading as specified in SMP TARP
Stored Waters in Avon and Cordeaux Reservoirs	Longwall 19A • Lake Cordeaux is not expected to experience any subsidence impacts, including measurable conventional or valley related effects. • Lake Avon is not expected to experience any subsidence impacts, including measurable conventional or valley related effects. Longwalls 22 and 23 • Lake Cordeaux may experience very low levels of vertical subsidence, however no expected measurable conventional tilts, curvatures or strains. Far-field horizontal movements oriented towards the mining area associated with very low levels of strain. Low-level valley-related (closure) effects. • Lake Avon could experience very low levels of far-field horizontal movement towards the mining area not associated with measurable strains.	Longwall 19A - MSEC1234 Longwalls 22 and 23 - MSEC1104 Risk Assessment Avon and Cordeaux Notification Area Management, Closure and Contingency Plan	Liaise with the asset owner and Dams Safety NSW and address under the provisions of the Management Plans (see below). These include Monitoring, Contingency and Closure Plans including TARPs.

WaterNSW Infrastructure	Predictions for Longwalls 19A, 22 and 23 extraction	Reference	Management Strategy
Dam Walls	Longwall 19A • The dam walls associated with the Cordeaux and Avon Reservoirs are located more than 3 km from Longwall 19A. It is unlikely that the dam walls would experience adverse impacts. Longwalls 22 and 23 • The Cordeaux Dam Wall and Upper Cordeaux No. 1 and No. 2 Dam Walls could experience very low levels of far field horizontal movements of less than 20 mm. The potential for impacts on dam walls results from differential horizontal movements (ie: opening or closure) over the lengths of the dam walls which are not expected to be measurable. • The Avon Wall is located more than 8 km west and at this distance is unlikely to experience measurable movements.	Longwall 19A - MSEC1234 Longwalls 22 and 23 - MSEC1104	Liaise with the asset owner and Dams Safety NSW and address under the provisions of the Management Plans (see below). These include Monitoring, Contingency and Closure Plans including TARPs.

The impacts of subsidence on man-made features and infrastructure due to mining Longwalls 19A, 22 and 23 are manageable. With appropriate management plans in place all items of infrastructure can be maintained in a safe and serviceable condition throughout and after mining.

4.1 MONITORING

Monitoring will be conducted according to the provisions of the WaterNSW Assets Management Plans specified in Section 4.2 (and detailed as Appendices A, B and C) and to the standards that are defined within the Avon and Cordeaux Reservoirs Notification Area Management, Closure and Contingency Plan.

4.2 WATERNSW ASSETS MANAGEMENT PLANS

The predicted subsidence effects, monitoring and preventative and/or remedial measures for infrastructure are detailed in WaterNSW Assets Management Plans developed in consultation with WaterNSW. The Plans are:

1. WaterNSW Assets (including stored waters) for previous Area 3A longwalls (as documented in Revision 4 of the APP) – Appendix A.
2. WaterNSW Assets (including stored waters) for Area 3B- (as documented in Revision 10 of the APP) - Appendix B.

5 MASTER AGREEMENT

As stated in Section 1, this WaterNSW Asset Protection Plan is required as part of Subsidence Management Plans under Schedule 3, Condition 7 (d) of the Dendrobium Development Consent prior to carrying out any underground mining operations that could cause subsidence in either Area 3A, 3B or 3C.

IMC obtained formal access consent for Special and Controlled Areas (Consent: F2020/1545) on 14 March 2020 issued under Clause 10 of the Water NSW Regulation 2013 (Appendix D). The Access Consent is updated and re-approved as required with the latest approval dated 29 June 2023. Section 5 of the access consent details general conditions including indemnity, warranty and insurance.

IMC has provided a Master Agreement letter to WaterNSW (Appendix C). This letter reinforces that WaterNSW will be financially protected against mining impacts. Heritage values will be protected in accordance with relevant approvals. Appendix C details that the terms of the existing Master Agreement (Appendix E) will remain valid for development drivages and longwall extraction in Dendrobium going forward.

6 QUALITY ELEMENTS

6.1 AUDIT REVIEW AND REPORTING

An annual review of the environmental performance of Dendrobium operations will be undertaken in accordance with the Consent Condition 5 Schedule 8. More specifically this APP will be subject to review (and revision if necessary, to the satisfaction of WaterNSW and the Secretary) following:

- The submission of an annual review under Consent Condition 5 Schedule 8.
- The submission of an incident report under Consent Condition 3 Schedule 8.
- The submission of an audit report under Consent Condition 6 Schedule 8.
- Any modification to the conditions of the Consent.

If deficiencies in the Environmental Management System and/or APP are identified in the interim period, the plans will be modified as required. This process has been designed to ensure that all management measures continue to meet current requirements, including changes in technology and operational practice, and the expectations of stakeholders. Regular consultation with WaterNSW and Dams Safety NSW will be undertaken to review the progress of the mining related activities that may impact on the surface assets described in the APP.

Copies of all relevant reports will be provided to Dams Safety NSW and WaterNSW. The Dams Safety NSW Monthly Report (including compliance report) is provided to WaterNSW.

6.2 RESPONSIBILITIES

Dendrobium Mine General Manager

The General Manager will ensure that the resources required by the APP are provided as and when required by any Official with defined responsibilities.

Manager Approvals

The Manager Approvals will:

- Be IMC's Authorising Officer for the APP.
- Attend liaison meetings with WaterNSW on a regular basis to review the progress of all mining related activities, which may impact on WaterNSW infrastructure and discuss and assess those impacts.
- Be IMC's representative to provide liaison and notification of monitoring results (including anomalies) to WaterNSW.
- Provide advice if there is mining related impacts on the WaterNSW infrastructure.
- Participate in any review and amendment of the APP.
- Ensure the subsidence surveys and monitoring requirements on surface infrastructure are carried out in accordance with the requirements of the APP.

Principal Approvals

The Principal Approvals will:

- Attend liaison meetings with Dams Safety NSW to review the progress of all mining related activities, in relation to relevant approval conditions.
- Be IMC's representative to provide regular reports and notification of monitoring results (including anomalies) to Dams Safety NSW.
- Participate in any review and amendment of the APP.
- Ensure data, records and reports relating to the APP are forwarded to relevant parties and kept in accordance with the provisions of the APP.
- Be a member of the IMC Subsidence Management Committee, which meets regularly.
- Shall advise the Superintendent Infrastructure Protection and Legacy Sites and the Dendrobium Mine

General Manager of any issues in relation to the APP that require their attention or action.

6.3 RECORD KEEPING AND CONTROL FOR RELIABILITY

Data and information derived from the APP will be stored and archived in a document control system for a period of at least 5 years.

6.4 DOCUMENT CONTROL

The APP shall be controlled as part of the IMC Document Control System. Modifications to the APP or the standards and procedures that are referenced by the Plan may occur as a result of the auditing and review process, the assessment and implementation of a corrective action or as a result of system improvements or modifications. The Manager Approvals, in consultation with WaterNSW shall approve all modifications and amendments to the APP or associated documentation.

The APP forms part of the Dendrobium SMP, which requires approval by DPE.

6.5 DOCUMENT HISTORY AND DISTRIBUTION

Revision	Date	Description
Drafts A to	To 19/11/04	Versions – for consideration of the WaterNSW
0	9/03/05	Initial – for WaterNSW Approval of Area 1
1	28/4/05	Finalised Plan incorporating modifications to gain WaterNSW endorsement
2-Draft 1	26/10/06	Update to incorporate Longwall 2 extension and mining of Area 2 and results of audit carried out after completion of Longwall 1
2-Draft 2	22/2/07	Incorporate WaterNSW comments received 1/2/07
2	15/3/07	Finalised Plan incorporating WaterNSW comments received 14th March 2007
3-Draft 1	18/7/08	Revised to incorporate changes to Area 2 Longwall layout including the addition of Longwall 5A and the recommendations of the audit carried out after Longwall 2 & 3
3-Draft 2	20/11/08	Revised to incorporate the shortening of Longwall 5 and the removal of the proposed Longwall 5A.
3	28/11/08	Finalised Plan covering Areas 1 and Area 2 incorporating WaterNSW comments received 27/11/08
4-Draft 1	30/7/09	Plan revised to cover Area 3A Longwalls 6 to 10 Previous Area still covered by Revision 3
4-Draft 2	23/10/09	Plan updated to incorporate comments provided by WaterNSW
4-Draft 3	19/2/10	Plan updated to incorporate comments provided by WaterNSW
4-Draft 4	7/4/10	Plan updated to incorporate comments provided by WaterNSW on Draft 3 and modified Area 3A layout
4		Finalised Plan covering Area 3A
5-Draft 1	3/8/12	Plan revised to cover Area 3B Longwalls 9 and 10.
5-Draft 2	12/11/12	Plan updated to incorporate comments provided by WaterNSW.
5	20/12/12	Comments and changes accepted, and Plan finalised
6	21/3/13	Finalised Plan covering Area 3B, Longwalls 9 to11
7- Draft	November 2014	Plan covering Area 3B, Longwalls 12 & 13
7a	September 2015	Update following WNSW feedback
7b	February 2016	Update following additional WNSW feedback
7c	August 2016	Updated for Longwalls 13 - 18
8	September 2017	Updated for Longwalls 14 and 15
9	November 2019	Updated for Longwalls 16 and 17
9a	January 2020	Update following WaterNSW feedback
10	September 2020	Update for Longwall 17, including latest groundwater modelling

Revision	Date	Description
11	March 2022	Update for Longwalls 19 and 21
12	April 2023	Update for Longwalls 19A, 22 and 23
12a	July 2023	Incorporating WaterNSW comments
12b	August 2023	Clarification of Master Agreement
12c	October 2023	Finalisation of Master Agreement Letter

Persons using uncontrolled copies must be mindful to ensure that they have the most up-to-date version before they apply any provisions. WaterNSW will be provided with an electronic copy of the current APP.

7 ASSOCIATED DOCUMENTATION AND REFERENCES

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Appendix A

Management Plans for Areas 3A and 3C

APPENDIX "A" -- WNSW Assets Management Plan for Areas 3A and 3C

Asset Item	Predicted Movement	Predicted Impacts	Monitoring		Mitigatory or Preventative Measures
			Type	Frequency	
Cordeaux Dam wall	• Unlikely to be subject to any significant systematic or valley related movements. • Unlikely to be subjected to any significant far-field horizontal movements.	Negligible	• WaterNSW to carry out normal dam surveillance.	As Required	Consult with WaterNSW and DS NSW to develop appropriate monitoring and management strategies for the reservoirs and dam walls
Upper Cordeaux No2 Dam wall	• Unlikely to be subject to any significant systematic or valley related movements. • Unlikely to be subjected to any significant far-field horizontal movements	Negligible	• WaterNSW to carry out normal dam surveillance.	As Required	Nil required
Fire Trails and 4WD tracks	• Predicted subsidence up to 3250 mm • Predicted Travelling Tilt up to 40 mm/m • Predicted Travelling up to Tensile strain 15 mm/m • Predicted Travelling Compressive Strain up to 15 mm/m.	• Cracking in unsealed surfaces of roads. • Bucking and cracking in bedrock.	• Visual inspection by IMC. • Additional visual inspections by asset owner during their routine operations.	• Pre-mining survey of roads to be carried out. • In accordance with the SMP undertake observations 6 monthly increasing to monthly during active subsidence (i.e. 100 m in front of the longwall to 400 m behind) • Resulting from any reports	Repairs and/or regrading as applicable and as necessary as mining occurs.

APPENDIX "A" -- WNSW Assets Management Plan for Areas 3A and 3C

Asset Item	Predicted Movement	Predicted Impacts	Monitoring		Mitigatory or Preventative Measures
			Type	Frequency	
Stored Waters in Cordeaux and Avon Reservoirs	• Unlikely to be subject to any significant systematic or valley related movements. • Unlikely to be subjected to any significant far-field horizontal movements.	• Negligible	As per the Dams Safety NSW Monitoring and Contingency Plan provisions.	The frequency and triggers for monitoring are included in the Contingency Plan.	As per the Dams Safety NSW Monitoring and Contingency Plan provisions to address issues relating to the potential for leakage of Cordeaux and Avon Reservoirs stored waters.

