Nature Conservation Council
The voice for nature in NSW

[Attachment 1: Submission to original Dendrobium extension SSD 8194]

15th December 2020

Office of the Independent Planning Commission NSW
Level 3, 201 Elizabeth Street
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NSW
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Objection to the Dendrobium Extension Project (SSD 8194)

Dear Chair,

The Nature Conservation Council of New South Wales (NCC) is the state's peak environment organisation. We represent over 160 environment groups across NSW. Together we are dedicated to protecting and conserving the wildlife, landscapes and natural resources of NSW.

NCC objects to the proposed Dendrobium Extension Project (SSD 8194). The project will have unacceptable impacts on the environment and ecology of the Metropolitan Special Area. The project would destroy cultural heritage, damage Sydney's drinking water supply and impact water quality in the catchment. The mine will increase greenhouse gas emissions at a time that emissions need to decline. Alarmingly, the proponent's assessment of these significant impacts is incomplete.

This submission details our objections and identifies where further assessment is required.

We welcome further discussion on the matter. Your key contact is Jacquelyn Johnson available via 02 9516 4888 or jjohnson@nature.org.au.

Yours sincerely,

Nature Conservation Council
The voice for nature in NSW

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Summary of recommendations

- The proposed project should be rejected
- If the project were to be conditionally approved, the proponent must avoid mining within 600m of all 46 Coastal Upland Swamp EECs to ensure that the swamps do not experience de-watering
- Further assessments must consider the of impact this proposal on the landscape's fire regime, and how an increased susceptibility to bushfire will impact catchment health
- The proponent's EIS should incorporate the methodology applied by the IESC to impacts on flow conditions for waterways
- The proposed offsets are invalid, and they must be re-assessed
- Further surveys must be undertaken to ensure that all threatened flora and fauna species in the area are accounted for and all relevant watercourses are considered.
- Decisions on the proposed project cannot be made until a cost-benefit analysis detailing the long-term social and economic benefits provided to the community from the protection of water catchment health is undertaken
- If the project were to be conditionally approved, plans must be altered to ensure a buffer of 1500m, as per the Dams Safety Committee recommendation, around the Avon and Cordeaux dam walls to ensure their integrity.
- A NorBE assessment must be included in the proponent's EIS before this proposal can be considered further.
- Further assessment on the impact and risks of mining on ecosystem health in the catchment area must be included in the proponent's EIS before this proposal can be considered further.
- If approved, this mine should only receive a maximum of a 10-year consent period
- The advice of the Registered Aboriginal Parties should be given primacy in the assessment of significance for Indigenous cultural sites and the proponent's Aboriginal Heritage Assessment should be amended to reflect this
- The proponent must reassess the project area to locate the eight sites of cultural significance listed on the AHIMS

1. Subsidence impacts on environment and ecology

1.1 Upland swamps

Longwall mining has long been recognised as a key threatening process. It is listed as such under Schedule 4 of the *Biodiversity Conservation Act 2016*. The particularly negative impacts

of longwall mining under wetlands, swamps and similar features are well documented throughout the Metropolitan Special Area and further afield. According to the Independent Expert Panel for Mining in the Catchment:

"under natural conditions, [swamps] *store water from rainfall, runoff, groundwater, and interflow…In situations where the groundwater in the sandstone lying directly underneath a swamp is depressurised due to mining, and/or where cracks in the sandstone develop that connect to deeper flow pathways, the vertical drainage from the swamp into the sandstone will accelerate. This is likely to reduce horizontal flow within the swamps towards the swamp outlet…"*[2]

Swamps and wetlands are incredibly rich in biodiversity. The damage done by mining is irreversible and often a death sentence for their ecological communities. Sites become vulnerable to drying out, to erosion during floods and total scorching during bushfires.[4] For example, works associated with the Angus Place mine underneath the endangered Newnes Plateau Shrub Swamps have destroyed nearly half the total area of this endangered ecological community.

The Dendrobium Mine Extension Project (DMEP) will see such impacts on the Coastal Upland Swamps Endangered Ecological Community (EEC). This area has already suffered extensive and irreversible damage from existing Dendrobium panels. As highlighted by other submissions on this project, including those by the Wollondilly Shire Council and the Protect Our Water Alliance, these swamps are important to the functioning of the hydrological system and are crucial bulwarks for continued stream, creek and river flows and as a result dam levels during droughts.

