NSW GOVERNMENT | Dams Safety Committee

24 January, 2017

Resource Assessments and Business Systems
Department of Planning & Environment
GPO Box 39
SYDNEY NSW 2001

Our ref: 10.121.046.

Your ref:

Attention: Paul Freeman

Dear Paul,

Dendrobium Mine- Plan for the Future: Coal for Steelmaking
Areas 5 & 6

A. BACKGROUND

The Dams Safety Committee (DSC) has been requested to provide requirements for the project. The proposed longwall extraction lies partly within the Avon and Cordeaux Notification Areas. Area 5 abuts the Avon Dam wall as well as its storage. While Area 4 abuts the Cordeaux Dam wall.

Avon Dam is a major water supply dam which is prescribed by the Dams Safety Committee. It is a 72m, concrete gravity rockfilled dam that supplies water to the Illawarra. The Dam is owned by WaterNSW. The Dam has a consequence category of Extreme for both sunny day and flood failures.

Cordeaux Dam is a major water supply dam which is prescribed by the Dams Safety Committee. It is a 56.5m, concrete gravity dam that supplies water to the Macarthur/Sydney area. The Dam is owned by WaterNSW. The Dam has a consequence category of Extreme for both sunny day and flood failures.

The DSC is currently involved in the process for regulating Dendrobium's mining within the Avon Notification Area (NA) which surrounds the Avon Dam and storage, using its powers under the Dams Safety Act (1978) and the Mining Act (1992).

As both dams have Extreme Consequences should they fail, the DSC's requirements are for the safety of these dams.

Postal: NSW Dams Safety Committee, Locked Bag 5123, Parramatta NSW 2124, Australia
Address: Level 3, 10 Valentine Avenue, Parramatta NSW 2150
Phone: (02) 9842 8073
Fax: (02) 9842 8071
http: www.damsafety.nsw.gov.au
email: dsc@damsafety.nsw.gov.au
ABN 55 079 703 705

REQUIREMENTS

The Environmental Impact Statement (EIS) must include:

1. A study of the geology in the proposed areas of development
    a. Focussing on identifying
        i. Any structures that extend towards the dam wall.
        ii. Any structures that connect the reservoirs to the mine workings, either directly or via a secondary means, such as a shear plane and connected fracture network
    b. Identifying the presence and extent of important aquicludes in the geological sequence.
2. A quantitative assessment of the hydrogeology of the system.
3. A subsidence assessment of possible impacts on the dams and development of a monitoring plan, in consultation with WaterNSW, similar to that used to protect Sandy Creek Waterfall.
4. A Risk Assessment concentrating on the safety of the dams and security of the stored waters.

Yours faithfully,

S. Knight
Executive Engineer
Dams Safety Committee

NSW GOVERNMENT | Department of Industry

OUT17/2447

Mr Paul Freeman
Team Leader, Resource Assessments
Department of Planning & Environment
GPO Box 39
SYDNEY NSW 2001

Paul.Freeman@planning.nsw.gov.au

Dear Paul

Dendrobium Mine Extension Project

I refer to your email dated 10 January 2017 inviting the Division of Resources & Energy (the Division) to provide input for Secretary's Environmental Assessment Requirements (SEARs) for the Dendrobium Mine Extension Project.

The Division has reviewed and assessed the adequacy of information in relation to the Dendrobium Mine Extension Project and recommends that the Mining Development Rehabilitation Standard SEARs (see attachment A) be applied to this project.

Should you have any enquires regarding this matter please contact Steve Cozens, Senior Project Officer, Royalty & Advisory Services on 9842 8573.

Yours sincerely

Zane West
Manager Royalties & Advisory Services

Attachment A

Mining Development Rehabilitation Standard SEARs

Post-mining land use

(a) Identification and assessment of post-mining land use options;

(b) Identification and justification of the preferred post-mining land use outcome(s), including a discussion of how the final land use(s) are aligned with relevant local and regional strategic land use objectives;

(c) Identification of how the rehabilitation of the project will relate to the rehabilitation strategies of neighbouring mines within the region, with a particular emphasis on the coordination of rehabilitation activities along common boundary areas;

Rehabilitation objectives and domains

(d) Inclusion of a set of project rehabilitation objectives and completion criteria that clearly define the outcomes required to achieve the post-mining land use for each domain. Completion criteria should be specific, measurable, achievable, realistic and time-bound. If necessary, objective criteria may be presented as ranges;

Rehabilitation Methodology

(e) Details regarding the rehabilitation methods for disturbed areas and expected time frames for each stage of the rehabilitation process;

(f) Mine layout and scheduling, including maximising opportunities for progressive final rehabilitation. The final rehabilitation schedule should be mapped against key production milestones (i.e. ROM tonnes) of the mine layout sequence before being translated to indicative timeframes throughout the mine life. The mine plan should maximise opportunities for progressive rehabilitation;

Conceptual Final Landform Design

(g) Inclusion of a drawing at an appropriate scale identifying key attributes of the final landform, including final landform contours and the location of the proposed final land use(s);

Monitoring and Research

(h) Outlining the monitoring programs that will be implemented to assess how rehabilitation is trending towards the nominated land use objectives and completion criteria;

(i) Details of the process for triggering intervention and adaptive management measures to address potential adverse results as well as continuously improve rehabilitation practices;

(j) Outlining any proposed rehabilitation research programs and trials, including their objectives. This should include details of how the outcomes of research are considered as part of the ongoing review and improvement of rehabilitation practices;

Post-closure maintenance

(k) Description of how post-rehabilitation areas will be actively managed and maintained in accordance with the intended land use(s) in order to demonstrate progress towards meeting the rehabilitation objectives and completion criteria in a timely manner;

Barriers or limitations to effective rehabilitation

(l) Identification and description of those aspects of the site or operations that may present barriers or limitations to effective rehabilitation, including:

(i) evaluation of the likely effectiveness of the proposed rehabilitation techniques against the rehabilitation objectives and completion criteria;

(ii) an assessment and life of mine management strategy of the potential for geochemical constraints to rehabilitation (e.g. acid rock drainage, spontaneous combustion etc.), particularly associated with the management of overburden/interburden and reject material;

(iii) the processes that will be implemented throughout the mine life to identify and appropriately manage geochemical risks that may affect the ability to achieve sustainable rehabilitation outcomes;

(iv) a life of mine tailings management strategy, which details measures to be implemented to avoid the exposure of tailings material that may cause environmental risk, as well as promote geotechnical stability of the rehabilitated landform; and

(v) existing and surrounding landforms (showing contours and slopes) and how similar characteristics can be incorporated into the post-mining final landform design. This should include an evaluation of how key geomorphological characteristics evident in stable landforms within the natural landscape can be adapted to the materials and other constraints associated with the site.

(m) Where a void is proposed to remain as part of the final landform, include:

(i) a constraints and opportunities analysis of final void options, including backfilling, to justify that the proposed design is the most feasible and environmentally sustainable option to minimise the sterilisation of land post-mining;

(ii) a preliminary geotechnical assessment to identify the likely long term stability risks associated with the proposed remaining high wall(s) and low wall(s) along with associated measures that will be required to minimise potential risks to public safety; and

(iii) outcomes of the surface and groundwater assessments in relation to the likely final water level in the void. This should include an assessment of the potential for fill and spill along with measures required be implemented to minimise associated impacts to the environment and downstream water users.

(n) Where the mine includes underground workings:

(i) determine (with reference to the groundwater assessment) the likelihood and associated impacts of groundwater accumulating and subsequently discharging (e.g. acid or neutral mine drainage) from the underground workings post cessation of mining; and

(ii) consideration of the likely controls required to either prevent or mitigate against these risks as part of the closure plan for the site.

(o) Consideration of the controls likely to be required to either prevent or mitigate against rehabilitation risks as part of the closure plan for the site;

(p) Where an ecological land use is proposed, demonstrate how the revegetation strategy (e.g. seed mix, habitat features, corridor width etc.) has been developed in consideration of the target vegetation community(s);

(q) Where the intended land use is agriculture, demonstrate that the landscape, vegetation and soil will be returned to a condition capable of supporting this; and

(r) Consider any relevant government policies[1].

1 The following government policies should be considered when addressing rehabilitation issues:
• Mine Rehabilitation (Leading Practice Sustainable Development Program for the Mining Industry, 2006)
• Mine Closure and Completion (Leading Practice Sustainable Development Program for the Mining Industry, 2006)
• Strategic Framework for Mine Closure (ANZMEC-MCA, 2000)

NSW GOVERNMENT | Dams Safety Committee

24 January, 2017

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NSW GOVERNMENT | Department of Industry

OUT17/2447

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Team Leader, Resource Assessments
Department of Planning & Environment
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Yours sincerely

Zane West
Manager Royalties & Advisory Services

Attachment A

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Department of Primary Industries

OUT17/3435

Mr Paul Freeman
Resource Assessments
NSW Department of Planning and Environment
GPO Box 39
SYDNEY NSW 2001

Paul.freeman@planning.nsw.gov.au

Dear Mr Freeman

Dendrobium Mine Extension Project (SSD 8194)
Request for Secretary's Environmental Assessment Requirements

I refer to your email of 10 January 2017 to the Department of Primary Industries (DPI) in respect to the above matter. Comment has been sought from relevant divisions of DPI. Views were also sought from NSW Department of Industry - Lands that are now a division of the broader Department and no longer within NSW DPI.
Any further referrals to DPI can be sent by email to landuse.enquiries@dpi.nsw.gov.au.

DPI has reviewed the request and Preliminary Environmental Assessment and provides the following recommendations:

- While it is acknowledged agricultural activity within the proposal area is limited, the proponent should confirm that an Agricultural Impact Statement is not required with reference to the Guideline for Agricultural Impact Statements.

- The Environmental Impact Statement should be required to include the following:

    - Identification of Key Fish Habitats within the proposal area.
    - Description of aquatic and riparian environments in the vicinity of the development, particularly extent and condition of riparian vegetation and instream aquatic vegetation, water depth, and permanence of water flow and snags (large woody debris) within the footprint of the proposal area.
    - Assessment of impacts on surface and ground water sources (both quality and quantity), related infrastructure, adjacent licensed water users, basic landholder rights, watercourses, riparian land, wetlands, and groundwater dependent ecosystems, and measures proposed to reduce and mitigate these impacts.
    - Annual volumes of surface water and groundwater proposed to be taken by the activity (including through inflow and seepage) from each surface and groundwater source as defined by the relevant water sharing plan.
    - Assessment of any volumetric water licensing requirements (including those for ongoing water take following completion of the project).

- The identification of an adequate and secure water supply for the life of the project. Confirmation that water can be sourced from an appropriately authorised and reliable supply. This is to include an assessment of the current market depth where water entitlement is required to be purchased.
- A detailed and consolidated site water balance.
- A detailed assessment against the NSW Aquifer Interference Policy (2012) using DPI Water's assessment framework.
- Full technical details and data of all surface and groundwater modelling, and an independent peer review of the groundwater model.
- Proposed surface and groundwater monitoring activities and methodologies to assess impacts on surface and groundwater quantity and quality.
- Proposed management and disposal of produced or incidental water
- Details of the final landform of the site, including final void management (where relevant) and rehabilitation measures.
- Assessment of any potential cumulative impacts on water resources, and any proposed options to manage the cumulative impacts.
- Assessment of whether the activity may have a significant impact on water resources, with reference to the Commonwealth Department of Environment Significant Impact Guidelines.
- If the activity may have a significant impact on water resources, then provision of information in accordance with the Information Guidelines for Independent Expert Scientific Committee advice on coal seam gas and large coal mining development proposals, including completion of the information requirements checklist.