Appendix B

Management Plans for Area 3B

APPENDIX "B" -- WNSW Assets Management Plan for Area 3B

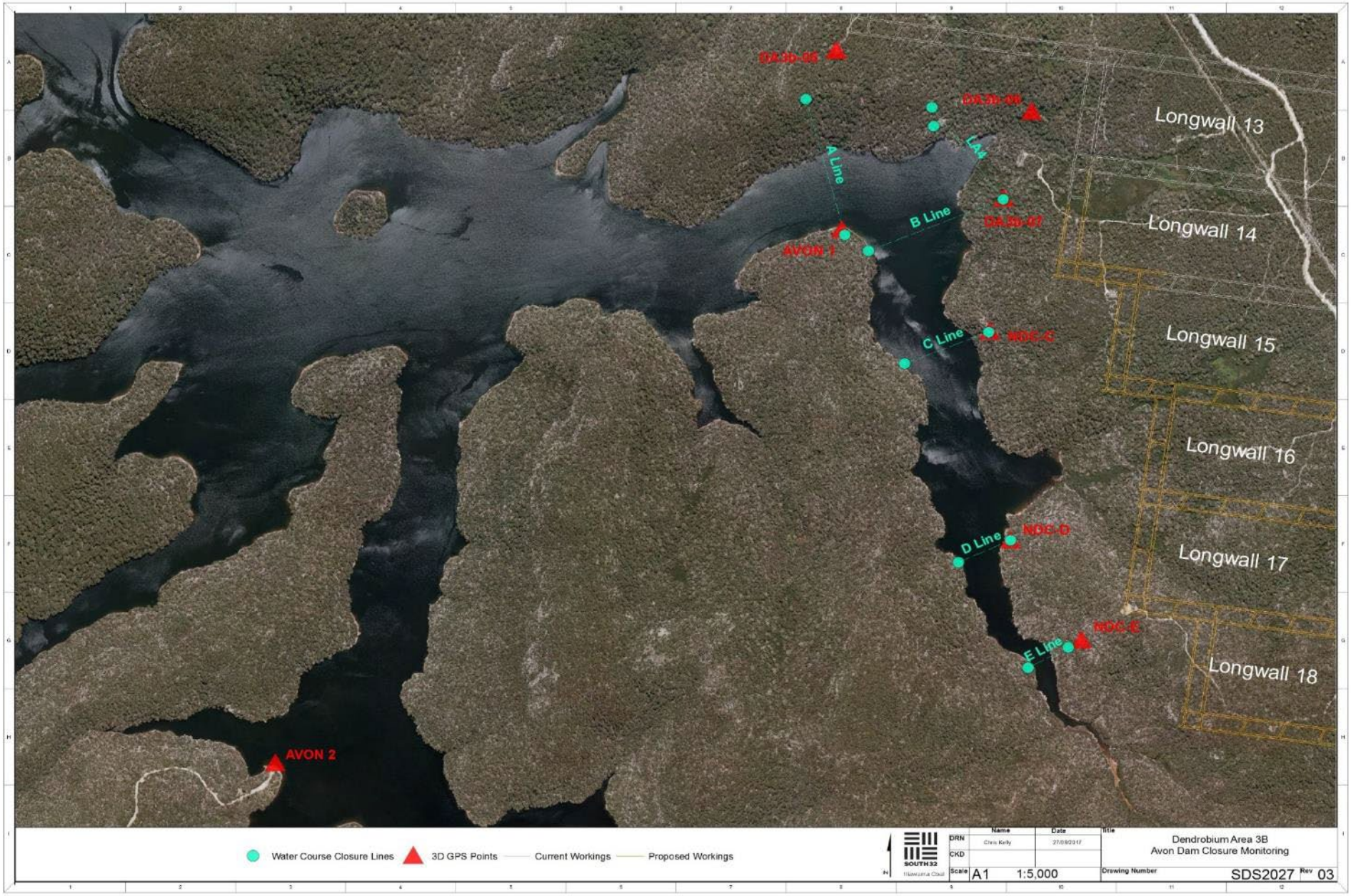
Asset Item	Predicted Movement	Predicted Impacts	Monitoring		Mitigatory or Preventative Measures
			Type	Frequency	
Unsealed Roads (including Fire Trails 6A, 6P & 6Q)	• Maximum predicted subsidence up to 3500 mm • Maximum predicted Travelling Tilt along fire trails of 40 mm/m	• Cracking in unsealed surfaces of roads • Buckling and cracking in bedrock	• Actions will be carried out in accordance with the SMP and associated TARP. This will include - Visual monitoring during extraction of LW 9-18	• Conduct initial baseline survey and monitor condition of road as mining occurs. • In accordance with the SMP	Repair and/or minor regrading as appropriate and necessary as mining occurs. As specified in SMP TARP
Drainage Culverts	• Could experience full range of predicted subsidence movements • Maximum predicted tilts could be 40 mm/m • Maximum Predicted curvatures are both 1.2km^{-1}tensile and compressive	• Changes in culvert gradient • Cracking in concrete culverts	• Actions will be carried out in accordance with the SMP TARP. This will include: - Visual monitoring during extraction of LW 9-18	• Conduct initial baseline survey and monitor condition of road as mining occurs. • In accordance with SMP	Repair and/or minor regrading as appropriate and necessary as mining occurs.

APPENDIX "B" -- WNSW Assets Management Plan for Area 3B

Asset Item	Predicted Movement	Predicted Impacts	Monitoring		Mitigatory or Preventative Measures
			Type	Frequency	
Stored Waters in Avon Reservoir	• Max. Predicted Subsidence of lake <20mm • Max Predicted Upsidence 50 mm • Max predicted closure of 100 mm • Unlikely to be any significant impacts on the lake from proposed mining. (MSEC792. MSEC914, MSEC 992)	• Predicted systematic subsidence <20 mm • Possible minor cracking in bed of Lake • Shear plane development along bedding planes • Increased porosity between the goaf and the Lake Potential Inflow mechanisms and likely initiating circumstances have been identified for Lake Cordeaux and Lake Avon	• Total Station closure measurements to fixed prisms • Long occupation static GNSS (GPS) sessions for 3D positional moves • Monitoring bores between the goaf and the Lake See Plan SDS2027 for details of approximate position of marks.	• Start of longwall extraction • Every 500 m of extraction • End of longwall extraction • Pre-mining and post-mining	As per the Dams Safety NSW Management Plan which incorporates Monitoring, Contingency and Closure Requirements to address the issues relating to the potential for leakage of Avon Reservoir stored waters

- This table summarises the TARP process which underlies the APP.
- IMC will undertake the actions when the triggers have been exceeded in consultation with WaterNSW in a timely manner having regard to the nature of the trigger and actions required.

APPENDIX "B" -- WNSW Assets Management Plan for Area 3B



Appendix C

Master Agreement Letter

12 October 2023

Illawarra Metallurgical Coal
South32
Port Kembla Coal Terminal
Port Kembla Road
Inner Harbour
PORT KEMBLA 2502
New South Wales
Australia
T +61 2 4286 3000
south32.net

Andrew George
Chief Executive Officer
WaterNSW
PO Box 323
PENRITH NSW 2571

Dear Mr George

We refer to the Master Agreement between WaterNSW (previously the Sydney Catchment Authority) and Illawarra Coal Holdings Pty Ltd (**ICH**) dated 24 December 2004 in respect of Area 1, as extended to Areas 2, 3A and 3B at the Dendrobium mine (**Master Agreement**).

ICH acknowledges that the Master Agreement will also apply to Area 3C at the Dendrobium Mine (as such area is described in Figure 2–Dendrobium Development Consent (DA 60-03-2001) and updated as required by the Dendrobium Mine WaterNSW Asset Protection Plans required by the Consent and agrees that:

1. "Mining Activity" defined in the Master Agreement will be expanded to include "all mining activity undertaken in respect of Areas 1, 2, 3A, 3B and 3C at the Dendrobium Mine including development drivages and long wall extraction in Dendrobium";
2. the Master Agreement (including without limitation the indemnities and releases provided by ICH in favour of WaterNSW) continues in full force and effect and will apply to all the expanded Mining Activity referred to in paragraph 1 above;
3. WaterNSW requirements for water supply associated with the Cordeaux, Upper Cordeaux and Avon Reservoirs will be met by ICH when the Mining Activity is undertaken;
4. ICH will ensure that WaterNSW will be at no time worse off by reason of the Mining Activity than the position that WaterNSW would have been in if those activities had never taken place. Without limiting the foregoing, ICH will provide information and assurances as reasonably required by WaterNSW regarding any potential impacts of the Mining Activity on WaterNSW's infrastructure and will, at ICH's own expense, take appropriate and effective steps to mitigate such impacts if requested by WaterNSW;
5. ICH will ensure that the structural integrity and heritage value of associated infrastructure is protected in accordance with all relevant approvals when the Mining Activity is undertaken; and

6. ICH will procure, maintain, renew and keep current all insurances required by law or which a prudent mining company would take out in respect of the Mining Activity. Without limiting the foregoing, ICH will obtain public liability and products liability insurance of $20,000,000 which covers legal liability to third parties in respect of personal injury, disease, illness or death, loss of and damage to real or personal property and claims for injury or damage arising out of the sudden, unintended and unexpected discharge/escape of contamination or pollutants. ICH will provide copies of such insurance policies to WaterNSW.

In return, WaterNSW will comply with its obligations under the Master Agreement.

Executed as a deed poll

Executed by Illawarra Coal Holdings Pty Ltd ABN 69 093 857 286 in accordance with section 127 of the Corporation Act 2001(Cth)

Signature of director	Signature of ~~director/~~company secretary
Peter Francis Baker	Li Ching Delaney
Full name of director	Full name of ~~director/~~company secretary
13 October 2023	13 October 2023
Date	Date

Appendix D

Special and Controlled Areas Consent: F2020/1545

Special and Controlled Areas Consent –
Issued under Division 1 of Part 3 of the Water NSW Regulation 2020

CONSENT SUMMARY

Consent Number:
F2020/1545

Name of Consent Holder:
Illawarra Coal Holdings Pty Ltd (ACN: 093 857 286)

Address of Consent Holder:
PO Box 514, UNANDERRA, NSW 2526

Commencement date:
29 June 2023

Expiry date:
13 March 2025

Hours of Operation
24 hours per day, 7 days per week unless otherwise specified in Statutory Approvals.

Contacts
Water NSW Incident Notification Number:
Ph: 1800 061 069

Operational issues:
Water NSW Catchment Assets Manager
Ph: 0428 489 601

Material changes to Statutory Approvals:
Water NSW Catchment Assessments Manager
Ph: 0417 099 432

Standard Conditions

1 Grant of Consent

1.1 Consent

1.1.1 This Consent supersedes Consent F2020/1545 (document number D2023/6273), dated 18 April 2023 and is a variation to Consent F2020/1545 pursuant to clause 10(4) of the Water NSW Regulation 2020.

1.1.2 In accordance with the provisions of Division 1 of Part 3 of the Water NSW Regulation 2020, Water NSW grants consent to the Consent Holder to traverse lands that are Special Areas for the purposes of undertaking the Permitted Activity within the Designated Area in accordance with the conditions of this Consent.

1.1.3 The Consent Holder does not commit an offence under Part 3 of the Water NSW Regulation 2020 by reason of anything done in accordance with this Consent.

1.1.4 The Consent Holder must not undertake any activity in the Designated Area other than the Permitted Activity.

1.1.5 The employees, consultants and contractors of the Consent Holder who enter the Designated Area on behalf of the Consent Holder must comply with the Conditions on this Consent.

1.1.6 This Consent also extends to stakeholders of the Consent Holder on the condition that:

a) the stakeholders are accompanied by an employee, consultant or contractor of the Consent Holder;

b) the stakeholder is entering the Designated Area for a purpose that is in connection to the Permitted Activity; and

c) the Water NSW Catchment Assets Manager is informed 48 hours prior to entering the Designated Area, via the special_area_access@waternsw.com.au email address.

1.2 Term of Consent

The Consent is granted to the Consent Holder up until the Expiry Date or until such time as the Consent Holder ceases undertaking the Permitted Activity or until the Consent is revoked under clause 10 of the Water NSW Regulation 2020, whichever occurs first.

1.3 Responsibility for other persons

The Consent Holder must ensure that all persons carrying out the Permitted Activity in the Designated Areas are familiar with the terms of this Consent, including the requirement to comply with the conditions of this Consent.

1.4 Reservation of Rights by Water NSW

This Consent does not limit the statutory powers of Water NSW under the *Water NSW Act 2014* or the Water NSW Regulation 2020 or any other law.

1.5 No assignment

Subject to clause 1.1.1, this Consent is personal to the Consent Holder and the Consent Holder may not assign, transfer, charge or otherwise deal with or dispose of its interest in this Consent.

2 Regulatory Conditions

2.1 Access to Information

The Consent Holder must provide written notification to the Water NSW Catchment Assessments Manager via email to environmental.assessments@waternsw.com.au as soon as practical when there is a material change to any Statutory Approval.

2.2 Compliance with Statutory Requirements

The Consent Holder must comply with the Statutory Approvals in undertaking the Permitted Activity.

2.3 Consent Fee and Cost Recovery

2.3.1 The Consent Holder must pay to Water NSW the Consent Fee, if required, in the manner set out in Item 8 of the Reference Schedule (Schedule 1).

2.3.2 The Consent Holder must pay to Water NSW all reasonable costs incurred by Water NSW to engage suitably qualified and independent experts to review and advise for the purpose of determining:

a) the adequacy of any plans or monitoring programs reasonably required as a condition of this Consent; and

b) whether the Consent Holder has complied with the conditions of this consent.

2.3.3 The Consent Holder must pay to Water NSW all rehabilitation and compliance costs incurred by Water NSW by reason of the breach of this Consent by the Consent Holder. Where possible Water NSW will consult with the Consent Holder in determining the value of these costs.

2.4 Goods and Services Tax

All sums payable under this Consent are exclusive of GST. Where those payments are consideration for a taxable supply, or adjustments to the consideration of a taxable supply, the amount payable will be increased by a sum equal to the amount of the payment multiplied by the then current rate of GST.

3 Operating Conditions

3.1 General

3.1.1 Subject to the terms of the Statutory Approvals, the Consent Holder is permitted to access the Designated Area during the Hours of Operation as set out in Item 6 of the Reference Schedule (Schedule 1).

3.1.2 Water NSW may restrict access to the Designated Area in accordance with the Water NSW Regulation 2020 at any time due to weather or fire conditions or any other operational reason.

3.1.3 Where any doubt exists as to whether the Designated Area has been closed by Water NSW, the Consent Holder must contact Water NSW prior to accessing the Designated Area to determine whether the Permitted Activity may continue.

3.1.4 Wet weather access must be in accordance with the approved documents as shown in Schedule 8.

3.1.5 The Consent Holder must ensure all employees, contractors and consultants undertake any Designated Area inductions and training sessions reasonably required by Water NSW prior to their first entry onto the Designated Area and from time to time as required for the term of the Consent.