The proposed extension into Areas five and six will see panels undermining 46 more Coastal Upland Swamps EECs. At least 26 of these endangered communities are at very high risk of experiencing fracturing and cracking. The other 20 of these swamps face potential impacts because they are located partially or wholly within 600m of planned longwall panels.[3]

Recommendation: If the project were to be conditionally approved, the proponent should avoid mining within 600m of all 46 Coastal Upland Swamps EECs to ensure that they do not experience de-watering.

1.2 Bushfire

Undermining swamps leads to a loss of water from the environment. This loss of water reduces permanently wet natural firebreaks, leading to more severe bushfires. Similarly, the loss of stream, creek and river flows during dry periods removes an essential fire-fighting resource.

Recommendation: Assessments should be made to consider the impact this proposal will have on the landscape's fire regime, and how an increased susceptibility to bushfire will impact catchment health.

1.3 Loss of pools and water flow

South32's Environmental Impact Statement (EIS) predicts that the proposed Dendrobium extension could see the total loss of stream flow to Avon Reservoir.[6] The extension is likely to cause subsidence induced cracking along creek beds that sustain permanent deep pools. These pools retain water even in the driest of periods, providing for countless aquatic and terrestrial species of wildlife.

Dendrobium's current panels have already damaged flow to Wongawilli Creek.[7]

Contrary to the proponent's EIS, modelled impacts on flow conditions for waterways will be significant across a large area. The Independent Expert Scientific Committee on Coal Seam Gas and Large Coal Mining Development (IESC) states:

"multiple sub-catchments in Area 5 will have large increases in no-flow conditions (HEC 2019, Figures 39 – 52, pp. 91 – 100). Under median rainfall conditions, sub-catchments in Area 5 which commonly experience no-flow conditions approximately 5% of the time could cease flowing between 50-75% of the time. Under 10th percentile (dry) rainfall conditions, flow regimes in streams draining several catchments in Area 5 will change from not flowing 5-10% of the time to not flowing 100% of the time. Even under 90th percentile (wet) rainfall conditions streams draining Area 5 sub-catchments could cease to flow up to approximately 50% of the time."[8]

Recommendation: The proponent's EIS should incorporate the methodology applied by the IESC to impacts on flow conditions for waterways.

2. Critique of South 32s Environmental Impact Statement methodology

2.1 Offset calculations have not been properly assessed

The Department of Planning, Industry and Environment (DPIE) does not recognise Maddens Plains Strategic Biodiversity Offset site as valid for offsets. This is contrary to the proponent's suggestions in the EIS.

Similarly, "*the 'Framework for Biodiversity Assessment' (FBA) has been incorrectly applied in calculating the maximum predicted offset liability for Coastal Upland Swamps. The Upland Swamp Offset Policy requires calculation against a 'worst-case scenario' for swamps, which under the predictions in the EIS includes significant erosion and scouring, equating to total loss of swamps."* [9]

DPIE indicates that the FBA has also been *"incorrectly applied in calculating offsets for loss of koala habitat and other threatened species through clearing for surface infrastructure.*[10]

Recommendation: The proposed offsets are invalid, and they must be re-assessed.

2.2 Insufficient monitoring for threatened flora and fauna

Surveys used to inform the proponent's EIS failed to discover threatened species commonly found in these areas. South32's consultants did not record any threatened flora species in the field survey conducted during assessments. Previous surveys have identified that up to 10 threatened species reside in the project area or are very likely to occur there.

In particular, the threatened giant dragonfly was not detected during the proponent's surveys. The IESC highlight that the swamps in Area 6 are very likely to support this creature. More work is required to ensure populations are properly mapped.[11]

2.3 Impact on smaller order watercourses is not assessed

As highlighted by DPIE Water and the Natural Resource Access Regulator, "*the criteria used in the EIS to identify significant watercourses and watercourse features for protection restricts the ability to identify significant features of smaller order watercourses such as first, second and third orders. These watercourses are likely to be impacted by surface cracking and upsidence."*[12]

Smaller water courses must be included in assessment of the impact of this project because of their potential to significantly impact flow and connectivity.[13]

Recommendation: Further surveys must be undertaken to ensure that all threatened flora and fauna species in the area are accounted for and all relevant watercourses are considered.

