



Cowal Gold Mine

*Modification Assessment
(DA 14/98 MOD 14)*



October 2018

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Cover photo

Cowal Gold Mine (Department of Planning and Environment)

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Executive Summary

The Cowal Gold Mine is an operating open cut gold mine owned and operated by Evolution Mining (Cowal) Pty Limited (Evolution). The mine is located on the shoreline of Lake Cowal, approximately 37 kilometres (km) northeast of West Wyalong, within the Bland local government area. The associated water supply borefields and water supply pipeline are located within the Forbes local government area. Evolution also uses some local roads within the Lachlan local government area for road transport.

Proposed modification

Evolution is proposing to increase the ore processing rate of the processing plant, which would result in associated changes to on-site waste rock and tailings management. However, the proposal does not involve any changes to the mine life, mining methods, the extent and depth of the open pit, cyanide destruction methods or the water supply arrangements at the mine.

Engagement

The Department exhibited the modification application from 18 April 2018 to 15 May 2018. The Department received 18 submissions from the general public (supporting the modification), two from special interest groups (one objecting to the modification and one providing comments), and nine from government agencies (none objecting). Both Bland and Lachlan Shire Councils are supportive of the mine, including the modification. Forbes Shire Council raised no objections to the modification and supported the development of an updated Traffic Management Plan for the project.

Key issues

The key issues raised in submissions and identified during the Department's assessment of the modification relate to potential impacts on water resources, biodiversity and traffic.

While the overall water demand of the project would increase, the proposed modification would not change the water supply sources for the mine or exceed the approved extraction limits from these sources. The Department considers that there would not be any significant additional impacts on surface water or groundwater.

The modification has been designed to largely avoid impacts on vegetation in the locality. Approximately 26 hectares (ha) of native woodland and 261 ha of derived native grassland would be cleared. The Department has recommended conditions requiring all unavoidable impacts to be offset in accordance with Government policy.

The modification would require 16 additional heavy vehicles a day during construction and up to 47 additional heavy vehicles a day during operations. The Department has recommended new conditions requiring Evolution to prepare and implement a comprehensive Traffic Management Plan and to undertake minor road upgrades to ensure that the safety, efficiency and capacity of the road network is maintained.

Other issues

The Department has also considered potential impacts of the modification on amenity (noise, air quality, visual), heritage, land and agricultural resources and site rehabilitation. The Department is satisfied that there is unlikely to be any significant impacts subject to the implementation of a range of strict conditions that have been developed in consultation with Government agencies.

Summary

The proposed modification would provide additional benefits to local and regional communities through the generation of 100 construction jobs, 10 new operational jobs and expenditure on goods and services within the region. Consequently, the Department considers the proposed modification is in the public interest and should be approved, subject to the strict recommended conditions.



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1. Introduction

1.1 Background

Evolution owns and operates the Cowal Gold Mine, located approximately 37 kilometres (km) northeast of West Wyalong (see **Figure 1**).

The project was originally approved on 26 February 1999 by the then Minister for Urban Affairs and Planning, following a Commission of Inquiry. Operations commenced in 2005.

The consent has been modified 13 times and allows Evolution to undertake the following activities until 31 December 2032:

- extract ore from the open cut pit using conventional drill, blast, load and haul methods;
- process up to 7.5 million tonnes per annum (Mtpa) of ore;
- extract gold from the ore using a carbon-in-leach cyanide leaching circuit;
- produce a total 5.5 million ounces of gold over the life of the project; and
- progressively rehabilitate the site.

Operations at the mine are supported by on-site facilities including water management infrastructure, a process plant, two Tailings Storage Facilities (TSFs) and three waste rock emplacements.

Ore is hauled directly from the open cut pit to the primary crusher (adjacent to the process plant), run-of-mine (ROM) pad or low-grade ore stockpiles prior to processing. Waste rock is hauled to the waste rock emplacements and mineralised material is stockpiled for future processing.

Gold is extracted from the ore using a conventional carbon-in-leach cyanide leaching circuit in the process plant. Tailings are pumped from the process plant via a pipeline to the TSFs. The gold product is recovered and poured as gold bars or doré and transported from the site to markets via a number of preferred and alternate transport routes. Process consumables travel to the site via these same routes.

Water is preferentially sourced from a number of internal sources. The external make-up water supply is provided to the site via the Lake Cowal pipeline and is drawn from the Eastern Saline Borefield and the Bland Creek Palaeochannel Borefield. This is supplemented with water from the Lachlan River via the Jemalong Irrigation Channel.

The mine and processing facility are located in Bland local government area (LGA), while the borefields and part of the water supply pipeline are located in Forbes LGA.

Recent feasibility studies have identified opportunities to maximise the ore processing capacity of the existing processing plant. Accordingly, Evolution is seeking to modify its development consent to process additional ore, increase its water take and expand the mine infrastructure area to the north to accommodate associated infrastructure changes including consolidation of the existing TSFs and relocation of water management infrastructure.

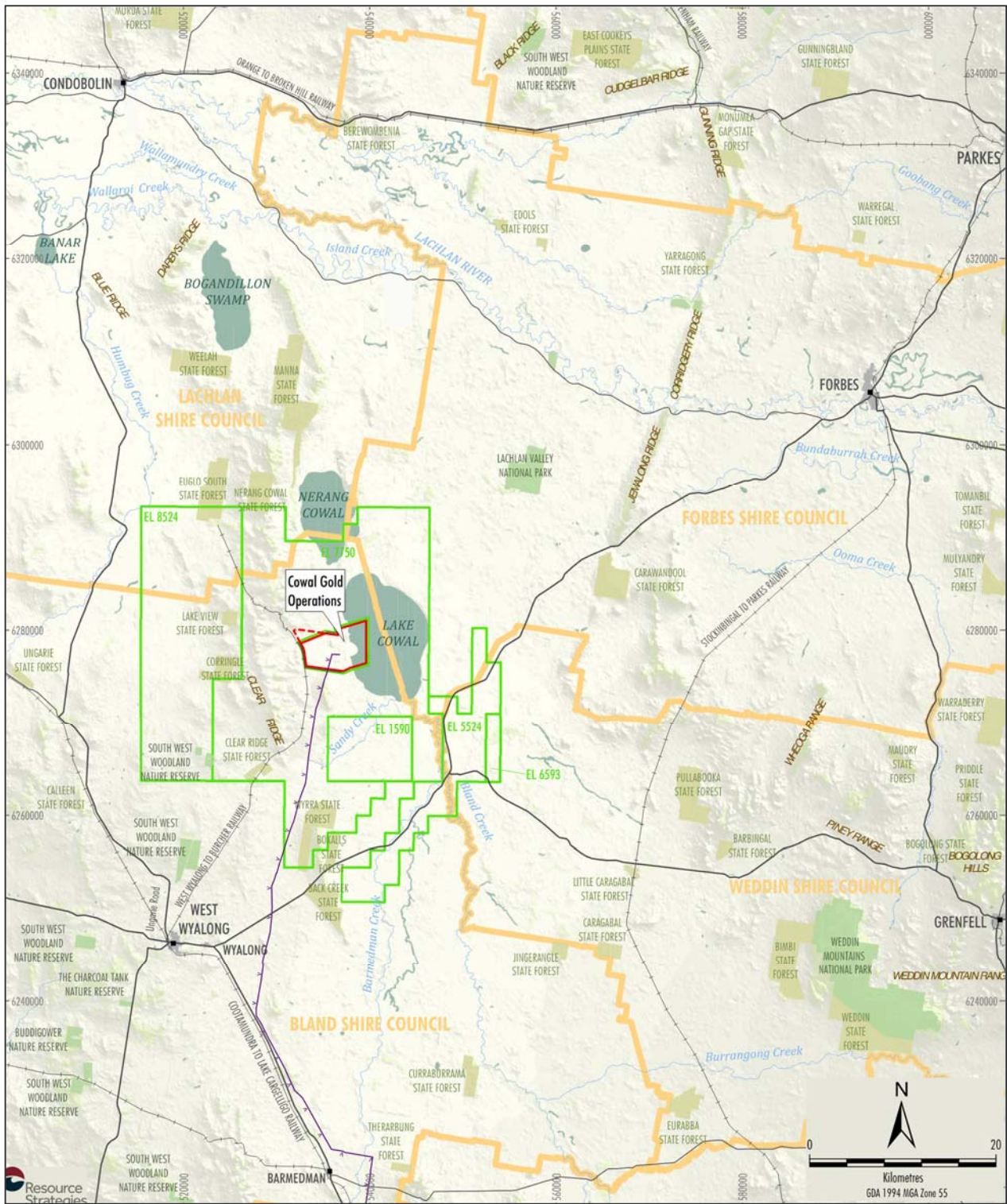


Figure 1 | Site Location



2. Proposed Modification

Evolution is proposing to increase the ore processing rate from 7.5 to 9.8 Mtpa by installing a secondary crushing circuit within the existing processing plant. The proposed modification would increase total gold production from 5.5 to 6.1 million ounces over the life of the project.

The proposal does not involve any changes to the mine life, mining methods, the extent and depth of the open pit, cyanide destruction methods, water supply sources (including licensed extraction volumes for the Eastern Saline Borefield) or approved extraction limits for the Bland Creek Palaeochannel Borefield.

The higher ore processing rate would result in an increase in water demand at the processing plant and produce a greater volume of tailings, which would necessitate a larger tailings storage facility (TSF).

Accordingly, Evolution is proposing to modify the existing TSFs to form one larger TSF, which would also accommodate mine waste rock as a rock fill buttress around the TSFs (referred to as the Integrated Waste Landform [IWL]). To assist in meeting the increased water demand, Evolution is proposing to duplicate the existing water supply pipeline across Lake Cowal.

Other proposed changes include:

- expanding the project boundary to the north-west to include an additional 255 hectares (ha) of land and relocating water management infrastructure (including the Up-catchment Diversion System), internal roads and soil stockpiles within this area;
- relocating existing soil stockpiles and approved water storage (D10) to the southern portion of the site;
- realigning Lake Cowal Road and the adjacent travelling stock reserve around the modified project boundary;
- crushing up to 150,000 tonnes of waste rock for use by local councils and the Roads and Maritime Services (RMS) as gravel road base;
- introducing two additional transport routes for use when local conditions prevent the use of the preferred routes; and
- upgrading sections of the proposed alternate routes.

A summary of the key components of the approved project and proposed modification is provided in **Table 1**.

Changes to the project layout are shown in **Figures 2 and 3**, and a full description of the proposal is provided in Evolution's Environmental Assessment (EA) (see **Appendix B**).