Yours sincerely

Mitchell Isaacs
Director, Planning Policy & Assessment Advice
25 January 2017

DPI appreciates your help to improve our advice to you. Please complete this three minute survey about the advice we have provided to you, here:
https://goo.gl/o8TXWz

DOC17/35235

Mr Paul Freeman
Team Leader, Resource Assessments
NSW Department of Planning & Environment
GPO Box 39
SYDNEY NSW 2001

Dear Mr Freeman

Environmental Impact Statement Requirements for the Dendrobium Mine Extension Project

I am writing in reply to your email dated 10 January 2017 requesting the Environment Protection Authority's (EPA) requirements for the Secretary's Environmental Assessment Requirements (SEARs) for the Dendrobium Mine Extension Project.

The EPA has reviewed the Preliminary Environmental Assessment – December 2016 for the project provided by the proponent Illawarra Coal Holdings Pty Ltd and considered the information provided by South32 to the agency Planning Focus Meeting held on 24 January 2017.

The EPA recommends that the Department of Planning and Environment base its SEARS on the latest version of the guideline document "Indicative Secretary's Environmental Assessment Requirements (SEARs) for State Significant Mining Developments (NSW, 2015a)".

The EPA has also attached a list of specific issues that should also be addressed in the Environmental Impact Statement (**Attachment A**). These issues are based upon EPA regulation of Dendrobium Coal's pit top activities and present opportunities for improved environmental performance.

If you have questions regarding the above, please phone the contact officer on (02) 4224 4100.

Yours sincerely

25/01/17

PETER BLOEM
Manager Regional Operations Illawarra
Environment Protection Authority

Att:

Contact officer: MR ANDREW COULDRIDGE
02 4224 4100

PO Box 513, Wollongong NSW 2520
Level 3, 84 Crown Street Wollongong NSW 2500
Tel: (02) 4224 4100 Fax: (02) 4224 4110
ABN 43 692 285 758
www.epa.nsw.gov.au

ATTACHMENT A

SPECIFIC ISSUES TO BE ADDRESSED IN THE DENDROBIUM MINE PROJECT EIS

Water Discharges, Cordeaux Colliery Pit Top and Dendrobium Pit Top

It is possible that Cordeaux Colliery pit top may be used in the extension project. This could include location of ventilation shafts, or personnel/materials access. The proponent should review the adequacy of existing stormwater controls at the Cordeaux colliery pit top if it is to be used as part of the project.

As the site has not been used in production for a number of years, the proponent should also review the separation and disposal of workshop cleaning and wash-down waters. Pollution incidents have occurred at the Dendrobium pit top due to unknown cross connections between clean and dirty stormwater systems.

The proponent should review of capacity and operability of sewage treatment and disposal at Cordeaux in light of possible increased personnel numbers and site usage patterns.

A water balance for the mine should be prepared to determine any change in the quantity and character of groundwater discharged through LDP 5 to Allan's Creek, Port Kembla.

Any significant deterioration as a consequence of changes in the discharge should be modelled (dilution and mixing zone model) and would require an ambient monitoring program to confirm that concentrations remain below appropriate ANZZEC 2000 trigger values in Allan's Creek.

Mine Ventilation

The proponent should examine abatement technology that could be adopted to manage ventilation air, including methane emissions produced during pre-mine gas drainage activities.

The proponent should also investigate possible odorous air emissions from ventilation shafts and if necessary model odour impacts on the community.

Waste Emplacement

The proponent should examine how refuse from proposed Area 5 & Area 6 will affect the lifespan of the West Cliff Emplacement (Stages 3 & 4). Any need for additional emplacement areas for the combined coal wash waste from the Dendrobium and Appin mines should be examined.

The proponent should examine opportunities for coal wash reuse, and advancements in underground emplacement of coal wash, considering developments at Metropolitan Colliery and the proposed Hume Coal mine.

The proponent should provide an assessment of technical and economic feasibility of implementing integrated high pressure coal wash paste injection into the longwall goaf.

Rail Noise

The current operation of the Kemira Valley rail line impacts on adjacent residents, in particular wheel and brake squeal. South32 have carried out a number of investigations without being able to resolve this noise issue.

The proponent should consider and provide a quantitative assessment of improvements in rail noise levels along the Kemira Valley rail line that could be achieved by replacing the existing old fleet of wagons with new wagons having best practice braking and bogie configurations.

The assessment should be based on theoretical predictions and actual emission measurements taken from new rolling stock used in coal mining applications in Australia. Noise data and references must be provided to verify the assessment.

Dust Fallout

The proponent should list and assess the location and nature of dust fallout complaints received by Dendrobium Coal over the past 10 years.

The proponent should investigate any additional reasonable and feasible measures available to minimise dust impacts on affected properties and on properties directly to the south east of the Kemira Valley stockpile.

Examination of best practice controls should at least include stockpile controls, train loading controls and controls on dust from rail transport as the line passes close to the affected houses.

The proponent should investigate the adoption of best practice real time air quality monitoring equipment that could be used to provide real time air quality monitoring information to the community, and be used to inform mine Trigger Action Response Plans to better manage dust impacts from the mine.

Office of Environment & Heritage

NSW GOVERNMENT

Date: 25 January 2017
Your reference: SSD16 8194
Our reference: DOC17/33460
Contact: Calvin Houlison
4224 4179

Paul Freeman
Team Leader, Resource Assessments
Department of Planning & Environment
GPO Box 39
SYDNEY NSW 2001
E-mail: paul.freeman@planning.nsw.gov.au

Dear Mr Freeman

RE: OEH INPUT INTO SECRETARY'S ENVIRONMENTAL ASSESSMENT REQUIREMENTS FOR PROPOSED DENDROBIUM MINE EXTENSION PROJECT

Thank you for your e-mail request dated 10 January 2017 inviting input from the Office of Environment & Heritage (OEH) for Secretary's Environmental Impact Assessment Requirements (SEARs) for the abovementioned proposal.

We note that the project will be assessed as State Significant Development (SSD) under Part 4 Division 4.1 of the *Environmental Planning & Assessment Act 1979*.

We recommend that the Environmental Impact Statement (EIS) appropriately addresses the following:

1. Biodiversity
2. Aboriginal Cultural Heritage
3. Historic heritage
4. Water and soils

The EIS should include an appropriate assessment of the potential impacts on biodiversity, including threatened species, populations, ecological communities or their habitats likely to occur within or near the subject site. Please note that the NSW Biodiversity Offsets Policy for Major Projects is now being implemented.

Impacts to biodiversity should be assessed in accordance with the Framework for Biodiversity Assessment (FBA) by a person accredited in accordance with s142B(1)(c) of the *Threatened Species Conservation Act 1995*. The offset strategy will be required to meet the minimum requirements outlined in the FBA. The transitional period for implementation of the Policy commenced on 1 October 2014 and was recently extended to cover the intervening period leading up to commencement of the new Biodiversity Conservation Act, expected sometime in mid-2017. You should also discuss impacts upon Commonwealth listed entities with the Commonwealth Department of Environment to determine their approvals and offsetting requirements.

Please also note that the Addendum to NSW Biodiversity Offsets Policy for Major Projects (Upland swamps impacted by longwall mining subsidence) commenced in December 2016. The project team's attention is drawn to this new Policy addendum, particularly in relation to the Coastal Upland Swamp Endangered Ecological Community (EEC). We also recommend that a full justification for impacts upon upland swamps

and 3rd order or above streams, including reasons for the damage, alternatives considered, suggested remediation and offsets for any such damage, be presented. We also request that monitoring data collected during the EIS process should also be supplied to assist in our office's assessment. The project team is welcome to contact OEH with any questions regarding the methodology, including the coastal swamps addendum.

There are numerous Aboriginal cultural heritage sites recorded within the proposed Area 5 and Area 6 expansion areas. Previous work in this area indicates that all cultural heritage sites on the Woronora Plateau are of Aboriginal cultural significance. A comprehensive program of archaeological survey and Aboriginal community consultation is required so that the impact of the proposed expansion on Aboriginal cultural heritage can be properly assessed. An Aboriginal Cultural Heritage Management Plan (ACHMP) should be prepared for the proposed Areas 5 and 6 expansion.

This will require detailed baseline recording of sites within the mine expansion area. The ACHMP should include appropriate avoidance, monitoring and mitigation measures based on the results of the Aboriginal cultural heritage assessment. OEH South East Regional Operations requests that the draft ACHMP is forwarded to us for comment before being adopted.

The approval authority will also need to be satisfied with any flooding issues for the site, noting that the proposed Areas 5 and 6 are located within the drinking water catchment area. Wollongong City, Wingecarribee and Wollondilly Shire Councils, and Water NSW as the catchment management authority are considered to be appropriately placed to address any flooding issues in the EIS.

Finally, we request clarification in the EIS documentation that no additional surface works or undermining for the proposed Areas 5 and 6 are proposed within Upper Nepean or Illawarra Escarpment State Conservation Areas (SCA). The concurrence of the Minister of the Environment must be sought if additional surface works or undermining within SCA boundaries are proposed.

The full list of standard and project specific OEH requirements to be addressed in the EIS are provided at **Attachments A and B** respectively. In preparing the EIS, the proponent should refer to the guidance material listed in **Attachment C**. Additional guidance on Aboriginal cultural heritage matters is provided at **Attachment D**.

If you have any further queries in relation to this matter, please do not hesitate to contact Calvin Houlison, A/ Senior Team Leader, Planning, on 4224 4179 or calvin.houlison@environment.nsw.gov.au.

Yours sincerely

CALVIN HOULISON
A/ Senior Team Leader, Planning
South East Branch
Regional Operations Division

Enclosures:

Attachment A – Standard Environmental Assessment Requirements
Attachment B – Project Specific Requirements
Attachment C – Guidance Material
Attachment D – Detailed Aboriginal Cultural Heritage Comments

Attachment A – Standard Environmental Assessment Requirements

Biodiversity
1. Biodiversity impacts related to the proposed development are to be assessed and documented in accordance with the Framework for Biodiversity Assessment including the Addendum to NSW Biodiversity Offsets Policy for Major Projects (Upland swamps impacted by longwall mining subsidence)(December 2016), unless otherwise agreed by OEH, by a person accredited in accordance with s142B(1)(c) of the *Threatened Species Conservation Act 1995.*
Aboriginal cultural heritage
2. The EIS must identify and describe the tangible and intangible Aboriginal cultural heritage values that exist across the whole area that will be affected by the development and document these in the EIS. This may include the need for surface survey and test excavation. The identification of cultural heritage values should be guided by the *Guide to investigating, assessing and reporting on Aboriginal Cultural Heritage in NSW* (DECCW, 2011) and consultation with OEH regional officers.
3. Where Aboriginal cultural heritage values are identified, consultation with Aboriginal people must be undertaken and documented in accordance with the *Aboriginal cultural heritage consultation requirements for proponents 2010* (DECCW). The significance of cultural heritage values for Aboriginal people who have a cultural association with the land must be documented in the EIS.
4. Impacts on Aboriginal cultural heritage values are to be assessed and documented in the EIS. The EIS must demonstrate attempts to avoid impact upon cultural heritage values and identify any conservation outcomes. Where impacts are unavoidable, the EIS must outline measures proposed to mitigate impacts. Any objects recorded as part of the assessment must be documented and notified to OEH.
Historic heritage
5. The EIS must provide a heritage assessment including but not limited to an assessment of impacts to *State and local heritage* including conservation areas, natural heritage areas, places of Aboriginal heritage value, buildings, works, relics, gardens, landscapes, views, trees should be assessed. Where impacts to State or locally significant heritage items are identified, the assessment shall: a. outline the proposed mitigation and management measures (including measures to avoid significant impacts and an evaluation of the effectiveness of the mitigation measures) generally consistent with the NSW Heritage Manual (1996), b. be undertaken by a suitably qualified heritage consultant(s) (note: where archaeological excavations are proposed the relevant consultant must meet the NSW Heritage Council's Excavation Director criteria), c. include a statement of heritage impact for all heritage items (including significance assessment), d. consider impacts including, but not limited to, vibration, demolition, archaeological disturbance, altered historical arrangements and access, landscape and vistas, and architectural noise treatment (as relevant), and e. where potential archaeological impacts have been identified develop an appropriate archaeological assessment methodology, including research design, to guide physical archaeological test excavations (terrestrial and maritime as relevant) and include the results of these test excavations.

