



Dendrobium Area 3A Longwall 19A End of Panel Report

Aboriginal Cultural Heritage Assessment

Prepared for Illawarra Coal holdings Pty Ltd | 7 November 2024



Acknowledgements

Niche Environment and Heritage is committed to reconciliation and acknowledges the Traditional Custodians of Country throughout Australia and their connections to land, sea, and community. We pay our respect to Elders past, present, and emerging, and extend that respect to all Aboriginal and Torres Strait Islander peoples today.





Document control

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Annex 1 Previous subsidence monitoring for Dendrobium Area 3..... 53

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Important information about this report

Information relating to Aboriginal cultural heritage sites, including some details, images and maps showing the locations of sites, has been redacted from this report at the request of Registered Aboriginal Parties.



01 Introduction

1.1 Background and need for the project

Illawarra Coal Holdings Pty Ltd (ICHPL), operating as GM³, commissioned Niche Environment and Heritage Pty Ltd (Niche) to conduct an End of Panel (EoP) assessment of the Aboriginal cultural heritage sites within the Longwall 19A Study Area at the Dendrobium Mine. This area has been defined as the 'Study Area' and is shown in Figure 1 and Figure 2.

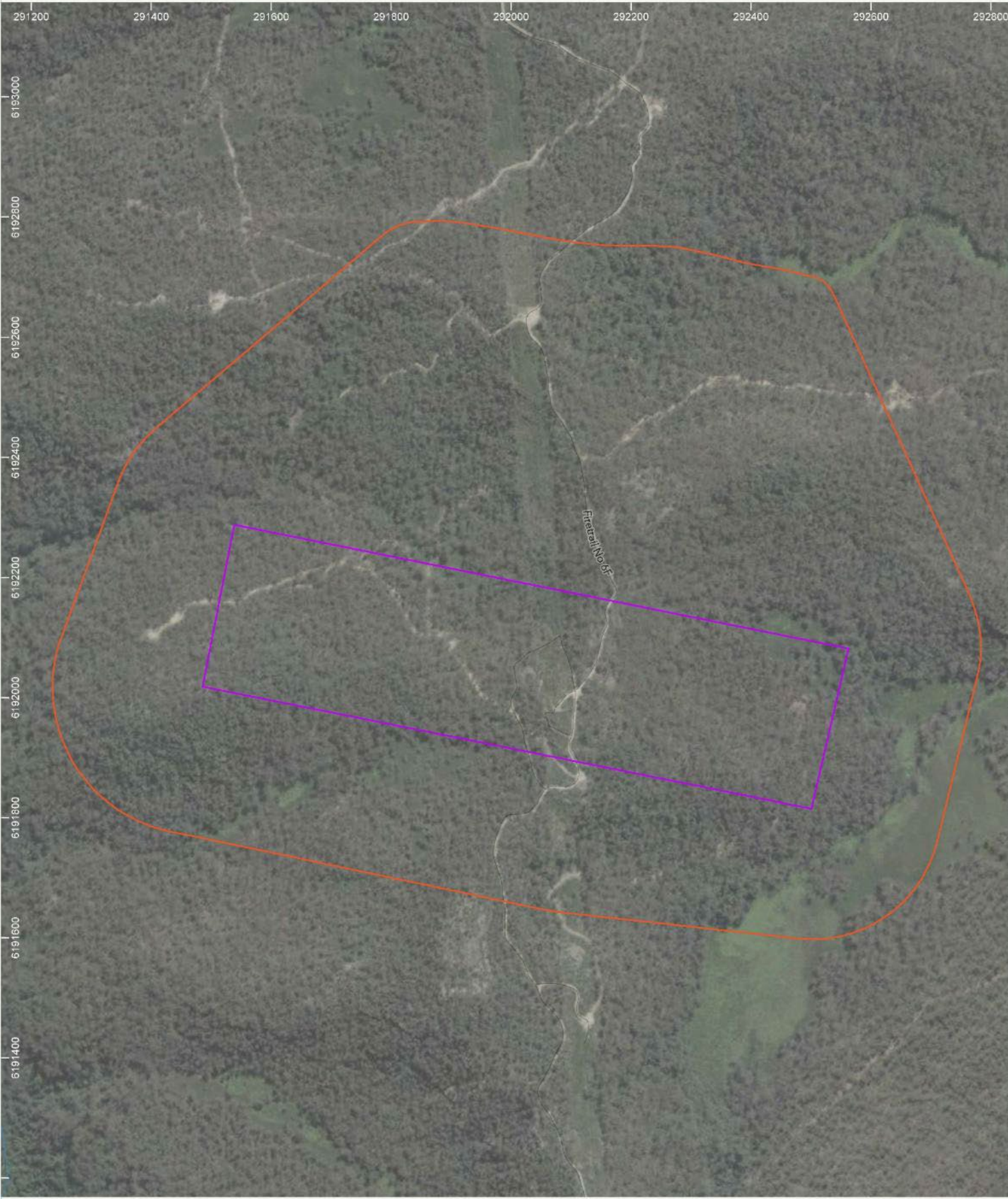
Extraction of Longwall 19A commenced on 2 November 2023 and was completed on 28 June 2024.

This EoP Aboriginal heritage assessment report includes a summary of:

- Previous monitoring of all sites in Dendrobium Area 3;
- previous monitoring of Longwall 19A sites;
- the results of the Subsidence Report prepared by MSEC (2024);
- the results of a site inspection;
- a discussion; and
- conclusions and recommendations.

Aboriginal cultural heritage sites within the Study Area are managed in accordance with the Longwall 19A Aboriginal Cultural Heritage Management Plan (ACHMP) (Niche, 2023) which contains a Trigger Action Response Plan (TARP) for the reporting and proposed corrective management actions for any identified changes to the sites.

The site monitoring results presented in this report are in line with the required actions and recommendations presented in the ACHMP.



- 35 Degree Angle of Draw
- Longwall 19A
- Hydrography
- Non Perennial Stream
- Transport**
- Minor road



0
120

 m
 GDA2020 MGA Zone 56

Figure 2
Location of the Subject Area
 Longwall 19A End of Panel Assessment

Niche PM: Deirdre Lewis-Cook
 Niche Proj. #: 8748
 Client: Illawarra Coal Holdings Pty Ltd



NSW Office of Environment and Heritage's BioNet Atlas, which holds the data from a number of custodians. Data Obtained 13/12/2023. | World Imagery: Maxar/public/NSW. Imagery: © Department of Customer Service 2020/ Terrain: Multi-Directional Hillshade: Airbus,USGS,NGA,NASA,CGIAR,NCEAS,NLS,OS,NMA,Geodatastyrelsen,GSA,GSI and the GIS User Community | Watercourses, Waterbodies, Road and Rail alignments, Protected areas of NSW © Spatial Services 2021. | Niche uses GDA2020 as standard for all project-related data. In order to ensure that data from numerous sources and coordinate systems is aligned, on-the-fly transformation to WGS1984 Web Mercator Auxiliary Sphere is used in the map above. For ease of reference, the grid tick marks and labels shown around the border of the map are presented in GDA2020, using the relevant MGA zone.

Drawn by: File: C:\OneDrive\myFolder\Niche\GIS - APRA - APPX\60300\63686_Dendrobium\Longwall 19A_NSW\Pro\63686_Dendrobium\Longwall 19A_NSW.aprx, Last updated: 29/04/2024 10:56:41M



1.2 Previous subsidence monitoring results Dendrobium Area 3 summary

As part of ICHPL management of Dendrobium Area 3A, previous EoP reports have been produced for Area 3A, Longwall 6 - Longwall 8 (Comur Consulting Pty Ltd, 2011, 2012 and Biosis Pty Ltd, 2011), and Area 3B, Longwall 9 - Longwall 18 (Biosis Pty Ltd 2016, BHP Billiton 2015 and Niche 2014, 2017, 2018, 2019, 2020, 2021b, 2022a, 2022b, Niche 2023) and Longwall 19 (Niche 2023a) and Longwall 21 (Regal Heritage, 2023). Collectively, these reports provide subsidence monitoring results for 36 Aboriginal cultural heritage sites (Annex 1). The 36 previously monitored sites include 5 sites within the Longwall 19A area that have been previously monitored as part of the Longwall 19 monitoring programs. There are 2 sites within the Longwall 19A area that have not been previously monitored:

- Sandy Creek Road 20 (AHIMS ID#52-5-0272).
- Browns Road Site 30 (AHIMS ID#52-2-1644).

Including the results of this End of Panel report, there have now been a total of 38 Aboriginal cultural heritage sites monitored in the Dendrobium Mine area. Annex 2 provides an overview of Aboriginal cultural heritage sites over Dendrobium Area 3.

The following are the AHIMS sites monitored for Dendrobium Mine that have been adversely impacted by mine subsidence (two of these sites are within the Longwall 19A study area):

- Sandy Creek Road 21 (AHIMS ID#52-5-0273) (in Longwall 19A study area)
- DM 15 (AHIMS ID#52-2-3639) (in Longwall 19A study area)
- Sandy Creek Road 25 (AHIMS ID#52-2-0277)
- Browns Road Site 11 (AHIMS ID#52-2-1626)
- DM 21 (AHIMS ID#52-2-3645)
- Dendrobium 1 (AHIMS ID#52-2-2208)
- Site 1-DB1 (AHIMS ID#52-2-2229)

This results in a cumulative impact of 18.4% of monitored sites having impacts due to subsidence in the Dendrobium Mine area, and one site, DM 15 (AHIMS ID#52-2-3639) or 2.6% of sites having indirect impacts to art and associated adverse impacts to cultural heritage values. This Aboriginal cultural heritage sites was previously impacted by Longwall 19, as was identified by the Longwall 19 subsidence monitoring (Niche 2023a). The number of sites impacted at Dendrobium are reflective of the overall results observed in the Southern Coalfields over the last 30 years of monitoring.

1.3 Subsidence monitoring results summary

The Subsidence Predictions and Impact Assessments for Dendrobium Longwall 19A was prepared by Mine Subsidence Engineering Consultants (MSEC) (2022). This assessment includes predicted subsidence effects for Longwall 19A on natural and built features within the Study Area including Aboriginal cultural heritage sites. For this assessment, the MSEC predictions (MSEC 2022) are referred to in order to address any potential impacts at the sites.



Specifically, in relation to matters that may affect Aboriginal cultural heritage values, MSEC (2022) (Section 6.4.2 Aboriginal heritage sites) provides maximum predicted total vertical subsidence, tilt and curvature for the archaeological sites resulting from the extraction of the proposed longwalls (MSEC 2022). MSEC (2022) assessed the potential for adverse impacts to rock shelters DM 15 (AHIMS ID#52-2-3639), DM 20 (52-2-3644) and Sandy Creek Road 21 (AHIMS ID#52-5-0273) as unlikely, however possible that at least one of these sites could experience fracturing that could potentially cause spalling or rock falls. However, it is important to note that subsidence movements do not always result in changes at the ground surface, and hence potential impacts to heritage sites. The predictions are outlined in Table 1.

Table 1 Maximum predicted subsidence movements for the 7 AHIMS sites relevant to Longwall 19A.

Site name	AHIMS ID	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)
Browns Road 30	52-2-1644	< 20	< 0.5	< 0.01	< 0.01
Browns Road 31	52-2-1645	< 20	< 0.5	< 0.01	< 0.01
Browns Road 32	52-2-1646	< 20	< 0.5	< 0.01	< 0.01
Sandy Creek Road 20	52-5-0272	< 20	< 0.5	< 0.01	< 0.01
Sandy Creek Road 21	52-5-0273	1400	10	0.35	0.06
DM15	52-2-3639	2350	30	0.05	0.65
DM20	52-2-3644	1450	5.5	0.15	0.09



Figure 3 Map of AHIMS sites located within the Longwall 19A Study Area (Source: ICHPL and AHIMS)

This information has been redacted
For more information please contact GM3.



