Cowal Gold Operations
Open Pit Continuation Project
Submissions Report

Prepared for Evolution Mining (Cowal) Pty Ltd
January 2024

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Cowal Gold Operations Open Pit Continuation Project

Submissions Report

Evolution Mining (Cowal) Pty Limited

J190417 RP52

January 2023

Final

Version	Date	Prepared by	Approved by	Comments
Final	25 January 2024	Janet Krick	Rob Morris	

Approved by

Rob Morris
Associate Director
25 January 2024

Ground floor 20 Chandos Street
St Leonards NSW 2065
PO Box 21
St Leonards NSW 1590

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Introduction

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1 Introduction

1.1 Background

Evolution Mining (Cowal) Pty Limited (Evolution) is the owner and operator of Cowal Gold Operations (CGO), an existing open pit and underground gold mine approximately 38 kilometres (km) north-east of West Wyalong, in the central west region of New South Wales (NSW). CGO is located on the traditional lands of the Wiradjuri people and is immediately adjacent to the western foreshore of Lake Cowal, which is an ephemeral waterbody. The existing CGO mine is shown at a regional scale in Figure 1.1 and at locale scale in Figure 1.2.

Evolution is seeking approval for further open pit mining operations at CGO through the Open Pit Continuation Project (the Project). The Project primarily seeks to continue the open pit operations by approximately 10 years to 2036 and extend the total mine life by approximately two years to 2042.

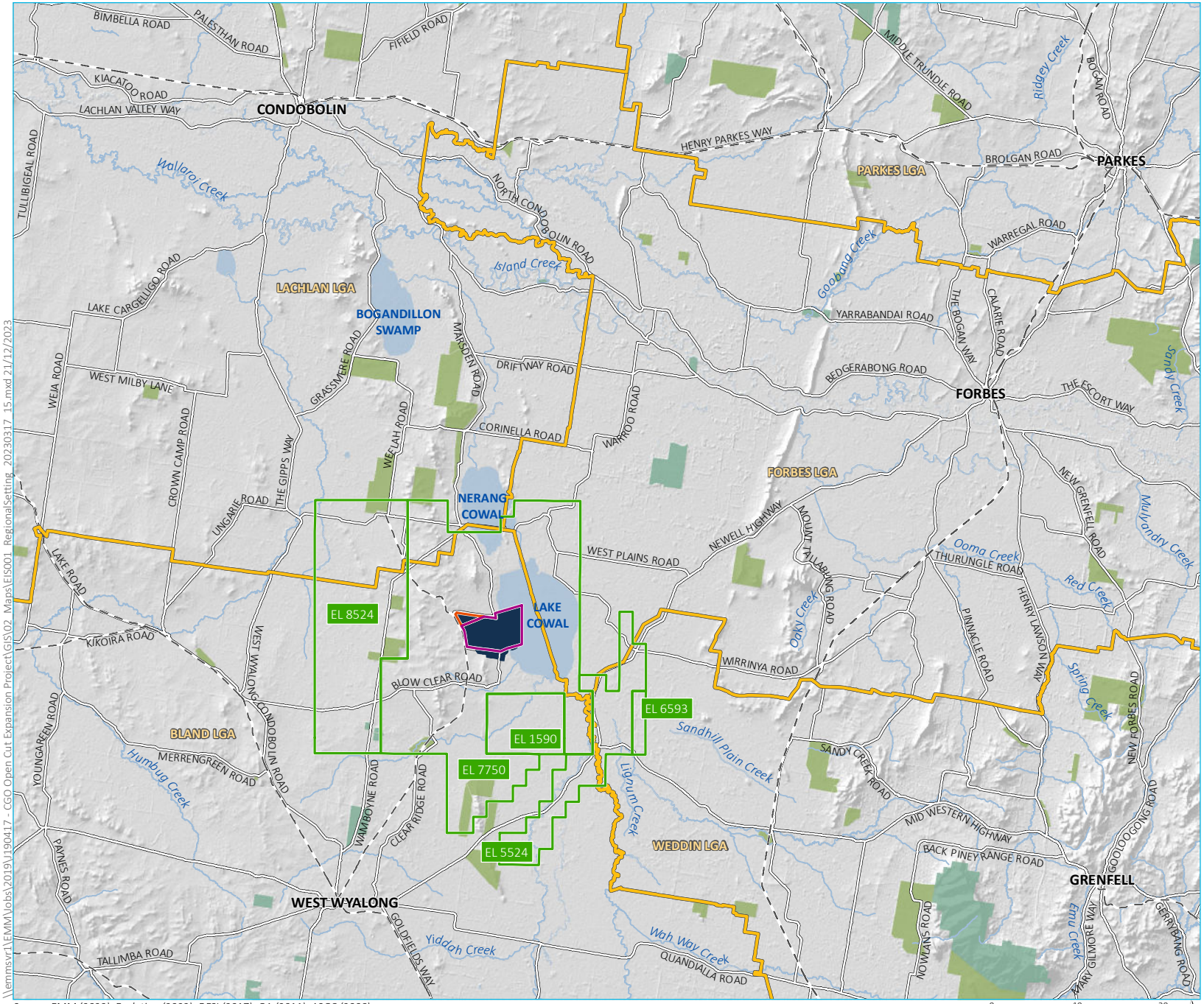
This will involve the further development of the existing E42 pit and the development of open pit mining in three new adjacent orebodies, known as 'E46', 'GR' and 'E41'. The three new and adjacent ore bodies are within the existing mining lease (ML 1535). No change to the approved ore processing rate of 9.8 million tonnes (Mt) per annum is proposed.

The Project comprises the following key components:

- The continued operation of activities as approved under DA14/98 and SSD 10367.
- Development of three new satellite open pits (the 'E46', 'GR' and 'E41' pits) to the north and south of the existing open pit, within ML 1535.
- Extending the existing E42 open pit to the east and south via a 'cutback' within ML 1535 (Stage I Cutback).
- Expansion of the IWL to accommodate life of mine tailings.
- Extension of the lake protection bund (LPB) system to provide continued separation and mutual protection between Lake Cowal and the mine.
- Backfilling of one of the new open satellite pits (E46) with waste rock and establishment of a new waste rock emplacement (WRE) on the backfilled pit to minimise the additional area required for waste rock disposal.
- Expansion of the existing WRE to accommodate additional waste rock.
- Development of additional topsoil and subsoil stockpiles to accommodate materials from pre-stripping the Project Area for reuse during mine rehabilitation.
- Upgrades to existing surface water drainage system, to assist with on-site water management and maximise on-site water conservation.
- Modification of internal site access and haul roads.
- Development of new water storages and relocation of some components of the surface water drainage system.
- Modification, relocation and new ancillary mining infrastructure.
- Secondary site access of Lake Cowal Road.

The Project will not change existing ore processing rates or methods, tailings disposal methods, main site access, water supply sources, water licence limits, or hours of operation. The Project will also retain the existing open pit mining workforce.

Australia is the second largest producer of gold in the world, and therefore plays an essential part in meeting the global demand for gold. The Department of Regional NSW's *Factsheet for Gold Opportunities in NSW* (2021) identifies the CGO as the second most significant gold resource in NSW and as such the Project will play an important contribution to Australian gold production and in meeting world gold demand.



KEY

- Project area
- Mining lease (ML1535)
- Mining lease (ML1791)
- Exploration licence (EL)
- Rail line
- Main road
- Named watercourse
- Named waterbody
- Local government area
- NPWS reserve
- State forest

Source: EMM (2023); Evolution (2023); DFSI (2017); GA (2011); ASGC (2006)

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Regional setting

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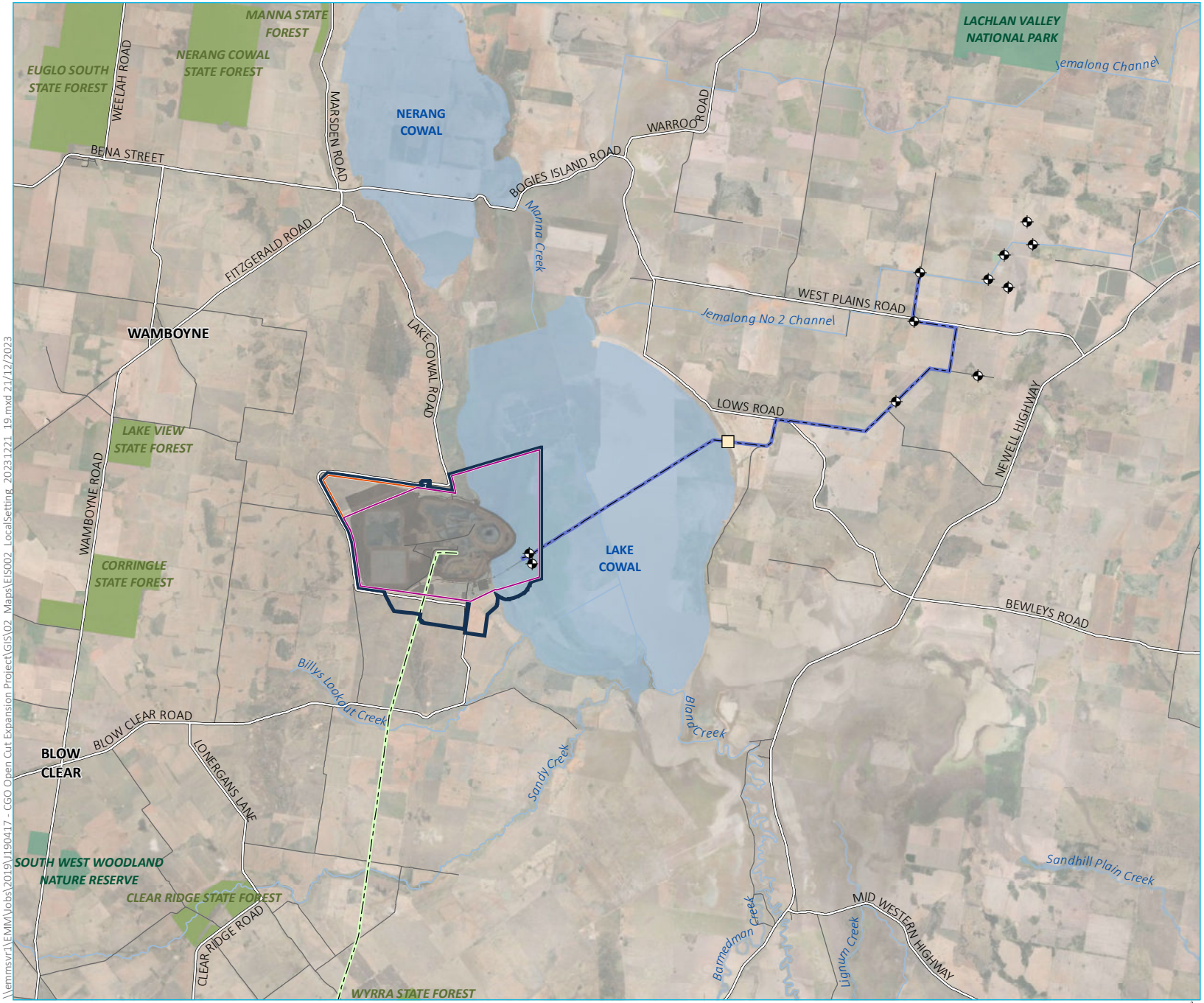

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Source: EMM (2023); Evolution (2023); DFSI (2017); ESRI (2023)

Local setting

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Figure 1.2

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1.2 Approval process

Two major planning approvals are required for the Project. The first is State significant development (SSD) consent under Part 4 of the *NSW Environmental Planning and Assessment Act 1979* (EP&A Act). The second is an approval under the *Commonwealth Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

An Environmental Impact Statement (EIS) was submitted to the NSW Department of Planning and Environment (DPE), now the NSW Department of Planning, Housing and Infrastructure (DPHI) in May 2022 and publicly exhibited from the 15 June 2023 to 12 July 2023.

A total of 120 submissions were received during the public exhibition period, including 101 submissions from the community (consisting entirely of unique submissions), eight from special interest groups, and 14 from government agencies. A detailed analysis of the submissions, including matters raised, is provided in Chapter 2.

1.3 Purpose of this report

The DPHI requested Evolution prepares and submits a Submissions Report, detailing responses to issues raised, in correspondence to Evolution dated 17 July 2023. Accordingly, this report has been prepared pursuant to clause 59(2) of the NSW Environmental Planning and Assessment Regulation 2021 and in accordance with the *State significant development guidelines – preparing a submissions report* (DPIE 2022). The purpose of this report is to consider and respond to submissions made by various government agencies, special interest groups and the community, in relation to the EIS for the Project.

This report also describes the additional activities undertaken relating to the Project since exhibition of the EIS, including a summary of project refinements, further technical studies undertaken, and stakeholder engagement activities that Evolution carried out since the exhibition of the EIS.

1.4 Document structure

The submissions report consists of the main document and supporting appendices and is structured as follows:

- **Chapter 1 – Introduction** (this chapter): Introduces the Project, including providing an overview of the Project, approval process, and the purpose and structure of this report.
- **Chapter 2 – Analysis of submissions**: Provides a detailed summary of the submissions received on the Project, including from where the submissions were received, and the key issues raised in submissions.
- **Chapter 3 – Actions taken since exhibition**: Describes the activities undertaken by Evolution since exhibition of the EIS, including project refinements, additional technical studies and stakeholder engagement activities undertaken. This chapter also outlines the proposed approach to the Project's post approval environmental management framework.
- **Chapter 4 – Response to Government agency submissions**: Provides responses to matters raised by government agencies in their submissions on the EIS and the accompanying technical studies undertaken for the Project.
- **Chapter 5 – Response to community and organisation submissions**: Provides responses to matters raised by community members and special interest groups on the EIS and the accompanying technical studies undertaken for the Project.
- **Chapter 6 – Updated evaluation of merits.**

- **Appendices:** The appendices to the Submissions Report which support the document are:
  - Appendix A – Submissions summary
  - Appendix B – Submissions register
  - Appendix C – Updated mitigation measures
  - Appendix D – Environmental risk assessment
  - Appendix E –Design and engineering drawings northern access road
  - Appendix F – Revised biodiversity development assessment report (BDAR)
  - Appendix G – Revised groundwater impact assessment
  - Appendix H – Groundwater dependent ecosystem assessment
  - Appendix I – Geotechnical stability of pit designs memorandum
  - Appendix J – Open pit closure design and erosion assessment
  - Appendix K – Addendum Aboriginal cultural heritage assessment
  - Appendix L – Surface water technical memorandum
  - Appendix M – Lake protection bund water balance modelling memorandum

CHAPTER 2
Analysis of submissions

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2 Analysis of submissions

2.1 Overview

The EIS was publicly exhibited from the 15 June 2023 to 12 July 2023. Following the public exhibition period, 123 submissions were received by DPHI. Of these, 101 submissions were from the community (consisting of unique submissions), eight from special interest groups, and 14 from government agencies.