Water and soils

6. The EIS must map the following features relevant to water and soils including:
   a. Acid sulfate soils (Class 1, 2, 3 or 4 on the Acid Sulfate Soil Planning Map).
   b. Rivers, streams, wetlands, estuaries (as described in Appendix 2 of the Framework for Biodiversity Assessment).
   c. Groundwater.
   d. Groundwater dependent ecosystems.
   e. Proposed intake and discharge locations.

7. The EIS must describe background conditions for any water resource likely to be affected by the development, including:
   a. Existing surface and groundwater.
   b. Hydrology, including volume, frequency and quality of discharges at proposed intake and discharge locations.
   c. Water Quality Objectives (as endorsed by the NSW Government http://www.environment.nsw.gov.au/ieo/index.htm) including groundwater as appropriate that represent the community's uses and values for the receiving waters.
   d. Indicators and trigger values/criteria for the environmental values identified at (c) in accordance with the ANZECC (2000) Guidelines for Fresh and Marine Water Quality and/or local objectives, criteria or targets endorsed by the NSW Government.

8. The EIS must assess the impacts of the development on water quality, including:
   a. The nature and degree of impact on receiving waters for both surface and groundwater, demonstrating how the development protects the Water Quality Objectives where they are currently being achieved, and contributes towards achievement of the Water Quality Objectives over time where they are currently not being achieved. This should include an assessment of the mitigating effects of proposed stormwater and wastewater management during and after construction.
   b. Identification of proposed monitoring of water quality.

9. The EIS must assess the impact of the development on hydrology, including:
   a. Water balance including quantity, quality and source.
   b. Effects to downstream rivers, wetlands, estuaries, marine waters and floodplain areas.
   c. Effects to downstream water-dependent fauna and flora including groundwater dependent ecosystems.
   d. Impacts to natural processes and functions within rivers, wetlands, estuaries and floodplains that affect river system and landscape health such as nutrient flow, aquatic connectivity and access to habitat for spawning and refuge (eg river benches).
   e. Changes to environmental water availability, both regulated/licensed and unregulated/rules-based sources of such water.
   f. Mitigating effects of proposed stormwater and wastewater management during and after construction on hydrological attributes such as volumes, flow rates, management methods and re-use options.
   g. Identification of proposed monitoring of hydrological attributes.

Attachment B – Project Specific Requirements

A. Impacts on the following species will require further consideration and provision of the information specified in s9.2 of the Framework for Biodiversity Assessment:
   - Shale Sandstone Transition Forest in the Sydney Basin Bioregion Critically Endangered Ecological Community (CEEC)
   - River-flat Eucalypt Forest on Coastal Floodplains of the NSW North Coast, Sydney Basin & South East Corner Bioregions Endangered Ecological Community (EEC)
   - Swamp Oak Floodplain Forest of the NSW North Coast, Sydney Basin & South East Corner Bioregions Endangered Ecological Community (EEC)

B. The assessment of cultural heritage values must include a surface survey undertaken by a qualified archaeologist in areas with potential for subsurface Aboriginal deposits. The result of the surface survey is to inform the development of an Aboriginal Cultural Heritage Management Plan. The assessment may identify the need for targeted test excavation to better assess the integrity, extent, distribution, nature and overall significance of the archaeological record. The results of surface surveys and test excavations are to be documented in the EIS.

C. The EIS must outline procedures to be followed if previously unrecorded Aboriginal objects are found at any stage of the life of the project to formulate appropriate measures to manage unforeseen impacts.

D. The EIS must outline procedures to be followed in the event Aboriginal burials or skeletal material is uncovered during construction to formulate appropriate measures to manage the impacts to this material.

Attachment C – Guidance material

Title	Web address
Relevant Legislation	
Coastal Protection Act 1979	http://www.legislation.nsw.gov.au/maintop/view/inforce/act+13+1979+cd+0+N
Commonwealth Environment Protection and Biodiversity Conservation Act 1999	http://www.austlii.edu.au/au/legis/cth/consol_act/epabca1999588/
Environmental Planning and Assessment Act 1979	http://www.legislation.nsw.gov.au/maintop/view/inforce/act+203+1979+cd+0+N
Fisheries Management Act 1994	http://www.legislation.nsw.gov.au/maintop/view/inforce/act+38+1994+cd+0+N
Marine Parks Act 1997	http://www.legislation.nsw.gov.au/maintop/view/inforce/act+64+1997+cd+0+N
National Parks and Wildlife Act 1974	http://www.legislation.nsw.gov.au/maintop/view/inforce/act+80+1974+cd+0+N
Protection of the Environment Operations Act 1997	http://www.legislation.nsw.gov.au/maintop/view/inforce/act+156+1997+cd+0+N
Threatened Species Conservation Act 1995	http://www.legislation.nsw.gov.au/maintop/view/inforce/act+101+1995+cd+0+N
Water Management Act 2000	http://www.legislation.nsw.gov.au/maintop/view/inforce/act+92+2000+cd+0+N
Wilderness Act 1987	http://www.legislation.nsw.gov.au/viewtop/inforce/act+196+1987+FIRST+0+N
Biodiversity	
NSW Biodiversity Offsets Policy for Major Projects (OEH, 2013)	http://www.environment.nsw.gov.au/resources/biodiversity/140672biopolicy.pdf
Framework for Biodiversity Assessment (OEH, 2013)	http://www.environment.nsw.gov.au/resources/biodiversity/140675fba.pdf
NSW Biodiversity Offsets Policy for Major Projects (Upland swamps impacted by longwall mining subsidence) addendum (OEH, 2016)	http://www.environment.nsw.gov.au/resources/biodiversity/swamp-addendum-biodiversity-offsets-policy-160766.pdf
Fisheries NSW policies and guidelines	http://www.dpi.nsw.gov.au/fisheries/habitat/publications/policies,-guidelines-and-manuals/fish-habitat-conservation
List of national parks	http://www.environment.nsw.gov.au/NationalParks/parksearchatoz.aspx
Revocation, recategorisation and road adjustment policy (OEH, 2012)	http://www.environment.nsw.gov.au/policies/RevocationOfLandPolicy.htm
Guidelines for developments adjoining land and water managed by the Department of Environment, Climate Change and Water (DECCW, 2010)	http://www.environment.nsw.gov.au/resources/parks/policyRevocations.pdf
Heritage	

Title	Web address
The Burra Charter (The Australia ICOMOS charter for places of cultural significance)	http://australia.icomos.org/wp-content/uploads/The-Burra-Charter-2013-Adopted-31.10.2013.pdf
Statements of Heritage Impact 2002 (HO & DUAP)	http://www.environment.nsw.gov.au/resources/heritagebranch/heritage/hmstatementsofhi.pdf
NSW Heritage Manual (DUAP) (scroll through alphabetical list to 'N')	http://www.environment.nsw.gov.au/Heritage/publications/index.htm#M-O
Aboriginal Cultural Heritage	
Aboriginal Cultural Heritage Consultation Requirements for Proponents (DECCW, 2010)	http://www.environment.nsw.gov.au/resources/cultureheritage/commconsultation/09781ACHconsultreq.pdf
Code of Practice for the Archaeological Investigation of Aboriginal Objects in New South Wales (DECCW, 2010)	http://www.environment.nsw.gov.au/resources/cultureheritage/10783FinalArchCoP.pdf
Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW (OEH 2011)	http://www.environment.nsw.gov.au/resources/cultureheritage/20110263ACHguide.pdf
Aboriginal Site Recording Form	http://www.environment.nsw.gov.au/resources/parks/SiteCardMainV1_1.pdf
Aboriginal Site Impact Recording Form	http://www.environment.nsw.gov.au/resources/cultureheritage/120558asirf.pdf
Aboriginal Heritage Information Management System (AHIMS) Registrar	http://www.environment.nsw.gov.au/contact/AHIMSRegistrar.htm
Care Agreement Application form	http://www.environment.nsw.gov.au/resources/cultureheritage/20110914TransferObject.pdf
Water and Soils	
Acid sulphate soils	
Acid Sulfate Soils Planning Maps via 'The NSW Natural Resource Atlas'	www.nratlas.nsw.gov.au/
Acid Sulfate Soils Manual (Stone et al. 1998)	Manual available for purchase from: http://www.landcom.com.au/whats-new/the-blue-book.aspx Chapters 1 and 2 are on DPI's Guidelines Register at: Chapter 1 Acid Sulfate Soils Planning Guidelines: http://www.planning.nsw.gov.au/rdaguidelines/documents/NSW%20Acid%20Sulfate%20Soils%20Planning%20Guidelines.pdf Chapter 2 Acid Sulfate Soils Assessment Guidelines: http://www.planning.nsw.gov.au/rdaguidelines/documents/NSW%20Acid%20Sulfate%20Soils%20Assessment%20Guidelines.pdf
Acid Sulfate Soils Laboratory Methods Guidelines (Ahern et al. 2004)	http://www.advancedenvironmentalmanagement.com/Reports/Savannah/Appendix%2015.pdf This replaces Chapter 4 of the Acid Sulfate Soils Manual above.
Flooding and Coastal Erosion	
Reforms to coastal erosion management	http://www.environment.nsw.gov.au/coasts/coastalerosionmgmt.htm
Floodplain development manual	http://www.environment.nsw.gov.au/floodplains/manual.htm
Guidelines for Preparing Coastal Zone	Guidelines for Preparing Coastal Zone Management Plans

Title	Web address
Management Plans	http://www.environment.nsw.gov.au/resources/coasts/130224CZMPGuide.pdf
NSW Climate Impact Profile	NSW Climate Impact Profile
Climate Change Impacts and Risk Management	Climate Change Impacts and Risk Management: A Guide for Business and Government, AGIC Guidelines for Climate Change Adaptation
Water	
Water Quality Objectives	http://www.environment.nsw.gov.au/ieo/index.htm
ANZECC (2000) Guidelines for Fresh and Marine Water Quality	www.environment.gov.au/water/publications/quality/australian-and-new-zealand-guidelines-fresh-marine-water-quality-volume-1
Applying Goals for Ambient Water Quality Guidance for Operations Officers – Mixing Zones	http://deccnet/water/resources/AWQGuidance7.pdf
Approved Methods for the Sampling and Analysis of Water Pollutant in NSW (2004)	http://www.environment.nsw.gov.au/resources/legislation/approvedmethods-water.pdf

Attachment D – Detailed Aboriginal Cultural Heritage Comments

Previously recorded sites

The Preliminary Environmental Assessment states that no areas of high Aboriginal cultural sensitivity are identified in an Environmental Planning Instrument as occurring in the expansion area. This does not mean that areas of high Aboriginal cultural sensitivity do not occur in the expansion area.

There are numerous Aboriginal cultural heritage values and Aboriginal objects (as defined under the *National Parks and Wildlife Act 1974*) within the proposed Area 5 and Area 6 expansion areas. This is reflected in the detailed cultural heritage assessments previously undertaken for the Dendrobium mine, and through other archaeological survey work in this region. This previous work indicates that all cultural heritage sites on the Woronora Plateau are of Aboriginal cultural significance.

Subsidence can damage Aboriginal cultural heritage sites, including rock shelters, art sites, grinding grooves and open artefact scatters such as occur on the Woronora Plateau.