02 Site inspection and results

2.1 Sites inspected

The 7 Aboriginal cultural heritage sites addressed in this assessment are listed in Table 2 below and shown in Figure 3. The site inspections and results are in compliance with the recommended requirements of the ACHMP (Niche; 2023).

The site inspection was carried out on 29 August 2024, 17 September 2024 and 24 September 2024 by Lauren Roach (Niche Heritage Consultant), Olivier Rochecouste (Niche Heritage Consultant) and Isabel Parnell (Niche Heritage Consultant), Mark Pietruszewski (South Coast People Native Title Claimants / NTS Corp), Rodney Lawson (Cubbitch Barta), Kayla Williamson (Woronora Plateau Gundungara Elders Council), James Davis (Wodi Wodi Traditional Owner), Amada Bell (Didge Ngunawal Clan), Jamie Maher (A&K Cultural Heritage), and Michelle Taylor (Muragadi Heritage Indigenous Corporation). A summary of the findings of the site visit are outlined in Sections 2.1.1 and 2.1.2.

Table 2 Aboriginal cultural heritage sites addressed as part of this assessment

Site name	AHIMS ID	Site type	Date surveyed
Browns Road 30	52-2-1644	Shelter with art	24 September 2024
Browns Road 31	52-2-1645	Shelter with art	24 September 2024
Browns Road 32	52-2-1646	Shelter with art	17 September 2024
Sandy Creek Road 20	52-5-0272	Shelter with art	24 September 2024
Sandy Creek Road 21	52-5-0273	Shelter with art and deposit	29 August 2024
DM15	52-2-3639	Shelter with art	29 August 2024
DM20	52-2-3644	Shelter with art and PAD	29 August 2024



2.1.1 Sites with impact observed

One of the 7 sites inspected as part of the Longwall 19A EoP assessment demonstrated changes due to subsidence movements. The details for this site are included in Section 2.1.1.1.

2.1.1.1 Sandy Creek Road 21 (AHIMS ID#52-5-0273)

For ease of reference the monitoring observations at Sandy Creek Road 21 are set out chronologically below.

April 2023

During the field inspection of the Longwall 19 EoP undertaken on 26 April 2023 it was observed that Sandy Creek Road 21 had separation of pre-existing horizontal bedding planes and fractures along the inner lower lip and lower back wall of the shelter. This was observed in comparison to the baseline recording of site Sandy Creek Road 21 that was undertaken in October 2020. The separation measured approximately 10 m in length and 1 mm to 20 mm in width, stretching from the southern end of the shelter and terminating 30 cm below Art Panel 2. However, no direct impacts to the art within the shelter was observed (the changes were not overlapping with any art panels, or art). An area of fresh spalling was identified, with the separated spall measuring approximately 40 cm x 20 cm, at the northern end of the horizontal strata separation. The shelter was observed to have remained dry (Niche 2023). The observed changes triggered Level 2 TARP actions to be implemented under the Longwall 19 ACHMP.

February 2024

As per the Longwall 19 ACHMP, further monitoring was recommended at six-monthly intervals from the completion of Longwall 19. The second round of monitoring field inspection of Sandy Creek Road 21 was undertaken on 5 February 2024. At the time of monitoring round 2, extraction of Longwall 19A had commenced and progressed approximately 215 m. The previously identified separation of horizontal bedding planes and fracturing along the inner lower lip and lower back wall of the shelter were observed, noting the separation had not increased. No direct impacts to the art within the shelter was observed and the shelter remained dry.

March 2024

An inspection undertaken on 26 March 2024, showed that new changes were present at Sandy Creek Road 21, including additional fracturing, spalling and associated rock fall. These additional changes were associated with areas of the rock shelter where there was previous impacts and did not directly impact the art at the site (IMC 2024)(Plate 13 and Plate 14).

25 July 2024

An inspection was undertaken on 25 July 2024 with Niche representatives, RAPs, ICHPL representatives and WaterNSW representatives to observe the changes and subsidence impacts which had occurred at Sandy Creek Road 21, including additional fracturing, spalling and associated rockfall noted in March 2024. The discussions from this inspection are summarised in Table 3 of this report.



29 August 2024

A subsequent inspection was undertaken on 29 August 2024 as part of the Longwall 19 12-month monitoring and the Longwall 19A EoP covered within this report, during which monitoring photos were taken of the identified monitoring points and the subsidence changes observed since March 2024. The photos are displayed in the table below.

The results of the monitoring inspection completed on 29 August 2024 for Sandy Creek Road 21 (AHIMS ID#52-5-0273) are detailed in Table 3 below, and the monitoring photographs and comparison images for the site are shown in Table 4 (Plate 1 to Plate 16).

Table 3 Results of Sandy Creek Road 21 (AHIMS ID# 52-5-0273) monitoring inspection

AHIMS number	Site name	Results of monitoring inspection
52-5-0273	Sandy Creek Road 21	<p>This shelter with art and deposit was baseline recorded prior to mining by Niche in 2020 during the Longwall 19 ACHA (Niche; 2021) and again by Niche (2023a) for the Longwall 19 EoP assessment (Niche; 2023a). Sandy Creek Road 21 (AHIMS ID#52-5-0273) was inspected on 29 August 2024, and the following new impacts to the site were observed:</p> <ul style="list-style-type: none"> - Block fall off the rear wall towards the northern end of the shelter. However, no direct impacts to the art itself were observed. - No direct impacts to the art within this shelter were observed. <p>Although these types of impacts can occur naturally in sandstone overhangs, the further changes (since March 2024) observed at Sandy Creek Road 21 (AHIMS ID#52-5-0273) were attributed to mining subsidence as a result of the extraction of Longwall 19A. This is supported by the MSEC subsidence predictions for Sandy Creek Road 21 (AHIMS ID#52-5-0273), and the occurrence of the changes during the active subsidence period associated with Longwall 19A at this location (2022; see Table 1 for details).</p> <p>It must also be noted that Sandy Creek Road 21 (AHIMS ID#52-5-0273) had been previously impacted by subsidence from Longwall 19, as documented in the Niche (2023a) report.</p>



Table 4: Results of Sandy Creek Road 21 (AHIMS ID#52-5-0273) monitoring inspection photograph comparison

Longwall 19A EoP monitoring images	Longwall 19 6-month monitoring images
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This information has been redacted
For more information please contact GM3.

Plate 1 Photo of old blockfall within Sandy Creek Road 21 (AHIMS ID# 52-5-0273) looking northeast. Photo taken on 29 August 2024.

Plate 2 Photo of old blockfall within Sandy Creek Road 21 (AHIMS ID# 52-5-0273) looking northeast. Photo taken on 5 February 2024.

This information has been redacted
For more information please contact GM3.

Plate 3 Photo of Sandy Creek Road 21 (AHIMS ID# 52-5-0273), Art Panel 1, Motif 1 located within the southern half of the shelter. Photo taken on 29 August 2024.

Plate 4 Photo of Sandy Creek Road 21 (AHIMS ID# 52-5-0273), Art Panel 1, Motif 1 located within the southern half of the shelter. Photo taken 5 February 2024.



Longwall 19A EoP monitoring images

Longwall 19 6-month monitoring images

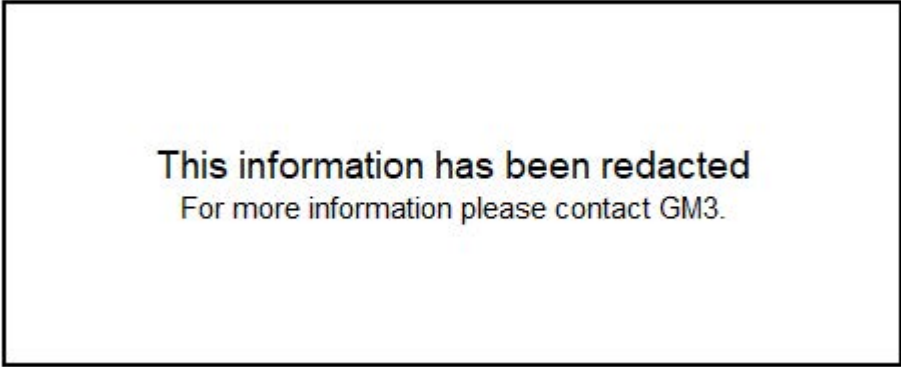


Plate 5 Photo of Sandy Creek Road 21 (AHIMS ID# 52-5-0273), Art Panel 1 Motif 2 located within the southern half of the shelter. Photo taken on 29 August 2024.

Plate 6 Photo of Sandy Creek Road 21 (AHIMS ID# 52-5-0273), Art Panel 1 Motif 2 located within the southern half of the shelter. Photo taken 5 February 2024.

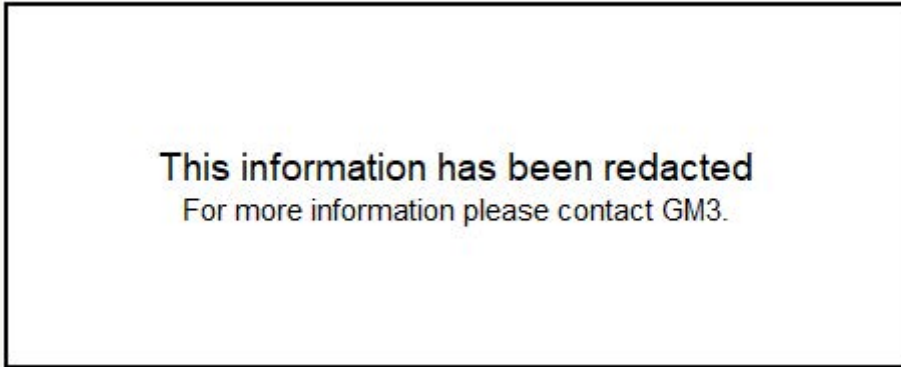


Plate 7 Photo of Sandy Creek Road 21 (AHIMS ID# 52-5-0273) Art Panel 1, Motif 3 located within the southern half of the shelter. Photo taken on 29 August 2024.

Plate 8 Photo of Sandy Creek Road 21 (AHIMS ID# 52-5-0273) Art Panel 1, Motif 3 located within the southern half of the shelter. Photo taken 5 February 2024.



Longwall 19A EoP monitoring images

Longwall 19 6-month monitoring images

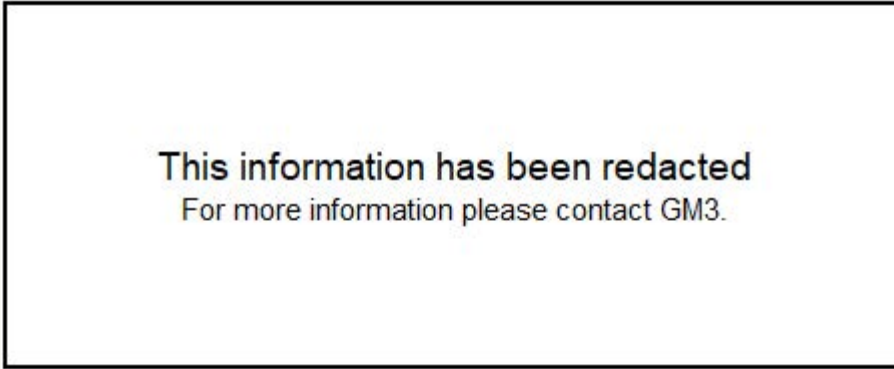


Plate 9 Photo of Sandy Creek Road 21 (AHIMS ID# 52-5-0273) Art Panel 2, Motif 2 located at the north of the shelter. Photo taken on 29 August 2024.

