| | |
|---|---|
| **From:** | Zanotto, Linda |
| **To:** | Camilla Edmunds; Maria Dubikova; Girja Sharma; Glen Capararo; Ravi Sundaram |
| **Cc:** | Brassington, Gary; gabrielle.allan@dpie.nsw.gov.au |
| **Subject:** | Dendrobium Mine - Review of distance to swamp impacts |
| **Date:** | Friday, 8 September 2023 12:17:00 PM |
| **Attachments:** | Ltr WaterNSW - DA3 Distance to Swamp Impacts_08092023.pdf<br>Att 1 - Dendrobium Area 3A Update Report 230314_V2.pdf<br>Att 2 - WaterNSW letter - Dendrobium Impact Report 231314.pdf<br>Att 3 - 20230706c_ImpactReport-Hydrology-Swamp35b01 and 15a_19.pdf<br>Att 4 - R053c_Dendrobium-Distance to Swamp Impacts to June2023.pdf |

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Dear Camilla,

Please find attached letter and supporting reports in relation to WaterNSW request regarding a review of distance to swamp impacts in Subsidence Impact Report dated 14 March 2023.

If you have any questions, please don't hesitate to reach out.

Kind Regards,

**Linda Zanotto**
Principal Mining Approvals
Illawarra Metallurgical Coal

M: +61 409 399 560
E: Linda.Zanotto@South32.net

**south32.net**

SOUTH32

**ATTACHMENT 2 –Correspondence with BCD**

Department of Planning and Environment

Our ref: DOC23/642196

Ms Linda Zanotto
Illawarra Metallurgical Coal

By email: Linda.Zanotto@South32.net

**Re: Dendrobium Area 3A and 3C – Impact report – 17th July 2023**

Dear Linda

I refer to the Dendrobium 3A and 3C Impact Report for 17th July 2023. This Report detailed the following impacts:

- DA3C_LW21_014 (E 291465, N 6194006); rock fracturing to tributary WC20 – Level 2 TARP
- DA3C_LW21_015 (E 291421, N 6194021; rock fracturing to tributary WC20 – Level 2 TARP
- DA3C_LW21_016 (E 291248, N 6194087); rockfall on tributary WC20 – Level 1 TARP
- Impacts to Swamp 15A; near surface groundwater (15a19) and soil moisture triggers (15a07, 15a15, 15a19).

Further data is required for BCD analysis. Please send us the follow raw data, in excel format:

1. For WC20 and swamp 144, all monitoring data, including groundwater, soil moisture and pool data.
2. For Swamp 15A, all monitoring data, including groundwater, soil moisture and hard rock piezometer data both in the swamp and nearby.
3. All vegetation data from all swamps at Dendrobium Area 3, especially Swamp 15A, S144, S 148, S34, S35a, S35b, S7, S150, S151.

If you wish to discuss, please contact Vanessa Allen, Senior Conservation Planning Officer, on 0242244186 or at Vanessa.Allen@environment.nsw.gov.au.

Yours sincerely

Vanessa Allen date: 20/7/2023

**Senior Conservation Planning Officer (Planning Illawarra)**
**Biodiversity and Conservation Division**

**From:** Zanotto, Linda
**To:** Vanessa Allen
**Cc:** Chris Page
**Subject:** RE: Dendrobium Area 3C Impact reports 8092023 14082023
**Date:** Tuesday, 3 October 2023 3:05:00 PM
**Attachments:** image001.png

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Hi Vanessa,

Requested data packs are currently being uploaded to the MoveItCloud folder - refer to table below. You should receive confirmation emails when these are available. Please let me know if you do not receive these today.