3.1.6 The employees, consultants and contractors of the Consent Holder:

a) may not access the Designated Area or any Water NSW water storages, rivers, lakes or other watercourses within the Designated Area by boat unless the Consent Holder obtains prior written approval from Water NSW and complies with the current version, as amended from time to time, of Water NSW's Safe Use of Watercraft Procedure which is attached to this Consent; and

b) when approaching or working within two (2) metres of water deeper than 500 mm, must carry a Personal Floatation Device (PFD) compliant with Australian Standard AS 4758, assess the water depth and flow rate in accordance with, and thereafter comply with, Water NSW's Working In or Near Water Procedure which is attached to this Consent.

3.1.7 All plant and equipment used by the Consent Holder in the Designated Area must be maintained in proper and efficient condition, be without risks to the health and safety of persons and must be operated in a safe, proper and efficient manner.

3.2 Notification of Intent to Enter

Employees, Contractors and Consultants

3.2.1 The Consent Holder must provide written notification of the details of its employees, consultants and contractors involved in the Permitted Activity prior to their entry on the Designated Area.

3.2.2 The Consent Holder provide written notification to Water NSW in the form of the Notice of Intent to Enter contained in Schedule 2, giving at least two (2) business days prior to any inspection work and at least one (1) week prior to commencing works. Notification may be provided on a weekly basis.

3.2.3 The notification must:

a) be in the form contained in Schedule 2 of this Consent; and

b) include the Consent reference number (F2020/1545), the specific location, dates of entry, description of work, vehicle types and registration numbers, and at least one contact telephone number of personnel conducting the works onsite; and

c) be sent via email to special_area_access@waternsw.com.au.

Remotely Piloted Aircraft Systems (RPAS)

3.2.4 The Consent Holder must provide written notification of the use of any Remotely Piloted Aircraft Systems (RPAS) in the Designated Area, prior to the use of RPAS.

3.2.5 The Consent Holder provide written notification to Water NSW in the form of the Notice of Intent to Enter contained in Schedule 2, giving at least two (2) business days' notice of any RPAS operations.

3.2.6 The notification must:

a) be in the form contained in Schedule 2 of this Consent; and

b) refer to the Consent reference number (F2020/1545), the specific location, dates of entry, description of work, vehicle types and registration numbers, and at least one contact telephone number of personnel conducting the works onsite; and

c) be sent via email to special_area_access@waternsw.com.au.

3.2.7 Notification to Water NSW must include:

a) the exact times that each operation will start and finish;

b) a map showing the exact flight path; and

c) an appropriate Safe Work Method Statement / Job Safety Analysis.

3.2.8 The Consent Holder must also supply Water NSW with a copy of the RPAS operator's current Remotely Piloted Aircraft Operator's Certificate (ReOC) issued by the Civil Aviation Safety Authority (CASA), via email to glen.capararo@waternsw.com.au.

3.2.9 The Consent Holder must supply to Water NSW any additional information requested in relation to use of RPAS, based on CASA requirements, including (but not limited to) a current Remote Pilot Licence (RePL), Aeronautical Radio Operator Certificate (AROC), English Language Proficiency (ELP), Instrument Rating Exam (IREX), RPAS operations manual and operations library (maintenance and servicing records), and proof of RPAS registration, as relevant.

3.2.10 When using RPAS in the Special Area, the Consent Holder must ensure the RPAS operator:

a) complies with all requirements of the Civil Aviation Safety Regulation 1998;

b) has in their possession, and makes available to Water NSW if requested, an appropriate Safe Work Method Statement / Job Safety Analysis specific to the proposed activities,

c) does not film Water NSW staff,

d) complies with the *Privacy and Personal Information Protection Act 1998*, including ensuring that faces and number plates are not filmed or have pixelated footage,

e) complies with the *Surveillance Devices Act 2007*, including ensuring that audio recording functionality is always disabled or conversations are not recorded, and

f) supplies Water NSW with a copy of public liability insurance for a minimum of $20 million.

3.2.11 The Consent Holder must report any image captured by the RPAS that shows unlawful activity within 24 hours of capturing the image via email to glen.capararo@waternsw.com.au.

3.3 Roads and Fire Trails

3.3.1 The Consent Holder must comply with the Water NSW Road and Fire Trail Rules listed in Schedule 7.

3.3.2 The Consent Holder may utilise Water NSW roads and fire trails listed in Schedule 4.

3.3.3 The roads and fire trails that are the sole responsibility of the Consent Holder to maintain and repair are indicated in Schedule 4.

3.3.4 The Consent Holder must maintain and repair the roads and fire trails listed in Schedule 4 in accordance with the documents: *Managing Urban Stormwater – Soils*

and Construction – Volume 2C – Unsealed Roads (Department of Environment & Climate Change NSW, 2008) and *NSW Rural Fire Service Fire Trail Design, Construction and Maintenance Manual* (Soil Conservation Service, 2017) (Schedule 5).

3.4 Security

3.4.1 When entering or exiting the Designated Area, the Consent Holder must ensure that all site access points including gates and barriers remain closed, locked or otherwise secured to prevent unauthorised access to the Designated Area. Gates to publicly accessible areas must be left as found.

3.4.2 Any damaged gates or barriers must be temporarily secured by the Consent Holder and reported immediately to the **Water NSW Incident Notification Number (1800 061 069)**.

3.4.3 The employees, contractors and consultants of the Consent Holder must:

(a) carry photographic identification which must include the name and address of their employer at all times when they are in the Designated Area; and

(b) produce the photographic identification if requested by an Authorised Officer of Water NSW.

3.4.4 Where short term or one-off access is required by contractors or consultants, they do not require photographic identification, provided they are accompanied by the Consent Holder who has photographic identification as required by Condition 3.4.3(a).

3.4.5 Water NSW keys are issued to the Consent Holder for use by employees, contractors and consultants of the Consent Holder. Water NSW keys are issued subject to the following conditions:

(a) Water NSW keys must only be used to access the Designated Area in accordance with the conditions of this Consent;

(b) keys are issued to the Consent Holder and must not be transferred;

(c) if the Consent Holder no longer requires access to the Designated Area to conduct the Permitted Activity or when this Consent expires, the Consent Holder must return all SCA and Water NSW issued keys to Water NSW;

(d) if a key is lost, the Consent Holder must notify Water NSW within 24 hours of becoming aware that the key has been lost. Notification must be via email to glen.capararo@waternsw.com.au;

(e) new keys will not be issued by Water NSW without a written request which provides detailed reasons why a new key is required. The Consent Holder will bear any costs incurred by Water NSW to issue new keys;

(f) the Consent Holder agrees that all keys remain Water NSW property and undertakes to return keys from a key holder as soon as the valid need for access ceases; and

(g) the Consent Holder agrees, if requested, to pay a bond of $150.00 per key issued.

3.4.6 The Consent Holder must not place its own locks on gates in or to the Designated Area unless it obtains the prior written approval of Water NSW.

3.4.7 The Consent Holder must maintain a current list of all employees and contractors who have a SCA or Water NSW key in their possession and make that record available to Water NSW on request.

3.4.8 The Consent Holder must maintain a log of all persons entering the Designated Area under this Consent which includes details of the time of entry and exit on each day.

3.5 Waste Management

The Consent Holder must provide and maintain toilet facilities on the site where two or more persons are working in one location for a period of two days or more, and all site personnel must use and be instructed to use such facilities.

3.6 Work Health & Safety

3.6.1 The Permitted Activity must be carried out in compliance with the requirements of the relevant Work Health and Safety legislation.

3.6.2 The employees, consultants and contractors of the Consent Holder, when entering the Designated Area, must take reasonable care for his or her own health and safety and take reasonable care that his or her acts or omissions do not adversely affect the health and safety of other persons.

3.6.3 All activities under this Consent must be carried out in accordance with an appropriate, relevant and specific Safe Work Plan (SWP), which has been approved or endorsed by the Consent Holder.

3.6.4 The employees, consultants and contractors of the Consent Holder, when entering the Designated Area, must have suitable communications in place for reliable and effective use in remote areas, and have suitable arrangements in place to ensure safe egress from these areas.

4 Reporting Conditions

4.1 Incident Management

4.1.1 The Consent Holder must make each of its employees, consultants, and contractors aware of the need to report and provide information via the **Water NSW Incident Notification Number (1800 061 069)** of any incidents or non-compliances as required by clause 4.1.2 to clause 4.3 inclusive.

4.1.2 The Consent Holder must notify Water NSW by telephoning the **Water NSW Incident Notification Number 1800 061 069 (24 hour service)**:

(a) where the Consent Holder is required to report a non-compliance under a Statutory Approval, within 24 hours of the Consent Holder becoming aware of the non-compliance, and

(b) of any health, safety or environmental incident that occurs in the Special Area that has caused material harm (as defined in Development Consent DA 60-03-2001 dated 20 November 2001, or as modified by) or has the potential to cause material harm to personnel, the environment, or Water NSW infrastructure or operations, **immediately** after any emergency notifications / response / treatment.

4.1.3 If a pollution incident occurs in the course of the Permitted Activity in the Designated Area so that material harm (as defined in section 147(1) of the *Protection of the Environment Operations Act 1997*) is caused or threatened to the environment, the

Consent Holder must notify Water NSW **immediately** of the incident and provide all relevant information.

4.2 Non-Compliance

4.2.1 If the Consent Holder fails to comply with any condition of this Consent, the Consent Holder must notify Water NSW immediately upon becoming aware of the breach through the **Water NSW Incident Notification Number (1800 061 069)**. The Consent Holder must also provide Water NSW with a comprehensive written report in relation to the non-compliance within 14 days of first becoming aware of the non-compliance. The following must be addressed in the written report:

(a) Consent reference and Condition number not complied with;
(b) Summary of particulars of non-compliance (no more than 50 words);
(c) Dates when the non-compliance occurred;
(d) Precise location where the non-compliance occurred (attach a map or diagram);
(e) Cause of non-compliance;
(f) Action taken to mitigate any adverse impacts of the non-compliance;
(g) Action taken to prevent a recurrence of the non-compliance.

4.2.2 The Consent Holder's compliance with the conditions of this Consent may be the subject of monitoring or audit by Water NSW from time to time. The Consent Holder must fully cooperate in the compliance monitoring or audit process.

4.3 Annual Statement of Compliance

4.3.1 The Consent Holder must provide Water NSW with a signed Annual Statement of Compliance in the form set out in Schedule 6 indicating its compliance or otherwise with the conditions in this Consent for each 12 month period ('reporting period'), with reports due annually by 30 September. The Consent Holder must sign and endorse the Annual Statement of Compliance and submit it to Water NSW via email to environmental.assessments@waternsw.com.au within 60 days of the end of each reporting period.

5 General Conditions

5.1 Release

By accessing the Designated Area, the Consent Holder agrees to exercise the rights granted by Water NSW at its own risk and to release to the full extent permitted by law, Water NSW, its employees, agents and contractors, in the absence of any negligence on their part from all suits, actions, demands and claims of every kind resulting from any damage or destruction to any property (both real and personal) and injury suffered or sustained by any persons (including death) arising out of or in connection with the Permitted Activity.

5.2 Indemnity

5.2.1 By accessing the Designated Area, from the date of the Consent, the Consent Holder agrees to indemnify and keep indemnified, Water NSW, its employees, agents and contractors in the absence of any negligence on their part from and against all its actions, demands, claims, proceedings, losses, damages, costs (including legal costs), charges or expenses incurred by Water NSW or for which Water NSW may become liable resulting from any damage or destruction to any property (both real

and personal) and injury suffered or sustained by any persons arising out of or in connection with the Permitted Activity.

5.2.2 The Consent Holder indemnifies Water NSW against all losses and liabilities incurred by Water NSW in connection with the undertaking of the Permitted Activity by any employee, consultant or contractor of the Consent Holder or any other person that the Consent Holder permits to undertake the Permitted Activity without the Consent of Water NSW.

5.3 Warranty

Water NSW provides no warranty that the Designated Area is suitable for the Permitted Activity.

5.4 Insurance

5.4.1 The Consent Holder must, prior to accessing the Designated Area, provide Water NSW with a certificate of currency for Public Liability Insurance for the amount specified in Item 7 of the Reference Schedule (Schedule 1) covering property, injury or death arising from the Consent Holder undertaking the Permitted Activity in the Designated Area.

5.4.2 The policy must note the insurable interest of Water NSW.

5.5 Additional Conditions in Schedule 9

The Consent Holder must comply with the additional conditions contained in Schedule 9 for the purposes of carrying out the activities set out in Schedule 9 for the term specified in Schedule 9. To the extent that there is any inconsistency between the standard conditions of this Consent and the additional conditions in Schedule 9, the additional conditions take preference to the standard conditions in this Consent, to the extent necessary to resolve the inconsistency.