EIS requirements

A comprehensive program of archaeological survey and Aboriginal community consultation is required so that the impact of the proposed mine expansion on Aboriginal cultural heritage can be properly assessed. The archaeological survey and community consultation process must comply with OEH guidelines as set out in the proposed EARs. The assessment must consider the potential impacts of the proposed expansion on:

- Tangible and intangible Aboriginal cultural values
- The broader cultural landscape
- Cumulative impacts to Aboriginal cultural heritage sites caused by mining within the Dendrobium mine area and broader Woronora Plateau.

Appropriate avoidance, monitoring and mitigation measures must be developed based on the results of the Aboriginal cultural heritage assessment.

Aboriginal cultural heritage management plan

An Aboriginal Cultural Heritage Management Plan (ACHMP) should be prepared for the proposed Areas 5 and 6 expansion. The ACHAR must include:

- Aboriginal community consultation process and outcomes
- Methodology for conducting baseline recording of Aboriginal cultural heritage sites
- Options for avoiding impacts to the recorded sites
- Methodology for monitoring sites within Areas 5 and 6
- Appropriate responses if impact occurs, including mitigation and remediation options
- Procedures for reviewing the effectiveness of the ACHAR, including any mitigation and remediation processes that are implemented.
- Process for reporting Aboriginal objects to the Aboriginal Heritage Information Management System (AHIMS) Registrar, and for completing AHIMS site impact cards as required.

- Procedures for reviewing the cumulative impacts of the Dendrobium mine on Aboriginal cultural heritage.

OEH South East Branch Regional Operations Division requests that the draft ACHMP is forwarded to us for comment before being adopted.

Baseline recording

Detailed baseline recording of sites within the expansion area must occur before mining begins. The baseline recording must include:

- Detailed digital and spherical photographic records
- Detailed plans referenced to survey control points
- Detailed photographic and sketch plans of archaeological features including art panels
- Establishing survey control points to monitor subsidence
- Detailed elevation plans at rock shelter sites
- Assessment of site condition

Our Ref: STH08/01068/02
Contact: Melissa Steep 4221 2771
Your Ref: SSD 8194

Transport Roads & Maritime Services

8 February 2017

Paul Freeman
Department of Planning and Environment
BY EMAIL: paul.freeman@planning.nsw.gov.au

SECRETARYS ENVIRONMENTAL ASSESSMENT REQUIREMENTS (SEARS) SSD 8194 – DENDROBIUM MINE EXTENSION PROJECT

Dear Sir/Madam,

Roads and Maritime Services (RMS) refers to your correspondence dated 6 February 2017 regarding the subject SEARs request.

RMS has reviewed the information provided and considers the following information should be addressed in the Environmental Assessment (EA):

- A traffic impact study (TIS) is required. As a guide Table 2.1 of the RTA Guide to Traffic Generating Developments outlines the key issues that may be considered in preparing a TIS.
- The applicant needs to identify suitable infrastructure required to ameliorate any traffic impacts and safety impacts associated with the development. Concept plans need to be provided for any works proposed within the road reserve prior to determination to demonstrate that they can be constructed within the road reserve. If the works could not be constructed within the road reserve, RMS would not support the proposal unless appropriate legally binding arrangements were in place to ensure that the appropriate land required to construct the works could be obtained.
- The Environmental Assessment needs to consider the environmental impacts of any roadworks within the road reserve that are required to manage the impacts of the development. These impacts include traffic and road safety impacts as well as other impacts such noise, flora and fauna, heritage and impact to community.

RMS will reconsider the application once the above issues are addressed to its satisfaction. If you have any questions please contact Melissa Steep on 4221 2771.

Yours faithfully,

Melissa Steep
A/Manager Land Use
Southern Region

Roads & Maritime Services

Level 4, Southern Regional Office, 90 Crown Street, Wollongong NSW 2500 | PO Box 477 Wollongong East NSW 2520
T 02 4221 2460 | **F** 02 4221 2777 | **www.rmservices.nsw.gov.au** |

PO Box 323, Penrith NSW 2751
Level 4, 2-6 Station Street
Penrith NSW 2750
1300 722 468
www.waternsw.com.au
ABN 21 147 934 787

Ref: D2017/9677

Paul Freeman
Team Leader - Resource Assessments
NSW Department of Planning & Environment
GPO Box 39
SYDNEY NSW 2001

Dear Mr Freeman

Dendrobium Mine Extension Project (SSD 16_8194)
Request for Input into Secretary's Environmental Assessment Requirements

I refer to your email received 10 January 2017 providing the Preliminary Environmental Assessment (PEA) and seeking WaterNSW's inputs into the Secretary's Environmental Assessment requirements (SEARs) for the Dendrobium Mine extension project. WaterNSW appreciates the opportunity.

WaterNSW is a significant stakeholder for this project and requests the Department to involve it in all aspects of the environmental assessment. A principal objective of WaterNSW is to ensure that the Sydney drinking water catchment and associated water supply infrastructure are managed and protected so as to promote water quality, the protection of public health and public safety, and the protection of the environment.

WaterNSW notes that the proposed mining areas are highly significant and sensitive as they are:

- located in the Sydney drinking water catchment to which State Environmental Planning Policy (Sydney Drinking Water Catchment) 2011 applies.
- located in the Metropolitan Special Area Schedule 1 land to which the Special Areas Strategic Plan of Management 2015 applies.
- partly located in the Avon and Cordeaux Dam Notification Areas, as specified by the NSW Dams Safety Committee (DSC).
- immediately adjacent to sections of the Avon and Cordeaux rivers which are used by WaterNSW to transfer water from these dams to Pheasants Nest Weir.

The Special Areas are reserved for the purposes of ensuring the quality and quantity of water available for Sydney. WaterNSW is currently developing options to ensure an adequate supply of water to cater for Sydney's future, including potential augmentations of the water supply system. It is crucial that activities undertaken in the Special Areas do not compromise the ability of WaterNSW to undertake its role now or in the future.

WaterNSW has adopted a set of principles for managing mining impacts in the Sydney drinking water catchment which can be found at http://www.waternsw.com.au/__data/assets/pdf_file/0010/119890/Mining-principles.pdf. The principles establish the outcomes WaterNSW considers essential to protect the drinking water

supplies to the Greater Sydney region. WaterNSW opposes longwall mining extending into the Dam Notification Areas for Cordeaux and Avon dams.

WaterNSW requests that the SEARs require the applicant to:

- Detail how the project would be consistent with WaterNSW's mining principles.
- Demonstrate how the carrying out of the project would have a neutral or beneficial effect on receiving water quality pursuant to clause 10 of State Environmental Planning Policy (Sydney Drinking Water Catchment) 2011.
- Address the strategic management objectives of the Special Areas Strategic Plan of Management 2015.
- Detail the potential impact and proposed mitigation measures of the project on existing and options for future water supply infrastructure at and in the vicinity of the proposed mining areas.
- Consult with WaterNSW in preparing the Environmental Impact Statement.
- Address the specific matters included in Attachment 1.

If you wish to discuss this letter or the project more generally please do not hesitate to contact me on 47242452.

Malcolm Hughes

MALCOLM HUGHES
Manager Catchment Protection

30/1/17

Attachment 1 – WaterNSW's Specific Matters to be included in SEARs for the Dendrobium Mine Extension Project

1. The full description of the development and existing environment should include those aspects which have the potential to impact on the quantity and quality of surface and ground waters, biodiversity and water supply infrastructure at and adjacent to the site. This includes:
    - the location of Avon and Codreaux Dams and associated infrastructure in relation to the proposed longwalls in Areas 5 and 6
    - the location, mapping and geomorphology of Avon and Cordeaux Rivers and their tributaries, rockbars, water pools, waterfalls, cliffs, swamps overlying and adjacent to the proposed mining areas
    - the location, mapping and nature of any geological structures including faults, dykes, silts, and other intrusions
    - the hydrogeological fluxes between surface and ground waters
    - the location and description of all water and biodiversity monitoring locations/points (including surface and ground waters). Please note WaterNSW has not been satisfied with the design and implementation of surface and groundwater monitoring in previous Dendrobium mining domains, and
    - the location and features of all proposed surface infrastructure including ventilation facilities and access tracks.
2. The detailed assessment of the mining proposal on water resources associated with subsidence should consider the design, construction, operational, decommissioning phases and cumulative impacts and include:
    - impacts on Avon and Cordeaux Dams and associated infrastructure including dam wall
    - impacts on future water supply infrastructure options in the vicinity of the proposed mining areas
    - impacts on water quantity and quality of overlying and adjacent water resources including Avon and Cordeaux reservoirs and rivers and their tributaries, rockbars, water pools, waterfalls, cliffs, swamps, and groundwater systems using scientifically sound and rigorous numerically modelling and sufficient, appropriate and representative baseline data. The modeling approach should be determined in consultation with WaterNSW. Please note WaterNSW considers that the groundwater and surface water assessment and modelling should be more rigorous and transparent than that have been performed in the past
    - impacts of the proposed mining on receiving water quantity and quality, both surface and groundwater systems and associated impacts on interaction and baseflows of surface waters
    - details of proposed measures to be adopted to offset impacts and effectiveness of the measures including environmental performances measures
    - details of proposed monitoring of groundwater levels, surface water flows, groundwater and surface water quality, along with information as to how the proposed monitoring will be used to monitor and, if necessary, mitigate impacts on surface water and groundwater resources. Monitoring programs shall be designed in consultation with WaterNSW
    - details of the contingency plans to manage risks

- details of the structural stability, integrity, ongoing maintenance and monitoring of all site water management measures including water management ponds over the life of the project.

wollongong
city of innovation

WOLLONGONG CITY COUNCIL

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016

Department of Planning & Environment
Attention Paul Freeman
GPO BOX 39
SYDNEY NSW 2001

APPLICATION	DE-2017/22
Date	7 February 2017

Dear Sir/Madam

Development	Dendrobium Mine Extension Project SSD 8194
Location	4 Stones Road, MOUNT KEMBLA NSW 2526

REQUEST FOR INPUT ON SEARs

Thank you for providing Council with the opportunity to comment on the Secretary's Environmental Assessment Requirements (SEARs) for the above State Significant Development proposal.

The submitted documentation has been reviewed. It is considered the Preliminary Environmental Assessment by the proponent and draft SEARs account for those matters the subject of the future environmental assessment, with subsidence/water catchment management and transport impacts likely to be key issues of interest.

If you have any enquiries or wish to discuss these matters further, please contact Briarna Lee, Development Project Officer on (02) 42278829.

This letter is authorised by

John Wood
City Wide Development Manager
Wollongong City Council
Telephone (02) 4227 7111

Paul Freeman

From: David Henry <David.Henry@wollondilly.nsw.gov.au>
Sent: Friday, 10 February 2017 2:04 PM
To: Paul Freeman
Subject: FW: Dendrobium Mine Extension Project
Attachments: DMEP Preliminary Env Assessment.pdf

Hi Paul

I am very sorry about not providing comment on the [preliminary Environment Assessment.

As discussed, previous studies and surveys have identified the proposed mining area as koala habitat and a key habitat corridor for this species. It is therefore requested that the proponent be required to carry out the following activities which have been listed in Council's draft submission on the review of SEPP 44 Koala Habitat Protection

- *The analysis of historical records to determine the previous presence of koalas and behavioural patterns of koalas on the site*
- *The undertaking of comprehensive surveys to identify the presence of koalas consistent with best practice across all vegetation communities present on a site proposed for development*
- *An analysis of the observed and identified potential behavioural usage of the site by koalas across all vegetation types within the site based on a detailed assessment, (which is not restricted to habitat species listed in the revised SEPP 44).*
- *The role of the site in a landscape context in allowing for the movement of koalas based on a detailed assessment and analysis of existing records.*

In this regard, Council participated in a Baseline Survey Pilot Study with the NSW Office of Environment and Heritage during April and May 2016 which involved koala surveys at 58 strategic locations. It is recommended that OEH be contacted to obtain the Report on this Baseline Study prepared by Dr Nicholas J. Colman MSc

Thanks

David

Wollondilly Shire Council

David Henry
Acting Team Leader - Environmental Services

T 0246779687
A P.O. Box 21 Picton, NSW, 2571
E David.Henry@wollondilly.nsw.gov.au
W http://www.wollondilly.nsw.gov.au

Department of Primary Industries

OUT17/3435

Mr Paul Freeman
Resource Assessments
NSW Department of Planning and Environment
GPO Box 39
SYDNEY NSW 2001

Paul.freeman@planning.nsw.gov.au

Dear Mr Freeman

Dendrobium Mine Extension Project (SSD 8194)
Request for Secretary's Environmental Assessment Requirements

I refer to your email of 10 January 2017 to the Department of Primary Industries (DPI) in respect to the above matter. Comment has been sought from relevant divisions of DPI. Views were also sought from NSW Department of Industry - Lands that are now a division of the broader Department and no longer within NSW DPI.
Any further referrals to DPI can be sent by email to landuse.enquiries@dpi.nsw.gov.au.