Plate 10 Photo of Sandy Creek Road 21 (AHIMS ID# 52-5-0273) Art Panel 2, Motif 2 located at the north of the shelter. Photo taken on 26 April 2023 .

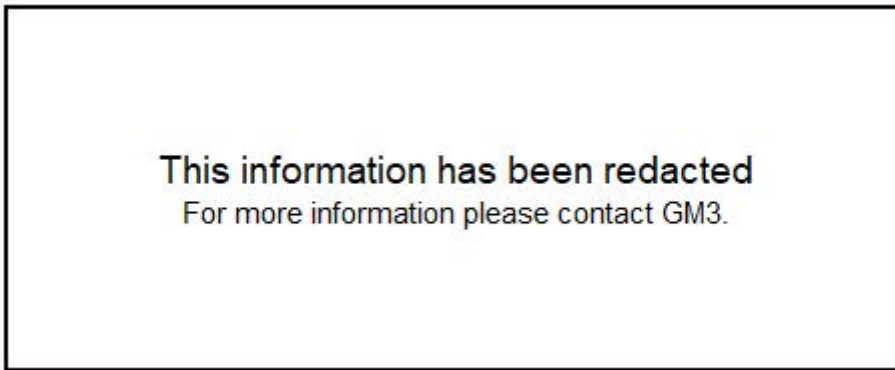


Plate 11 Photo of five of the seven artefacts located at Sandy Creek Road 21 (AHIMS ID# 52-5-0273). Photo taken on 29 August 2024.

Plate 12 Photo of five of the seven artefacts located at Sandy Creek Road 21 (AHIMS ID# 52-5-0273). Photo taken on 5 February 2024.



Longwall 19A EoP monitoring images

Longwall 19 6-month monitoring images

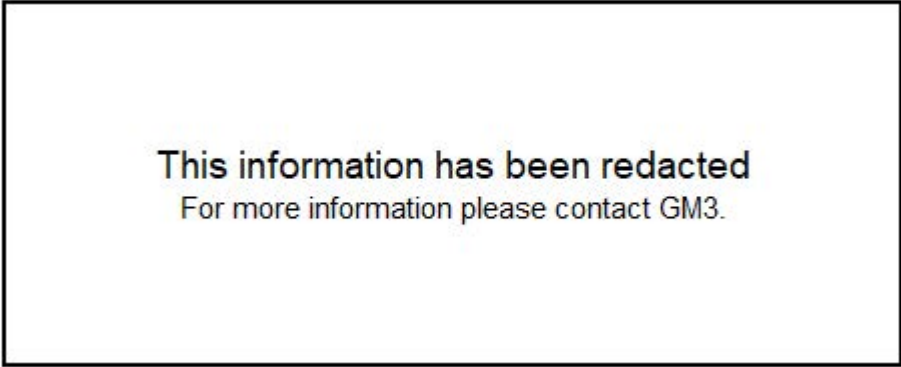


Plate 13 General photo of Sandy Creek Road 21 (AHIMS ID# 52-5-0273) facing southeast showing horizontal cracking and additional (first observed 26 March 2024) spalling resulting in block fall off the rear wall towards the northern end. Photo taken on 29 August 2024.

Plate 14 General photo of Sandy Creek Road 21 (AHIMS ID# 52-5-0273) facing southeast showing horizontal cracking and strata separation along the rear wall of the shelter.. Photo taken on 5 February 2024.

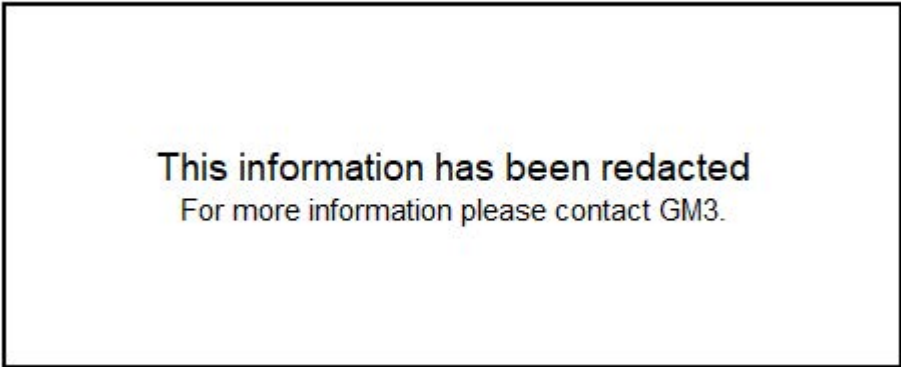


Plate 15 Photo of Sandy Creek Road 21 (AHIMS ID# 52-5-0273), showing horizontal cracking, strata separation and spalling along the back interior lip of the shelter, and the area of spalling. Photo taken on 29 August 2024 and confirming no changes since 5 February 2024 and April 2023.

Plate 16 Photo of Sandy Creek Road 21 (AHIMS ID# 52-5-0273), showing horizontal cracking, strata separation and spalling along the back interior lip of the shelter, which was first documented April 2023. Photo taken on 5 February 2024.



2.1.2 Sites with no impacts observed

The remaining 6 Aboriginal cultural heritage sites (Browns Road 30 [AHIMS ID# 52-2-1644], Browns Road 31 [AHIMS ID# 52-2-1645], Browns Road 32 [AHIMS ID# 52-2-1646], Sandy Creek Road 20 [AHIMS ID# 52-5-0272], DM15 [AHIMS ID# 52-2-3639]; and DM20 [AHIMS ID# 52-2-3644]) inspected as part of the Longwall 19A EoP assessment showed no signs of subsidence changes from Longwall 19A (note that DM15 was impacted by Longwall 19). The details for these sites are below.

2.1.2.1 DM15 (AHIMS ID# 52-2-3639)

This shelter with art is situated on the first ridgeline above WC14, a tributary of Wongawilli Creek. The small sandstone shelter is located in a discontinuous sandstone outcrop and has been formed by cavernous weathering. The shelter faces south within open woodland vegetation. The overhang measures 6.5 x 1.5 x 1.9 m, and the limited floor area measures 2 x 2 m. The overhang is approximately 150 m west of Wongawilli Creek, located within the broader landform of the eastern slope of Wongawilli Creek.

The art comprises a single outline with an infill charcoal male anthropomorphic (or possibly bat) figure measuring 30 x 50 cm, which is situated on a small panel towards the eastern end of the shelter. The art has been well preserved by case hardening (thin silica skin).

DM 15 (AHIMS ID# 52-2-3639) was recorded as a part of survey works conducted by Biosis in 2007 and re-recorded by Niche in 2020 for the Longwall 19 ACHA (report dated 2021) for the purpose of updating site cards and data relevant to the ACHMP and again by Niche 2023a for the Longwall 19 EoP assessment (report dated 2023a). The site was assessed as being of low scientific (archaeological) value and high cultural value.

It should be noted that while no further changes resulting from subsidence movements associated with Longwall 19A works were observed, changes to DM 15 (AHIMS ID# 52-23639) were previously recorded as part of the Longwall 19 monitoring and consisted of vertical and horizontal cracking through Art Panel 1, water seepage, spalling and exfoliation and minor block fall.

The results of the monitoring inspection completed on 29 August 2024 for DM 15 (AHIMS ID# 52-2-3639) are detailed in Table 5. Table 6 shows monitoring photographs and comparison images for the site (Plate 17 to Plate 26).

Table 5 Results of DM 15 (AHIMS ID# 52-2-3639) monitoring inspection

AHIMS number	Site name	Results of monitoring inspection
52-2-3639	DM 15	This shelter with art was baseline recorded by Niche in 2020 during the Longwall 19 ACHA (report dated 2021) and again by Niche in November 2023 for the Longwall 19A baseline report (Niche 2024c). DM 15 (AHIMS ID#



AHIMS number	Site name	Results of monitoring inspection
		<p>52-2-3639) was inspected on 29 August 2024, and no additional impacts were observed.</p> <p>However, it should be noted that while no further changes due to subsidence movements were associated with Longwall 19A, DM15 (AHIMS ID# 52-2-3639) had been previously impacted by subsidence movements associated with Longwall 19.</p>

Table 6 Results of DM 15 (AHIMS ID# 52-2-3639) monitoring inspection photograph comparison

Longwall 19A EoP monitoring images	Longwall 19 6-month monitoring images
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This information has been redacted
 For more information please contact GM3.

Plate 17 General photo of DM 15 (52-2-3639) looking northwest. Photo taken on 29 August 2023a.

Plate 18 Comparison general photo of DM 15 (52-2-3639) looking northwest. Photo taken on 5 February 2024.



Longwall 19A EoP monitoring images

Longwall 19 6-month monitoring images

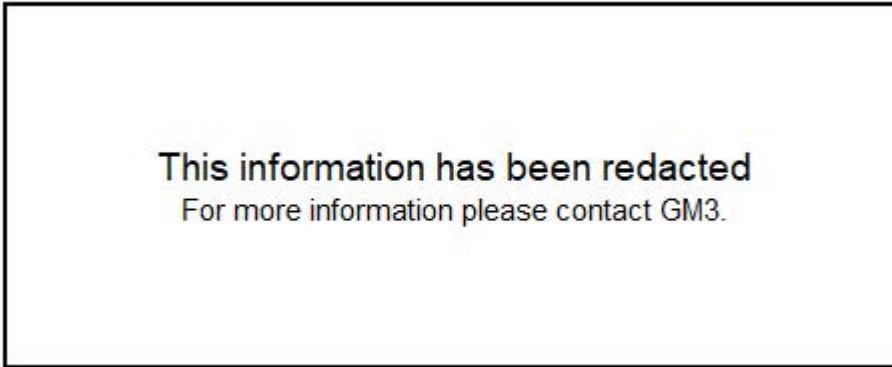


Plate 19 General photo of DM 15 (52-2-3639) looking northwest. Photo taken on 29 August 2024.

Plate 20 Comparison general photo of DM 15 (52-2-3639) looking northwest. Photo taken on 5 February 2024.

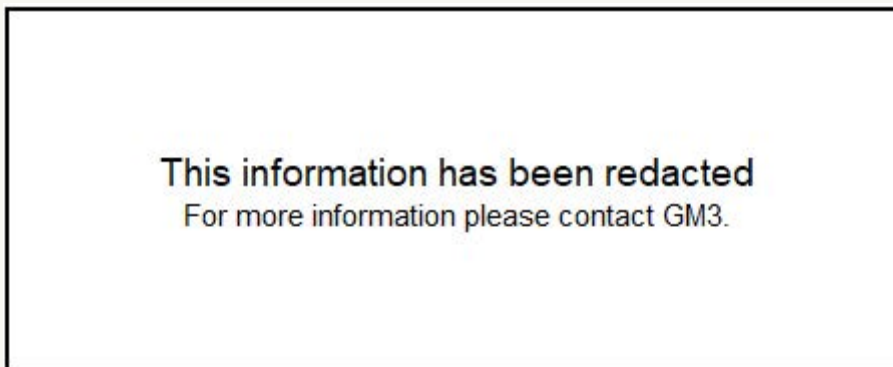


Plate 21 Photo of DM 15 (52-2-3639) Art Panel 1 Motif 1, showing the extension of horizontal crack at the base of the fine vertical crack across the lower right area of the art, and no change in previous water seepage. Photo taken on 29 August 2024.

