



ATTACHMENT 1
Cowal Gold Operations
Development Consent (DA 14/98)

**COWAL GOLD OPERATIONS
PROCESSING RATE MODIFICATION**

Environmental Assessment
2018



SCHEDULE 2**INDEX**

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Light blue type represents April 2016 modification – MOD 12

Green type represents January 2017 modification – MOD 13

DEFINITIONS

Annual review	The review referred to in condition 9.1(b)
Applicant	Evolution Mining (Cowal) Pty Limited, or any other person or persons who rely on this consent to carry out the development that is subject to this consent
BCA	Building Code of Australia
Biodiversity offset strategy	The conservation and enhancement strategy described in the EIS, summarised in Table 2, and depicted conceptually in the figure in Appendix 4
BSC	Bland Shire Council
CEMCC	Community Environmental Monitoring and Consultative Committee
DA	Development Application
DA area	Development Application area which includes the mine site and associated water pipeline route and Bland Creek Palaeochannel Borefield
Day	The period from 7am to 6pm on Monday to Saturday, and 8am to 6pm on Sundays and Public Holidays
Department	Department of Planning and Environment
Development	The development described in the EIS
DPI (Agriculture)	Office of Agricultural Sustainability & Food Security, within the Department of Primary Industries
DPI (Fisheries)	Fisheries NSW, within the Department of Primary Industries
DPI (Water)	Division of Water within the Department of Primary Industries
DRE	Division of Resources and Energy within the Department of Industry
DSC	NSW Dams Safety Committee
EIS	The Environmental Impact Statement prepared by Resource Strategies and dated 13 March 1998, including the Statement of Intent by North Gold (WA) Ltd, as amended by the: <ul style="list-style-type: none"> • Applicant's primary submission, and submission in reply to the Commission of Inquiry; • modification application submitted by Barrick Australia Limited, dated 20 June 2003; • modification application and supporting information submitted by Barrick Australia Limited, dated 13 November 2003; • modification application and supporting information submitted by Barrick Australia Limited, dated 22 June 2004; • modification application and supporting documentation submitted by Barrick Australia Limited, dated 15 August 2006; • modification application and supporting documentation submitted by

	<ul style="list-style-type: none"> Barrick Australia Limited, dated 24 December 2007; • modification application and supporting documentation submitted by Barrick Australia Limited, dated 30 January 2009; • modification application and supporting documentation submitted by Barrick (Cowal) Limited, dated 23 June 2009; • modification application dated 25 March 2008 and supporting EA submitted by Barrick Australia Limited; • modification application dated 22 November 2010 and supporting letter submitted by Barrick (Cowal) Limited; • modification application dated 16 December 2010 (Mod 10) and supporting Environmental Assessment titled Cowal Gold Mine Water Supply Modification (Section 75W Modification) and dated December 2010, submitted by Barrick (Cowal) Limited; • modification application and supporting Environmental Assessment (Mod 11) titled Cowal Gold Mine Extension Modification and dated 12 September 2013, submitted by Barrick (Cowal) Limited; • modification application (Mod 12) dated 24 March 2016, submitted by Evolution Mining (Cowal) Pty Limited; and • modification application (Mod 13) dated 11 November 2016, submitted by Evolution Mining (Cowal) Pty Limited.
EPA	NSW Environment Protection Authority
Evening	The period from 6pm to 10pm
Feasible	Feasible relates to engineering considerations and what is practical to build
Incident	A set of circumstances that: <ul style="list-style-type: none"> • causes or threatens to cause material harm to the environment; and/or • breaches or exceeds the limits or performance measures/criteria in this consent
Land	As defined in the EP&A Act, except for where the term is used in the noise and air quality conditions 6.1 and 6.4 of this consent where it is defined to mean the whole of a lot, or contiguous lots owned by the same landowner, in a current plan registered at the Land Titles Office at the date of this consent
m AHD	metres Australian Height Datum
Material harm to the environment	Actual or potential harm to the health or safety of human beings or to ecosystems that is not trivial
Mining operations	Includes the removal and emplacement of waste rock; the processing, handling and storage of ore on site; and the transport of ore concentrate offsite
Mitigation	Activities associated with reducing the impacts of the development
Night	The period from 10pm to 7am on Monday to Saturday, and 10pm to 8am on Sundays and Public Holidays
OEH	Office of Environment and Heritage
Rehabilitation	The restoration of land disturbed by the development to a good condition, to ensure it is safe, stable and non-polluting
Reasonable	Reasonable relates to the application of judgement in arriving at a decision, taking into account: mitigation benefits, cost of mitigation versus benefits provided, community views and the nature and extent of potential improvements.
RMS	Roads and Maritime Services
Secretary	Secretary of the Department, or nominee
Site	The land the subject of DA

1. GENERAL

1.1 Adherence to terms of DA, EIS, SIS, etc.

- (a) The development is to be carried out generally in accordance with the:
- (i) EIS; and
 - (ii) conditions of this consent.

Note: The general layout of the development is shown in Appendix 1.

- (b) If there is any inconsistency between the above documents, the most recent document shall prevail to the extent of the inconsistency. However, the conditions of this consent shall prevail to the extent of any inconsistency.
- (c) The Applicant shall comply with any reasonable requirement/s of the Secretary arising from the Department's assessment of:
- (i) any strategies, plans, programs, reviews, reports, audits or correspondence that are submitted in accordance with this consent (including any stages of these documents);
 - (ii) any reviews, reports or audits commissioned by the Department regarding compliance with this consent; and
 - (iii) the implementation of any actions or measures contained in these documents.

1.2 Limits on Consent

- (a) The Applicant may only carry out mining operations until 31 December 2032.

Note: Under this consent, the Applicant is required to rehabilitate the site and perform additional undertakings to the satisfaction of the Secretary and DRE. Consequently, this consent will continue to apply in all other respects other than the right to conduct mining operations until the rehabilitation of the site and these additional undertakings have been carried out satisfactorily.

- (b) The Applicant shall not process more than 7.5 million tonnes of ore on site in any calendar year.
- (c) The Applicant shall comply with the following maximum heights:
- (i) Northern Rock Emplacement - 308 m AHD;
 - (ii) Southern Rock Emplacement - 283 m AHD;
 - (iii) Southern Tailings Storage Facility - 272 m AHD;
 - (iv) Northern Tailings Storage Facility - 264 m AHD;
 - (v) Perimeter Rock Emplacement - 233 m AHD; and
 - (vi) Mineralised Material Stockpile - 288 m AHD.
- (d) The Applicant shall not carry out any construction work on the Tailings Storage Facility embankments or rock buttress outside of the hours of 7 am to 6 pm.

1.3 Structural Adequacy

The Applicant shall ensure that all new buildings and structures on site, and any alterations or additions to existing buildings and structures, are constructed in accordance with the relevant requirements of the BCA.

Note: Under Part 4A of the EP&A Act, the Applicant is required to obtain construction and occupation certificates (where applicable) for the proposed building works. Part 8 of the EP&A Regulation sets out the requirements for the certification of the development.

1.4 Demolition

The Applicant shall ensure that all demolition work undertaken on site is carried out in accordance with AS 2601-2001: *The Demolition of Structures*, or its latest version.

1.5 Protection of Public Infrastructure

Unless the Applicant and the applicable authority agree otherwise, the Applicant shall:

- (a) repair, or pay the full costs associated with repairing, any public infrastructure that is damaged by the development; and
- (b) relocate, or pay the full costs associated with relocating, any public infrastructure that needs to be relocated as a result of the development.

Note: This condition does not apply to any damage to roads caused as a result of general road usage.

1.6 Operation of Plant and Equipment

The Applicant shall ensure that all plant and equipment used on site, or to monitor the performance of the development, is maintained and operated in a proper and efficient manner.

1.7 Staging and Updating Strategies, Plans or Programs

To ensure the strategies, plans and programs under this consent are updated on a regular basis, and that they incorporate any appropriate additional measures to improve the environmental performance of the development, the Applicant may at any time submit revised strategies, plans or programs to the Secretary for approval. With the agreement of the Secretary, the Applicant may also submit any strategy, plan or program required by this consent on a staged basis.

The Secretary may approve a revised strategy, plan or program required under **this consent**, or the staged submission of any of these documents, at any time. With the agreement of the Secretary, the Applicant may prepare a revision of or a stage of a strategy, plan or program without undertaking consultation with all parties nominated under the applicable condition in this consent.

Note: While any strategy, plan or program may be submitted on a staged basis, the Applicant will need to ensure that the existing operations on site are covered by suitable strategies, plans or programs at all times. If the submission of any strategy, plan or program is to be staged, then the relevant strategy, plan or program must clearly describe the specific stage to which the strategy, plan or program applies, the relationship of this stage to any future stages, and the trigger for updating the strategy, plan or program.

1.8 Dispute Resolution

In the event that the Applicant and the BSC or any Government agency, other than the Department, cannot agree on the specification or requirements applicable under this consent, the matter shall be referred by either party to the Secretary for resolution. The Secretary's determination on the dispute shall be final and binding on the parties.

2. MINE MANAGEMENT

2.1 Mine Management Plan, Operations and Methods

The Applicant shall prepare and implement a Mining Operations Plan for the development to the satisfaction of DRE. This plan must be prepared in accordance with any current guidelines issued for such plans by DRE, and should include a geotechnical analysis and review of ongoing open pit development, the management of waste rock emplacements, and continued monitoring of the lake protection bund.

2.2 Ore, Waste and Concentrate Production

The Applicant shall not transport ore or other excavated materials not required for either construction or maintenance works from other mines or locations to the mine site without the written approval of the relevant councils.

2.3 Mine and Public Safety

The Applicant shall secure the mine site as described in the EIS. The fence for the mining lease boundary shall be designed to minimise the impact on water birds and aquatic species.

2.4 Rehabilitation

(a) Rehabilitation Objectives

The Applicant shall rehabilitate the site to the satisfaction of DRE. This rehabilitation must be generally consistent with the proposed rehabilitation in the EIS (which is depicted in the Figure in Appendix 2) as amended by the approved rehabilitation strategy (see condition 3.8), and comply with the objectives in Table 1.

Table 1: Rehabilitation objectives

Feature	Objective
Mine site (as a whole)	<ul style="list-style-type: none"> • Safe, stable and non-polluting • Final landforms designed to incorporate micro-relief and integrate with surrounding natural landforms • Constructed landforms are to generally drain to the final void • Minimise long term groundwater seepage zones • Minimise visual impact of final landforms as far as is reasonable and feasible
Final void	<ul style="list-style-type: none"> • Minimise to the greatest extent practicable: <ul style="list-style-type: none"> – the size and depth of final void – the drainage catchment of final void – risk of flood interaction for all flood events up to and including the Probable Maximum Flood • To be permanently separated from Lake Cowal by the Lake Protection Bund • Highwall to be long-term stable
Surface infrastructure	<ul style="list-style-type: none"> • To be decommissioned and removed, unless DRE agrees otherwise
Agriculture	<ul style="list-style-type: none"> • Restore or maintain land capability generally as described in the EIS
Rehabilitation areas and other vegetated land	<ul style="list-style-type: none"> • Restore ecosystem function, including maintaining or establishing self-sustaining ecosystems
Community	<ul style="list-style-type: none"> • Ensure public safety • Minimise adverse socio-economic effects associated with mine closure

(b) Progressive Rehabilitation

The Applicant shall rehabilitate the site progressively as soon as reasonably practicable following disturbance. All reasonable and feasible measures must be taken to minimise the total area exposed for dust generation at any time. Interim stabilization and rehabilitation strategies shall be employed when areas prone to dust generation cannot be permanently rehabilitated.

Note: It is accepted that some parts of the site that are progressively rehabilitated may be subject to further disturbance at some later stage of the development.

(c) Rehabilitation Management Plan

The Applicant shall prepare and implement a Rehabilitation Management Plan for the development to the satisfaction of DRE. This plan must:

- (i) be prepared in consultation with the Department, DPI (Water), OEH, DPI, BSC and the CEMCC;
- (ii) be prepared in accordance with any relevant DRE guideline;
- (iii) describe how the rehabilitation of the site would be integrated with the biodiversity offset strategy for the development;
- (iv) include detailed performance and completion criteria for evaluating the performance of the rehabilitation of the site, and triggering remedial action (if necessary);
- (v) describe the measures that would be implemented to ensure compliance with the relevant conditions of this consent, and address all aspects of rehabilitation including mine closure, final landform (including final voids) and final land use;
- (vi) include interim rehabilitation where necessary to minimise the area exposed for dust generation;
- (vii) include a program to monitor, independently audit and report on the effectiveness of the measures, and progress against the detailed performance and completion criteria; and
- (viii) build to the maximum extent practicable on the other management plans required under this consent.

2.5 Security Deposits and Bonds

Security deposits and bonds will be paid as required by DRE under mining lease approval conditions.

3. HERITAGE, FLORA AND FAUNA AND LAND MANAGEMENT

3.1 Heritage Management

- (a) The Applicant shall:
- (i) prepare and implement a Heritage Management Plan for the development to the satisfaction of the Secretary. The plan shall be prepared in consultation with Bland District Historical Society, BSC, and Lake Cowal landholders/residents and address non-indigenous cultural heritage issues associated with the development;
 - (ii) prepare and implement an Indigenous Archaeology and Cultural Management Plan for the development to the satisfaction of the Secretary. The plan shall be prepared in consultation with NPWS, the Local Aboriginal Land Council, a consultant archaeologist, any other stakeholders identified by NPWS; and identify future salvage, excavation and monitoring of any archaeological sites within the DA area prior to and during development, and to address Aboriginal cultural heritage issues; and
 - (iii) retain a Cultural Heritage Officer approved by the West Wyalong Local Aboriginal Land Council who is to be available on site during construction earthworks.
- (b) The Applicant shall monitor the effectiveness of measures outlined in the Heritage Management Plan and Indigenous Archaeology and Cultural Management Plan to the satisfaction of the Secretary. A summary of the monitoring results is to be published annually on the Applicant's website for the development.

3.2 Flora and Fauna Management

- (a) The Applicant shall:
- (i) minimise the removal of trees and other vegetation from the mine site and restrict any clearance to the areas occupied by the mine activity, buildings and paved surfaces, and those areas necessary for fire control in accordance with BSC's requirements, and have regard to the draft Mid-Lachlan Regional Vegetation Management Plan (or its final version);
 - (ii) not locate topsoil stockpiles within any area of Wilga Woodland in the DA area as identified in Figure 3-13 in the 1998 EIS (Appendix 3); and
 - (iii) not disturb any area of Belah Woodland in the DA area as identified in Figure 3-13 in the 1998 EIS.
- (b) The Applicant shall prepare and implement a Flora and Fauna Management Plan for the development to the satisfaction of the Secretary. The shall be prepared in consultation with DPI (Fisheries) and OEH, and cover the mining lease area and monitoring of bird breeding areas as identified by the Applicant in consultation with OEH. The plan shall include, but not be limited to:
- (i) methods for monitoring daily and seasonal fauna usage of tailings dams (eg. species, number, location, habits), and whether deaths or other effects or incidents are occurring. Usage of the tailings dams shall be reported to the OEH on a six monthly basis, unless otherwise directed by the Secretary;
 - (ii) development of a protocol for the reporting of any native fauna deaths or other incidents involving native fauna on the mining lease to the OEH, DRE, CEMCC and in the case of fish, DPI (Fisheries). Native fauna deaths (except those attributable to physical trauma such as vehicle strike) must be reported as per this protocol within 24 hours (or next working day).The Applicant shall maintain a record of any native fauna deaths or other incidents and this record must be published annually on the Applicant's website for the development;
 - (iii) provision for fauna autopsy facilities to enable the cause of any deaths to be quickly determined. The protocol required in sub clause (ii) above shall also detail collection and autopsy of fauna. This shall include but not be limited to collection and recording procedures, autopsy procedures and laboratory tests;
 - (iv) provision of contingency measures for reducing cyanide levels in the tailings dams in the event it is established that fauna deaths are occurring from cyanide in tailings dam water;
 - (v) development of effective mechanisms to keep fauna and avifauna away from the tailings storages, which shall include, but not be limited to:
 - minimising the area of open water in the tailings dams;
 - fencing to prevent both medium and large fauna, terrestrial and amphibians, from entering the area. Mesh will have holes no greater than 5cm in diameter;
 - making the area non conducive to the establishment of wildlife habitats, as far as possible;
 - use of netting where practical; and
 - use of current best practice methods for avifauna deterrence;
 - (vi) development of plans for the rescue and rehabilitation of wildlife that may become bogged/sick/trapped in the tailings dams or elsewhere within the mining lease area;
 - (vii) methods to conserve and enhance wildlife values around Lake Cowal, within the mine lease area, including: protection and enhancement of existing retained habitats;
 - (viii) provision to continue fauna and flora, fish, and aquatic invertebrate monitoring of the Lake Cowal

- region as documented in the EIS including investigation of fauna deaths off site if requested by the Secretary where it is considered the deaths are attributable to activities on the site;
- (ix) details to relocate any threatened species and/or its habitat away from disturbed areas that are created by mine operations. This will include placement and maintenance of suitable types and numbers of artificial roosting boxes for bats such as the Greater Long-eared Bat and other animals (eg birds/possums) in undisturbed areas of the mine site; and
 - (x) details of monitoring the mine's impacts particularly on birdlife in bird breeding areas identified by the Applicant in consultation with OEH, threatened fauna and flora, and fish and aquatic invertebrates around Lake Cowal, and outline contingency measures should impacts be identified as occurring.
- (c) The Applicant shall implement a Threatened Species Management Protocol for the development to the satisfaction of the Secretary, which will include provisions for targeted searches prior to construction and proposed mitigation measures where threatened flora or fauna species are found.
 - (d) The Applicant shall monitor the effectiveness of measures outlined in the Flora and Fauna Management Plan and Threatened Species Protocol to the satisfaction of the Secretary. A summary of these monitoring results shall be published annually on the Applicant's website for the development.