Of the community submissions received, 98 submissions (i.e. 97%) were in support, two submissions were in objection and one submission provided comments. In addition, three special interest groups objected to the project and five provided comments.

The submissions received confirm the overwhelming local and regional support for the Project. This is consistent with the outcome of the EIS community and stakeholder engagement which overall found strong community support for CGO and the Project.

Submissions are available to view on the Major Project's website at the link below and a breakdown of the submissions is provided in Table 2.1.

https://www.planningportal.nsw.gov.au/major-projects/projects/cowal-gold-operations-open-pit-continuation-0

Table 2.1 Summary of submissions received

Source/type	Objects	Supports	Comment	Total
Government	-	-	14	14
Community	2	98	1	101
Special interest groups	3	-	5	8
Total	**5**	**98**	**20**	**123**

The following NSW Government agencies provided submissions:

1. Bland Shire Council
2. NSW Department of Climate Change, Energy, the Environment and Water, Water Group (NSW DCCEEW Water Group), formally DPE Water
3. NSW DCCEEW – Biodiversity Conservation Division (BCD)
4. NSW Resources Regulator
5. NSW Environmental Protection Authority (EPA)
6. NSW Mining Exploration and Geoscience (MEG)
7. DPHI Crown Lands, formally DPE Crown Lands
8. Heritage Council of NSW
9. Lachlan Shire Council
10. Forbes Shire Council
11. NSW Department of Primary Industries (DPI) Agriculture

12. NSW DPI Fisheries

13. NSW Rural Fire Service (RFS)

14. Transport for NSW (TfNSW).

Of the above agencies, the EPA, DPI Agriculture and TfNSW were satisfied with the information provided in the EIS and supporting technical assessments and did not raise any matters requiring a response in this Submissions report. Matters raised or requests for information from the remaining agencies are provided verbatim in Chapter 4.

The following special interest organisations provided submissions:

1. Lake Cowal Foundation

2. Lachlan Valley Water Inc

3. East Trigalana Water Users Group Inc

4. Inland Rivers Network (IRN)

5. Moora Moora Water Users Association

6. National Parks Association (NPA) and Nature Conservation Council (NCC)

7. Trigalana Water Users Group

8. West Plains Water Users Association incorporated.

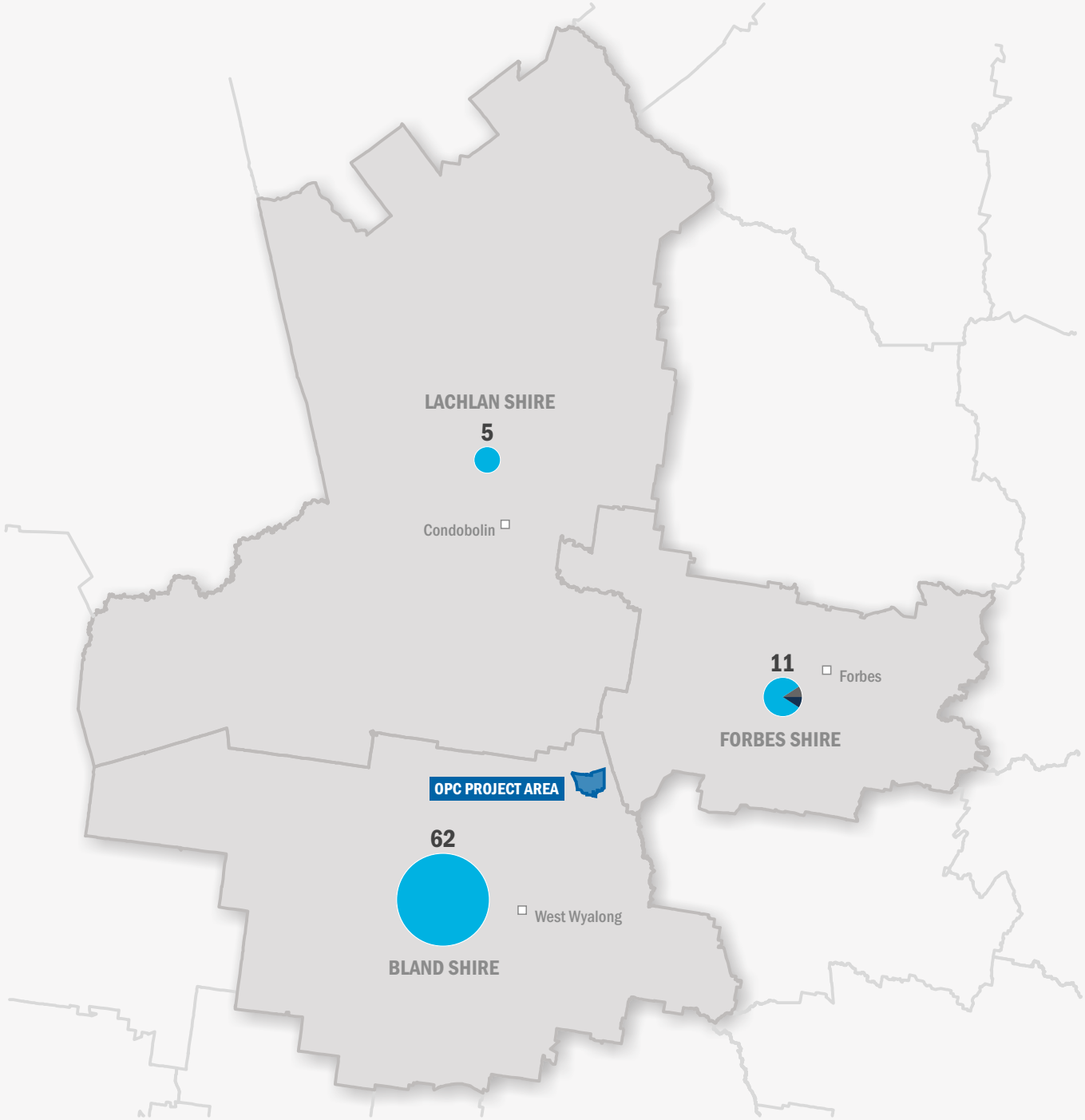
2.2 Origin of community and special interest submissions

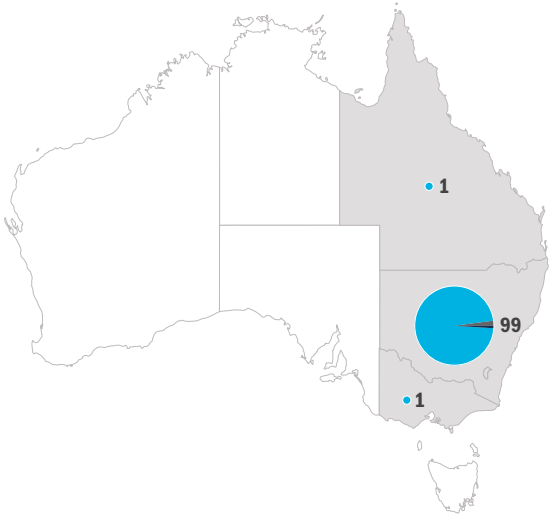
The source of community submissions received with a focus on the LGAs surrounding the Project are shown in Figure 2.1, while the source of combined community submissions and special interest group submissions received is shown on Figure 2.2. The figures show the number of submissions that supported, objected to, or provided comment on the Project. The number of submissions from elsewhere in NSW and other Australian states are also shown.

A large majority of the of the community and special interest submissions came from the local region (i.e. Bland Shire, Forbes Shire and Lachlan Shire local government areas (LGAs) with 83 (76%) submissions received. Sixty three submissions (58%) were received from the Bland Shire LGA where the CGO is located. A further 15 submissions (14%) were received from the Forbes LGA where the external water supply pipeline and Bland Creek Paleochannel Borefield for CGO are located (refer Figure 1.2).

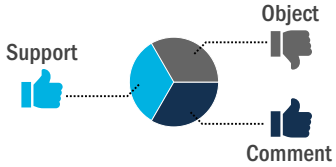
Approximately 97% of the community submissions (i.e. excluding special interest groups) were in support of the Project with the majority of this support coming from the Bland LGA where the Project is located (61%). All community submissions received from Bland LGA were in support of the Project and 82% (9) of the 11 community submissions received from Forbes LGA were in support of the Project. Of the remaining community submissions received, 2% objected and 1% provided comments.

As noted in Section 2.1, three special interest groups objected to the Project and five provided comments. All of the three special interest groups which objected to the Project were located outside of the local Region (two received from the City of Parramatta LGA and one from Cardinia Shire LGA). All of the special interest groups which provided comments on the EIS were from the local region (four from Forbes Shire and one from Bland Shire).





Submission type
(total number of submissions in LGA)



Submissions provided

Surrounding Local Government Area

Figure 2.1 Origin of community submissions

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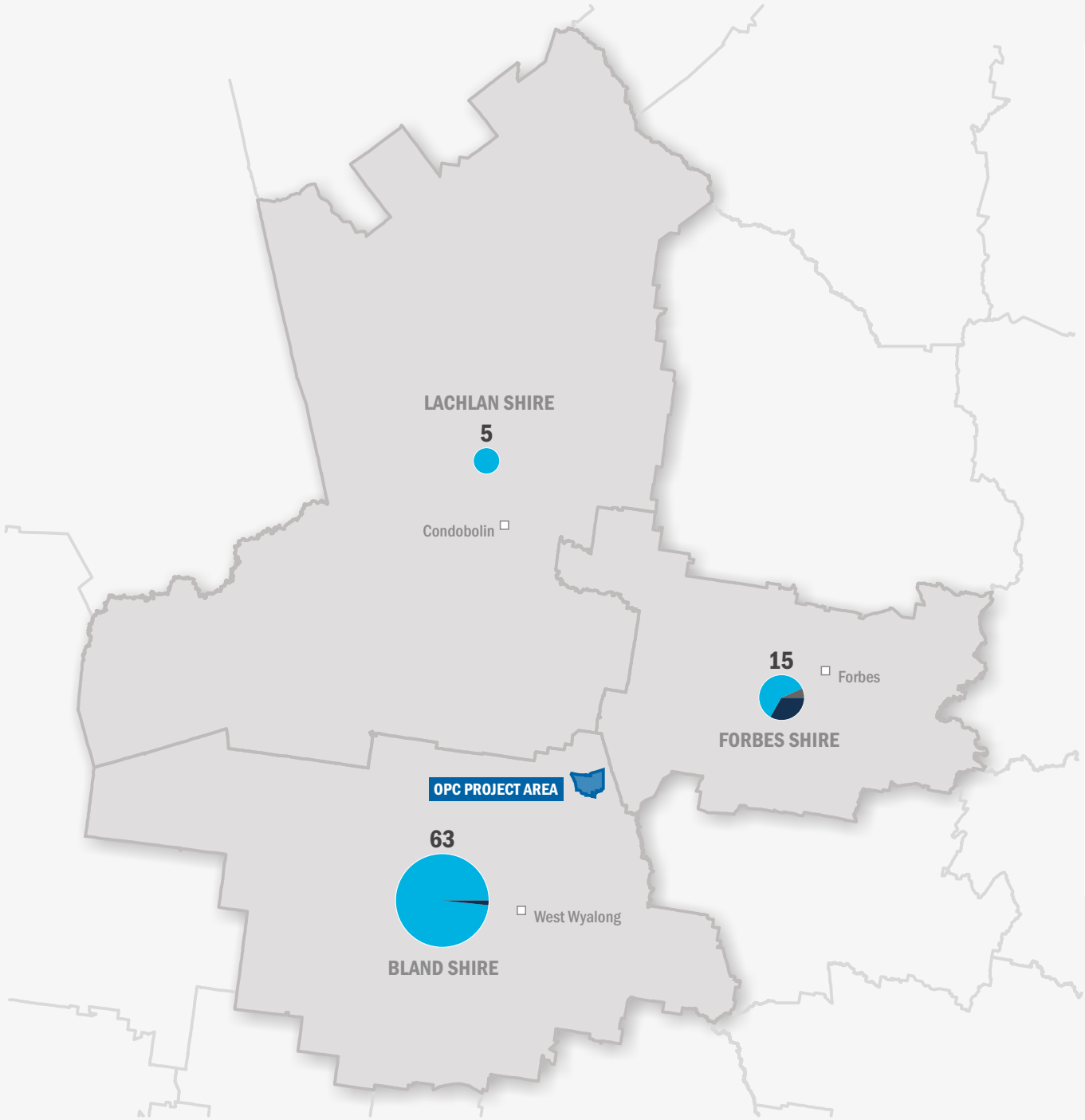

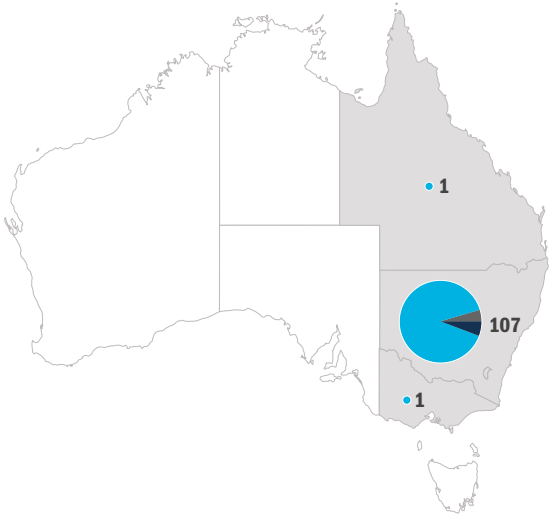

Submission type
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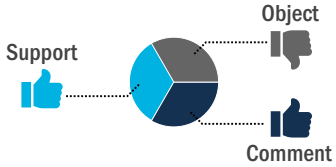