Plate 22 Photo of DM 15 (52-2-3639) Art Panel 1 Motif 1, showing previous fine vertical crack across the lower right area of the art, and increased water seepage. Photo taken on 5 February 2024.



Longwall 19A EoP monitoring images

Longwall 19 6-month monitoring images

This information has been redacted
For more information please contact GM3.

Plate 23 Photo of DM 15 (52-2-3639), displaying no further change to spalling and water seepage noted in the 2023a assessment. Photo taken on 29 August 2024.

Plate 24 Photo of DM 15 (52-2-3639), displaying areas of previous spalling and water seepage. Photo taken on 5 February 2024.

This information has been redacted
For more information please contact GM3.

Plate 25 Photo of DM 15 (52-2-3639) showing no further change to minor block fall observed below the eastern lip of the shelter from the 2023a assessment. Photo taken on 29 August 2024.

Plate 26 Photo of DM 15 (52-2-3639) showing previous minor block fall observed below the eastern lip of the shelter. Photo taken 16 April 2023..



2.1.2.2 DM20 (AHIMS ID# 52-2-3644)

This shelter with art and PAD is situated on the mid slopes of a moderate ridgeline 300 m east of Fire Trail 6F. The small sandstone overhang has been formed by block fall and cavernous weathering and is situated in a small continuous cliff line. The shelter faces north towards Sandy Creek tributary SC10C and comprises a small flat ground area approximately 3 x 2 m in size.

DM 20 (AHIMS ID#52-2-3644) was originally recorded by Biosis Research in 2007 for the Dendrobium Area 3 ACHA and was recorded by Niche in 2020 for the Longwall 19 ACHA (report dated 2021) for the purpose of updating site cards and data relevant to the ACHMP and again by Niche 2023a for the Longwall 19 EoP assessment (report dated 2023a). The art identified comprises a charcoal outline and infill indeterminate motifs across the rear wall of the small cavern. One partial anthropomorphic figure is located on the edge of the cavern area. The three indeterminate motifs were hardly distinguishable due to excessive natural water seepage, mineral leeching and micro-vegetal growth affecting the art. The small, cavernous internal area of the shelter has previously been recorded as experiencing continuous weathering resulting in exfoliation prior to mining.

The results of the monitoring inspection completed on 29 August 2024 for DM 20 (AHIMS ID#52-2-3644) are detailed in Table 7 below, and the monitoring photographs and comparison images for the site are shown in Table 8 (Plate 27 to Plate 33).

Table 7 Results of DM 20 (AHIMS ID# 52-2-3644) monitoring inspection

AHIMS number	Site name	Results of monitoring inspection
52-2-3644	DM 20	<p>This shelter with art and PAD was baseline recorded by Niche in 2020 during the Longwall 19 ACHA (report dated 2021) and again by Niche 2023a for the Longwall 19 EoP assessment (report dated 2023a). During the recent monitoring of the site on 29 August 2024, no changes to the site were observed.</p> <p>The shelter has a mostly dry interior, with gradual granular loss, exfoliation, insect activity (spider webs and wasps nests) and microvegetation observed in its interior. The art panels remain difficult to distinguish due to patches of water seepage and accompanying mineral leeching and micro-vegetal growth obscuring them.</p>



Table 8 Results of DM 20 (AHIMS ID# 52-2-3644) monitoring inspection photograph comparison

Longwall 19A EoP monitoring images	Longwall 19 6-month monitoring images
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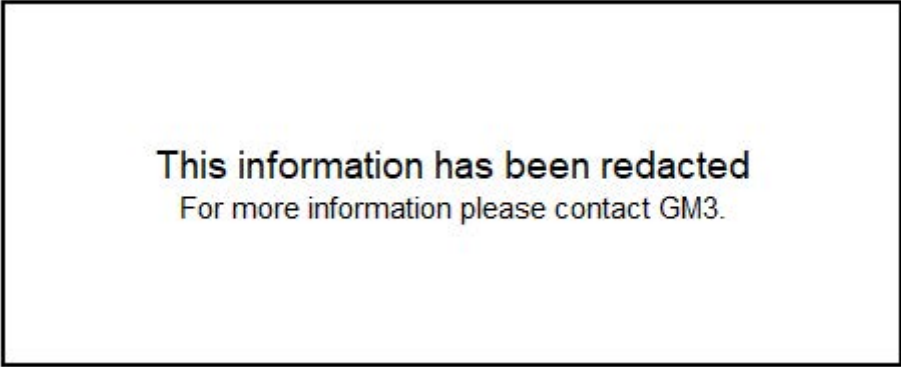


Plate 27 General photograph of DM 20 (AHIMS ID#52-2-3644) facing southeast. Photo taken on 29 August 2024.

Plate 28 General photograph of DM 20 (AHIMS ID#52-2-3644) facing southwest. Photo taken on 13 February 2024

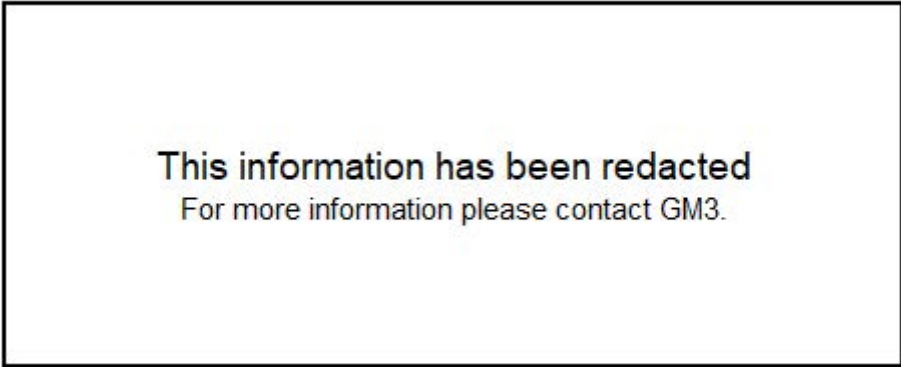


Plate 29 General photo of DM 15 (52-2-3639) looking northwest. Photo taken on 29 August 2024.

Plate 30 Comparison general photo of DM 15 (52-2-3639) looking northwest. Photo taken on 13 February 2024.



Longwall 19A EoP monitoring images

Longwall 19 6-month monitoring images

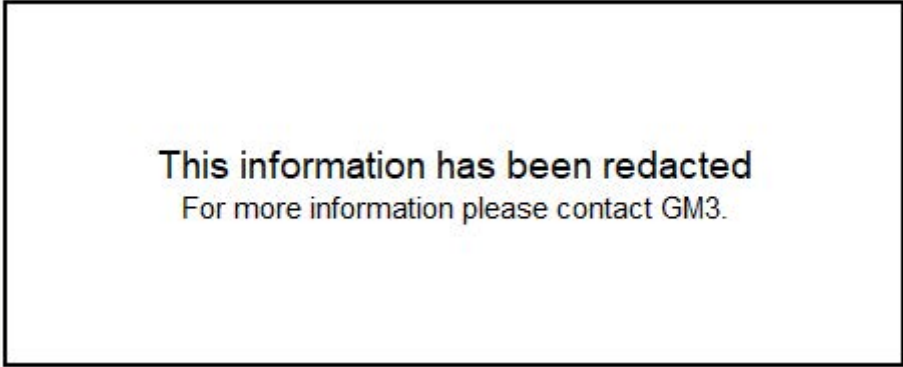


Plate 31 General photo of DM 20 (AHIMS ID#52-2-3644), Art Panel 2. Photo taken on 29 August 2024.

Plate 32 General photo of DM 20 (AHIMS ID#52-2-3644), Art Panel 2. Photo taken on 13 February 2024.

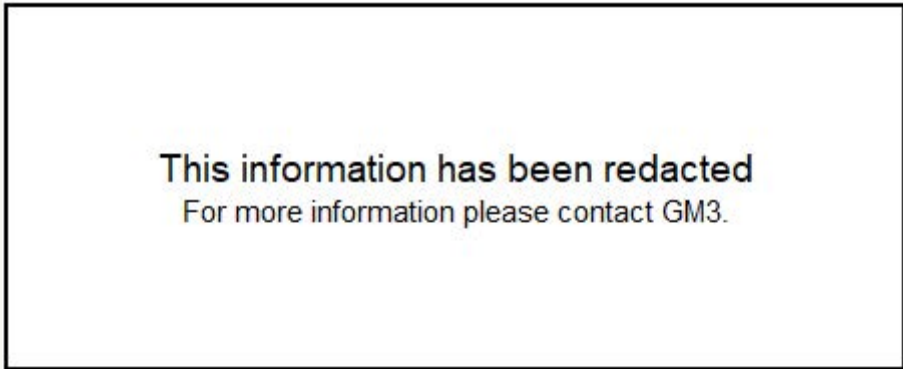


Plate 33 Wasps nest within shelter DM 20 (AHIMS ID#52-2-3644), Art Panel 2. Photo taken on 29 August 2024.



2.1.2.3 Browns Road Site 30 (AHIMS ID #52-2-1644)

This shelter with art and deposit is located approximately 200 m from Fire Road 6F. The site is located along a continuous ridgeline. The sandstone overhang living area measures 11 x 2.7 m. The site was formed by block fall and cavernous weathering. The floor deposit is yellow-orange loamy sand up to 5 cm in depth although the floor area.

The site was recorded originally by the Illawarra Prehistory Group in 1991. A total of one art motif was identified within the shelter, being one charcoal indeterminate motif on the rear wall.

During the inspection for this assessment, four new artefacts were identified including one claystone complete flake, two quartz artefacts and one mottled claystone angular fragment.

The results of the monitoring inspection completed on 24 September 2024 for Browns Road Site 30 (AHIMS ID #52-2-1644) are detailed in Table 9 below, and the monitoring photographs and comparison images for the site are shown in



Table 10 (Plate 34 to Plate 40).

Table 9 Results of Browns Road Site 30 (AHIMS ID #52-2-1644) monitoring inspection

AHIMS number	Site name	Results of monitoring inspection
52-2-1644	Browns Road Site 30	<p>This shelter with art and deposit and artefacts was originally recorded by Illawarra Prehistory Group in 1991 and then again by Niche (2023b) for the Longwall 19A Dendrobium Area 3A ACHA and AR assessment (report dated 2023a). During the recent monitoring of the site on 24 September 2024, no change to the site was observed. However, four new artefacts were recorded.</p> <p>The shelter has a mostly dry interior, with gradual granular loss, exfoliation, insect activity (spider webs and wasps nests) and microvegetation observed in its interior. The art panels remain difficult to distinguish due to patches of water seepage and accompanying mineral leaching and micro-vegetal growth obscuring them.</p>



Table 10 Results of Browns Road Site 30 (AHIMS ID #52-2-1644) monitoring inspection photograph comparison

Longwall 19A EoP monitoring image	Previous image (2023)
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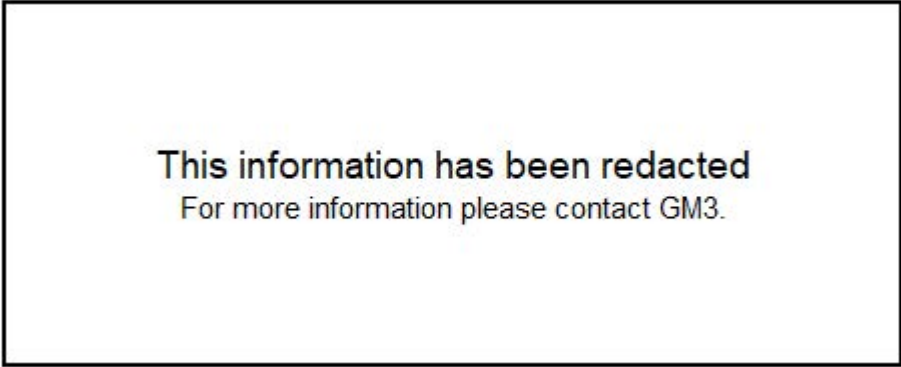


Plate 34 General photograph of Browns Road Site 30 (AHIMS ID# 52-2-1644) facing north. Photo taken on 24 September 2024.