DPI has reviewed the request and Preliminary Environmental Assessment and provides the following recommendations:

- While it is acknowledged agricultural activity within the proposal area is limited, the proponent should confirm that an Agricultural Impact Statement is not required with reference to the Guideline for Agricultural Impact Statements.

- The Environmental Impact Statement should be required to include the following:

    - Identification of Key Fish Habitats within the proposal area.
    - Description of aquatic and riparian environments in the vicinity of the development, particularly extent and condition of riparian vegetation and instream aquatic vegetation, water depth, and permanence of water flow and snags (large woody debris) within the footprint of the proposal area.
    - Assessment of impacts on surface and ground water sources (both quality and quantity), related infrastructure, adjacent licensed water users, basic landholder rights, watercourses, riparian land, wetlands, and groundwater dependent ecosystems, and measures proposed to reduce and mitigate these impacts.
    - Annual volumes of surface water and groundwater proposed to be taken by the activity (including through inflow and seepage) from each surface and groundwater source as defined by the relevant water sharing plan.
    - Assessment of any volumetric water licensing requirements (including those for ongoing water take following completion of the project).

- The identification of an adequate and secure water supply for the life of the project. Confirmation that water can be sourced from an appropriately authorised and reliable supply. This is to include an assessment of the current market depth where water entitlement is required to be purchased.
- A detailed and consolidated site water balance.
- A detailed assessment against the NSW Aquifer Interference Policy (2012) using DPI Water's assessment framework.
- Full technical details and data of all surface and groundwater modelling, and an independent peer review of the groundwater model.
- Proposed surface and groundwater monitoring activities and methodologies to assess impacts on surface and groundwater quantity and quality.
- Proposed management and disposal of produced or incidental water
- Details of the final landform of the site, including final void management (where relevant) and rehabilitation measures.
- Assessment of any potential cumulative impacts on water resources, and any proposed options to manage the cumulative impacts.
- Assessment of whether the activity may have a significant impact on water resources, with reference to the Commonwealth Department of Environment Significant Impact Guidelines.
- If the activity may have a significant impact on water resources, then provision of information in accordance with the Information Guidelines for Independent Expert Scientific Committee advice on coal seam gas and large coal mining development proposals, including completion of the information requirements checklist.

Yours sincerely

Mitchell Isaacs
Director, Planning Policy & Assessment Advice
25 January 2017

DPI appreciates your help to improve our advice to you. Please complete this three minute survey about the advice we have provided to you, here:
https://goo.gl/o8TXWz

DOC17/35235

Mr Paul Freeman
Team Leader, Resource Assessments
NSW Department of Planning & Environment
GPO Box 39
SYDNEY NSW 2001

Dear Mr Freeman

Environmental Impact Statement Requirements for the Dendrobium Mine Extension Project

I am writing in reply to your email dated 10 January 2017 requesting the Environment Protection Authority's (EPA) requirements for the Secretary's Environmental Assessment Requirements (SEARs) for the Dendrobium Mine Extension Project.

The EPA has reviewed the Preliminary Environmental Assessment – December 2016 for the project provided by the proponent Illawarra Coal Holdings Pty Ltd and considered the information provided by South32 to the agency Planning Focus Meeting held on 24 January 2017.

The EPA recommends that the Department of Planning and Environment base its SEARS on the latest version of the guideline document "Indicative Secretary's Environmental Assessment Requirements (SEARs) for State Significant Mining Developments (NSW, 2015a)".

The EPA has also attached a list of specific issues that should also be addressed in the Environmental Impact Statement (**Attachment A**). These issues are based upon EPA regulation of Dendrobium Coal's pit top activities and present opportunities for improved environmental performance.

If you have questions regarding the above, please phone the contact officer on (02) 4224 4100.

Yours sincerely

25/01/17

PETER BLOEM
Manager Regional Operations Illawarra
Environment Protection Authority

Att:

Contact officer: MR ANDREW COULDRIDGE
02 4224 4100

PO Box 513, Wollongong NSW 2520
Level 3, 84 Crown Street Wollongong NSW 2500
Tel: (02) 4224 4100 Fax: (02) 4224 4110
ABN 43 692 285 758
www.epa.nsw.gov.au

ATTACHMENT A

SPECIFIC ISSUES TO BE ADDRESSED IN THE DENDROBIUM MINE PROJECT EIS

Water Discharges, Cordeaux Colliery Pit Top and Dendrobium Pit Top

It is possible that Cordeaux Colliery pit top may be used in the extension project. This could include location of ventilation shafts, or personnel/materials access. The proponent should review the adequacy of existing stormwater controls at the Cordeaux colliery pit top if it is to be used as part of the project.

As the site has not been used in production for a number of years, the proponent should also review the separation and disposal of workshop cleaning and wash-down waters. Pollution incidents have occurred at the Dendrobium pit top due to unknown cross connections between clean and dirty stormwater systems.

The proponent should review of capacity and operability of sewage treatment and disposal at Cordeaux in light of possible increased personnel numbers and site usage patterns.

A water balance for the mine should be prepared to determine any change in the quantity and character of groundwater discharged through LDP 5 to Allan's Creek, Port Kembla.

Any significant deterioration as a consequence of changes in the discharge should be modelled (dilution and mixing zone model) and would require an ambient monitoring program to confirm that concentrations remain below appropriate ANZZEC 2000 trigger values in Allan's Creek.

Mine Ventilation

The proponent should examine abatement technology that could be adopted to manage ventilation air, including methane emissions produced during pre-mine gas drainage activities.

The proponent should also investigate possible odorous air emissions from ventilation shafts and if necessary model odour impacts on the community.

Waste Emplacement

The proponent should examine how refuse from proposed Area 5 & Area 6 will affect the lifespan of the West Cliff Emplacement (Stages 3 & 4). Any need for additional emplacement areas for the combined coal wash waste from the Dendrobium and Appin mines should be examined.

The proponent should examine opportunities for coal wash reuse, and advancements in underground emplacement of coal wash, considering developments at Metropolitan Colliery and the proposed Hume Coal mine.

The proponent should provide an assessment of technical and economic feasibility of implementing integrated high pressure coal wash paste injection into the longwall goaf.

Rail Noise

The current operation of the Kemira Valley rail line impacts on adjacent residents, in particular wheel and brake squeal. South32 have carried out a number of investigations without being able to resolve this noise issue.

The proponent should consider and provide a quantitative assessment of improvements in rail noise levels along the Kemira Valley rail line that could be achieved by replacing the existing old fleet of wagons with new wagons having best practice braking and bogie configurations.

The assessment should be based on theoretical predictions and actual emission measurements taken from new rolling stock used in coal mining applications in Australia. Noise data and references must be provided to verify the assessment.

Dust Fallout

The proponent should list and assess the location and nature of dust fallout complaints received by Dendrobium Coal over the past 10 years.

The proponent should investigate any additional reasonable and feasible measures available to minimise dust impacts on affected properties and on properties directly to the south east of the Kemira Valley stockpile.

Examination of best practice controls should at least include stockpile controls, train loading controls and controls on dust from rail transport as the line passes close to the affected houses.

The proponent should investigate the adoption of best practice real time air quality monitoring equipment that could be used to provide real time air quality monitoring information to the community, and be used to inform mine Trigger Action Response Plans to better manage dust impacts from the mine.

Office of Environment & Heritage

NSW GOVERNMENT

Date: 25 January 2017
Your reference: SSD16 8194
Our reference: DOC17/33460
Contact: Calvin Houlison
4224 4179

Paul Freeman
Team Leader, Resource Assessments
Department of Planning & Environment
GPO Box 39
SYDNEY NSW 2001
E-mail: paul.freeman@planning.nsw.gov.au

Dear Mr Freeman

RE: OEH INPUT INTO SECRETARY'S ENVIRONMENTAL ASSESSMENT REQUIREMENTS FOR PROPOSED DENDROBIUM MINE EXTENSION PROJECT

Thank you for your e-mail request dated 10 January 2017 inviting input from the Office of Environment & Heritage (OEH) for Secretary's Environmental Impact Assessment Requirements (SEARs) for the abovementioned proposal.

We note that the project will be assessed as State Significant Development (SSD) under Part 4 Division 4.1 of the *Environmental Planning & Assessment Act 1979*.

We recommend that the Environmental Impact Statement (EIS) appropriately addresses the following:

1. Biodiversity
2. Aboriginal Cultural Heritage
3. Historic heritage
4. Water and soils

The EIS should include an appropriate assessment of the potential impacts on biodiversity, including threatened species, populations, ecological communities or their habitats likely to occur within or near the subject site. Please note that the NSW Biodiversity Offsets Policy for Major Projects is now being implemented.

Impacts to biodiversity should be assessed in accordance with the Framework for Biodiversity Assessment (FBA) by a person accredited in accordance with s142B(1)(c) of the *Threatened Species Conservation Act 1995*. The offset strategy will be required to meet the minimum requirements outlined in the FBA. The transitional period for implementation of the Policy commenced on 1 October 2014 and was recently extended to cover the intervening period leading up to commencement of the new Biodiversity Conservation Act, expected sometime in mid-2017. You should also discuss impacts upon Commonwealth listed entities with the Commonwealth Department of Environment to determine their approvals and offsetting requirements.

Please also note that the Addendum to NSW Biodiversity Offsets Policy for Major Projects (Upland swamps impacted by longwall mining subsidence) commenced in December 2016. The project team's attention is drawn to this new Policy addendum, particularly in relation to the Coastal Upland Swamp Endangered Ecological Community (EEC). We also recommend that a full justification for impacts upon upland swamps

and 3rd order or above streams, including reasons for the damage, alternatives considered, suggested remediation and offsets for any such damage, be presented. We also request that monitoring data collected during the EIS process should also be supplied to assist in our office's assessment. The project team is welcome to contact OEH with any questions regarding the methodology, including the coastal swamps addendum.

There are numerous Aboriginal cultural heritage sites recorded within the proposed Area 5 and Area 6 expansion areas. Previous work in this area indicates that all cultural heritage sites on the Woronora Plateau are of Aboriginal cultural significance. A comprehensive program of archaeological survey and Aboriginal community consultation is required so that the impact of the proposed expansion on Aboriginal cultural heritage can be properly assessed. An Aboriginal Cultural Heritage Management Plan (ACHMP) should be prepared for the proposed Areas 5 and 6 expansion.

This will require detailed baseline recording of sites within the mine expansion area. The ACHMP should include appropriate avoidance, monitoring and mitigation measures based on the results of the Aboriginal cultural heritage assessment. OEH South East Regional Operations requests that the draft ACHMP is forwarded to us for comment before being adopted.

The approval authority will also need to be satisfied with any flooding issues for the site, noting that the proposed Areas 5 and 6 are located within the drinking water catchment area. Wollongong City, Wingecarribee and Wollondilly Shire Councils, and Water NSW as the catchment management authority are considered to be appropriately placed to address any flooding issues in the EIS.