3.3 Compensatory Wetland Management Plan

The Applicant shall prepare and implement a Compensatory Wetland Management Plan for the development to the satisfaction of the Secretary. The plan shall be prepared in consultation with OEH and DPI (Fisheries), Lake Cowal Landowners Association, and Lake Cowal Environmental Trust, and detail compensation measures for the loss of 120 hectares of wetland, through the enhancement of at least the equivalent area of existing wetland within the mine lease area during operation and following closure of the mine. The plan shall include, but not be limited to:

- (a) a definition of wetland which shall be all land up to the high water mark of Lake Cowal recognising that river red gum habitat is below high water mark;
- (b) measures to manage the enhanced wetlands without adversely impacting adjoining private properties; and
- (c) measures to improve habitats for wildlife including waterbirds, fish, aquatic organisms etc, in the wetlands covered by the plan.

3.4 Biodiversity Offset Strategy

- (a) The Applicant shall implement the biodiversity offset strategy summarised in Table 2, shown conceptually in Appendix 4, and described in detail in the EIS to the satisfaction of the Secretary.

Table 2: Summary of Biodiversity Offset Strategy

Area	Minimum Size
Northern Offset Area (Enhancement Area)	80 ha
Southern Offset Area (Enhancement Area) (including 230 ha Mod 11 extension)	260 ha
Southern Offset Area (Revegetation Area)	100 ha
Total	440 ha

- (b) By the end of July 2015, unless the Secretary agrees otherwise, the Applicant shall make suitable arrangements for the long term protection of the biodiversity offset areas in Table 2 to the satisfaction of the Secretary.
- (c) The Applicant shall prepare and implement a Biodiversity Offset Management Plan for the development to the satisfaction of the Secretary. This plan must be prepared in consultation with OEH, and include:
 - (i) a description of the short, medium, and long term measures that would be implemented to:
 - implement the biodiversity offset strategy; and
 - manage the remnant vegetation in the offset areas; and
 - integrate the implementation of the biodiversity offset strategy to the greatest extent practicable with the rehabilitation of the site.
 - (iii) detailed performance and completion criteria for evaluating the performance of the biodiversity offset strategy, and triggering remedial action (if necessary);
 - (iv) a detailed description of the measures that would be implemented for:
 - enhancing the quality of existing vegetation and fauna habitat in the biodiversity offset areas;
 - creating native vegetation and fauna habitat in the biodiversity offset areas;

- maximising the salvage of resources from the disturbance areas on site, including the vegetative and soil resources – for beneficial use in the biodiversity offset areas;
 - collecting and propagating seed;
 - controlling weeds and feral pests;
 - controlling erosion;
 - managing any grazing;
 - controlling access; and
 - bushfire management;
- (v) a seasonally-based program to monitor and report on the effectiveness of these measures, and progress against the detailed performance and completion criteria;
- (vi) a description of the potential risks to successful implementation of the biodiversity offset strategy, and the contingency measures that would be implemented to mitigate against these risks; and
- (vii) details of who would be responsible for monitoring, reviewing, and implementing the plan.
- (d) By the end of July 2015, unless otherwise agreed by the Secretary, the Applicant shall lodge a Conservation Bond with the Department to ensure that the biodiversity offset strategy is implemented in accordance with the performance and completion criteria in the Biodiversity Offset Management Plan. The sum of the bond shall be determined by:
- (i) calculating the full cost of implementing the biodiversity offset strategy (other than land acquisition costs); and
 - (ii) employing a suitably qualified and experienced person to verify the calculated cost to the satisfaction of the Secretary.

The calculation of the Conservation Bond must be submitted to the Department for approval at least 1 month prior to the lodgment of the bond.

If the offset strategy is completed generally in accordance with the completion criteria in the Biodiversity Offset Management Plan to the satisfaction of the Secretary, the Secretary will release the bond.

If the offset strategy is not completed generally in accordance with the completion criteria in the Biodiversity Offset Management Plan, the Secretary will call in all, or part of, the conservation bond, and arrange for the completion of the relevant works.

Note: Alternative funding arrangements for long-term management of the biodiversity offset strategy, such as provision of capital and management funding as agreed by OEH as part of a Biobanking Agreement or transfer to conservation reserve estate can be used to reduce the liability of the conservation and biodiversity bond. The sum of the bond may be reviewed in conjunction with any revision to the Biodiversity Offset Management Plan.

3.5 Prevention of Soil Erosion

The Applicant shall prepare and implement the following plans to the satisfaction of the Secretary:

- (a) an erosion and sediment control management plan for the site which shall include, but not be limited to:
 - (i) details of temporary and permanent sediment and erosion control systems to be used during both mine construction and operation, including for earthworks associated with landscaping;
 - (ii) details of salinity management; and
 - (iii) a program for reporting on the effectiveness of the sediment and erosion control systems and performance against objectives contained in the approved erosion and sediment control management plan, and EIS; and
- (b) a soil stripping management plan for the site which shall include, but not be limited to:
 - (i) details of the management of soil stockpiles, soil stripping techniques and scheduling;
 - (ii) any further requirements of DRE; and
 - (iii) a program for reporting on the effectiveness of the soil stripping methods and performance against objectives contained in the soil stripping management plan, and EIS.

3.6 Bushfire Management

The Applicant shall:

- (a) ensure the development is suitably equipped to respond to any fires on site; and
- (b) assist the RFS and emergency services as much as practicable if there is a fire in the vicinity of the site.

3.7 Land Management

The Applicant shall prepare and implement a Land Management Plan for all its land holdings to the satisfaction of the Secretary. The plan shall be prepared in consultation with OEH, [DPI \(Water\)](#), DPI (Agriculture) and BSC, be consistent with the Flora and Fauna Management Plan, provide for proper land management including, but not limited to:

- (a) pastures and remnant vegetation management;
- (b) control of vermin and noxious weeds as required by the Local Lands Services, BSC and other relevant authorities;
- (c) integration of the latest versions of the Jemalong Land and Water Management Plan and the Lake Cowal Land and Water Management Plan; and
- (d) feral animal control.

3.8 Rehabilitation Strategy

The Applicant shall develop a strategy for the long term land use of the DA area on decommissioning of the mine site. The strategy shall include, but not be limited to: appropriate landuses within the DA area, which may include areas for conservation, agriculture or recreation, long term management of the area, environmental impacts of any uses and maintenance of necessary drainage characteristics and other features provided on the site. The strategy for long term land use of the DA area shall be submitted by Year 7 of mining operations or five years before mine closure, whichever is the sooner, in consultation with DRE, DPI (Water), OEH, BSC, CEMCC, and to the satisfaction of the Secretary.

4. WATER MANAGEMENT

4.1 Water Supply

(a) General

The Applicant shall ensure that it has sufficient water for all stages of the development, and if necessary, adjust the scale of operations on site to match its available water supply.

Note: Under the Water Act 1912 and/or the Water Management Act 2000, the Applicant is required to obtain all necessary water licences for the development.

(b) Bland Creek Palaeochannel Borefield

The maximum daily extraction of water from the Bland Creek Palaeochannel Borefield shall not exceed 15ML/day or 3650ML/year.

4.2 Pipeline & Borefield Infrastructure

- (a) All pipeline and borefield infrastructure for the development shall be:
 - (i) constructed in consultation with DPI (Fisheries), and in accordance with the requirements of NOW;
 - (ii) laid in such a way so as not to impede the passage of fish or other animals, or interfere with flood behaviour or the passage of boats and vehicles; and
 - (iii) equipped with an automatic shutdown device so water pumping is immediately stopped in the event of any pipe rupture. The water supply shall not be restarted until the rupture is located and repaired.

4.3 Disposal of Excess Water

There shall be no disposal of water from the internal catchment drainage system on site to Lake Cowal under any circumstances.

4.4 Water Management

- (a) The Applicant shall prepare a Water Management Plan for the development to the satisfaction of the Secretary. This plan must:
 - (i) be prepared in consultation with DPI (Water) and EPA;
 - (ii) include, but not be limited to, the following matters:
 - management of the quality and quantity of surface and groundwater within and around the mine site, including water in the up catchment diversion system, internal catchment drainage system, dewatering bores, Bland Creek Palaeochannel borefield and water supply pipeline from the borefield, which shall include preparation of monitoring programs (see below);
 - measures to prevent the quality of water in Lake Cowal or any surface waters being degraded below the relevant ANZECC water quality classification prior to construction due to the construction and/ or operation of the mine;
 - identification of any possible adverse effects on water supply sources of surrounding land holders, and land holders near the Bland Creek Palaeochannel Borefield as a result of the mining operations, and implementation of mitigation measures as necessary;
 - identification of changes in flood regime on productive agricultural land in Nerang Cowal as a

result of the mine perimeter bund intruding into Lake Cowal, and provision of appropriate compensation measures for affected landholders based on inundation of productive land caused by the changed flood regime;

- construction and operation of water storages D1 and D4 as first flush systems with initial captured run-off waters from the outer batters of northern and southern emplacement dumps reporting to water storage D6;
- measures to manage and dispose of water that may be captured behind the temporary perimeter bund during construction of that bund;
- integration of the latest versions of the Jemalong Land and Water Management Plan and the Lake Cowal Land and Water Management Plan;
- measures to evaluate water quality data obtained from monitoring under this consent against records of baseline monitoring undertaken prior to the consent; and
- a program for reporting on the effectiveness of the water management systems and performance against objectives contained in the approved site water management plan, and EIS.

- (b) The Applicant shall develop a strategy for the decommissioning of water management structures, including water storages both in and around the mine site, the water pipeline and borefield infrastructure associated with the development, and long term management of final void and Lake protection bund. The strategy shall include, but not be limited to, long term monitoring of the water quality in the final void and stability of Lake protection bund and void walls, and options for alternate uses of the water pipeline. The strategy for the final void shall be submitted by Year 7 of mining operations or five years before mine closure, whichever is the sooner, in consultation with [DPI \(Water\)](#), [EPA](#), DRE and CEMCC, and to the satisfaction of the Secretary.
- (c) The Applicant shall:
- (i) construct the Lake protection bund and site water and tailings storages to the requirements of [DPI \(Water\)](#), [EPA](#) and DSC; and
 - (ii) provide a geotechnical report on pit/void wall construction/stability to DRE prior to commencement of mining operations and construct pit/void in accordance with the requirements of DRE.

4.5 Water Monitoring

- (a) The Applicant shall construct and locate:
- (i) surface water monitoring positions in consultation with [DPI \(Water\)](#) and [EPA](#), and to the satisfaction of the Secretary, at least three months prior to the commencement of construction works unless otherwise directed by the Secretary; and
 - (ii) groundwater monitoring positions in consultation with [DPI \(Water\)](#) and [EPA](#), and to the satisfaction of the Secretary at least six months prior to the commencement of construction works unless otherwise directed by the Secretary.
- (b) The Applicant shall prepare and implement a detailed monitoring program for the development to the satisfaction of the Secretary. This plan must be prepared in consultation with [DPI \(Water\)](#), [EPA](#), [DPI \(Fisheries\)](#), and be directed towards monitoring the potential water impacts of the mine, including water in the up catchment diversion system, internal catchment drainage system, dewatering bores, all borefields associated with the development, and water supply pipeline, pit/void, Lake Cowal, and any other waters in and around the mine site for all stages of the development.

The monitoring program will include the development of adequate chemical and biological monitoring in the waters of Lake Cowal, when water is present, by suitably qualified and experienced staff or consultants to the satisfaction of the [DPI \(Water\)](#) and [EPA](#), and in the case of biological monitoring [DPI \(Fisheries\)](#), [DPI \(Water\)](#) and [EPA](#) must be satisfied as to sampling design, including sample locations, sample frequency, sample handling, transport and analysis, sampling parameters and reporting of analysis results.

The results and interpretation of surface and ground water monitoring (including biological monitoring) are to be published on the Applicant's website for the development on a regular basis, or as directed by the Secretary.

- (c) The Applicant shall prepare and implement a monitoring program for the detection of any movement of the Lake protection bund, water storage and tailings structures and pit/void walls during the life of the mine, with particular emphasis on monitoring after any seismic events prior to commencement of construction works, in consultation with [DPI \(Water\)](#) and DRE, and to the satisfaction of the Secretary.

4.6 Catchment Areas and Watercourses

The Applicant shall as a landowner have on-going regard for the provisions of the latest versions of the Jemalong Land and Water Management Plan, Lake Cowal Land and Water Management Plan, Mid-Lachlan Regional Vegetation Management Plan, and any future catchment/land and water management plans that may become relevant to the area.

5. HAZARDOUS MATERIALS AND TAILINGS MANAGEMENT

5.1 Waste Rock Emplacement and Management

The Applicant shall construct and manage the waste rock emplacement as set out in the EIS, and to the satisfaction of DRE.

5.2 Tailings Emplacement and Management

The Applicant shall:

- (a) construct the tailings dams to the requirements of DRE, EPA and DSC and in consultation with [DPI \(Water\)](#); and
- (b) construct and compact the floor of the tailings storages as required to a permeability acceptable to the DRE and EPA in consultation with [DPI \(Water\)](#).

5.3 Cyanide Management

(a) Cyanide levels

The Applicant shall ensure that cyanide levels of the aqueous component of the tailings slurry stream do not exceed: 20mg CN_{WAD}/L (90 percentile over six months), and 30mg CN_{WAD}/L (maximum permissible limit at any time), at the [process plant](#).

(b) Cyanide Management

The Applicant shall prepare and implement a cyanide management plan for the development to the satisfaction of the Secretary. The plan is to be prepared in consultation with DRE, EPA and [DPI \(Water\)](#) and include monitoring and reporting on cyanide use on the site. The plan shall make provision for, but is not limited to:

- (i) containing cyanide contaminated waters entirely within the mine site;
- (ii) maintaining weak acid dissociable (WAD) cyanide levels at the [process plant](#) to the levels stated in condition 5.3(a);
- (iii) contingency measures for cyanide reduction.

(c) Wildlife Deaths

In the event of wildlife deaths occurring due to cyanide, review of cyanide levels shall occur by the EPA in consultation with the Applicant and DRE. Any decision to require cyanide reduction shall include, but not be limited to, consideration of the number of fauna deaths, the species involved, antecedent condition of species, methods employed at the time to prevent use of tailings dams by fauna, and antecedent climatic and surface water conditions of the Lake and surrounding area. The Applicant shall notify the CEMCC of any reductions in cyanide levels as soon as practicable.

(d) Cyanide Monitoring

The Applicant shall prepare and implement a cyanide monitoring program for the development to the satisfaction of the Secretary. The plan must be prepared in consultation with [EPA](#) and DRE, and shall include, but not be limited to, provision for:

- (i) monitoring of CN_{WAD} levels of the aqueous component of the tailings slurry stream at the [process plant](#) twice daily or as otherwise directed by the Secretary, with any increases above 20mg CN_{WAD}/L to be assessed daily to ensure compliance and reported [in the Annual Review](#), unless otherwise agreed by the Secretary. If the CN_{WAD} levels of 30mg/L are exceeded in the liquid at any time, discharge to the tailings dams shall cease until CN_{WAD} levels can be achieved below the levels stated in condition 5.3(a) and such exceedance shall be reported to the [EPA](#) within 24 hours;
- (ii) monitoring CN_{WAD} levels in the decant water of the tailings dams twice daily or as otherwise directed by the Secretary;
- (iii) an on site laboratory for quickly establishing CN_{WAD} levels in the liquid at the [process plant](#) and in the decant ponds for monitoring purposes;
- (iv) on-line monitoring of CN(FREE) at locations where employees are operating;
- (v) establishing a monitoring regime for detection of cyanide movement beneath and adjacent to the

tailings impoundments.

A summary of the cyanide monitoring results shall be provided on the Applicant's website for the development on a regular basis, or as directed by the Secretary.

5.4 Hazards Management

Note: The development consent conditions under 5.4(a)-(f) are related to offsite risk to people and the biophysical environment. The safety of all persons and operations on site is the responsibility of the DRE under the Mines Inspection Act and Dangerous Goods Act.

(a) Pre-Construction Studies

The Applicant shall prepare and submit for the approval of the Secretary, the studies set out under subsections 5.4(a)(i) to 5.4(a)(iii) (the pre-construction studies), at least one month prior to the commencement of construction of the proposed development, (except for construction of those preliminary works that are outside the scope of the hazard studies), or within such further period as Secretary may agree. Construction, other than of preliminary works, shall not commence until approval has been given by the Secretary and, with respect to the fire safety study, approval has also been given by the Commissioner of the NSW Fire Brigades.

(i) *Fire Safety Study*

This study shall cover all aspects detailed in the Department's Hazardous Industry Planning Advisory Paper No. 2, "Fire Safety Study Guidelines" and the New South Wales Government's "Best Practice Guidelines for Contaminated Water Retention and Treatment Systems". The study shall also be submitted for approval to the New South Wales Fire Brigades.

The study should, in particular, address the fire related issues associated with the storage and use of Ammonium Nitrate, Sodium Isobutyl Xanthate, and Cyanide.

(ii) *Hazard and Operability Study*

The study is to be chaired by an independent qualified person approved by the Director-General prior to the commencement of the study. The study shall be carried out in accordance with the Department's Hazardous Industry Planning Advisory Paper No. 8, "HAZOP Guidelines". The HAZOP shall in particular address the monitoring, control, alarm and shutdown systems associated with xanthate and cyanide process streams.

(iii) *Final Hazard Analysis*

The analysis should be prepared in accordance with the Department's Hazardous Industry Planning Advisory Paper No. 6, "Guidelines for Hazard Analysis".

(b) Pre-Commissioning Studies

The Applicant shall prepare and submit for the approval of the Secretary the following studies (the pre-commissioning studies), no later than two months prior to the commencement of commissioning of the proposed development, or within such period as the Secretary may agree. Commissioning shall not commence until approval has been given by the Secretary.

