



ATTACHMENT 1

Secretary's Environmental Assessment
Requirements

Planning Secretary's Environmental Assessment Requirements

State Significant Development

Section 4.12(8) of the *Environmental Planning and Assessment Act 1979*
Schedule 2 of the *Environmental Planning and Assessment Regulation 2000*

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| Application No. | SSD 8194 |
| Development | <p>The Dendrobium Mine Extension Project, which includes:</p> <ul style="list-style-type: none"> • extending the Dendrobium Coal Mine into two new mining areas (Areas 5 and 6); • continued use of, and minor extensions and upgrades to, existing mine infrastructure sites, including the Dendrobium Pit-top, Kemira Valley Coal Loading Facility, Dendrobium Coal Preparation Plant, Kemira Valley Rail Line, West Cliff Colliery Stage 3 and Stage 4 Coal Wash Emplacement and access roadways and drifts, ventilation shaft sites and dewatering infrastructure; • extraction of run-of-mine (ROM) coal from the new mining areas by longwall mining methods, at a rate of 5.2 million tonnes per annum (Mtpa) for 18 years; • using existing infrastructure to deliver coal to the surface, process ROM coal and deliver product coal to Port Kembla; • transporting up to 1.6 Mtpa of coal wash by road to the West Cliff Colliery Stage 3 and Stage 4 Coal Wash Emplacement or to external customers for engineering or other beneficial uses; and • development of ancillary mine infrastructure including ventilation and gas management infrastructure, water management infrastructure, and other minor infrastructure, plant, equipment and activities |
| Location | Cordeaux Road, Mount Kembla - 8 kilometres from Wollongong |
| Applicant | Illawarra Coal Holdings Pty Limited |
| Date of Issue | 18 September 2018 |
| General Requirements | <p>The Environmental Impact Statement (EIS) for the development must comply with the requirements of Schedule 2 of the <i>Environmental Planning and Assessment Regulation 2000</i>. In particular, the EIS must include:</p> <ul style="list-style-type: none"> • an executive summary; • a full description of the development, including: <ul style="list-style-type: none"> - historical mining operations at the mine and in the region; - the resource which would be extracted, demonstrating efficient resource recovery within environmental constraints; - the proposed mine layout and scheduling; - minerals processing and transportation; - proposed infrastructure and facilities (including any existing or proposed infrastructure that would be required for the development, but the subject of a separate approvals process); - the likely interactions between the development and the existing Dendrobium Coal Mine, and any other existing, approved or proposed mining-related development in the vicinity of the site (including any relevant statutory approvals, environmental management regime relating to these operations); • a list of all approvals that must be obtained before the development can commence; • a risk assessment of the potential environmental impacts of the development, identifying key assessment issues; • an assessment of the likely impacts of the development on the environment, focusing on the specific issues identified below, and including: |