5.6 Definitions

5.6.1 In this Consent unless the contrary intention appears:

a) **Authorised Officer** means a member of staff, and includes any class of persons prescribed by the regulations, who is designated by Water NSW as an authorised officer whose official duties are concerned with the enforcement of the *Water NSW Act 2014* and the *Protection of the Environment Operations Act 1997* or their regulations or with the investigation or prosecution of offences or alleged offences against these Acts or the regulations.

b) **Authority** means any government or any governmental, semi-governmental, quasi-governmental, administrative or judicial body, department, commission, authority, tribunal or entity which has power to provide a Statutory Approval.

c) **Commencement Date** means the commencement date of the Consent set out at Item 3 of the Reference Schedule.

d) **Consent** means this document and all Schedules to it.

e) **Consent Holder** means the party identified at Item 1 of the Reference Schedule.

f) **Consent Holder's Equipment** means all the equipment brought onto the Designated Area by the Consent Holder, its employees, contractors and consultants.

g) **Consent Fee** means the amount payable by the Consent Holder in accordance with clause 2.3 and set out in Item 9 of the Reference Schedule.

h) **Designated Area** means that part of Water NSW land described in Item 2 of the Reference Schedule.

i) **EP&A Act** means the *Environmental Planning and Assessment Act 1979.*

j) **Expiry Date** means the date the Consent will expire as set out at Item 4 of the Reference Schedule.

k) **Hours of Operation** means times at which the Consent Holder is permitted to access the Designated Area for the purpose of the Permitted Activity. Hours of Operation are outlined in the Consent Summary.

l) **Permitted Activity** means the activity for which the Consent is required as described in Item 5 of Reference Schedule.

m) **Reference Schedule** means Schedule 1 of this Consent.

n) **SCA** means the Sydney Catchment Authority (which was amalgamated with State Water to form Water NSW).

o) **Special Area** means special area as defined in the *Water NSW Act 2014*, and as indicated in Schedule 3.

p) **Statutory Approval** means any licence, approval or consent issued by any Authority permitting the Consent Holder to undertake the Permitted Activities in the Designated Area.

q) **Water NSW Act** means the *Water NSW Act 2014.*

r) **Water NSW Regulation** means the Water NSW Regulation 2020.

s) **Water NSW Road and Fire Trail Rules** means the rules set out in Schedule 7.

ISSUED BY:

Fiona Smith
Executive Manager Strategy & Performance
Water NSW

DATE: 29 June 2023

Schedule 1 – Reference Schedule

Item 1	Consent Holder:	Illawarra Coal Holdings Pty Ltd, and where the context permits, its employees, consultants and contractors.
Item 2	Designated Area:	The surface area of the Woronora Special Area, Metropolitan Special Area and Upper Canal Controlled Area associated with CCL0724, CCL0767, CCL0768 (including ML 1566 (Dendrobium Ventilation Shaft 2/3 site within the CCL0768 area)), and ML 1574 (refer to Schedule 3) as required to be accessed in accordance with a Statutory Approval, and the surface area of the Metropolitan Special Area subject to ML 1596 (refer to Schedule 3) as required to be accessed for the purpose of Determination and Activity Approval (Water NSW Reference number: D2018/13980).
Item 3	Commencement Date:	29 June 2023
Item 4	Expiry Date:	13 March 2025
Item 5	Permitted Activity:	To enter and remain on Schedule 1 land which is subject to CCL0724, CCL0767, CCL0768, (including ML 1566 (Dendrobium Ventilation Shaft 2/3 site within CCL0768 area)) and ML 1574 for the purpose of carrying out activities that are otherwise prohibited by the Water NSW Regulation 2020 to the extent necessary to carry out the requirements of any Statutory Approval, and on Schedule 1 land which is subject to ML 1596, to the extent which are necessary and consistent with the activity described in the planning approval issued by Water NSW (Water NSW Reference number: D2018/13980) pursuant to Part 5 of the *Environmental Planning and Assessment Act 1979*, dated 28 February 2018 in accordance with the conditions of approval, and to operate Remotely Piloted Aircraft Systems on and over the Designated Area.
Item 6	Hours of Operation:	24 hours per day, 7 days per week unless otherwise specified in Statutory Approvals.
Item 7	Insurance:	Public Liability Insurance of up to $25M for any one occurrence unlimited to the number of occurrences in any one policy year.
Item 8	Consent Fee:	Not used.

Schedule 2 – Water NSW Notice of Intent to Enter form (includes for Aerial Operations) – Illawarra Coal Holdings Pty Ltd

Water NSW Incident No. 1800 061 069

Organisation:			
Consent No. F2020/1545			
Field Work Dates: (14 days maximum)			
Time In:	Estimated Time Out:		
Location:			
Lat / Long (Aerial Operations):	Flight Path Map provided ☐		
Purpose of Work / Flight Plan:			
Urgency: Immediate ☐	Planned ☐		
Helicopter Communications with Water NSW			
Airband: Catchment 118.75	GRN:		
Aircraft/Callsign:			
Helicopter light (FB-Type 3) ☐	Helicopter med (HT- Type 2) ☐	Helicopter heavy (HT- Type 1) ☐	
RPAS (Drone) ☐			
Aviation Equipment and Materials Required			
Winch: ☐	Cargo net: ☐	Long line: ☐	
Other:			
Airbase Management / Loading:			
Aviation Refuelling requirements:			
Vehicle entry			
4WD Y/N	Make:	Model:	Registration No:
Water NSW Contact:			
Mr Glen Capararo	Phone (Mobile): 0429 326 797		
Field Personnel			
On site supervisor name:			
Email address:	Mobile No:		
Group Members:			
Field Contacts	Mobile Phone Number:		
	Other means:		

Emergency Contact Details (must be available for 24-hour contact and not be part of the field crew)		
Name:	Company:	Phone Number:

Itinerary/Flight Plan (include time of flights)			
Dates	**Time**	**Location**	**Activity**

Date of Water NSW Catchment Induction(s):
Safe Work Documents attached ☐

NOTE: Entry may be refused if any information is incomplete.

Step 1. Email to: **special_area_access@waternsw.com.au** prior to requested entry, as specified in clauses 3.2.2 and 3.2.5 of the Consent, and clause 27 of Schedule 9.

Step 2. Assume entry, following receipt of automated acknowledgement from the Water NSW of email delivery, unless notified of refusal prior to day of entry.

Note: Water NSW may restrict access to Special Area and other Water NSW managed lands at any time due to wet weather, river flooding other weather conditions or for operational activities.

NOTE: Access will be denied due to lack of information, and the accessor should be referred to the Water NSW Contact for resolution if required.

Water NSW numbers

- **Warragamba Catchment Office:** 02 4774 4451 (8:30 am to 4:00 pm)
- **Email address:** **special_area_access@waternsw.com.au**
- **Incident Notification Number:** **1800 061 069 (24 hours)**

In the event of an incident, contact the Water NSW Incident Notification Number (1800 061 069), which is staffed 24 hours a day. Provide as much information as possible about the:

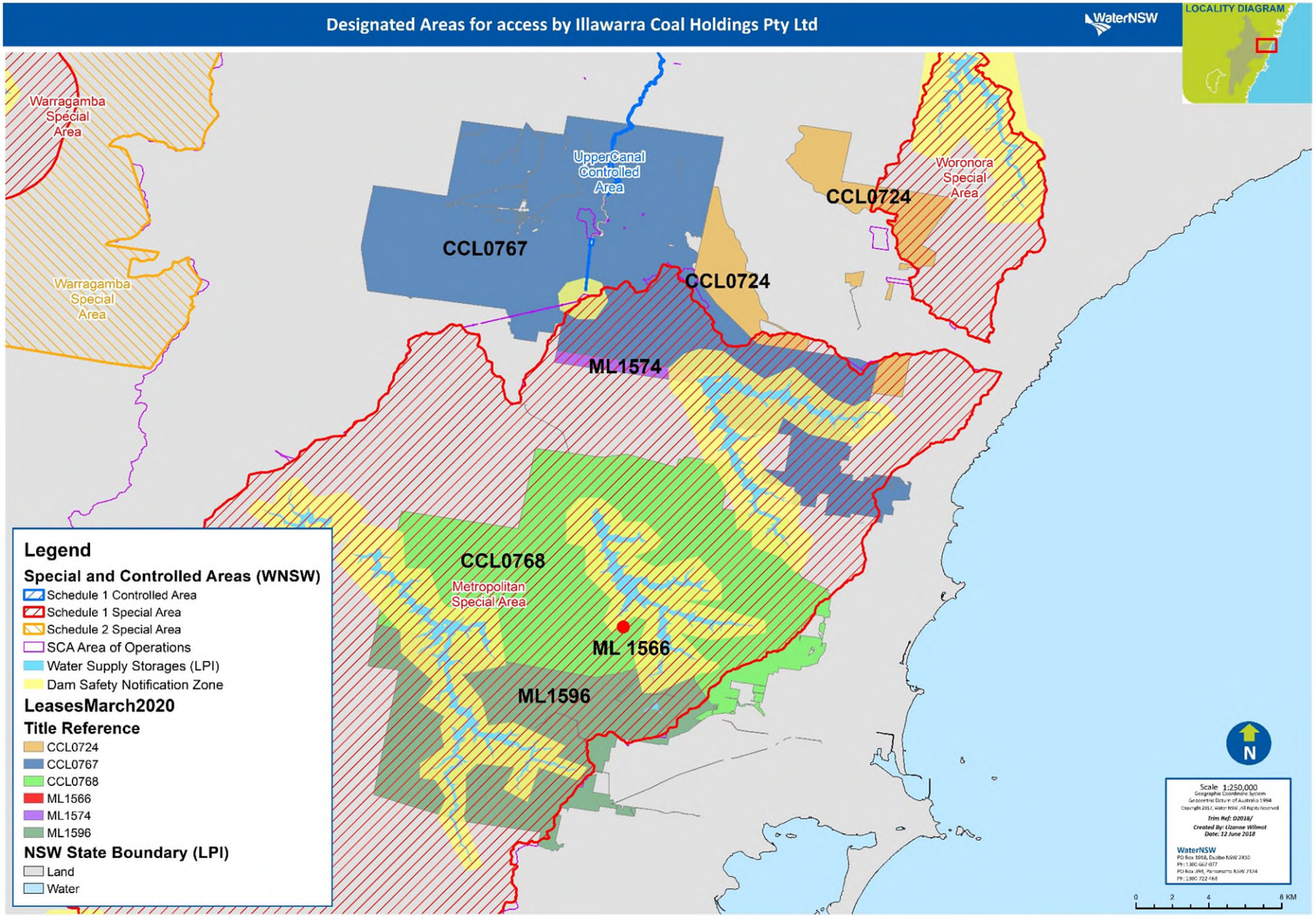
- situation
- location
- your contact details.

A message with this information will be sent to a Water NSW Catchment Duty Officer who will respond.

An incident can include, but is not limited to, any occurrence that causes:

- threat to life, health and safety
- threat to water quality
- threat to the environment
- damage to Water NSW asset.

Schedule 3 – Map – Illawarra Coal Holdings Pty Ltd – Designated Areas for access – ML 1574, CCL0724, CCL0767, CCL0768, ML 1566 (Dendrobium Mine Ventilation Shaft 2/3 site) within CCL0768, and ML 1596



Schedule 4 – List and Map of Fire Trails as at 13 March 2020

List of Water NSW roads and fire trails which may be utilised under this Consent:

1
1E (as approved by NPWS – located within Upper Nepean State Conservation Area)
1F
6
6A
6B
6C*
6D
6E (between Area 1 and Area 2 where piezometers are installed)
6F*
6G
6H
6K*
6L
6M
6N
6P
6Q
6R
6X
6Y
6Z
7F
8
8A
8B
8D
8F
8I
9
11
12
12A
12B
13
14
15
15A
15B
15E
15C
15G
Old Cataract Road
6000/6AA* (Access track through Area 3B between 6 and 6A)
Access tracks off 6A leading to borehole sites EL1, EL2 and EL3 (as shown in Figure 2, Annex 3 of the *Review of Environmental Factors for the Proposed Elouera Fault Investigations*, dated 29 January 2018)*

* indicates the roads and fire trails that are the sole responsibility of the Consent Holder to maintain and repair in accordance with the documents contained in Schedule 5, except where damage is caused by another user.

Schedule 5 – Managing Urban Stormwater – Soils and Construction – Volume 2C – Unsealed Roads, and NSW Rural Fire Service Fire Trail Design, Construction and Maintenance Manual

1. *Managing Urban Stormwater – Soils and Construction – Volume 2C – Unsealed Roads* (Department of Environment & Climate Change NSW, 2008)
2. *NSW Rural Fire Service Fire Trail Design, Construction and Maintenance Manual* (Soil Conservation Service, 2017)

Schedule 6 – Annual Statement of Compliance with Consent Conditions

Consent Holder
Illawarra Coal Holdings Pty Ltd

Consent Number
F2020/1545

Reporting Period
{insert dates}

Compliance with Consent Conditions

1. Were all the following documents complied with during the reporting period? (tick a box)

Consent/Approval	Yes	No
a. Conditions of this Consent;		
b. All Statutory Approvals;		
c. Any environmental management plans, rehabilitation plans, revegetation plans, soil and water management plans, water monitoring plans or other plans required by Water NSW.		

2. If you answered "No" to any part of Question 1, please supply the name of the non-compliance / incident and the date the written report was provided to Water NSW, in the table below:

Non-Compliance / Incident (one line)	Date written report provided to Water NSW

3. How many pages have you attached?
(Each attached page must be initialled by the person(s) who signs Section 4 of this Statement of Compliance)

4. Signature and certification

The Statement of Compliance must only be signed by a person(s) with legal authority to sign it as set out below:

- By affixing the common seal in accordance with *Corporations Act 2001*, or
- By 2 directors, or
- By a director and a company secretary, or
- By a person delegated to sign on the company's behalf in accordance with the *Corporations Act 2001* and approved in writing by Water NSW to sign on the company's behalf.

Signature:
Name:
(printed)
Position
Date:

Signature:
Name:
(printed)
Position
Date:

SEAL (if signing under seal)

The Consent Holder can request Water NSW approval for the compliance requirements of this Consent be linked to and built into other compliance reporting that may be required under approvals issued under the EP&A Act.