(i) *Transport of Hazardous Materials*

The study comprises arrangements covering the transport of hazardous materials including details of routes to be used for the movement of vehicles carrying hazardous materials to or from the proposed development. The study shall be carried out in accordance with the Department's draft "Route Selection" guidelines. Suitable routes identified in the study shall be used except where departures are necessary for local deliveries or emergencies.

The study should also address (1) the issues associated with spills, cleanup procedures, training of clean-up teams, communication, and liaison with organisations such as the fire brigades, District Emergency Management Coordinator (and Committee), Local Emergency Management Committee(s), and state emergency services; (2) inspection and monitoring procedures for chemicals such as explosives, xanthates and cyanides prior to commencement of a trip, to verify the integrity of the packaging; and (3) measures to be taken to ensure that the temperature of the materials does not rise above safe levels.

(ii) *Emergency Plan*

A comprehensive emergency plan and detailed emergency procedures for the proposed development. This plan shall include detailed procedures for the safety of all people outside of the development who may be at risk from the development. The plan should be in accordance with the Department's Hazardous Industry Planning Advisory Paper No. 1, "Industry Emergency Planning Guidelines", and include procedures for spillage, cleanup, control and protection, and rescue of wildlife during the emergency.

(iii) *Safety Management System*

A document setting out a comprehensive safety management system, covering all operations on-site and associated transport activities involving hazardous materials. The document shall clearly specify all safety related procedures, responsibilities and policies, along with details of mechanisms for ensuring adherence to procedures. Records shall be kept on-site and should be available for inspection by the Secretary upon request. The safety management system should be developed in accordance with the Department's Hazardous Industry Planning Advisory Paper No. 9, "Safety Management".

(c) Hazard Audit

Twelve months after the commencement of operations of the proposed development or within such further period as the Secretary may agree, the Applicant shall carry out a comprehensive hazard audit of the proposed development and submit a report of the audit to the Secretary.

The audit shall be carried out at the Applicant's expense by a duly qualified independent person or team approved by the Secretary prior to commencement of the audit. Further audits shall be carried out every three years or as determined by the Secretary and a report of each audit shall within a month of the audit be submitted to the Secretary. Hazard audits should be carried out in accordance with the Department's Hazardous Industry Planning Advisory Paper No. 5, "Hazard Audit Guidelines".

5.5 Domestic Waste

The Applicant shall dispose of all solid waste and putrescible matter from the site to the satisfaction of BSC.

5.6 Sewage and Associated Waste Management

The Applicant shall install the site sewage treatment facility, and dispose of treated sewage and sullage to the satisfaction of BSC and EPA, and in accordance with the requirements of the Department of Health.

5.7 Asbestos and Other Hazardous or Toxic Waste Management

The Applicant shall prior to commencement of construction works prepare a Hazardous Waste and Chemical Management Plan as set out in section 6.4.1 of the EIS in consultation with EPA and BSC, and to the satisfaction of the Secretary.

6. AIR, BLAST, NOISE AND VISUAL IMPACT MANAGEMENT

6.1 Air Management

(a) Impact Assessment Criteria

The Applicant shall ensure that all reasonable and feasible avoidance and mitigation measures are employed so that particulate matter emissions generated by the development do not cause exceedances of the criteria listed in Tables 3, 4 and 5 at any residence on privately-owned land.

Table 3: Long term impact assessment criteria for particulate matter

Pollutant	Averaging period	^d Criterion
Total suspended particulate (TSP) matter	Annual	^a 90 µg/m ³
Particulate matter < 10 µm (PM ₁₀)	Annual	^a 30 µg/m ³

Table 4: Short term impact assessment criterion for particulate matter

Pollutant	Averaging period	^d Criterion
Particulate matter < 10 µm (PM ₁₀)	24 hour	^a 50 µg/m ³

Table 5: Long term impact assessment criteria for deposited dust

Pollutant	Averaging period	Maximum increase in deposited dust level	Maximum total deposited dust level
^c Deposited dust	Annual	^b 2 g/m ² /month	^a 4 g/m ² /month

Notes to Tables 3-5:

^a Total impact (i.e. incremental increase in concentrations due to the development plus background concentrations due to all other sources).

^b Incremental impact (i.e. incremental increase in concentrations due to the development on its own).

^c Deposited dust is to be assessed as insoluble solids as defined by Standards Australia, AS/NZS 3580.10.1:2003: Methods for Sampling and Analysis of Ambient Air - Determination of Particulate Matter - Deposited Matter - Gravimetric Method.

^d Excludes extraordinary events such as bushfires, prescribed burning, dust storms, fire incidents or any other activity agreed by the Secretary.

(b) Operating Conditions

The Applicant shall:

- (i) implement best management practice to minimise the off-site odour, fume, spontaneous combustion and dust emissions of the development;
- (ii) implement all reasonable and feasible measures to minimise the release of greenhouse gas emissions from the site;
- (iii) minimise any visible off-site air pollution generated by the development;
- (iv) minimise the surface disturbance on the site;
- (v) minimise the air quality impacts of the development during adverse meteorological conditions and extraordinary events (see note d above under Tables 3-5); and
- (vi) carry out regular monitoring to determine whether there is compliance with the relevant conditions of this consent,

to the satisfaction of the Secretary.

(c) Air Quality Management Plan

The Applicant shall prepare and implement an Air Quality Management Plan for the development to the satisfaction of the Secretary. This plan must:

- (i) be prepared in consultation with the EPA;
- (ii) describe the measures that would be implemented to ensure compliance with the relevant air quality criteria and operating conditions of [this consent](#);
- (iii) include an air quality monitoring program that:
 - evaluates and reports on the:
 - the effectiveness of the air quality management system;
 - compliance with the air quality criteria;
 - compliance with the air quality operating conditions; and
 - defines what constitutes an air quality incident, and includes a protocol for identifying and notifying the Department and relevant stakeholders of any air quality incidents.

6.2 Meteorological Monitoring

For the life of the development, the Applicant shall ensure that there is a meteorological station in the vicinity of the site that complies with the requirements in the *Approved Methods for Sampling of Air Pollutants in New South Wales* guideline.

6.3 Blast Management

(a) Impact Assessment Criteria

The Applicant shall ensure that blasting on site does not cause any exceedence of the criteria in Table 6.

Table 6: Blasting impact assessment criteria

Location & Time	Airblast overpressure (dB(Lin Peak))	Ground vibration (mm/s)	Allowable exceedence
Residence on privately-owned land - Anytime	120	10	0%
Residence on privately-owned land – Monday to Saturday during day	115	5	5% of the total number of blasts over a period of 12 months
Residence on privately-owned land – Monday to Saturday during evening	105	2	5% of the total number of blasts over a period of 12 months
Residence on privately-owned land – Monday to Saturday at night, Sundays and public holidays	95	1	5% of the total number of blasts over a period of 12 months

However, these criteria do not apply if the Applicant has a written agreement with the relevant owner to exceed the limits in Table 6, and the Applicant has advised the Department in writing of the terms of this agreement.

(b) Blasting Frequency

The Applicant may carry out a maximum of 1 blast a day on site. This condition does not apply to blasts required to ensure the safety of the mine or its workers.

Note: For the purposes of this condition a blast refers to a single blast event, which may involve a number of individual blasts fired in quick succession in a discrete area of the mine.

(c) Property Investigations

If the owner of any privately-owned land claims that buildings and/or structures on his/her land have been damaged as a result of blasting on the site, and the Secretary agrees an independent investigation of the claim is warranted, then within 2 months of receiving this claim the Applicant shall:

- (i) commission a suitably qualified, experienced and independent person, whose appointment is acceptable to both parties to investigate the claim; and
- (ii) give the landowner a copy of the property investigation report.

If this independent property investigation confirms the landowner's claim, and both parties agree with these findings, then the Applicant shall repair the damage to the satisfaction of the Secretary.

If there is a dispute over the selection of the suitably qualified, experienced and independent person, or the Applicant or the landowner disagrees with the findings of the independent property investigation, then either party may refer the matter to the Secretary for resolution.

(d) Operating Conditions

The Applicant shall:

- (i) implement best management practice to:
 - protect the safety of people and livestock in the areas surrounding blasting operations;
 - protect public or private infrastructure/property in the surrounding area from damage from blasting operations; and
 - minimise the dust and fume emissions of any blasting;
- (ii) operate a suitable system to enable the public to get up-to-date information on the proposed blasting schedule on site; and
- (iii) carry out regular monitoring to determine whether the development is complying with the relevant conditions of [this consent](#), to the satisfaction of the Secretary.

(e) Blast Management Plan

The Applicant shall prepare and implement a Blast Management Plan for the development to the satisfaction of the Secretary. This plan must:

- (i) be prepared in consultation with the EPA;
- (ii) describe the measures that would be implemented to ensure compliance with the blast criteria and operating conditions of [this consent](#); and
- (iii) include a monitoring program for evaluating and reporting on compliance with the blasting criteria and operating conditions of [this consent](#).

6.4 Noise Management

(a) Acquisition Upon Request

Upon receiving a written request for acquisition from the owner of any land listed in Table 7, the Applicant shall acquire the land in accordance with the procedures in condition 8.3.

Table 7: Land subject to acquisition upon request

Westella
Westlea

Note: To interpret the location referred to Table 7, see the map in Appendix 6.

(b) Additional Noise Mitigation

Upon receiving a written request from the owner of the residences listed in [Tables 7 and 7A](#), the Applicant shall implement additional noise mitigation measures (such as double-glazing, insulation, and/or air conditioning) at the residence in consultation with the landowner. These measures must be reasonable and feasible, and directed towards reducing the noise impacts of the development on the residence.

If within 3 months of receiving this request from the owner, the Applicant and the owner cannot agree on the measures to be implemented, or there is a dispute about the implementation of these measures, then either party may refer the matter to the Secretary for resolution.

Table 7A: Land subject to mitigation upon request

Laurel Park
Lakeview III
Bramboyne
The Glen
Caloola II

Note: To interpret the location referred to Table 7A, see the map in Appendix 6.

(c) Impact Assessment Criteria

The Applicant shall ensure that the noise generated by the development does not exceed the noise impact assessment criteria in Table 8 at any residence on privately-owned land.

Table 8: Noise Impact Assessment Criteria dB(A) L_{Aeq} (15min)

Land	Day/Evening/Night
Laurel Park, Lakeview III	39
Bramboyne, The Glen, Caloola II	38
Lakeview, Lakeview II, Foxham Downs II	37
All other privately-owned land	35

Note: To identify the land referred to in Table 8, see the map in Appendix 6.

Noise generated by the development is to be measured in accordance with the relevant requirements of the *NSW Industrial Noise Policy* (as may be updated from time-to-time). Appendix 5 sets out the meteorological conditions under which these criteria apply, and the requirements for evaluating compliance with these criteria.

However, these criteria do not apply if the Applicant has an agreement with the owner/s of the relevant residence or land to generate higher noise levels, and the Applicant has advised the Department in writing of the terms of this agreement.

(d) Operating Conditions

The Applicant shall:

- (i) implement best management practice, including all reasonable and feasible mitigation measures, to minimise the operational, low frequency, and road noise of the development, including mitigation measures to:
- (ii) minimise the noise impacts of the development during meteorological conditions when the noise limits in **this consent** do not apply (see Appendix 5); and
- (iii) carry out regular attended monitoring to determine whether the development is complying with the relevant conditions of **this consent**, to the satisfaction of the Secretary.

(e) Noise Management Plan

The Applicant shall prepare and implement a Noise Management Plan for the development to the satisfaction of the Secretary. This plan must:

- (i) be prepared in consultation with the EPA, and submitted to the Secretary for approval prior to carrying out any development under **this consent**, unless the Secretary agrees otherwise;
- (ii) describe the measures that would be implemented to ensure compliance with the noise criteria and operating conditions in **this consent**; and
- (iii) include a monitoring program that:
 - evaluates and reports on:
 - compliance with the noise criteria in **this consent**; and
 - compliance with the noise operating conditions;
 - defines what constitutes a noise incident, and includes a protocol for identifying and notifying the Department and relevant stakeholders of any noise incidents.

6.5 Visual Management

(a) Additional Visual Impact Mitigation

Upon receiving a written request from the owner of any residence on privately-owned land which has, or would have, significant direct views of the mining operations and infrastructure on-site during the development, the Applicant shall implement additional visual impact mitigation measures (such as landscaping treatments or vegetation screens) to reduce the visibility of the mining operations and infrastructure from the residences on the privately-owned land.

These mitigation measures must be reasonable and feasible, and must be implemented within a reasonable timeframe.

If the owner of the residence and the Applicant cannot agree whether there are significant direct views from the residence, then either party may refer the matter to the Secretary for resolution.

If within 3 months of receiving this request, the Applicant and the owner cannot agree on the measures to be implemented, or there is a dispute about the implementation of these measures, then either party may refer the matter to the Secretary for resolution.

Notes:

- *The additional visual impact mitigation measures must be aimed at reducing the visibility of the mining operations on site from affected residences, and do not require measures to reduce the visibility of the mining operations from other locations on the affected properties.*
- *The additional visual impact mitigation measures do not necessarily have to include the implementation of measures on the affected property itself (i.e. the additional measures could involve the implementation of measures outside the affected property boundary that provide an effective reduction in visual impacts).*

(b) Operating Conditions

The Applicant shall:

- (i) implement all reasonable and feasible measures to minimise the visual and off-site lighting impacts of the development;
- (ii) ensure no fixed outdoor lights shine directly above the horizontal or above the building line or any illuminated structure;
- (iii) ensure no in-pit mobile lighting rigs shine directly above the pit wall and other mobile lighting rigs do not shine directly above the horizontal;
- (iv) ensure that all external lighting associated with the development complies with relevant Australian Standards including *Australian Standard AS4282 (INT) 1997 – Control of Obtrusive Effects of Outdoor Lighting*, or its latest version; and
- (v) take all reasonable and feasible measures to shield views of mining operations and associated equipment from users of public roads and privately-owned residences, to the satisfaction of the Secretary.

7. TRANSPORT MANAGEMENT

7.1 Road Transport

(a) Mine site access road

The Applicant shall use its best endeavours to ensure that the preferred mine access road routes as described in the EIS are the only routes used by employees and contractors travelling to and from the mine site.

8. ADDITIONAL PROCEDURES

8.1 Notification of Landowners/Tenants

- (a) By the end of September 2014, unless the Secretary agrees otherwise, the Applicant shall notify in writing the owners of:
- (i) the land listed in Table 7 that they have the right to ask the Applicant to:
 - acquire their land at any stage during the development; and
 - install additional noise mitigation measures at any residence on their land;
 - (ii) any residence on privately-owned land which has, or would have, significant direct views of the mining operations and infrastructure on-site during the development, that they have the right to ask the Applicant to implement additional visual impact mitigation measures (such as landscaping treatments or vegetation screens) to reduce the visibility of the mining operations and infrastructure from the affected residences on the land.
- (b) As soon as practicable after obtaining monitoring results showing:
- (i) an exceedance of any relevant criteria in this consent, the Applicant shall notify the affected landowners in writing of the exceedance, and provide regular monitoring results to the landowner until the development is again complying with the relevant criteria; and
 - (ii) an exceedance of the relevant air quality criteria in this consent, the Applicant shall send a copy of the NSW Health fact sheet entitled "Mine Dust and You" (as may be updated from time to time) to the affected landowners and/or existing tenants of the land.

8.2 Independent Review

If an owner of privately-owned land considers the development to be exceeding the criteria in this consent, then he/she may ask the Secretary in writing for an independent review of the impacts of the development on his/her land.

If the Secretary is satisfied that an independent review is warranted, then within 2 months of the Secretary's decision, the Applicant shall:

- (a) commission a suitably qualified, experienced and independent expert, whose appointment has been approved by the Secretary, to:
- consult with the landowner to determine his/her concerns;
 - conduct monitoring to determine whether the development is complying with the relevant impact assessment criteria in condition 6 of this consent; and
 - if the development is not complying with these criteria then:
 - determine if more than one mine or development is responsible for the exceedance, and if so the relative share of each mine or development regarding the impact on the land; and
 - identify the measures that could be implemented to ensure compliance with the relevant criteria; and
- (b) give the Secretary and landowner a copy of the independent review.

8.3 Land Acquisition

- (a) Within 6 months of receiving a written request from a landowner with acquisition rights, the Applicant shall make a binding written offer to the landowner based on:
- (i) the current market value of the landowner's interest in the property at the date of this written request, as if the property was unaffected by the development, having regard to the:
 - existing and permissible use of the land, in accordance with the applicable planning instruments at the date of the written request; and
 - presence of improvements on the property and/or any approved building or structure which has been physically commenced at the date of the landowner's written request, and is due to be completed subsequent to that date, but excluding any improvements that have resulted from the implementation of any additional noise and/or visual mitigation measures under this consent;
 - (ii) the reasonable costs associated with:
 - relocating within the same local government area, or to any other local government area determined by the Secretary;
 - obtaining legal advice and expert advice for determining the acquisition price of the land, and the terms upon which it is to be acquired; and
 - (iii) reasonable compensation for any disturbance caused by the land acquisition process.

However, if at the end of this period, the Applicant and landowner cannot agree on the acquisition price of the land and/or the terms upon which the land is to be acquired, then either party may refer the matter to the Secretary for resolution.

Upon receiving such a request, the Secretary shall request the President of the NSW Division of the Australian Property Institute to appoint a qualified independent valuer to:

- (1) consider submissions from both parties;
- (2) determine a fair and reasonable acquisition price for the land and/or the terms upon which the land is to be acquired, having regard to the matters referred to in paragraphs (i)-(iii) above;
- (3) prepare a detailed report setting out the reasons for any determination; and
- (4) provide a copy of the report to both parties.