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| | <ul style="list-style-type: none"> - a description of the existing environment likely to be affected by the development, using sufficient baseline data; - an assessment of the likely impacts of all stages of the development, including appropriate worst-case scenarios and consideration of any cumulative impacts, taking into consideration any relevant legislation, environmental planning instruments, guidelines, policies, plans and industry codes of practice; - a description of the measures that would be implemented to mitigate and/or offset the likely impacts of the development, and an assessment of: <ul style="list-style-type: none"> o whether these measures are consistent with industry best practice, and represent the full range of reasonable and feasible mitigation measures that could be implemented; o the likely effectiveness of these measures, including performance measures where relevant; and o whether contingency measures, (including Trigger Action Response Plans) would be necessary to manage any residual risks; - a description of the measures that would be implemented to monitor and report on the environmental performance of the development if it is approved; • consideration of alternatives, including development of the Area 3C and Area 4 mining domains, the development of a mine plan which avoids key sensitive surface features including swamps and water storage infrastructure, and the 'do nothing' option; • a consolidated summary of all the proposed environmental management and monitoring measures, identifying all the commitments in the EIS; • consideration of the development against all relevant environmental planning instruments (including Part 3 of the <i>State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007</i>); and • a conclusion justifying why the development should be approved, taking into consideration: <ul style="list-style-type: none"> - alternatives; - the suitability of the site for the development; - the economic, social, biophysical and environmental impacts of the project as a whole; and - whether the project is consistent with the objects of the <i>Environmental Planning and Assessment Act 1979</i>; and - a signed statement from the author of the EIS, certifying that the information contained within the document is neither false nor misleading. <p>While not exhaustive, Attachment 1 lists some of the environmental planning instruments, guidelines, policies, and plans that may be relevant to the environmental assessment of this development.</p> <p>In addition to the matters set out in Schedule 1 of the <i>Environmental Planning and Assessment Regulation 2000</i>, the development application must be accompanied by a signed report from a suitably qualified independent person that includes an accurate estimate of the:</p> <ul style="list-style-type: none"> • capital investment value of the development (as defined in Clause 3 of the <i>Environmental Planning and Assessment Regulation 2000</i>), including details of all the assumptions and components from which the capital investment value calculation is derived; and • jobs that would be created during each stage of the development. |
| Specific Issues | <p>The EIS must address the following specific issues:</p> <ul style="list-style-type: none"> • Subsidence – including a detailed assessment of the potential conventional and non-conventional subsidence effects, subsidence impacts and environmental consequences of the development on the natural and built environments, paying particular attention to features that are considered to |