3. Losses from Sydney and Illawarra drinking water supply

3.1 Water supply

Australia is the only country that still allows mining under its water catchments and water-supply dams. Permitting such destructive and water depleting projects in our drinking catchments is absurd. Australia faces a vast array of water security challenges, and climate models predict water will become increasingly scarce.

South32's proposed extension of Dendrobium into Areas 5 and 6 will push coal mining deeper into the Metropolitan Special Area. This area is publicly owned land with strict regulations limiting permitted activities. These rules exist to protect Greater Sydney's drinking water supply.

In its 2019 report, the Independent Expert Panel on Mining in the Catchment (IEPMC) found that water loss at that time due to mining from Dendrobium, Wongawilli and Russell Vale mines was already averaging 8 ML/day.[14] This will grow dramatically over the coming years, with surface water loss expected to peak at 27.6 ML per day in the year 2035.[15]

The Avon and Cataract dams are expected to see losses due to subsidence induced fracturing nearby and in the waterways that fill them. DPIE has identified 'growth areas' in the Wollondilly region that will lose likely lose their future water security.[16]

WaterNSW has registered its opposition to this project due to its predicted impacts on water resources and ecology. WaterNSW highlight that the Dendrobium Extension Project is "inconsistent with one of the key purposes for declaring the Metropolitan Special Area, which is to maintain the ecological integrity of the land." **[17]**

Recommendation: Decisions on the proposed project cannot be made until a cost-benefit analysis detailing the long-term social and economic benefits provided to the community from the protection of water catchment health is undertaken

3.2 Dam integrity

The proposed project may impact the integrity of the Avon and Cordeaux dam walls. Both dams are critical to water supply for a large proportion of the Illawarra as well as the Wollondilly LGA. If they were to fail, they would pose a major threat to downstream communities.[19]

South32's plan to extend the buffer between the closest longwall and the dam walls to up to 1000m has not satisfied WaterNSW who state that the proponent still has "not adequately considered the potential for differential far field horizontal movements.[20]" Similarly, it has not met the DSC's recommendation of 1500m.

Recommendation: If the project were to be conditionally approved, plans must be altered to ensure a buffer of 1500m, as per the Dams Safety Committee recommendation, around the Avon and Cordeaux dam walls to ensure their integrity.

4. Water Quality

4.1 Assessment of impact on drinking water

Water quality should be paramount in decisions regarding activities that are permissible in sensitive and critically important catchment special areas.

The Neutral or Beneficial Effect of water quality assessment (NorBE) requires that consent authorities not grant consent to the carrying out of development unless it is satisfied that the development would not harm water quality.[21] The proponent's EIS does not reference the NorBE assessment, nor how it intends to meet these legislated standards.

WaterNSW's Sydney Drinking Water Catchment Audit 2019 found that certain types of proposed development in the Catchment need to satisfy the NorBE test as part of the approval process.[22] DPIE state in their submission on this project that *"the EIS did not contain an adequate assessment against the 'Neutral or Beneficial Effect' (NorBE) test in respect of loads or concentration of metals in streams or reservoirs, as required under the SEPP (Sydney*

Drinking Water Catchment) 2011. WaterNSW stated that it had 'serious concerns' that the Project would not meet this test." [23]

Advice provided by the IESC on Dendrobium indicates that impacts upon the catchment would lead to problems with water quality inflows into water supply dams, including increased "turbidity, nutrient loads and pathogens." [24] IESC also warns of "potential long-term changes to surface water quality as groundwater levels recover post mining, as well as the mechanisms which cause water quality changes to occur."[25]

The proposed project will operate within the Metropolitan Special Area, so South32 must show that it would have a "neutral or beneficial" effect on drinking water quality. The IPC must reject this project or attain proper assessment from South32.

Recommendation: A NorBE assessment must be included in the proponent's EIS before this proposal can be considered further.

4.2 Assessment of impact of changed water quality on biodiversity

Changes to water quality from mining operations harms macroinvertebrate biodiversity, which impacts entire ecosystems. Macroinvertebrates support a wide range of terrestrial and aquatic wildlife. High levels of zinc, iron, manganese and nickel are commonly found in water discharged from coal mines. Coal mine effluent also causes increased turbidity, fine sediment accumulation and bacterial mats.[27] The impacts on species resulting from water contamination from mine effluent has not been assessed by the proponent.