Within 14 days of receiving the independent valuer's report, the Applicant shall make a binding written offer to the landowner to purchase the land at a price not less than the independent valuer's determination.

However, if either party disputes the independent valuer's determination, then within 14 days of receiving the independent valuer's report, they may refer the matter to the Secretary for review. Any request for a review must be accompanied by a detailed report setting out the reasons why the party disputes the independent valuer's determination. Following consultation with the independent valuer and both parties, the Secretary shall determine a fair and reasonable acquisition price for the land, having regard to the matters referred to in paragraphs (i)-(iii) above, the independent valuer's report, the detailed report of the party that disputes the independent valuer's determination and any other relevant submissions.

Within 14 days of this determination, the Applicant shall make a binding written offer to the landowner to purchase the land at a price not less than the Secretary's determination.

If the landowner refuses to accept the Applicant's binding written offer under this condition within 6 months of the offer being made, then the Applicant's obligations to acquire the land shall cease, unless the Secretary determines otherwise.

- (b) The Applicant shall pay all reasonable costs associated with the land acquisition process described in condition 8.3(a) above.
- (c) If the Applicant and landowner agree that only part of the land shall be acquired, then the Applicant shall also pay all reasonable costs associated with obtaining Council approval for any plan of subdivision (where permissible), and registration of the plan at the Office of the Registrar-General.

9. ENVIRONMENTAL MANAGEMENT, AUDITING AND REPORTING

9.1 Environmental Management

- (a) Environmental Management Strategy
The Applicant shall prepare and implement an Environmental Management Strategy for the development to the satisfaction of the Secretary. This strategy must:

- (i) be submitted to the Secretary for approval by the end of October 2014, unless the Secretary agrees otherwise;
- (ii) provide the strategic framework for environmental management of the development;
- (iii) identify the statutory approvals that apply to the development;
- (iv) describe the role, responsibility, authority and accountability of all key personnel involved in the environmental management of the development;
- (v) describe the procedures that would be implemented to:
 - keep the local community and relevant agencies informed about the operation and environmental performance of the development;
 - receive, handle, respond to, and record complaints;
 - resolve any disputes that may arise;
 - respond to any non-compliance;
 - respond to emergencies; and
- (vi) include:
 - copies of any strategies, plans and programs approved under the conditions of this consent; and
 - a clear plan depicting all the monitoring to be carried out in relation to the development.

(b) Annual Review

By the end of July each year, or as otherwise agreed with the Secretary, the Applicant shall review the environmental performance of the development to the satisfaction of the Secretary. This review must:

- (i) describe the development that was carried out in the previous calendar year, and the development that is proposed to be carried out over the next year;
- (ii) include a comprehensive review of the monitoring results and complaints records of the development over the previous calendar year, which includes a comparison of these results against the:
 - the relevant statutory requirements, limits or performance measures/criteria;
 - the monitoring results of previous years; and
 - the relevant predictions in the EIS;
- (iii) identify any non-compliance over the last year, and describe what actions were (or are being) taken to ensure compliance;
- (iv) identify any trends in the monitoring data over the life of the development;
- (v) identify any discrepancies between the predicted and actual impacts of the development, and analyse the potential cause of any significant discrepancies; and
- (vi) describe what measures will be implemented over the next year to improve the environmental performance of the development.

(c) Revision of Strategies, Plans and Programs

Within 3 months of:

- (i) the submission of an annual review under condition 9.1(b) above;
- (ii) the submission of an incident report under condition 9.3(a) below;
- (iii) the submission of an audit under condition 9.2 (a) below;
- (iv) the submission of an Annual State of the Environment Report under condition 9.2(b) below;
- (v) the approval of any modification to the conditions of this consent; or
- (vi) a direction of the Secretary under condition 1.1(c) of this consent;

the Applicant shall review and, if necessary, revise the strategies, plans, and programs required under this consent to the satisfaction of the Secretary. Where this review leads to revisions in any such document, then within 4 weeks of the review the revised document must be submitted to the Secretary for approval, unless otherwise agreed with the Secretary.

Note: This is to ensure the strategies, plans and programs are updated on a regular basis, and incorporate any recommended measures to improve the environmental performance of the development.

(d) Community Environmental Monitoring and Consultative Committee

- (i) The Applicant shall establish and operate a Community Environmental Monitoring and Consultative Committee (CEMCC) for the development to the satisfaction of the Secretary. This CEMCC must:
 - be comprised of an independent chair and at least 2 representatives of the Applicant, 1 representative of BSC, 1 representative of the Lake Cowal Environmental Trust (but not a Trust representative of the Applicant), 4 community representatives (including one member of the Lake Cowal Landholders Association);

- be operated in general accordance with the *Guidelines for Establishing and Operating Community Consultative Committees for Mining Projects* (Department of Planning, 2007, or its latest version).
- monitor compliance with conditions of this consent and other matters relevant to the operation of the mine during the term of the consent.

Note: The CEMCC is an advisory committee. The Department and other relevant agencies are responsible for ensuring that the Applicant complies with this consent.

- (ii) The Applicant shall establish a trust fund to be managed by the Chair of the CEMCC to facilitate the functioning of the CEMCC, and pay \$2000 per annum to the fund for the duration of gold processing operations. The annual payment shall be indexed according to the Consumer Price Index (CPI) at the time of payment. The first payment shall be made by the date of the first Committee meeting. The Applicant shall also contribute to the Trust Fund reasonable funds for payment of the independent Chairperson, to the satisfaction of the Secretary
- (iii) At least four years prior to mine closure the Applicant shall, in consultation with the CEMCC, identify and discuss post-mining issues, particularly in relation to reduced employment and consequent impacts on West Wyalong, and develop a mine workforce phase out plan. This plan shall be reviewed and updated in consultation with the CEMCC at the commencement of the final year of mining operations.
- (iv) The Applicant shall, in consultation with the CEMCC, develop appropriate strategies to support activities which promote special interest tourism related to the co-existence of mining and the Lake Cowal environment.

9.2 Independent Auditing and Review

(a) Independent Environmental Audit

- (i) By the end of July 2016, and every 3 years thereafter, unless the Secretary directs otherwise, the Applicant shall commission and pay the full cost of an Independent Environmental Audit of the development. This audit must:
 - be conducted by a suitably qualified, experienced and independent team of experts whose appointment has been endorsed by the Secretary;
 - include consultation with the relevant agencies, BSC and the CEMCC;
 - assess the environmental performance of the development and assess whether it is complying with the requirements in this consent and any other relevant approvals (such as environment protection licences and/or mining lease (including any assessment, plan or program required under this consent));
 - review the adequacy of any approved strategy, plan or program required under this consent or the abovementioned approvals; and
 - recommend measures or actions to improve the environmental performance of the development, and/or any strategy, plan or program required under this consent.

Note: This audit team must be led by a suitably qualified auditor, and include ecology and rehabilitation experts, and any other fields specified by the Secretary.

- (ii) Within 3 months of commissioning this audit, or as otherwise agreed by the Secretary, the Applicant shall submit a copy of the audit report to the Secretary, together with its response to any recommendations contained in the audit report, and a timetable for the implementation of these recommendations as required. The Applicant must implement these recommendations, to the satisfaction of the Secretary.

(b) Independent Monitoring Panel

- (i) The Applicant shall at its own cost establish an Independent Monitoring Panel prior to commencement of construction. The Applicant shall contribute \$30,000 per annum for the functioning of the Panel, unless otherwise agreed by the Secretary. The annual payment shall be indexed according to the Consumer Price Index at the time of payment. The first payment shall be paid by the date of commencement of construction and annually thereafter. Selection of the Panel representatives shall be agreed by the Secretary in consultation with relevant government agencies and the CEMCC. The Panel shall at least comprise two duly qualified independent environmental scientists and a representative of the Secretary.

- (ii) The panel shall:
- provide an overview of the annual reviews and independent audits required by conditions 9.1(b) and 9.2(a) above;
 - regularly review all environmental monitoring procedures undertaken by the Applicant, and monitoring results; and
 - provide an Annual State of the Environment Report for Lake Cowal with particular reference to the on-going interaction between the mine and the Lake and any requirements of the Secretary. The first report shall be prepared one year after commencement of construction. The report shall be prepared annually thereafter unless otherwise directed by the Secretary and made publically available on the Applicant's website for the development within two weeks of the report's completion.

9.3 Reporting

(a) Incident Reporting

The Applicant shall immediately notify the Secretary and any other relevant agencies of any incident related to the development. Within 7 days of the date of the incident, the Applicant shall provide the Secretary and any relevant agencies with a detailed report on the incident, and such further reports as may be requested.

(b) Regular Reporting

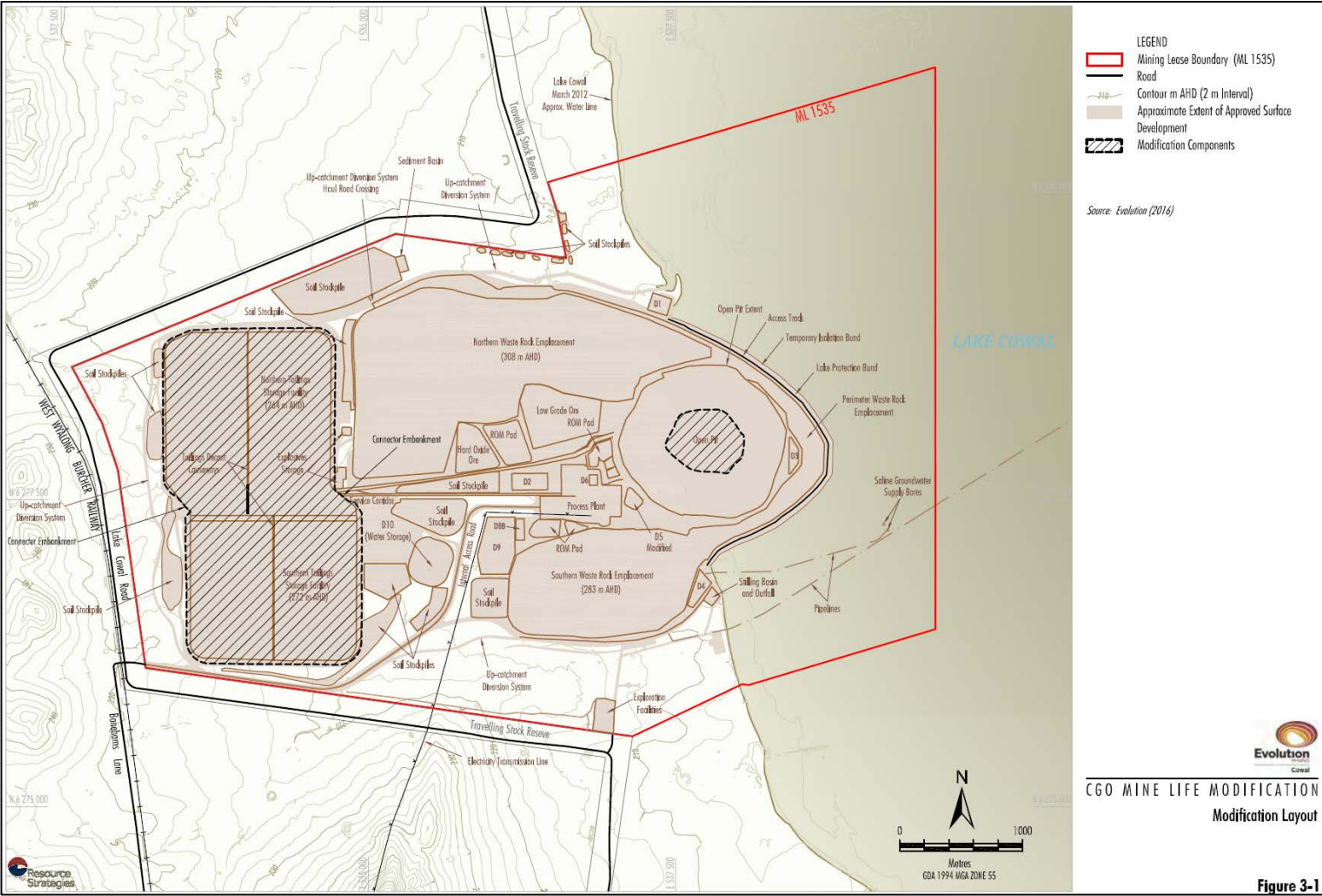
The Applicant shall provide regular reporting on the environmental performance of the development on its website, in accordance with the reporting arrangements in any plans or programs approved under the conditions of this consent.

9.4 Access to Information

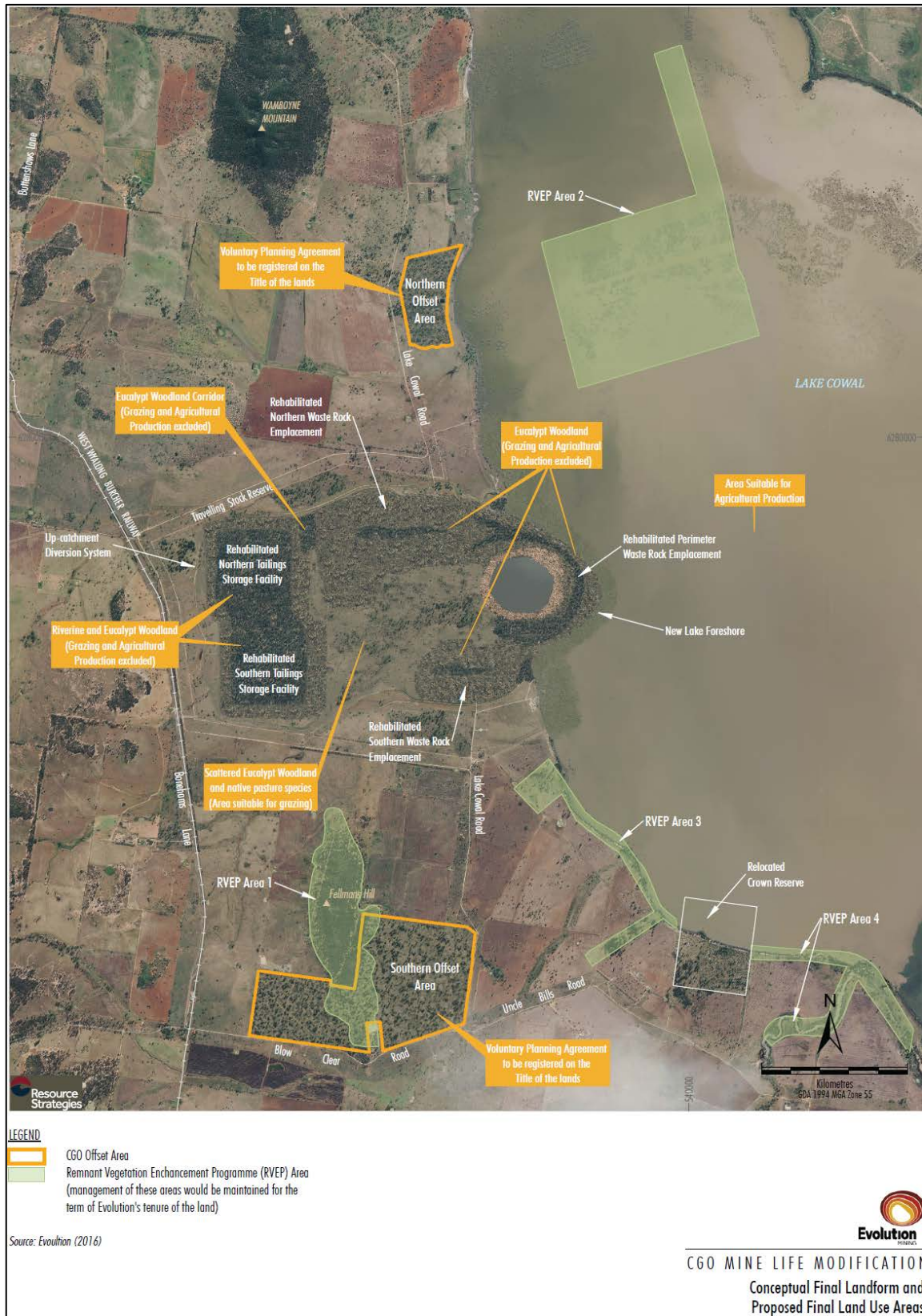
The Applicant shall:

- (a) make the following information publicly available on its website:
- (i) the EIS;
 - (ii) current statutory approvals for the development;
 - (iii) approved strategies, plans or programs required under the conditions of this consent;
 - (iv) a comprehensive summary of the monitoring results of the development, which have been reported in accordance with the various plans and programs approved under the conditions of this consent;
 - (v) a complaints register, which is to be updated on a monthly basis;
 - (vi) minutes of CEMCC meetings;
 - (vii) the last five annual reviews;
 - (viii) any independent environmental audit, and the Applicant's response to the recommendations in any audit; and
 - (ix) any other matter required by the Secretary; and
- (b) keep this information up to date,
to the satisfaction of the Secretary.