| Impact Report Date | Request Doc | Data | Data Files/Comments | Collated Data Pack |
|---|---|---|---|---|
| 19/05/2023 | BCD Response Dendrobium Area 3A - 9th May 2023.pdf | Raw data in excel format - All data for Swamp 148 | See folders: Swamp GW; Soil Moisture | ***September_2023.zip*** |
| n/a | n/a | Longwall 19 End of Panel Data Pack | LW19 EoP Data Pack.zip | ***LW19 EoP Data Pack.zip*** |
| 28/06/2023 | BCD Response - Dendrobium Area 3C - 28th June 2023.pdf | Groundwater for Swamps 7, 9, 144, 145 | See folder: Swamp GW. | ***September_2023.zip*** |
| | | Bores ~~S1845~~ and S1892 | See S1892_dend 99 (1).xlsx<br>*S1845 no longer monitored as previously advised.* | ***September_2023.zip*** |
| 17/07/2023 | BCD Response - Dendrobium Area 3A and 3C - 17th July 2023.pdf | For WC20 and Swamp 144 all monitoring data, including groundwater, soil moisture and pool data | See folders: Swamp GW; Soil Moisture; Surface Water | ***September_2023.zip*** |
| | | For Swamp 15A, all monitoring data, including groundwater, soil moisture and hard rock piezometer data both in the swamp and nearby | See folders: Swamp GW; Soil Moisture; Surface Water; Sandstone Boreholes | ***September_2023.zip*** |
| | | All vegetation data from all swamps at Dendrobium Area 3, especially Swamp 15A, S144, S148, S34, S35a, S7, S150, S151 | See Ecology folder in September 2023 data pack and Terrestrial Ecology folder in LW19 EoP data pack | ***September_2023.zip*** |
| 31/07/2023 | BCD Response Dendrobium Area 3C - 31st July 2023 | Raw Data in excel format:<br>For WC20 and Swamp 144 all monitoring data, including groundwater, soil moisture and pool data | See folders: Swamp GW; Soil Moisture; Surface Water. | ***September_2023.zip*** |
| 2/08/2023 | | Raw Data in excel format:<br>For Swamps 144, WC20, WC24, WC24A: all monitoring data, including groundwater, soil moisture and pool data | See folders: Swamp GW; Soil Moisture; Surface Water. | ***September_2023.zip*** |
| 9/08/2023 | | Raw Data in excel format:<br>For Swamps 144,145 and 9, all monitoring data, including groundwater, soil moisture and pool data | See folders: Swamp GW; Soil Moisture; Surface Water. | ***September_2023.zip*** |
| 18/08/2023 | BCD Response - Dendrobium Area 3A and 3C - 18th August 2023.pdf | For Swamp 15A, all monitoring data, including groundwater, soil moisture and hard rock piezometer data both in the swamp and nearby | See folders: Swamp GW; Soil Moisture; Surface Water; Sandstone Boreholes | ***September_2023.zip*** |
| | | For Swamps 144, WC20, WC24, WC24A: all monitoring data, including groundwater, soil moisture, flow data and pool data | See folders: Swamp GW; Soil Moisture; Surface Water. | ***September_2023.zip*** |
| | | All vegetation data from all swamps at Dendrobium Area 3, especially Swamp 15A, S144, S148, S34, S35a, S7, S150, S151 | See Ecology folder in September 2023 data pack and Terrestrial Ecology folder in LW19 EoP data pack | ***September_2023.zip*** |
| 4/09/2023 | BCD Response Dendrobium Area 3 - 4th September 2023.pdf | For Swamps 12, 150, 9: all monitoring data, including groundwater, soil moisture and hard rock piezometer data both in the swamp and nearby. | See folders: Swamp GW; Soil Moisture; Surface Water; Sandstone Boreholes | ***September_2023.zip*** |
| | | GIS shapefiles for all swamps in Area 3 | See Swamp Shapefile folder | ***September_2023.zip*** |

Kind Regards,
Linda

**Linda Zanotto**
Principal Mining Approvals
Illawarra Metallurgical Coal

M: +61 409 399 560
E: Linda.Zanotto@South32.net

**south32.net**


-----Original Message-----
From: Vanessa Allen <Vanessa.Allen@environment.nsw.gov.au>
Sent: Tuesday, 19 September 2023 3:30 PM
To: Zanotto, Linda <Linda.Zanotto@south32.net>
Cc: Chris Page <Chris.Page@environment.nsw.gov.au>
Subject: Dendrobium Area 3C Impact reports 8092023 14082023

Hi Linda

Please see attached BCD responses to Impact Reports

Regards, Vanessa

Vanessa Allen
Senior Conservation Planning Officer

Biodiversity and Conservation Division | Department of Planning and Environment T 02 42244186 |
E Vanessa.Allen@environment.nsw.gov.au
Level 1, 84 Crown street, Wollongong NSW 2500 PO Box 514, Wollongong NSW 2520
https://aus01.safelinks.protection.outlook.com/?url=http%3A%2F%2Fwww.dpie.nsw.gov.au%2F&data=05%7C01%7CLinda.Zanotto%40south32.net%7C28dc21e2b249461ce0f308dbb8d18708%7Cd05d5e5b385d4774b496d0cf85bfa5f4%7C1%7C0%7C638306982430079924%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C3000%7C%7C%7C&sdata=qwv3%2BUPIS9LbDupIhjkjKBMk5HyjaW%2Fjg7%2BDVaNZb9Y%3D&reserved=0

Office is located on Dharawal Country
The Department of Planning and Environment acknowledges that it stands on Aboriginal land. We acknowledge the traditional custodians of the land and we show our respect for elders past, present and emerging through thoughtful and collaborative approaches to our work, seeking to demonstrate our ongoing commitment to providing places in which Aboriginal people are included socially, culturally and economically.