Schedule 7 – Water NSW Road and Fire Trail Rules

1. The driver of any vehicle must hold a current driver's licence and obey all speed advisory and warning signs. Vehicle speed must not exceed **40 km/h** on public access roads at Water NSW owned sites such as picnic grounds unless otherwise signposted and **60 km/h** for all other Water NSW roads and fire trails unless otherwise signposted.
2. Any motor vehicle used to travel on any surface within the Designated Area must be registered and suitable for the purpose for which it is being used. The minimum vehicle standard for use in the non-publicly accessible areas within the Designated Area is a vehicle with All Wheel Drive or Four Wheel Drive capabilities.
3. All vehicles must carry appropriate safety and recovery gear consistent with the Consent Holder's Safe Work Plan or other Work Health and Safety requirements.
4. All drivers of vehicles must be competent to operate or drive, and be appropriately licensed, for the type of vehicle in use.
5. The Consent Holder must not drive or use any road or fire trail in the Designated Area if the road or fire trail is not suitable for type of vehicle in use, or if driving or using any road or fire trail will result or is likely to result in damage to the road or fire trail or damage to the surrounding catchment area.
6. Vehicles must not be driven on the roads or fire trails in the Designated Area if they have been closed by Water NSW for any reason.
7. Vehicles may only be driven on formed roads and fire trails in the Designated Area, unless permitted by the Statutory Approvals.
8. Vehicles must not be driven around fallen branches and trees on any road in the Designated Area. The Consent Holder must remove any items obstructing the road or report their location to Water NSW. Vehicles must not progress along a road unless the obstruction has been removed first.
9. Access is restricted to vehicles essential to undertake the Permitted Activity and vehicle movements must be kept to a minimum.
10. For the purpose of this section, the term "vehicles" includes all vehicles including cars, trucks and any machinery driven on roads and fire trails.

Schedule 8 – WaterNSW Special Area Wet Weather Management Plan, WaterNSW Land Access Procedure (Dendrobium Infrastructure), and TARP for WaterNSW Land Access (Dendrobium Infrastructure)

1. *WaterNSW Special Areas Wet Weather Management Plan*, Version 4.0, dated 4/05/2023 (Document ID: ICAMP0159)
2. *WaterNSW Land Access Procedure (Dendrobium Infrastructure)*, Version 5.0, dated 17/5/2023 (Document ID: DENP0549)
3. *TARP for WaterNSW Land Access (Dendrobium Infrastructure) – Trigger Action Response Plan (TARP)*, Version 5.0, dated 17/5/2023 (Document ID: DENTARP0029)

Schedule 9 – Consent and conditions to carry out specific works associated with Dendrobium Mod-9 ('Schedule 9 Consent')

GENERAL CONDITIONS

1. The purpose of this Schedule is to grant consent to the Consent Holder to carry out specific works associated with the Dendrobium Mine Modification 9 (DA 60-03-2001 MOD 9) Gas Management Infrastructure Project **('Dendrobium Mod-9')** as specified in clause 6 below **('Schedule 9 Permitted Activity').**

2. The definitions in clause 5.6 of the Consent apply to the terms in this Schedule.

3. The Schedule 9 Consent expires on 30 June 2024.

4. Entry is restricted to the operating Dendrobium Mine Ventilation Shafts 2 and 3 site in the Cordeaux sub-catchment within the Metropolitan Special Area ('**the Premises'**), and Fire Roads 6 (between the junction with Fire Road 6C and Cordeaux Dam access road), 6C, 6K and 6F ('**the Fire Roads**').

5. Activities associated with Dendrobium Mod 9 may be carried out within the Premises and must be carried out in accordance with:
    a) Development Consent DA 60-03-2001 dated 20 November 2001, including Modification of Development Consent dated 8 July 2022,
    b) Dendrobium Mine Modification – Gas Management Infrastructure Modification Report dated 11 February 2022, prepared by South32 Illawarra Metallurgical Coal ('**the Modification Report'**),
    c) *Gas Drainage Plant – Area 3C Construction Erosion and Sediment Control Plan* (Version 3.0) dated 15-12-2022, prepared by South32 Illawarra Metallurgical Coal ('**the Erosion and Sediment Control Plan**'),
    d) *Soil Conservation Service – Scoping Report, Access Track Name: Trail 6, 6C, 6F and 6K to Vent Shaft 2/3* (ID: 1896) dated 16 December 2022, prepared by Soil Conservation Service ('**the Scoping Report'**),
    e) *Construction Environmental Management Plan, Trail 6, 6C, 6F, 6K Maintenance and Upgrades* dated 22 December 2022, prepared by Soil Conservation Service ('**the CEMP'**),
    f) Dendrobium Area 3C Gas Drainage Plant Modification – Additional Borehole Drilling Information to WaterNSW, supplied to Water NSW via email on 7 December 2022, and associated Safety Data Sheets,
    g) Letter to WaterNSW from South32 Illawarra Metallurgical Coal regarding Dendrobium Area 3 Temporary Gas Drainage Plant at Ventilation Shaft 2/3 Site – Exempt Development Justification and Due Diligence Assessment, dated 8 June 2023,
    h) Attachment 1 – Response to Water NSW Questions 15/6/2023, supplied to WaterNSW via email on 15 June 2023,
    i) Ready Reckoner Checklist for Helicopter Landing Area – Dendrobium No2 and No3 shafts, dated 23/06/23 and the associated Figure 1 – Helipad Location Plan (showing potential helicopter landing area Site A), prepared by South32 Illawarra Metallurgical Coal, both supplied to Water NSW via email on 26 June 2023, and
    j) *Gas Drainage Plant – Area 3C Construction Environmental Management Plan* (Version 1.0) dated 7 May 2023, prepared by South32 Illawarra Metallurgical Coal.

6. Apart from entry as specified in clauses 15 and 18 below, the Schedule 9 Permitted Activity is restricted to:
    a) **Road Maintenance and Upgrade Works**, as specified in the Scoping Report,

b) **Site Establishment Works**:

i. Sediment Pond Cleaning and Maintenance:

Removal of vegetation and sediment from existing Sediment Basins A, B, C and D (noting this maintenance works is permitted by overarching Consent F2020/1545),

ii. Sediment Pond Enlargement:

Increasing the capacity of Sediment Basins A and B, in accordance with Section 5.3 (including Table 1) and Section 5.4 in Appendix 1 of the Modification Report and the Erosion and Sediment Control Plan,

iii. Drainage works including:

I. Construction of drainage channels and overland flow paths to divert clean water away from disturbed areas, and from the boreholes site location and existing and proposed vegetation clearing and vegetation management areas, to ensure all surface water runoff is directed from these disturbed areas to the sediment basins, in accordance with Section 5.2 in Appendix 1 of the Modification Report and the Erosion and Sediment Control Plan, and

II. Realignment of the existing drainage channel to Sediment Basin C, as specified in Section 5.2 and Figure 3 in Appendix 1 of the Modification Report,

iv. Vegetation clearing:

Clearing vegetation for construction of new gas management infrastructure and ancillary infrastructure associated with Dendrobium Mod-9, as shown in Figure 2 of the Modification Report,

v. Asset Protection Zone (APZ):

Vegetation management associated with establishing and maintaining Asset Protection Zones (APZ) for existing and proposed infrastructure, including the existing boundary fence and proposed vent/flare stack, in accordance with Appendices 2 and 4 (including Figure 8 in Appendix 4) of the Modification Report, for bushfire protection purposes (noting that maintenance APZ works associated with existing assets is permitted by overarching Consent F2020/1545),

vi. Site Preparation:

Site preparation for functional work area, including borehole drilling, establishment of concrete pads for water tanks, site facilities and laydown, and buried service trenching and installation,

vii. Borehole Drilling:

Drilling one (1) Gas Riser Borehole and two (2) Reticulated Process Water Boreholes,

c) **Installation of Temporary Gas Drainage Plant:**

i. Install temporary gas drainage plant on the Premises, and

ii. Decommission and remove the temporary gas drainage plant once the permanent gas drainage plant is constructed and operational,

d) **Construction of Gas Drainage Plant (Mechanical and Electrical Install):**

i. Construction of the gas management infrastructure and all ancillary infrastructure associated with Dendrobium Mod-9, as shown in Figure 2 of the Modification Report,

ii. Upgrade of the three surface ventilation fans at the gas drainage plant construction site, including upgrade of fan impellers, shafts, drives and motors, within the Premises,

iii. Minor upgrades of existing electricity transmission infrastructure, including pole replacement, within the Premises,

iv. Establishment of one (1) helipad on the Premises, and

v. Testing and commissioning of the new infrastructure, and

e) **Helicopter Use:**

Entering into special area and landing on the Premises.

7. The Site Establishment Works must be carried out:
    a) ensuring that adequate and effective erosion and sediment controls are designed and installed prior to commencement of ground disturbance works and maintained throughout the works period until disturbed areas are stabilised, in accordance with *Managing Urban Stormwater – Soils and Construction – Volume 1, 4th Edition* (Landcom, 2004) ('the Blue Book'), unless otherwise specified in the Erosion and Sediment Control Plan,
    b) in an order to ensure all runoff from disturbed areas is captured for treatment by the sediment ponds, and
    c) no sediment-laden or polluted runoff leaves the Premises.

8. All environmental safeguards and existing controls referred to in clause 5 must be implemented and maintained until the site is no longer operational and revegetation occurs at closure;

9. Sediment from cleaning, maintenance or enlargement of sediment basins, must not be removed from the Premises until the completion of road maintenance and/or upgrade works as specified in the Scoping Report;

10. The Consent Holder must not undertake any activity at the Premises other than the Permitted Activity and the Schedule 9 Permitted Activity;

11. The Schedule 9 Permitted Activity must be carried out in a competent manner that:
    a) protects water quality and the environment,
    b) protects Water NSW assets and infrastructure, and
    c) prevents interference with Water NSW's operations and maintenance, and other users or activities in the Special Area, including not blocking or impeding traffic unless Water NSW has provided written agreement in advance;

12. Waste, as defined under the *Protection of the Environment Operations Act 1997* (POEO Act), must not be brought into the Special Area;

13. Sediment removed and vegetation cleared by the Schedule 9 Permitted Activity, which is not reused onsite for erosion and sediment control or rehabilitation, must be relocated from the Special Area and disposed of (including reuse) in a lawful manner;

14. At completion of the Schedule 9 Permitted Activity, disturbed areas must be stabilised and the Premises must be left in a satisfactory state, to the satisfaction of Water NSW;

ENTRY

15. Entry to the Premises utilising the Fire Roads is restricted to the minimum number of vehicles, machinery and persons necessary to complete the Schedule 9 Permitted Activity;

16. Machinery or equipment additional to that already located on the Premises, is not permitted to be driven or transported to and from the Premises to carry out Site Establishment Works (other than maintenance works), until the completion of road maintenance and/or upgrade works as specified in the Scoping Report, including (but not limited to) that the drill rig must not travel on the Fire Roads until works identified as Priority 1 in the Scoping Report are complete;

17. Only 4WD vehicles with low-range gearing and significant off-road capability are permitted in the Metropolitan Special Area, and soft-roaders or All Wheel Drive vehicles (AWD) are not permitted;

18. Entry to and landing on the Premises by one (1) helicopter is permitted, during daylight hours only;

19. Prior to entry, all vehicles (including the helicopter), machinery and equipment permitted entry to the Special Area must be washed down, free of weeds, seeds and soil;

20. The on-site supervisor must have in their possession a copy of, and comply with at all times, this Consent, any environmental assessments, Statutory Approvals and associated Conditions of Approval, any related environmental management plan, the Safe Work Plan/ Risk Assessment and a copy of all licences, permits and other approvals that are required in relation to the Consent Holder's activities, available for reference purposes;

21. In the event that the Special Area is closed, entry via the Fire Roads is prohibited (except for emergency works approved by Water NSW);

22. During the Bush Fire Danger Period for the area as declared by the local Rural Fire Service, appropriate fire suppression controls must be on-site and easily accessible for use if required;

23. Entry to the Premises is not permitted during a Total Fire Ban;

24. Entry to the Premises by helicopter and use of Remotely Piloted Aircraft Systems (RPAS) is not permitted during a Fire Danger Rating of Extreme or above;

25. Camping in the Special Area is not permitted;

26. All persons entering the Special Area must adhere to the directions of any Water NSW officer;

NOTIFICATION OF HELICOPTER ENTRY

Water NSW operates aircraft, including helicopters and Remotely Piloted Aircraft Systems (RPAS), within Special Areas, for wildfire response, hazard reduction burns, water quality monitoring and pest control activities.