Plate 35 General photograph of Browns Road Site 30 (AHIMS ID# 52-2-1644) facing north. Photo taken 10 February 2023.

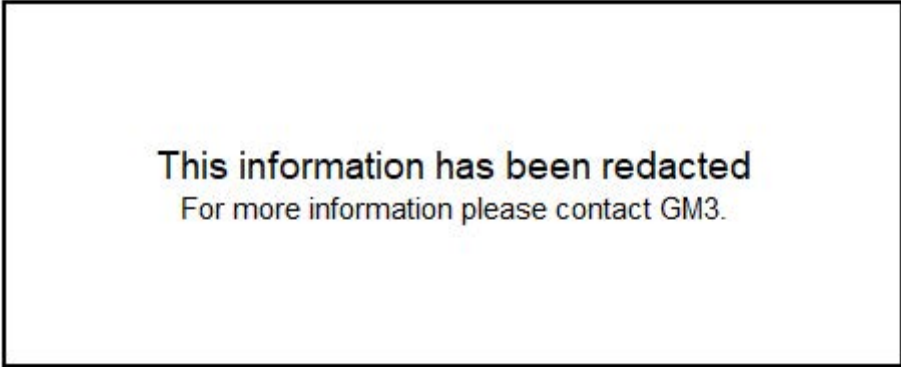


Plate 36 General photograph of Browns Road Site 30 (AHIMS ID#52-2-1644) facing south. Photo taken on 24 September 2024.

Plate 37 General photograph of Browns Road Site 30 (AHIMS ID#52-2-1644) facing south. Photo taken 10 February 2023



Longwall 19A EoP monitoring image

Previous image (2023)

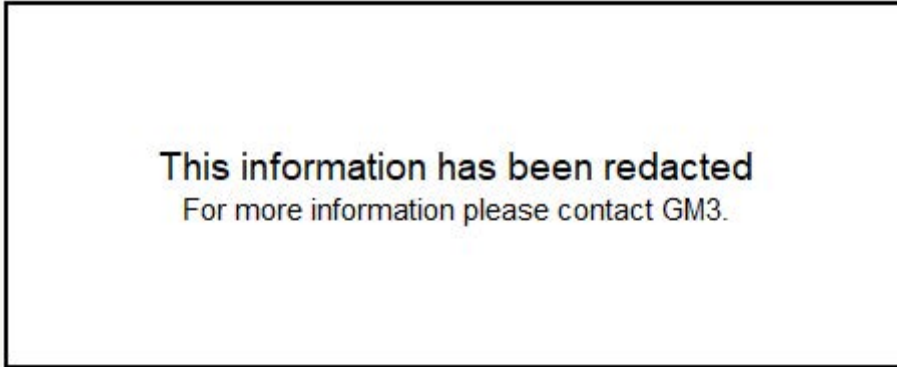


Plate 38 General photograph of the charcoal indeterminate motif at Browns Road Site 30 (AHIMS ID#52-2-1644). Photo taken on 24 September 2024.

Plate 39 General photograph of the charcoal indeterminate motif at Browns Road Site 30 (AHIMS ID#52-2-1644). Photo taken 10 February 2023

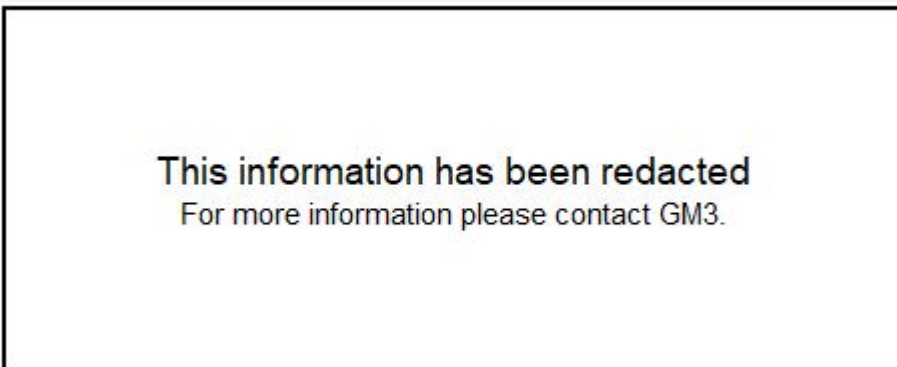


Plate 40 Photo of newly identified artefacts at Browns Road Site 30 (AHIMS ID#52-2-1644). Photo taken on 24 September 2024.

2.1.2.4 Browns Road Site 31 (AHIMS ID# 52-2-1645)

This shelter with art is located under the second ridgeline up from the eastern tributary (WC13) to Wongawilli Creek on the northern side, and approximately 150 m up from the junction of two smaller drainage lines. The sandstone overhang measures 20 m wide, 2 m high, and up to 5 m deep, and was



formed through cavernous weathering and block fall in antiquity. The art in the shelter consists of one charcoal infill macropod head and one charcoal indeterminate.

This site was originally recorded by the Illawarra Prehistory Group in 1991, then was re-recorded by Biosis in 2007 as part of the Dendrobium Mine Area 3 ACHA. The site was unable to be found previously during fieldwork for the Longwall 19 ACHA (Niche 2021a) and the Longwall 19A ACHA (Niche 2022c) due to incorrect AHIMS coordinates placing it on the southern side of the WC13 valley (which also placed it outside the Longwall 19 Study Area). The site was found and identified on the northern side of the WC13 valley during the recent fieldwork on 27 April 2023 (Niche 2023a), and correct updated coordinates were recorded for the site and provided to AHIMS

The results of the monitoring inspection completed on 24 September 2024 for Browns Road Site 31 (AHIMS ID# 52-2-1645) are detailed in Table 11 below, and the monitoring photographs and comparison images for the site are shown in Table 12 (Plate 41 to Plate 50).

Table 11 Results of Browns Road Site 31 (AHIMS ID# 52-2-1645) monitoring inspection

AHIMS number	Site name	Results of monitoring inspection
52-2-1645	Browns Road Site 31	<p>This site was originally recorded by the Illawarra Prehistory Group in 1991, then was re-recorded by Biosis in 2007 as part of the Dendrobium Mine Area 3 ACHA. The site was subsequently unable to be relocated during fieldwork for the Longwall 19 ACHA (Niche 2021a) and the Longwall 19A ACHA (Niche 2022c) due to incorrect AHIMS coordinates placing it on the southern side of the WC13 valley. The site was ground-truthed on the northern side of the WC13 valley during the 2023 fieldwork, and correct updated coordinates and site details were recorded.</p> <p>During the recent monitoring of the site on 24 September 2024, no changes to the site were observed.</p>



Table 12 Results of Browns Road Site 31 (AHIMS ID# 52-2-1645) monitoring inspection photograph comparison

Longwall 19A EoP monitoring images	Longwall 19 6-month monitoring images
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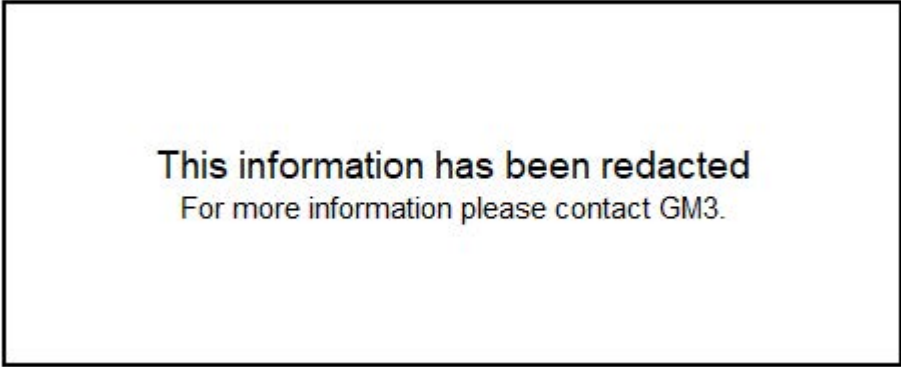


Plate 41 General photograph of Browns Road Site 31 (AHIMS ID# 52-2-1645) facing southwest. Photo taken on 24 September 2024.

Plate 42 General photograph of Browns Road Site 31 (AHIMS ID# 52-2-1645) facing southwest. Photo taken on 12 February 2024.

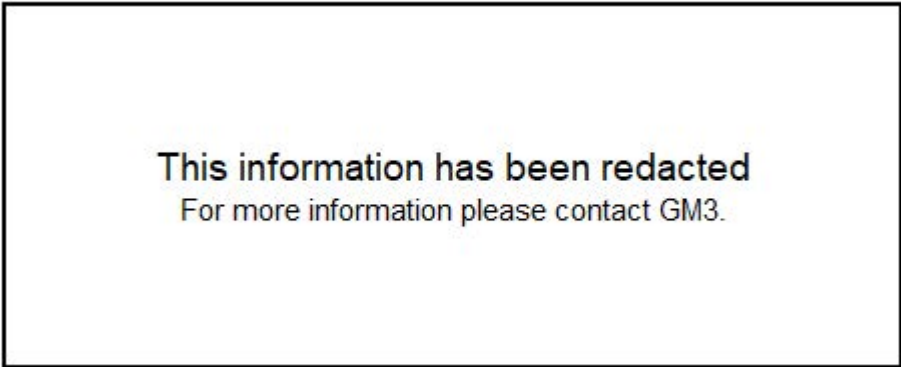


Plate 43 General photo of Browns Road Site 31 (52-2-1645) looking northwest. Photo taken on 24 September 2024.

Plate 44 Photograph of fallen art on the floor of Browns Road Site 31 (AHIMS ID# 52-2-1645). Photo taken 12 February 2024.



Longwall 19A EoP monitoring images

Longwall 19 6-month monitoring images

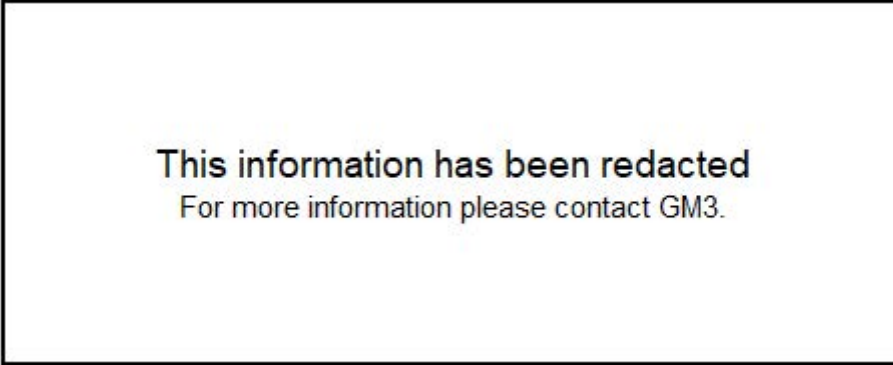


Plate 45 Photo of Browns Road Site 31 (AHIMS ID# 52-2-1645) Panel 1 Motif 1. Photo taken on 24 September 2024.