Table 1: Summary of approved and modified project

<i>Component</i>	<i>Approved Project</i>	<i>Proposed Modification</i>
<i>Project site</i>	<ul style="list-style-type: none"> • 2,636 ha 	<ul style="list-style-type: none"> • 2,891 ha (255 ha increase)
<i>Mine life</i>	<ul style="list-style-type: none"> • 31 December 2032 	<ul style="list-style-type: none"> • No change
<i>Mining method</i>	<ul style="list-style-type: none"> • Open cut (drill, blast, load and haul) 	<ul style="list-style-type: none"> • No change
<i>Processing rate and method</i>	<ul style="list-style-type: none"> • 7.5 Mtpa • Carbon-in-leach cyanide leaching circuit 	<ul style="list-style-type: none"> • 9.8 Mtpa (2.3 Mtpa increase) • No change to method
<i>Total production</i>	<ul style="list-style-type: none"> • 5.5 million ounces of gold 	<ul style="list-style-type: none"> • 6.1 million ounces (0.6 million ounce increase)
<i>Blasting</i>	<ul style="list-style-type: none"> • One in-pit blast per day 	<ul style="list-style-type: none"> • No change
<i>Waste rock</i>	<ul style="list-style-type: none"> • Waste rock is stored at waste rock emplacements 	<ul style="list-style-type: none"> • No change to existing storages • Waste rock would be used to construct the IWL (i.e. placed around the existing TSFs) • 150,000 tonnes of crushed waste rock would be sold to local councils and RMS
<i>Cyanide use</i>	<ul style="list-style-type: none"> • 0.7 kg per tonne (t) of ore at the primary circuit and 0.8 kg per t at the oxide circuit • Cyanide concentrations in the tailings slurry stream must not exceed prescribed limits 	<ul style="list-style-type: none"> • No change to the volume per tonne, however the total volume would increase by 25% per annum to match the increased processing rate • Cyanide limits would not be exceeded
<i>Tailings</i>	<ul style="list-style-type: none"> • Tailings is deposited in the Northern and Southern TSFs to maximum heights of 264 and 272 m AHD, respectively 	<ul style="list-style-type: none"> • Tailings would continue to be deposited in the Northern and Southern TSFs (to reduced heights of 240 and 248 m AHD) • The IWL would be constructed around the TSFs to a height of 245 m AHD, and tailings would be deposited within the IWL (tailings would inundate the northern TSF)
<i>Mineralised material</i>	<ul style="list-style-type: none"> • 31 Mt of mineralised material is temporarily stockpiled to a maximum height of 288 m AHD prior to being processed 	<ul style="list-style-type: none"> • 39.3 Mt of mineralised material would be temporarily stockpiled to a maximum height of 308 m AHD prior to being processed
<i>Soil stockpiles</i>	<ul style="list-style-type: none"> • Soil is stockpiled at numerous locations around the site 	<ul style="list-style-type: none"> • Some soil stockpiles would be relocated to the north-western extension area or to the south of the proposed IWL
<i>Water supply</i>	<ul style="list-style-type: none"> • Internal sources, the borefields (via Lake Cowal water pipeline) and Lachlan River 	<ul style="list-style-type: none"> • No change to water supply sources • Duplication of the Lake Cowal water pipeline
<i>Water demand</i>	<ul style="list-style-type: none"> • Variable demand (limited by water entitlements and conditions of consent) 	<ul style="list-style-type: none"> • Variable increase in water demand (no change to existing water limits)
<i>Water management infrastructure</i>	<ul style="list-style-type: none"> • Clean water diversion and dirty water catchment system (nil discharge site) • Lake Cowal isolation system • Erosion, sediment and salinity controls • Pit sump and dewatering borefield 	<ul style="list-style-type: none"> • Changes to the site water management system to reflect the modified layout • Relocation of an approved (not yet constructed) water storage dam (D10) to the south of the southern waste rock emplacement
<i>Access routes and road upgrades</i>	<ul style="list-style-type: none"> • Preferred and alternate routes from Forbes, West Wyalong and Condobolin • The primary access route was upgraded in 2005 to accommodate the project and additional resurfacing occurred in 2016 	<ul style="list-style-type: none"> • The West Wyalong route would not change • Additional alternate routes from Forbes and Condobolin • A section of Lake Cowal Road would be realigned around the modified boundary • Upgrades to roads and intersections
<i>Traffic</i>	<ul style="list-style-type: none"> • An average of 122 light vehicles and 53 heavy vehicles a day 	<ul style="list-style-type: none"> • An additional 6 light and 16 heavy vehicles a day during peak construction • An additional 3 light and 47 heavy vehicles a day during peak operations
<i>Employment</i>	<ul style="list-style-type: none"> • An average of 385 (and peak of 540) full time employees 	<ul style="list-style-type: none"> • 100 additional short-term (~6 months) construction employees • 10 additional operational employees
<i>Hours of operation</i>	<ul style="list-style-type: none"> • 24 hours, 7 days a week • Construction work on the TSF embankments and rock buttress limited to between the hours of 7 am and 6 pm 	<ul style="list-style-type: none"> • 24 hours, 7 days a week • Construction of TSF lifts and supplementary IWL activities limited to between 7 am and 6 pm, 7 days a week • Standard construction hours would apply for the pipeline duplication and Lake Cowal Road realignment

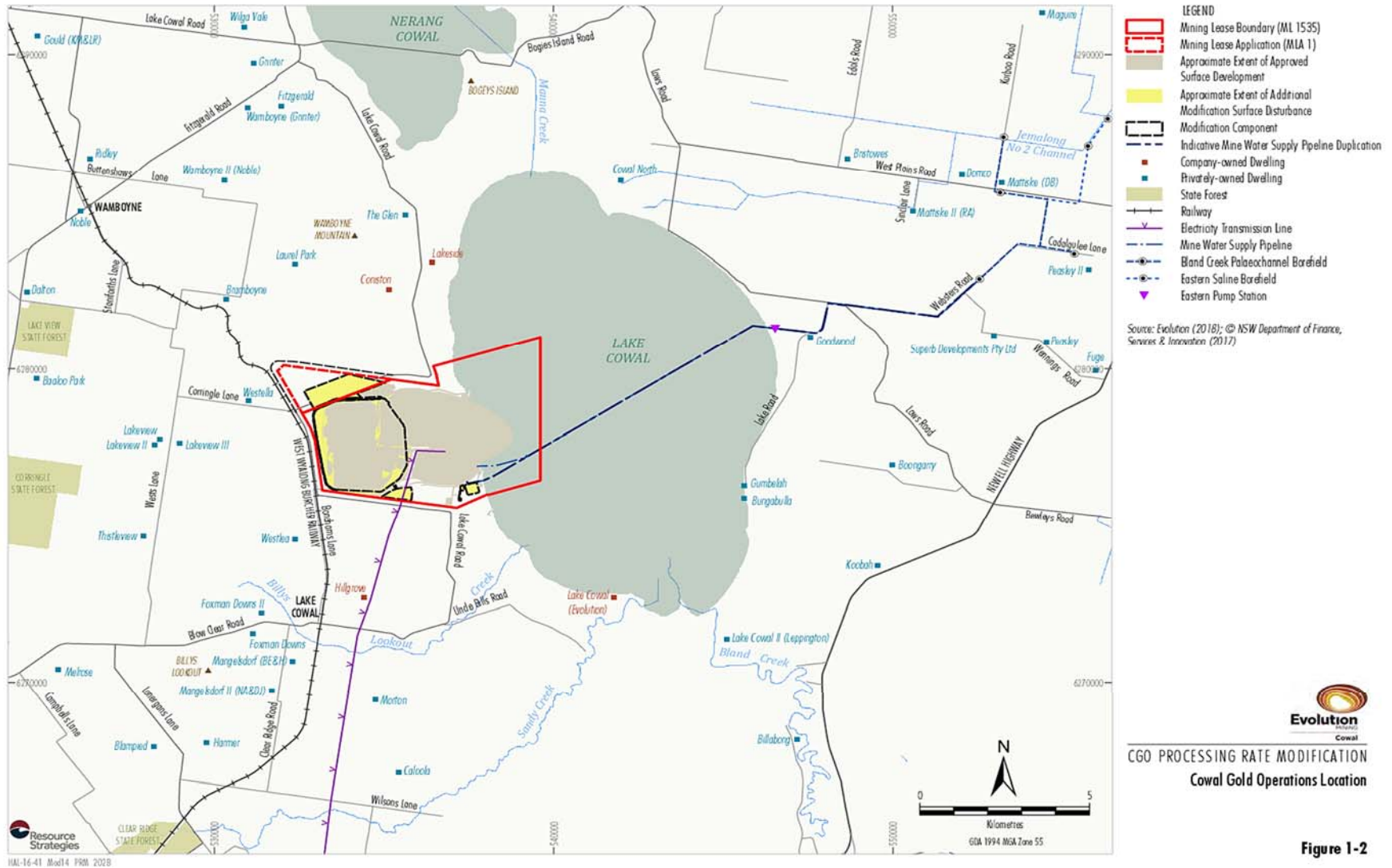


Figure 2 | Approved operations and proposed modification

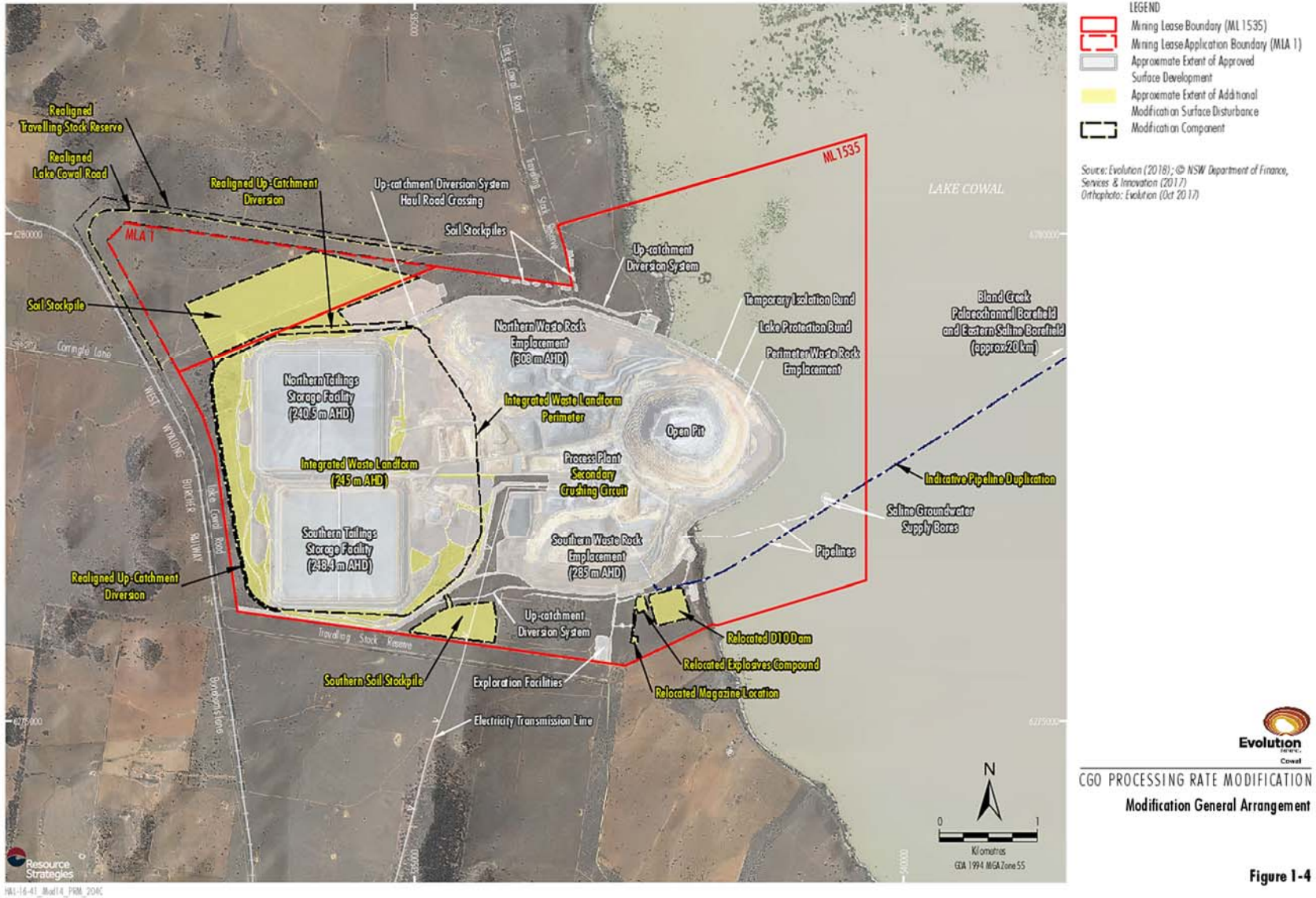


Figure 3 | Proposed modifications to the mine site



3. Strategic Context

The mine is situated on the foreshore of Lake Cowal, in a semi-arid, predominantly cleared agricultural landscape used for livestock grazing and grain cropping. A number of farms and residences are located around the mine, with the closest being about 2 km west of site (see **Figure 2**).