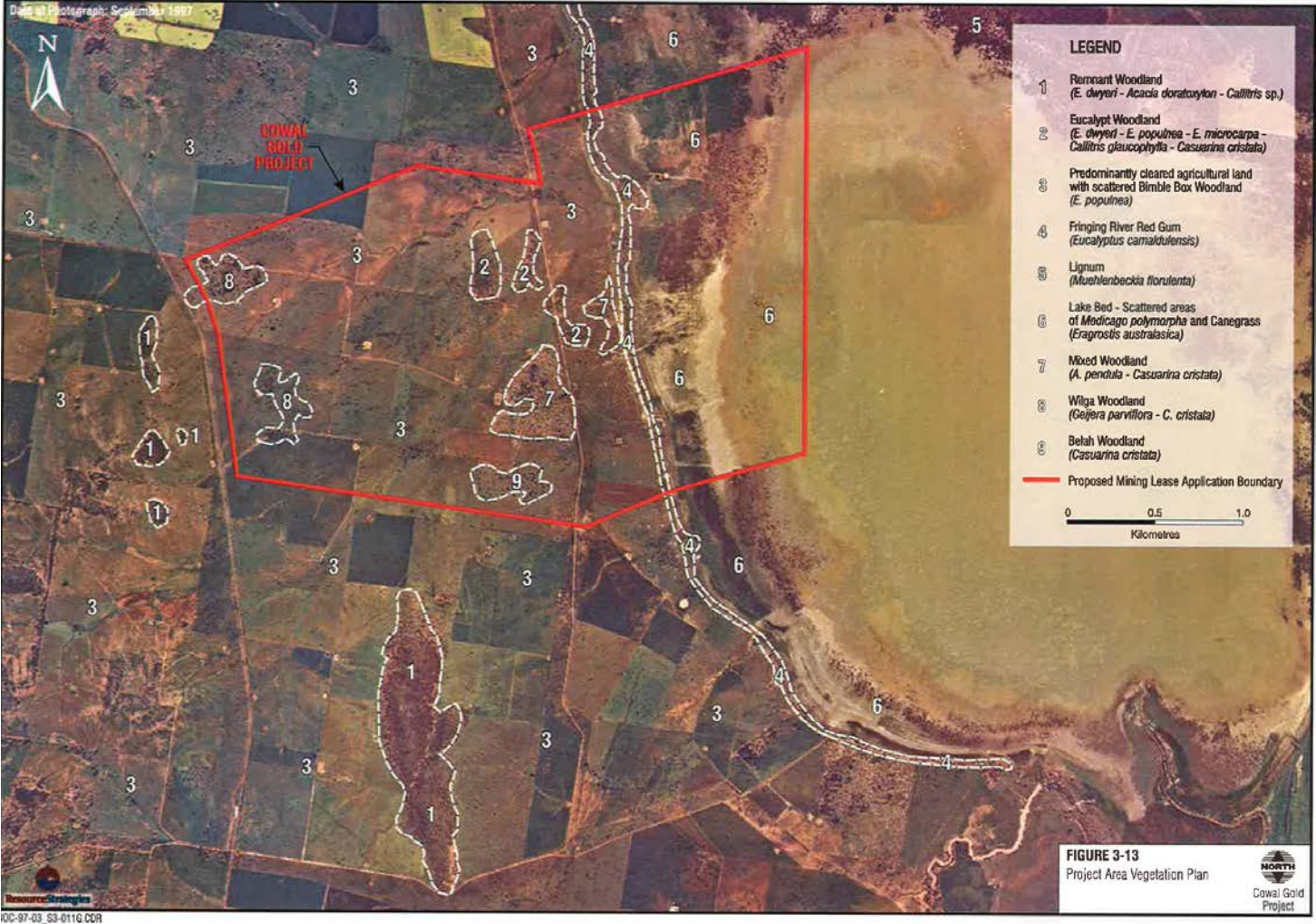
APPENDIX 1 GENERAL LAYOUT OF THE DEVELOPMENT



APPENDIX 2 CONCEPTUAL REHABILITATION OF THE SITE



APPENDIX 3
 FIGURE 3-13 FROM THE 1998 EIS FOR THE COWAL GOLD PROJECT



APPENDIX 4 BIODIVERSITY OFFSET STRATEGY



APPENDIX 5 NOISE COMPLIANCE ASSESSMENT

Applicable Meteorological Conditions

1. The noise criteria in the conditions are to apply under all meteorological conditions except the following:
 - (a) during periods of rain or hail;
 - (b) average wind speed at microphone height exceeds 5 m/s; or
 - wind speeds greater than 3 m/s measured at 10 m above ground level.

Determination of Meteorological Conditions

2. Except for wind speed at microphone height, the data to be used for determining meteorological conditions shall be that recorded by the meteorological station located on the site.

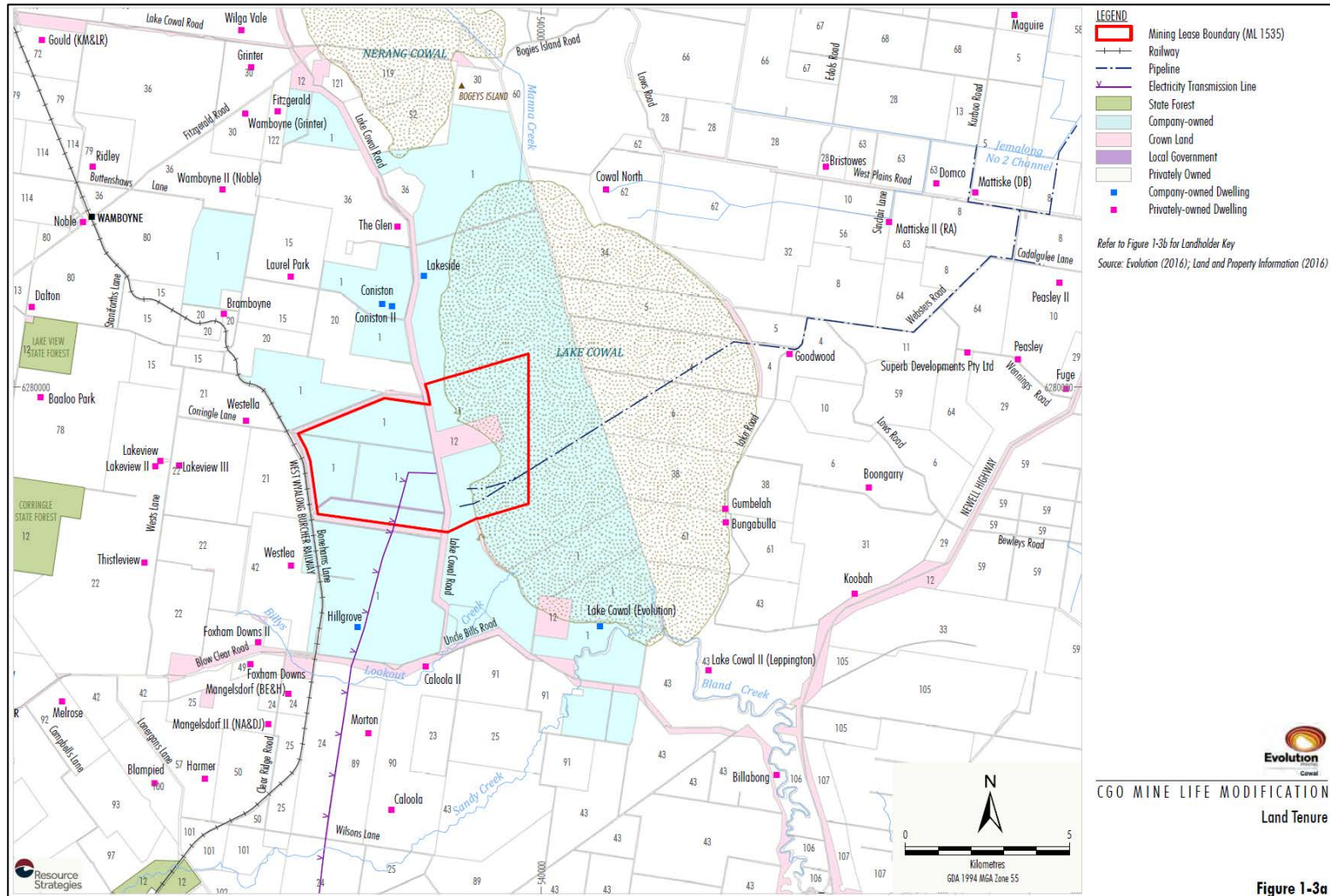
Compliance Monitoring

3. Attended monitoring is to be used to evaluate compliance with the relevant conditions of this approval.
4. This monitoring must be carried out quarterly, unless the Secretary directs otherwise.

Note: The Secretary may direct that the frequency of attended monitoring increase or decrease at any time during the life of the development.

5. Unless the Secretary agrees otherwise, this monitoring is to be carried out in accordance with the relevant requirements for reviewing performance set out in the *NSW Industrial Noise Policy* (as amended from time to time), in particular the requirements relating to:
 - (a) monitoring locations for the collection of representative noise data;
 - (b) meteorological conditions during which collection of noise data is not appropriate;
 - (c) equipment used to collect noise data, and conformity with Australian Standards relevant to such equipment; and
 - (d) modifications to noise data collected, including for the exclusion of extraneous noise and/or penalties for modifying factors apart from adjustments for duration.

APPENDIX 6 LOCATION OF RECEIVERS





ATTACHMENT 2
Secretary's Environmental
Assessment Requirements

**COWAL GOLD OPERATIONS
PROCESSING RATE MODIFICATION**

Environmental Assessment
2018





Planning Services

Resource Assessments

Contact: Elle Donnelley

Phone: 02 9274 6340

Email: elle.donnelley@planning.nsw.gov.au

Jason Floyd
A/General Manager
Cowel Gold Operations
PO BOX 210
West Wyalong NSW 2671

Dear Mr Floyd

**Cowel Gold Mine Modification 14
(DA 14/98 MOD 14) (EPBC 2017/7972)**

I have attached the environmental assessment requirements for the preparation of the Environmental Assessment (EA) for the proposed modification to the Cowal Gold Mine Development Consent.

These requirements are based on the information you have provided to date. You will be required to consult with the relevant government agencies, the local community and other stakeholders during the preparation of the EA.

As the modification has been determined to be a controlled action under the *Environment Protection and Biodiversity Conservation Act 1999*, the Department has included requirements relating to the assessment of matters of national environmental significance (MNES), in accordance with the Bilateral Agreement between the Commonwealth and NSW Governments (see Attachment 2).

Please note that the Department will review the EA before putting it on public exhibition. If it fails to adequately address these requirements, you will be required to submit an amended EA.

I would appreciate it if you would contact the Department at least two weeks before you propose to submit the EA, along with a revised modification application form. This will enable the Department to confirm the applicable fee and determine the number of copies of the EA required for review and public exhibition.

Given the nature of the proposal, the Department is likely to place the EA, once accepted, on public exhibition for a period of at least 21 days.

If you wish to discuss this matter further, please contact Elle Donnelley on (02) 9274 6340.

Yours sincerely

Clay Preshaw
Director
Resource and Energy Assessments
as nominee of the Secretary

17/11/17

Environmental Assessment Requirements

Section 75W of the *Environmental Planning and Assessment Act 1979*

Application No.	DA 14/98 MOD 14
Proposal	Cowal Gold Mine Modification 14
Location	Lake Cowal, 38 km north-east of West Wyalong
Applicant	Evolution Mining (Cowal) Pty Limited
Date of Issue	17 November 2017
General Requirements	<p>The Environmental Assessment (EA) for the proposed modification must include:</p> <ul style="list-style-type: none">• a stand-alone executive summary;• a full description of the proposed modification, including:<ul style="list-style-type: none">- the need for the modification, including a justification for the increased processing rate;- details of the resource which would be extracted, demonstrating efficient resource recovery within environmental constraints;- changes to the existing mining operations, including the mine layout, mine sequencing and scheduling, minerals processing, reject and tailings management, overburden emplacement areas and transportation;- any additional infrastructure or other ancillary facilities;- a revised rehabilitation management strategy that describes how the changes to the existing operations would be integrated into the existing rehabilitation plans for the site; and- the likely interactions between the modified operations and any other existing, approved or proposed mining development in the vicinity of the site;• an assessment of the likely impacts of the proposed modification on the environment, focusing on the specific issues identified below, and including:<ul style="list-style-type: none">- a description of the existing environment likely to be affected by the proposed modification, using sufficient baseline data;- an assessment of the 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 avoid, mitigate and/or offset the likely impacts of the proposed modification, and an assessment of:<ul style="list-style-type: none">○ whether these measures are consistent with industry best practice, and represent the full range of reasonable and feasible mitigation measures that could be implemented;○ the likely effectiveness of these measures, including performance measures where relevant; and○ 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 modified project;• a consolidated summary of all the proposed environmental management and monitoring measures associated with the modification, and how these measures would be integrated into the existing environmental management framework for the mine; and• the reasons why the development should be approved having regard to:<ul style="list-style-type: none">- relevant matters for consideration under the <i>Environmental Planning and Assessment Act 1979</i>, including the objects of the Act and how the principles of ecologically sustainable development have been incorporated in the design, construction and ongoing operations of the development;- the environmental, economic and social costs and benefits of the development;- the suitability of the site with respect to potential land use conflicts with existing land uses; and

	<ul style="list-style-type: none"> - feasible alternatives to the development (and its key components), including the consequences of not carrying out the development. <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 the proposed modification.</p> <p>The EA must also address the requirements relating to the assessment of matters of national environmental significance (MNES) under the <i>Environment Protection and Biodiversity Conservation Act 1999</i>, in accordance with the Bilateral Agreement between the Commonwealth and NSW Governments (see Attachment 2).</p>
<p>Key Issues</p>	<p>The EA must address the following specific issues:</p> <ul style="list-style-type: none"> • Water – including: <ul style="list-style-type: none"> - an assessment of the likely impacts of the proposed modification on the quantity and quality of surface and groundwater resources; - an assessment of the likely impacts of the proposed modification on aquifers, watercourses, riparian land, water supply infrastructure and systems and other water users; - a revised site water balance, including a description of additional site water demands, water disposal methods (inclusive of volume and frequency of any water discharges), water supply and transfer infrastructure and water storage structures; - identification of any water licensing requirements or other approvals under the <i>Water Act 1912</i> and/or <i>Water Management Act 2000</i>; and - a detailed description of the proposed water management system, water monitoring program and measures to mitigate surface and groundwater impacts; • Biodiversity – including: <ul style="list-style-type: none"> - an assessment of the biodiversity values and the likely biodiversity impacts of the proposed modifications in accordance with the <i>Framework for Biodiversity Assessment</i> (OEH, 2014); and - a revised offset strategy for the modified project that captures any residual biodiversity impacts of the proposed modification; • Heritage – including: <ul style="list-style-type: none"> - adequate consultation with Aboriginal stakeholders having regard to the <i>Aboriginal Cultural Heritage Consultation Requirements for Proponents</i> (OEH, 2010); and - an assessment of the likely Aboriginal and historic heritage (cultural and archaeological) impacts of the proposed modification; • Noise and Blasting – including: <ul style="list-style-type: none"> - an assessment of the likely operational noise impacts (including any construction noise) of the proposed modification under the <i>NSW Industrial Noise Policy</i>; and - an assessment of the likely blasting impacts of the development on people, animals, buildings and infrastructure, and significant natural features, having regard to the relevant ANZECC guidelines; • Air Quality – including: <ul style="list-style-type: none"> - an assessment of the likely air quality impacts of the proposed modification in accordance with the <i>Approved Methods and Guidance for the Modelling and Assessment of Air Pollutants in NSW</i>; and - an assessment of the likely greenhouse gas impacts of the proposed modification; • Land – including: <ul style="list-style-type: none"> - an assessment of the likely impacts of the proposed modification on the soils and land capability, including any impacts on agriculture; and - an assessment of the likely impacts of the proposed modification on existing landforms and topography, including detailed consideration of the long term geotechnical stability of any new landforms; • Visual – including an assessment of the likely visual impacts of the proposed modification on private landowners in the vicinity of the project and key vantage points in the public domain, paying particular attention to any changes to existing landforms or the creation of any new landforms;

	<ul style="list-style-type: none"> • Transport – including an assessment of the likely impacts of the proposed modification on the capacity, condition, safety and efficiency of the road network; • 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; and • Social & Economic – including: <ul style="list-style-type: none"> - an assessment of the likely social and economic impacts of the proposed modification, paying attention to: <ul style="list-style-type: none"> ○ the significance of the resource; and ○ the costs and benefits of the project for the State.
Consultation	<p>During the preparation of the Environmental Assessment, you must consult with local government, relevant State and Commonwealth Government authorities, service providers, community groups, Registered Aboriginal Parties (RAPs) and affected landowners.</p> <p>The EA 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 EA.</p>