Submissions provided

Surrounding Local Government Area

Figure 2.2 Origin of special interest group and community submissions

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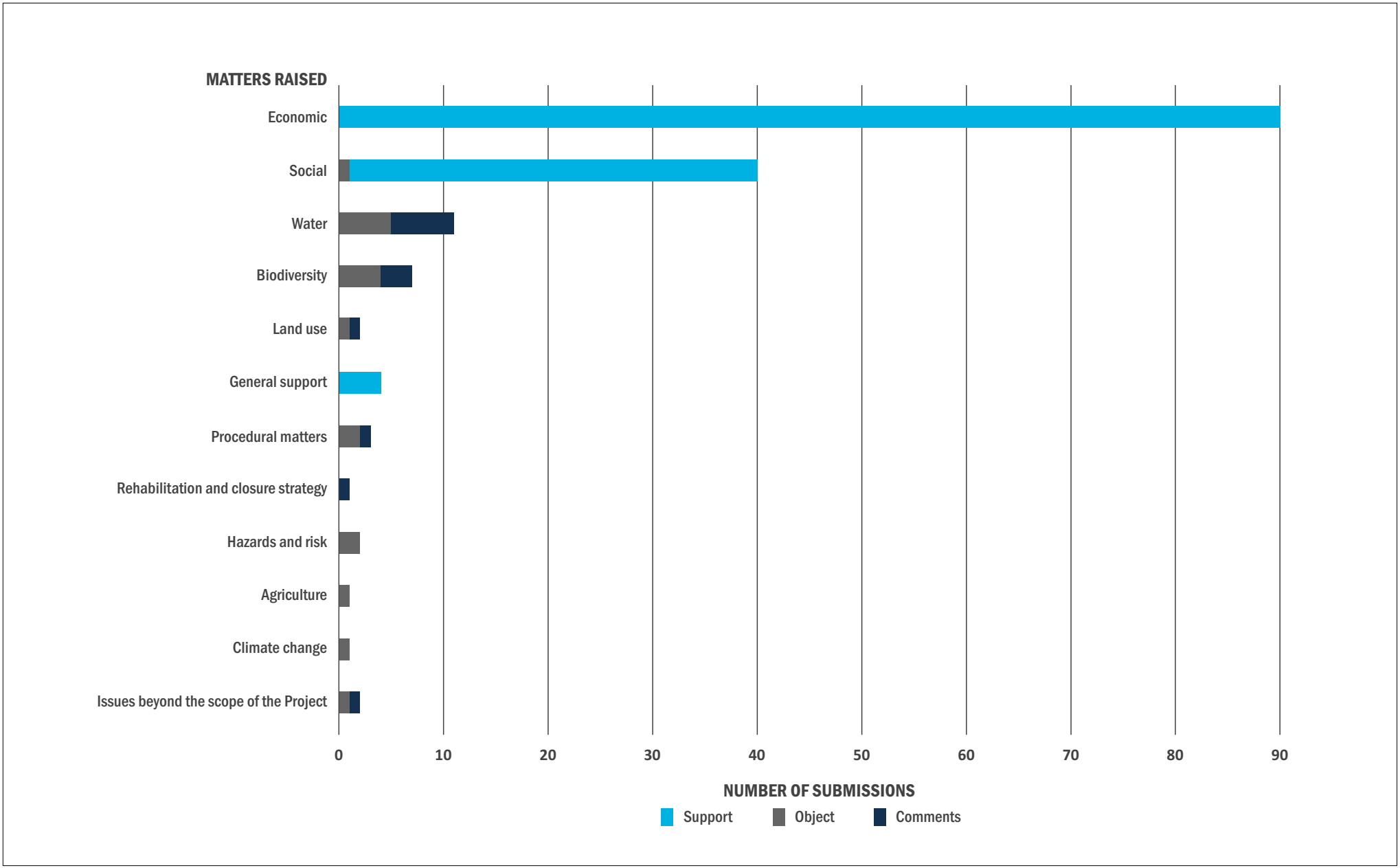
2.3 Summary of matters raised in community and special interest submissions

2.3.1 Overview

In accordance with the *State significant development guidelines – preparing a submissions report* (DPIE 2022), each matter raised in submissions has been assigned to one of the following categories:

- the Project (e.g. the site, the physical layout and design, uses and activities and timing)
- procedural matters (e.g. level of quality of engagement, compliance with SEARs, identification of statutory requirements)
- the environment, social or economic impacts of the Project (e.g. noise, air quality, biodiversity, heritage)
- the merits of the Project (e.g. justification for the Project, consistency with government plans, policies or guidelines)
- issues that are beyond the scope of the project or not relevant to the Project.

Each of these categories has been divided into sub-categories for the purpose of this Submissions Report, which generally align with the content of the EIS and technical assessments prepared as part of the EIS. The number of community and special interest groups submissions assigned to each sub-category are shown in Figure 2.3. A list of key themes raised within the community and special interest group submissions and the section of this report in which they are addressed is provided in Table 2.2.



Matters raised in community and special interest group submissions

Table 2.2 List of matters raised in community submissions

Guideline category (DPIE 2022)	Subcategory	Themes raised and Submission Report reference
Merits of the Project	Social	Community benefits of CGO (Section 2.3.2, Chapter 6)
	Economic	Local employment (Section 2.3.2, Chapter 6)
		Positive economic impact on surrounding businesses (Section 2.3.2, Chapter 6)
		Local and regional economic benefits (Section 2.3.2, Chapter 6)
	General support	CGO's positive work environment (Section 2.3.2)
		CGO's positive workplace (Section 2.3.2)
Environment, social or economic impacts of the Project	Water	Flooding (Section 5.2.2)
		Changes to lake hydrology (Section 5.2.2)
		Groundwater security and water licensing (Section 5.2.1)
		Impacts to third party bores (Section 5.2.1)
		External water supply (Section 5.2.1)
	Biodiversity	Impacts to Lake Cowal's wetlands and riparian ecosystems (Section 5.3.1)
		Biodiversity offsets (Section 5.3.2)
		Impacts to migratory birds (Section 5.3.3)
		Biodiversity related mitigation measures (Section 5.3.4)
		Feral animals (Section 5.3.4)
	Hazards and risk	Bushfire (Section 5.4)
		Surface water related climate change risks (Section 5.2.2vi)
	Rehabilitation	Post closure management (Section 5.6)
	Agriculture	Impacts of potential changes to lake hydrology on agriculture (Section 5.2.2v)
Procedural matters	Procedural matters	Consideration of the precautionary principle (Section 5.8.1)
		NSW Planning process (Section 5.8.3)
	Consultation	Adequacy of community engagement (Section 5.5)
Issues beyond the scope of the Project	Issues beyond the scope of the Project	Further CGO expansions beyond the scope of the Project (Section 5.8.4)
		Formal protection of Lake Cowal (Section 5.8.5)
The Project	Land use	CGO and the Project's incompatibility with the protection of biodiversity of the Lake Cowal ecosystem (Section 5.7)

2.3.2 Support

The community submissions received in support of the Project (98 submissions) predominately raised local employment and community benefits associated with the Project as reason for support. This is consistent with the outcome of the EIS community and stakeholder engagement which found strong community support for CGO and the Project. The submissions reflect the overall appreciation for the opportunities and benefits to the community provided by CGO in relation to employment, training, community donations and boosts to the local and regional economy.

Key themes raised in these submissions relate predominately to:

- local employment
- community benefits
- positive economic impact on surrounding businesses
- local and regional economic benefits
- general support
- CGO's positive work environment
- CGO's positive workplace health and safety culture.

2.3.3 Comments

One community submission and five special interest group submissions provided comments on the Project. Key themes raised in these submissions relate predominately to:

- potential impacts on groundwater uses including potential climate change impacts
- preference that CGO prioritises saline groundwater and external sources of surface water over groundwater sourced from the Bland Creek Paleochannel
- potential impacts on the hydrology of Lake Cowal due to the expanded LPB including potential impacts on surrounding land users (i.e. potential flooding impact and impacts on agricultural production)
- potential impacts on biodiversity within and surrounding Lake Cowal particularly potential impacts on waterbirds and waterbird breeding habitat during construction of the LPB.

2.3.4 Objections

Two community submissions and three special interest group submissions objected to the Project. As noted in Section 2.2, only one objection came from the local area (although this one local objection was in total signed by three adjacent landholders).

The key theme raised in the local objection related predominantly to the potential for the expanded LPB to increase flood levels within Lake Cowal. A detailed response to the themes raised in this submission is provided in Section 5.2.2.

The themes raised in the remaining objections related predominantly to:

- the potential impacts of the Project on the long-term maintenance of ecological health and biodiversity of the Lake Cowal ecosystem, particularly impacts on wetland and migratory birds which cannot be compensated by offsetting

- potential impacts on groundwater uses
- the potential for contamination of local and downstream environments and the potential for irreversible impacts to occur
- climate change impacts increasing the risk of local and downstream impacts
- perception of inadequate community consultation of communities downstream of Lake Cowal.

2.4 Response methodology and study team

Responses were prepared to each matter raised in submissions by Evolution and EMM, with input from the following technical specialists who prepared the relevant impact assessment for the EIS.

- ATC Williams who has responded to hydrological related matters raised in community and special interest group submissions in the surface water technical memorandum (refer Appendix L).
- EMM's groundwater assessment and modelling specialists who have revised the Groundwater impact assessment in response to requests for additional information from NSW DCCEEW and have responded to groundwater related matters raised in agency, community and special interest submissions (refer Appendix G and Sections 4.1 and 5.2.1).
- EMM's ecology specialist who have revised the BDAR in response to requests for additional information from BCD and Project refinements and have responded to biodiversity related matters raised in agency, community and special interest submissions (refer Appendix F and Sections 4.2 and 5.3).
- EMM's heritage specialists who have prepared an Addendum ACHA to respond to matters raised in Heritage NSW's submission (refer Appendix K and Section 4.4).
- EMM's noise, air quality and traffic specialists who have provided qualitative assessments of the proposed Project refinements (refer Section 3.1).

The study team was the same team that prepared the EIS with the addition of:

- 3D Environmental – engaged alongside EMM's groundwater specialists to carry out a groundwater dependent ecosystem assessment (refer Appendix H)
- SLR Consulting Australia Pty Ltd – engaged to carry out additional assessment of open pit closure design and erosion (refer Appendix J).
- Mining One – lead consultant undertaking the Project's Feasibility Studies and ongoing design, provided a memorandum summarising the geotechnical stability studies carried out to date to inform the open pit designs (refer Appendix I).
- EMM's water licensing team – engaged to carry out further water balance modelling of Lake Cowal with consideration of the Project's water licensing requirements (refer Section 4.1.1 and Appendix M).
- Heatherington – engaged to respond to matters raised in the DPHI Crown Lands submission (refer Section 4.5)

Responses to submissions from the government agencies are provided in Chapter 4 with each comment raised presented verbatim, with each respective comment followed directly with a response. Responses to matters raised in community and special interest groups submissions are provided on a theme basis in Chapter 5.

CHAPTER 3
Actions taken since exhibition

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3 Actions taken since exhibition

3.1 Project refinements

As described in the EIS, the Project design that was the subject of the development application was the result of an ongoing and responsive design process, which accounted for the results of technical studies and consultation with stakeholders. This process was undertaken to achieve a Project design that would enable the efficient extraction of the identified gold resource, minimise environmental impacts and ensure continued socio-economic benefits for the community.

Since lodgement of the EIS, the design process has continued as part of ongoing design optimisation and a number of minor Project refinements have been made to the Project. The proposed changes can be considered to be Project refinements in accordance with the *State significant development guidelines – preparing an Amendment Report* (DPIE 2021), as they are generally consistent with the Project description in the EIS. Further, the results of the impact assessments undertaken for the Project do not materially change as a result of the refinements.

Evolution proposes to make the following refinements to existing operations and/or the Project which are described in further detail in the sub sections below:

- flexibility to relocate underground primary crusher to the saddle that will be developed the GR and E42 pits
- disposal of waste paste from the underground mine within waste rock emplacements
- secondary site access from Lake Cowal Road to provide dedicated access for deliveries to the pastefill plant, construction access and other by-exception deliveries to the northern portion of the Project area
- flexibility to use identified Project soil stockpiles adjacent to expanded open pit mining areas for stockpiling of ore, oxide material and soil
- revised Project staging to allow greater flexibility in meeting biodiversity offsets and manage Project risks associated with lake protection bund (LPB) dewatering.

3.1.1 Underground ore primary crusher

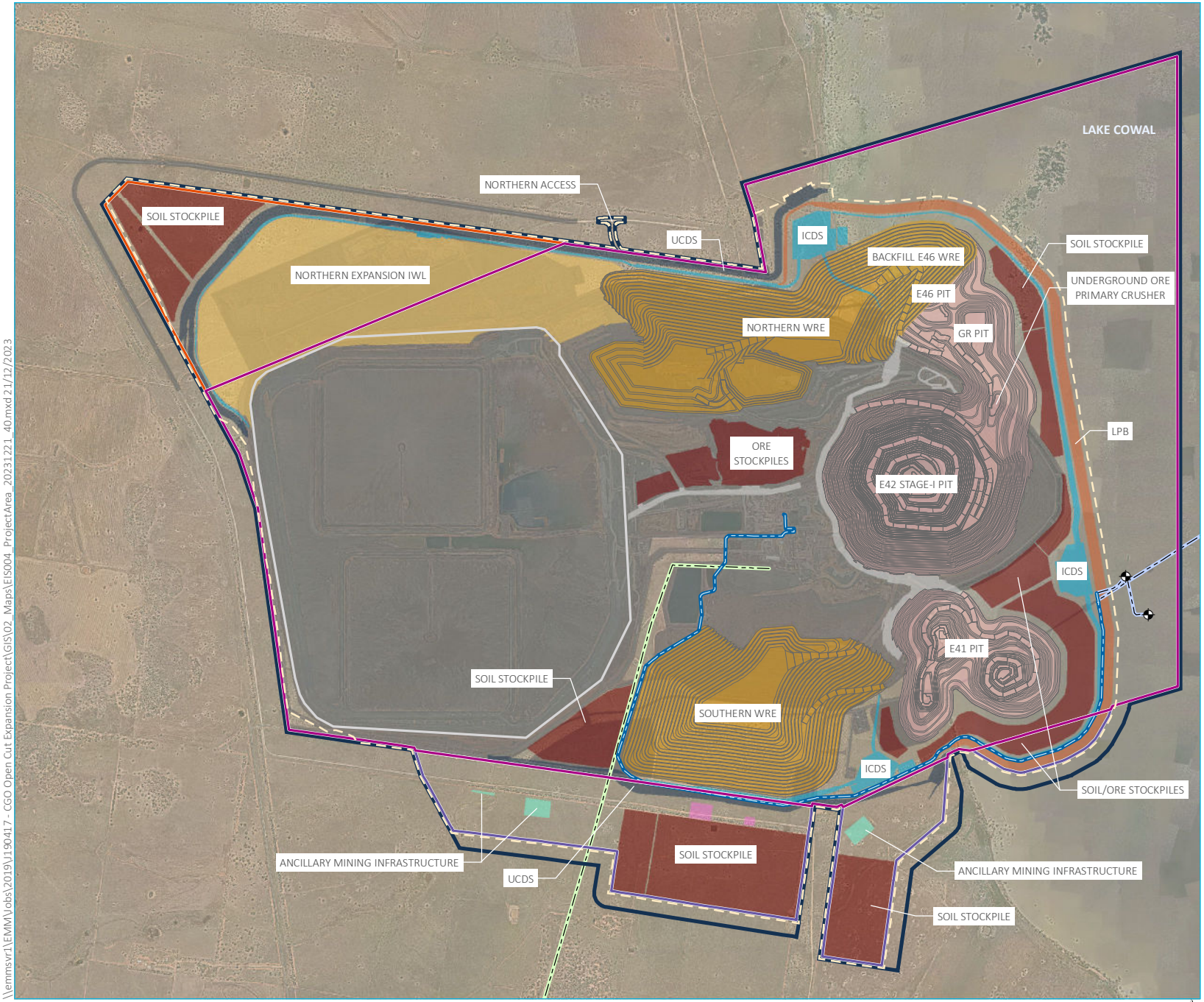
Modification 16 approved changes to the existing ore processing facility to allow continued processing of open pit ore as well as accommodating underground ore. Evolution also has approval to introduce a second ore-crushing circuit within the existing processing facility. This second crushing circuit is yet to be built but will be required as the underground production ramps up.