Small remnants of native vegetation surround the mine and the Lake Cowal shoreline. When inundated, Lake Cowal provides important habitat for migratory waterbirds and is used by commercial fishers. When dry, the bed of Lake Cowal is used for grazing and cropping.

The mine has been the subject of rigorous environmental assessment over the last 25 years, largely owing to its unique location. The original application was the subject of Commission of Inquiry into the environmental aspects of the project. A subsequent modification for expansion was also subject to proceedings in the Land and Environment Court. This modification was ultimately approved subject to comprehensive court-imposed conditions of consent.

The development consent has since been modified on 13 occasions, with each application supported by detailed additional assessment of the relevant issues. Monitoring requirements set out in the consent have also led to an increased understanding of locality. For example, monitoring data collected following the 2010, 2012 and 2016 Lake Cowal lake-fill events indicate no increase in groundwater inflow to the pit, which supports the predictions of previous assessments regarding the hydraulic separation of Lake Cowal from the underlying aquifers.

Despite initial concerns, the mine has received broad support from the community and local Councils. The mine is currently the equal second largest producer in value terms of metallic minerals in NSW, making it economically important to both the local region in which it operates and to the wider state economy.



4. Statutory Context

4.1 Scope of Modification

The project was originally approved under Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). Despite consent being granted by the Minister under Part 4 of the EP&A Act, the project remains a “transitional Part 3A project” under Schedule 6A of the EP&A Act, and hence any modification to the approval must be made under the former Section 75W of the Act.

The power to modify transitional Part 3A projects under Section 75W of the Act as in force immediately before its repeal on 1 October 2011 is being wound up – but as the modification request was lodged prior to the ‘cut off’ date of 1 March 2018, the provisions of Schedule 2 (clause 3) continue to apply. Consequently, this report has been prepared in accordance with the requirements of Part 3A and associated regulations.

Based on its assessment, the Department considers that the proposal can be characterised as a modification as it would not change the approved mining, processing and transport methods or the extent or depth of the open cut pit and would not significantly increase the environmental impacts of the project as approved. Consequently, the Department considers that the proposed modification is within the scope of Section 75W of the EP&A Act.

4.2 Consent Authority

The Minister for Planning is the consent authority for the modification application. However, under the Minister's delegation dated 11 October 2017, the Executive Director, Resource Assessments and Business Systems, may determine the application. This is because there were no reportable political donations made by Evolution, Bland and Forbes Shire councils did not object to the proposal, and less than 25 public submissions in the form of objections were received on the proposal.

4.3 Permissibility

Under the *Bland Local Environmental Plan 2011*, the proposed extension area is located on land zoned RU1 Primary Production. Open cut mining is permitted with consent in this zone. All other aspects of the proposed modification would be located within the approved project boundary.

4.4 Site Verification Certificate

Clause 50A of the *Environmental Planning and Assessment Regulation 2000* requires development applications involving mining activities (including extensions to existing mining leases the subject of a separate Mining Lease Application [MLA]) to be accompanied by either a gateway certificate or a site verification certificate that certifies that the land on which the activity is to be carried out is not Biophysical Strategic Agricultural Land (BSAL).

Evolution lodged two applications for site verification certificates with the Department for the proposed extension of the mining lease area (MLA 1). The applications were prepared in accordance with the requirements of the *Interim Protocol for Site Verification and Mapping of Biophysical Strategic Agricultural Land*.

The first application was lodged on 1 March 2017 and related to the western portion of the proposed extension area. On 21 March 2017, the Department issued a site verification certificate confirming that no BSAL is present in this area.

A supplementary application for the eastern portion of the proposed extension area was lodged on 13 October 2017. On 6 November 2017, the Department issued a second site verification certificate for the supplementary area, also confirming that BSAL is not present.

4.5 Commonwealth Approval

On 6 November 2017, a delegate for the Commonwealth Minister for the Environment and Energy determined the project (EPBC 2017/7989) to be a 'controlled action' in accordance with the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) due to likely significant impacts to listed threatened species and communities (sections 18 and 18A).

The assessment process under the EP&A Act has been accredited under a bilateral agreement with the Commonwealth Government. Accordingly, the NSW Government has undertaken the assessment on behalf of the Commonwealth and has assessed matters of national environmental significance (MNES).

The Department consulted with the Department of Environment and Energy (DoEE) in accordance with the bilateral agreement and provided draft copies of this assessment report and the recommended conditions of consent to the DoEE for comment. The DoEE's comments were incorporated into the assessment and DoEE had no residual issues.

The Department's assessment of the potential impacts of the project on controlling provisions under the EPBC Act relating to biodiversity is provided in **Section 6.2** below.

Further information on the matters that the Commonwealth Minister must consider under the EPBC Act is provided in **Appendix G**.



5. Engagement

5.1 Department's Engagement

The Department publicly exhibited the application and accompanying documents from 18 April until 15 May 2018. A total of 29 submissions were received, including:

- nine from government agencies (none of which objected to the proposal);
- eighteen from the general public, including local businesses (all supporting the proposal); and
- two from special interest groups (one objecting to the proposal and one providing comments).

A summary of the key issues raised in submissions is provided below and a full copy of the submissions is attached in **Appendix C**. Evolution provided its response to the issues raised in submissions in June 2018 and has also provided additional information in response to the Department's requests for information. The Response to Submissions (RTS) and additional information is provided in **Appendix D**.

5.2 Key Issues – Government Agencies

The **Department of Industry – Lands and Water Division** (DoI - L&W) requested additional information about the storage and migration of contaminants from seepage from the proposed IWL in the short, medium and long term. DoI – L&W raised no concerns in regard to the predicted groundwater inflows or drawdown impacts.

DoI – L&W recommended that Evolution continue implementing measures to maintain the Bland Creek Paleochannel Borefield above trigger levels and update the existing monitoring program and Water Management Plan. DoI – L&W also recommended that Evolution consider options for minimising the ongoing runoff from clean areas into the void as part of its final landform design. The Department has included this recommendation in the modified conditions of consent.

The **Environment Protection Authority** (EPA) was satisfied that the air quality and noise assessments had been undertaken in accordance with the applicable EPA guidelines. The EPA recommended conditions including revised noise criteria and restrictions to the height of the modified TSFs, IWL and mineralised material stockpile. The Department has included these recommendations in the modified conditions of consent.

The **Office of Environment and Heritage** (OEH) requested additional information about the proposed biodiversity avoidance, mitigation and management measures, which Evolution provided as an Addendum to the Biodiversity Assessment Report and Biodiversity Offset Strategy for the modified project.

OEH confirmed that Evolution correctly applied the *NSW Framework for Biodiversity Assessment* (FBA) and adequately addressed the assessment requirements relating to MNES. OEH also confirmed it was satisfied with the Aboriginal Cultural heritage assessment presented in the EA.

The **Division of Resources and Geosciences** (DRG) (within the Department) raised no concerns about the proposed modification and advised that the placement of soil stockpiles within the boundary extension area and the additional biodiversity offsets would not result in significant resource sterilisation.

The **Resources Regulator** (also within the Department) considered that sustainable rehabilitation outcomes could be achieved and that any identified risks could be regulated through the conditions of mining authorities issued under the *Mining Act 1992*.

The **Royalties & Advisory Services** unit within DRG confirmed the significant economic benefits of the modification through the provision of its own economic assessment and noted that the State would receive around \$11 million (Net-Present-Value at a 7% discount rate) of additional royalties from the modification.

The **Roads and Maritime Services (RMS)** raised no concerns about the modification, and recommended that Evolution prepare and implement a Transport Management Plan in consultation with the relevant road authorities to manage the movement of gravel from the mine site. The RMS also recommended that Evolution regularly review measures to manage driver fatigue over the life of the project. The Department has included these recommendations in the modified conditions of consent.

The **Heritage Council of NSW** noted that no historic heritage items would be impacted by the proposed modification and made no recommendations about any aspect of the proposed modification.

5.3 Key issues - Councils

Forbes Shire Council requested additional information relating to the pipeline duplication, water use and gravel supply, and raised concerns about potential traffic impacts on the eastern side of Lake Cowal during construction of the pipeline.

Evolution provided additional information in its RTS, and the Department has recommended a condition requiring Evolution to provide further detail within a Transport Management Plan. Following provision of additional information by Evolution, and subject to the recommended conditions, Council raised no further concerns.

Lachlan Shire Council supports the modification and recommended that the proposed road upgrades be funded by Evolution, which the Department has recommended in the modified conditions.

Bland Shire Council raised no concerns and noted the increased economic and social benefits of the modified project due to the additional employment opportunities it would provide for the local community.

5.4 Key Issues – Special Interest Groups

The two special interest group submissions were received from the West Plains Water Users Association and Trigalana Water Users Group Incorporated. These submissions are summarised below.

The **West Plains Water Users Association** objected to the modification primarily due to the ongoing use of water from the Bland Creek Palaeochannel Borefield.

The group noted the importance of the Bland Creek Palaeochannel for stock and domestic use; it raised concerns about aquifer drawdown and the long-term sustainability of using water from the borefield; and it stated a preference for Evolution to use water from the Lachlan River.

The group disagreed with assertions in the EA about the reliability of temporary water from the Lachlan River and raised concerns about the validity and assumptions of Evolution's Hydrological assessment.

Trigalana Water Users Group Incorporated did not object to the project but noted that its members (and the members of the East Trigalana Water Users Group Inc) rely solely on the Bland Creek Paleochannel Borefield for stock and domestic water.

The group also raised concerns about the water modelling and requested that more emphasis be placed on using water from the Lachlan River in terms where the climatic conditions support increased use.

The Department has addressed these matters in detail in **Section 6.1** of this report.

5.5 Key Issues - Community

Of the 18 submissions from the community, the majority were from residents of West Wyalong and Wyalong (11 submissions). Three were from residents of Forbes, Condobolin and Mandagery (located between 70 to 120 km from the site), and the remaining four were from other parts of NSW and QLD.

All community submissions supported the proposal, typically citing the existing social and economic benefits of the mine and the current environmental management practices and additional benefits that would be generated by the proposal, including 100 short-term construction jobs and 10 new operational jobs.



6. Assessment

In assessing the merits of the proposed modification, the Department has considered the:

- modification application and supporting information;
- existing conditions of consent for the mine;
- agency advice, public submissions on the application and Evolution's response to submissions;
- relevant environmental planning instruments, policies and guidelines; and
- requirements of the EP&A Act.

A list of the key documents that informed the assessment is provided in **Appendix A**.

6.1 Water

The EA included hydrological and hydrogeological assessments. These assessments included revised modelling, as well as consideration of the numerous existing geological and hydrogeological information for the project, and relevant monitoring data and mapping.

Water Supply

The modification would not change the water supply sources for the mine or exceed the approved extraction limits associated with these sources.

The internal water sources include return water from the TSFs, run-off collected from the site, groundwater in-flow to the pit and saline groundwater supply bores within the mining lease area (used only when Lake Cowal is dry).

The external make-up water sources are the Bland Creek Palaeochannel Borefield (BCPB) and the Eastern Saline Borefield (ESB) via the Lake Cowal pipeline (see **Figure 2**), and the Lachlan River via the Jemalong Irrigation Channel.

Water from the BCPB and ESB is extracted from the Lachlan Formation Water Source in accordance with the *Water Sharing Plan for the Lachlan Unregulated and Alluvial Water Sources 2012*. The mine has an annual extraction limit of 3,650 ML for the BCPB and 750 ML for the ESB under this plan. The existing development consent also limits extraction from the BCPB to 15 ML a day or 3,650 ML a year. Operation of the ESB is undertaken in accordance with a Development Consent (DA 2011/64) granted by Forbes Shire Council.