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**From:** Carlon, Josh via South32 Notification Service
**To:** Zanotto, Linda
**Subject:** New File in Folder "BCD"
**Date:** Tuesday, 3 October 2023 2:43:43 PM
**Attachments:** ATT00001.png

# New File Notification

A new file has arrived into the "/ Illawarra Coal - Energy and Engineering / BCD" folder.

**Name:** September_2023.zip
**Tracking ID:** 995948500
**Original Size:** 162,511,234 bytes

*For non-repudiation purposes, it has been confirmed that the file received by MOVEit Transfer is IDENTICAL to the file uploaded by Carlon, Josh.*

Please use the following URL and your username/password to DOWNLOAD or view the current status of this file, including its full upload and download history.

( https://south32.moveitcloud.com/human.aspx?OrgID=9904&Arg12=fileview&Arg07=995948500&Arg06=957756355 )

Regards,
South32 Notification Service

Monitoring of watercourses, swamps and landscape features is undertaken to identify subsidence impacts. These features are monitored by the Illawarra Metallurgical Coal Environmental Field Team (IMCEFT) monthly prior to mining, weekly during mining and monthly during the post-mining period. Monitoring is conducted in accordance with the approved Longwall 21 Subsidence Management Plan (SMP). Extraction of Longwall 21 started on 25 April 2023 and as of 27 July 2023 had progressed approximately 826m. During a recent inspection, two new subsidence impacts were identified as well as changes to an existing impact.

This Version 2 of the report includes a summary of consultation with stakeholders undertaken since the initial report.

**DA3C_LW21_016 (Update) (E 291249, N 6194096)**

Impact *DA3C_LW21_016* was first observed on 11 July 2023 and consisted of a small rock fall (≈0.14m$^3$) at a step 10m north of tributary WC20 (Figure 1). On a follow up inspection on 26 July 2023, an increase in the rockfall area was identified. The following measurements were estimated at a distance due to safety concerns. The rockfall now has a length of ≈7m, a width of ≈1m, a height of ≈2.5m, a total volume of ≈17.5m$^3$ and a ground disturbance area of ≈20m$^2$ (Photo 1 and Photo 2). Flagging tape is in place at the site as a safety precaution. Note- coordinates have been updated from previous report to better reflect the impact location.

*DA3C_LW21_016* is now a Level 2 trigger as per the Dendrobium Landscape TARP (Table 1), specifically:

- Rockfall or overhang collapse at a cliff (step) site, where characteristics of the cliff have changed, and there has been significant ground disturbance.

Photo 1: *DA3C_LW21_016,* looking at the rockfall. Taken on 26/07/2023.

Photo 2: *DA3C_LW21_016*, looking at the rockfall. Taken on 26/07/2023.

**DA3C_LW21_017 (E 291184, N 6194105)**

Impact *DA3C_LW21_017* consists of rock fracturing and uplift to '*WC20_Rockbar 15*' on tributary WC20 (Figure 1). The fracturing has a maximum length of 2.6m, a maximum width of 0.012m and uplift of 0.02m (Photo 3 to Photo 6). No surface flow was present during the inspection however the impact is not situated in the direct flow path, therefore flow diversion is unlikely to occur.

*DA3C_LW21_017* is a Level 1 trigger as per the Dendrobium Watercourse TARP (Table 2), specifically:

- Crack or fracture up to 100mm width at its widest point with no observable loss of surface water or erosion.
- Crack or fracture up to 10m in length with no observable loss of surface water or erosion.

Photo 3: *DA3C_LW21_017*, section of rock fracturing. Taken on 26/07/2023.

Photo 4: DA3C_LW21_017, section of rock fracturing. Taken on 26/07/2023.

Photo 5: *DA3C_LW21_017*, width of the rock fracture. Taken on 26/07/2023.