Through the feasibility study for the Project, Evolution has identified an opportunity to maintain separation between underground ore haulage and open pit haulage operations by seeking flexibility to establish a primary crusher for underground ore in the saddle that will be developed between the E42 and GR pits (refer Figure 3.1). This saddle will be developed in around Year 3-4 of the Project and would be approximately 90 metres below ground level (m bgl). The proposed refinement will not change the approved rate or methodology of ore processing.

This Project refinement would reduce haulage distances for UG ore by around 2.6 km and result in a range of benefits from a safety and mine management perspective of providing separation between the underground and open pit haul trucks.

For the air quality model developed for the EIS Air Quality and Greenhouse Gas Assessment (AQGHG Assessment) (refer Appendix P of the EIS), the EIS air quality assessment considered the ore throughput from both existing open pit and approved underground operations combined with the Project and assumed that the ore undergoes unloading, crushing, conveying, stockpile transfer, with an additional 10% of total feed undergoing recycle crusher and associated transfers. The model assumed that the emissions are all released at the primary ROM/processing plant. A review of the proposed underground ore crusher relocation by the air quality technical specialists who prepared the Project's AQGHG Assessment indicates if there are two locations for crushing, the same total emissions are distributed between two locations and will not significantly alter the model results. There would however be a small reduction in emissions due to a shorter haul distance for the underground ore to the proposed underground primary crushing location. As such, no further air quality modelling or assessment is required for this Project refinement.

A review of the proposed underground ore crusher relocation by the noise technical specialists who prepared the Project's Noise and Vibration Impact Assessment (NVIA) (refer Appendix O of the EIS) has been carried out. The noise model considered a range of plant and equipment within the processing area including a primary, secondary and mobile crusher (refer to Table 4.1 of the EIS NVIA refer Appendix O of the EIS). The Project refinement would not add any additional plant or trucks not modelled in the noise model and would potentially result in a reduction of predicted noise from the relocated underground primary crusher (due to it being located 90 m bgl) and reduction in haulage distance for underground ore. As such, no further noise modelling or assessment is required for this Project refinement.



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Source: EMM (2023); Evolution (2023); DFSI (2017); Nearmap (2023)

Revised project overview

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Figure 3.1

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3.1.2 Waste Paste disposal within waste rock emplacements

The underground mining process includes backfilling the stopes with paste made mostly from tailings. During the backfilling process a small amount of waste paste fill (waste paste) is generated as an unavoidable by-product.

To backfill the stopes that have been excavated:

- a safety bund and containment bulkhead is created a few metres out from the void that has been created from ore extraction
- the stope is then filled with the cemented pastefill material
- once the cemented pastefill material cures in that stope, the small bund and containment bulkhead is extracted to open up drilling of the next stope in sequence
- in extracting the small bund, the waste paste is produced.

While the Underground Development EIS and Mod 16 Modification Report described the paste fill plant and the process of backfilling underground stopes with paste, the assessment documentation did not explicitly address the generation and disposal of waste paste. The waste paste consists of a moist powdery substance that is 93 to 98% deslimed tailings by dry weight. As the waste paste can reasonably be regarded as tailings, for currently approved operations, the waste paste is being disposed of as tailings within the integrated waste landform (IWL).

Notwithstanding, Evolution is seeking the flexibility to also emplace the waste paste within the WREs for both safety reasons (preventing the underground mine fleet mixing with the open pit mine fleet) and to reduce haulage distances required to dispose of this material. The volumes of waste paste are very small compared to the volumes of waste rock produced in the underground operations and a fraction compared to the underground ore being extracted, which represents:

- an additional 3.56% of waste being extracted from the underground mine (approximately 204,000 t of waste paste to approximately 5.7 Mt of waste rock over the life of the Project)
- around 0.006% compared to the combined ore and waste rock being hauled from the underground
- a negligible amount of material in the context of the open pit waste rock generated across the CGO.

Geochemical characterisation of the paste fill material has been carried out by SRK (2023). EMM's geochemistry team has reviewed this characterisation in the context of disposing the waste paste within the WREs and found that the paste results fall within the ranges already observed on the site's WRE. The exception is pH (which is more alkaline), however given the small mass of paste that would be added to the WREs (compared to the WREs themselves), this is expected to have negligible impact on any drainage chemistry from the WREs, if the waste paste is managed using existing waste rock management strategies. An additional mitigation measure has been added to the updated mitigation measures table (refer Appendix C) to minimise the potential for dust generation from the waste paste by ensuring the waste paste is kept damp, prior to encapsulation within the waste rock emplacements and is not exposed for extended periods of time. Furthermore, waste paste would be placed on active waste emplacements away from the external batters to ensure no interaction with future rehabilitation activities and growth medium.

3.1.3 Northern site access

Evolution proposes to establish a new secondary site access and internal access road to the north of the proposed northern waste rock expansion. The proposed access will connect to Lake Cowal Road and tie into the existing internal road network to the underground paste fill plant (refer Figure 3.2 and design drawings in Appendix E).

Once constructed, the northern site access will be used by the construction workforce and for construction related heavy vehicle deliveries during the Project's northern construction phase (i.e. construction of the northern UCDS and northern stage of the LPB). This will minimise interactions between operational and construction traffic related movements, as well as providing separation between mining operations and construction activities.

The need for separation of construction and operational traffic and work areas was identified in the Project's Transport impact assessment (Appendix R of the EIS), which identified that construction related traffic would travel along the approved mine access routes and predominately access the site via the existing secondary access off the closed portion of Lake Cowal Road to the south of ML1535 (refer to Figure 3.1 of the Transport impact assessment). Since completion of the EIS, further consideration to the construction scheduling and construction execution strategy has been undertaken, particularly with regard to constructing the Project in stages. This process has identified the need for construction access in the northern Project area to provide access to the UCDS and LPB northern construction areas, while maintaining the separation between mining operations and construction activities. Revised construction access for the Project is shown on Figure 3.2.

As outlined in the Project's Transport impact assessment, there would be approximately 15 light vehicles and 17 heavy vehicle trips for a combined 32 vehicle trips per day during peak construction months. During construction of the northern UCDS and LPB, construction traffic will predominantly travel along the approved mine access route from West Wyalong and at the Bonehams Lane/Lake Cowal Road/Mine access road intersection will continue straight onto Lake Cowal Road and travel around the outside of the ML before accessing the site via the proposed northern access. This refinement of construction access will not materially change the Project's impact on the road network, road users or the local rural community. Existing traffic volumes on this portion of Lake Cowal Road are low (around 92 movements a day) and there are no intersections between the existing mine access and the northern site access with the exception of an unsealed lane (Corringle Lane). There are also no rural residences along the revised construction access between the mine access intersection and the proposed northern access.

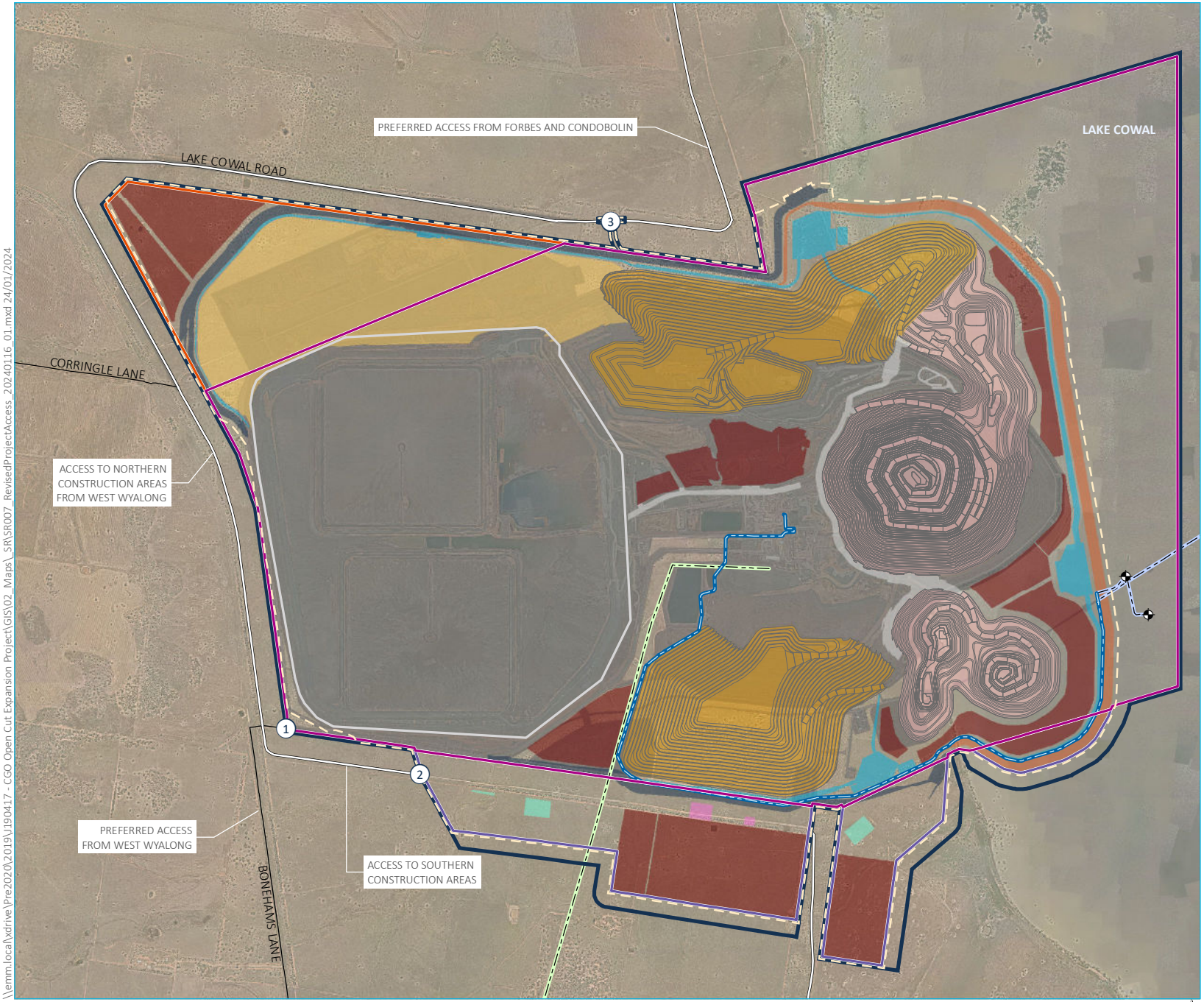
During operations the northern access would be limited to deliveries, predominantly for the paste fill plant, occasional heavy vehicle deliveries, emergency access and for the purpose of conducting approved activities such as environmental monitoring and maintenance. Paste fill plant deliveries involve around 2 loads per day (i.e. 2–4 traffic movements) using trucks and/or B-double vehicles. The potential impact of the heavy vehicle deliveries on the road network were assessed in the *Cowal Gold Operations Underground Development Project Traffic Impact Assessment* (EMM 2020). Currently deliveries to the paste fill plant and other heavy vehicle deliveries access CGO via the main site access or by exception, a secondary access to the south of ML1535.

The proposed northern secondary access, alongside the continued use of the southern secondary site access (refer Figure 3.2) will facilitate safe separation of the mine fleet from heavy vehicle deliveries during the mine life and improve heavy vehicle management and safety within CGO.

Under Section 138 of the *Roads Act 1993*, work cannot be carried out in, on or over a public road unless the appropriate roads authority has given consent and therefore a Section 138 approval will be required from Bland Shire Council as the relevant roads authority. Section 4.42 of the EP&A Act stipulates that an approval under Section 138 cannot be refused and is to be substantially consistent with the SSD development approval.

Evolution has consulted with Bland Shire Council and Local Land Services about this refinement and has provided Bland Shire Council with the design and engineering drawings. Council has confirmed its support for the northern site access.

The northern site access will slightly change the proposed additional disturbance area and the revised Biodiversity Development Assessment Report (BDAR) (refer Section 3.3.1 and Appendix F) has included this small change in disturbance area in the revised assessment. The proposed site access is within the EIS Study Area and was therefore considered in other relevant technical assessments. As such, apart from consideration in the revised BDAR, no further impact assessment is required.