Water from the Lachlan River would continue to be accessed by purchasing temporary water from the regulated Lachlan River trading market. The volume of water sourced from the Lachlan River varies depending on climatic conditions and availability. Records indicate that this is a reliable water source for the project.

Dol – L&W has raised no concerns about the continued use of water from the existing sources in accordance with the existing regulatory limits.

Water Demand

The modification would increase the average daily water demand at the processing plant by about 2,000 ML/year over the life of the modified project.

Table 2 provides a summary of Evolution's water balance model. Water supply exceeds demand under all scenarios shown in this table.

Evolution would continue to prioritise internal sources of water over external sources. Approximately 5,260 ML a year would be sourced from internal water sources and 4,247 ML would be sourced from external water sources (under a median rainfall scenario).

Table 2: Water balance model averaged over the remaining mine life of the modified project (2018 to 2032)

	10 th percentile rainfall sequence (dry)	Median rainfall sequence	90 th percentile rainfall sequence (wet)
Inflows (ML/year)			
<i>Catchment runoff</i>	833	1,114	1,152
<i>Return water from TSFs/IWL</i>	3,826	3,826	3,826
<i>Open pit groundwater</i>	216	216	216
<i>Saline bores within the site</i>	139	104	118
<i>Bland Creek Palaeochannel Bores</i>	2,077	1,965	1,954
<i>Eastern Saline Bores</i>	536	522	518
<i>Lachlan River Licensed Extraction</i>	1,892	1,760	1,757
Total inflow	9,519	9,507	9,541
Outflows (ML/year)			
<i>Processing plant</i>	8,422	8,422	8,422
<i>Evaporation</i>	625	718	734
<i>Dust suppression</i>	225	224	223
<i>IWL embankment construction</i>	92	93	93
Total outflow	9,364	9,457	9,472

However, water demand at the processing plant is variable over time and dependent on processing at different stages of the project. It is difficult to capture these variations in the above table, which shows average water demand over the entire life of the project.

Water demand at the processing plant (both historical and proposed) can be summarised as follows:

- between April 2006 and mid-2007, an average of 12,300 ML a year of water was required to process an average of 6.4 Mtpa of oxide ore;
- from mid-2007 onwards, an average of 6,095 ML a year of water was required to process an average of 7.2 Mtpa of primary ore;
- between 2019 and 2029, an average of 7,993 ML a year of water would be required to process up to 9.4 Mtpa of primary ore and 0.4 Mtpa of oxide ore; and
- in 2030-31, up to 12,958 ML of water would be required to process up to 6.8 Mtpa of oxide ore and the 2 Mtpa of primary ore.

The water demand under the proposed modification is therefore generally consistent with historical water usage at the mine. Notwithstanding, Evolution’s modelling has predicted water shortfalls at the end of the early stage of the IWL (2023 to 2024) and at the end of the predominantly oxide ore processing period (2031).

However, the Department acknowledges that water demand is inherently variable and these predicted shortfalls can be managed through operational changes throughout the life of the project. Importantly, Evolution is not permitted to exceed the limits of its water access licenses or the limits in the existing consent. Further, the existing consent includes a condition requiring Evolution to adjust the scale of operations on-site to match its available water supply.

The Department notes it is in Evolution’s best interests to manage its operations to mitigate the risk of any water shortfalls and that ultimately this is a commercial matter for the company. Notwithstanding, the Department has included a new condition requiring Evolution to identify its strategies for mitigating the risk of potential water shortfalls in the Water Management Plan to be updated in consultation with DoI L&W.

Use of the Bland Creek Palaeochannel Borefield

Submissions received from two special interest groups raised concerns about the ongoing use of water from the BCPB. Both submissions cited potential impacts on other water users of the BCPB and indicated a preference for Evolution to use water from the Lachlan River.

The Department has considered all concerns raised in these submissions, however the Department accepts Evolution's proposal to continue using water from the BCPB to support the modification. The continued extraction of water from the BCPB (as well as the ESB and the Lachlan River) would allow Evolution to maintain a diverse water supply that is responsive to variable climatic conditions. The Department also notes that it is in Evolution's commercial interest to prioritise the use of internal water sources over external sources, and the Department has recommended a condition of consent to this effect.

The Department is satisfied that the approved extraction of groundwater from the BCPB is consistent with the framework established under the *Water Management Act 2000*, and that impacts on other water users would be regulated by the rules of the Water Sharing Plan. Additionally, a Groundwater Contingency Strategy has been developed for the project to prevent potential impacts on other groundwater users. The strategy was developed in consultation with the then NSW Office of Water (now DoI – L&W) and other BCPB water users and includes trigger levels and mitigation measures that would continue to apply to the modified project. The strategy is outlined in the approved Water Management Plan for the project.

The effect of the Groundwater Contingency Strategy is that pumping from the BCPB ceases if groundwater approaches trigger levels, and water requirements at the mine are met by alternative water sources. Groundwater levels associated with the BCPB are monitored on a continuous basis by DoI – L&W. DoI – L&W in its submission also supported Evolution's approach to rely on alternate water supply sources (such as the Lachlan River) rather than exceeding groundwater trigger levels and implementing contingencies.

Consequently, the Department considers that any impacts to other groundwater users would continue to be avoided. Nonetheless, the Department has recommended conditions requiring Evolution to source water from internal sources before external sources, and to provide a compensatory water supply to anyone whose basic landholder water rights (as defined in the *Water Management Act 2000*) are adversely and directly impacted by the project.

Groundwater Quality

Waste rock and tailings material associated with the modification would be geochemically similar to tailings from the existing operations, and as such, there would be no change in groundwater quality impacts due to the modification.

The low permeability basement layer constructed for the existing TSFs (e.g. compacted clay layer with a targeted vertical permeability of no greater than 1×10^{-9} m/s over a thickness of 1 m) and other existing seepage control measures (eg. trench cut-off) would be replicated for the IWL. The Department has recommended a revised condition to ensure that the same permeability standard is applied to the base of the IWL. The recommended conditions of consent also require the TSFs and IWL to be constructed to the requirements of DRG, the EPA and Dam Safety Committee and in consultation with DoI – L&W.

The Department and the EPA note that monitoring shows no trend suggesting that cyanide has leached from the TSFs into surrounding groundwater. Additionally, as the open cut pit acts as a groundwater sink, any potential seepage from the existing TSFs, proposed IWL or waste rock emplacements would migrate to the open pit.

DoI – L & W requested more refined modelling (at 20, 50, 100 and 200 years post mine closure) to provide further justification that seepage from the IWL would not impact groundwater in the long-term once the water in the pit has re-established equilibrium in the long-term. The Department has recommended a condition requiring Evolution to complete this modelling in consultation with DoI – L&W, and if necessary, develop contingency strategies if the modelling indicates that the IWL may result in groundwater quality changes beyond the extent of the final void.

Evolution would continue to monitor groundwater surrounding the TSFs and IWL using existing active monitoring bores (located adjacent to the IWL footprint) and new monitoring bores proposed as part of the modification. Consistent with the existing consent, Evolution would be required to review and revise its monitoring network to account for the modification.

Surface Water

The clean water diversion system and dirty water catchment system would be modified to encompass the IWL. Clean water would continue to be diverted around the site to Lake Cowal, and all dirty water would be captured, stored and/or reused on-site. No water captured on site is permitted to be discharged off the site.

The proposed changes to the surface water management system would reduce the catchment area reporting to Lake Cowal by a negligible amount (i.e. 0.007% of the catchment area of Bland Creek, which is only one of the tributaries of Lake Cowal).

Some elements of the modification would be located outside the clean water diversion system (i.e. soil stockpiles within the north-western expansion area, relocated explosives compound and magazine) and would be managed to ensure that clean water is diverted around disturbed areas, and dirty water is captured and reused on-site.

In regard to the pipeline duplication, as per the approved project, a silt curtain would be established around the construction area to trap fine sediment and prevent suspended material migrating into the main body of the lake. If Lake Cowal contains water at the time of construction, the pipeline may be laid onto the lake bed via boat or floating pontoon for later burial.

The existing consent also includes design objectives that were applied to the existing pipeline (e.g. the pipeline must not interfere with flood behaviour and must be equipped with an automatic shutdown device in the event of a rupture). These requirements would also apply to the pipeline duplication.

Recommended Conditions

Consistent with the existing consent, Evolution is required to update its Water Management Plan, Water Monitoring Program and Erosion and Sediment Control Plan in consultation with DoI – L&W and the EPA to incorporate the modification.

The Department has also recommended new conditions requiring Evolution to:

- prioritise the use of internal water sources over external sources;
- provide a compensatory water supply to anyone whose basic landholder water rights are adversely and directly impacted by the project;
- develop strategies to mitigate the risk of potential water shortfalls under certain climatic scenarios;
- construct the IWL base layer with a targeted vertical permeability of $< 1 \times 10^{-9}$ m/s; and
- model the hydraulic heads and transport of contaminants at 20, 50, 100 and 200 years post mine closure, and included contingency measures if required.

With the implementation of the additional conditions and the updated plans and programs, the Department, the EPA and DoI – L&W consider that the modification would result in minimal additional impacts on water resources.

6.2 Biodiversity

The EA included a biodiversity assessment prepared in accordance with the *NSW Biodiversity Offset Policy for Major Projects* and the supporting *NSW Framework for Biodiversity Assessment (FBA)*, which are accredited under the bilateral agreement with the Commonwealth.

Avoidance and Mitigation

The modification has been designed to avoid areas of native vegetation, threatened species and habitat. Soil stockpiles within the extension area would be located to avoid 55 ha of endangered ecological community (EEC). The magazine, explosives compound and pipeline duplication would also be located to avoid EEC.

Evolution proposes a range of mitigation and management measures to address potential indirect impacts on threatened species, communities and their habitats. These include (but are not limited to):

- fencing off areas of vegetation to delineate boundaries and protect retained vegetation;
- pre-clearance surveys to identify habitat features and minimise impacts on fauna;
- noise, dust and blasting management to minimise impacts on flora and fauna;
- strategies to keep fauna away from TSFs/IWL and monitoring to detect fauna use of the TSFs/IWL; and
- progressive rehabilitation of the site to increase the areas of endemic vegetation.

Fencing would also be installed along either side of the re-aligned travelling stock reserve to prevent livestock from grazing within the adjacent area of Box Gum Woodland EEC. DoI – L&W raised no concerns about the realignment of the travelling stock reserve.

Vegetation Clearing

The modification would clear 287 ha of vegetation, including 26 ha of native woodland and 261 ha of derived native grassland (DNG). **Table 3** provides details of the six plant community types (PCTs) proposed to be cleared, as well as the associated credit liability required under the FBA.

Table 3: *Vegetation clearing and offsets for the proposal*

Native Vegetation Community	Disturbance Area (ha)	Ecosystem Credits	
		Required	Available
Total	4.5		
PCT26: Weeping Myall Open Woodland and DNG	Woodland / DNG	109	305
	portion BC Act listed	4.5	
	portion EPBC Act listed	5	
Total	30	816	2,084
PCT82: Inland Grey Box - White Cypress Pine Woodland and DNG	Woodland / DNG	6.5 / 23.5	
	portion BC Act listed	30	
	portion EPBC Act listed	11.5	374
PCT249: River Red Gum Forest	0.4	19	292
PCT55: Belah Woodland	16.5	193	714
PCT185: Dwyer's Red Gum - White Cypress Pine - Currawang Woodland	1	18	18*
PCT250: Highly Modified Derived Grasslands	234.3	2,532	2,532*
Total	286.7	3,687	5,945

* Equivalent credits offered in accordance with the FBA

Past disturbance from historic clearing and livestock grazing has left the majority of native vegetation on the site in poor condition. **Figure 4** shows an example of the highly modified derived grasslands present in the proposed extension area.



Figure 4: Highly modified derived grasslands (PCT LA138)

Nonetheless, some semi-cleared woodland and DNG meets the criteria for EECs listed under the *Biodiversity Conservation Act 2016* (BC Act) and EPBC Act.