Finally, we request clarification in the EIS documentation that no additional surface works or undermining for the proposed Areas 5 and 6 are proposed within Upper Nepean or Illawarra Escarpment State Conservation Areas (SCA). The concurrence of the Minister of the Environment must be sought if additional surface works or undermining within SCA boundaries are proposed.

The full list of standard and project specific OEH requirements to be addressed in the EIS are provided at **Attachments A and B** respectively. In preparing the EIS, the proponent should refer to the guidance material listed in **Attachment C**. Additional guidance on Aboriginal cultural heritage matters is provided at **Attachment D**.

If you have any further queries in relation to this matter, please do not hesitate to contact Calvin Houlison, A/ Senior Team Leader, Planning, on 4224 4179 or calvin.houlison@environment.nsw.gov.au.

Yours sincerely

CALVIN HOULISON
A/ Senior Team Leader, Planning
South East Branch
Regional Operations Division

Enclosures:

Attachment A – Standard Environmental Assessment Requirements
Attachment B – Project Specific Requirements
Attachment C – Guidance Material
Attachment D – Detailed Aboriginal Cultural Heritage Comments

Attachment A – Standard Environmental Assessment Requirements

Biodiversity
1. Biodiversity impacts related to the proposed development are to be assessed and documented in accordance with the Framework for Biodiversity Assessment including the Addendum to NSW Biodiversity Offsets Policy for Major Projects (Upland swamps impacted by longwall mining subsidence)(December 2016), unless otherwise agreed by OEH, by a person accredited in accordance with s142B(1)(c) of the *Threatened Species Conservation Act 1995.*
Aboriginal cultural heritage
2. The EIS must identify and describe the tangible and intangible Aboriginal cultural heritage values that exist across the whole area that will be affected by the development and document these in the EIS. This may include the need for surface survey and test excavation. The identification of cultural heritage values should be guided by the *Guide to investigating, assessing and reporting on Aboriginal Cultural Heritage in NSW* (DECCW, 2011) and consultation with OEH regional officers.
3. Where Aboriginal cultural heritage values are identified, consultation with Aboriginal people must be undertaken and documented in accordance with the *Aboriginal cultural heritage consultation requirements for proponents 2010* (DECCW). The significance of cultural heritage values for Aboriginal people who have a cultural association with the land must be documented in the EIS.
4. Impacts on Aboriginal cultural heritage values are to be assessed and documented in the EIS. The EIS must demonstrate attempts to avoid impact upon cultural heritage values and identify any conservation outcomes. Where impacts are unavoidable, the EIS must outline measures proposed to mitigate impacts. Any objects recorded as part of the assessment must be documented and notified to OEH.
Historic heritage
5. The EIS must provide a heritage assessment including but not limited to an assessment of impacts to *State and local heritage* including conservation areas, natural heritage areas, places of Aboriginal heritage value, buildings, works, relics, gardens, landscapes, views, trees should be assessed. Where impacts to State or locally significant heritage items are identified, the assessment shall: a. outline the proposed mitigation and management measures (including measures to avoid significant impacts and an evaluation of the effectiveness of the mitigation measures) generally consistent with the NSW Heritage Manual (1996), b. be undertaken by a suitably qualified heritage consultant(s) (note: where archaeological excavations are proposed the relevant consultant must meet the NSW Heritage Council's Excavation Director criteria), c. include a statement of heritage impact for all heritage items (including significance assessment), d. consider impacts including, but not limited to, vibration, demolition, archaeological disturbance, altered historical arrangements and access, landscape and vistas, and architectural noise treatment (as relevant), and e. where potential archaeological impacts have been identified develop an appropriate archaeological assessment methodology, including research design, to guide physical archaeological test excavations (terrestrial and maritime as relevant) and include the results of these test excavations.

Water and soils

6. The EIS must map the following features relevant to water and soils including:
   a. Acid sulfate soils (Class 1, 2, 3 or 4 on the Acid Sulfate Soil Planning Map).
   b. Rivers, streams, wetlands, estuaries (as described in Appendix 2 of the Framework for Biodiversity Assessment).
   c. Groundwater.
   d. Groundwater dependent ecosystems.
   e. Proposed intake and discharge locations.

7. The EIS must describe background conditions for any water resource likely to be affected by the development, including:
   a. Existing surface and groundwater.
   b. Hydrology, including volume, frequency and quality of discharges at proposed intake and discharge locations.
   c. Water Quality Objectives (as endorsed by the NSW Government http://www.environment.nsw.gov.au/ieo/index.htm) including groundwater as appropriate that represent the community's uses and values for the receiving waters.
   d. Indicators and trigger values/criteria for the environmental values identified at (c) in accordance with the ANZECC (2000) Guidelines for Fresh and Marine Water Quality and/or local objectives, criteria or targets endorsed by the NSW Government.

8. The EIS must assess the impacts of the development on water quality, including:
   a. The nature and degree of impact on receiving waters for both surface and groundwater, demonstrating how the development protects the Water Quality Objectives where they are currently being achieved, and contributes towards achievement of the Water Quality Objectives over time where they are currently not being achieved. This should include an assessment of the mitigating effects of proposed stormwater and wastewater management during and after construction.
   b. Identification of proposed monitoring of water quality.

9. The EIS must assess the impact of the development on hydrology, including:
   a. Water balance including quantity, quality and source.
   b. Effects to downstream rivers, wetlands, estuaries, marine waters and floodplain areas.
   c. Effects to downstream water-dependent fauna and flora including groundwater dependent ecosystems.
   d. Impacts to natural processes and functions within rivers, wetlands, estuaries and floodplains that affect river system and landscape health such as nutrient flow, aquatic connectivity and access to habitat for spawning and refuge (eg river benches).
   e. Changes to environmental water availability, both regulated/licensed and unregulated/rules-based sources of such water.
   f. Mitigating effects of proposed stormwater and wastewater management during and after construction on hydrological attributes such as volumes, flow rates, management methods and re-use options.
   g. Identification of proposed monitoring of hydrological attributes.

Attachment B – Project Specific Requirements

A. Impacts on the following species will require further consideration and provision of the information specified in s9.2 of the Framework for Biodiversity Assessment:
   - Shale Sandstone Transition Forest in the Sydney Basin Bioregion Critically Endangered Ecological Community (CEEC)
   - River-flat Eucalypt Forest on Coastal Floodplains of the NSW North Coast, Sydney Basin & South East Corner Bioregions Endangered Ecological Community (EEC)
   - Swamp Oak Floodplain Forest of the NSW North Coast, Sydney Basin & South East Corner Bioregions Endangered Ecological Community (EEC)

B. The assessment of cultural heritage values must include a surface survey undertaken by a qualified archaeologist in areas with potential for subsurface Aboriginal deposits. The result of the surface survey is to inform the development of an Aboriginal Cultural Heritage Management Plan. The assessment may identify the need for targeted test excavation to better assess the integrity, extent, distribution, nature and overall significance of the archaeological record. The results of surface surveys and test excavations are to be documented in the EIS.

C. The EIS must outline procedures to be followed if previously unrecorded Aboriginal objects are found at any stage of the life of the project to formulate appropriate measures to manage unforeseen impacts.

D. The EIS must outline procedures to be followed in the event Aboriginal burials or skeletal material is uncovered during construction to formulate appropriate measures to manage the impacts to this material.

Attachment C – Guidance material

Title	Web address
Relevant Legislation	
Coastal Protection Act 1979	http://www.legislation.nsw.gov.au/maintop/view/inforce/act+13+1979+cd+0+N
Commonwealth Environment Protection and Biodiversity Conservation Act 1999	http://www.austlii.edu.au/au/legis/cth/consol_act/epabca1999588/
Environmental Planning and Assessment Act 1979	http://www.legislation.nsw.gov.au/maintop/view/inforce/act+203+1979+cd+0+N
Fisheries Management Act 1994	http://www.legislation.nsw.gov.au/maintop/view/inforce/act+38+1994+cd+0+N
Marine Parks Act 1997	http://www.legislation.nsw.gov.au/maintop/view/inforce/act+64+1997+cd+0+N
National Parks and Wildlife Act 1974	http://www.legislation.nsw.gov.au/maintop/view/inforce/act+80+1974+cd+0+N
Protection of the Environment Operations Act 1997	http://www.legislation.nsw.gov.au/maintop/view/inforce/act+156+1997+cd+0+N
Threatened Species Conservation Act 1995	http://www.legislation.nsw.gov.au/maintop/view/inforce/act+101+1995+cd+0+N
Water Management Act 2000	http://www.legislation.nsw.gov.au/maintop/view/inforce/act+92+2000+cd+0+N
Wilderness Act 1987	http://www.legislation.nsw.gov.au/viewtop/inforce/act+196+1987+FIRST+0+N
Biodiversity	
NSW Biodiversity Offsets Policy for Major Projects (OEH, 2013)	http://www.environment.nsw.gov.au/resources/biodiversity/140672biopolicy.pdf
Framework for Biodiversity Assessment (OEH, 2013)	http://www.environment.nsw.gov.au/resources/biodiversity/140675fba.pdf
NSW Biodiversity Offsets Policy for Major Projects (Upland swamps impacted by longwall mining subsidence) addendum (OEH, 2016)	http://www.environment.nsw.gov.au/resources/biodiversity/swamp-addendum-biodiversity-offsets-policy-160766.pdf
Fisheries NSW policies and guidelines	http://www.dpi.nsw.gov.au/fisheries/habitat/publications/policies,-guidelines-and-manuals/fish-habitat-conservation
List of national parks	http://www.environment.nsw.gov.au/NationalParks/parksearchatoz.aspx
Revocation, recategorisation and road adjustment policy (OEH, 2012)	http://www.environment.nsw.gov.au/policies/RevocationOfLandPolicy.htm
Guidelines for developments adjoining land and water managed by the Department of Environment, Climate Change and Water (DECCW, 2010)	http://www.environment.nsw.gov.au/resources/parks/policyRevocations.pdf
Heritage	

Title	Web address
The Burra Charter (The Australia ICOMOS charter for places of cultural significance)	http://australia.icomos.org/wp-content/uploads/The-Burra-Charter-2013-Adopted-31.10.2013.pdf
Statements of Heritage Impact 2002 (HO & DUAP)	http://www.environment.nsw.gov.au/resources/heritagebranch/heritage/hmstatementsofhi.pdf
NSW Heritage Manual (DUAP) (scroll through alphabetical list to 'N')	http://www.environment.nsw.gov.au/Heritage/publications/index.htm#M-O
Aboriginal Cultural Heritage	
Aboriginal Cultural Heritage Consultation Requirements for Proponents (DECCW, 2010)	http://www.environment.nsw.gov.au/resources/cultureheritage/commconsultation/09781ACHconsultreq.pdf
Code of Practice for the Archaeological Investigation of Aboriginal Objects in New South Wales (DECCW, 2010)	http://www.environment.nsw.gov.au/resources/cultureheritage/10783FinalArchCoP.pdf
Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW (OEH 2011)	http://www.environment.nsw.gov.au/resources/cultureheritage/20110263ACHguide.pdf
Aboriginal Site Recording Form	http://www.environment.nsw.gov.au/resources/parks/SiteCardMainV1_1.pdf
Aboriginal Site Impact Recording Form	http://www.environment.nsw.gov.au/resources/cultureheritage/120558asirf.pdf
Aboriginal Heritage Information Management System (AHIMS) Registrar	http://www.environment.nsw.gov.au/contact/AHIMSRegistrar.htm
Care Agreement Application form	http://www.environment.nsw.gov.au/resources/cultureheritage/20110914TransferObject.pdf
Water and Soils	
Acid sulphate soils	
Acid Sulfate Soils Planning Maps via 'The NSW Natural Resource Atlas'	www.nratlas.nsw.gov.au/
Acid Sulfate Soils Manual (Stone et al. 1998)	Manual available for purchase from: http://www.landcom.com.au/whats-new/the-blue-book.aspx Chapters 1 and 2 are on DPI's Guidelines Register at: Chapter 1 Acid Sulfate Soils Planning Guidelines: http://www.planning.nsw.gov.au/rdaguidelines/documents/NSW%20Acid%20Sulfate%20Soils%20Planning%20Guidelines.pdf Chapter 2 Acid Sulfate Soils Assessment Guidelines: http://www.planning.nsw.gov.au/rdaguidelines/documents/NSW%20Acid%20Sulfate%20Soils%20Assessment%20Guidelines.pdf
Acid Sulfate Soils Laboratory Methods Guidelines (Ahern et al. 2004)	http://www.advancedenvironmentalmanagement.com/Reports/Savannah/Appendix%2015.pdf This replaces Chapter 4 of the Acid Sulfate Soils Manual above.
Flooding and Coastal Erosion	
Reforms to coastal erosion management	http://www.environment.nsw.gov.au/coasts/coastalerosionmgmt.htm
Floodplain development manual	http://www.environment.nsw.gov.au/floodplains/manual.htm
Guidelines for Preparing Coastal Zone	Guidelines for Preparing Coastal Zone Management Plans