KEY

- Project area
- Additional disturbance area
- Approved disturbance area
- Approved IWL footprint
- Mining lease (ML1535) (offset for clarity)
- Mining lease (ML1791) (offset for clarity)
- Mining lease application (MLA638) (offset for clarity)
- Saline groundwater supply bore
- Water supply pipeline
- Electricity transmission line
- Major road
- Minor road

Conceptual project infrastructure

- Open cut pit footprint
- Northern expansion IWL
- Waste rock emplacement (WRE)
- Lake protection bund (LPB)
- Stockpile
- Up catchment diversion system (UCDS)
- Internal catchment drainage system (ICDS)
- Ancillary mining infrastructure
- Magazine
- Road
- Water supply pipeline realignment

Site access locations

- (1) Main site access
- (2) Southern construction/secondary access
- (3) Northern construction/secondary access

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Source: EMM (2024); Evolution (2023); DFSI (2017); Nearmap (2023)

0 1 2 km

GDA 1994 MGA Zone 55

N

Revised project access

Evolution Mining
Cowal Gold Operations
Open Pit Continuation Project
Submission Report
Figure 3.2

EMM
creating opportunities

3.1.4 Stockpile flexibility

The EIS outlined that additional soil stockpiles will be developed as part of the Project and identified these in Figure 4.1 of the EIS. Evolution is seeking flexibility to stockpile low grade ore, oxide material as well as soil in the new stockpile areas identified between the new open pit mining areas and the expanded LPB, due to a potential area constraint in the existing ROM Pad area when the E41 pit is developed (refer Figure 3.1).

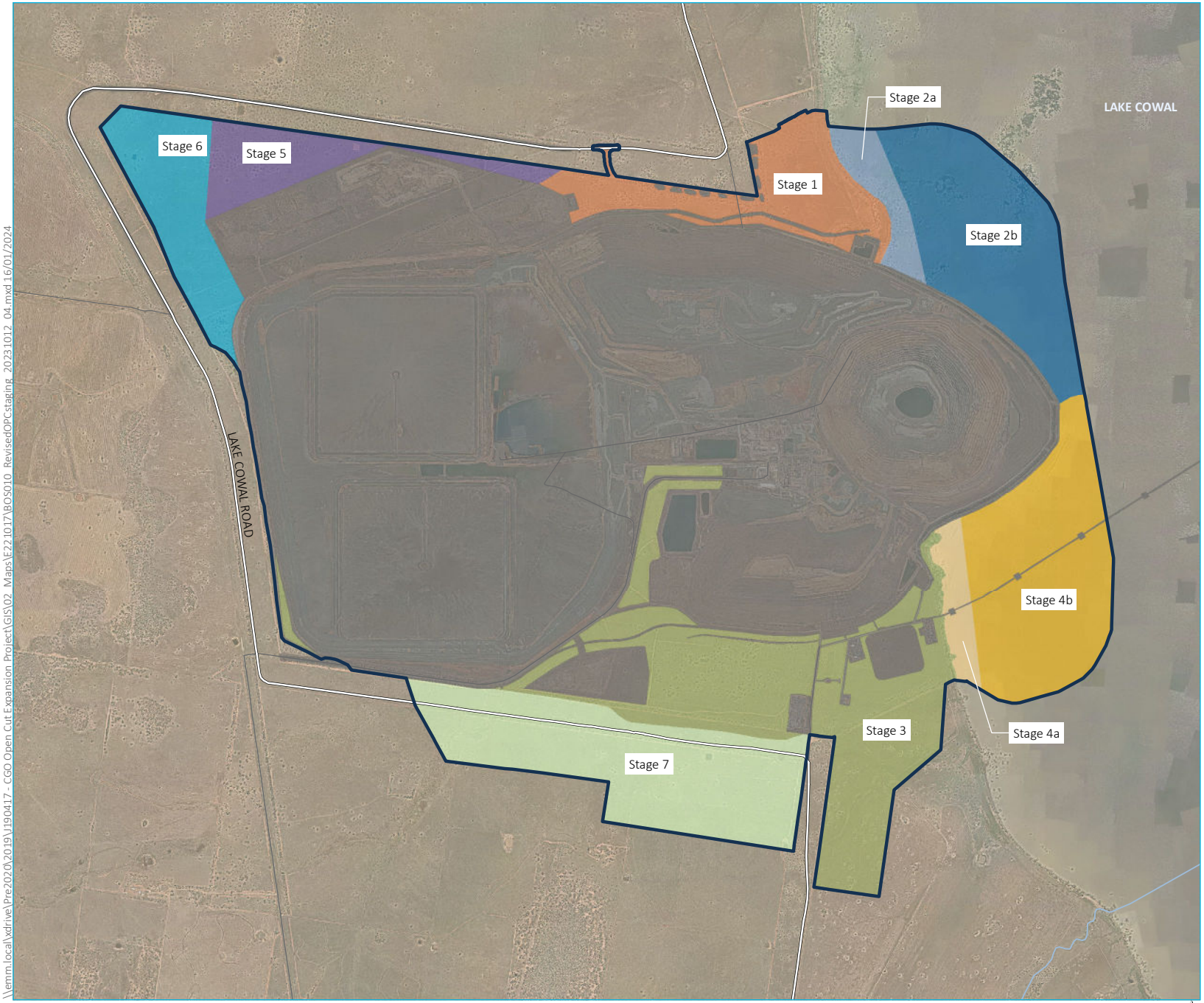
The stockpiles are the same or similar to material stockpiled elsewhere at CGO under existing approved operations and will be within the internal catchment drainage system. Run off from these stockpiles will be captured onsite within the internal catchment drainage system and as such no additional assessment of this Project refinement is required.

3.1.5 Revised staging

The EIS outlined that the Project will be developed in stages. The BDAR identified that the Project would be developed across five stages shown in Figure 1.3 of the BDAR (reproduced as Figure 3.3 below) and outlined the credit liability for each of these stages to enable Evolution to stage the Project's biodiversity offsets.

Evolution has refined the Project stages to allow greater flexibility in meeting biodiversity offsets and mitigate potential schedule risks associated with LPB dewatering. The revised staging is shown in Figure 3.3.

The revised BDAR has been prepared on the basis of the revised staging (refer Section 3.3.1 and Appendix F). Indicatively Stages 1, 2a and 2b would be carried out in the first year of the Project. Stages 3, 4a and 4b is expected to be carried out in the second or third year of the Project (however may potentially be delayed should wet conditions prevail in Lake Cowal). As noted in Section 4.3 of the EIS, staging/schedule of the Project may vary during the mine life to account for detailed mine design and scheduling, mine economics, geological or climatic conditions or relevant approval conditions.



KEY

- Additional disturbance area
- Existing and approved disturbance area
- Major road
- Minor road
- Named watercourse

OPC staging

- Stage 1
- Stage 2a
- Stage 2b
- Stage 3
- Stage 4a
- Stage 4b
- Stage 5
- Stage 6
- Stage 7

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Source: EMM (2023); Evolution (2023); Nearmap (2023); DFSI (2017)

0 1 2 km

GDA 1994 MGA Zone 55

N

Revised project staging

Evolution Mining
Cowal Gold Operations
Open Pit Continuation Project
Submission Report
Figure 3.3

EMM
creating opportunities

3.2 Stakeholder engagement

3.2.1 Introduction

Evolution actively engaged with the community throughout the design phase of the Project and during the preparation of the EIS. The purpose of this engagement was to obtain further feedback, and inform and update stakeholders about the Project. This engagement continued throughout the public exhibition period and remains ongoing. Evolution's stakeholder engagement has been comprehensive to date and reflects the importance Evolution places on this aspect of its business and the Project. This section describes the additional consultation that has taken place since the public exhibition of the EIS.

3.2.2 Community engagement

Evolution has actively sought to inform the local communities about the Project in a number of ways. Since the Public exhibition of the EIS, Evolution has issued a Project update (September 2023) and another Project update will be issued in late January/early February 2024 to coincide with the lodgement of the Submissions Report to DPHI. Consultation has also been carried out with the Project's Registered Aboriginal Parties (RAPs) throughout the response to submissions phase of the Project regarding the Addendum ACHA (refer Section 3.3.6 and Appendix K). Further, Evolution continues to use the CGO Community and Environment Management Consultative Committee (CEMCC) to facilitate opportunities for community participation in the Project as well as the existing CGO operations. It has allowed Evolution to develop productive working relationships with the local community. The CEMCC generally meets once a quarter and minutes from these meetings are published on the Evolution website. Meetings of the CEMCC have continued since the public exhibition of the EIS.

Evolution is also currently consulting with three nearby land holders regarding the potential of establishing biodiversity stewardship sites to meet a portion of the Project's biodiversity offset credit liability and an options agreement has been signed with one of these landowners.

The Project webpage has been maintained and updated as required during the response to submissions phase and all newsletters and community information released to date is available to the general public at: https://emm.mysocialpinpoint.com/cgo_opc

3.2.3 Government agency consultation

Consultation with government agencies has also been ongoing since the public exhibition of the EIS. Key agency consultation is summarised in Table 3.1.

Table 3.1 Summary of government agency consultation

Stakeholder	Consultation method	Key matters discussed
DPHI	Ongoing consultation through teams meetings and DPHI CGO site visit	• CGO site visit • Project refinements • Project execution risks including LPB dewatering • DPE Water (now DCCEEW Water Group)'s submission on the EIS (including combined meeting with DCCEEW Water Group) • DPHI Independent Peer review of Groundwater Impact Assessment • Potential to secure Remnant Vegetation Enhancement Program Areas in perpetuity via Project biodiversity offset sites • BCD submission on the EIS including approach to offsetting Project's impact on Compensatory wetland (including combined meetings with BCD)

Table 3.1 Summary of government agency consultation

Stakeholder	Consultation method	Key matters discussed
		• Meeting to discuss Heritage NSW submission and additional heritage assessment • Meetings to discuss Project's post approval environmental management framework
NSW Resources Regulator	Teams meeting during EIS Public Exhibition	Rehabilitation and securities panel presentation: • Project overview • Project design justification and consideration of alternatives • Rehabilitation objectives • Final landform and landuse domains • Progressive rehabilitation • Environmental risk management
BCD	Multiple teams meetings and correspondence	• BCD's submission on the EIS • Approach to offsetting Project's impact on Compensatory Wetland areas • Revised species expert report for Austral Pillwort • Separate BAM calculator cases for Project stages
NSW Credit Supply Taskforce	Teams meetings and correspondence	• Potential to secure Remnant Vegetation Enhancement Program Areas in perpetuity via Project biodiversity offset sites • Proposed Biodiversity Stewardship sites for Stages 1 and 2 of the Project
NSW DCCEEW Water Group (formally DPE Water)	Teams meeting	• LPB dewatering • NSW DCCEEW Water Group's matters raised relating to Project's GIA and Groundwater model
MEG	Teams meeting	• Project refinements • Project execution risks including LPB dewatering
Bland Shire Council	Ongoing consultation through face-to-face and teams meetings	• Project updates • Consultation regarding the proposed northern secondary access • Evolution's responses to matters raised in Bland Shire Council's submission • Discussions regarding the terms of the Voluntary Planning Agreement
Lachlan Shire Council	Teams meeting with CGO General Manager	• Project update (Community Newsletter) • Evolution's responses to matters raised in Lachlan Shire Council's submission (Briefly discussed – Follow up meeting scheduled for February 2024) • Project discussed during liaison with Council regarding Evolution's financial support for the Utes in the Paddock initiative
Forbes Shire Council	Teams meeting with CGO General Manager	• Project update (Community Newsletter) • Evolution's responses to matters raised in Lachlan Shire Council's submission (meeting scheduled for February 2024)
Local Land Services	Teams meeting and email correspondence	• Northern access design drawings emailed to LLS along with notification letter • LLS attended site and inspected the proposed northern access road • LLS confirmed no objection to the proposed northern access road

Table 3.1 Summary of government agency consultation

Stakeholder	Consultation method	Key matters discussed
DPHI Crown lands	Email correspondence	• Consultation regarding acquisition of Lot 100 DP 1059150 • Consultation regarding the proposed northern secondary access • DPHI Crown Lands advised LLS responsible agency regarding feedback on northern access design and noted no objection from Crown Lands

3.3 Further technical assessments and investigation

Additional technical investigations were commissioned by Evolution in response to submissions received on the Project after the public exhibition of the EIS, and/or to assess the Project refinements (where further assessment required as outlined in Section 3.1). These studies are summarised below and appended to this Submissions Report.

3.3.1 Revised Biodiversity Development Assessment Report

The Biodiversity Development Assessment Report (BDAR) has been revised during the Response to Submissions Phase of the Project to account for the minor changes to the additional disturbance area arising from the proposed northern site access and the Project's revised staging (refer Sections 3.1.3 and 3.1.5 above). The revised BDAR is included as Appendix F of this Submissions Report. The BDAR has also been revised to address matters raised in BCD's submission on the EIS including a revision of the Species Expert Report for the Austral Pillwort by approved Species Expert Dr Colin Bower (refer Appendix K of the revised BDAR). A summary of responses to the BCD submission is contained in Section 4.2 of this Submissions Report.

The revised BDAR found the Project will require 20,049 ecosystem credits to compensate for impacts on native plant community types (PCT)s and ecosystem credit species. In addition to ecosystem credits, the Project also requires 43 species credits for the Austral Pillwort.

The revised BDAR has also considered impacts to areas currently managed through the Compensatory Wetland Management Plan, a conservation mechanism that extends only until the period of the development consent. An in principle agreement has been made with BCD to allow this impact to be compensated through a 1:1 area ratio (i.e. equal area to be impacted will be offset) approach to provide in perpetuity offsets to account for impacts to areas currently managed through the Compensatory Wetland Management Plan, which are in addition to that required by the NSW Biodiversity Offset Scheme (BOS).

As outlined in Chapter 10 of the revised BDAR, Evolution will compensate for these residual impacts to biodiversity through the implementation of a biodiversity offset strategy. Evolution proposes to preferentially meet these offset requirements through establishment of Stewardship sites within Evolution's landholdings, securing land/or credits where agreement can be reached with local landholders that contain the biodiversity values which are appropriate to meet the credit requirements. Any residual credit liability would be met through NSW DCCEEW's biodiversity credit market or through use of the Biodiversity Conservation Fund (BCF) as a last resort. Evolution has commenced biodiversity stewardship site assessments within its landholdings and is progressing negotiations with local land holders regarding the establishment of stewardship sites on external land holdings. Evolution is also progressing discussions with the Credits Supply Taskforce.

3.3.2 Revised Groundwater Impact Assessment

The Groundwater Impact Assessment (GIA), inclusive of the Groundwater Modelling Report has been revised during the Response to Submissions Phase of the Project to address matters raised in the NSW DCCEEW Water Group (formally DPE Water) submission on the EIS and through the DPHI appointed Independent Peer Reviewer of the Groundwater Model. The revised GIA is included in Appendix G of this Submissions Report while direct responses to the matters raised in the NSW DCCEEW Water Group's submission are provided in Section 4.1.

The updates to the GIA and Groundwater Modelling Report do not materially change the groundwater model or materially change the predicted groundwater impacts of the Project. Rather the updates generally seek to provide additional information and clarity regarding the modelling methodology and assumptions within the GIA.