Plate 46 Photo of Browns Road Site 31 (AHIMS ID# 52-2-1645) Panel 1 Motif 1. Photo taken 12 February 2024.

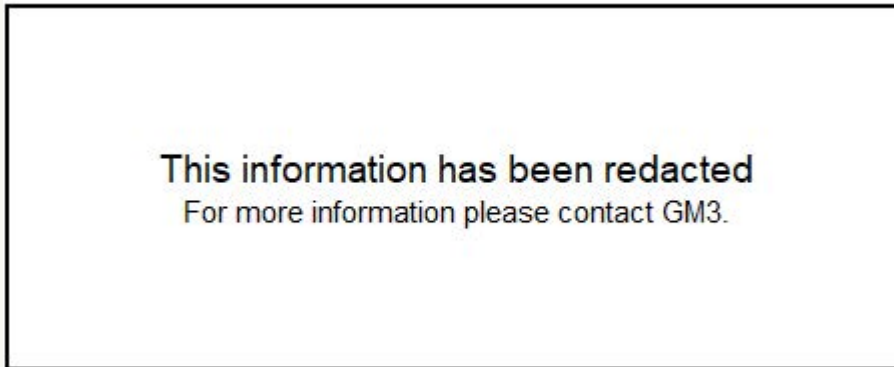


Plate 47 General photograph of the overhang at Browns Road Site 31 (AHIMS ID# 52-2-1645) facing southwest. Photo taken on 24 September 2024.

Plate 48 General photograph of the overhang at Browns Road Site 31 (AHIMS ID# 52-2-1645) facing southwest. Photo taken on 12 February 2024.



Longwall 19A EoP monitoring images

Longwall 19 6-month monitoring images

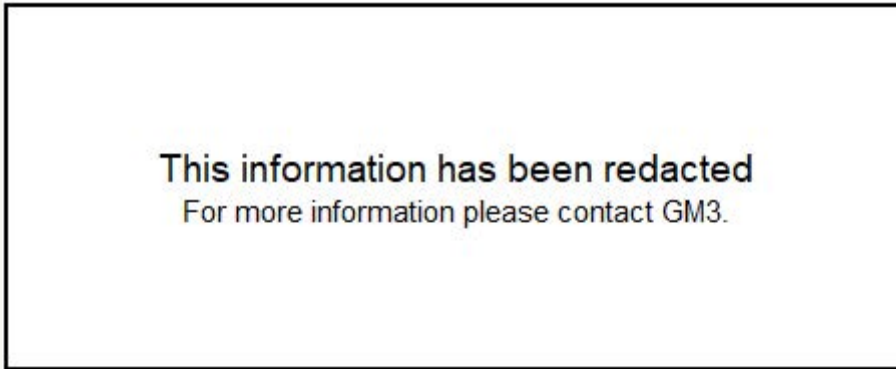


Plate 49 Photo of Browns Road Site 31 (AHIMS ID# 52-2-1645) Panel 1 Motif 2. Photo taken on 24 September 2024.

Plate 50 Photo of Browns Road Site 31 (AHIMS ID# 52-2-1645) Panel 1 Motif 2. Photo taken on 12 February 2024.

2.1.2.5 Browns Road Site 32 (AHIMS ID# 52-2-1646)

This shelter with art is located 200 m southeast of the junction of the eastern tributary (WC14) of Wongawilli Creek. The site is under the second ridgeline. The sandstone overhang living area measures 8 m x 2 m. The site was formed by block fall and cavernous weathering. The floor deposit is yellow-orange loamy sand up to 10 cm in depth, although the floor area to the north of the shelter is rocky and the deposit is less than 2 to 3 cm due to the rocky floor surface.

The art in this shelter is located on the rear wall and consists of a high density of art motifs (31) across four panels. These feature charcoal and ochre with handprints and stencils. Art Panel 2 has some overlapping motifs, with the art overall being in moderate condition. Some fading has occurred, with the art affected by natural exfoliation, and mineral leaching, with some water wash present. Active dripping from the ceiling was also observed. During the inspection for an earlier assessment in February 2024, four new artefacts were identified including two claystone cores, one quartz flake and one petrified wood flake.

This Aboriginal cultural heritage site was recorded by the Illawarra Prehistory group in 1991 during systematic surveys; in 2020, this site was reassessed by Niche as a part of the Longwall 19 ACHA and again by Niche 2023 for the Longwall 19 EoP assessment (report dated 2023a). During the 2020 assessment prior to the mining of Longwall 19 and Longwall 19A, it was noted that fissuring over the art panels was present, as well as an open bedding plane along the roof in the eastern part of the shelter.

The results of the monitoring inspection completed on 17 September 2024 for Browns Road Site 32 (AHIMS ID# 52-2-1646) are detailed in Table 13 below, and the monitoring photographs and comparison images for the site are shown in Table 14 (Plate 51 to Plate 64).



Table 13 Results of Browns Road Site 32 (AHIMS ID# 52-2-1646) monitoring inspection

AHIMS number	Site name	Results of monitoring inspection
52-2-1646	Browns Road Site 32	This shelter with art was baseline recorded by Niche in 2020 during the Longwall 19 ACHA (2021). During the recent monitoring on 17 September 2024, no impact changes to the site were observed from the Niche 2020 baseline recordings. However, it was noted that the ceiling was actively dripping the moisture content on the floor had increased and four new artefacts had been identified.

Table 14 Results of Browns Road Site 32 (AHIMS ID# 52-2-1646) monitoring inspection photograph comparison

Longwall 19A EoP monitoring images	Longwall 19 6-month monitoring images
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This information has been redacted
For more information please contact GM3.

Plate 51 General photograph of Browns Road Site 32 (AHIMS ID# 52-2-1646) facing southwest. Photo taken on 17 September 2024.

Plate 52 General photograph of Browns Road Site 32 (AHIMS ID# 52-2-1646) facing southwest. Photo taken on 12 February 2024.



Longwall 19A EoP monitoring images

Longwall 19 6-month monitoring images

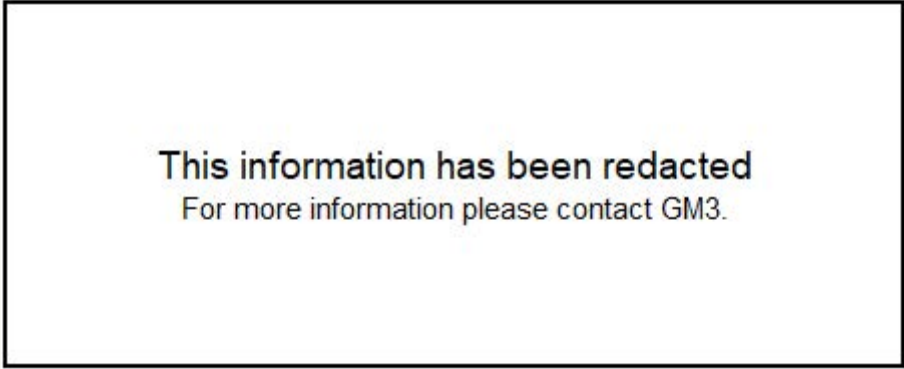


Plate 53 Photograph Browns Road Site 32 (AHIMS ID# 52-2-1646) shelter interior facing northeast. Photo taken on 17 September 2024.

Plate 54 Photograph Browns Road Site 32 (AHIMS ID# 52-2-1646) shelter interior facing northeast. Photo taken on 12 February 2024.

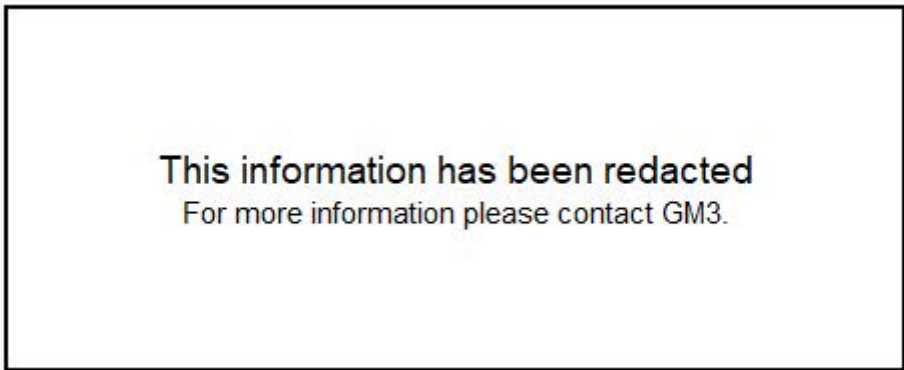


Plate 55 Photo of Browns Road Site 32 (AHIMS ID# 52-2-1646) Panel 1 Motif 1. Photo taken on 17 September 2024.

Plate 56 Photo of Browns Road Site 32 (AHIMS ID# 52-2-1646) Panel 1 Motif 1. Photo taken 12 February 2024.



Longwall 19A EoP monitoring images

Longwall 19 6-month monitoring images

This information has been redacted
For more information please contact GM3.

Plate 57 Photo of Browns Road Site 32 (AHIMS ID# 52-2-1646) Panel 2. Photo taken on 24 September 2024.

Plate 58 Photo of Browns Road Site 32 (AHIMS ID# 52-2-1646) Panel 2. Photo taken on 12 February 2024.

This information has been redacted
For more information please contact GM3.

Plate 59 Photo of Browns Road Site 32 (AHIMS ID# 52-2-1646) Panel 3 Motifs 27 and 28. Photo taken on 24 September 2024.

Plate 60 Photo of Browns Road Site 32 (AHIMS ID# 52-2-1646) Panel 3 Motifs 27 and 28. Photo taken on 12 February 2024.



Longwall 19A EoP monitoring images

Longwall 19 6-month monitoring images

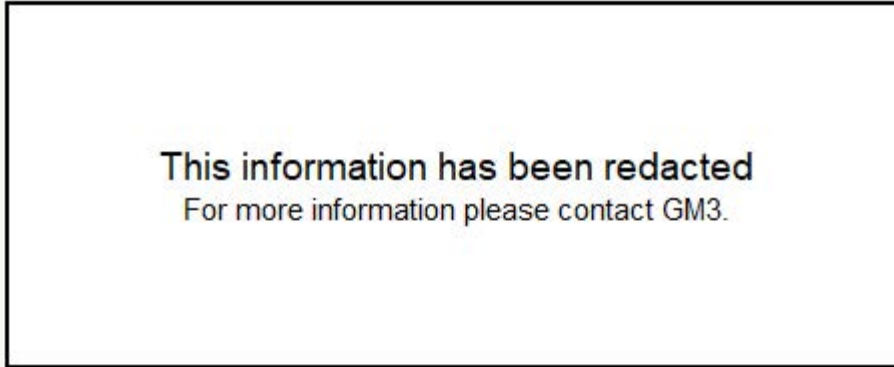


Plate 61 Photo of Browns Road Site 32 (AHIMS ID# 52-2-1646) Panel 4, Fish motifs 29 and 31. Photo taken on 24 September 2024.