As outlined in **Table 3**, the modification would result in the clearance of 34.5 ha of EEC listed under the BC Act and 13 ha of EPBC Act listed ecological communities. **Figures 5** and **6** show the location of this vegetation.

No threatened flora species listed under the BC Act or EPBC Act would be disturbed by the modification.

Fauna Impacts

Five threatened fauna species listed under the BC Act were identified on the site during targeted surveys, including the Superb Parrot (*Polytelis swainsonii*), Black Falcon (*Falco subniger*), Grey-crowned Babbler (*Pomatostomus temporalis subsp. temporalis*), Little Eagle (*Hieraaetus morphnoides*) and Yellow-bellied Sheatailed-bat (*Saccolaimus flaviventris*). The Superb Parrot is also listed as vulnerable under the EPBC Act.

All of the above threatened fauna species are ecosystem credit species (i.e. species that can be predicted to be present based on a habitat assessment). Potential impacts on all ecosystem credit species have been accounted for in the credit calculations shown in **Table 3**.

The Superb Parrot is a dual ecosystem/species credit species as the proposal would clear 0.4 ha of potential breeding habitat used by this species (consisting of River Red Gum Forest). This impact equates to seven species credit species (which are additional to the credit liability shown in **Table 3**).



- LEGEND**
- Mining Lease Boundary (ML1535)
 - Mining Lease Application Boundary (MLA 1)
 - Approximate Extent of Approved Surface Development
 - FBA Plot
 - Threatened Ecological Communities
 - Gray Box Woodland EEC (BC Act and EPBC Act)
 - Gray Box Woodland EEC (BC Act)
 - Weeping Myall Woodland EEC (BC Act and EPBC Act)
 - Weeping Myall Woodland EEC (BC Act)

- VEGETATION MAPPING**
- Semi-arid Woodlands (Grassy sub-formation) - Riverine Plain Woodlands
 - 1a Weeping Myall Open Woodland (Semi Cleared in Moderate Condition) (LA212)
 - 1b Weeping Myall Open Woodland (Semi Cleared in Low Condition) (LA212)
 - 1c Weeping Myall Open Woodland (Derived Grassland in Low Condition) (LA212)
 - Grassy Woodlands - Floodplain Transition Woodlands
 - 2a Inland Gray Box - White Cypress Pine Woodland (Semi Cleared in Moderate Condition) (LA152)
 - 2b Inland Gray Box - White Cypress Pine Woodland (Derived Grassland in Low Condition) (LA152)
 - Forested Wetlands - Inland Riverine Forests
 - 3 River Red Gum Forest (Moderate Condition) (LA191)
 - Semi-arid Woodlands (Grassy sub-formation) - Northwest Floodplain Woodlands
 - 4 Belah Woodland (Low Condition) (LA105)
 - Semi Arid Woodland (Shrubby sub-formation) - Inland Rocky Hill Woodlands
 - 5 Dwyer's Red Gum - White Cypress Pine - Currawang Woodland (Moderate Condition) (LA144)

- Grasslands - Western Slopes Grasslands
 - 6a Highly Modified Derived Grasslands (Moderate Condition) (LA138)
 - 6b Highly Modified Derived Grasslands (Low Condition) (LA138)
 - Other Map Units
 - A Plantings
 - B Lake Bed
 - D Cleared
- Source: © NSW Department of Finance, Services & Innovation (2017)
Orthophoto: Evolution (Oct 2017)

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CGO PROCESSING RATE MODIFICATION

Flora Survey Sites - Mine Site

Figure 6a



HL16-41, Draft, PM, 220A
Resource Strategies

- LEGEND**
- Approximate Extent of Approved Surface Development
 - BAR Footprint - Pipeline
 - Threatened Ecological Communities
 - Weeping Myall Woodland EEC (BC Act and EPBC Act)
 - Weeping Myall Woodland EEC (BC Act)
- VEGETATION MAPPING**
- 1a Semi-arid Woodlands (Grassy sub-formation) - Riverine Plain Woodlands
 - 1b Weeping Myall Open Woodland (Semi Cleared in Moderate Condition) (LA212)
 - 1c Weeping Myall Open Woodland (Semi Cleared in Low Condition) (LA212)
 - 1c Weeping Myall Open Woodland (Derived Grassland in Low Condition) (LA212)
 - Forested Wetlands - Inland Riverine Forests
 - 3 River Red Gum Forest (Moderate Condition) (LA191)
 - Other Map Units
 - B Lake Bed
 - C Cropping
 - Threatened Flora Species
 - Austrastipa wakaolica*
- Source: AMBS (2018); DEH (2017); © NSW Department of Finance, Services & Innovation (2017)
Orthophoto: Evolution (Oct 2017)

Evolution
COWAL

CGO PROCESSING RATE MODIFICATION
Vegetation Communities and
Threatened Flora Species
- Pipeline

Figure 4-4b

Figure 6: Vegetation within the pipeline corridor

Under the existing consent, Evolution is required to update its approved Flora and Fauna Management Plan (FFMP) following any modification of the consent. A requirement of the FFMP is to report all native fauna deaths that occur on-site to OEH, DRG (now updated in the conditions to reflect the Resources Regulator as the relevant agency), the Community Environmental Monitoring and Consultative Committee and DPI (Fisheries). Evolution has requested that this requirement be limited to reporting cyanide related deaths only, which is consistent with the intent of the condition as detailed in the original Commission of Inquiry report for the project.

The Department agrees that the FFMP is primarily related to fauna interaction and use of the tailings dams and has revised the condition accordingly. OEH had no residual concerns about this matter.

Impacts on Lake Cowal

The modification would not result in significant impacts on any threatened species or ecological communities listed under the *Fisheries Management Act 1994* (i.e. the Lachlan River Catchment EEC or potentially occurring threatened fish) due to the minor nature of the pipeline duplication works. Once the pipeline is buried, vegetation would be left to naturally regenerate. Evolution would actively revegetate the pipeline route if needed.

The Lake Cowal/Wilbertroy Wetlands is listed on the Directory of Important Wetlands of Australia (DIWA). In accordance with the FBA, Evolution has accounted for potential impacts on these wetlands in its credit calculations shown in **Table 3**.

Biodiversity Offsets

Evolution is proposing to offset the credit liability for modification (3,687 ecosystem credits and 7 species credits) by establishing four land-based offset areas in accordance with *NSW Biodiversity Offset Policy for Major Projects*. These offsets would supplement Evolution's existing offset strategy for the mine.

The four proposed offset areas are located less than 5 km from the mine, would cover a total area 486.5 ha, and would provide a like-for-like offset outcome. The offsets areas generate a total of 5,945 credits, which exceeds the credit liability associated with the modification. Evolution would only retire the required number of offsets at these sites.

Summary

The Department and OEH consider that all threatened species, communities and habitats, including those listed under the EPBC Act, have been correctly identified and assessed. Potential impacts on species, communities and habitats listed under the EPBC Act are considered in more detail in **Appendix G**.

The Department and OEH also consider that the offset credit requirements have been correctly calculated using the FBA. The Department has recommended conditions requiring Evolution to retire the offset credit requirements in accordance with the *NSW Biodiversity Offsets Policy for Major Projects* within two years of commencing work associated with the proposed modification. Evolution propose to secure the offsets through the establishment of Stewardship Agreements, in accordance with the BC Act.

The existing consent requires Evolution to review and revise its FFMP, Threatened Species Management Protocol, Compensatory Wetland Management Plan and Biodiversity Management Plan to account for the proposed modification.

With the retirement of the required offset credits and updating of relevant management plans, both the Department and OEH consider that the project could be undertaken in a manner that improves or at least maintains the biodiversity values of the locality over the medium to long term.

6.3 Traffic and Transport

Traffic Generation

The modification would increase project-related traffic volumes (see **Table 4**).

During peak construction, an additional 6 light vehicles and 16 heavy vehicles are expected to access the site each day. Construction activities include duplication of the pipeline and realignment of Lake Cowal Road and would occur between 7.00 am and 6.00 pm, seven days a week, over an approximate 6 month construction period.

During peak operation of the modified project, an additional 3 light vehicles and 47 heavy vehicles are expected to access the site each day. Outside of gravel haulage periods, the number of heavy vehicles per day would only increase by 7 (due to the increased volume of processing plant consumables).

Table 4: Project-related total traffic generation (per day)

	Peak Construction (2020)		Peak Operations (2024)	
	Light Vehicles	Heavy Vehicles	Light Vehicles	Heavy Vehicles
Approved Project	122	53	122	53
Modified Project	128	69	125	100
Total Increase	6	16	3	47

Access Routes

The site is accessed via a number of preferred and alternate routes from Forbes, West Wyalong and Condobolin (see **Figure 7**). The alternate routes are only used when local conditions require the closure of the preferred routes (e.g. flooding).

The existing access routes would not change. However, Evolution is proposing two new alternate routes for occasions when the preferred and alternate routes from Condobolin and/or Forbes are closed (see **Figure 7**). The alternate routes would be used infrequently, and typically for only a few days or weeks at a time.

Prior to the use of the proposed alternate routes, Evolution is proposing a number of road upgrades to ensure the safety, efficiency and capacity of these roads is maintained, including widening and sealing, line marking and signage. The Department has included a condition detailing the specific works and a requirement for Evolution to fund and undertake the works prior to construction of the modification.

Evolution is also proposing to realign a 3 km section of Lake Cowal Road around the north western side of the site boundary extension (see **Figure 7**). The realignment would add about 2 km to the travel distance of the road and would be designed and constructed in accordance with the *Austrroads Guide to Road Design* (Austrroads guidelines) and in consultation with Bland Shire Council. Access to privately-owned land on along Lake Cowal Road would not be impacted.

The RMS and Bland, Forbes and Lachlan Councils have raised no concerns about the additional alternate routes or the realignment of Lake Cowal Road.

Traffic Impacts

All vehicles accessing the site would use the approved transport routes, with the exception of a relatively small number of vehicles accessing the eastern side of Lake Cowal during construction of the pipeline. Approximately 25 deliveries of pipe and a proportion of construction employees would travel to the eastern side of Lake Cowal during the six-month construction period.

All project-related roads and key intersections are predicted to operate at a good Level of Service, with no significant safety impacts, subject to the implementation of road upgrades along the proposed alternate routes and appropriate traffic and transport management measures during construction of the road realignment and water pipeline.