Updates to the GIA since the EIS Public Exhibition include:

- addition of Section 3.6.5i in the GIA that discusses groundwater level variability, particularly with regards to wet and dry conditions
- updating of the application of AIP productive categories to the Project
- addition of predicted cumulative groundwater level drawdown discussion and plots for the continuous Lachlan Fold Belt hard rock unit
- summary of the additional GDE studies undertaken post-submission of the EIS for Public Exhibition
- provision of additional details to several figures, as requested by NSW DCCEEW Water Group and the DPHI Independent Peer Reviewer.

3.3.3 Groundwater Dependent Ecosystem Assessment

Both the EIS BDAR and GIA identified potential Project impacts on Groundwater Dependent Ecosystems (GDEs). Further NSW DCCEEW Water Group and BCD both raised GDEs and potential Project impacts in their submissions on the EIS. Accordingly Evolution commissioned EMM and 3D Environmental to carry out a Groundwater Dependent Ecosystem Assessment (GDE Assessment) which is contained in Appendix H of this Submissions Report. The GDE Assessment has been completed through detailed field-based investigations and the creation of ecohydrological conceptualisations to identify characteristics of GDEs, in particular, River Red Gum trees. The study considered the potential reliance River Red Gums have on the presence of groundwater, that may be subject to impact caused by groundwater drawdown associated with the Project.

The Assessment found drawdown associated with the development of the Project (including cumulative drawdown) is expected to have no impact on River Red Gums due to the absence of casual pathways between the mine dewatering activities and the GDEs. This is because the Upper Cowal Formation is affected by mine dewatering, which the GDEs are not reliant upon. Any aquifer disruption, through excavation activities for example, have the potential to affect the shallow systems supporting the perched aquifer, however this is not considered a risk for the Project.

3.3.4 Pit Wall Geotechnical Assessment

The Resource Regulator raised topics for discussion relating to:

- slope stability of the final voids
- justification of the factors of safety
- past rockfall events.

Part of these request were due to referenced documents that were not appended to the original EIS; these reports will be provided to the Resource Regulator for their information and understanding.

The feasibility study (FS) geotechnical design was based on a comprehensive Pre-Feasibility Study (PFS) geotechnical model, which was further developed from additional data acquisition and analysis. In addition, a thorough review was undertaken of current (Stage H) E42 pit slope performance including reviews of rock fall history, bench crest loss and achieved berm width, alternative batter configuration trials (triple benching), and blasting practices. These designs were independently peer reviewed (IPR) and the overall outcome of the IPR process was that no fatal flaws were identified, and that the methodology and the basis for the stability assessment conform with industry standards.

3.3.5 Final landform pit geotechnical and erosion assessment

The Resource Regulator also raised several topics for discussion relating to:

- drainage on the IWL and WREs
- slope angles and treatment of the sodic soils / oxide layers around the open pits
- the need for erosion modelling around the open pits.

Again, part of their request was due to referenced documents that were not appended to the original EIS; these reports have now been provided to the Resource Regulator for their information and understanding.

The drainage of the IWL and WREs at closure is in line with current Mod 14 concepts, and all of the rehabilitation profiles align with this previous work. Surface water from the IWL / WREs would ultimately report to the ICDS, which is the established backbone of CGO's internal water management system. Whilst the post closure drainage system has not been designed in detail at this stage, it will be developed in accordance with the current Rehabilitation Strategy to be resilient in the long term, and compatible with the planned final rehabilitation outcome.

The open pits have weathered and oxidised zones extending to depths of 50–100 m bgl. At this stage, the future pit walls have feasibility level designs for the development and operation of the open pits using standard open pit mining and construction methods, which is entirely appropriate to ensure viable economic and mine safety outcomes. These designs will transition from a geotechnical and mine safety lens, to a landform design perspective that provides a sustainable outcome for the site and the stakeholders on the adjoining land. CGO is planning to investigate and trial a number of slope stabilisation practices prior to closure to ensure established, successful methods are used.

It is considered that there is limited value in undertaking extremely detailed numerical analyses / modelling of the existing pit walls or the proposed pit walls, when this assessment would be based on a broad series of assumptions including using one material type over the entire surface of the pit walls when the material types in the pit walls have significantly different chemical and physical properties within the soil and regolith profile.

Final closure of the CGO will not occur until 2042 (i.e. 18 years in the future). The engineering team will continue to develop a detailed understanding of the engineering parameters that will inform the eventual closure plan and the design and closure criteria for final landforms including final pit designs will continue to evolve as additional geotechnical and geochemical data becomes available during the mine life.

3.3.6 Addendum Aboriginal Cultural Heritage Assessment

As part of the EIS public exhibition process for the Project, Heritage NSW reviewed and provided advice on the finalised Aboriginal cultural heritage assessment (ACHA). Based on this review Heritage NSW indicated broad agreement with the findings and recommendations of the report. However, it was noted that certain issues required further clarification and information. Accordingly an Addendum AHCA has been prepared to supplement the ACHA to address Heritage NSW's comments including:

- management provisions under existing permits/consents and where they intersect with the Project
- whether significance ratings for any valid sites in the Project area have changed from earlier assessments or as a result of cumulative loss
- the locations and extents of all sites (both valid and destroyed) in the Project area
- ACHA recommendations relating to potential future findings in the CGO lake edge zone (LEZ) (AHIMS #43-4-0189) and CGO BS1 (AHIMS #43-4-0191)
- ACHA recommendations for the development of an Aboriginal cultural heritage management plan (ACHMP), with further guideline principles around the scope and quantum of proposed management.

While the Addendum ACHA provides an overview of guideline principles for the Project's ACHMP, it is important to note that the input, feedback and direction of the Project's RAPs will be integral to the development of the ACHMP. The Addendum ACHA has been circulated to the RAPs and a meeting with the RAPs is being organised for late January / early February 2024.

The Addendum ACHA is contained in Appendix K of this Submissions Report while summary responses to Heritage NSW are contained in Section 4.4.

It was also considered by EMM that a refinement of the archaeological resource through further investigation of potential hearth sites in the proposed development footprint would contribute to the understanding of cumulative Project impacts to Aboriginal heritage. Following this further investigation, an update of the potential impacts by the Project was undertaken in the Addendum ACHA, and shows a reduction in adverse harm. Specifically, some 12 Aboriginal objects and/or sites (a reduction from 19 identified in the ACHA) would now be impacted by the Project, as well portions of CGO LEZ (#43-4-0189) and CGO BS1 (#43-4-0191). All of these objects and sites are currently within existing permits and approvals for their recovery and mitigation.

3.3.7 Surface water technical memorandum

ATC Williams has prepared detailed responses and to address matters raised in community and special interest group submissions. These complete responses are included in Appendix L and summarised in Section 5.2.2 of this Submissions Report.

The technical memorandum includes additional assessment using the Lake Cowal water balance model to estimate the change in the number of days that the modelled water levels would be above the minimum elevation for each landholder within the eastern side of Lake Cowal for both the existing situation and with the Project. The results ranged from a percentage increase of between 0% and 0.25% in the number of days land is inundated from the existing situation to the Project.

The memorandum also calculated the increased water level due to wind and waves attributable to the Project. The calculated increase in lake water level due to wind and waves is marginally lower for the Project than for the existing scenario. This is because the relationship between wave height and depth of water are inversely proportional. In other words, due to the slightly increased depth the water, the height of the waves are expected to be marginally lower.

3.3.8 Lake water balance model memorandum

Consultation with NSW DCCEEW Water Group (formally DPE Water) through the assessment process has indicated that despite no water being consumed or leaving the water source, in the likely event the LPB is constructed while Lake Cowal is fully or partially inundated, the one-off pumping of water from behind the LPB back to the lake constitutes a 'take' under the *Water Management Act 2000* (the Act) and accordingly a water access licence would be required.

To further understand the risk posed by the identified water licensing constraint, Evolution commissioned a detailed water balance modelling of the LPB staged construction, alongside detailed consideration of the Water accounting rules specified by the *Water Sharing Plan for the Lachlan Unregulated River Water Sources 2012.*

This modelling is detailed in Appendix M and summarised in Section 4.1.1 of this Submissions Report.

In summary, the outcomes of the modelling demonstrate that the currently held entitlement is likely to be sufficient to dewater the water trapped behind the northern LPB following construction with consideration of the water accounting rules specified by the *Water Sharing Plan for the Lachlan Unregulated River Water Sources 2012*. However dewatering of both the northern and southern portions of the bund, will be heavily constrained by the licensing restrictions with dewatering almost certain to extend beyond 12 months (and possibly up to 3 years) at higher lake levels. As such, whilst there is a pathway to construct the LPB within the requirements of the *Water Management Act 2000* through the existing water entitlement Evolution hold in the Water Source, there are still significant risks to the Project due to the uncertainty surrounding the construction schedule.

3.4 Post approval environmental management framework

3.4.1 Context

The Project presents an opportunity to review and update the existing environmental management framework at the CGO to reflect current best practice for mining projects and thereby ensuring that the Project will comply with contemporary criteria and standards during construction, operation and closure.

DPHI currently has a program underway to review and update the post approval regulatory framework of SSD Projects. Evolution understands that the key drivers of this review process are to:

- support proponent environmental ownership and performance during all Project phases
- reduce environmental risks through the assessment process by ensuring adequate information is provided within the assessment documentation (i.e. the EIS and Submissions Report). This will provide DPHI with certainty regarding the predicted environmental outcomes of the Project and that the proposed mitigation measures will be effective in managing environmental risks
- reduce the administrative burden on DPHI and proponents in removing the requirement for certain management plans, where the risk can be managed through clear commitments made in the EIS and/or there is an existing strong legislation and policy framework to manage a particular environmental, social or cultural impact. Operational and/or Performance conditions in the consent and mitigation measures within the overarching Environmental Management Strategy for a development, will replace management plans for these environmental, social or cultural aspects
- retain management plans for environmental, social or cultural impacts where there is a higher potential risk to the environment and/or a strong community, regulator interest or preference from a proponent to retain / produce a management plan

- where management plans are retained, a risk-based approach should be followed to determine whether the management plans require approval from DPHI and/or consultation with relevant agencies, or whether for low risk environmental aspects, and where the effectiveness of mitigation measures are well established, a proponent only management plan is appropriate.

Evolution has consulted closely with DPHI during the Response to Submissions Phase of the Project regarding DPHI's expectations and Evolution's proposed approach to the Project's post approval environmental management framework.

This section of the Submissions Report outlines the outcomes of these discussions and Evolution's proposed management framework for the construction, operational and closure phases of the Project. This framework will be further refined during the Project's assessment phase in consultation with DPHI and as relevant during the preparation of the Environmental management strategy (EMS) and management plans post approval (refer Section 3.4.5).

3.4.2 Existing commitments and obligations

As outlined in the EIS, pending approval of the Project, Evolution intends to surrender the existing development consents for the current open-pit operations (DA14/98) and the development consent for the underground operations (SSD-10367) and for all existing and proposed activities at CGO to be governed under a new, single SSD development consent.

As such Evolution has carried out a review of its existing environmental obligations under DA14/98, SSD-10367, supporting Management Plans and historic EIS commitments. Where relevant for continued open pit and underground operations, these commitments and obligations have been documented as either proposed operational/performance conditions for inclusion in the new SSD approval (refer Table 3.2 below) or captured in the Project's consolidated table of mitigation measures (refer Appendix C).

3.4.3 Environmental risk assessment and adaptive management

The proposed environmental management framework for the Project framework has been informed by an environmental risk assessment. The risk assessment has been carried out with reference to CGO's existing risk register for approved operations which is reviewed on an annual basis and considers the environmental factors assessed in earlier environmental assessments and further environmental risks that have been identified and actively managed during the almost 20 years of CGO operations.

The revised environmental risk assessment has also been carried out with reference to the environmental factors assessed in the Project EIS and this Submissions Report with consideration to the mitigation measures applied to existing operations and the additional mitigation measures proposed for the Project. The risk assessment is contained in Appendix E of this Submissions Report and will be revised and included in the Project's EMS. The Project's EMS will also include a process to review the risk assessment to determine whether the measures implemented to manage identified risks are effective or whether additional adaptive management measures may be required.

As part of this process, the mitigation measures outlined in Appendix C of this Submissions Report will be reviewed and updated as required over the mine life with some measures removed from the DPHI approved EMS if deemed no longer required and new adaptive measures added as necessary.

3.4.4 Staging of implementation of the Project's environmental management framework

To minimise potential delays to the start of construction, Evolution proposes to prepare and submit for DPHI approval, the Aboriginal Cultural Heritage Management Plan and the LPB / UCDS Construction Environmental Management Plan (CEMP). The LPB / UCDS CEMP will provide the construction management framework for construction of the UCDS and the LPB as well as augmentation to the ICDS within the additional disturbance area, inclusive of necessary biodiversity, surface water, erosion and sediment control and dewatering management measures.

The LPB / UCDS CEMP will be informed by detailed construction scheduling and will address the variable site conditions that may be encountered particularly during construction of the LPB (i.e. wet versus dry construction). The CEMP will be prepared to cover both the northern and southern construction stages, noting there may be a requirement to revise the CEMP prior to the commencement of LPB south in the event construction methodology and management requirements evolve materially between the two construction stages.

Evolution proposes to manage construction of the northern site access as a discrete construction activity that will not form part of the LPB / UCDS CEMP or ongoing EMS. A separate CEMP will be prepared as part the Section 138 application in consultation with Bland Shire Council.

During initial construction activities, existing operations would continue under the current CGO operational EMS and management plans. The Project's EMS and operational management plans would then be prepared progressively and implemented prior to the commencement of open pit development (i.e. commencement of soil stripping and stockpiling) of the new satellite ore bodies (i.e. E46, GR or E41 open pits) and the relinquishment of the existing DA14/98 and SSD10367 approvals and the commencement of mining operations under the new SSD approval.

3.4.5 Project's proposed environmental management framework

The proposed environmental management framework for the Project is presented in Figure 3.4 below with the rational for the proposed framework detailed in Table 3.2 with reference to the CGO's existing management framework and management plans.