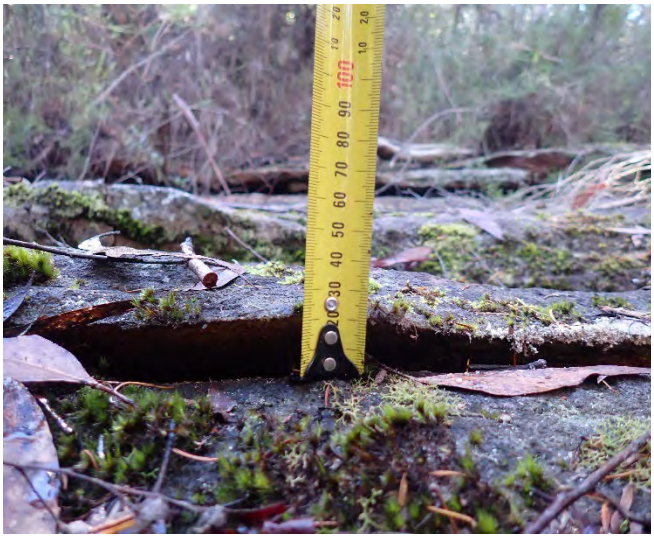

Photo 6: *DA3C_LW21_017*, section of uplift. Taken on 26/07/2023.

**DA3C_LW21_018 (E 291273, N 6194190)**

*DA3C_LW21_018* is located approximately 105m north of tributary WC20 (Figure 1). The impact consists of two rock fractures to a rock outcrop/ledge. The fracturing has a maximum continuous length of 2.87m and a maximum width of 0.003m (Photo 7 to Photo 9). Flagging tape is in place at the site as a safety precaution.

*DA3C_LW21_018* is a Level 1 trigger as per the Dendrobium Landscape TARP (Table 1), specifically:

- Crack or fracture up to 100mm width;
- Crack or fracture up to 10m length.

Photo 7: DA3C_LW21_018, overview of rock fracturing.
Taken on 26/07/2023.

Photo 8: DA3C_LW21_018, section of rock fracturing.
Taken on 26/07/2023.

Photo 9: *DA3C_LW21_018*, section of rock fracturing.
Taken on 26/07/2023.

**Corrective Management Actions (CMAs)**

The following management actions have been initiated:

- Continue monitoring program
- Submit an Impact Report to key stakeholders
- Report in the End of Panel Report
- Summarise actions and monitoring in AEMR
- Review monitoring frequency
- Notify technical specialists and seek advice on any CMA required
- Provide safety barricades as appropriate
- Submit letter report to DPE, BCD, Resource Regulator and WaterNSW and seek advice on any CMA required
- Implement agreed CMAs as approved (subject to agency feedback)