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| | <p>have significant ecological, economic, social, cultural and environmental value, taking into consideration connective fracturing above the longwall panels and recorded regional and historic subsidence;</p> <ul style="list-style-type: none"> • Water – including: <ul style="list-style-type: none"> - an assessment of the likely impacts of the development on the quantity and quality of surface and groundwater resources, having regard to EPA's, DPI Water's and WaterNSW's requirements and recommendations (see Attachment 2); - an assessment of the likely impacts of the development on aquifers, watercourses, swamps, riparian land, water supply infrastructure and systems including Cordeaux Dam and Avon Dam, and other water users; - an assessment of any drinking water catchment losses from mining, and whether the development can be operated to achieve a neutral or beneficial effect on water quality in the Sydney Drinking Water Catchment, consistent with the provisions of <i>State Environmental Planning Policy (Sydney Drinking Water Catchment) 2011</i>; - a detailed site water balance, including a description of site water demands, water disposal methods (inclusive of volume and frequency of any water discharges), water supply and transfer infrastructure and water storage structures; - a detailed description of the proposed water management system (including sewerage), water monitoring regime, beneficial water re-use program and all other proposed measures to mitigate surface water and groundwater impacts; and - an assessment of the potential flooding impacts of the development; • Noise – including: <ul style="list-style-type: none"> - an assessment of the <i>likely operation and construction noise impacts of the development under the NSW Noise Policy for Industry</i> and the <i>Voluntary Land Acquisition and Mitigation Policy</i>; - an assessment of the likely rail noise impacts, including rail "wheel squeal" impacts, under the <i>NSW Rail Infrastructure Noise Guideline (RING)</i> and <i>Voluntary Land Acquisition and Mitigation Policy</i>; - if a claim is made for specific construction noise criteria for certain activities, then this claim must be justified and accompanied by an assessment of the likely construction noise impacts of these activities under the <i>Interim Construction Noise Guideline</i>; - an assessment of the likely road noise impacts of the development under the <i>NSW Road Noise Policy</i>; • Air – including: <ul style="list-style-type: none"> - an assessment of the likely air quality impacts of the development in accordance with the <i>Approved Methods and Guidance for the Modelling and Assessment of Air Pollutants in NSW</i>, with a particular focus on dust emissions including PM_{2.5} and PM₁₀, and having regard to EPA's requirements (see Attachment 2) and the <i>Voluntary Land Acquisition and Mitigation Policy</i>; and - an assessment of the likely greenhouse gas impacts of the development; • Biodiversity – including: <ul style="list-style-type: none"> - an assessment of the likely biodiversity impacts of the development, including impacts to upland swamps, in accordance with the Framework for Biodiversity Assessment, by a person accredited in accordance with s142(B)(1)(c) of the <i>Threatened Species Conservation Act 1995</i>, and having regard to OEH's requirements (Attachment 2); and - a strategy to offset any residual impacts of the development in accordance with the <i>NSW Biodiversity Offsets Policy for Major Projects</i>; • Land – including an assessment of the compatibility of the development with other land uses in the vicinity of the development in accordance with the requirements of Clause 12 of <i>State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007</i>; • Rehabilitation and Final Landform – including: |
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| | <ul style="list-style-type: none"> - an assessment of the likely impacts of the development on existing landforms and topography, including justification of the final landform design of the West Cliff Stage 3 Coal Wash Emplacement and its long term geotechnical stability; - a detailed description of the progressive rehabilitation measures that would be implemented for the development; - a detailed description of the proposed rehabilitation and mine closure strategies for the project, having regard to DRE's requirements (see Attachment 2) and the key principles in <i>Strategic Framework for Mine Closure</i>, and the: <ul style="list-style-type: none"> o rehabilitation objectives, methodology, monitoring programs, performance standards and proposed completion criteria; o decommissioning and management of surface infrastructure; o nominated final land uses, having regard to any relevant strategic land use planning or resource management plans or policies; and o potential for integrating the rehabilitation strategy with offset strategies proposed for the development; and - the measures which would be put in place for the long term protection and management of the site and any biodiversity offset areas following the cessation of mining. <ul style="list-style-type: none"> • Heritage – including an assessment of the likely Aboriginal and historic heritage (cultural and archaeological) impacts of the development, having regard to OEH's requirements (Attachment 2); • Transport – including an assessment of the likely transport impacts of the development on the capacity, condition, safety and efficiency of the rail network and the local and State road network; and • Visual – including an assessment of the likely visual impacts of the development on private landowners in the vicinity of the development and key vantage points in the public domain, and minimising the lighting impacts of the development; • Hazards – including an assessment of the likely risks to public safety, paying particular attention to potential bushfire risks, and the handling and use of any dangerous goods; • Waste – including a waste management strategy; • Social & Economic – including: <ul style="list-style-type: none"> - a detailed assessment of the likely social impacts of the development on the local and regional community in accordance with the <i>Social impact assessment guideline for State significant mining, petroleum production and extractive industry development</i> (2017); and - an assessment of the likely economic impacts of the development, paying particular attention to: <ul style="list-style-type: none"> o the significance of the resource; o the costs and benefits of the development, identifying if it would result in a net benefit to NSW, including consideration of fluctuation in commodity markets and exchange rates; and o the demand for the provision of local infrastructure and services. |
| Consultation | <p>During the preparation of the EIS, you must consult with local government, State Government and Commonwealth Government authorities, service providers, community groups and affected landowners.</p> <p>The EIS must describe the consultation that was carried out, identify the issues raised during this consultation, and explain how these issues have been addressed in the EIS.</p> |