27. Prior to entry by helicopter, the Consent Holder must:
    a) provide written notification to Water NSW in the form of the Notice of Intent to Enter contained in Schedule 2, giving at least two (2) business days' notice of any planned helicopter operations, via email to:
        i. special_area_access@waternsw.com.au email address, **and**
        ii. Water NSW's Catchment Fire Program Manager, Ashley Frank via ashley.frank@waternsw.com.au;

28. Notification to Water NSW must include:
    a) the exact times that each operation will start and finish,
    b) a map showing the exact flight path, and
    c) for entry by helicopter, an appropriate Helicopter Operations Safe Work Method Statement / Risk Assessment, the type of helicopter to be used, and a description of the materials and/or equipment to be transported;

ACTIVITIES

29. Refuelling of the helicopter on the Premises is not permitted;

30. All drilling freshwater must be sourced from outside the Special Area;

31. All drilling fluids (muds/foams and fines) must be collected in above ground sumps and disposed of outside the Special Area and in a lawful manner;

32. No muds or foams are permitted to be used in the Special Area except those approved for use in the Sydney drinking water catchment with a Green rating in the ChemAlert system;

33. An Aboriginal Objects Due Diligence Assessment must be carried out, and the specific approval of Water NSW must be obtained, prior to any ground disturbance activities outside the footprint that has already been assessed;

34. All imported fill or earthen material for road maintenance and upgrade works must be restricted to 'Virgin Excavated Natural Material' (VENM) as defined in the Waste Classification Guidelines (EPA, 2014) that is not mixed with any other waste;

35. Where repair works to the Fire Roads repeatedly fail, the Consent Holder must upgrade the Fire Roads to a suitable standard to effectively manage the traffic regime, including frequency and weight of vehicles and machinery using these roads, in consultation with Water NSW;

36. Following repair or upgrade to the Fire Roads, the Consent Holder must ensure suitable time has passed to allow these works to stabilise prior to driving upon them;

37. Coir logs or other structures that may impede water flow, must not be placed within formed road drainage, unless required near creek crossings and only following improvements to cross banks and approaches in these areas;

38. Asset Protection Zone (APZ) vegetation management works must:
    a) include canopy thinning for the vent/flare stack APZ,
    b) include a five (5) metres APZ around the perimeter of the Premises, and
    c) not be cleared to ground level on any swamp areas;

39. Adequate measures must be implemented to supress dust and windblown debris;

40. An Environmental Impact Assessment must be carried out and the specific approval of Water NSW must be obtained prior to any new or amended works that have not been assessed by Water NSW as part of this Consent;

41. If any contamination or hazardous materials are encountered, **works must STOP immediately**, until a qualified environmental specialist has been contacted and conducted a thorough assessment. If contamination is identified as a result of this assessment, and if remediation is required, all works must cease in the vicinity of the contamination and Water NSW notified immediately. Where remediation work is required, the Consent Holder must obtain the written approval of Water NSW prior to implementation. A clearance certificate must be provided to Water NSW prior to works recommencing;

42. If any cultural heritage site or artefact (as defined by the *National Parks and Wildlife Act 1974* or *Heritage Act 1977*) is identified during the Schedule 9 Permitted Activity, **works must STOP immediately** at the location and ensure no further harm to the object. The Consent Holder must immediately report the find to the **Water NSW Incident Notification Number 1800 061 069 (24 hour service)** and the regulator in accordance with the relevant legislation. Works are not permitted to recommence in the vicinity of the find until any required approvals have been granted by the regulator. In the event that skeletal remains are encountered, the area must be secured to prevent

unauthorised access and the Consent Holder must immediately contact NSW Police and Water NSW;

SPILL MANAGEMENT

43. Incident and spill management procedures must be immediately implemented if a spill occurs. All incidents must be immediately reported to the **Water NSW Incident Notification Number (1800 061 069)**;

44. In the event of spill the following procedure is to be followed (as a minimum):
    a) Mechanical means is to be used to collect as much of the spilled material as possible and to apply an appropriate absorbent spill product to capture the balance.
    b) Appropriate bunding or other physical measures are to be used to prevent spilt liquids and subsequent run off from entering the water storage.
    c) Solvents and or water are not to be used to dilute the spill.
    d) Materials used to collect or contain the spill are to be removed from the site;

SAFETY

45. Persons entering the Special Area must take reasonable care for his or her own health and safety and take reasonable care that his or her acts or omissions do not adversely affect the health and safety of other persons. The Consent Holder must have adequate skills and experience to ensure the safety of all persons entering the Special Area in the changeable circumstances that will be encountered, including but not limited to, changing weather, fire danger, and creek/river water depth and flow rate;

46. The Helicopter Operations Safe Work Method Statement / Risk Assessment and RPAS Safe Work Method Statement / Job Safety Analysis must be specific to the proposed activities, and must include (but not be limited to) details of the identified risks, controls to be implemented to ensure health and safety, and communications and emergency procedures, noting that Water NSW does not endorse or approve the details of the controls put in place to manage hazards;

47. The Consent Holder must ensure that appropriate safety equipment consistent with the Consent Holder's Safe Work Plan and/or other Work Health and Safety requirements is available for use while conducting the Schedule 9 Permitted Activity;

48. All contractors and sub-contractors must make reference in their Safe Work Plan that they will adhere to any requirements (such as environmental assessments, development consent conditions and/or other Statutory Approvals, and/or relevant guidelines) as set out by the Consent Holder;

49. All **working at height** work must have adequate controls in place to manage the hazards of working at height including protecting persons from falling from height, and appropriate rescue procedures to be followed must be developed and implemented if required;

50. If a 'notifiable incident', as defined under section 38 of the *Work Health and Safety Act 2011* or Section 14 of the *Work Health and Safety (Mines and Petroleum Sites) Act 2013*, occurs in the Special Area, works within the immediate area **must STOP immediately**, and the Consent Holder must **immediately** report the incident to the **Water NSW Incident Notification Number 1800 061 069 (24 hour service)** after any emergency notifications / response / treatment, and the regulator in accordance with the relevant legislation. A copy of the Event Report that identifies the cause/s and corrective and preventative action/s to be implemented, must be provided to Water NSW within 14 days of the incident;

MECHANICAL PROVISIONS

51. Water NSW may vary the conditions of this Consent or revoke the Consent by notice in writing;

52. Water NSW may permanently or temporarily prevent or suspend entry to the Special Area under this Consent if Water NSW believes that the Consent Holder has:
    a) defaulted on, or failed to comply with, any or all of the conditions of this Consent, or
    b) has not acted in a responsible manner in discharging the conditions of this Consent;

Water NSW advises that there are surveillance cameras in various locations that monitor activities within Special and Controlled Areas.

Any likely or actual pollution of waters, illegal dumping, or non-compliance with any conditions of this Consent, the *Water NSW Act 2014* or Water NSW Regulation 2020, may result in Water NSW taking regulatory action, including your involvement in an investigation if you partake in any unlawful activity. The following provides penalty amounts for such offences.

Offence	Legislation	Penalty Infringement Notice	Prosecution (maximum)
Unauthorised Activity or Breach of Consent	*Water NSW Act 2014* or Water NSW Regulation 2020	$300 - $1,250 Individual $1,000 - $2000 Corporation	$22,000 Individual $44,000 Corporation
Pollution of Waters	*Protection of the Environment Operations Act 1997*	$7,500 Individual $15,000 Corporation	$250,000 Individuals $1,000,000 Corporation
Unlawful Transporting or Depositing of Waste	*Protection of the Environment Operations Act 1997*	$7,500 Individual $15,000 Corporation	$500,000 Individual $2,000,000 Corporation

Appendix E

Master Agreement

Dated 24 December 2004

DENDROBIUM AREA 1

MASTER AGREEMENT

SYDNEY CATCHMENT AUTHORITY (SCA)

ILLAWARRA COAL HOLDINGS Pty Ltd (ICH)

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DENDROBIUM AREA 1 MASTER AGREEMENT

Date: December 2004

Parties:

SYDNEY CATCHMENT AUTHORITY ("SCA") of Level 2, 311 High Street, Penrith, NSW

ILLAWARRA COAL HOLDINGS Pty Ltd ("ICH") (ABN 69 093 857 286) of
Old Port Rd, Port Kembla, NSW 2505

Recitals:

A. Cordeaux Dam and associated structures are owned by SCA and are critical to the Sydney water supply system.

B. ICH's Dendrobium Mine proposes to engage in Mining Activity near the Cordeaux Dam.

C. Experts acceptable to all parties have advised that the Mining Activity near Cordeaux Dam may cause subsidence and consequently there is a risk that the security of the stored waters of Cordeaux Dam may be jeopardised if an interconnection occurs between the stored waters and the mine workings.

D. ICH and SCA have agreed to enter into this agreement in order to provide for the Project to ensure that SCA requirements for security of the stored waters are met when the Mining Activity is undertaken.

Operative Provisions:

1. Interpretation

1.1 The following words have these meanings in this agreement unless the contrary intention appears.

Additional Costs means any costs and expenses relating to the ongoing operation and maintenance of Cordeaux Dam in excess of the costs and expenses of the operation and maintenance SCA would have incurred in relation to Cordeaux Dam if the Mining Activity and the Project, had never taken place.

Alternative Water Supply Arrangements means arrangements for the supply of water and water related services to persons whose access to, or supply of water or water related services, is reduced, or put at risk, by reason of the Project.

Authorisation means, in relation to an activity, the necessary permits, licences, approvals, and other authorisations which are:

a) required by law; or

b) regarded by any party as being necessary or desirable,

for the purposes of carrying out that activity. They include approvals required under the NSW Dams Safety Act.

Business Day means a day on which banks are open for general banking business in Sydney, not being a Saturday or Sunday.

Cordeaux Dam means the dam structure itself, catchment lands and the stored waters and all works associated with the operation of the dam including Upper Cordeaux Dams No's 1 and 2 and their infrastructure.

Encumbrance means any legal or equitable interest or power reserved in or over any piece of Equipment or created or otherwise arising in or over any piece of Equipment or any interest in any of the Equipment under a transfer, bill of sale, mortgage, fixed or floating charge, lien, pledge, trust or power by way of security.

Equipment means plant, fittings, equipment and goods which are used or which have been used in respect of any work which is undertaken in relation to the Project.

Incident means any incident or event in relation to the Project posing a risk of Loss to SCA or ICH, including any incident or event resulting in:

a) significant reduction in capacity of Cordeaux Dam to supply water;

b) structural damage to Cordeaux Dam or any of its associated structures;

c) injury or damage to persons working at Cordeaux Dam;

d) alteration to the surface drainage provisions of the catchment area of Cordeaux Dam;

e) any event causing a negative impact on the water quality in Cordeaux Dam;

f) damage to heritage items or a decrease in the heritage value of Cordeaux Dam and associated heritage listed assets;

g) environmental pollution; or

h) failure or significant risk of failure of the Project to achieve the Objectives.

Insolvent Event means the happening of any of the following events in relation to a party:

a) it is unable to pay all its debts as and when they become due and payable or it has failed to comply with a statutory demand, as provided in Section 459F(1) of the Corporations Law;

b) a meeting is convened to place it in voluntary liquidation or to appoint an administrator;

c) an application is made to a court for it to be wound up;

d) the appointment of a controller (as defined in Section 9 of the Corporations Law) of any of its assets;

e) it proposes to enter into or enters into any form of arrangement (formal or informal) with its creditors or any of them, including a deed of company arrangement; or

f) it becomes an insolvent under administration, as defined in Section 9 of the Corporations Law.

Interest Rate means, in respect of an interest period, the interest rate agreed between the parties as the rate that should apply, or if agreement is not reached, 10% p.a.

Loss includes loss, liability, damage, cost or expense (including consequential loss or damage).

Management Plan means any management plan prepared for the Project as updated and revised by SCA from time to time in accordance with Clause 3 or as a requirement of approval conditions of the NSW Dams Safety Committee and/or Department of Mineral Resources.

Mining Activity means Nebo Mains and first workings for Area 1 of the Dendrobium Mine.

Mining Approval means the approval of the Department of Mineral Resources to the Manager, Dendrobium Mine, and the attached approval conditions and any variation or replacement thereof.

Monitoring includes stress, strain and deformation measurements, surveying, visual inspections and other monitoring systems, and photography outlined in a Management Plan or as a requirement of the NSW Dams Safety Committee in relation to Cordeaux Dam.

Objectives are stated in Clause 2.5.

Operational Information means all designs, drawings, specifications, formulae, technical data and information and other written materials including files, booklets, manuals and software programs or other documentation which instructs an individual on how to operate a piece of Equipment.

Project is defined in Clause 3.1.

Project Agreement means any agreement entered into by SCA with a third party (not including a Related Body Corporate to ICH) in relation to the Project.

Project Expenses means:

a) internal costs of SCA; and

b) costs, expenses or liability incurred by SCA, including amounts payable by SCA to a third party,

in relation to the Project.

Protective Works means any protective works undertaken prior to or during the Mining Activity to ensure the integrity of Cordeaux Dam.

Purchase Order means an order issued by ICH to SCA in relation to a discrete aspect of work on the Project.

Rehabilitation means any protective works or repairs to Cordeaux Dam undertaken after Mining Activity commences.

Related Agreement means any agreement in relation to the Project between ICH or a Related Body Corporate of ICH on the one hand and SCA on the other.

Related Body Corporate, in relation to a body corporate, means a body corporate that is related to the first-mentioned body by virtue of Section 50 of the **Corporations Law**.

Repair Works means any repairs to Cordeaux Dam undertaken pursuant to obligations under this agreement.

Structural Damage means physical damage, disturbance or alteration.

Subsidiary, in relation to a body corporate, means a body corporate that is a subsidiary or the first-mentioned body by virtue of Division 6 of Part 1.2 of the **Corporations Law**.

Taxes means taxes (including consumption tax, goods and services tax and capital gains tax), levies, imposts, deductions, charges, withholding's and duties (including, but not limited to, stamp and transaction duties), together with any related interest, penalties, fines and other statutory charges.

Technical Advice means technical advice including advice on design, installation and maintenance of Protective Works, Monitoring or Repair Works, including advice on comparisons of results against predictions.

1.2 In this agreement unless the contrary intention appears:

a) a reference to this agreement or another instrument includes any variation or replacement of either of them;

b) a reference to a statute, ordinance, code or other law includes regulations and other instruments under it and consolidations, amendments, re-enactments or replacements of any of them;

c) the singular includes the plural and vice versa;

d) the word person includes a firm, a body corporate, an unincorporated association or an authority;

e) a reference to a person includes a reference to the person's executors, administrators, successors, substitutes (including, but not limited to, persons taking by novation) and assigns;

f) if a period of time is specified and dates from a given day or the day of any act or event, it is to be calculated exclusive of that day;

g) a reference to a day is to be interpreted as the period of time commencing at midnight and ending 24 hours later;

h) if an act prescribed under this agreement to be done by a party on or by a given day is done after 5 pm on that day, it is taken to be done on the next day;

i) if an event must occur on a stipulated day which is not a Business Day then the stipulated day will be taken to be the next Business Day; and

j) a reference to time is a reference to Sydney time.