Recommended Conditions

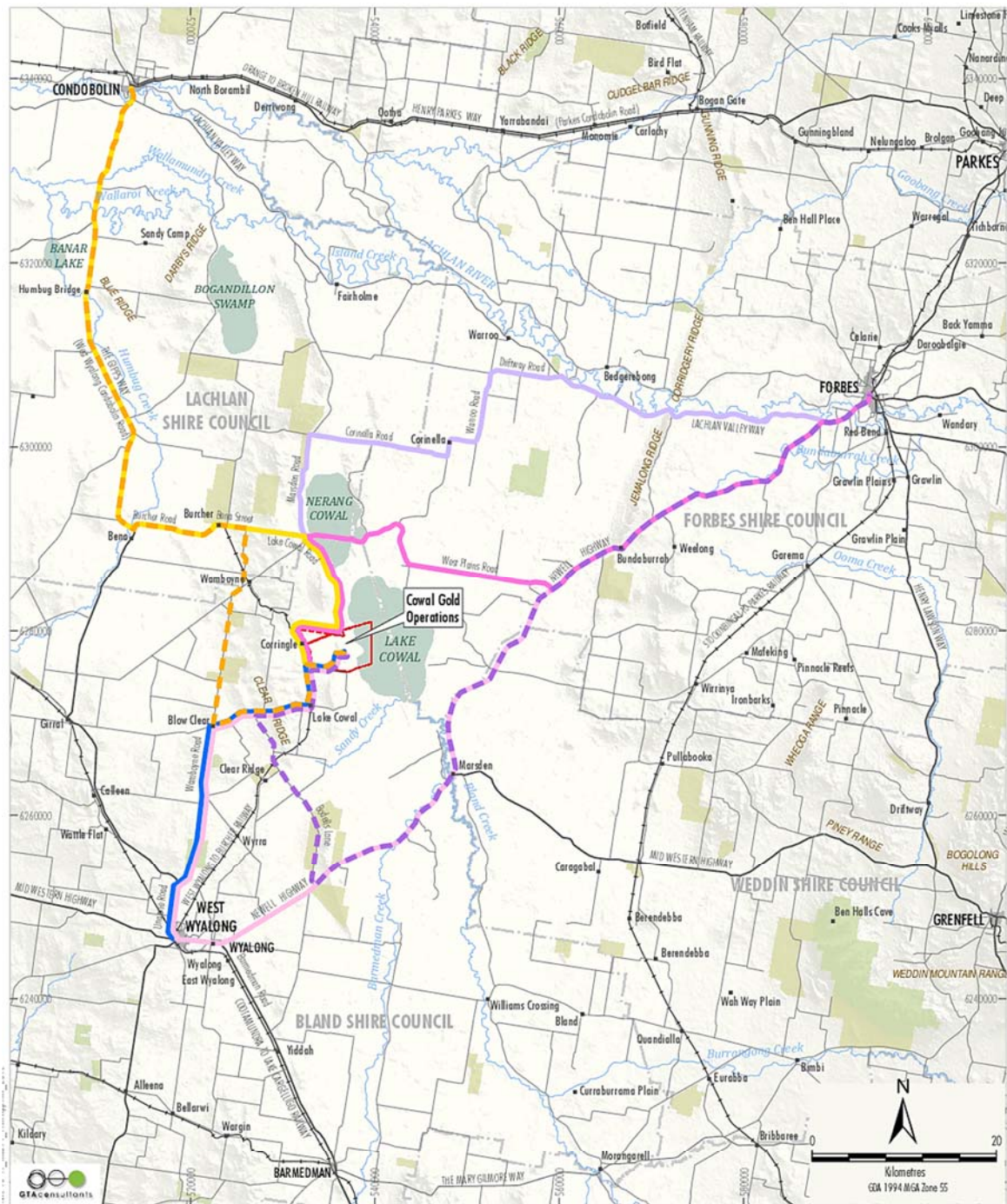
The Department has recommended a number of additional conditions to ensure that capacity, safety and efficiency of the road network would be maintained during construction and operation of the modified project. The recommended conditions require Evolution to:

- design and construct the Lake Cowal Road realignment in accordance with the Austroads guidelines and in consultation with Bland Shire Council;
- undertake (and fund) the relevant road upgrades prior to the use of the proposed alternate routes;
- prepare and implement a Transport Management Plan, including:
 - o details of the project related transport routes, including roads to be used during construction the pipeline duplication;
 - o protocols for undertaking dilapidation surveys and road repairs associated with construction of modification 14;
 - o detailed plans and implementation schedules for the required road upgrades;
 - o detailed plan for the construction of the pipeline duplication (as it relates to the local road network);
 - o measures to manage the movement of trucks during construction of the modification and during gravel campaigns; and
 - o a drivers code of conduct that addresses driver fatigue.

Additionally, Evolution would continue to contribute to the maintenance and repair of local roads in the Bland, Forbes and Lachlan council areas in accordance with the Cowal Gold Mine Memorandum of Understanding on Road Maintenance.

The Department has also recommended conditions requiring Evolution to prepare and implement a Hazardous Materials Management Plan that addresses the transport of hazardous goods on local roads, as discussed further in **Section 6.5**.

Subject to the recommended conditions, the Department, RMS, and Bland, Forbes and Lachlan Councils consider that the project would not result in significant traffic and transport impacts.



- LEGEND**
- Mining Lease Boundary (ML 1535)
 - Mining Lease Application (MLA 1)
 - National Park & Nature Reserve
 - State Forest
 - Local Government Area Boundary
 - Railway
 - Existing Mine Access Route (West Wyalong)
 - Existing Preferred Mine Access Route (Condobolin)
 - Existing Preferred Mine Access Route (Forbes)
 - Existing Mine Access Route (Forbes - Sealed Network)
 - Existing Temporary Mine Access Route (Forbes - High Water Level 1)
 - Proposed Mine Access Route (Condobolin - Sealed Network)
 - Proposed Temporary Mine Access Route (Forbes - High Water Level 2)

Source: Geoscience Australia (2006); NSW Department Planning and Environment (2017); Office of Environment and Heritage NSW (2017)



CGO PROCESSING RATE MODIFICATION
Cowl Gold Operations Location and Regional Road Networks

Figure 7: Approved and proposed mine access routes

6.4 Noise

Operational Noise

Under the existing consent, five properties are entitled to mitigation upon request as noise from the mine is expected to exceed the project specific noise level (PSNL) of 35 decibels (dBA) by up to 3 to 5 dBA. An additional two properties are entitled to acquisition upon request due to noise exceedances greater than 40 dBA. Noise from the mine at all other receivers must not exceed 35 dBA.

Under worst case conditions (expected to occur infrequently), modelling predicts that noise from the mine would generally decrease as a result of the proposal, largely due to the reduced height of the IWL (see **Table 5**). All properties currently entitled to mitigation upon request would experience decreased noise impacts such that three of these properties (Bramboyne, The Glen and Laurel Park) would comply or be less than 2 dBA over the PSNLs. The Department notes that noise mitigation has already been installed at these three receivers.

The two properties currently entitled to acquisition upon request (Westella and Westlea) would continue to experience noise greater than 40 dBA and would retain the right to be acquired. At the request of the landowner, a valuation of the Westlea property has recently commenced. Westella is currently tenanted and no noise concerns were expressed during recent consultation (March 2018).

No exceedance of the sleep disturbance criteria is predicted and predicted road traffic noise at all assessed locations for all periods were found to comply with the Road Noise Policy criteria.

Table 5: Modelled noise impacts

Receiver	Day/Evening/Night $L_{eq, 15 min}$		
	Criteria	Predictive Modelling	Relative Change
38 – Gumbelah ¹	35	34	-1
22b – Lakeview II		35	-2
49b – Foxam Downs II	37	36	-1
22a – Lakeview			
90b – Caloola II ²		-	-
20 – Bramboyne ³	38	35	-3
36a – The Glen ³		37	-1
22c – Lakeview III	39	38	
15 – Laurel Park ^{1,3}		35	-4
42 – Westlea	43	46	+3
21 – Westella	44	44	0

¹ Existing noise agreement in place

² Unoccupied dwelling

³ Noise mitigation has been installed at the residence

Evolution considered a range of reasonable and feasible noise mitigation measures to minimise the potential noise impacts of the modification, including:

- restricting 'supplementary' IWL works (e.g. soil stripping activities, construction of water management and tailings infrastructure) during the daytime only;
- replacing the existing haul truck fleet;
- applying noise attenuation kits to the existing haul truck fleet; and
- constructing acoustic bunding and/or relocating noise sources on the waste rock emplacements.

Under the existing consent, daytime scheduling of TSF lift works is already required, and would continue under the proposed modification.

The only mitigation measure found to appreciably reduce noise levels in a reasonable and feasible manner was scheduling the supplementary IWL works during the daytime. This measure was incorporated in the noise modelling for the modification. All other options were found to be relatively ineffective, or the expected capital cost was considered unreasonable.

Evolution has consulted with the owners of surrounding properties in regard to their noise mitigation entitlements. The Department also notes that none of these landowners made a submission objecting to the proposal.

Both the EPA and the Department consider that Evolution has demonstrated and applied all reasonable and feasible noise mitigation measures.

Construction Noise

Noise emissions during construction would comply with the noise management levels in the *Interim Construction Noise Guideline* (ICNG) at all receivers except Goodwood and Westella. These exceedances would be short-term and would not exceed the highly affected noise level of 75dB(A) in the ICNG. The Goodwood property would be temporarily affected by noise during construction of the pipeline, which would be limited to daytime works only. As noted above, Westella already has acquisition rights that would be retained for the modification.

The Department considers that construction noise can be minimised by implementing the noise mitigating work practices detailed in Tables 5 to 8 of the ICNG. These include scheduling activities to minimise noise, using quieter equipment, informing potentially affected neighbours and establishing a complaint handling procedure. Evolution proposes to consult with all potentially impacted receivers.

Standard construction hours would be applied to all activities except for construction of the pipeline at the western side of Lake Cowal. The distance of these works from surrounding receivers would mitigate any potential noise emissions.

Recommended conditions

The Department has recommended conditions requiring Evolution to:

- comply with revised lower noise criteria;
- restrict the height of the TSFs, IWLs and the mineralised material stockpile;
- limit supplementary IWL works to daytime hours and apply standard ICNG construction hours (with the exception pipeline construction on the western side of Lake Cowal); and
- implement best practice noise mitigation measures consistent with the ICNG.

Consistent with the existing consent, Evolution is required to update its Noise Management Plan to account for the proposed modification. Subject to the recommended conditions, the Department and the EPA consider that the modification would not significantly increase the potential impacts on the amenity of surrounding receivers.

6.5 Other Issues

Table 1 | Summary of other issues raised

Issue	Consideration	Recommendation
Hazards	<ul style="list-style-type: none"> The increased ore processing rate would increase the annual cyanide consumption (and other reagents/process consumables) by approximately 25%. However, the cyanide consumption rate per tonne of primary/oxide ore would not change. The existing cyanide destruction methods, approved concentration limits in the tailings slurry, and handling and transport methods would not change. No new reagents or process consumables would be used. There would be no change to the overall outcomes of the existing Preliminary Hazard Analysis, Hazard and Operability Study or Final Hazard Analysis. The existing consent includes the requirement to prepare and implement a pre-operational Transport of Hazardous Materials Study. Evolution has completed this study and has requested that this condition be removed on that basis that all hazardous materials must be transported in accordance with the <i>Australian Dangerous Goods Code</i> (ADG Code) for the life of the project. In considering this request the Department notes that the project is now operational and there would be no material benefit of deleting this condition. Further, the Department considers that Evolution should be required to prepare and implement a Transport of Hazardous Materials Management Plan to confirm that it has applied the ADG Code and the Department's <i>Hazardous Industry Planning Advisory Paper No. 11 – Route Selection</i> to all local roads used to transport dangerous goods to/from the site, including the proposed alternate routes. Evolution is required to review all other relevant environmental management plans and monitoring programs with respect to hazards (including a Cyanide Management Plan), and if necessary, updated these plans to account for the modification. 	<ul style="list-style-type: none"> Prepare and implement a Transport of Hazardous Materials Management Plan.
Dust	<ul style="list-style-type: none"> Under a worst-case scenario, the modified project is expected to comply with the 24-hour PM10 and PM2.5 criteria, and annual average TSP, PM10, PM2.5 and deposited dust criteria, at all receivers. No additional dust monitoring is proposed as there would be minimal change to existing impacts with the modified project. The EPA raised no concerns in this regard, however, the EPA intends to review Evolution's existing monitoring program at the mine following determination of the modification to ensure that the current monitoring program is consistent with best practice. The Department notes that the existing consent requires Evolution to review (and if necessary revise) the Air Quality Management Plan to account for the proposed modification, including the existing air quality monitoring network, in consultation with the EPA. 	<ul style="list-style-type: none"> No additional conditions of consent are required. A change to the air quality criteria to ensure consistency with contemporary EPA criteria (including a reduction in the criterion for annual average PM10 from 30 to 25 µg/m³).
Greenhouse Gas (GHG)	<ul style="list-style-type: none"> The annual average Scope 1 and 2 emissions with the modification (0.29 million tonnes carbon dioxide equivalent [Mt CO₂-e]) would represent approximately 0.049% of Australia's commitment under the Kyoto Protocol (591.5 Mt CO₂-e) and a very small proportion of global GHG emissions. The existing consent requires Evolution to minimise project-related GHG emissions. Evolution is also required to assess and report GHG emissions under the Commonwealth's National Greenhouse and Energy Reporting System. 	<ul style="list-style-type: none"> No additional conditions.