The possibility that accidents could release contaminated materials into waterways must also be considered by the IPC. Recent history has shown that mines on the Illawarra Escarpment can have significant local pollution events. In August 2020, the failure of a Dendrobium Mine sediment pond caused major pollution of the Brandy and Water creeks with coal sludge in the suburb of Figtree.[28]

Recommendation: Further assessment on the impact and risks of mining on ecosystem health in the catchment area must be included in the proponent's EIS before this proposal can be considered further.

5. Global warming and greenhouse gas emissions

Climate change is already having severe impacts in NSW and globally.

So far anthropogenic climate change has resulted in one degree of warming since the pre-industrial era. Even with this level of warming, impacts have been significant. The 2019-20 fire season has been an unwelcome insight into the future for NSW.

Impacts on human wellbeing and nature from 1.5 to 2 °C rise in global temperatures will be higher still. For example, multiple lines of evidence indicate that the majority (70–90 percent) of warm water coral reefs that exist today will disappear even if global warming is constrained to 1.5°C. Under 2°C or more warming, 99 percent of corals are likely to be lost.[33]

1.5 to 2°C of warming is by no means “safe”. However exceeding 2°C of warming risks more catastrophic levels of impacts. At higher levels of warming, impacts to human wellbeing and nature rise non-linearly. The threat posed to our society and environment by climate change is so pressing that governments came together in 2015 and signed the Paris Accord, with an agreed aim of holding warming well below 2°C and pursuing efforts to limit warming to 1.5°C. Many jurisdictions have now committed to net zero emissions by 2050 to meet this target, including the NSW Government. Achieving the 1.5 to 2 °C goal requires immediate and sustained reductions in CO2 emissions.

The proposed project will result in the release of approximately 261 million tonnes of CO2.[29] The majority of greenhouse gas (GHG) emissions from the project will be included in the National GHG emission figures, adding to Australia’s contribution to global warming.

Climate change has also been highlighted by WaterNSW in their audit catchment report to be one of the crucial threats to the health of the catchment. If this project is approved, Dendrobium will exacerbate stress on the catchment and reduce its ability to survive the increasing pressure it faces from climate change.

Recommendation: The project must be rejected based on the global risks of increasing GHG emissions.

6. Future of steel making and coking coal

The proponent, and key supporters of this project including Bluescope Steel, claim that the proposed project is essential to the continuation of the Port Kembla Steelworks. This claim is misleading.

Development of 'green steel' in the steel production industry is well underway and becoming increasingly competitive. The 28-year consent period that the proponent is requesting does not align with these developments, as it is likely that 'green steel' production will overtake traditional methods in efficiency and competitiveness.

In the meantime, coking coal can be sourced from coking coal mines not within the water catchment of Australia's largest city. This has not been considered by DPIE in their recommendation to approve the project.

Recommendation: If conditionally approved, this mine should only receive a maximum of a 10-year consent period.

7. Indigenous heritage impacts

The proposed project will be incredibly destructive to Indigenous heritage of the Illawarra Escarpment. The Aboriginal Heritage Assessment completed by Niche for South32 found that 58 sites of cultural heritage are susceptible to subsidence in the area. These include cave shelters with artworks. The consultants found;

"human motifs (art) are relatively more frequent in the [proposal area than the] *remainder of the region. Examples of human figures within the current Subject Area were assessed at [9 sites] …there are a number of other motif types represented including macropods, eels, snakes, bush tucker, gliders, goannas, kangaroos, anthromorphs and children's hand stencils*." [30]

These sites are all at risk of destruction. Cave shelters are susceptible to collapse, leading to demolition of the shelter itself, any artifacts within it and culturally significant artworks.

Niche's report for South32 found three sites of moderate significance and a further six of high significance. It reports that the Registered Aboriginal Parties (RAPs) have advised that all sites have cultural significance.[31]

The Illawarra Local Aboriginal Land Council (ILALC) is opposed to this project due to the unacceptable impact it will have on the cultural heritage of the region. ILALC has found that the eight sites identified on the Aboriginal Heritage Information Management System (AHIMS) were not found by the Niche assessment. This warrants immediate attention and remedying.[32] Given the current Commonwealth Inquiry into the destruction of Aboriginal heritage for the purpose of resource extraction, all authorities should be on notice that all care and consultation must be taken, and destructive actions do not have ethical or social license.