Plate 62 Photo of Browns Road Site 32 (AHIMS ID# 52-2-1646) Panel 4, Fish motifs 29 and 31. Photo taken 10 February 2023

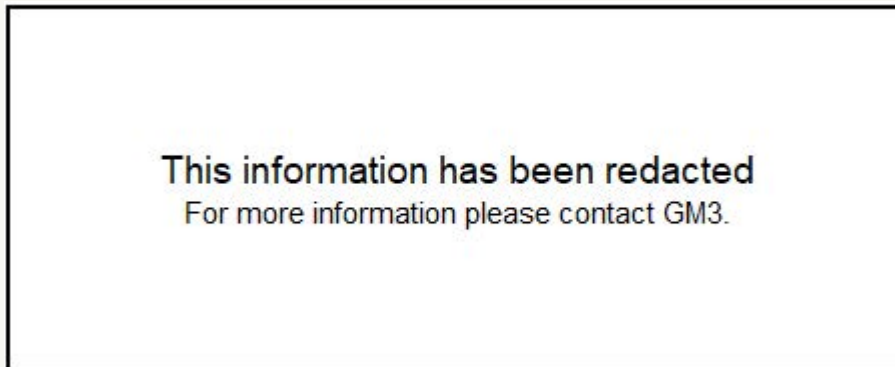


Plate 63 Photo of Browns Road Site 32 (AHIMS ID# 52-2-1646) newly identified artefacts. Photo taken on 24 September 2024.

Plate 64 Photo of artefacts at Browns Road Site 32 (AHIMS ID# 52-2-1646). Photo taken on 12 February 2024.



2.1.2.6 Sandy Creek Road 20 (AHIMS ID# 52-5-0272)

This shelter with art is located 10 m off the power easement off an unnamed access track off Fire Trail 6F. It is best accessed off this easement. The site is in an isolated overhang formed through cavernous weathering and contains three panels of art. The art comprises:

- One charcoal indeterminate on the roof of the shelter
- One red ochre outline/ infill frontal male figure holding a boomerang; and
- One red ochre indeterminate.

The shelter was last visited in 1991 by the Illawarra Prehistory Group.

The results of the monitoring inspection completed on 24 September 2024 for Sandy Creek Road 20 (AHIMS ID# 52-5-0272) are detailed in Table 15 below, and the monitoring photographs and comparison images for the site are shown in Table 16 (Plate 65 to Plate 70).

Table 15 Results of Sandy Creek Road 20 (AHIMS ID# 52-5-0272) monitoring inspection

AHIMS number	Site name	Results of monitoring inspection
52-5-0272	Sandy Creek Road 20	<p>This shelter with art was originally recorded by Illawarra Prehistory Group in 1991 and then again by Niche (2023b) for the Longwall 19A Dendrobium Area 3A ACHA and AR assessment (report dated 2023a). During the recent monitoring of the site on 24 September 2024, no changes to the site were observed.</p> <p>The shelter has a mostly dry interior, with gradual granular loss, exfoliation, insect activity (wasps nests) and microvegetation observed in its interior as well as a wombat hole towards the back of the shelter. The art panels are very faded, and the third motif is indistinguishable.</p>

Table 16 Results of Sandy Creek Road 20 (AHIMS ID# 52-5-0272) monitoring inspection photograph comparison



Longwall 19A EoP monitoring image

Previous image (2023)

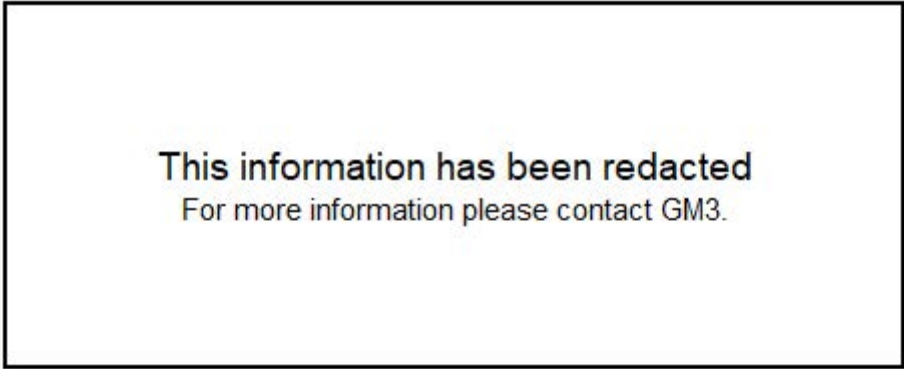


Plate 65 General photograph of Sandy Creek Road 20 (AHIMS ID# 52-5-0272) facing north. Photo taken on 24 September 2024.

Plate 66 General photograph of Sandy Creek Road 20 (AHIMS ID#52-5-0272) facing northwest. Photo taken 10 February 2023

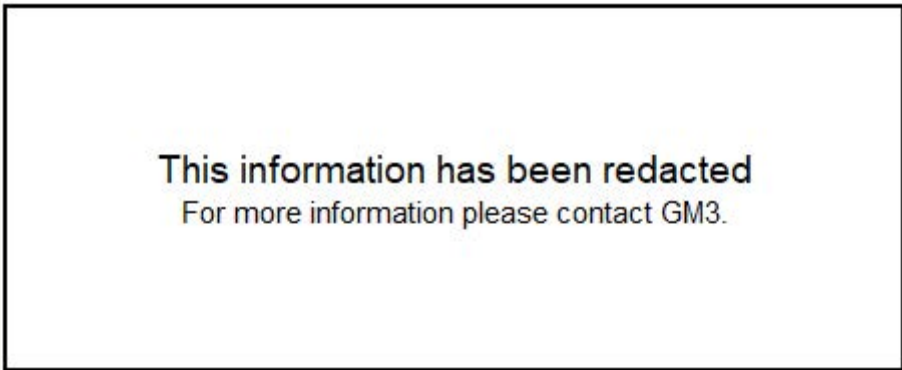


Plate 67 General photograph of Sandy Creek Road 20 (AHIMS ID#52-5-0272) facing west. Photo taken on 24 September 2024.

Plate 68 General photograph of Sandy Creek Road 20 (AHIMS ID#52-5-0272) facing west. Photo taken during 10 February 2023.



Longwall 19A EoP monitoring image

Previous image (2023)

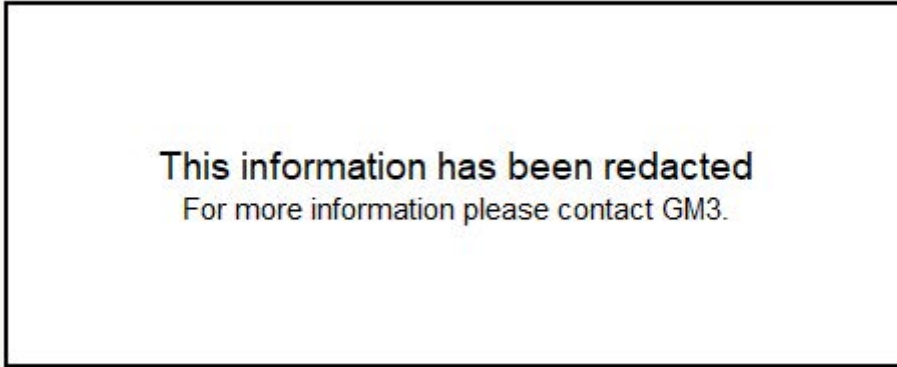


Plate 69: Motif 1, red ochre humanoid figure at Sandy Creek Road 20 (AHIMS ID# 52-5-0272). Photo taken on 24 September 2024.

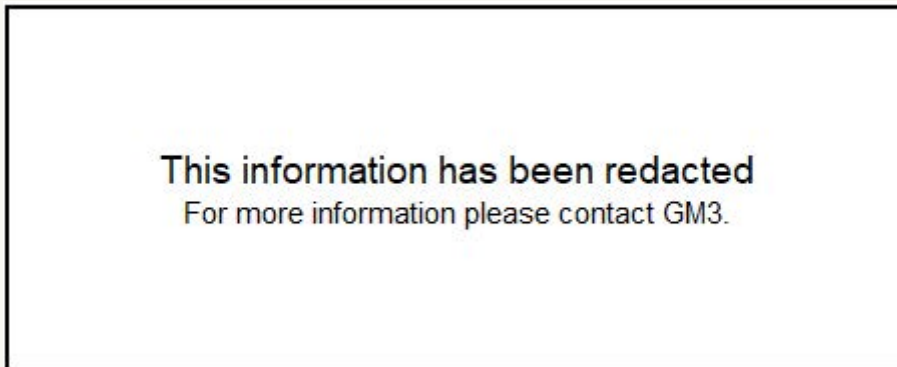


Plate 70: Motif 2, charcoal indeterminate at Sandy Creek Road 20 (AHIMS ID# 52-5-0272). Photo taken on 24 September 2024.



03 Discussion and conclusion

Seven Aboriginal cultural heritage sites (Browns Road 30 [AHIMS ID# 52-2-1644], Browns Road 31 [AHIMS ID# 52-2-1645], Browns Road 32 [AHIMS ID# 52-2-1646], Sandy Creek Road 20 [AHIMS ID# 52-5-0272], Sandy Creek Road 21 [AHIMS ID# 52-5-0273], DM15 [AHIMS ID# 52-2-3639]; and DM20 [AHIMS ID# 52-2-3644]) were visited on 29 August 2024, 17 September 2024, and 24 September 2024 for this EoP report.

It should be noted that previous impacts to DM15 (AHIMS ID# 52-2-3639) and Sandy Creek Road 21 (AHIMS ID#52-5-0273) were recorded during the Longwall 19 monitoring program (Niche 2023a).

Impacts from the extraction of Longwall 19A to one Aboriginal cultural heritage site was observed during a routine inspection of sites in March 2024:

- Sandy Creek Road 21 (AHIMS ID#52-5-0273) had spalling and resultant block fall off the rear wall towards the northern end of the shelter. No direct impacts to the art itself were observed.

Baseline recording (October 2020), 6-month (February 2024), and 12-month (August 2024) monitoring has been completed at Sandy Creek Road 21 (AHIMS ID#52-2-0273) for Longwall 19. Impacts to the site identified in April 2023 as a result of Longwall 19 mining triggered Level 2 actions from the TARP (Niche, 2023b). Actions included consultation with the RAPS, WaterNSW, HeritageNSW and the preparation of site specific management plans for the effected sites. . An inspection, undertaken in March 2024, showed that 3 new subsidence impacts to Sandy Creek Road 21 (AHIMS ID#52-2-0273) had occurred during the extraction of Longwall 19A, including additional rock fractures and associated rockfall. The newly identified fracturing, spalling and resultant block fall did not directly impact the site’s recorded artwork; however, impacts to the site identified in March 2024 triggered Level 2 actions from the TARP which have been completed (Table 17).

No additional longwall mining is proposed in the vicinity of Sandy Creek Road 21 (AHIMS ID#52-2-0273).

Table 17 Longwall 19A TARP – Aboriginal cultural heritage site monitoring

Site	Reporting Trigger	Actions
Browns Road 30 (AHIMS ID# 52-2-1644), Browns Road 31 (AHIMS ID# 52-2-1645), Browns Road 32 (AHIMS ID# 52-2-1646), Sandy Creek Road 20 (AHIMS ID# 52-5-0272), and DM20 (AHIMS ID# 52-2-3644).	Observational and photographic monitoring in consultation with stakeholders (completed by this assessment).	None.