The Project's Proposed Environmental Management Framework

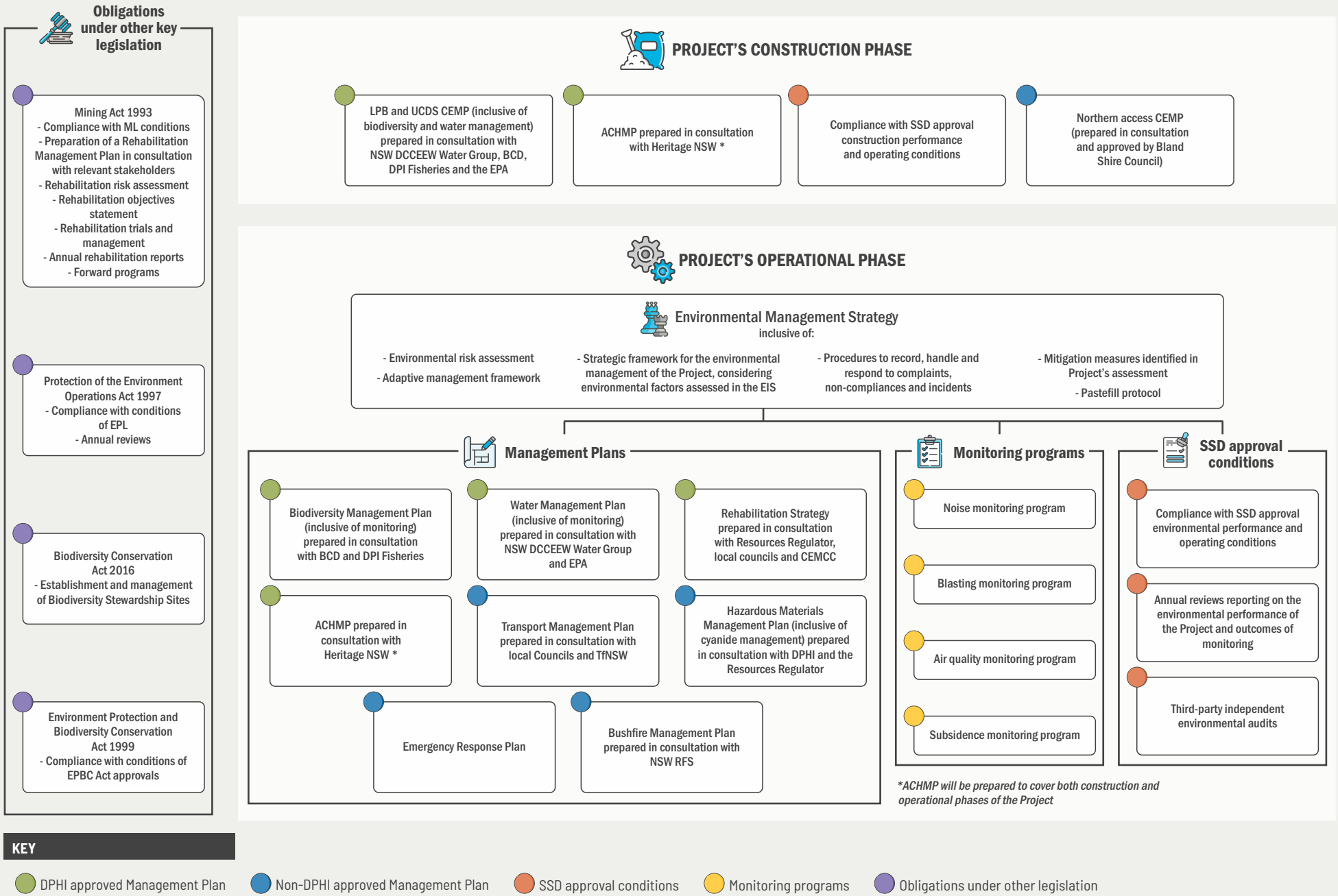


Figure 3.4 Overview of Project's proposed environmental management framework

Table 3.2 Proposed Environmental Management Framework

Environmental aspect	Existing management framework	Proposed management framework	Rationale
Biodiversity	Evolution currently manages biodiversity at the CGO through: 1. DA14/98 Condition 3.2(b) Flora and Fauna Management Plan 2. DA14/98 Condition 3.3 Compensatory Wetland Plan 3. DA14/98 Condition 3.4(c) Biodiversity Offset Management Plan 4. DA14/98 Condition 3.7 Land Management Plan.	Evolution proposes to manage biodiversity through: • the DPHI approved CEMP for the UCDS and LPB, with relevant sections prepared in consultation with BCD and DPI Fisheries • a DPHI approved operational Biodiversity Management Plan prepared in consultation with DPI Fisheries and BCD, incorporating relevant controls previously outlined in the Flora and Fauna Management Plan, Compensatory Wetland Plan, Biodiversity Offset Management Plan and Land Management Plans • biodiversity stewardship agreements (BSAs) that will be established under the BC Act • existing obligations under the *Local Land Services Act 2013* (LLS Act) for Evolution owned land not governed by the SSD approval (should it be granted) or a BSA.	Considering the important biodiversity values of Lake Cowal, Evolution considers it is appropriate to have a DPHI approved operational plan prepared in consultation with BCD and DPI Fisheries. The LPB / UCDS CEMP will outline biodiversity management measures relevant during construction of the UCDS and LPB. The Biodiversity Management Plan would focus on the management of Biodiversity, both aquatic and terrestrial during the operational phase of the Project. The Biodiversity Management Plan would manage biodiversity within the Project area, Mining Leases and Remnant Vegetation Enhancement Program (RVEP) areas (excluding existing RVEP areas proposed to be formalised withing BSAs) and would document all of the recommendations contained in the Project's Revised Biodiversity Development Assessment Report (BDAR) (to be appended to the Submissions Report) and Aquatic Ecology Assessment (Appendix K of the EIS) relevant to the operational phase of the Project. DPHI and Evolution are currently progressing the securement of CGO's existing northern and southern offset areas (established under DA14/98 Condition 3.4(a)) in a BSA. Should this proceed, there would be no requirement for a separate Biodiversity Offset Management Plan under the Project's Development Approval as all existing and proposed offset sites would be secured and managed through BSAs. A portion of the area currently managed under the existing Compensatory Wetland Management Plan (Evolution 2003) within the ML will be removed by the Project. Impacted areas are proposed to be offset through the establishment of a separate biodiversity stewardship site within Lake Cowal in addition to the offsets required under the biodiversity assessment method (BAM).

Table 3.2 Proposed Environmental Management Framework

Environmental aspect	Existing management framework	Proposed management framework	Rationale
			To streamline the post approval framework for the Project and avoid the potential for inconsistencies between management plans, it is proposed to incorporate the management of the remaining areas managed by the Compensatory Wetland Plan into the Biodiversity Management Plan. Relevant portions of the existing Land Management Plan (i.e. biosecurity measures within the Project area and residual RVEP areas will also be included in the Biodiversity Management Plan.
Water	Evolution currently manages water through: 1. the following conditions of DA14/98: a) Condition 4.3 which outlines water management performance measures b) Condition 4.4 which requires the preparation and implementation of a Water Management Plan 2. the following conditions of SSD 10367: – Condition B8 which outlines water performance measures – Conditions B9 and B10 which require the preparation and implementation of a Water Management Plan.	Evolution proposes to manage water through a combination of: • a DPHI approved CEMP for the LPB and UCDS, including water management measures and water monitoring program prepared in consultation with EPA and NSW DCCEEW Water Group • a DPHI approved operational Water Management Plan inclusive of updated groundwater and surface water monitoring programs prepared in consultation with NSW DCCEEW Water Group, EPA and the Resources Regulator.	Water, and in particular water security, was a key theme raised in the EIS submissions and during consultation with the community and special interest groups during preparation of the EIS. As such, a DPHI approved plan prepared in consultation with NSW DCCEEW Water Group and EPA is Evolution's proposed post approval approach for water management for the operational phase of the Project. During construction of the UCDS and LPB, water will be managed through the DPHI approved CEMP.

Table 3.2 Proposed Environmental Management Framework

Environmental aspect	Existing management framework	Proposed management framework	Rationale
Aboriginal heritage	Evolution currently manages Aboriginal Cultural heritage through: 1. existing Aboriginal heritage impact permits (AHIPs) 2. DA14/98 Condition 3.1 (a)(ii) which requires preparation and implementation of an Indigenous Archaeology and Cultural Management Plan.	Evolution proposes to manage Aboriginal Heritage during both the construction and operational phases of the Project through the implementation of a DPHI approved Aboriginal Cultural Heritage Management Plan (ACHMP) prepared in consultation with Heritage NSW and the Project's Registered Aboriginal Parties (RAPs).	The ACHMP was a key recommendation of the project's Aboriginal Cultural Heritage Assessment (ACHA and Addendum ACHA). Evolution considers it is appropriate to have a DPHI approved plan prepared in consultation with Heritage NSW and the RAPs to guide ongoing management of Aboriginal Heritage at CGO. The ACHMP would outline the framework for the management of Aboriginal Heritage pre-construction as well as during construction and operations. Further information regarding the framework and scope of the Project's ACHMP is contained in the Addendum ACHA (refer Appendix K of this Submissions Report).
Noise	Evolution currently manages noise at the CGO through: 1. DA14/98 Condition 6.4 (d) Operating Conditions: a) implement best management practice, including all reasonable and feasible mitigation measures, to minimise the operational, low frequency, and road noise of the development, including mitigation measures to b) minimise the noise impacts of the development during meteorological conditions when the noise limits in this consent do not apply c) carry out regular attended monitoring to determine whether the development is complying with the relevant conditions of this consent 2. Condition 6.4(e) Noise Management Plan: a) be prepared in consultation with the EPA, and submitted to the Planning Secretary for approval	Evolution proposes to manage Project noise through a combination of: • a DPHI approved CEMP during the construction of the LPB/UCDS • compliance with performance and operational noise conditions • implementation of validation noise monitoring program once Project operations commence to verify noise levels predicted in the Project's Noise and Vibration Assessment (NVIA) (refer Appendix O of the EIS). • implementation of a noise monitoring program • documentation of procedures to record, handle and respond to complaints, non-compliances and incidents within the Project's EMS • implementation of the updated noise mitigation measures outlined in this Submissions Report (refer Appendix C) which will be documented as relevant in the Project's EMS and CEMP. Proposed operational/performance conditions include:	As a continuation of existing operations, Evolution has a consolidated understanding of the operating practices and management measures required to meet noise criteria. As outlined in the NVIA, a review of attended noise monitoring data between quarter 1 of 2017 and quarter 3 of 2022 identified that site noise contributions during monitoring have in all cases satisfied the existing noise limits. A complaints history review carried out as part of the NVIA identified that in the last seven years there have been four noise complaints which were all handled swiftly and resolved under CGO's complaints management process. Evolution is committed to the noise operating conditions outlined in this table and the implementation of a revised noise monitoring program and as such a standalone management plan is not considered warranted for this environment aspect. As outlined in the NVIA, a validation noise monitoring program is proposed to verify residual noise impacts prior to the implementation of mitigation at residents predicted to experience marginal residual noise impacts. As outlined in the NVIA, this approach is considered reasonable given the conservatism in the Project's noise model (refer Section 4.1.2 of

Table 3.2 Proposed Environmental Management Framework

Environmental aspect	Existing management framework	Proposed management framework	Rationale
	b) describes the measures that would be implemented to ensure compliance with the noise criteria and operating conditions c) include a monitoring program that evaluates and reports on compliance with the noise criteria.	• Evolution will ensure all plant and equipment on site, is maintained and operated in a proper and efficient manner • Evolution will implement all reasonable and feasible mitigation and management measures to minimise noise from operation of the Project • Evolution will implement an updated noise monitoring program as outlined in the Noise and Vibration Assessment (NVIA) (refer Appendix O of the EIS) to determine whether the development is complying with the relevant conditions of the consent • the updated noise monitoring program will be prepared by a suitably qualified noise specialist endorsed by DPHI.	the NVIA) combined with CGO's existing compliance with noise limits.
Blasting	Evolution currently manages blasting at the CGO through: 1. DA14/98 Condition 6.3 (d) Operating Conditions: a) implement best management practice to: – protect the safety of people and livestock in the areas surrounding blasting operations – protect public or private infrastructure/property in the surrounding area from damage from blasting operations – minimise the dust and fume emissions of any blasting b) operate a suitable system to enable the public to get up-to-date information on the proposed blasting schedule on site	Evolution proposes to manage blasting through a combination of: • compliance with performance and operational blasting conditions • implementation of a blasting monitoring program • documentation of procedures to record, handle and respond to complaints, non-compliances and incidents within the Project's EMS • implementation of the blasting mitigation measures outlined in this Submissions Report (refer Appendix C) which will be documented as relevant in the Project's EMS. Proposed operational/performance conditions include: • implementing all reasonable steps to: – ensure the safety of people and livestock from blasting impacts of the Project	As a continuation of existing operations, Evolution has a consolidated understanding of the operating practices and management measures required to meet blasting criteria. As outlined in the Noise and Vibration Assessment (NVIA) (refer Appendix O of the EIS), a review of blast monitoring data between 2018 and 2021 identified that blast emissions from the site have in all cases satisfied the relevant ground vibration limits. For airblast overpressure, the blast monitoring data showed exceedance of the 115 dB (LinPeak) limit (Monday to Saturday during the day) on one occasion (in 2020) and the 95 dB (LinPeak) limit (Monday to Saturday at night, Sundays and public holidays) on several occasions during the 2018–2021 period. However, airblast overpressure from site satisfied the allowable exceedance threshold of 5% over each 12 month period between 2018 and 2021. The complaints history review carried out as part of the EIS NVIA identified six blast related complaints in between 2016–