Title	Web address
Management Plans	http://www.environment.nsw.gov.au/resources/coasts/130224CZMPGuide.pdf
NSW Climate Impact Profile	NSW Climate Impact Profile
Climate Change Impacts and Risk Management	Climate Change Impacts and Risk Management: A Guide for Business and Government, AGIC Guidelines for Climate Change Adaptation
Water	
Water Quality Objectives	http://www.environment.nsw.gov.au/ieo/index.htm
ANZECC (2000) Guidelines for Fresh and Marine Water Quality	www.environment.gov.au/water/publications/quality/australian-and-new-zealand-guidelines-fresh-marine-water-quality-volume-1
Applying Goals for Ambient Water Quality Guidance for Operations Officers – Mixing Zones	http://deccnet/water/resources/AWQGuidance7.pdf
Approved Methods for the Sampling and Analysis of Water Pollutant in NSW (2004)	http://www.environment.nsw.gov.au/resources/legislation/approvedmethods-water.pdf

Attachment D – Detailed Aboriginal Cultural Heritage Comments

Previously recorded sites

The Preliminary Environmental Assessment states that no areas of high Aboriginal cultural sensitivity are identified in an Environmental Planning Instrument as occurring in the expansion area. This does not mean that areas of high Aboriginal cultural sensitivity do not occur in the expansion area.

There are numerous Aboriginal cultural heritage values and Aboriginal objects (as defined under the *National Parks and Wildlife Act 1974*) within the proposed Area 5 and Area 6 expansion areas. This is reflected in the detailed cultural heritage assessments previously undertaken for the Dendrobium mine, and through other archaeological survey work in this region. This previous work indicates that all cultural heritage sites on the Woronora Plateau are of Aboriginal cultural significance.

Subsidence can damage Aboriginal cultural heritage sites, including rock shelters, art sites, grinding grooves and open artefact scatters such as occur on the Woronora Plateau.

EIS requirements

A comprehensive program of archaeological survey and Aboriginal community consultation is required so that the impact of the proposed mine expansion on Aboriginal cultural heritage can be properly assessed. The archaeological survey and community consultation process must comply with OEH guidelines as set out in the proposed EARs. The assessment must consider the potential impacts of the proposed expansion on:

- Tangible and intangible Aboriginal cultural values
- The broader cultural landscape
- Cumulative impacts to Aboriginal cultural heritage sites caused by mining within the Dendrobium mine area and broader Woronora Plateau.

Appropriate avoidance, monitoring and mitigation measures must be developed based on the results of the Aboriginal cultural heritage assessment.

Aboriginal cultural heritage management plan

An Aboriginal Cultural Heritage Management Plan (ACHMP) should be prepared for the proposed Areas 5 and 6 expansion. The ACHAR must include:

- Aboriginal community consultation process and outcomes
- Methodology for conducting baseline recording of Aboriginal cultural heritage sites
- Options for avoiding impacts to the recorded sites
- Methodology for monitoring sites within Areas 5 and 6
- Appropriate responses if impact occurs, including mitigation and remediation options
- Procedures for reviewing the effectiveness of the ACHAR, including any mitigation and remediation processes that are implemented.
- Process for reporting Aboriginal objects to the Aboriginal Heritage Information Management System (AHIMS) Registrar, and for completing AHIMS site impact cards as required.

- Procedures for reviewing the cumulative impacts of the Dendrobium mine on Aboriginal cultural heritage.

OEH South East Branch Regional Operations Division requests that the draft ACHMP is forwarded to us for comment before being adopted.

Baseline recording

Detailed baseline recording of sites within the expansion area must occur before mining begins. The baseline recording must include:

- Detailed digital and spherical photographic records
- Detailed plans referenced to survey control points
- Detailed photographic and sketch plans of archaeological features including art panels
- Establishing survey control points to monitor subsidence
- Detailed elevation plans at rock shelter sites
- Assessment of site condition

Our Ref: STH08/01068/02
Contact: Melissa Steep 4221 2771
Your Ref: SSD 8194

Transport Roads & Maritime Services

8 February 2017

Paul Freeman
Department of Planning and Environment
BY EMAIL: paul.freeman@planning.nsw.gov.au

SECRETARYS ENVIRONMENTAL ASSESSMENT REQUIREMENTS (SEARS) SSD 8194 – DENDROBIUM MINE EXTENSION PROJECT

Dear Sir/Madam,

Roads and Maritime Services (RMS) refers to your correspondence dated 6 February 2017 regarding the subject SEARs request.

RMS has reviewed the information provided and considers the following information should be addressed in the Environmental Assessment (EA):

- A traffic impact study (TIS) is required. As a guide Table 2.1 of the RTA Guide to Traffic Generating Developments outlines the key issues that may be considered in preparing a TIS.
- The applicant needs to identify suitable infrastructure required to ameliorate any traffic impacts and safety impacts associated with the development. Concept plans need to be provided for any works proposed within the road reserve prior to determination to demonstrate that they can be constructed within the road reserve. If the works could not be constructed within the road reserve, RMS would not support the proposal unless appropriate legally binding arrangements were in place to ensure that the appropriate land required to construct the works could be obtained.
- The Environmental Assessment needs to consider the environmental impacts of any roadworks within the road reserve that are required to manage the impacts of the development. These impacts include traffic and road safety impacts as well as other impacts such noise, flora and fauna, heritage and impact to community.

RMS will reconsider the application once the above issues are addressed to its satisfaction. If you have any questions please contact Melissa Steep on 4221 2771.

Yours faithfully,

Melissa Steep
A/Manager Land Use
Southern Region

Roads & Maritime Services

Level 4, Southern Regional Office, 90 Crown Street, Wollongong NSW 2500 | PO Box 477 Wollongong East NSW 2520
T 02 4221 2460 | **F** 02 4221 2777 | **www.rmservices.nsw.gov.au** |

PO Box 323, Penrith NSW 2751
Level 4, 2-6 Station Street
Penrith NSW 2750
1300 722 468
www.waternsw.com.au
ABN 21 147 934 787

Ref: D2017/9677

Paul Freeman
Team Leader - Resource Assessments
NSW Department of Planning & Environment
GPO Box 39
SYDNEY NSW 2001

Dear Mr Freeman

Dendrobium Mine Extension Project (SSD 16_8194)
Request for Input into Secretary's Environmental Assessment Requirements

I refer to your email received 10 January 2017 providing the Preliminary Environmental Assessment (PEA) and seeking WaterNSW's inputs into the Secretary's Environmental Assessment requirements (SEARs) for the Dendrobium Mine extension project. WaterNSW appreciates the opportunity.

WaterNSW is a significant stakeholder for this project and requests the Department to involve it in all aspects of the environmental assessment. A principal objective of WaterNSW is to ensure that the Sydney drinking water catchment and associated water supply infrastructure are managed and protected so as to promote water quality, the protection of public health and public safety, and the protection of the environment.

WaterNSW notes that the proposed mining areas are highly significant and sensitive as they are:

- located in the Sydney drinking water catchment to which State Environmental Planning Policy (Sydney Drinking Water Catchment) 2011 applies.
- located in the Metropolitan Special Area Schedule 1 land to which the Special Areas Strategic Plan of Management 2015 applies.
- partly located in the Avon and Cordeaux Dam Notification Areas, as specified by the NSW Dams Safety Committee (DSC).
- immediately adjacent to sections of the Avon and Cordeaux rivers which are used by WaterNSW to transfer water from these dams to Pheasants Nest Weir.

The Special Areas are reserved for the purposes of ensuring the quality and quantity of water available for Sydney. WaterNSW is currently developing options to ensure an adequate supply of water to cater for Sydney's future, including potential augmentations of the water supply system. It is crucial that activities undertaken in the Special Areas do not compromise the ability of WaterNSW to undertake its role now or in the future.

WaterNSW has adopted a set of principles for managing mining impacts in the Sydney drinking water catchment which can be found at http://www.waternsw.com.au/__data/assets/pdf_file/0010/119890/Mining-principles.pdf. The principles establish the outcomes WaterNSW considers essential to protect the drinking water

supplies to the Greater Sydney region. WaterNSW opposes longwall mining extending into the Dam Notification Areas for Cordeaux and Avon dams.

WaterNSW requests that the SEARs require the applicant to:

- Detail how the project would be consistent with WaterNSW's mining principles.
- Demonstrate how the carrying out of the project would have a neutral or beneficial effect on receiving water quality pursuant to clause 10 of State Environmental Planning Policy (Sydney Drinking Water Catchment) 2011.
- Address the strategic management objectives of the Special Areas Strategic Plan of Management 2015.
- Detail the potential impact and proposed mitigation measures of the project on existing and options for future water supply infrastructure at and in the vicinity of the proposed mining areas.
- Consult with WaterNSW in preparing the Environmental Impact Statement.
- Address the specific matters included in Attachment 1.

If you wish to discuss this letter or the project more generally please do not hesitate to contact me on 47242452.

Malcolm Hughes

MALCOLM HUGHES
Manager Catchment Protection

30/1/17

Attachment 1 – WaterNSW's Specific Matters to be included in SEARs for the Dendrobium Mine Extension Project

1. The full description of the development and existing environment should include those aspects which have the potential to impact on the quantity and quality of surface and ground waters, biodiversity and water supply infrastructure at and adjacent to the site. This includes:
    - the location of Avon and Codreaux Dams and associated infrastructure in relation to the proposed longwalls in Areas 5 and 6
    - the location, mapping and geomorphology of Avon and Cordeaux Rivers and their tributaries, rockbars, water pools, waterfalls, cliffs, swamps overlying and adjacent to the proposed mining areas
    - the location, mapping and nature of any geological structures including faults, dykes, silts, and other intrusions
    - the hydrogeological fluxes between surface and ground waters
    - the location and description of all water and biodiversity monitoring locations/points (including surface and ground waters). Please note WaterNSW has not been satisfied with the design and implementation of surface and groundwater monitoring in previous Dendrobium mining domains, and
    - the location and features of all proposed surface infrastructure including ventilation facilities and access tracks.
2. The detailed assessment of the mining proposal on water resources associated with subsidence should consider the design, construction, operational, decommissioning phases and cumulative impacts and include:
    - impacts on Avon and Cordeaux Dams and associated infrastructure including dam wall
    - impacts on future water supply infrastructure options in the vicinity of the proposed mining areas
    - impacts on water quantity and quality of overlying and adjacent water resources including Avon and Cordeaux reservoirs and rivers and their tributaries, rockbars, water pools, waterfalls, cliffs, swamps, and groundwater systems using scientifically sound and rigorous numerically modelling and sufficient, appropriate and representative baseline data. The modeling approach should be determined in consultation with WaterNSW. Please note WaterNSW considers that the groundwater and surface water assessment and modelling should be more rigorous and transparent than that have been performed in the past
    - impacts of the proposed mining on receiving water quantity and quality, both surface and groundwater systems and associated impacts on interaction and baseflows of surface waters
    - details of proposed measures to be adopted to offset impacts and effectiveness of the measures including environmental performances measures
    - details of proposed monitoring of groundwater levels, surface water flows, groundwater and surface water quality, along with information as to how the proposed monitoring will be used to monitor and, if necessary, mitigate impacts on surface water and groundwater resources. Monitoring programs shall be designed in consultation with WaterNSW
    - details of the contingency plans to manage risks

- details of the structural stability, integrity, ongoing maintenance and monitoring of all site water management measures including water management ponds over the life of the project.