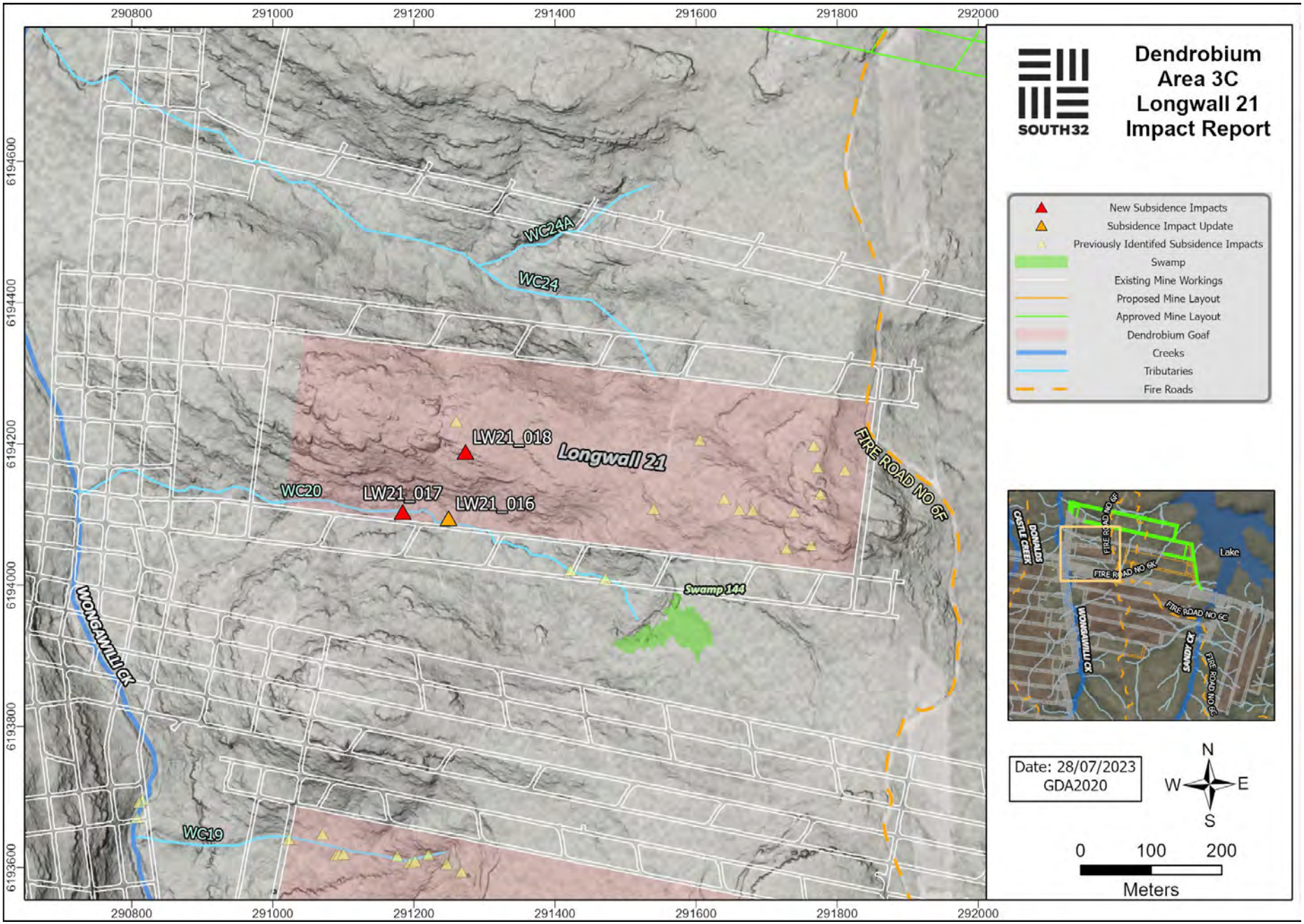


Figure 1: Latest subsidence impacts over Longwall 21 mining area in DA3C. Inset shows frame in relation to Dendrobium mining operations.

Table 1: Extract from Dendrobium Landscape TARP.

| Monitoring | Trigger | Action |
|---|---|---|
| **LANDSCAPE FEATURES** | | |
| **AREA 2**<br>**Cliffs**<br>A2-CL1 (above LW4)<br>**Steep Slopes**<br>A2-SL1 and A2-SL2 (above LWs 4 & 5)<br>**Watercourses**<br>A2-WC10 and A2-WC11 (above LW3)<br>A2-WC13 & A2-WC16 (above LWs 4 & 5)<br>**Swamp**<br>A2-SW1 (above LWs 4 & 5)<br>**4WD Track**<br>A2-FT1 (above LWs 4 & 5)<br>**Crinanite Surface Extent**<br>A2-CN1 & A2-CN2 (above LWs 3 & 4)<br><br>**AREA 3A**<br>**Cliffs**<br>All mapped cliff sites in subsidence area (Refer to Dendrobium Area 3A SMP Figures 19.3 for location of sites)<br>**Steep Slopes**<br>All mapped steep slopes in subsidence area<br>*Refer to Dendrobium Area 3A SMP Figures 19.3 for location of sites*<br>**Watercourses/ Swamps**<br>All mapped watercourse and swamps in subsidence area<br>*Refer to Dendrobium Area 3A SMP Figure 19.3*<br>**Fire Trails**<br>All mapped fire trails in subsidence area<br>*Refer to Dendrobium Area 3A SMP Figure 19.3*<br><br>**AREA 3B**<br>**Cliffs**<br>All mapped cliff sites in subsidence area<br>*Refer to Dendrobium Area 3B SMP Figures 18.1 for location of sites* | ***Level 1 ****<br>• Rock fall from a cliff which is left mostly intact (<10% length), resulting in insignificant ground disturbance<br>• Surface movement or rock displacement with negligible soil surface exposed<br>• Crack at the surface, which should not result in any significant erosion or further ground movement<br>• Crack in a fire trail which should not result in erosion or impede access<br>• Crack or fracture up to 100mm width<br>• Crack or fracture up to 10m length<br>• Erosion in a localised area which would be expected to naturally stabilise without CMA and within the period of monitoring | • Continue monitoring program<br>• Report impacts to key stakeholders<br>• Summarise impacts and Report in the End of Panel Report and AEMR |
| | ***Level 2 ****<br>• Rock fall or overhang collapse at a cliff site, where characteristics of the cliff have changed, and there has been significant ground disturbance<br>• Surface movement or rock displacement that has exposed significant areas of soil<br>• A crack at the surface, which could result in significant erosion or movement at the surface<br>• A crack at the surface with potential risk to safety and/or fauna entrapment<br>• A crack in the fire trail, which could result in significant erosion or impede vehicle access<br>• Crack or fracture between 100 and 300mm width<br>• Crack or fracture between 10 and 50m length<br>• Significant erosion at any location, which is not likely to naturally stabilise within the period of monitoring, or is located in a sensitive area e.g. swamps, creek, lake shore, and may result in increased sediment transport to Cordeaux Dam, or has been previously identified as Level 1, but is not likely to naturally stabilise within the monitoring period | • *Actions as stated for Level 1*<br>• Review monitoring frequency<br>• Notify relevant technical specialists and seek advice on any CMA required<br>• Provide safety signage and barricades as appropriate<br>• Implement approved repairs to ensure safety and serviceability on fire trails<br>• Implement agreed CMAs as approved<br><br>*Note: CMAs are to be proposed based on appropriate management of environmental and other consequences of impacts i.e. cracking at the surface with insignificant consequences may not require specific CMAs other than ongoing monitoring to confirm there are no ongoing impacts* |
| | ***Level 3 ****<br>• Major cliff collapse where the characteristics of the cliff change significantly and there is significant ground disturbance that is unlikely to naturally stabilise within the monitoring period | • *Actions as stated for Level 2*<br>• Immediately notify DoPI, DPIM, SCA, resource managers and relevant technical specialists and seek advice on any CMA required<br>• Site visits with stakeholders if required |