Attachment 1

Environmental Planning Instruments, Policies, Guidelines & Plans

| Land | |
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| | Soil and Landscape Issues in Environmental Impact Assessment (NOW) |
| | State Environmental Planning Policy No. 55 – Remediation of Land |
| | Australian and New Zealand Guidelines for the Assessment and Management of Contaminated Sites (ANZECC) |
| | Land Use Conflict Risk Assessment Guide (DPI) |
| Water | |
| Water Sharing Plans | Greater Metropolitan Region Unregulated River Water Sources Water Sharing Plan |
| | <i>Water Sharing Plan for the Greater Metropolitan Region Groundwater Sources 2011</i> |
| Groundwater | NSW State Groundwater Policy Framework Document (NOW) |
| | NSW State Groundwater Quality Protection Policy (NOW) |
| | NSW State Groundwater Quantity Management Policy (NOW) |
| | NSW Aquifer Interference Policy 2012 (NOW) |
| | Australian Groundwater Modelling Guidelines 2012 (Commonwealth) |
| | National Water Quality Management Strategy Guidelines for Groundwater Protection in Australia (ARMCANZ/ANZECC) |
| | Guidelines for the Assessment & Management of Groundwater Contamination (EPA) |
| Surface Water | NSW State Rivers and Estuary Policy (NOW) |
| | NSW Government Water Quality and River Flow Objectives (EPA) |
| | Using the ANZECC Guideline and Water Quality Objectives in NSW (EPA) |
| | National Water Quality Management Strategy: Australian Guidelines for Fresh and Marine Water Quality (ANZECC/ARMCANZ) |
| | National Water Quality Management Strategy: Australian Guidelines for Water Quality Monitoring and Reporting (ANZECC/ARMCANZ) |
| | National Water Quality Management Strategy: Guidelines for Sewerage Systems – Effluent Management (ARMCANZ/ANZECC) |
| | National Water Quality Management Strategy: Guidelines for Sewerage Systems – Use of Reclaimed Water (ARMCANZ/ANZECC) |
| | Approved Methods for the Sampling and Analysis of Water Pollutants in NSW (EPA) |
| | Managing Urban Stormwater: Soils & Construction (Landcom) and associated Volume 2E: Mines and Quarries (DECC) |
| | Managing Urban Stormwater: Treatment Techniques (EPA) |
| | Managing Urban Stormwater: Source Control (EPA) |
| | Technical Guidelines: Bunding & Spill Management (EPA) |
| | Environmental Guidelines: Use of Effluent by Irrigation (EPA) |
| | A Rehabilitation Manual for Australian Streams (LWRRDC and CRCCH) |
| | NSW Guidelines for Controlled Activities (NOW) |
| | Neutral or Beneficial Effect on Water Quality Assessment Guideline (WaterNSW) |
| Biodiversity | |
| | Framework for Biodiversity Assessment (OEH) |
| | NSW Biodiversity Offsets Policy for Major Projects (OEH) |
| | NSW Swamp Offsets Policy (OEH) |
| | Threatened Species Assessment Guidelines (OEH) |
| | Policy and Guidelines for Aquatic Habitat Management and Fish Conservation (Fisheries NSW) |
| | NSW State Groundwater Dependent Ecosystem Policy (NOW) |
| | Risk Assessment Guidelines for Groundwater Dependent Ecosystems (NOW) |
| | State Environmental Planning Policy No. 44 – Koala Habitat Protection |
| Heritage | |