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

28 February 2018

Contact: *Malcolm Hughes*
Telephone: *(02) 9865 2520*
Our ref: *D2018/21481*

Gary Brassington
Principal Approvals
South32 Illawarra Coal
PO Box 514, Unanderra, NSW 2526

Dear Mr Brassington

Dendrobium Mine Extension Project

I refer to the advice from WaterNSW to the Department of Planning and Environment regarding the Secretaries Environmental Assessment Requirements dated 30 January 2017. The advice requests that the Environmental Impact Statement for the project to detail the potential impact and proposed mitigation measures of the project on existing and options for future water supply infrastructure at and in the vicinity of the proposed mining areas.

The purpose of this letter is to provide South32 Illawarra Coal with information on options for future water supply infrastructure to assist in the assessment process.

WaterNSW is a significant stakeholder for this project. A principal objective of WaterNSW is to ensure that the Sydney drinking water catchment and associated water supply infrastructure are managed and protected so as to promote water quality, the protection of public health and public safety, and the protection of the environment. WaterNSW is also the lead bulk water supply planning agency in NSW, with the responsibility for planning future drinking water supplies for the Greater Sydney and Illawarra regions.

WaterNSW notes that the proposed mining areas are highly significant and sensitive as they are:

- located in the Sydney drinking water catchment to which State Environmental Planning Policy (Sydney Drinking Water Catchment) 2011 applies.
- located in the Metropolitan Special Area Schedule 1 land to which the Special Areas Strategic Plan of Management 2015 applies.
- partly located in the Avon and Cordeaux Dam Notification Areas, as specified by the NSW Dams Safety Committee (DSC).
- immediately adjacent to sections of the Avon and Cordeaux rivers which are used by WaterNSW to transfer water from these dams to Pheasants Nest Weir.

The Special Areas are reserved for the purposes of ensuring the quality and quantity of water available for Sydney.

WaterNSW is currently developing options with the Department of Planning and Environment and Sydney Water to ensure an adequate supply of water to cater for Sydney's future, including potential augmentations of the water supply system. It is crucial that activities undertaken in the Special Areas do not compromise the ability of WaterNSW to undertake its role now and into the future.

Included in the current portfolio of long term options is the construction of a Lower Cordeaux Scheme, incorporating:

- **A potential new 'Lower Cordeaux' Dam** – An approximately 85m high dam with a capacity of 400-500 Gigalitres, constructed approximately 8-10km downstream of the existing Cordeaux Dam wall, resulting in 30-45 Gigalitres per year of additional system yield.
- **A tunnel from Burrawang to Avon Dam** – 1800 Megalitre per day capacity tunnel connecting the Shoalhaven Scheme from Burrawang (near Wingecarribbee Reservoir) to Avon Dam, with potential for hydropower generation.
- **A tunnel from Avon Dam to the new Lower Cordeaux Dam** – 7km long tunnel between Avon Dam and Lower Cordeaux Dam to store transfer water from the Shoalhaven Scheme.
- **A tunnel from Lower Cordeaux Dam to Broughtons Pass Weir** – 9km tunnel between Lower Cordeaux Dam and Broughtons Pass to enhance capacity of supply.

The Lower Cordeaux Scheme is in its conceptual stages, and models estimate that Scheme will provide an additional 30 to 45 Gigalitres per year of water supply yield to the Greater Sydney network.

Based on current population and demand projections, and otherwise status quo 'system settings', the scheme may be required sometime in the next 50 years.

Final decisions concerning WaterNSW's capital investment and infrastructure plans are however subject to further detailed analyses and endorsement from the Independent Pricing and Regulatory Tribunal (IPART), the NSW Government and the relevant planning processes.

Attachment A attached presents a conceptual map of the proposed scheme in the areas relevant to the subject mining application. Our understanding based on information provided by South32 Illawarra Coal is that the proposed Lower Cordeaux scheme would have elements located within the same footprint of both Area 5 and Area 6. Part of Area 6 overlaps the stored water, and more within the DSC Notification Area. Area 5 extends into the potential routes for a future tunnel connecting Avon, Lower Cordeaux and the Upper Canal. WaterNSW seeks to protect key sections of land that will enable critical supply projects to proceed successfully in the future. These projects will contribute to ensuring a secure, reliable and resilient water supply for the growing global cities of Greater Sydney and the Illawarra.

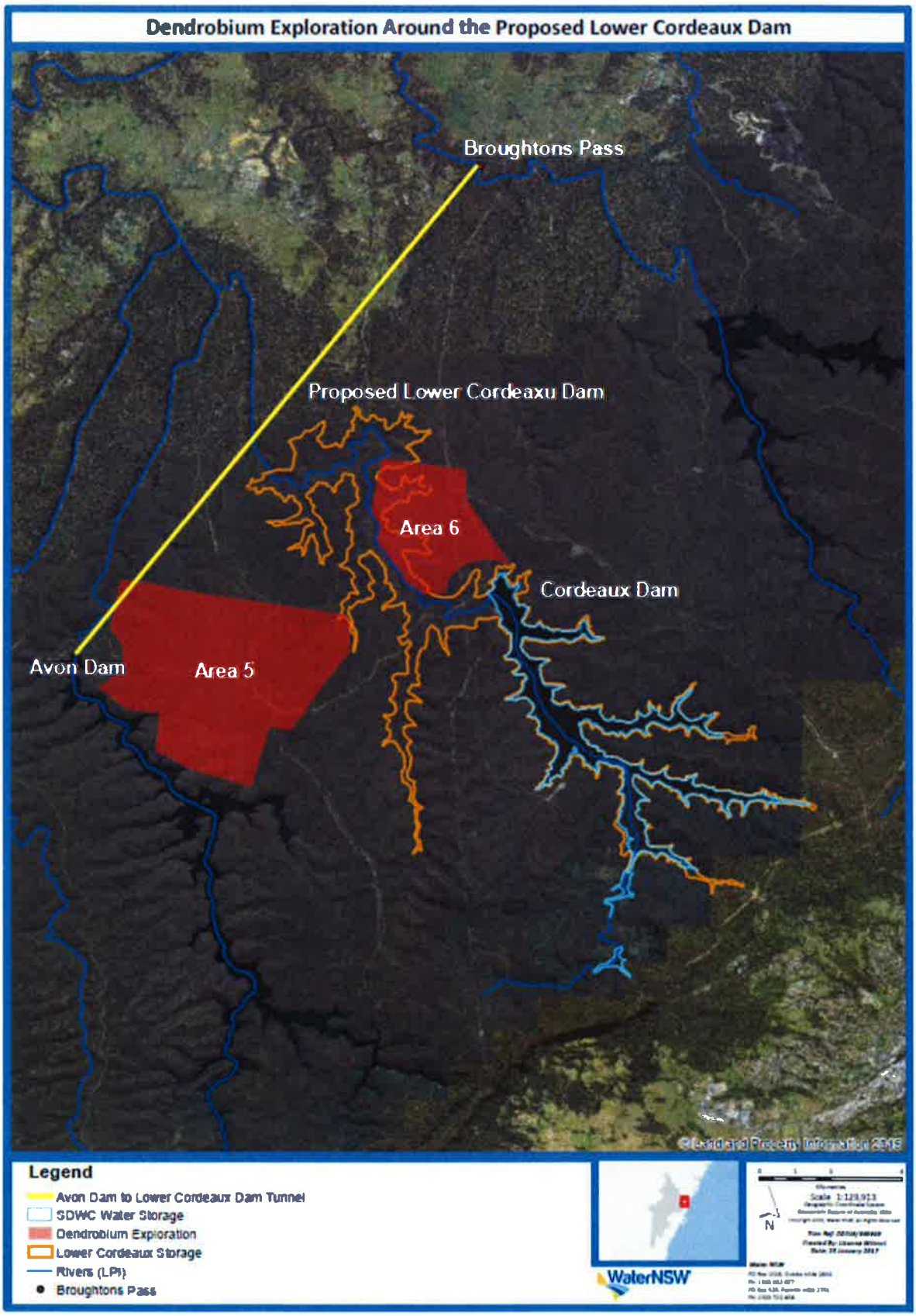
It is WaterNSW's position that its ability to construct and operate the above water supply infrastructure must not be compromised by mining activities.

Yours sincerely

ANDREW GEORGE
Executive Manager Asset Solutions and Delivery

Encl: Attachment A – Proposed Concept Map for Lower Cordeaux Scheme

Attachment A – Proposed Concept Map for Lower Cordeaux Scheme



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WOLLONGONG CITY COUNCIL

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Department of Planning & Environment
Attention Paul Freeman
GPO BOX 39
SYDNEY NSW 2001

APPLICATION	DE-2017/22
Date	7 February 2017

Dear Sir/Madam

Development	Dendrobium Mine Extension Project SSD 8194
Location	4 Stones Road, MOUNT KEMBLA NSW 2526

REQUEST FOR INPUT ON SEARs

Thank you for providing Council with the opportunity to comment on the Secretary's Environmental Assessment Requirements (SEARs) for the above State Significant Development proposal.

The submitted documentation has been reviewed. It is considered the Preliminary Environmental Assessment by the proponent and draft SEARs account for those matters the subject of the future environmental assessment, with subsidence/water catchment management and transport impacts likely to be key issues of interest.

If you have any enquiries or wish to discuss these matters further, please contact Briarna Lee, Development Project Officer on (02) 42278829.

This letter is authorised by

John Wood
City Wide Development Manager
Wollongong City Council
Telephone (02) 4227 7111

Paul Freeman

From: David Henry <David.Henry@wollondilly.nsw.gov.au>
Sent: Friday, 10 February 2017 2:04 PM
To: Paul Freeman
Subject: FW: Dendrobium Mine Extension Project
Attachments: DMEP Preliminary Env Assessment.pdf

Hi Paul

I am very sorry about not providing comment on the [preliminary Environment Assessment.

As discussed, previous studies and surveys have identified the proposed mining area as koala habitat and a key habitat corridor for this species. It is therefore requested that the proponent be required to carry out the following activities which have been listed in Council's draft submission on the review of SEPP 44 Koala Habitat Protection

- *The analysis of historical records to determine the previous presence of koalas and behavioural patterns of koalas on the site*
- *The undertaking of comprehensive surveys to identify the presence of koalas consistent with best practice across all vegetation communities present on a site proposed for development*
- *An analysis of the observed and identified potential behavioural usage of the site by koalas across all vegetation types within the site based on a detailed assessment, (which is not restricted to habitat species listed in the revised SEPP 44).*
- *The role of the site in a landscape context in allowing for the movement of koalas based on a detailed assessment and analysis of existing records.*

In this regard, Council participated in a Baseline Survey Pilot Study with the NSW Office of Environment and Heritage during April and May 2016 which involved koala surveys at 58 strategic locations. It is recommended that OEH be contacted to obtain the Report on this Baseline Study prepared by Dr Nicholas J. Colman MSc

Thanks

David

Wollondilly Shire Council

David Henry
Acting Team Leader - Environmental Services

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