Table 2: Extract from Dendrobium Watercourse TARP.

| | | |
|---|---|---|
| **DC13, LC5, WC20, WC21, WC22, WC23, WC24, WC25, WC26, WC27 and WC29**<br><br>General observation of streams in active mining areas when longwall is within 400m | ***Level 1***<br>• Crack or fracture up to 100mm width at its widest point with no observable loss of surface water or erosion<br>• Crack or fracture up to 10m length with no observable loss of surface water or erosion<br>• Erosion in a localised area (not associated with cracking or fracturing) which would be expected to naturally stabilise without CMA and within the period of monitoring<br>• Observable release of strata gas at the surface<br>• Observable increase in iron staining within the mining area | • Continue monitoring program<br>• Submit an Impact Report to BCD, DPE, Resources Regulator, WaterNSW<br>• Report in the End of Panel Report<br>• Summarise actions and monitoring in AEMR |
| | ***Level 2***<br>• Crack or fracture between 100 and 300mm width at its widest point or any fracture which results in observable loss of surface water or erosion<br>• Crack or fracture between 10 and 50m length<br>• Soil surface crack that causes erosion that is likely to stabilise within the monitoring period without intervention<br>• Observable increase in iron staining within the mining area continues to outside the mining area i.e. 400m from the longwall | • *Actions as stated for Level 1*<br>• Review monitoring frequency<br>• Submit letter report to DPE, BCD, Resource Regulator and WaterNSW and seek advice on any CMA required<br>• Implement agreed CMAs as approved (subject to agency feedback) |
| | ***Level 3***<br>• Crack or fracture over 300mm width at its widest point<br>• Crack or fracture over 50m length<br>• Fracturing observed in the bedrock base of any significant permanent pool which results in observable loss of surface water<br>• Soil surface crack that causes erosion that is unlikely to stabilise within the monitoring period without intervention<br>• Gas release results in vegetation dieback, mortality or loss of aquatic habitat<br>Observable increase in iron staining within the mining area continues more than 600m from the longwall | • *Actions as stated for Level 2*<br>• Offer site visit with BCD, DPE, Resource Regulator, WaterNSW<br>• Implement additional monitoring or increase frequency if required<br>• Develop site CMA (subject to agency feedback). This may include: grouting of rockbar and bedrock base of any significant pool where it is appropriate to do so in consultation with BCD, DPE, Resource Regulator, WaterNSW<br>• Completion of works following approvals and at a time agreed between S32, DPE, Resource Regulator and WaterNSW (i.e. may be after mining induced movements and impacts are complete), including monitoring and reporting on success<br>• Review relevant TARP and Management Plan in consultation with key agencies |

Table 3: Summary of recently reported impacts and triggers. Highlighted rows indicate observations featured in this report.