Attachment 1

Environmental Planning Instruments, Policies, Guidelines & Plans

Water	
Water Sharing Plans	<p>Water Sharing Plan for the Lachlan Regulated River Water Source 2016</p> <hr/> <p>Water Sharing Plan for the Lachlan Unregulated and Alluvial Water Sources 2012</p> <hr/> <p>Water Sharing Plan for the NSW Murray Darling Basin Fractured Rock Groundwater Sources 2011</p>
Groundwater	<p>NSW State Groundwater Policy Framework Document (NOW)</p> <hr/> <p>NSW State Groundwater Quality Protection Policy (NOW)</p> <hr/> <p>NSW State Groundwater Quantity Management Policy (NOW)</p> <hr/> <p>NSW Aquifer Interference Policy 2012 (NOW)</p> <hr/> <p>Australian Groundwater Modelling Guidelines 2012 (Commonwealth)</p> <hr/> <p>National Water Quality Management Strategy Guidelines for Groundwater Protection in Australia (ARMCANZ/ANZECC)</p> <hr/> <p>Guidelines for the Assessment & Management of Groundwater Contamination (EPA)</p>
Surface Water	<p>NSW State Rivers and Estuary Policy (NOW)</p> <hr/> <p>NSW Government Water Quality and River Flow Objectives (EPA)</p> <hr/> <p>Using the ANZECC Guideline and Water Quality Objectives in NSW (EPA)</p> <hr/> <p>National Water Quality Management Strategy: Australian Guidelines for Fresh and Marine Water Quality (ANZECC/ARMCANZ)</p> <hr/> <p>National Water Quality Management Strategy: Australian Guidelines for Water Quality Monitoring and Reporting (ANZECC/ARMCANZ)</p> <hr/> <p>National Water Quality Management Strategy: Guidelines for Sewerage Systems – Effluent Management (ARMCANZ/ANZECC)</p> <hr/> <p>National Water Quality Management Strategy: Guidelines for Sewerage Systems – Use of Reclaimed Water (ARMCANZ/ANZECC)</p> <hr/> <p>Approved Methods for the Sampling and Analysis of Water Pollutants in NSW (EPA)</p> <hr/> <p>Managing Urban Stormwater: Soils & Construction (Landcom) and associated Volume 2E: Mines and Quarries (DECC)</p> <hr/> <p>Managing Urban Stormwater: Treatment Techniques (EPA)</p> <hr/> <p>Managing Urban Stormwater: Source Control (EPA)</p> <hr/> <p>Technical Guidelines: Bunding & Spill Management (EPA)</p> <hr/> <p>A Rehabilitation Manual for Australian Streams (LWRRDC and CRCCH)</p> <hr/> <p>NSW Guidelines for Controlled Activities (NOW)</p> <hr/> <p>Floodplain Development Manual (OEH)</p> <hr/> <p>Floodplain Risk Management Guideline (OEH)</p>
Biodiversity	
	<p>Framework for Biodiversity Assessment (OEH)</p> <hr/> <p>Threatened Species Assessment Guidelines (OEH)</p> <hr/> <p>Policy and Guidelines for Aquatic Habitat Management and Fish Conservation (Fisheries NSW)</p> <hr/> <p>NSW State Groundwater Dependent Ecosystem Policy (NOW)</p> <hr/> <p>Risk Assessment Guidelines for Groundwater Dependent Ecosystems (NOW)</p> <hr/> <p>State Environmental Planning Policy No. 44 – Koala Habitat Protection</p>
Heritage	
	<p>The Burra Charter (The Australia ICOMOS charter for places of cultural significance)</p> <hr/> <p>Draft Guidelines for Aboriginal Cultural Heritage Assessment and Community Consultation (DP&E)</p> <hr/> <p>Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010 (OEH)</p> <hr/> <p>Code of Practice for Archaeological Investigations of Objects in NSW (OEH)</p> <hr/> <p>Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW (OEH)</p> <hr/> <p>NSW Heritage Manual (OEH)</p> <hr/> <p>Statements of Heritage Impact (OEH)</p>
Noise	
	<p>NSW Industrial Noise Policy (EPA)</p>

Interim Construction Noise Guideline (EPA)

NSW Road Noise Policy (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)

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)

Land

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)

Transport

Guide to Traffic Generating Development (RTA)

Road Design Guide (RMS) & relevant Austroads Standards

Hazards

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

State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007

State Environmental Planning Policy (State and Regional Development) 2011

State Environmental Planning Policy (Infrastructure) 2007

Forbes Local Environmental Plan 2013

Lachlan Local Environmental Plan 2013

Bland Local Environmental Plan 2011

Attachment 2
Requirements of the Commonwealth Department of the Environment and Energy

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

**Cowal Gold Operations – Processing Rate Increase Modification
(EPBC 2017/7989, DA 14/98 MOD 14)**

1. On 6 November 2017, it was determined that the Cowal Gold Operations – Processing Rate Increase Modification would impact upon the following matter of national environmental significance (MNES) protected under the *Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)*:

- threatened species and communities.

The project will be assessed in accordance with the manner specified in Schedule 1 of the NSW Assessment Bilateral Agreement 2015 (the Agreement). These requirements are a supplement to the Secretary's Environmental Assessment Requirements issued on 17 November 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 requirements are intended such that there is sufficient information in the assessment report relevant to MNES such that the Commonwealth decision-maker may make a determination on whether or not to approve the action. The proponent 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 Guidelines. Note that this may not be a complete list and it is the responsibility of the proponent 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 matters of national environmental significance (MNES).
6. How the action relates to any other actions that have been, 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 Environmental Assessment (EA) must include an assessment of the relevant impacts¹ of the action on threatened species and communities; including
- 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; 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 matters protected that are likely to be significantly impacted by the development, the EA 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 EA 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 Issues – Biodiversity

11. The EA 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.

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

12. For each of the relevant EPBC Act listed threatened species and communities likely to be impacted by the development the EA 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;
- 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; and
- 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 EA 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; and
- 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 Environment Protection and Biodiversity Conservation Act 1999 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 EA 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>]

Environmental Record of person proposing to take the action

16. 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

17. For information given in the EA, the EA 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

Attachment A

The Department of the Environment's Environment Reporting Tool (ERT) identifies that 22 listed threatened species and 3 listed ecological communities may occur within 2 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:

- Grey Box (*Eucalyptus microcarpa*) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia ecological community (Endangered).

Attachment 1

Secretary's Environmental Assessment Requirements

Assessment Requirement	Section of EA
General Requirements	
The Environmental Assessment (EA) for the proposed modification must include:	
<ul style="list-style-type: none"> • A stand-alone executive summary. 	Executive Summary
<ul style="list-style-type: none"> • A full description of the proposed modification, including: <ul style="list-style-type: none"> – the need for the modification, including justification for the increased processing rate; – details of the resource which would be extracted, demonstrating efficient resource recovery within the environmental constraints; – changes to the existing mining operations, including the mine layout, mine sequencing and scheduling, minerals processing, reject and tailings management, overburden emplacement areas and transportation; – any additional infrastructure or other ancillary facilities; – a revised rehabilitation management strategy that describes how the changes to the existing operations would be integrated into the existing rehabilitation plans for the site; and – the likely interactions between the modified operations and any other existing, approved or proposed mining development in the vicinity of the site. 	<p>Sections 3 and 6.2</p> <p>Sections 2, 3 and 6.2</p> <p>Section 3</p> <p>Section 3.9</p> <p>Section 5</p> <p>Section 2.1</p>
<ul style="list-style-type: none"> • An assessment of the likely impacts of the proposed modification on the environment, focusing on the specific issues identified below, and including: <ul style="list-style-type: none"> – a description of the existing environment likely to be affected by the proposed modification, using sufficient baseline data; – an assessment of the 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 avoid, mitigate and/or offset the likely impacts of the proposed modification, 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 modified project. 	<p>Section 4 and Appendices A to I</p> <p>Section 4 and Appendices A to I</p> <p>Section 4 and Appendices A to I</p> <p>Section 4 and Appendices A to I</p>
<ul style="list-style-type: none"> • a consolidated summary of all the proposed environmental management and monitoring measures associated with the modification, and how these measures would be integrated into the existing environmental management framework for the mine; and 	Section 7
<ul style="list-style-type: none"> • the reasons why the development should be approved having regard to: <ul style="list-style-type: none"> – relevant matters for consideration under the Environmental Planning and Assessment Act 1979, including the objects of the Act and how the principles of ecologically sustainable development have been incorporated in the design, construction and ongoing operations of the development; – the environmental, economic and social costs and benefits of the development; – the suitability of the site with respect to potential land use conflicts with existing land uses; and – feasible alternatives to the development (and its key components), including the consequences of not carrying out the development. 	<p>Section 6.2</p> <p>Section 6.2</p> <p>Section 6.2</p> <p>Section 6.2</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 the proposed modification.	Relevant environmental planning instruments, guidelines, policies, and plans are considered in the EA (including Appendices A to I)

Assessment Requirement	Section of EA
The EA must also address the requirements relating to the assessment of matters of national environmental significance (MNES) under the Environment Protection and Biodiversity Conservation Act 1999, in accordance with the Bilateral Agreement between the Commonwealth and NSW Governments (see Attachment 2).	Refer table below
Key Issues	
<p>The EA must address the following specific issues:</p> <ul style="list-style-type: none"> • Water – including: <ul style="list-style-type: none"> – an assessment of the likely impacts of the proposed modification on the quantity and quality of surface and groundwater resources; – an assessment of the likely impacts of the proposed modification on aquifers, watercourses, riparian land, water supply infrastructure and systems and other water users; – a revised site water balance, including a description of additional site water demands, water disposal methods (inclusive of volume and frequency of any water discharges), water supply and transfer infrastructure and water storage structures; – identification of any water licensing requirements or other approvals under the Water Act 1912 and/or Water Management Act 2000; and – a detailed description of the proposed water management system, water monitoring program and measures to mitigate surface and groundwater impacts; 	<p>Section 4.1 and 4.2 and Appendices A and B</p> <p>Section 4.1 and 4.2 and Appendices A and B</p> <p>Appendix B</p> <p>Appendix A and Attachment 4</p> <p>Section 4.1 and 4.2 and Appendices A and B</p>
<ul style="list-style-type: none"> • Biodiversity – including: <ul style="list-style-type: none"> – an assessment of the biodiversity values and the likely biodiversity impacts of the proposed modifications in accordance with the Framework for Biodiversity Assessment (OEH, 2014); and – a revised offset strategy for the modified project that captures any residual biodiversity impacts of the proposed modification; 	<p>Section 4.3 and Appendix C</p> <p>Section 4.3.4 and Appendix C</p>
<ul style="list-style-type: none"> • Heritage – including: <ul style="list-style-type: none"> – adequate consultation with Aboriginal stakeholders having regard to the Aboriginal Cultural Heritage Consultation Requirements for Proponents (OEH, 2010); and – an assessment of the likely Aboriginal and historic heritage (cultural and archaeological) impacts of the proposed modification; 	<p>Section 4.4 and Appendix D</p> <p>Section 4.4.2 and Appendix D</p>
<ul style="list-style-type: none"> • Noise and Blasting – including: <ul style="list-style-type: none"> – an assessment of the likely operational noise impacts (including any construction noise) of the proposed modification under the NSW Industrial Noise Policy; and – an assessment of the likely blasting impacts of the development on people, animals, buildings and infrastructure, and significant natural features, having regard to the relevant ANZECC guidelines; 	<p>Section 4.5 and Section 4.11.3 and Appendix E</p> <p>Section 4.11.2 and Appendix E</p>
<ul style="list-style-type: none"> • Air Quality – including: <ul style="list-style-type: none"> – an assessment of the likely air quality impacts of the proposed modification in accordance with the Approved Methods and Guidance for the Modelling and Assessment of Air Pollutants in NSW; and – an assessment of the likely greenhouse gas impacts of the proposed modification; 	<p>Section 4.6 and Section 4.11.1 and Appendix F</p> <p>Section 4.11.1 and Appendix F</p>
<ul style="list-style-type: none"> • Land – including: <ul style="list-style-type: none"> – an assessment of the likely impacts of the proposed modification on the soils and land capability, including any impacts on agriculture; and – an assessment of the likely impacts of the proposed modification on existing landforms and topography, including detailed consideration of the long term geotechnical stability of any new landforms; 	<p>Section 4.7 and Appendix G</p> <p>Section 4.7.2 and Appendix G</p>
<ul style="list-style-type: none"> • Transport - including an assessment of the likely impacts of the proposed modification on the capacity, condition, safety and efficiency of the road network; 	Section 4.8
<ul style="list-style-type: none"> • Visual - including an assessment of the likely visual impacts of the proposed modification on private landowners in the vicinity of the project and key vantage points in the public domain, paying particular attention to any changes to existing landforms or the creation of any new landforms; 	Section 4.9

Assessment Requirement	Section of EA
<ul style="list-style-type: none"> • Social & Economic – including: <ul style="list-style-type: none"> – an assessment of the likely social and economic impacts of the proposed modification, paying attention to: <ul style="list-style-type: none"> ○ the significance of the resource; and ○ the costs and benefits of the project for the State. 	Sections 2.4 and 4.10
<ul style="list-style-type: none"> • 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; and 	Sections 4.11.5 and 6.1.2
Consultation	
<p>During the preparation of the Environmental Assessment, you must consult with local government, relevant State and Commonwealth Government authorities, service providers, community groups, Registered Aboriginal Parties (RAPs) and affected landowners.</p> <p>The EA 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 EA.</p>	Section 1.4

Attachment 2

Assessment Requirements Relevant to the Environmental Protection and Biodiversity Conservation Act 1999 (EPBC Act)

Assessment Requirement	Section of EA
<p>Introduction</p> <p>1. On 6 November 2017, it was determined that the Cowal Gold Operations – Processing Rate Increase Modification would impact upon the following matter of national environmental significance (MNES) protected under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act):</p> <ul style="list-style-type: none"> - Threatened species and communities <p>The project will be assessed in accordance with the manner specified in Schedule 1 of the NSW Assessment Bilateral Agreement 2015 (the Agreement). These requirements are a supplement to the Secretary's Environmental Assessment Requirements issued on 17 November 2017 and should be addressed in conjunction with those requirements.</p>	N/A
<p>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/.</p>	N/A
<p>3. The requirements are intended such that there is sufficient information in the assessment report relevant to MNES such that the Commonwealth decision-maker may make a determination on whether or not to approve the action. The proponent 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 Guidelines. Note that this may not be a complete list and it is the responsibility of the proponent to ensure any protected matters under this controlling provision, likely to be significantly impacted, are assessed for the Commonwealth decision-maker's consideration.</p>	N/A
<p>General Requirements</p> <p><i>Project Description</i></p> <p>4. The title of the action, background to the development and current status</p>	Section 1 and 2
<p>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 matters of national environmental significance (MNES).</p>	Section 3
<p>6. How the action relates to any other actions that have been, or are being taken, in the region affected by the action.</p>	Section 2.1 and Appendix C
<p>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.</p>	Sections 3, 4.3 and Appendix C

Assessment Requirement	Section of EA
<p><i>Impacts</i></p> <p>8. <i>The Environmental Assessment (EA) must include an assessment of the relevant impacts of the action on threatened species and communities; including</i></p> <ul style="list-style-type: none"> - <i>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; analysis of the significance of the relevant impacts;</i> - <i>any technical data and other information used or needed to make a detailed assessment of the relevant impacts; and</i> - <i>a comparative description of the impacts of alternatives, if any, on the threatened species and communities.</i> 	<p>Section 4.3 and Appendix C</p>
<p><i>Avoidance, Mitigation and Offsetting</i></p> <p>9. <i>For each of the relevant matters protected that are likely to be significantly impacted by the development, the EA must provide information on proposed avoidance and mitigation measures to deal with the relevant impacts of the action, including:</i></p> <ul style="list-style-type: none"> - <i>a description and an assessment of the expected or predicted effectiveness of the mitigation measures;</i> - <i>any statutory policy basis for the mitigation measures;</i> - <i>the cost of the mitigation measures;</i> - <i>a description of the outcomes that the avoidance and mitigation measures will achieve;</i> - <i>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;</i> - <i>the name of any agency responsible for endorsing or approving a mitigation measure or monitoring program; and</i> - <i>a description of the offsets proposed to address the residual adverse significant impacts and how these offsets will be established.</i> 	<p>Section 4.3 and Appendix C</p>
<p>10. <i>Where a significant residual adverse impact to a threatened species or community is considered likely, the EA 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.</i></p>	<p>Section 4.3.4 and Appendix C</p>
<p>Key Issues - Biodiversity</p> <p>11. <i>The EA must address the following issues in relation to Biodiversity including separate:</i></p> <ul style="list-style-type: none"> - <i>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.</i> 	<p>Appendix C</p>

Assessment Requirement	Section of EA
<p>12. For each of the relevant EPBC Act listed threatened species and communities likely to be impacted by the development the EA must provide a separate:</p> <ul style="list-style-type: none"> - 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; - 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; and - description of the impacts of the action having regard to the full national extent of the species or community's range. <p>[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/cqibin/sprat/public/sprat.pl]</p>	Appendix C
<p>13. For each of the relevant EPBC Act listed threatened species and communities likely to be significantly impacted by the development the EA must provide a separate:</p> <ul style="list-style-type: none"> - 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; and - 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. <p>[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.]</p>	Section 4.3.4 and Appendix C
<p>14. Any significant residual impacts not addressed by the FBA may need to be addressed in accordance with the Environment Protection and Biodiversity Conservation Act 1999 Environmental Offset Policy. http://www.environment.gov.au/epbc/publications/epbc-actenvironmental- 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.]</p>	The Biodiversity Offset Strategy developed in accordance with the FBA is expected to address residual impacts
<p>15. For each threatened species and community likely to be significantly impacted by the development, the EA must provide reference to, and consideration of, relevant approved conservation advice or recovery plan for the species or community.</p> <p>[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/cqi-bin/sprat/public/sprat.pl]</p>	Section 4.3 and Appendix C

Assessment Requirement	Section of EA
<p>Environmental Record of person proposing to take the action</p> <p>16. 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.</p>	<p>The CGO's compliance with its legislative environmental requirements is independently monitored, and a report produced annually by the Cowal Gold Operations Independent Monitoring Panel (CGO IMP). The CGO IMP's latest report (October 2016) conducted an assessment of compliance at the CGO, and concluded the following:</p> <p><i>The Cowal Gold Operations have been developed generally in accordance with the environmental assessments prepared for the project and the audit findings confirm an overall high standard of compliance with the Development Consent Conditions, Environmental Protection Licence and requirements of the environmental conditions attached to the Mining Lease 1535.</i></p> <p>Evolution is committed to attaining an outstanding level of environmental performance in all of their workplaces. Their environmental care and culture is formed on the basis of:</p> <ul style="list-style-type: none"> • Commitment to their Environment and Sustainability Policy, with supportive funding and a belief that the majority of environmental incidents are preventable and controllable with foresight, relevant training, purposeful attitude and appropriate equipment. • Accountability of Management with the support of all Personnel to ensure that the Workplace and the practices comply with statutory and license conditions. • Evolution will strive to implement leading industry practices and environmental management systems at all levels including exploration, development, operations, decommissioning, closure and rehabilitation. • Regular assessment of the environmental performance of Evolution's activities will be undertaken to comply with Evolution's commitments and conditions and to report findings to stakeholders, the community and regulatory authorities. • Continually striving to identify opportunities to effectively manage energy and water whilst minimising waste and reducing their environmental footprint. • Increasing awareness of Personnel on the potential environment impacts of activities in which we are involved and how those impacts can be minimised. • Evolution to maintain appropriate emergency and response programs and to notify the relevant authority in the event of any reportable environmental incident. • Contribute to conservation of biodiversity and integrated approaches to land use.
<p>Information Sources</p> <p>17. For information given in the EA, the EA 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.</p>	<p>Section 8 and Appendix C</p>



ATTACHMENT 3
Site Verification Certificates

**COWAL GOLD OPERATIONS
PROCESSING RATE MODIFICATION**

Environmental Assessment
2018



**Site Verification Certificate
Cowal Gold Mine**

Part 4AA, Division 3 of *State Environmental Planning Policy
(Mining, Petroleum Production and Extractive Industries) 2007*

Pursuant to clause 17C(1) of *State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007*, I determine the application made by Evolution Mining (Cowal) Pty Limited by issuing this certificate.