Heritage

- The EA included a specialist Aboriginal Cultural Heritage Assessment for the additional disturbance areas, undertaken by Niche Environment and Heritage. The assessment was undertaken in accordance with applicable OEH guidelines and in consultation with 29 Registered Aboriginal Parties (RAPs).
- The assessment, including detailed survey with 14 of the RAPs, identified 65 Aboriginal archaeological sites ranging from high to low significance. No items of historic heritage significance were identified within the additional disturbance area.
- The modification would result in unavoidable direct impacts on 22 sites, including 16 sites of low significance, 4 sites of moderate significance and 2 sites of high significance. There would also be potential impacts on 5 sites of low significance.
- At the request of the RAPs and OEH, Evolution has committed to salvage the sites of moderate and high significance, collect all visible artefacts prior to any disturbance, and analyse and preserve items at the temporary keeping place already established for the project.
- OEH raised no concerns, subject to Evolution seeking updated or new Aboriginal Heritage Impact Permits (AHIP), updating its Indigenous Archaeology and Cultural Management Plan (IACMP) and developing a Chance Finds Protocol.
- The existing consent requires Evolution to review and revise its IACMP, and the Department has recommended an additional requirement for Evolution to develop a Chance Finds Protocol within the IACMP.
- The Department and OEH consider that the modified conditions and the requirement to obtain an AHIP would protect and manage Aboriginal Heritage items on the site.

- Prepare and implement a Chance Finds Protocol.
- Ensure no harm occurs to any Aboriginal objects within the site unless an AHIP has been issued by OEH.

Visual

- The use of land within the boundary extension area would be limited to soil stockpiles and would be consistent with the surrounding visual character of the mine.
- The modification would change the topography of the site by decreasing to the final height of the TSFs (even with construction of the IWL) and temporarily increasing the height of mineralised material stockpiles.
- The final height of the waste rock emplacements and the open pit would not change. There would be no additional night lighting impacts.
- The existing consent currently limits the height of key infrastructure, including the TSF, waste rock emplacements and stockpiles. The Department has revised these height limits to reflect the changes associated with the modification.
- The Department considers that proposed modification is unlikely to result in significant changes to the visual impacts of the project, and that the existing conditions, which include visual mitigation (if requested) for any landowners with views of the site, would continue to manage visual impacts on the surrounding locality.

- Limit the height of the IWL, TSFs and mineralised material stockpile.

Land and Agricultural Resources

- Land surrounding the site is primarily used for agriculture (livestock grazing and grain cropping). Evolution's existing offset areas are also located north and south of the mine.
- The proposed extension area would increase the mine site by 255 ha, and the four additional offsets would require 486.5 ha of land. Some land within these areas are periodically used for grazing.
- Portions of the existing water supply pipeline corridor are used for fishing when inundated and cropping and/or managed livestock grazing when dry. This land would be temporarily

- No additional conditions.

disturbed during construction of the pipeline. However, the existing use would be returned once the pipeline is buried.

- The additional surface disturbance is unlikely to result in any significant loss of agricultural capacity in the region or impacts on land resources, subject to the implementation of standard best practice soil management practices.
- The existing consent also includes the requirement for Evolution to prepare and implement a Land Management Plan in consultation with DPI Agriculture to ensure that impacts on land and agricultural resources are minimised. Evolution would be required to review (and if necessary) revise this plan to accommodate the modification.

Rehabilitation

- The long-term land use strategy would remain unchanged. The modification would be incorporated into this strategy.
- At lease relinquishment, it is proposed that land use within the site would include fenced rehabilitation areas with grazing excluded (i.e. elevated rehabilitated landforms such as rehabilitated waste rock emplacements and the IWL) and areas suitable for agricultural production including managed grazing (i.e. flat rehabilitation areas such as former infrastructure areas) and fishing of lake areas. Infrastructure that is not required for local use (i.e. bores, pipelines) would be decommissioned and removed
- Both the Department and Resources Regulator consider that the revised rehabilitation plan could retain the existing approved final landform design, land use and rehabilitation objectives.
- DoI L&W recommended that Evolution consider options for minimising runoff from clean areas into the void, and to ensure the final landform includes a stabilised surface water management system. The Department has added these requirements to the rehabilitation objectives within the existing consent.
- Evolution is required to update its Rehabilitation Management Plan and Rehabilitation Strategy to account for the proposed modification.

- Additional rehabilitation objective to manage surface water.

Socio-economic

- The modification would generate local and regional economic benefits through direct employment and wages (10 new operational jobs and 100 construction jobs) and expenditure on goods and services within the region.
- The modification has a capital investment value of around \$85 million and is expected to have net production benefits of \$62 million to Australia and \$27 million to NSW.
- There may be a small loss in economic activity due to the use of agricultural land for biodiversity offsets, however, the project benefits are considered to outweigh this loss.
- The Department considers that the modification would have a positive socio-economic impact on the locality and region.

- No additional conditions



7. Recommended Conditions

The Department has prepared a Notice of Modification (see **Appendix E**) and a consolidated version of the development consent (see **Appendix F**).

In summary, the key proposed amendments to the conditions include:

- increasing the annual processing rate from 7.5 to 9.8 Mtpa;
- permitting 150,000 tonnes of waste rock to be crushed for use as road base each year;
- limiting construction of the pipeline and road realignment to standard construction hours;
- additional biodiversity offsets and requirements relating to Aboriginal Heritage, water resources, hazards and transport, and revised noise criteria and noise acquisition and mitigation provisions;
- a table detailing the schedule of land and updated figures that reflect the revised project (i.e. the extended project boundary, additional transport routes and additional offset areas); and
- a number of administrative changes, including updated definitions and agency names.

Evolution and the relevant government agencies (including councils) have reviewed the recommended conditions.



8. Evaluation

The Department has assessed the development application, EA, submissions, RTS and additional information provided by Evolution in accordance with the requirements of the EP&A Act and the principles of ecologically sustainable development.

Based on this assessment, the Department considers that the key issues are associated with the increased vegetation clearing, water demand, groundwater seepage and the increase in project-related traffic on local roads.

Although the modification would increase water demand at the processing plant, it would not change the water supply sources and the approved extraction limits. The Department considers that any impacts to other groundwater users would continue to be avoided with the implementation of the existing Groundwater Contingency Strategy. Notwithstanding the Department has recommended additional conditions requiring Evolution to preferentially source water from internal supplies and to provide a compensatory water supply should anyone's water rights be directly impacted by the project.

The Department also considers Evolution should be required to revise its groundwater modelling as part of the ongoing review and revision of the site Water Management Plan, and if necessary, develop and implement contingency strategies to ensure that groundwater quality is not impacted beyond the extent of the final void.

Although the modification would require unavoidable clearing of 26 ha of native woodland and 261 ha of derived native grassland, the Department and OEH consider that the comprehensive offset package would compensate for these impacts.

While the modification would require 16 additional heavy vehicles a day during construction and up to 4 additional heavy vehicles a day during operations, the Department considers that the requirement for Evolution to prepare and implement a comprehensive Traffic Management Plan and undertake minor road upgrades would ensure that the safety, efficiency and capacity of the road network is maintained.

Based on its assessment, the Department considers that Evolution has designed the proposed modification in a manner that minimises the potential environmental impacts. To address the residual impacts of the modification, the Department has recommended a range of additional conditions, developed in conjunction with agencies and councils, to ensure these impacts are effectively minimised or offset.

Importantly, the modification would provide associated flow-on benefits to the local and regional communities through the generation of 100 short-term construction jobs and an additional 10 operational jobs, and increased spending in the region with a capital expenditure of \$85 million and net production benefits of \$62 million to Australia.

The Department received 18 public submissions supporting the modification and no individual objections. Both Bland and Lachlan Shire Councils are supportive of the mine, including the modification. Forbes Shire Council raised no objections to the modification and supported the development of an updated Traffic Management Plan for the project.

Consequently, the Department considers the proposed modification is in the public interest and should be approved, subject to conditions.

9. Recommendation

It is recommended that the Executive Director, Resource Assessments and Business Systems, as delegate of the Minister for Planning:

- **considers** the findings and recommendations of this report;
- **determines** that the application (DA 14/98 MOD 14) falls within the scope of section 75W of the EP&A Act;
- **accepts and adopts** all of the findings and recommendations in this report as the reasons for making the decision to grant approval to the application;
- **modifies** the consent for the Cowal Gold Mine (DA 14/98); and
- **signs** the attached approval of the modification (**Attachment E**).

Recommended by:

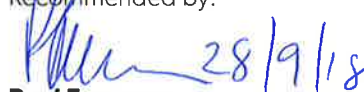
 28/9/18

Phillipa Duncan

Team Leader

Resource and Energy Assessments

Recommended by:

 28/9/18

Paul Freeman

Team Leader

Resource and Energy Assessments



10. Determination

The recommendation is: **Adopted by:**

Michael Young
Mike Young 4/10/18.

A/Executive Director

Resource Assessments and Business Systems



Appendices

Appendix A – List of Documents

Cowal Gold Operations Processing Rate Modification - Environmental Assessment, Evolution Mining, 2018.

Cowal Gold Mine Processing Rate Modification - Response to Submissions, Evolution Mining, 2018.

Cowal Gold Mine Processing Rate Modification - Addendum to the Biodiversity Assessment Report and Biodiversity Offset Strategy, Evolution Mining, 2018.

Appendix B – Environmental Assessment

See website at: http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=8946

Appendix C – Submissions

http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=8946

Appendix D – Response to Submissions

http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=8946

Appendix E – Notice of Modification

Appendix F – Consolidated Consent

Appendix G – Consideration of Commonwealth Matters

In accordance with the bilateral agreement between the Commonwealth and NSW Governments, the Department provides the following additional information required by the Commonwealth Minister, in deciding whether or not to approve a proposal under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

The Department's assessment has been prepared based on the assessment contained in the Cowal Gold Mine Modification 14 Environmental Assessment (EA), Response to Submissions (RTS) and additional information provided in the Addendum to the Biodiversity Assessment Report and Biodiversity Offset Strategy (dated July 2018), public submissions, and advice provided by the NSW Office of Environment and Heritage (OEH), other NSW government agencies and the Commonwealth Department of Environment and Energy (DoEE).

This Appendix is supplementary to, and should be read in conjunction with, the assessment included in Section 6.2 of this assessment report which includes the Department's consideration of impacts to listed threatened species and communities and avoidance, mitigation and offsetting measures for threatened species, including for Matters of National Environmental Significance (MNES).

G. 1 Impacts on EPBC Listed Species and Communities

As outlined in Section 6.2, the modification would likely have a significant impact on three threatened species or ecological communities listed under the EPBC Act, including:

- *Grey Box (Eucalyptus microcarpa) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia ecological community (Grey Box Woodland TEC) - Endangered;*
- *Weeping Myall Woodlands ecological community (Weeping Myall Woodlands TEC) - Endangered; and*
- potential habitat for the Superb Parrot (*Polytelis swainsonii*) - Vulnerable.

Further detailed consideration of these impacts, including proposed mitigation, management and offsetting requirements, is considered in more detail below. The OEH has confirmed that Evolution's assessment has been undertaken in accordance with the FBA (see Appendix C of the assessment report).

Evolution assessed the significance of the impacts on these species using the methodology outlined in the *Matters of National Environmental Significance Significant Impact Guidelines 1.1 (2013)* as documented in Attachment A of Appendix C of the EA.