1.3 Headings are inserted for convenience and do not affect the interpretation of this agreement.

1.4 If a provision of this agreement is inconsistent with a provision of another agreement between two or more of the parties, including a Related Agreement, the provision of this agreement prevails.

2. Paramount Obligation and Objectives

SCA Acknowledgment

2.1 SCA acknowledges the importance of Mining Activity to ICH to ensure the ongoing viability of ICH's Dendrobium Mine. It is in ICH's interests that Mining Activity continues without interruption until the completion of the Mining Activity.

2.2 To the extent it is able to do so while complying with its statutory obligations, SCA will ensure that it performs all of its obligations in respect of the Project in a timely and cost efficient manner.

Paramount Obligation

2.3 ICH must ensure that SCA is at no time worse off by reason of the Mining Activity than the position they would have been in if those activities had never taken place.

2.4 Clause 2.3 is a paramount obligation of ICH which prevails if there is any inconsistency with any other term of this agreement. Without limiting the effect of Clause 2.3:

a) completion of the Project does not relieve ICH from its paramount obligation in Clause 2.3;

b) Clause 2.3 is intended to give rise to positive obligations on the part of ICH, enforceable by the granting of remedies of the kind contemplated by Clause 16; and

c) SCA have no obligations whatsoever to ICH under this agreement or a Related Agreement whilst ICH is in breach of Clause 2.3, provided however that, while ICH is in breach of Clause 2.3 the SCA will provide assistance to ICH only in the circumstances where the request is reasonable and where the breach has caused or has the potential to cause loss or damage to the SCA.

Objectives

2.5 ICH's obligation in Clause 2.3 will be satisfied if the Objectives are met. The Objectives are to ensure that:

a) the integrity of Cordeaux Dam and its associated infrastructure is maintained;

b) SCA's requirements for water supply from Cordeaux Dam are met;

c) there is no adverse impact on the surface drainage provisions of the catchment lands;

d) SCA is not financially disadvantaged as a result of the Project or the Mining Activity;

e) any heritage items are not damaged nor heritage value decreased;

f) the water quality within Cordeaux Dam is not decreased.

For the purposes of this Clause "integrity" relates to the ongoing soundness of Cordeaux Dam and the ability to maintain the capacity and quality of its stored waters.

2.6 In order to achieve the Objectives ICH has agreed to fund the Project on the terms of this agreement.

3. The Project

3.1 To achieve the Objectives, the Project includes:

a) the Protective Works;

b) the Monitoring;

c) the Rehabilitation;

d) the Repair Works;

e) the Alternative Water Supply Arrangements;

f) management of Incidents;

g) activities aimed at achieving the Objectives in Clause 2.5(e) in relation to heritage values;

h) any activities which are related or incidental to the activities in Subclauses (a) to (g); and

i) other activities as may be agreed.

Implementation of Project

3.2 The Project will be implemented in accordance with the Management Plan and any associated plans related to the Project including any plans prepared as a requirement of the NSW Dams Safety Committee.

3.3 SCA, in conjunction with ICH, will continue to develop, update and review the Management Plan to ensure that it deals in a comprehensive way with all material aspects of the Project and will continue to do so until completion of the Project. SCA and ICH will adhere to the Management Plan and consult with each other on all material aspects of the Management Plan and its implementation. However, SCA will make the final decision on all aspects of the Management Plan and its implementation.

Completion of the Project

3.4 The Project is complete when both ICH and SCA agree. The parties acknowledge that although the Mining Activity may be complete the Project will continue while Monitoring continues or whilst the potential for SCA to suffer loss from the Mining Activity continues.

Transfer of Project Equipment

3.5 This clause operates to vest the legal ownership in the SCA of certain equipment used in the Project, in accordance with:

a) Subject to sub-clause 3.5(b), the legal ownership of all equipment will vest in the SCA on installation if the equipment has been used or has been identified as likely to be used in the project for longer than nine (9) months.

b) At any time before, during or after the installation of the Equipment, the SCA may choose not to take legal ownership of certain items of Equipment by serving a written notice to that effect on ICH.

c) Where ownership of the Equipment is transferred to SCA it must be transferred free from any Encumbrances and ICH must do all things reasonably necessary to ensure that ownership of the Equipment is transferred to SCA.

d) Where ownership is transferred to SCA in accordance with this provision, ICH will also transfer to SCA all Operational Information and will assign or novate to SCA all performance and other warranties relating to the Equipment.

e) Transfer of ownership of Equipment in accordance with this clause does not remove or reduce in any way the obligations that ICH would otherwise have in relation to the maintenance, replacement or repair of the Equipment.

SCA's Resources

3.6 SCA is entitled to use its own internal resources to undertake any activities in relation to the Project but will at all times ensure that appropriate, necessary and cost effective resources are used.

SCA Assets

3.7 Unless they have SCA's permission, ICH, its Related Bodies Corporate, and any of their officers, employees, agents and subcontractors, will not enter into, take possession of, trespass on, use, or in any way disturb, any asset owned by, or in the possession of, SCA.

ICH's Related Bodies Corporate

3.8 ICH must ensure that none of its Related Bodies Corporate engage in any act or do any thing, which if the act was done by ICH, would result in a breach of any term of this agreement.

Retrospective Effect

3.9 The parties acknowledge that the Project commenced and Project Agreements and Related Agreements have been entered into prior to the date of this agreement and this agreement applies to those agreements and that part of the Project commenced prior to the date of this agreement.

Authorisations

3.10 The parties will use reasonable endeavours to obtain the Authorisations required to be obtained by them before the event or conduct requiring the Authorisation is due and will do so before the event or activity requiring the Authorisation is due to occur. No activity will be undertaken without a necessary Authorisation.

4. Mining Activity

Commencement of Mining Activity

4.1 ICH warrants that it holds a mining lease under the Mining Act 1922 (NSW), and approval from the Minister for Planning on 20 November 2001 to allow it to engage in the Mining Activity. ICH will not, and will procure that its Related Bodies Corporate do not, commence any stage of the Mining Activity until:

a) all Authorisations including those related to the NSW Dams Safety Act are obtained that are necessary for the Mining Activity to proceed;

b) all Authorisations, including the Mining Approval, have been strictly complied with in order for Mining Activity to proceed;

c) all Authorisations are obtained that are necessary or desirable to ensure SCA and ICH will be able to claim compensation under a statutory scheme for compensation in relation to Project Expenses, Losses, or the Mining Activity generally, such as under legislation such as the Mine Subsidence Compensation Act 1961 (NSW); and

d) all necessary Protective Works have been completed to the satisfaction of the SCA to ensure the objectives of Clause 2.5 are satisfied.

How Mining Activity is to be Undertaken

4.2 Mining activity must be undertaken strictly in accordance with the Authorisations required for the Mining Activity, including the Mining Approval, the obligations of ICH and its Related Bodies Corporate under this agreement and Related Agreements.

5. Protective Works, Monitoring, Rehabilitation and Repair Works

Independent Expert

5.1 SCA must consider the advice of the experts referred to in Recital C insofar as such advice relates to the nature and extent of Protective Works, Monitoring, Rehabilitation and/or Repair Works which may be required. The final decision on the nature and extent of any works will be made by SCA which is under no obligation to follow the advice and recommendations of any such expert or experts.

24 Hour Access

5.2 Notwithstanding that Protective Works and installation of Monitoring systems may be delayed, SCA is, in its absolute discretion, entitled to access and use of Cordeaux Dam.

Monitoring

5.3 Monitoring will continue until SCA considers it is no longer required. The frequency and duration of Monitoring may be altered in SCA's discretion depending on the effects of subsidence and strains due to Mining Activity.

5.4 SCA will undertake the Monitoring if it so chooses and will report to ICH and the Department of Mineral Resources as they may require.

5.5 Monitoring will also be required as stipulated by the NSW Dams Safety Committee in any approval granted by it. Such monitoring is to be complied with and a copy of all such monitoring results are to be forwarded to SCA.

6. Incident Management

Response to Incidents

6.1 SCA has an absolute and unfettered discretion to manage and respond to any Incident in such manner as it considers appropriate.

6.2 If the Objectives of Clause 2.5 are not being met while Mining Activity is being undertaken then SCA/ICH shall take all steps to ensure the Objectives are met including as a last resort the cessation of Mining Activity until the necessary Repair Works are undertaken to ensure ongoing compliance with the Objectives.

ICH to Cooperate

6.3 ICH will cooperate and assist SCA in managing any Incident within its control. ICH will procure that its Related Bodies Corporate will assist SCA in managing any Incident within their control.

7. Related Agreements and Project Agreements

Disclosure

7.1 SCA will disclose within a reasonable time all Project Agreements of which they are aware.

Procurement Guidelines

7.2 SCA will ensure that all Project Agreements made by them will be in accordance with their usual engagement and procurement policies and guidelines.

No Obligation to Enforce

7.3 SCA will at ICH's request take action to enforce their rights under a Related Agreement or Project Agreement if in addition to any other rights SCA may have under this agreement, ICH funds all costs in advance, including any legal costs of taking action, and the legal costs incurred by each of them in assessing their own legal position in taking such action. Notwithstanding this obligation, SCA is under no obligation to refrain from exercising or to delay in exercising any rights they may have against ICH under this agreement.

Related Agreements

ICH and SCA must each notify the other in writing prior to SCA and a Related Body Corporate of ICH entering into a Related Agreement.

8. Funding and Payment

ICH bears all Costs

8.1 All Project Expenses are borne by ICH, except those Project Expenses arising from the wilful misconduct of the SCA.

Purchase Orders

8.2 ICH will issue Purchase Orders for discrete aspects of work in the Project to SCA based on estimated costs for the work to be performed. ICH must issue Purchase Orders before any contract for work on the Project is advertised or any third party is engaged to do the work.

Obligation to Pay

8.3 SCA will claim Project Expenses by presentation of an invoice to ICH. An invoice may be presented at any time. The failure of ICH to issue a Purchase Order or the failure of SCA to present an invoice does not relieve ICH of liability for the Project Expense. The fact that an invoice exceeds the amount stated in the Purchase Order does not invalidate the invoice and ICH remains liable to pay the whole amount specified in the invoice. Without limiting the provisions contained in clauses 8.4 and 8.5, if requested by ICH the SCA will supply copies of invoices or other relevant documentation if available to show that such Project Expenses have been incurred by the SCA.

8.4 ICH must pay within 28 days of presentation of an invoice. Unpaid amounts accrue interest at the Interest Rate for the interest period from the due date to the date payment is received.

ICH bears Onus

8.5 If a claim for payment of a Project Expense is made by SCA on ICH, then it must be paid. If ICH disputes a claim or the amount of a claim, then the amount must be paid and ICH bears the onus of proving that it is entitled to recover an amount paid.

Costs, fees, no mark-up

8.6 When claiming amounts from ICH that are payable to third parties, SCA will not put a mark-up on Project Expenses and will only recover from ICH the amount payable to the third party.

9. Indemnities, Covenant and Release

Indemnity by ICH

9.1 ICH indemnifies SCA against any Loss or Project Expense incurred or suffered by SCA as a consequence of, or in relation to, the Project or the Mining Activity, or both, including without limitation:

a) any Additional Costs;

b) any Loss or Project Expense in relation to this agreement, a Related Agreement or Project Agreement,

and whether or not the Loss or Project Expense arises in connection with any negligence, breach of contract, default, lack of care or misrepresentation on the part of SCA, their directors, officers, employees, agents or advisers (except to the extent such Loss or Project Expense is contributed to by the wilful misconduct of SCA, their directors, officers or employees).

Insurance

9.2 ICH will:

a) for so long as any obligations remain in connection with this Agreement, effect and maintain:

(i) General and Products Liability Insurance to a total limit of liability of a minimum of US$20M with the policy extensions listed in the Certificate of Currency issued by Willis and dated 19 November 2004; and

(ii) insurance to cover the rights and interests of the SCA in respect of the Dendrobium Area 1 Master Agreement; declaring the SCA as an interested party.

(b) upon request, from time to time, provide to the SCA a copy of insurance policies or other reasonably acceptable evidence of the risk insured and the amount and currency of the coverage.

Presumption of Damage

9.3 While Mining Activity is being carried on, any Structural Damage to or loss of stored waters from Cordeaux Dam, is deemed to be caused by that Mining Activity unless ICH proves that the Structural Damage or loss of stored waters is caused solely by some other cause which is independent and unrelated to the Project and the Mining Activity.

Covenant and Release

9.4 ICH covenants that:

a) ICH will make its own assessment of the Protective Works, Monitoring, Rehabilitation and Repair Works and satisfy itself that the Mining Activity will not result in Loss to any person;

b) if ICH is not satisfied that these works are adequate then it will make this known to SCA and request further works be done;

c) ICH will not rely on any information provided to it by SCA in deciding whether Mining Activity, or any activity in relation to the Project, may proceed, but will rely on its own investigations; and

d) ICH will not make any demand or claim of any sort against SCA, alleging it suffered Loss as a consequence of the involvement of SCA in the Project (except to the extent such Loss or Project Expense is contributed to by the wilful misconduct of SCA, their directors, officers or employees).

9.5 Subject to any law to the contrary, and to the maximum extent permitted by law:

a) SCA disclaim all liability for all Loss (whether foreseeable or not) suffered by any person in relation to their involvement in the Project;

b) ICH releases SCA in respect of any claim which may arise from or in connection with the involvement of SCA in the Project; and

c) ICH will procure that each of its Related Bodies Corporate will release SCA from any claim they may have against SCA in relation to the Project.

whether the Loss arises in connection with any negligence, breach of contract, default or lack of care or misrepresentation on the part of SCA (except to the extent such Loss or Project Expense is contributed to by the wilful misconduct of SCA, their directors, officers or employees).