I certify that in my opinion, having regard to the criteria in the *Interim Protocol for site verification and mapping of biophysical strategic agricultural land*, the land specified as 'Site Verification Certificate Application Area' in Schedule 1 is not Biophysical Strategic Agricultural Land.

The reasons for forming the opinion on the relevant criteria are contained in Schedule 2.



Marcus Ray
Deputy Secretary
Planning Services
As delegate of the Secretary

Date certificate issued: *21 March 2017*

This certificate will remain current for 5 years from the date of issue.

SCHEDULE 1



- LEGEND**
- Mining Lease (ML 1535)
 - Proposed Mining Lease Application Area
 - Watercourse
 - 1 Strahler Stream Order Classification
 - Highly Productive Groundwater
 - Site Verification Certificate Application Area


Evolution
 Mining
COWAL GOLD OPERATIONS
 SITE VERIFICATION CERTIFICATE APPLICATION
 Site Verification Certificate
 Application Area

SCHEDULE 2

Relevant criteria	Consideration
Reliable water supply	The application area does not have access to a reliable water supply, and therefore is not Biophysical Strategic Agricultural Land.

**Site Verification Certificate
Cowal Gold Mine**

Part 4AA, Division 3 of *State Environmental Planning Policy
(Mining, Petroleum Production and Extractive Industries) 2007*

Pursuant to clause 17C(1) of *State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007*, I determine the application made by Evolution Mining (Cowal) Pty Limited by issuing this certificate.

I certify that in my opinion, having regard to the criteria in the *Interim Protocol for site verification and mapping of biophysical strategic agricultural land*, the land specified as 'Site Verification Certificate Application Area' in Schedule 1 is not Biophysical Strategic Agricultural Land.

The reasons for forming the opinion on the relevant criteria are contained in Schedule 2.



David Kitto
Executive Director
Resource Assessments and Business Systems
as delegate of the Secretary

Date certificate issued: 6 NOVEMBER 2017

This certificate will remain current for 5 years from the date of issue.

SCHEDULE 1



- LEGEND**
- Mining Lease (M1 1535)
 - Mining Lease Application Area
 - Existing Site Workhorse Certificate Area
 - Site Workhorse Certificate Application Area
 - Soil Test Pit



COWAL GOLD OPERATIONS

SCHEDULE 2

Relevant criteria	Consideration
Soil type	<ul style="list-style-type: none">• Soil testing undertaken in accordance with the <i>Interim Protocol for site verification and mapping of biophysical strategic agricultural land</i> has confirmed that the site does not contain any BSAL.• The soil types did not meet the relevant BSAL verification criteria due to chemical or physical constraints.• The applicant's soil and land data is consistent with the Office and Environment and Heritage soil survey knowledge and existing soil and landscape data of the general area.



ATTACHMENT 4
Aquifer Interference Policy Considerations and
Water Licensing

**COWAL GOLD OPERATIONS
PROCESSING RATE MODIFICATION**

Environmental Assessment
2018



COWAL GOLD OPERATIONS PROCESSING RATE MODIFICATION
AQUIFER INTERFERENCE POLICY CONSIDERATIONS AND WATER
LICENSING

MARCH 2018
Project No. HAL-16-41
Document No. 00893653

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A4 AQUIFER INTERFERENCE POLICY CONSIDERATIONS AND WATER LICENSING

This attachment provides further discussion on the requirements and application of relevant water licensing and associated approvals under the New South Wales (NSW) *Water Management Act, 2000* and the NSW *Water Act, 1912*. It also provides a discussion of relevant requirements of the *NSW Aquifer Interference Policy* (the AIP) (NSW Government, 2012).

Reference to Sections 1 to 8 in this attachment are references to the sections of the Main Report of the Environmental Assessment (EA). Internal references within this attachment are prefixed with “A4”.

A4.1 AQUIFER INTERFERENCE POLICY CONSIDERATIONS

A4.1.1 Policy Overview

The AIP (NSW Government, 2012) has been developed by the NSW Government as a component of the NSW Government's *Strategic Regional Land Use Policy*. The AIP applies state wide and details water licence and impact assessment requirements.

The AIP has been developed to ensure equitable water sharing between various water users and proper licensing of water taken by aquifer interference activities such that the take is accounted for in the water budget and water sharing arrangements.

The *Water Management Act, 2000* defines an aquifer interference activity as that which involves any of the following (NSW Government, 2012):

- *the penetration of an aquifer,*
- *the interference with water in an aquifer,*
- *the obstruction of the flow of water in an aquifer,*
- *the taking of water from an aquifer in the course of carrying out mining or any other activity prescribed by the regulations, and*
- *the disposal of water taken from an aquifer in the course of carrying out mining or any other activity prescribed by the regulations.*

Examples of aquifer interference activities include mining, coal seam gas extraction, injection of water, as well as commercial, industrial, agricultural and residential activities that intercept the watertable or interfere with aquifers (NSW Government, 2012).

The AIP applies to all aquifer interference activities but has been developed in particular to address the following high risk activities (NSW Government, 2012):

- **mining activities** such as open cut voids, underground mine workings and the disposal of water taken from an aquifer including water taken as part of coal seam gas extraction;
- other **extractive industries**, such as sand and gravel extraction...;
- **coal seam gas activities**, including those related to both exploration and production;
- other large projects which require **dewatering** such as for the construction and maintenance of associated works, such as buildings, roads and other civil works;
- **injection works** used to transmit water into an aquifer; and
- activities with the potential to contaminate groundwater or result in unacceptable loss of storage or structural damage to an aquifer.

Licensing Requirements

The AIP requires all water taken by aquifer interference activities to be accounted for within the extraction limits set by the relevant Water Sharing Plan. A water licence is required, whether water is taken either incidentally or for consumptive use, where any act by a person carrying out an aquifer interference activity causes (NSW Government, 2012):

- *the removal of water from a water source; or*
- *the movement of water from one part of an aquifer to another part of an aquifer; or*
- *the movement of water from one water source to another water source, such as:*
 - *from an aquifer to an adjacent aquifer; or*
 - *from an aquifer to a river/lake; or*
 - *from a river/lake to an aquifer.*

The AIP also requires consideration of the continued take of water from groundwater or connected surface waters following cessation of an aquifer interference activity. For example, the post-closure inflow that occurs until a groundwater system reaches equilibrium following cessation of open cut mining is required to be considered.

Licences are required to be held to adequately account for the ongoing take of water until the system returns to equilibrium, or alternatively, sufficient licences are required to be surrendered to the Minister administering the *Water Management Act, 2000*.

Minimal Impact Considerations

In addition to licensing requirements, the *Water Management Act, 2000* includes the concept of ensuring “no more than minimal harm”. In this regard, the AIP includes minimal impact considerations relating to water table and groundwater pressure drawdown and changes in groundwater and surface water quality.

The AIP provides that (NSW Government, 2012):

Aquifer interference approvals are not to be granted unless the Minister is satisfied that adequate arrangements are in force to ensure that no more than minimal harm will be done to any water source, or its dependent ecosystems, as a consequence of its being interfered with in the course of the activities to which the approval relates.

While aquifer interference approvals are not required to be granted, the minimal harm test under the Water Management Act 2000 is not activated for the assessment of impacts. Therefore, this Policy establishes and objectively defines minimal impact considerations as they relate to water-dependent assets and these considerations will be used as the basis for providing advice to either the gateway process, the Planning Assessment Commission or the Minister for Planning.

The AIP establishes minimal impact considerations for groundwater categories of both “highly productive” and “less productive” groundwater. Highly productive groundwater is defined by the AIP as groundwater which (NSW Government, 2012):

...is defined in this Policy as a groundwater source that is declared in the Regulations and will be based on the following criteria:

- a) *has total dissolved solids of less than 1,500 mg/L, and*
- b) *contains water supply works that can yield water at a rate greater than 5 L/sec.*

The AIP further groups highly productive groundwater into the following categories:

- Alluvial.
- Coastal sands.

- Porous rock, including:
 - Great Artesian Basin – Eastern Recharge and Southern Recharge;
 - Great Artesian Basin – Surat, Warrego and Central; and
 - other porous rock.
- Fractured rock.

The AIP similarly defines categories for less productive groundwater which includes the following:

- Alluvial.
- Porous rock.
- Fractured rock.

However, aquifer interference approval consideration is not required for bores for the primary purpose of extracting and using of groundwater (Appendix A).

A4.1.2 Aquifer Interference Policy Requirements

An assessment of the Cowal Gold Operations (CGO) Processing Rate Modification (the Modification) against the licensing requirements and minimal impact considerations of the AIP is provided in the sub-sections below.

Water Licensing Requirements

As discussed in Section A4.1.1, the AIP requires all water taken by aquifer interference activities to be accounted for within the extraction limits set by the relevant Water Sharing Plan. The Water Sharing Plans relevant to the Cowal Gold Operations (CGO) are the *Water Sharing Plan for the Lachlan Unregulated and Alluvial Water Sources 2012* and the *Water Sharing Plan for the NSW Murray Darling Basin Fractured Rock Groundwater Sources 2011*. The *Water Sharing Plan for the NSW Murray Darling Basin Fractured Rock Groundwater Sources 2011* was amended on 1 July 2016 however these changes to the water sharing plan do not affect the pre-existing licensing arrangements at the CGO.

Therefore, licensing under the *Water Sharing Plan for the Lachlan Unregulated and Alluvial Water Sources 2012* and the *Water Sharing Plan for the NSW Murray Darling Basin Fractured Rock Groundwater Sources 2011* is required to account for any additional loss of flow to the alluvium and fractured rock resulting from the Modification.

The predicted annual groundwater licensing volumes required for the Modification are summarised in Table A4-1.

A comparison of Evolution Mining (Cowal) Pty Limited's (Evolution) licence entitlements against the predicted annual licensing requirements (Table A4-1) shows adequate licences are available to account for the potential take of water associated with the approved operations and the Modification within the alluvial and fractured rock aquifers.

Coffey Services Australia Pty Ltd (Coffey) (2018) has undertaken numerical modelling of the post-mining recovery of groundwater levels (Appendix A). Post-closure annual licensing requirements for the Modification are expected to be less than the licensing requirements during operation. It is expected that Evolution would have adequate licences to account for the potential post-closure take of water from the alluvial and fractured rock aquifers.

Reliable Surface Water

It is noted that the definition of a reliable water supply is provided in the current *Strategic Regional Land Use Policy for the New England North West Strategic Land Use Plan 2012* and the *Strategic Regional Land Use Policy for the Upper Hunter Strategic Land Use Plan 2012*.

Although no Strategic Regional Land Use Plan is currently in effect for the area associated with the CGO, it is expected that any future plan implemented would be consistent with the existing plans. The definition of a reliable water supply is as follows (NSW Office of Water, 2012):

reliable water of suitable quality, characterised by having rainfall of 350 mm or more per annum (9 out of 10 years); or properties within 150 m of a regulated river, or unregulated rivers where there are flows for at least 95% of the time (i.e. the 95th percentile flow of each month of the year is greater than zero) or 5th order and higher rivers; or groundwater aquifers (excluding miscellaneous alluvial aquifers, also known as small storage aquifers) which have a yield rate greater than 5 L/s and total dissolved solids of less than 1,500 mg/L.

The AIP only refers to a 'surface water source that is defined as a reliable water supply'. Therefore, the rainfall criteria and the groundwater aquifer criteria for a reliable water supply do not apply to the CGO.

There are no regulated rivers, unregulated rivers with flow for at least 95 percent (%) of the time or 5th order rivers within 150 metres (m) of the CGO. Accordingly, there are no reliable surface water supplies relevant to the CGO, including Lake Cowal, which is ephemeral.

Minimal Impact Considerations

As discussed above, the AIP established minimal impact considerations for highly productive and less productive groundwater.

**Table A4-1
Groundwater Licensing Requirement Summary**

Water Sharing Plan/Relevant Legislation	Management Zone/ Groundwater Source	Relevant Licence	Existing Licensed Volume ^{1,2} (ML/annum)	Predicted Maximum Annual Licensing Requirements (ML/annum) ^{1,3}
<i>Water Sharing Plan for the Lachlan Unregulated and Alluvial Water Sources 2012</i>	Upper Lachlan Alluvial Zone 7 Management Zone	Pit dewatering (including pit inflows) and saline bores in ML 1535 (WAL 36615)	366	282
		Bland Creek Palaeochannel Borefield (WAL 31864)	3,650	3,650
		Eastern Saline Borefield (WAL 36569)	750 ⁴ (per bore)	548
<i>Water Sharing Plan for the NSW Murray Darling Basin Fractured Rock Groundwater Sources 2011</i>	Lachlan Fold Belt Murray Darling Basin Groundwater Source	Pit dewatering (WAL 36617)	3,294	277

WAL = Water Access Licence; ML/annum = Megalitres per annum; ML 1535 = Mining Lease 1535.

¹ Assuming 1 ML per unit share.

² Source: Evolution (2015).

³ Source: Appendices A and B.

⁴ Eastern saline borefield licenses have zero ML licence allocation with temporary transfer of up to 750 ML/annum per bore.

Figure A4-1 presents the mapping of highly productive groundwater in the vicinity of the Modification, and indicates that an area of highly productive alluvial aquifer exists in the north-east of ML 1535. However, as outlined below, the groundwater quality within ML 1535 does not reflect a highly productive aquifer as it has total dissolved solids greater than 1,500 milligrams per litre (mg/L) (Appendix A).

Alluvial Aquifers

As detailed in the Hydrogeological Assessment (Appendix A), groundwater quality within ML 1535 generally has an electrical conductivity between 30,000 microSiemens per centimetre ($\mu\text{S}/\text{cm}$) and 55,000 $\mu\text{S}/\text{cm}$ for both the alluvial and fractured rock aquifers. This equates to a total dissolved solids concentration of between 19,200 mg/L and 35,200 mg/L. Therefore, the groundwater source at the CGO would be considered to be less productive.

The Bland Creek Palaeochannel would represent a highly productive alluvial aquifer. The Cowal Gold Mine (CGM) Extension Modification (Barrick [Cowal] Limited, 2013) provided an assessment of the minimal impact considerations for the highly productive alluvial aquifer. The Modification would not change the approved extraction limits at the Bland Creek Palaeochannel Borefield or Eastern Saline Borefield or water supply works relative to the CGM Extension Modification.

However, since the Bland Creek Palaeochannel Borefield and Eastern Saline Borefield are for the primary purpose of extracting and using of groundwater, no aquifer interference approval consideration for the Modification is required (Appendix A).

Fractured Rock Aquifers

Mapping of highly productive groundwater in the vicinity of the Modification indicated that no areas of highly productive fractured rock aquifers exist in proximity to the CGO. As such, the impacts of the Modification to fractured rock have been assessed against the criteria for less productive groundwater.

Tables A4-2 and A4-3 provide an assessment of the watertable, water pressure and water quality minimal impact considerations for the less productive groundwater sources associated with the CGO.

A4.1.3 Summary of Potential Impacts of the Modification and Relevant Mitigation and Contingency Measures

A summary of the potential impacts of the Modification on groundwater resources, and the relevant mitigation and contingency measures are discussed below.

Potential Impacts

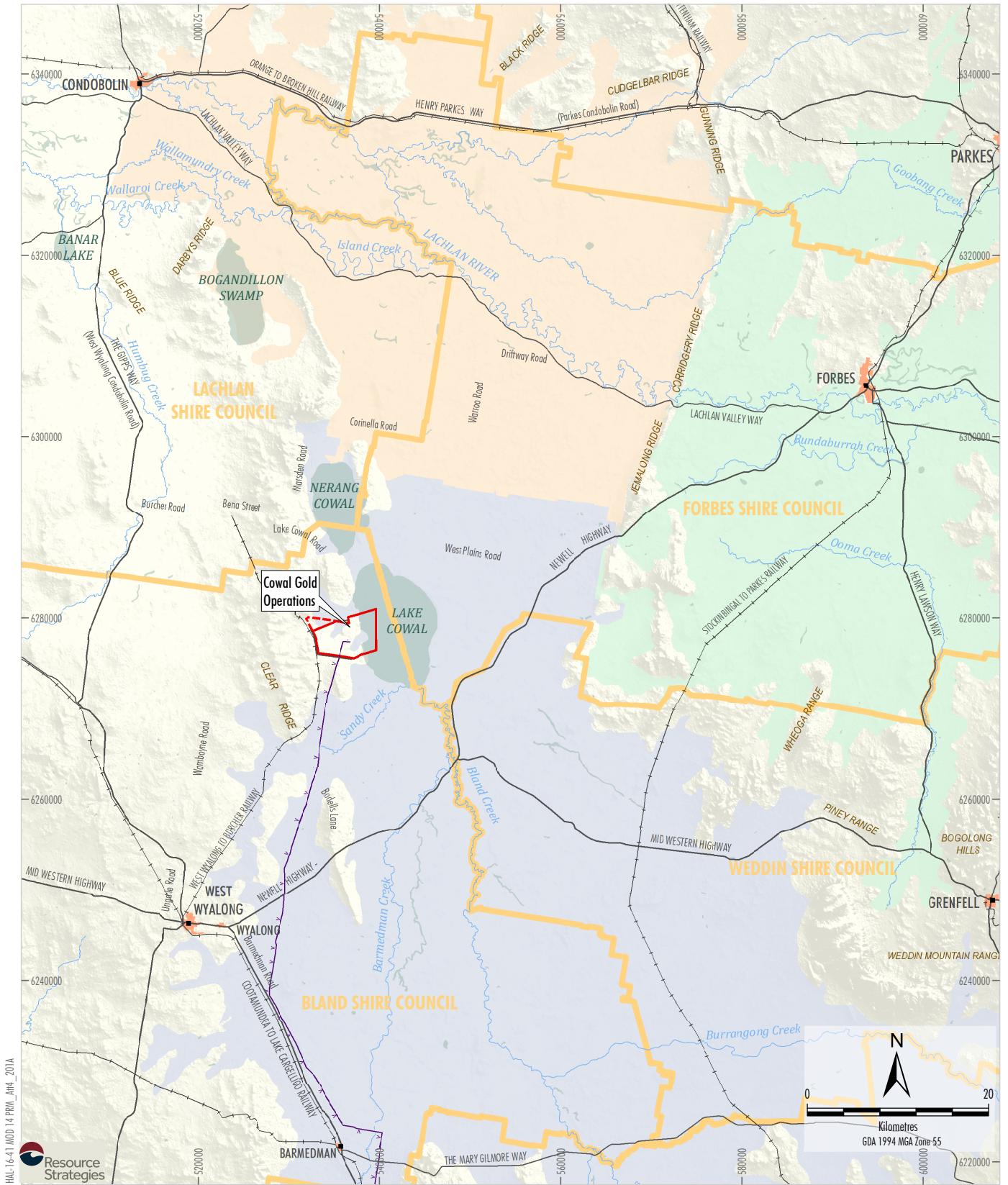
The potential impacts of the Modification during operation and post closure have been considered in the Hydrogeological Assessment (Appendix A).