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| | The Burra Charter (The Australia ICOMOS charter for places of cultural significance) |
| | Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW (OEH) |
| | Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010 (OEH) |
| | Code of Practice for Archaeological Investigations of Objects in NSW (OEH) |
| | Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW (OEH) |
| | NSW Heritage Manual (OEH) |
| | Statements of Heritage Impact (OEH) |
| Noise | |
| | NSW Noise Policy for Industry (EPA) |
| | Interim Construction Noise Guideline (EPA) |
| | NSW Road Noise Policy (EPA) |
| | Rail Infrastructure Noise Guideline (EPA) |
| | Assessing Vibration: a Technical Guideline (EPA) |
| | Voluntary Land Acquisition and Mitigation Policy (DP&E) |
| Air | |
| | Approved Methods and Guidance for the Modelling and Assessment of Air Pollutants in NSW (EPA) |
| | Approved Methods for the Sampling and Analysis of Air Pollutants in NSW (EPA) |
| | Coal Mine Particulate Matter Control Best Practice – Site Specific Determination Guideline (EPA) |
| | Generic Guidance and Optimum Model Settings for the CALPUFF Modelling System for Inclusion in the Approved Methods for the Modelling and Assessment of Air Pollutants in NSW (EPA) |
| | Voluntary Land Acquisition and Mitigation Policy (DP&E) |
| | National Greenhouse Accounts Factors (Commonwealth) |
| Transport | |
| | Guide to Traffic Generating Development (RTA) |
| | Road Design Guide (RMS) & relevant Austroads Standards |
| Public Safety | |
| | State Environmental Planning Policy No. 33 – Hazardous and Offensive Development |
| | Hazardous and Offensive Development Application Guidelines – Applying SEPP 33 |
| | Hazardous Industry Planning Advisory Paper No. 6 – Guidelines for Hazard Analysis |
| Resource | |
| | Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves 2012 (JORC) |
| Waste | |
| | Waste Classification Guidelines (EPA) |
| Rehabilitation | |
| | Mine Rehabilitation – Leading Practice Sustainable Development Program for the Mining Industry (Commonwealth) |
| | Mine Closure and Completion – Leading Practice Sustainable Development Program for the Mining Industry (Commonwealth) |
| | Strategic Framework for Mine Closure (ANZMEC-MCA) |
| Environmental Planning Instruments - General | |
| | <i>State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007</i> |
| | <i>State Environmental Planning Policy (State and Regional Development) 2011</i> |
| | <i>State Environmental Planning Policy (Infrastructure) 2007</i> |
| | <i>State Environmental Planning Policy (Sydney Drinking Water Catchment) 2011</i> |
| | <i>Wollongong Local Environmental Plan 2009</i> |
| | <i>Wingecarribee Local Environmental Plan 2010</i> |
| | <i>Wollondilly Local Environmental Plan 2011</i> |

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.

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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
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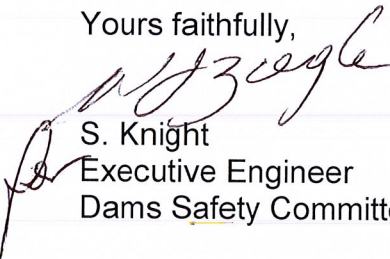

ABN 55 079 703 705

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



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

A handwritten signature in black ink, appearing to read 'Zane West'.

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 policies¹.

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)



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

A handwritten signature in black ink, appearing to be 'P. Bloem', followed by the date '25/01/17' written in a similar style.

PETER BLOEM
Manager Regional Operations Illawarra
Environment Protection Authority

Att:

Contact officer: MR ANDREW COULDRIDGE
02 4224 4100

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.



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

| |
|---|
| <p>Biodiversity</p> <p>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 <i>Threatened Species Conservation Act 1995</i>.</p> |
| <p>Aboriginal cultural heritage</p> <p>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.</p> <p>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.</p> <p>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.</p> |
| <p>Historic heritage</p> <p>5. The EIS must provide a heritage assessment including but not limited to an assessment of impacts to <i>State and local heritage</i> 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:</p> <ol style="list-style-type: none"> 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), 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), include a statement of heritage impact for all heritage items (including significance assessment), 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 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 |
|---|---|
| <u>Relevant Legislation</u> | |
| <i>Coastal Protection Act 1979</i> | http://www.legislation.nsw.gov.au/maintop/view/inforce/act+13+1979+cd+0+N |
| <i>Commonwealth Environment Protection and Biodiversity Conservation Act 1999</i> | http://www.austlii.edu.au/au/legis/cth/consol_act/epabca1999588/ |
| <i>Environmental Planning and Assessment Act 1979</i> | http://www.legislation.nsw.gov.au/maintop/view/inforce/act+203+1979+cd+0+N |
| <i>Fisheries Management Act 1994</i> | http://www.legislation.nsw.gov.au/maintop/view/inforce/act+38+1994+cd+0+N |
| <i>Marine Parks Act 1997</i> | http://www.legislation.nsw.gov.au/maintop/view/inforce/act+64+1997+cd+0+N |
| <i>National Parks and Wildlife Act 1974</i> | http://www.legislation.nsw.gov.au/maintop/view/inforce/act+80+1974+cd+0+N |
| <i>Protection of the Environment Operations Act 1997</i> | http://www.legislation.nsw.gov.au/maintop/view/inforce/act+156+1997+cd+0+N |
| <i>Threatened Species Conservation Act 1995</i> | http://www.legislation.nsw.gov.au/maintop/view/inforce/act+101+1995+cd+0+N |
| <i>Water Management Act 2000</i> | http://www.legislation.nsw.gov.au/maintop/view/inforce/act+92+2000+cd+0+N |
| <i>Wilderness Act 1987</i> | http://www.legislation.nsw.gov.au/viewtop/inforce/act+196+1987+FIRST+0+N |
| <u>Biodiversity</u> | |
| 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 |
| <u>Heritage</u> | |