| Site ID | Impact/Trigger Type | Feature Affected | Identification Date | Trigger Level | Description | Refer to Impact Report/s Dated |
|---|---|---|---|---|---|---|
| *DA3C_LW21_001* | Rock Fracturing | Outcrop | 06/06/2023 | 1 | Rock fracturing to a small rock outcrop west of *Fire Road 6F.* | 9/06/2023 |
| *DA3C_LW21_002* | Rock Fracturing and Rock Movement | *LW21_RO1* | 06/06/2023 | 2 | Rock fracturing and rock movement to a small rock outcrop at Landscape Monitoring Site *LW21_RO1.* | 9/06/2023 |
| *DA3C_LW21_003* | Rock Fracturing and Rockfall | Outcrop and Step | 06/06/2023 | 2 | Rock fracturing and rockfall to an outcrop and a step west of *Fire Road 6F.* | 9/06/2023 |
| *DA3C_LW21_004* | Rock Fracturing | Outcrop | 06/06/2023 | 2 | Rock fracturing on an outcrop west of *Fire Road 6F.* | 9/06/2023 |
| *DA3C_LW21_005* | Rock Fracturing | Outcrop | 15/06/2023 | 1 | Rock fracture on a rock outcrop northeast of *WC20.* | 19/06/2023 |
| *DA3C_LW21_006* | Rock Fracturing | Outcrop | 15/06/2023 | 1 | Rock fracturing on a rock outcrop northeast of *WC20.* | 19/06/2023 |
| *DA3C_LW21_007* | Rock Fracturing and Rockfall | Outcrop | 15/06/2023 | 2 | Rock fracturing and rock fall on an outcrop northeast of *WC20.* | 19/06/2023 |
| *DA3C_LW21_008* | Rock Fracturing and Soil Cracking | Rock Step | 19/06/2023 | 1 | Rock fracturing/soil cracking to a rock step and bushland northeast of *WC20.* | 20/06/2023 |
| *DA3C_LW21_009* | Rock Fracturing | Rock Step | 19/06/2023 | 1 | Rock fracturing to a rock step west of *Fire Road 6F.* | 20/06/2023 |
| *DA3C_LW21_010* | Rock Fracturing and Rock Movement/ Displacement | Outcrop | 19/06/2023 | 2 | Rock fracturing and associated rock movement/displacement at an outcrop west of *Fire Road 6F.* | 20/06/2023 |
| *DA3C_LW21_011* | Rock Fracturing, Rock Displacement and Soil Cracking | Outcrop and Bushland | 19/06/2023 | 1 | Soil cracking, rock fracturing and associated rock displacement to an outcrop and bushland west of *Fire Road 6F.* | 20/06/2023 |
| *144_01* | Groundwater | Swamp 144 | 22/06/2023 | 3 | Groundwater recession rate greater than baseline | 28/06/2023 |
| *S144_01* | Soil Moisture | Swamp 144 | 27/06/2023 | 3 | Average soil moisture level below the baseline level | 28/06/2023 |
| *DA3C_LW21_012* | Rock Fracturing | Rock Step | 27/06/2023 | 1 | Rock fracturing to rock step west of Fire Road 6F. | 28/06/2023 |
| *DA3C_LW21_013* | Rock Fracturing | Outcrop | 03/07/2023 | 1 | Rock fracturing to rock outcrop west of Fire Road 6F. | 04/07/2023 |
| *DA3C_LW21_014* | Rock Fracturing | Watercourse | 11/07/2023 | 2 | Rock fracturing to rockbar on tributary WC20. | 17/07/2023 |

| Site ID | Impact/Trigger Type | Feature Affected | Identification Date | Trigger Level | Description | Refer to Impact Report/s Dated |
|---|---|---|---|---|---|---|
| *DA3C_LW21_015* | Rock Fracturing | Watercourse | 11/07/2023 | 2 | Rock fracturing to channel on tributary WC20. | 17/07/2023 |
| *DA3C_LW21_016* | Rockfall | Rock Step | 11/07/2023 | 1 | Small rockfall to step north of tributary WC20. | 17/07/2023 |
| *Swamp 15a* | Groundwater | Swamp | 12/07/2023 | 1 | Groundwater trigger at one site in Swamp 15a. | 17/07/2023 |
| *Swamp 15a* | Soil Moisture | Swamp | 12/07/2023 | 2 | Soil moisture triggers at three sites within Swamp 15a. | 17/07/2023 |
| *DA3C_LW21_016 (Update)* | Rockfall | Rock Step | 26/07/2023 | 2 | Rockfall to step north of tributary WC20. | 31/07/2023 |
| *DA3C_LW21_017* | Rock Fracturing | Watercourse | 26/07/2023 | 1 | Rock fracturing and uplift to WC20_Rockbar 15. | 31/07/2023 |
| *DA3C_LW21_018* | Rock Fracturing | Rock Outcrop/Ledge | 26/07/2023 | 1 | Rock fracturing to rock outcrop/ledge. | 31/07/2023 |

## CONSULTATION

### Summary of consultation undertaken in relation to the subsidence impact report

The impact report was emailed to DPE, WaterNSW, BCD and the Resources Regulator on 31 July 2023 for review and feedback.

The Resources Regulator responded via email and issued reference number MAAG0016439 indicating that an assessment officer would be in contact should further information be required. No further correspondence was received.