Site	Reporting Trigger	Actions
DM15 (AHIMS ID# 52-2-3639) [in relation to Longwall 19A, Longwall 19 requires different performance measures and actions for this site]		
No sites.	<p>Level 1</p> <p>Change in shelter conditions not attributable to natural weathering or preservation; mineral growth of micro-organism growth (as observed by comparing pre-mining photographs with post-subsidence/ mining photographs).</p> <p>Changes external to the shelter that affect the site context (e.g. ground cracking, boulder slumping, rock and/or tree falls).</p>	<p>Continue monitoring program.</p> <p>Condition assessment and photographic record.</p> <p>Notify RAPs and Heritage NSW within 24 hours of any confirmed changes to the conditions of Aboriginal cultural heritage sites.</p> <p>Summarise impacts and report in the End of Panel report and Annual Review.</p>
Sandy Creek Road 21 (AHIMS ID#52-5-0273)	<p>Level 2</p> <p>Change in shelter conditions not attributable to natural weathering or preservation- change in drip line or seepage, cracking or exfoliation of overhang or shelter, movement or opening of existing planes and joints in panel, block fall within shelter or overhang, shelter or overhang collapse.</p>	<p>Actions as stated for Level 1.</p> <p>Modify monitoring program if necessary.</p> <p>Trigger the development of site management plan to mitigate effects in consultation with Registered Aboriginal Parties and Landowner (WaterNSW).</p> <p>Notify RAPs of impacts caused from mining.</p>
No sites.	<p>Level 3</p> <p>Level 2 impacts at greater frequency than predicted.</p>	<p>Actions stated for Level 2.</p> <p>Notify Heritage NSW, DPE, WaterNSW, other resource</p>



Site	Reporting Trigger	Actions
	<p>Level 2 impacts attributable to mining remote from the mining area.</p>	<p>managers and relevant technical specialists and seek advice on any CMA required.</p> <p>Site visits with stakeholders if required.</p> <p>Review the monitoring program and notify if necessary, within 1 month.</p> <p>Implement increased monitoring if required within 2 weeks.</p> <p>Develop site CMA in consultation with key stakeholders within 1 month, (pending stakeholder availability) and seek approvals.</p> <p>Completion of works following approvals.</p> <p>Issue CMA report within 1 month of work completion.</p> <p>Conduct initial follow-up monitoring and reporting within two months of CMA completion.</p> <p>Review the relevant TARP and Management Plan in consultation with key stakeholders.</p>



04 Recommendations

The recommendations resulting from this assessment are outlined in Table 18 below.

Table 18. Longwall 19A End of Panel Report Recommendations

Recommendation	Detail
1	A copy of this report is to be sent to the Registered Aboriginal Parties (RAPs), and review comments received from the RAPs should be included in Appendix 1 of this document.
2	As per the Longwall 19A ACHMP, further monitoring is to be undertaken six (6) months and twelve (12) months from the completion of Longwall 19A. This report meets the initial requirement in the Longwall 19A ACHMP for End of Panel Aboriginal Cultural Heritage Site monitoring.
3	ICHPL should continue community consultation as per the Longwall 19A ACHMP, in regard to any Aboriginal Cultural heritage sites within the Longwall 19A Study Area.
4	The AHIMS site cards for Browns Road Site 32 (AHIMS ID# 52-2-1646) and Browns Road Site 30 (AHIMS ID #52-2-1644) should be updated to detail the artefacts identified as part of the 2024 site inspection.



05 References

BHP Billiton (2015). Dendrobium Area 3B Longwall 10 End of Panel Report.

Biosis Pty Ltd (2011). Dendrobium 3A, Longwall 8 End of Panel Report (Ecology and Cultural Heritage). An unpublished report for BHP Billiton Illawarra Coal.

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Biosis Research (2007). Dendrobium Area 3 Archaeological and Cultural Heritage Assessment. An unpublished report for BHP Billiton Illawarra Coal.

Comur Consulting Pty Ltd (2011). Dendrobium Colliery Area 3A, Longwall 6 - End of Panel report for Longwall 6 at Dendrobium Colliery. An unpublished report for BHP Billiton Illawarra Coal.

Comur Consulting Pty Ltd (2012). Dendrobium Colliery Area 3A, Longwall 7 - End of Panel report for Longwall 7 at Dendrobium Colliery. An unpublished report for BHP Billiton Illawarra Coal.

MSEC (2022). Illawarra Metallurgical Coal: Dendrobium - Longwall 19A - Subsidence Predictions and Impact Assessments for the Natural and Built Features due to the Extraction of the Proposed Longwall 19A in Area 3A at Dendrobium Mine. Report produced to support the Subsidence Management Plan Application for the proposed Longwall 19A at Dendrobium Mine to be issued to the Department of Planning, Industry and Environment.

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Annex 1

Previous subsidence monitoring for Dendrobium Area 3

Area	Site Name	AHIMS Number	Site Type	Relevant longwall End of Panel Report	Observed Impacts	Impact Type	Significance	Located over longwall
3A	Browns Road Site 33	52-2-0458	Shelter with Art	Longwall 6	No observed impacts	-	-	-
				Longwall 7	No observed impacts	-	-	
3A	Browns Road Site 32	52-2-1646	Shelter with Art	Longwall 6	No observed impacts	-	-	-
				Longwall 19	No observed impacts			
				Longwall 19A	No observed impacts			
3A	Sandy Creek Road 22	52-2-0274	Shelter with Art	Longwall 6	No observed impacts	-	-	-
				Longwall 7	No observed impacts	-	-	
3A	Sandy Creek Road 25	52-2-0277	Shelter with Art	Longwall 6	Observable impacts	Expansion of jointing.	Low	LW6



				Longwall 7	Observable impacts	Closure of previously expanded jointing.	Low	
3A	Sandy Creek Road 26	52-2-0278	Shelter with Art	Longwall 6	No observed impacts	-	-	-
				Longwall 7	No observed impacts	-	-	
3A	SCA Special Area Fire Trail 6C	52-2-3052	Open Camp Site	Longwall 6	No observed impacts	-	-	-
3A	DM 13	48-2-0056	Shelter with Deposit	Longwall 7	No observed impacts	-	-	LW8
				Longwall 8	No observed impacts	-	-	
				Longwall 19	No observed impacts			
3A	DM 23	52-2-3651	Shelter with Deposit	Longwall 7	Not inspected due to safety concerns	-	-	-
3A	DM 20	52-2-3644	Shelter with Art	Longwall 8	No observed impacts	-	-	LW19
				Longwall 19	No observed impacts			
				Longwall 19A	No observed impacts			
3A	DM 15	52-2-3639	Shelter with Art	Longwall 19	Observable impacts	Hairline crack through art		LW19



				Longwall 19A	No observed impacts			
3A	Sandy Creek Road 21	52-5-0373	Shelter with Art	Longwall 19	Observable impacts	Cracking		LW19
				Longwall 19A	Observable impacts	Additional rockfall		
3A	Browns Road Site 31	52-2-1645	Shelter with Art	Longwall 19	No observed impacts			
				Longwall 19A	No observed impacts			
3A	Browns Road Site 30	52-2-1644	Shelter with Art and Deposit	Longwall 19A	No observed impacts			
3A	Sandy Creek Road 20	52-5-0272	Shelter with Art	Longwall 19A	No observed impacts			
3B	Donald Castle Creek Site 1	52-2-1562	Shelter with Art	Longwall 9	No observed impacts	-	-	
3B	Browns Road Site 13	52-2-1628		Longwall 9	No observed impacts	-	-	LW9



3B	Dendrobium 1	52-2-2208	Shelter with Deposit	Longwall 9	Observable impacts	Expansion of pre-existing vertical cracking adjoining the horizontal bedding plane as well as the extension of this cracking horizontally	Low	LW9
				Longwall 10	No further impacts	No observed impacts since the minor expansion and extension of vertical cracking in horizontal bedding plane during Longwall 9 extraction	Low	
3B	DM 2	52-2-3878	Shelter with Deposit	Longwall 9	No observed impacts	-	-	LW9
				Longwall 10	No observed impacts	-	-	
3B	Browns Road Site 12	52-2-1627	Shelter with Art	Longwall 11	No observed impacts	-	-	-



				Longwall 12	No observed impacts	-	-	
				Longwall 13	No observed impacts	-	-	
3B	Dendrobium 2	52-2-2209	Shelter with Art	Longwall 11	No observed impacts	-	-	LW12
				Longwall 12	No observed impacts	-	-	
3B	Upper Avon 39	52-2-1775	Shelter with Deposit	Longwall 12	No observed impacts	-	-	-
3B	Upper Avon 40	52-2-1776	Shelter with Art and Deposit	Longwall 12	No observed impacts	-	-	-
3B	Upper Avon 41	52-2-1778	Shelter with Deposit	Longwall 12	No observed impacts	-	-	-
3B	Browns Road Site 11	52-2-1626	Shelter with Art	Longwall 13	No observed impacts	-	-	LW14
				Longwall 14	Observable impacts	Diagonal and vertical cracking with possible block fall and exfoliation expediated by subsidence.	Low	



				Longwall 15	Observable impacts	Diagonal and vertical cracking with minor block fall.	Low	
3B	Site 1-DB1	52-2-2229	Shelter with Art	Longwall 13	No observed impacts	-	-	LW14
				Longwall 14	Observable impacts	Diagonal and vertical cracking with possible block fall and exfoliation expediated by subsidence.	Low	
				Longwall 15	No observed impacts	-		
3B + 3A	DM 17	52-2-3641	Shelter with Deposit	Longwall 13	No observed impacts	-	-	
				Longwall 19	No observed impacts			
3B + 3A	DM 16	52-2-3640	Shelter with Art	Longwall 13	No observed impacts	-	-	
				Longwall 19	No observed impacts			
3B	DM 21	52-2-3645	Shelter with Art	Longwall 14	No observed impacts	-	-	LW15



			and Deposit	Longwall 15	Observable impacts	Diagonal and vertical cracking at the northern exterior end of the shelter.	Low	
				Longwall 16	Observable impacts	Previous subsidence movements related to extraction of Longwall 15; no further impacts were observed because of the extraction of Longwall 16.	Low	
3B	DM 22	52-2-3646	Shelter with Art	Longwall 14	No observed impacts	-	-	-
3B	Upper Avon 37	52-2-1773	Shelter with Art	Longwall 14	No observed impacts	-	-	-
3B	Browns Road Site 8	52-2-1623	Shelter with Deposit	Longwall 15	No observed impacts	-	-	-
				Longwall 16	No observed impacts	-	-	-



				Longwall 17	No observed impacts	-	-	
3B	Upper Avon 35	52-2-1771	Shelter with Deposit	Longwall 15	No observed impacts	-	-	-
				Longwall 16	No observed impacts	-	-	
				Longwall 17	No observed impacts	-	-	
3B	Dendrobium 6	52-2-2246	Isolated Artefact	Longwall 15	No observed impacts	-	-	Longwall 16
				Longwall 16	Not inspected as it is an Isolated Artefact that would not be able to be relocated.	-	-	
				Longwall 17	Not inspected as it is an Isolated Artefact that would not be able to be relocated.			



3B	Dendrobium 7	52-2- 2248	Shelter with Art	Longwall 16	Not inspected due to safety reasons- active mining within close proximity	-	-	-
				Longwall 17	Not inspected due to safety reasons- site situated in Longwall 18 active mining area.	-	-	-
				Longwall 18	No observed impacts	-	-	-
3B	Dendrobium 8	52-2- 3068	Shelter with Art and Grinding Grooves	Longwall 16	Not inspected due to safety reasons- active mining within close proximity	-	-	-



				Longwall 17	Not inspected due to safety reasons-site situated in Longwall 18 active mining area.	-	-	
				Longwall 18	No observed impacts	-	-	
3B	Upper Avon 36	52-2-1772	Shelter with Art	Longwall 18	No observed impacts	-	-	-
3C	Browns Road Site 20	52-2-1647	Shelter with Artefacts	Longwall 21	No observed impacts	-	-	-
3C	Dendrobium 3C Shelter 1	52-2-4500	Shelter with Art	Longwall 21	No observed impacts	-	-	-



Annex 2

Dendrobium Area 3 cultural heritage sites



This information has been redacted
For more information please contact GM3.



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