Recommendation: The advice of the RAPs should be given primacy on the assessment of significance for Indigenous cultural sites. The Aboriginal Heritage Assessment should be amended to reflect this.

Recommendation: The proponent must reassess the project area to locate the eight sites listed on the AHIMS.

Conclusion

Based on the known impacts of the proposed project, and significant omissions from the proponent's assessment of the impact of this project, this application should be rejected.

The proposed project will be environmentally destructive. It may have serious consequences for the availability and quality of drinking water for the Greater Sydney region, will result in unacceptable greenhouse gas emissions. It is unnecessary and is likely to destroy dozens of sites with high cultural significance to Indigenous groups.

Our biodiversity and climate are close to dangerous tipping points. Our natural environment has become so fragile that biodiversity, climate, water, air, soil and food are all at risk. Averting a looming environmental catastrophe should be front and centre of all development decisions.

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References

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[3] Independent Expert Scientific Committee on Coal Seam Gas and Large Coal Mining Development [IESC] (2019) Advice to Decision Maker on Coal Mining Project IESC 2019-105: Dendrobium Mine, P.2

[4] Independent Expert Panel for Mining in the Catchment [IEPMC] (2019) Independent Expert Panel for Mining in the Catchment Report: Part 2. Coal Mining Impacts in the Special Areas of the Greater Sydney Water Catchment, Prepared for the NSW Department of Planning, Industry and Environment, P. 48

[5] ABC News (2019) Sydney, Illawarra Drinking Water Catchment under Threat as Mining takes Toll on Key Wetlands <https://ab.co/2KqYNm4>

[6] WaterNSW (2019) Submission to Planning on Dendrobium Extension Project, P. 3

[7] NSW Department of Planning, Industry and Environment [DPIE] (2020) Dendrobium Mine Extension Project [Referral], P. 24

[8] IESC (2019) Advice to Decision Maker on Coal Mining Project IESC 2019-105: Dendrobium Mine, P.8

[9] NSW DPIE (2019) Submission to Planning on Dendrobium Mine Extension Project-Review of EIS, P.1

[10] Ibid., P.1

[11] IESC (2019) Advice to Decision Maker on Coal Mining Project IESC 2019-105: Dendrobium Mine, P. 9

[12] NSW DPIE Water and the Natural Resources Access Regulator (2019) Submission to Planning on Dendrobium Mine Extension Project, P. 2

[13] NSW DPIE (2019) Submission to Planning on Dendrobium Mine Extension Project- Review of EIS

[14] IEPMC (2019), Independent Expert Panel for Mining in the Catchment Report: Part 2, P. 26

[15] NSW DPIE (2019) Submission to Planning on Dendrobium Mine Extension Project-Review of EIS

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[17]WaterNSW (2019) Submission to Planning on Dendrobium Extension Project, P. 2

[19] NSW Dams Safety Committee (2019) Submission to Planning for the Dendrobium Mine Extension Project, P. 1

[20] WaterNSW (2019) Submission to DPIE on Dendrobium Extension Project, P. 4

[21] WaterNSW (2019) Sydney Drinking Water Catchment Audit 2019- Volume 1, P.11

[22] Ibid., P.28

[23] NSW DPIE (2020) Dendrobium Mine Extension Project [Referral], P. 40

[24] IESC [2019] Advice to Decision Maker on Coal Mining Project IESC 2019-105: Dendrobium Mine, P. 2

[25] Ibid., P. 7

[26] IEPMC (2019) Independent Expert Panel for Mining in the Catchment Report: Part 2

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[28] ABC News (2020) South32's Dendrobium Mine Disgorges Coal Sludge into Creek Drawing Protest at Wollongong EPA Office

[29] Nature Conservation Council (2019) Submission to Planning on the Dendrobium Mine Extension Project, P. 5

[30] Niche Environment and Heritage Aboriginal Cultural Heritage Assessment for South32 Dendrobium EIS (2020), P.48

[31] Ibid., P. III

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[33] Intergovernmental Panel on Climate Change, Special Report on global warming of 1.5 degrees, 2018, Chapter 3, Box 3.4, page 230. Available at https://www.ipcc.ch/site/assets/uploads/sites/2/2019/06/SR15_Chapter3_Low_Res.pdf