WaterNSW responded via email with a letter dated 30 August 2023 with a combined response to three impact reports from 17 and 31 July and 18 August 2023 as detailed below. Evidence is provided in Attachment 1.

BCD responded via email with a letter dated 10 August 2023 requesting further data. Evidence is provided in Attachment 2.

### Summary of the comments received during consultation

#### *WaterNSW*

WaterNSW responded to impact reports dated 17 and 31 July and 18 August 2023 noting impacts to Swamp 144 and Swamp 15a:

- Level 3 trigger for Swamp 144 (Longwall 21) - groundwater recession rate greater than baseline and average soil moisture level below the baseline level. There is one monitoring locations in Swamp 144.
- Level 2 trigger for Swamp 15a (Longwall 19) - soil moisture level lower than baseline level at 50% of monitoring sites reported on 31 July; and
- Level 3 trigger for Swamp 15a (Longwall 19) - soil moisture level lower than baseline level at 80% of monitoring sites reported on 18 August.

WaterNSW expressed concern that the performance measures for Swamps 144 and 15a will be exceeded and that these Level 3 triggers occurred at greater distances than 61 m from Longwall 21 and 19 footprints suggesting the 61 m setback distance from Longwalls is inadequate to prevent hydrological impacts to swamps over Dendrobium Mine and warrant further and more rigorous assessment.

It is noted that the letter does not relate to this impact report. The correct impact report for Swamp 144 impacts was dated 28 June 2023.

#### *Biodiversity and Conservation Division (BCD)*

BCD responded via email with a letter dated 10 August 2023 requesting further data:

- For WC20 and swamp 144, all monitoring data, including groundwater, soil moisture and pool data.

It is noted that this data had been previously requested.

**Summary of actions taken by Illawarra Metallurgical Coal in response to comments received during consultation**

In response to comments and recommendations from WaterNSW and BCD, IMC have undertaken the following actions:

- IMC responded to WaterNSW concerns by providing supporting reports by Watershed HydroGeo regarding a review of distance to swamp impacts via email on 8 September 2023. Note: This review and supporting reports were also provided in response to previous WaterNSW concerns in regards to Impact Report dated 14 March 2023. These reports were also uploaded to the Major Projects Planning Portal.
- Data requested by BCD in letter dated 10 August 2023 was uploaded to the BCD MoveItCloud folder on 3 October 2023.

IMC will implement the corrective management actions (CMAs) as detailed within this impact report.

Email correspondence is provided in the Attachments

**ATTACHMENT 1 – Correspondence with WaterNSW**

PO Box 398, Parramatta NSW 2124
Level 14, 169 Macquarie Street
Parramatta NSW 2150
www.waternsw.com.au
ABN 21 147 934 787

30 August 2023

Contact: *Maria Dubikova*
email: *environmental.assessments@waternsw.com.au*
Our ref: *D2023/63840*

Linda Zanotto
Principal Approvals
Illawarra Metallurgical Coal

Email: Linda.Zanotto@South32.net

Dear Ms Zanotto

**Subsidence Impact Reports - Swamps 144 and 15a**

According to the TARP action plan IMC is required to report all identified landscape impacts to key stakeholders. WaterNSW has received Subsidence Impacts Reports dated 17/07/2023, 31/07/2023 and 18/08/2023 that identified:

- Level 3 trigger for Swamp 144 (Longwall 21) - groundwater recession rate greater than baseline and average soil moisture level below the baseline level. There is one monitoring locations in Swamp 144.
- Level 2 trigger for Swamp 15a (Longwall 19) - soil moisture level lower than baseline level at 50% of monitoring sites reported on 31 July; and
- Level 3 trigger for Swamp 15a (Longwall 19) - soil moisture level lower than baseline level at 80% of monitoring sites reported on 18 August.

While soil moisture and groundwater levels are not specifically linked to a swamp performance measure, WaterNSW considers that observed decline in soil moisture and groundwater levels are early and reliable indicators of irreversible changes in swamp hydrology on which ecosystem functionality is dependent. WaterNSW is concerned that a performance measure of minor environmental consequences for Swamp 144 and negligible environment consequences for Swamp 15a will be exceeded.

Moreover, the reported Level 3 exceedances for Swamp 144 and Swamp 15a occurred at distances greater than 61 m from Longwall 21 and Longwall 19 footprints. These monitoring results indicate that the 61m setback distance from longwalls is inadequate to prevent hydrological impacts to swamps over Dendrobium mine and warrant further and more rigorous assessment.

Please feel free to contact Maria Dubikova if you would like to discuss any of the above matters further.

Yours sincerely

Girja Sharma

**Girja Sharma**
Catchment Assessments Manager