| 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 |
| <u>Aboriginal Cultural Heritage</u> | |
| Aboriginal Cultural Heritage Consultation Requirements for Proponents (DECCW, 2010) | http://www.environment.nsw.gov.au/resources/cultureheritage/comconsultation/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 |
| <u>Water and Soils</u> | |
| 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) | <p>Manual available for purchase from: http://www.landcom.com.au/whats-new/the-blue-book.aspx</p> <p>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</p> <p>Chapter 2 Acid Sulfate Soils Assessment Guidelines: http://www.planning.nsw.gov.au/rdaguidelines/documents/NSW%20Acid%20Sulfate%20Soils%20Assessment%20Guidelines.pdf</p> |
| 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

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.watarnsw.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
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 Cordeaux 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.



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 OEHL be contacted to obtain the Report on this Baseline Study prepared by Dr Nicholas J. Colman MSc

Thanks

David



David Henry
Acting Team Leader - Environmental Services

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**Requirements for preparing Assessment Documentation relevant to the
*Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)***

Dendrobium Mine Extension Project (EPBC 2017/7855) (SSD 8194)

1. On 6 March 2017 it was determined that the Dendrobium Mine Extension Project may impact upon the following matters of national environmental significance (MNES) protected under the *Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)*:
 - threatened species and communities; and
 - a water resource, in relation to coal seam gas and large coal mining developments.

The project will be assessed in accordance with the NSW Assessment Bilateral Agreement 2015 (the Agreement) and as such will be required to be assessed in the manner specified in Schedule 1 to that Agreement.

These requirements are a supplement to the Secretary's Environmental Assessment Requirements issued on 6 February 2017, and should be addressed in conjunction with those requirements.

2. Assessment documentation prepared for the purposes of approval under the EPBC Act must, in addition to providing sufficient information for a decision in accordance with the Agreement, address the matters outlined in Schedule 4 of the *Environment Protection and Biodiversity Conservation Regulations 2000* (Cth). Proponents are advised to check that requirements in Schedule 4 of the EPBC Regulations have been appropriately addressed.
http://www.austlii.edu.au/au/legis/cth/consol_reg/epabcr2000697/.
3. The supplementary requirements are intended such that there is sufficient information in the assessment report relevant to MNES, to allow the Commonwealth decision-maker to determine whether or not to approve the action. The Applicant must undertake an assessment of all the protected matters that may be impacted by the development under the controlling provision identified in paragraph 1. A list of protected matters that are considered likely to be significantly impacted is provided at Attachment A to these requirements. Note that this may not be a complete list and it is the Applicant's responsibility to ensure any protected matters under this controlling provision, likely to be significantly impacted, are assessed for the Commonwealth decision-maker's consideration.

General Requirements

Project Description

4. The title of the action, background to the development and current status.
5. The precise location and description of all works to be undertaken (including associated offsite works and infrastructure), structures to be built or elements of the action that may have impacts on MNES.
6. How the action relates to any other actions that have been taken, or are being taken, in the region affected by the action.
7. How the works are to be undertaken and design parameters for those aspects of the structures or elements of the action that may have relevant impacts on MNES.