G. 2 Requirements for Decisions about Threatened Species and Communities

In accordance with Section 139 of the EPBC Act, in deciding whether or not to approve, for the purposes of subsection of Section 18 or Section 18A of the EPBC Act, the taking of an action and what conditions to attach to such an approval, the Commonwealth Minister must not act inconsistently with Australia's international environmental obligations, Recovery Plans or Threat Abatement Plans. The Commonwealth Minister must also have regard to relevant approved conservation advices.

Australia's International Obligations

Australia's obligations under the *Convention on Biological Diversity* (Biodiversity Convention) include the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilisation of genetic resources, including by appropriate access to genetic resources and by appropriate transfer of relevant technologies, taking into account all rights over those resources and technologies, and by appropriate funding.

The recommendations of this assessment report are consistent with the Biodiversity Convention, which promotes environmental impact assessment (such as this process) to avoid and minimise adverse impacts on biological diversity. Accordingly, the recommended conditions require avoidance, mitigation and management measures for listed threatened species and communities, and all information related to the project is required to be publicly available to ensure equitable sharing of information and improved knowledge relating to biodiversity.

Australia's obligations under the *Convention on Conservation of Nature in the South Pacific* (Apia Convention) include encouraging the creation of protected areas which, together with existing protected

areas, would safeguard representative samples of the natural ecosystems occurring therein (with particular attention being given to endangered species), as well as superlative scenery, striking geological formations and regions. Additional obligations include using their best endeavours to protect such fauna and flora (with special attention being given to migratory species) so as to safeguard them from unwise exploitation and other threats that may lead to their extinction. The Apia Convention was suspended on 13 September 2006.

Approved Conservation Advice and National Recovery Plans

The approved conservation advice and national recovery plans relevant to this project are discussed below and are available at <http://www.environment.gov.au/cgi-bin/sprat/public/conservationadvice.pl>

Approved conservation advice under the EPBC Act for threatened species and communities that are likely to be impacted is available for the Grey Box Woodland TEC, the Weeping Myall Woodland TEC and the Superb Parrot.

Approved national recovery plans under the EPBC Act for threatened species that are likely to be significantly impacted is available for the Superb Parrot.

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

The EPBC Act referral stated that approximately 14.5 ha of Grey Box Woodland TEC listed under the EPBC Act would likely be impacted by the modification. However, updated surveys and mapping undertaken by Evolution confirmed that the project would clear 11.5 ha of Grey Box Woodland TEC.

The Department has considered the approved conservation advice under the EPBC Act in assessing the impacts of the modification on the Grey Box Woodland TEC and notes that the main threats include: clearance of vegetation; grazing; fragmentation; loss or decline of mature trees; lack of natural regeneration for understorey and canopy species; invasion by weeds, fertilisers and herbicides; salinity; and travelling stock reserves.

Evolution proposes the following key mitigation measures to address potential indirect impacts on Grey Box Woodland TEC, including:

- implementing weed control measures;
- collecting seed stock from species characteristic of the Grey Box Woodland TEC from areas to be cleared (where available) for use in the mine rehabilitation program;
- delineation of disturbance areas;
- implementing erosion and sediment control measures; and
- re-establishing vegetation including the use of species characteristic of the Grey Box Woodland TEC during rehabilitation of the mine.

The measures above are consistent with relevant conservation advice for Grey Box Woodland TEC listed under the EPBC Act as the measures aim to minimise impacts on adjacent Grey Box Woodland TEC through the management of potential adverse impacts from weeds, runoff and livestock.

The unavoidable impact on 11.5 ha of Grey Box Woodland TEC includes the clearance of 6.5 ha of semi-cleared woodland and 5 ha of derived native grassland. Evolution proposes like-for-like land-based offsets in accordance with the FBA (see Section 6.2 of Department's assessment report). The Biodiversity Offset Strategy and Biodiversity Stewardship Agreement would require detailed management actions and monitoring programs to improve the condition of the Grey Box Woodland TEC within the offset areas.

The Department considers that with the proposed site mitigation and offset measures, the action would not be inconsistent with the Conservation Advice for the Grey Box Woodland EEC.

The Department recommends that DoEE attach the conditions 3.4(b1), (b2) and (b3) set out in the recommended conditions (see **Appendix E**) to any approval under the EPBC Act.

Weeping Myall Woodland ecological community (Weeping Myall Woodland TEC) - Endangered

The Department has considered the approved conservation advice under the EPBC Act in assessing the impacts of the modification on the Weeping Myall Woodland TEC and notes that the main ongoing threats include: clearing; ongoing degradation; overgrazing; and weed invasion.

Evolution has located the magazine and explosives compound to avoid the clearance of Weeping Myall Woodland TEC within the mine site. The pipeline duplication was also positioned to minimise the need to clear Weeping Myall Woodland TEC within road easements (see Figures 5 and 6 of the Department's assessment report).

Evolution proposes the following key mitigation measures to address potential impacts on the Weeping Myall Woodland TEC, including:

- delineation of disturbance areas;
- erosion and sediment control measures;
- implementing weed control measures; and
- leaving vegetation to regenerate along the extent of the pipeline duplication (once the pipeline is buried), and if monthly visual inspections identify a risk on adjacent Weeping Myall TEC, corrective measures would be implemented (active revegetation or use of temporary sediment control structures).

The measures above are consistent with relevant conservation advice for the Weeping Myall Woodland TEC listed under the EPBC Act as the measures aim to minimise impacts on adjacent Weeping Myall Woodland TEC through the management of potential adverse impacts from weeds and runoff.

There would be an avoidable impact on 1.5 ha of poor condition Weeping Myall Woodland TEC (the original tree and shrub layer has largely been removed). Following burial of the pipeline, vegetation would be left to naturally regenerate in the long-term. Evolution proposes like-for-like offsets in accordance with the FBA (see Section 6.2 of the Department's assessment report).

The Department considers that with the proposed site mitigation and offset measures, the action would not be inconsistent with the Conservation Advice for the Weeping Myall Woodland TEC.

The Department recommends that DoEE attach conditions 3.4(b1), (b2) and (b3) set out in the recommended conditions (see **Appendix E**) to any approval under the EPBC Act.

Superb Parrot (*Polytelis swainsonii*) - Vulnerable

Lake Cowal is not located within a known breeding area for the Superb Parrot. However, site surveys identified an area 0.4 ha of River Red Gum Woodland along Lake Cowal that may provide potential breeding habitat for the Superb Parrot due to the presence of hollow bearing trees. In accordance with the FBA, potential foraging habitat for the Superb Parrot was also assumed to occur throughout the disturbance area (approximately 25.9 ha of woodland and 260.8 ha of derived grassland).

The Department has considered the approved conservation advice and national recovery plan under the EPBC Act for the Superb Parrot in assessing the impacts of the modification and notes that the main threats and causes for decline in Superb Parrot population include loss and degradation of habitat, competition for nest hollows, disease and climate change.

The national recovery plan includes a number of objectives, recommendations and actions relevant to the modification including maintaining and enhancing the value of Superb Parrot habitat and monitoring trends in Superb Parrot population size and dispersion.

The Department considers that the project would be unlikely to cause further decline of Superb Parrot population given that it would impact primarily on sub-optimal foraging habitat and a very small area of potential breeding habitat.

Further, the Department considers that with the proposed site mitigation measures detailed above for TECs, a vegetation clearance protocol and threatened species management protocol and offset measures (detailed in Section 6.2 of the Department assessment report), the project would not be inconsistent with the approved conservation advice and the objectives of the national recovery plan.

Key actions of the national recovery plan, including monitoring, would also be implemented as part of the Biodiversity Management Plan.

The Department recommends that DoEE attach the conditions 3.4(b1), (b2) and (b3) set out in the recommended conditions (see **Appendix E**) to any approval under the EPBC Act.

Threat Abatement Plans

The Species Profiles and Threats Database (DEE, 2018b) states that no Threat Abatement Plans are relevant to the Weeping Myall Woodlands TEC, other than the Cane Toad which is not relevant to the location of the Cowal Gold Mine.

The Species Profiles and Threats Database (DEE, 2018b) states also that no Threat Abatement Plans are relevant to the Grey Box Woodland TEC or Superb Parrot.

G. 3 Requirements for Decisions about World Heritage Properties

The Commonwealth determined that the project is not a controlled action for the controlling provision of World Heritage (Section 12 and Section 15A of the EPBC Act) and therefore further consideration is not required.

G. 4 Requirements for Decisions about National Heritage Places

The Commonwealth determined that the project is not a controlled action for the controlling provision of National Heritage (Section 15B and Section 15C of the EPBC Act) and therefore further consideration is not required.

G. 5 Additional EPBC Act Considerations

Table F1 contains the additional mandatory considerations, factors to be taken into account and factors to have regard to under the EPBC Act additional to those already discussed.

Table F1: Additional considerations for the Commonwealth Minister under the EPBC Act

EPBC Act section	Considerations	Conclusion
Mandatory considerations		
136(1)(b)	Social and economic matters are discussed in Table 6 of the assessment report.	The Department considers that the proposed modification would result in a range of benefits for the local and regional economy and is of public benefit, including the provision of 100 short term full time equivalent jobs during construction and 10 during operations. Any negative social impacts, particularly on the local community residing in the area, have been considered throughout the assessment of the modification, with mitigation measures proposed if necessary.
Factors to be taken into account		
3A, 136(2)(a), 391(2)	Principles of ecologically sustainable development (ESD), including the precautionary principle, have been taking into account, in particular: <ul style="list-style-type: none"> the long term and short term economic, environmental, social and equitable considerations that are relevant to this decision; conditions that restrict environmental impacts and impose monitoring and adaptive management, reduce any lack of certainty related to the potential impacts of the project; 	The Department considers that the modified project, if undertaken in accordance with the recommended conditions of consent, would be consistent with the principles of ESD.

EPBC Act section	Considerations	Conclusion
	<ul style="list-style-type: none"> • conditions requiring the modified project to be delivered and operated in a sustainable way to protect the environment for future generations and conserving the relevant matters of national environmental significance; • advice provided within this report reflects the importance of conserving biological diversity, ecological and cultural integrity in relation to all of the controlling provisions for the project; and • mitigation measures to be implemented which reflect improved valuation, pricing and incentive mechanisms are promoted by placing a financial cost on the proponent to mitigate the environmental impacts of the project. 	
136(2)(e)	Other information on the relevant impacts of the action.	The Department considers that all information relevant to the impacts of the project has been taken into account in its assessment.
Factors to have regard to		
176(5)	Bioregional plans	There is no approved bioregional plan related to the activity
Considerations on deciding on conditions		
134(4)	<p>Must consider:</p> <ul style="list-style-type: none"> • information provided by the person proposing to take the action or by the designated proponent of the action; and • the desirability of ensuring as far as practicable that the condition is a cost effective means for the Commonwealth and the person taking the action to achieve the object of the condition. 	<p>All project related documentation is available from the Department's website www.majorprojects.planning.nsw.gov.au</p> <p>The Department considers that the conditions at Appendix E are a cost effective means of achieving their purpose. The conditions are based on the material provided by the Applicant that was prepared in consultation with the Department, OEH, and other government agencies.</p>

G. 6 Conclusions on Controlling Provisions

For the reasons set out in Section 6.2 of the Department's assessment report and this Appendix, the Department considers that the impacts of the action would be acceptable, subject to the implementation of avoidance and mitigation measures described in the Applicant's EA, and the recommended conditions (i.e. conditions 3.4(b1), (b2) and (b3)) set out in the recommended conditions in **Appendix E**.

G. 7 Other Protected Matters

The Commonwealth DoEE determined that other matters under the EPBC Act are not controlling provisions with respect to the proposed action. These include listed World Heritage, National Heritage, migratory species, Ramsar wetlands, Commonwealth marine environment, Commonwealth land, Commonwealth action, nuclear action, Great Barrier Reef Marine Park, Commonwealth Heritage places overseas and a water resource, in relation to coal seam gas development and large coal mining development.