The Modification would not change currently approved daily or annual rates of licensed extraction of groundwater or existing groundwater contingency measures. In addition, no material change to pit inflows is predicted (Appendix A).

Groundwater drawdown due to open pit mining and extraction from the saline groundwater supply bores within ML 1535 would generally remain within ML 1535. The equivalent average annual groundwater take from 2017 to the end of mine life is predicted to be approximately 235 ML/annum (i.e. between approximately 540 cubic metres per day [m^3/day] and 730 m^3/day) (Appendix A).

Coffey (2018) has concluded that groundwater quality would not change significantly during the operation of the Modification or post-closure, with the open pit continuing to act as a localised groundwater sink.

As the existing Groundwater Contingency Strategy, developed in consultation with the NSW Office of Water (NOW) (now the NSW Department of Industry – Water (DI – Water) and formerly known as the Department of Primary Industries [DPI] Water) and other groundwater users, would be maintained for the Modification, and given there would be no change to currently approved daily or annual extraction limits from the Bland Creek Palaeochannel Borefield, no additional impacts to other users of the Bland Creek Palaeochannel are predicted (Appendix A).



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- LEGEND**
- Mining Lease Boundary (ML 1535)
 - Mining Lease Application Boundary (MLA 1)
 - Local Government Area Boundary
 - Electricity Transmission Line
 - Railway
 - Highly Productive Groundwater
 - Upper Lachlan Alluvial Zone 3
 - Upper Lachlan Alluvial Zone 5
 - Upper Lachlan Alluvial Zone 7

Source: Geoscience Australia (2006); © NSW Department of Industry (2016); NSW DPI Water (2013)



**CGO PROCESSING RATE MODIFICATION
Highly Productive Groundwater Mapping**

Figure A4-1

**Table A4-2
Minimal Impact Considerations for Less Productive Alluvial Water Sources**

Aquifer	Alluvial Aquifer (Cowra Formation)	
Category	Less Productive Water Source	
Level 1 Minimal Impact Consideration	Assessment	
<u>Watertable</u> 1. Less than or equal to a 10% cumulative variation in the watertable, allowing for typical climatic “post-water sharing plan” variations, 40 m from any: (a) high priority groundwater dependent ecosystem; or (b) high priority culturally significant site; listed in the schedule of the relevant water sharing plan; or A maximum of a 2 m decline cumulatively at any water supply work. ...	Level 1 – Acceptable. The closest high priority groundwater dependent ecosystem in the Lachlan Unregulated and Alluvial Water Sources, as listed in Schedule 4 of the <i>Water Sharing Plan for the Lachlan Unregulated and Alluvial Water Sources 2012</i> , is located more than 40 kilometres (km) from the CGO, outside of the extent of cumulative drawdown associated with the Modification (Appendix A). No high priority culturally significant sites are listed in the <i>Water Sharing Plan for the Lachlan Unregulated and Alluvial Water Sources 2012</i> . There are no other known areas of the saline alluvial aquifers surrounding the CGO. Coffey (2018) concluded that the groundwater drawdown due to open pit mining and dewatering for the Modification would be similar to drawdown associated with the approved CGO and would generally remain within ML 1535. Accordingly, there would be negligible impact to privately-owned registered bores. Therefore, the Modification is considered to adequately satisfy the watertable and water pressure minimal impact considerations relating to less productive alluvial water sources defined in the AIP.	
<u>Water pressure</u> 1. A cumulative pressure head decline of not more than 40% of the “post-water sharing plan” pressure head above the base of the water source to a maximum of a 2 m decline, at any water supply work. ...		
<u>Water quality</u> 1. (a) Any change in the groundwater quality should not lower the beneficial use category of the groundwater source beyond 40 m from the activity; and (b) No increase of more than 1% per activity in long-term average salinity in a highly connected surface water source at the nearest point to the activity. Redesign of a highly connected surface water source that is defined as a “reliable water supply” is not an appropriate mitigation measure to meet considerations 1.(a) and 1.(b) above. (c) No mining activity to be below the natural ground surface within 200 m laterally from the top of high bank or 100 m vertically beneath (or the three dimensional extent of the alluvial water source - whichever is the lesser distance) of a highly connected surface water source that is defined as a “reliable water supply”. ...	Level 1 – Acceptable. There are no other known users of the saline alluvial aquifers surrounding the CGO. Coffey (2018) has concluded that groundwater quality would not change significantly during the operation of the Modification or post-closure, with the open pit continuing to act as a localised groundwater sink. Therefore, the existing beneficial use category of groundwater would not change due to the Modification (Appendix A). It has been concluded that there are no “reliable water supplies” within 200 m laterally of the CGO. Lake Cowal is an ephemeral lake, and is therefore not considered to be a “reliable water supply” (Appendix A). Therefore, it is assessed that the Modification adequately satisfies the water quality minimal impact considerations relating to less productive fractured rock water sources defined in the AIP.	

Table A4-3
Minimal Impact Considerations for Less Productive Porous and Fractured Rock Water Sources

Aquifer	Porous Rock or Fractured Rock	
Category	Less Productive Water Sources	
Level 1 Minimal Impact Consideration	Assessment	
<p><u>Watertable</u></p> <p>1. Less than or equal to a 10% cumulative variation in the watertable, allowing for typical climatic “post-water sharing plan” variations, 40 m from any:</p> <p>(a) high priority groundwater dependent ecosystem; or</p> <p>(b) high priority culturally significant site;</p> <p>listed in the schedule of the relevant water sharing plan; or</p> <p>A maximum of a 2 m decline cumulatively at any water supply work.</p> <p>...</p>	<p>Level 1 – Acceptable.</p> <p>The closest high priority groundwater dependent ecosystem in the NSW Murray Darling Basin Fractured Rock Groundwater Sources, as listed in Schedule 3 of the <i>Water Sharing Plan for the NSW Murray Darling Basin Fractured Rock Groundwater Sources 2011</i>, is located more than 40 km from the CGO, outside of the extent of cumulative drawdown associated with the Modification (Appendix A).</p> <p>No high priority culturally significant sites are listed in the <i>Water Sharing Plan for the NSW Murray Darling Basin Fractured Rock Groundwater Sources 2011</i>.</p> <p>Coffey (2018) concluded that the groundwater drawdown due to open pit mining and dewatering would generally remain within ML 1535. Accordingly, negligible impacts to privately-owned bores is expected due to the Modification.</p> <p>Therefore, the Modification is considered to adequately satisfy the watertable and water pressure minimal impact considerations relating to less productive fractured rock water sources defined in the AIP.</p>	
<p><u>Water pressure</u></p> <p>1. A cumulative pressure head decline of not more than a 2 m decline, at any water supply work.</p> <p>...</p>		
<p><u>Water quality</u></p> <p>1. Any change in the groundwater quality should not lower the beneficial use category of the groundwater source beyond 40 m from the activity.</p> <p>...</p>	<p>Level 1 – Acceptable.</p> <p>Coffey (2018) has concluded that groundwater quality would not change significantly during the operation of the Modification or post-closure, with the open pit continuing to act as a localised groundwater sink.</p> <p>Therefore, the existing beneficial use category of groundwater would not change due to the Modification (Appendix A).</p> <p>Therefore, it is assessed that the Modification adequately satisfies the water quality minimal impact considerations relating to less productive fractured rock water sources defined in the AIP.</p>	

Relevant Mitigation and Contingency Measures

The Hydrogeological Assessment (Appendix A) proposes a number of recommendations for the monitoring and management of any potential impacts to groundwater associated with the CGO for the Modification. The following measures are proposed:

- Continued groundwater monitoring to validate the predictive modelling, particularly in the vicinity of the open pit, Tailings Storage Facilities/Integrated Waste Landform and ML 1535 saline groundwater supply borefield (when in use).
- Continued monitoring of groundwater salinity in the Bland Creek Palaeochannel Borefield to assess potential saline migration.
- A final pit void water balance post-mine closure be conducted to assess long-term water levels in the pit void and the potential impact on groundwater quality in the immediate vicinity of the pit void.
- Establishment of new monitoring bores to replace those that would be displaced by the Integrated Waste Landform.

In addition, the existing Groundwater Contingency Strategy for the management of groundwater levels in the Bland Creek Palaeochannel would continue for the Modification.

A4.1.4 Monitoring and Reporting of Volumetric Take

During mining operations, water accumulates within the open pit as a result of surface water runoff during wet weather and groundwater inflows from intersected aquifers. The pit dewatering programme is described in detail in the *Cowal Gold Operations Water Management Plan* (Evolution, 2015).

Within ML 1535, open pit dewatering is metered from in-pit sumps. All bores from the Bland Creek Palaeochannel Borefield and eastern saline borefield are metered to manage the quantity of water extracted from the borefields within relevant limits (Evolution, 2015).

A4.2 SURFACE WATER LICENSING REQUIREMENTS

A4.2.1 Lachlan Regulated River Source

Under the *Water Management Act, 2000*, the *Water Sharing Plan for the Lachlan Regulated River Water Source 2003* commenced on 1 July 2004 and was replaced on 1 July 2016. The *Water Sharing Plan for the Lachlan Regulated River Water Source 2016* covers licensed surface water accessed from the Lachlan River.

Clause 4 of the *Water Sharing Plan for the Lachlan Regulated River Water Source 2016* provides that the plan applies to the following waters:

- (1) *This Plan applies to the water source known as the Lachlan Regulated River Water Source (this water source) within the Lachlan Water Management Area.*

Note. *The Lachlan Water Management Area was constituted by Ministerial order made under section 11 of the Act and published in the NSW Government Gazette No 180 on 23 November 2001 at page 9389.*

- (2) *This water source includes all water:*
 - between the banks of all rivers, from the upper limits of Wyangala Dam water storage (Wyangala Dam) downstream to the junction of the Lachlan River with the Murrumbidgee River, which have been declared by the Minister to be regulated rivers, and*
 - taken under a floodplain harvesting (regulated river) access licence with a share component that specifies this water source.*

The external make-up of water supply at the CGO is provided to the site via the mine borefield pipeline which draws water from the eastern saline borefield, the Bland Creek Palaeochannel Borefield and water extracted from the Lachlan River via the Jemalong Irrigation Channel. Water is currently extracted from the Lachlan River using regulated flow licences purchased by Evolution on the open market under the *Water Sharing Plan for the Lachlan Regulated River Water Source 2016*.

Access Licences

WALs issued by the DI-Water to Evolution under the *Water Management Act, 2000* are presented in Table A4-4. Evolutions' existing high security and general security WALs allow for the trade of temporary water (Appendix B).

Section 4 of the Main Report of the EA and Appendix B (Hydro Engineering & Consulting Pty Ltd, 2018) provide estimated surface water licensing requirements for the Modification.

**Table A4-4
Surface Water Licensing Summary**

Licence Number	Licence Category	Date of Grant	Duration of Approval	Licence Allocation
WAL14981 (70WA603145)	High Security	15/09/2011	Ongoing	80 unit shares.
WAL13748 (70AL603332)	General Security	21/06/2006	Ongoing	Zero share component enabling temporary trade of water from regulated Lachlan River source.
WAL13749 (70AL603333)	High Security	21/06/2006	Ongoing	

For the Modification, the proposed external water supply arrangements would involve the continued use of WAL14981 as well as the purchase of temporary water from the Lachlan River regulated water source.

Since the commencement of operations at the CGO there has been a reliable supply of temporary water available from the Lachlan River trading market, including during periods of drought. DI - Water trading records show that between approximately 4,000 ML and 274,000 ML of temporary water has been traded annually since records began in the 2004 to 2005 season (Appendix B).

Management of Access Licences

In accordance with Part 7, Division 2, clause 46 of the *Water Sharing Plan for the Lachlan Regulated River Water Source 2016*, the maximum volume that may be taken under a regulated river (general security) access licence from the Lachlan River Regulated Water Source during any water year shall be equal to 1 ML per share unit (or lower amount to maintain compliance with the long-term average annual extraction limit).

Evolution would continue to manage its general security and high security access licences such that extraction does not exceed the water allocation account in any water year in accordance with rules outlined in Part 7 and Part 9 of the *Water Sharing Plan for the Lachlan Regulated River Water Source 2016*.

A4.2.2 Western Bland Creek Water Source

The *Water Sharing Plan for the Lachlan Unregulated and Alluvial Water Sources 2012* commenced on 14 September 2012 under the *Water Management Act, 2000*.

The *Water Sharing Plan for the Lachlan Unregulated and Alluvial Water Sources 2012* applies to all unregulated water sources in the Lachlan catchment which occurs naturally on the surface of the ground, and in rivers, lakes and wetlands. The *Water Sharing Plan for the Lachlan Unregulated and Alluvial Water Sources 2012* would apply to any surface water excised from the Lachlan catchment that would otherwise have reported to the Lachlan River.

Within the *Water Sharing Plan for the Lachlan Unregulated and Alluvial Water Sources 2012*, the CGO is located within the Western Bland Creek Water Source, which has a total surface water entitlement of 2,275 ML/annum. Within the Western Bland Creek Water Source, there are currently 33 surface water licences (Appendix B).

Clause 12(1) of Part 1 of Schedule 1 of the *Water Management (General) Regulation, 2011* provides access licence exemptions under the *Water Management Act, 2000* for certain excluded works. Schedule 1 (Clause 4) of the *Water Management (General) Regulation, 2011* describes relevant excluded works as follows:

- (4) *Dams approved in writing by the Minister for specific environmental management purposes:*
 - (a) *that are located on a minor stream, and*
 - (b) *from which water is used solely for those environmental management purposes.*

On 7 January 2004, the then Minister for Natural Resources made an order pursuant to Section 5(1)(H) that under Part 2 of the *Water Act, 1912* certain works are not applicable. These works included any additional works which become part of the water management system for the CGO which are authorised to be constructed pursuant to ML 1535 granted by the Minister for Mineral Resources on 18 June 2003.

The Modification includes minor changes to the Up-Catchment Diversion System (UCDS) and Internal Catchment Drainage System (ICDS). The objective of the reconstructed UCDS would be to mimic the existing UCDS dimensions and profiles and as such there is negligible change to the catchment excised by the Modification that would otherwise report to Lake Cowal (Appendix B), and therefore no access licences would be required for the Modification.

New South Wales Department of Planning and Infrastructure (2012) *Upper Hunter Strategic Regional Land Use Plan*.

New South Wales Office of Water (2012) *NSW Aquifer Interference Policy*. Released September 2012.

A4.3 FLOOD WORK APPROVALS

Former controlled works under the *Water Act, 1912* have been replaced with flood work approvals under the *Water Management Act, 2000*.

The *Water Management Act, 2000* includes transitional provisions to ensure that actions taken and approvals granted under Part 8 of the *Water Act, 1912* remain valid once the *Water Management Act, 2000* comes into effect.

Part 8, Division 1, Clause 165A(2) of the *Water Act, 1912* provides that a controlled work does not include the following:

- (a) *a work declared, by order of the Ministerial Corporation published in the Gazette, not to be a controlled work, and any work that forms or is intended to form part of, or is intended to be ancillary to, such a declared work, or*

...

As detailed in Section A4.2.2 above, an exemption was granted under Part 8, Division 1, Clause 165A(2) of the *Water Act, 1912* for the water management system currently in place at the CGO. In particular, this exemption specifically refers to the temporary isolation bund, the lake protection bund, the UCDS and the ICDS. The order also applied to any additional works which become part of the water management system for the CGO.

A4.4 REFERENCES

Barrick (Cowal) Limited (2013) *Cowal Gold Mine Extension Modification Environmental Assessment*.

Coffey Services Australia Pty Ltd (2018) *Cowal Gold Operations Processing Rate Modification Hydrogeological Assessment*.

Evolution Mining (Cowal) Pty Limited (2015) *Cowal Gold Operations Water Management Plan*.

Hydro Engineering & Consulting Pty Ltd (2018) *Cowal Gold Operations Processing Rate Modification Surface Water Assessment*.