Impacts

8. The EIS must include an assessment of the relevant impacts¹ of the action on threatened species and communities, including:

¹ Relevant impacts are those impacts likely to significantly impact any matter protected under the EPBC Act

- a description and detailed assessment of the nature and extent of the likely direct, indirect and consequential impacts, including short term and long term relevant impacts;
- a statement whether any relevant impacts are likely to be known, unpredictable or irreversible, and analysis of the significance of the relevant impacts;
- any technical data and other information used or needed to make a detailed assessment of the relevant impacts; and
- a comparative description of the impacts of alternatives, if any, on the threatened species and communities.

Avoidance, mitigation and offsetting

9. For each of the relevant protected matters that are likely to be significantly impacted by the development, the EIS must provide information on proposed avoidance and mitigation measures to deal with the relevant impacts of the action, including:
 - a description and an assessment of the expected or predicted effectiveness of the mitigation measures;
 - any statutory policy basis for the mitigation measures;
 - the cost of the mitigation measures;
 - a description of the outcomes that the avoidance and mitigation measures will achieve;
 - an outline of an environmental management plan that sets out the framework for continuing management, mitigation and monitoring programs for the relevant impacts of the action;
 - the name of any agency responsible for endorsing or approving a mitigation measure or monitoring program; and
 - a description of the offsets proposed to address the residual adverse significant impacts and how these offsets will be established.
10. Where a significant residual adverse impact to a threatened species or community is considered likely, the EIS must provide information on the proposed offset strategy, including discussion of the conservation benefit associated with the proposed offset strategy. Paragraphs 13 & 14 provide further requirements in relation to offsets.

Key Issue – Biodiversity

11. The EIS must address the following issues in relation to Biodiversity including separate:
 - identification of each EPBC Act listed threatened species and community likely to be impacted by the development. Provide evidence why other EPBC Act listed threatened species and communities likely to be located in the project area or in the vicinity will not be impacted.
12. For each of the relevant EPBC Act listed threatened species and communities likely to be impacted by the development the EIS must provide a separate:
 - description of the habitat and habits (including identification and mapping of suitable breeding habitat, suitable foraging habitat, important populations and habitat critical for survival), with consideration of, and reference to, any relevant Commonwealth guidelines and policy statements including listing advice, conservation advice and recovery plans, threat abatement plans and wildlife conservation plans; and
 - details of the scope, timing and methodology for studies or surveys used and how they are consistent with (or justification for divergence from) published Australian Government guidelines and policy statements.

- description of the impacts of the action having regard to the full national extent of the species or community's range.

[Note: the relevant guidelines and policy statements for each species and community are available from the Department of the Environment Species Profiles and Threats Database. <http://www.environment.gov.au/cgi-bin/sprat/public/sprat.pl>]

13. For each of the relevant EPBC Act listed threatened species and communities likely to be significantly impacted by the development the EIS must provide a separate:

- identification of significant residual adverse impacts likely to occur after the proposed activities to avoid and mitigate all impacts are taken into account.
- details of how the current published NSW Framework for Biodiversity Assessment (FBA) has been applied in accordance with the objects of the EPBC Act to offset significant residual adverse impacts;
- details of the offset package to compensate for significant residual impacts including details of the credit profiles required to offset the development in accordance with the FBA and/or mapping and descriptions of the extent and condition of the relevant habitat and/or threatened communities occurring on proposed offset sites.

Note: For the purposes of approval under the EPBC Act, it is a requirement that offsets directly contribute to the ongoing viability of the specific protected matter impacted by a proposed action (i.e. 'like for like'). In applying the FBA, residual impacts on EPBC Act listed threatened ecological communities must be offset with Plant Community Type(s) (PCT) that are ascribed to the specific EPBC listed ecological community. PCTs from a different vegetation class will not generally be acceptable as offsets for EPBC listed communities.

14. Any significant residual impacts not addressed by the FBA may need to be addressed in accordance with the EPBC Act Environmental Offset Policy. <http://www.environment.gov.au/epbc/publications/epbc-act-environmental-offsets-policy>.

Note: if the EPBC Act Environmental Offset Policy is used to calculate proposed offsets for a threatened species or community you may wish to seek further advice from the Department of Planning and Environment.