9.6 For the purposes of Clauses 9.1, 9.3 to 9.5, SCA is deemed to be contracting on behalf of themselves as well as acting as agent for all persons who are their directors, officers, employees, agents or advisers from time to time and those persons are deemed to be parties to this agreement.

10. Compensation and Third Party Claims

ICH's Rights against Third Parties

10.1 On payment of an amount to SCA in satisfaction of a Loss or Project Expense incurred or suffered by SCA, then SCA, where SCA has obtained ICH's prior written consent in respect of a particular Loss or Project Expense will hold for the benefit of ICH any rights they may have against a third party in relation to that Loss or Project Expense.

Statutory Compensation

10.2 Where compensation is available to SCA under a statutory scheme of compensation in relation to Project Expenses, Losses or the Mining Activity generally, at the request of ICH, then subject to Clause 10.3, SCA will claim compensation in accordance with the scheme in preference to pursuing ICH for the amount that is recoverable under the scheme.

10.3 In addition to any other rights of SCA under this agreement, ICH must:

a) fund all costs in advance in relation to the claim, including any legal costs;

b) provide SCA with any shortfall in compensation for the Loss or Project Expense claimed; and

c) give SCA full and fair compensation for any advantage foregone by SCA claiming from the third party in preference to ICH, including without limitation, interest:

i) on the amount outstanding on the Loss or Project Expense claimed under the scheme;

ii) calculated:

A) for the interest period from the date the Loss or Project Expense was incurred to the date payment is received; and

B) at the Interest Rate.

Non-compensable Losses

10.4 Any Project Expense or Loss that is not recoverable under the statutory scheme is recoverable immediately from ICH unless this would prejudice a claim under the statutory scheme by SCA or ICH.

If ICH can Claim

10.5 SCA has no obligation under Clause 10.1 in relation to any Project Expense or Loss for which ICH is itself entitled to claim compensation under a statutory scheme for compensation.

11. Information and Reporting on Mining Activity

Material Information

11.1 If any party or a Related Body Corporate of ICH becomes aware of any material information relevant to the Project they must make the other parties aware of the information and provide the other parties with any relevant documents within a reasonable time. ICH will procure performance by their Related Bodies Corporate of this obligation. This obligation extends to material information in relation to the Mining Activity which affects the Project.

Warranty

11.2 ICH warrants the truth and accuracy of all information, reports and documents provided to SCA by ICH or its Related Bodies Corporate in relation to the Project.

12. Confidentiality

12.1 All information exchanged between the parties and stipulated to be confidential under this agreement or during the negotiations preceding this agreement is confidential to them and may not be disclosed to any person except:

a) to employees, legal advisers, auditors and other consultants of the party or its related bodies corporate requiring the information for the purposes of this agreement; or

b) with the consent of the party who supplied the information; or

c) if the information is, at the date this agreement is entered into, lawfully in the possession of the recipient of the information through sources other than the party who supplied the information; or

d) if required by law or a stock exchange; or

e) if strictly and necessarily required in connection with legal proceedings relating to this agreement; or

f) if the information is generally and publicly available other than as a result of breach of confidence by the person receiving the information.

12.2 A party disclosing information under Clause 12.1(a) or (b) must use all reasonable endeavours to ensure that persons receiving confidential information from it do not disclose the information except in the circumstances permitted in Clause 12.1.

13. Force Majeure

Force Majeure

13.1 In this clause **Force Majeure** means any act, event or cause which is beyond the reasonable control of the party concerned (other than lack of or inability to use funds), including:

a) act of God, accident or navigation, war (whether declared or not), sabotage, insurrection, civil commotion, national emergency (whether in fact or law), martial law, fire, lightning, flood, earthquake, landslide, storm or other severe adverse weather conditions, explosion, power shortage, strike or other labour difficulty (whether or not involving employees of the party concerned), epidemic, quarantine, radiation or radioactive contamination;

b) action or inaction of any government or governmental or other competent authority (including any court) including expropriation, restraint, prohibition, intervention, requisition, requirement, direction or embargo by legislation, regulation or other legally enforceable order;

c) breakdown of plant, machinery or equipment or shortages of labour, transportation, fuel, power, plant, machinery, equipment or material; and

d) any other cause which by the exercise of foresight or due diligence, the party is unable to prevent or overcome.

Relief

13.2 If, as a direct result of Force Majeure, a party becomes unable, wholly or in part, to perform any of its obligations under this agreement;

a) that party is to give the other parties prompt notice of the Force Majeure with reasonably full particulars and, insofar as known to it, the probably extent to which it will be unable to perform, or be delayed in performing its obligation;

b) that obligation, other than an obligation to pay money, is suspended but only so far as and for so long as it is affected by the Force Majeure; and

c) that party is to use all possible diligence to overcome or remove the Force Majeure as quickly as possible.

Labour Disputes

13.3 Clause 13.2 (c) does not require the affected party to:

a) settle any strike, or other labour dispute on terms contrary to its wishes; or

b) contest the validity or enforceability of any law, regulation or legally enforceable order by way of legal proceedings.

Resumption

13.4 The obligation of the affected party to perform its obligations, resumes as soon as it is no longer affected by the Force Majeure.

14. Duration and Termination

Duration

14.1 This agreement continues until it is terminated.

Termination

14.2 This agreement may be terminated:

a) in accordance with Clauses 14.8 to 14.10.

Dispute Resolution and Termination by SCA

14.3 SCA may give notice to ICH that it intends to terminate this agreement if:

a) ICH breaches any essential terms of this agreement;

b) ICH fails to remedy any breach of this agreement within 28 Business Days of SCA requiring by notice that ICH remedy the breach; or

c) an Insolvency Event occurs in relation to ICH.

14.4 Upon service of notice of intention to terminate under Clause 14.3, the parties will use their reasonable endeavours to resolve the dispute through:

a) discussions between nominated senior officers at least at Chief Executive Officer or General Manager level; and

b) should such discussions fail to resolve the dispute, through mediation using the Australian Commercial Disputes Centre, provided both parties are willing.

14.5 If the dispute has not been resolved within 15 Business Days of the day on which notice was served under Clause 14.3 then SCA may terminate this agreement.

Effect of Termination

14.6 Subject to Clause 14.7, on termination of this agreement, without prejudice to any rights accrued prior to termination, this agreement ceases to have effect.

Continuing Obligations

14.7 Without limiting the nature of any other provision of this agreement, and subject to Clause 14.8, the obligations of the parties under Clauses 2, 3, 5, 6, 7, 8, 9, 10, 12, 14, 16 and 17 are continuing obligations and survive termination.

Final Settlement and Release

14.8 SCA and ICH may at any time agree a settlement amount that in the opinion of SCA and ICH achieves a fair position for SCA that compensates SCA for disposal of, or termination of its rights or entitlements under this agreement. Neither ICH or SCA has any obligation to negotiate or agree a settlement amount under this Clause.

14.9 To be valid the agreement in Clause 14.8 must:

a) be in writing and signed by nominated senior officers of each company at least at Chief Executive Officer or General Manager level;

b) set out the settlement amount; and

c) be expressed to be an agreement for the purpose of this clause.

14.10 Subject to the terms of the final agreement between ICH and SCA, on receipt by SCA of the agreed settlement amount, this agreement terminates in accordance with Clause 14.6 and in addition, the parties are released from all of their obligations under this agreement, including the continuing obligations set out in Clause 14.7, except Clause 12.

15. Notices

15.1 A notice, approval, consent or other communication in connection with this agreement:

a) must be in writing;

b) must be marked for the attention of:
   i) in the case of SCA - the Executive Director Dam Safety; and

ii) in the case of ICH - the Manager of Business and Finance; and

c) must be left at the address of the addressee, or sent by prepaid ordinary post (airmail if posted to or from a place outside Australia) to the address of the addressee or sent by facsimile to the facsimile number of the addressee which is specified in this clause or if the addressee notifies another address or facsimile number then to that address or facsimile number.

The address and facsimile number of each party is:

Sydney Catchment Authority
Executive Director, Dam Safety
Address: Level 2,
311 High street
PENRITH, 2750

Facsimile: (02) 4732 3666

Illawarra Coal Holdings
Vice President Operations
Address: PO Box 514
Unanderra
NSW 2526

Facsimile: (02) 4255 3201

15.2 A notice, approval, consent or other communication takes effect from the time it is received unless a later time is specified in it.

15.3 A letter or facsimile is taken to be received:

a) in the case of a posted letter, on the third (seventh, if posted to or from a place outside Australia) day after posting; and

b) in the case of facsimile, on production of a transmission report by the machine from which the facsimile was sent which indicates that the facsimile was sent in its entirety to the facsimile number of the receipt.

16. Injunction Relief

ICH acknowledges that damages are not a sufficient remedy for SCA in relation to breach of this agreement or any Related Agreement and that SCA is entitled to specific performance or injunctive relief (as appropriate) as a remedy for any breach or threatened breach by ICH or its Related Bodies Corporate of this agreement or any Related Agreement, in addition to any other remedies available to SCA at law or in equity.

17. Miscellaneous

Exercise of Rights

17.1 Either party may exercise a right, power or remedy at its discretion, and separately or concurrently with another right, power or remedy. A single or partial exercise of a right, power or remedy by either party does not prevent a further exercise of that or any other right, power or remedy. Failure by either party to exercise or delay in exercising a right, power or remedy does not prevent its exercise.

Waiver and Variation

17.2 A provision of or a right created under this agreement may not be:

a) waived except in writing signed by the party granting the waiver; or

b) varied except in writing signed by the parties.

Approvals and consents

17.3 A party may give conditionally or unconditionally or withhold its approval or consent in its absolute discretion unless this agreement expressly provides otherwise.

Remedies cumulative

17.4 The rights, powers and remedies provided in this agreement are cumulative with and not exclusive of the rights, powers or remedies provided by law independently of this agreement.

Survival of Indemnities

17.5 Each indemnity in this agreement is a continuing obligation, separate and independent from the other obligations of the parties and survives termination of this agreement.

Enforcement of Indemnities

17.6 It is not necessary for a party to incur expense or make payment before enforcing a right of indemnity conferred by this agreement.

Further Assurances

17.7 Each party, agrees on the request of another party, to do everything reasonably necessary to give effect to this agreement and the transactions contemplated by it, including, but not limited to, the execution of documents, and to use their best endeavours to cause third parties to do likewise.

Publicity

17.8 A party may not make press or other announcements or releases relating to this agreement and the transactions the subject of this agreement without the approval of the other party to the form and manner of the announcement or release unless that announcement or release is required to be made by law or by a stock exchange.

Assignment

17.9 ICH may not assign or dispose of its rights under this Agreement, the mining lease held in respect of the Mining Activity, the Mining Approval or any Related Agreement without the consent of SCA. Such consent shall not be unreasonably withheld. ICH will procure that none of its Related Bodies Corporate assign or dispose of any rights they have under the mining lease held in respect of the Mining Activity, a Related Agreement or the Mining Approval without the consent of SCA. ICH will use reasonable endeavours to ensure that no person engages in Mining Activity without SCA's consent.

17.10 Any change in beneficial shareholding which results in ICH no longer being a body corporate controlled by BHP Billiton Plc or BHP Billiton Limited taking into account the aggregate percentage interests of their respective direct or indirect shareholdings in that body corporate, will constitute an assignment of this agreement. ICH will be in breach of this agreement unless ICH obtains the prior written consent of the SCA to the change in control, such consent not to be unreasonably withheld.

Supervening Legislation

17.11 Any present or future legislation which operates to vary an obligation or right, power or remedy of SCA in connection with this agreement is excluded, except to the extent that the exclusion would either:

a) operate to the disadvantage of SCA; or

b) to the extent that its exclusion is prohibited or rendered ineffective by law.

Essential Clauses

17.12 Without limiting the nature of any other term of this agreement, Clauses 2.3, 2.4, 2.5, 4.1, 4.2, 5.3, 7.4, 8.4, 9 and 17.9 are essential terms.

No Partnership or Agency

17.13 Nothing contained or implied in this agreement is intended to create a partnership between the parties or (except as otherwise provided) establish that any party is an agent or representative of any other party. Except as otherwise provided in this agreement, a party has no authority to bind any other party or to act for, or to incur any obligation or assume responsibility on behalf of, any other party.

18. Governing Law, Jurisdiction and Service of Process

18.1 This agreement and the transactions contemplated by this agreement are governed by the law in force in New South Wales.

18.2 Each party irrevocably and unconditionally submits to the non-exclusive jurisdiction of the courts of New South Wales and courts of appeal from them for determining any dispute concerning this agreement or the transactions contemplated by this agreement. Each party waives any right it has to object to an action being brought in those courts including, but not limited to claiming that the action has been brought in an inconvenient forum or that those courts do not have jurisdiction.

18.3 Without preventing any other mode of service, any document in an action (including, but not limited to, any writ of summons or other originating process or any third or other party notice) may be served on any party by being delivered to or left for that party at its address for service of notices under Clause 15.

EXECUTED AS AN AGREEMENT

SIGNED as an Agreement for and on behalf of the **Sydney Catchment Authority** by:

.....
(signature)

IAN LANDON-JONES
.....
(Name)

EXECUTIVE DIRECTOR DAM SAFETY
.....
(position held)
in the presence of:

.....
(Signature of witness authorised person)

NATALIE WRIGHT
.....
(Print name of Witness)

Executed by **Illawarra Coal Holdings** Pty Ltd ABN 69 093 857 286 in accordance with section 127 of the *Corporations Act 2001*:

.....
(Director/~~company secretary~~)

.....
(Director)

ROBERT QUINN
.....
Name of director/~~company secretary~~
(BLOCK LETTERS)

COLIN BLOOMFIELD
.....
Name of director
(BLOCK LETTERS)