15. For each threatened species and community likely to be significantly impacted by the development, the EIS must provide reference to, and consideration of, relevant approved conservation advice or recovery plan for the species or community.

Note: the relevant guidelines and policy statements for each species and community are available from the Department of the Environment Species Profiles and Threats Database: <http://www.environment.gov.au/cgi-bin/sprat/public/sprat.pl>

Key Issue - Water resource, in relation to coal seam gas development and large coal mining development

16. The EIS should provide a description of the location, extent and ecological characteristics and values of the identified water resource potentially affected by the project.

17. The assessment of impacts should include information on:

- any substantial and measurable changes to the hydrological regime of the water resource, for example a substantial change to the volume, timing, duration or frequency of ground and surface water flows;
- the habitat or lifecycle of native species, including invertebrate fauna and fish species, dependent upon the water resource being seriously affected
- substantial and measurable change in the water quality and quantity of the water resource—for example, a substantial change in the level of salinity, pollutants, or nutrients

in the wetland; or water temperature that may adversely impact on biodiversity, ecological integrity, social amenity or human health.

18. The EIS must provide adequate information to allow the project to be reviewed by the Independent Expert Scientific Committee on Coal Seam Gas and Large Coal Mining Development, as outlined in the *Information Guidelines for Independent Expert Scientific Committee advice on coal seam gas and large coal mining development proposals* (IESC, October 2015).
19. Specifically, water resources within the WaterNSW Special Area that supplies drinking water to Sydney, the Blue Mountains and Illawarra are identified to be potentially at risk.

Environmental Record of person proposing to take the action

20. Information in relation to the environmental record of a person proposing to take action must include details as prescribed in Schedule 4 Clause 6 of the EPBC Regulations 2000.

Information Sources

For information given in the EIS, the EIS must state the source of the information, how recent the information is, how the reliability of the information was tested; and what uncertainties (if any) are in the information.

REFERENCES

1. *Environment Protect and Biodiversity Conservation Act 1999* - section 51-55, section 96A(3)(a)(b), 101A(3)(a)(b), section 136, section 527E
2. NSW Assessment Bilateral Agreement (2015) - Item 18.1, Item 18.5, Schedule 1
3. *Matters of National Environmental Significance - Significant impact guidelines 1.1* (2013) EPBC Act
4. *Environment Protect and Biodiversity Conservation Act 1999* Environmental Offsets Policy October 2012
5. *Information Guidelines for Independent Expert Scientific Committee advice on coal seam gas and large coal mining development proposals* (IESC, October 2015)

Attachment A

The Department of the Environment's Environment Reporting Tool (ERT) identifies threatened species and communities that may occur within 5 km of the proposed action. Based on the information in the referral documentation, the location of the action, species records and likely habitat present in the area, there are likely to be significant impacts to:

- Coastal Upland Swamps in the Sydney Basin Bioregion (Coastal Upland Swamps)

In addition, there is some risk that there may be significant impacts on the following matters and levels of impact should be further investigated:

- Shale Sandstone Transitional Forest in the Sydney Basin Bioregion
- Small-flower Grevillea (*Grevillea parviflora subsp. parviflora*)
- Kangaloon Sun-Orchid (*thelymitra kangaloonica*)
- Giant Burrowing Frog (*Heleioporus australiacus*)
- Green and Golden Bell Frog (*Litoria aurea*)
- Littlejohns Tree Frog (*Litoria littlejohn*)
- Macquarie Perch (*Macquaria australasica*)
- Broad-Headed Snake (*Hoplocephalus*)
- Regent Honeyeater (*Anthochaera Phrygia*)
- Eastern Bristlebird (*Dasyornis brachypterus*)
- Spot-tailed Quoll (*Dasyurus maculatus*) (SE mainland population)
- Greater Glider (*Petauroides volans*)

An assessment in accordance with clauses 11-15 of these requirements for all of these matters above must be presented in the EIS.