Table 3.2 Proposed Environmental Management Framework

Environmental aspect	Existing management framework	Proposed management framework	Rationale
	c) carry out regular monitoring to determine whether the development is complying with the relevant conditions of the consent 2. DA14/98 Condition 6.3(e) Blast Management Plan.	– protect public or private infrastructure/property in the surrounding area from damage from blasting operations – minimise the dust and fume emissions of any blasting • blast management will be carried out in accordance with AS 2187.2 – 2006 Explosives – storage and use. Part 2 Use of explosives • implementation of an updated blast monitoring program to determine whether the Project is complying with the relevant conditions of consent.	2022). All were related to ground vibration, with the last received in 2019. Records show that monitored blast levels during the relevant events, for both airblast overpressure and ground vibration, satisfied relevant limits at representative monitoring locations. Furthermore, complaints were resolved under the mine's established complaints management process. Since 2022 there has been one blasting complaint (April 2023) which similarly was resolved under the mine's established complaints management process. Evolution is committed to the blasting operating conditions outlined in this table and the implementation of a revised blasting monitoring program and as such a standalone management plan is not considered warranted for this environment aspect.
Air quality and greenhouse gases	Evolution currently manages air quality and greenhouse gases through: 1. DA14/98 Condition 6.1 (b) Operating Conditions: a) implement best management practice to minimise the off-site odour, fume, spontaneous combustion and dust emissions of the Cowal Gold Operations b) implement all reasonable and feasible measures to minimise the release of greenhouse gas emissions from the Cowal Gold Operations c) minimise any visible off-site air pollution generated by the Cowal Gold Operations d) minimise the surface disturbance on the Cowal Gold Operations e) minimise the air quality impacts of the Cowal Gold Operations during adverse	Evolution proposes to manage air quality and greenhouse gases through a combination of: • compliance with performance and operational air quality conditions • implementation of an air quality management system which will be documented in the EMS • implementation of an updated air quality monitoring program • documentation of procedures to record, handle and respond to complaints, non-compliances and incidents within the Project's EMS • implementation of the air quality mitigation measures outlined in this Submissions Report (refer Appendix C) which will be documented as relevant in the Project's EMS. Proposed operational/performance conditions include:	As a continuation of existing operations, Evolution has a consolidated understanding of the operating practices and management measures required to meet air quality criteria. A complaints history review identified three complaints relating to dust since Evolution took over the CGO in 2015.The most recent complaints (two complaints in September 2023) were associated with the one dust event following unseasonably dry and windy weather. CGO responded promptly and effectively with a rapid application of a chemical dust suppressant across the entire exposed surfaces of the northern and southern tailings dams within the IWL and extensive landholder engagement. The ongoing use of the chemical dust suppressant on the exposed surfaces of the IWL has continued to be effective and demonstrates CGO's existing adaptive management processes. The air quality modelling carried out to inform the Project's Air Quality and Greenhouse Gas Assessment (refer Appendix P of the EIS) predicted the concentrations and deposition rates for incremental particulate matter (TSP, PM_{10}, $PM_{2.5}$ and dust

Table 3.2 Proposed Environmental Management Framework

Environmental aspect	Existing management framework	Proposed management framework	Rationale
	meteorological conditions and extraordinary events f) carry out regular monitoring to determine whether there is compliance with the relevant conditions of the consent 2. DA14/98 Condition 6.1(c) Air Quality Management Plan.	• implementing all reasonable and feasible measures to: – minimise odour, fume and particulate matter (including PM10 and PM2.5) emissions of the Project – minimise any visible off-site air pollution generated by the Project – minimise the extent of potential dust generating surfaces exposed on the site at any given point in time – minimise air quality impacts of the development during adverse meteorological conditions and extraordinary events • ensure that all 'non-road' mobile diesel equipment used in undertaking the development includes diesel emissions reduction technology • implementation of an updated air quality monitoring program to determine whether the Project is complying with the relevant conditions of consent	deposition) and NO_2 are below the applicable impact assessment criteria at all assessment locations. Evolution is committed to the air quality and greenhouse gas operating conditions outlined in this table and the implementation of a revised air quality monitoring program and as such a standalone management plan is not considered warranted for this environment aspect.
Hazardous materials (including cyanide and explosives)	Evolution currently manages hazardous materials including (cyanide and explosives) through: 1. The following conditions of DA14/98: a) Condition 5.3a Cyanide levels – ensure that cyanide levels of the aqueous component of the tailings slurry stream do not exceed: 20mg CNWAD/L (90 percentile over six months), and 30mg CNWAD/L (maximum permissible limit at any time), at the process plant b) Condition 5.3b requiring the implementation of a cyanide management plan	Evolution proposes to manage hazardous materials (including cyanide and explosives) through a combination of: • compliance with performance and operational hazardous material management conditions • preparation of a Hazardous Materials Management Plan in consultation with DPHI and the Resources Regulator to cover the management of explosives, cyanide and other hazardous material used at the CGO. The Hazardous Materials Management Plan will include the hazardous materials mitigation measures outlined in this Submissions Report (refer Appendix C)	Evolution considers the combination of operational and performance criteria and a non DPHI approved Hazardous Materials Management Plan prepared in consultation with DPHI and the Resources Regulator an appropriate approach to manage the use, transport and storage of hazardous materials at the CGO. This is due to the existing strong regulatory framework in Australia and NSW regulating the handling, storage and transportation of hazardous materials as well as Evolution's track record managing hazardous materials at the CGO. To streamline the post approval framework for the Project and avoid the potential for inconsistencies between management plans, it is proposed to incorporate the management of cyanide

Table 3.2 Proposed Environmental Management Framework

Environmental aspect	Existing management framework	Proposed management framework	Rationale
	c) Condition 5.3d requiring the implementation of a cyanide monitoring program d) Condition 5.4(d) requiring the preparation and implementation of a Hazardous Materials Management Plan. 2. The following condition of SSD 10367: a) Condition B22 which requires Evolution to ensure that the storage, handling, and transport of: – dangerous goods is done in accordance with the relevant Australian Standards, particularly AS1940 and AS1596, and the Dangerous Goods Code – explosives are managed in accordance with the requirements of the Resources Regulator.	• documentation of procedures to record, handle and respond to complaints, non-compliances and incidents within the Project's EMS. Proposed operational/performance conditions include: • ensure that the storage, handling, and transport of dangerous goods is done in accordance with the relevant Australian Standards, particularly AS1940 and AS1596, and the Australian Code for the Transport of Dangerous Goods by Road and Rail – current version • management of cyanide on site is to be consistent with the International Cyanide Management Code for the Manufacture, Transport and Use of Cyanide in the Production of Gold (2021), or latest version.	(including transport) into the overall Hazardous Materials Management Plan On site cyanide monitoring would continue and would be documented as appropriate in either the Hazardous Materials Management Plan or Water Management Plan (i.e. included in the groundwater and surface water monitoring programs).
Rehabilitation	Evolution currently manages rehabilitation through: 1. the following conditions of DA14/98 a) Condition 2.4(b) Progressive Rehabilitation requiring Evolution to rehabilitate the site as soon as reasonably practical following disturbance. All reasonable and feasible measures must be taken to minimise the total area exposed for dust generation at any time b) Condition 2.4(c) Rehabilitation Management Plan c) Condition 3.8 Rehabilitation Strategy 2. the following condition of SSD 10367: a) Condition B24 requiring a Rehabilitation Management Plan in accordance with the conditions imposed on the mining leases associated with the Development.	Evolution proposes to manage rehabilitation through: • preparation of a DPHI approved Rehabilitation Strategy prepared in consultation with the Resources Regulator, Bland Shire Council and the CEMCC • preparation of Rehabilitation Management Plan prepared in accordance with the conditions imposed on the mining lease(s) associated with the development under the *Mining Act 1992*.	The Rehabilitation Strategy will build on the Rehabilitation Objectives outlined in the EIS Rehabilitation Strategy (Appendix Z of the EIS) and describe the overall proposed rehabilitation outcomes for the site including mine closure, final landform (including final void), post-mining land use/s and water management. As a DPHI approved plan, the Rehabilitation Strategy will provide a framework for the final landform, land uses and rehabilitation outcomes to evolve over the mine life in response to stakeholder consultation and/or regional and local strategic land use planning objectives and outcomes. The Rehabilitation Management Plan, alongside a rehabilitation risk assessment, rehabilitation objectives statement, annual rehabilitation reports and forward programs (updated annually) will be prepared in accordance with the conditions imposed on the mining lease(s) associated with the Project under *the Mining Act 1992*. This Rehabilitation Management Plan would not require approval from DPHI however would be informed by consultation with the Resources Regulator, Bland Shire Council

Table 3.2 Proposed Environmental Management Framework

Environmental aspect	Existing management framework	Proposed management framework	Rationale
			and other relevant government agencies and stakeholders in accordance with (NSW Resources Regulator 2021)
Subsidence	Evolution currently manages subsidence through: 1. The following conditions of SSD 10367: a) Condition B11 The Applicant may only use consolidated paste fill material to backfill stopes b) Condition B12 The Applicant must ensure material used to backfill stopes maintains long term stope stability and results in negligible environmental harm c) Condition B13 The Applicant must prepare a report to confirm that the paste fill material meets the performance measures in Condition B12 d) Condition B15 Subsidence Monitoring Program.	Evolution proposes to manage subsidence through a combination of: • subsidence performance and operating conditions • a subsidence monitoring program • a paste fill protocol within the Project's EMS to manage subsidence. Proposed operational/performance conditions include: • only consolidated paste fill material will be used to backfill stopes • material used to backfill stopes is to maintain long term stope stability and result in negligible environmental harm • a paste fill protocol is to be documented in the Project's EMS outlining the technical specifications for the paste fill material production and a program for the ongoing testing of the paste fill material • implementation of a subsidence monitoring program inclusive of: – detailed baseline data – in-situ stress management – detailed measures and controls that will be implemented to avoid and/or minimise subsidence, through management of risk associated with stope overbreak and/or stope failure – a risk assessment and trigger action response plan (TARP) to identify and manage stope instability	Evolution proposes to maintain the existing management framework for subsidence as outlined in SSD 10367. Key findings of the Paste Fill report which has been prepared under Condition B13 of SSD 10367 will be included as relevant in the Project's EMS.

Table 3.2 Proposed Environmental Management Framework

Environmental aspect	Existing management framework	Proposed management framework	Rationale
		– a contingency plan and adaptive management process – validation of subsidence predictions to assess and analyse the subsidence effects and resulting impacts under the program and any ensuing environmental consequences.	
Traffic and transport	Evolution currently manages traffic and transport through: 1. The following conditions of DA14/98: a) Condition 7.1(a) requiring Evolution to use its best endeavours to ensure the identified preferred mine access road routes described in the original EIS b) Condition 7.1(d) Transport Management Plan c) Condition 5.4(d) Hazardous Materials Management Plan (i.e. hazardous materials transport).	Evolution proposes to manage traffic and transport, include transport of hazardous goods through a combination of: • compliance with operational traffic and hazardous transport conditions • implementation of a transport management plan prepared in consultation with Bland Shire, Forbes Shire and Lachlan Shire Councils and TfNSW • hazardous materials management plan (including cyanide) management plan prepared in consultation with DPHI • documentation of procedures to record, handle and respond to complaints, non-compliances and incidents within the Project's EMS. Proposed operational conditions include: • implementation of all reasonable and feasible measures to ensure the preferred and alternative mine access routes outlined in the Project's EIS are used. All potentially hazardous materials (including cyanide) will be transported in accordance with the requirements of all relevant Australian Standards and the Australian Code for the Transport of Dangerous Goods by Road and Rail – current version.	As a continuation of existing operations, Evolution has a consolidated understanding of the operating practices and management measures required to minimise traffic and transport related impacts on the surrounding road network. The proposed approach of a non DPHI approved transport management plan, prepared in consultation with Bland Shire, Forbes Shire and Lachlan Shire Councils and TfNSW is considered appropriate in the context of the Project being a continuation of existing operations with a short term temporary increase in approved traffic movements during the construction phase. The Transport Impact Assessment (Appendix R of the EIS) found the construction phase is not expected to have adverse impacts to the regional or local traffic or road networks with construction phase traffic utilising the existing mine access routes. As outlined above, a non DPHI approved hazardous materials management plan prepared in consultation with DPHI is also considered appropriate for ongoing transport of hazardous materials including cyanide and explosives in the context of the strong regulatory framework in Australia and NSW governing the transport of hazardous materials.

Table 3.2 Proposed Environmental Management Framework

Environmental aspect	Existing management framework	Proposed management framework	Rationale
Erosion and sediment control	Prevention of erosion is currently managed at the CGO through: 1. DA14/98 Condition 3.5(a) requiring the preparation and implementation of an erosion and sediment control management plan.	Evolution proposes to manage erosion control through a combination of: • compliance with performance and operational erosion and sediment control conditions • a DPHI approved CEMP for the UCDS and LPB, inclusive of erosion and sediment control measures • implementation of the erosion and sediment control mitigation measures outlined in this Submissions Report (refer Appendix C) which will be documented as relevant in the Project's EMS • documentation of procedures to record, handle and respond to complaints, non-compliances and incidents within the Project's EMS. Proposed operational/performance conditions include: • design, install and maintain erosion and sediment controls in accordance with the best management practice guidance series Managing Urban Stormwater: Soils and Construction – Volume 1 (Landcom, 2004) and 2E Mines and Quarries (DECC, 2008) • design, install and maintain sediment dams to include contingency measures to prevent the potential mobilisation of pollutants and ensure compliance with the requirements of the *Water Management Act 2000* and the EPL.	The CEMP will manage potential erosion and sediment impacts during construction of the UCDS and LPB. As there are accepted polices and guidelines relating to best practice erosion and sediment control management (i.e. DECC 2008), a separate erosion and management plan is not considered to be required for the operational phase of the Project. Where relevant, site-specific controls will be captured through the operational Water Management Plan.

Table 3.2 Proposed Environmental Management Framework

Environmental aspect	Existing management framework	Proposed management framework	Rationale
Soil	Soil management, including soil stripping and stockpiling, is currently managed through: 1. DA14/98 Condition 3.5(b) requiring the preparation and implementation of a soil stripping management plan 2. relevant conditions of MLs regulating soil stripping and preservation of soil resources.	Evolution proposes to manage potential impacts on the Project areas soil resource through a combination of: • inclusion of a high-level description of proposed soil stripping practices in the DPHI approved Rehabilitation Strategy (refer rehabilitation row above) as recommended in the Project's Soil and Land Impact Assessment (Appendix T of the EIS) • implementation of the soil stripping and stockpiling mitigation measures outlined in this Submissions Report (refer Appendix C) which will be documented as relevant in the Project's EMS • compliance with performance and operational erosion and sediment control conditions (refer row above).	As a continuation of existing operations, Evolution has a consolidated understanding of the operating practices and management measures required to manage the soil resources at the CGO. Key mitigation measures from the existing Soil Stripping Management Plan (Evolution 2023) have been included as appropriate in the updated mitigation measures contained in Appendix C of this Submissions Report. The Rehabilitation Management Plan prepared in accordance with the conditions imposed on the mining lease(s) associated with the development under the *Mining Act 1992* (refer rehabilitation row above) will require details of soil stripping practices to ensure the proposed final landform and land uses are achievable and as such a separate requirement for a management plan under the SSD is not required.
Visual	Evolution currently manages potential visual impacts of the CGO through: 1. DA14/98 Condition 6.5(b) Operating Conditions: a) implement all reasonable and feasible measures to minimise the visual and off-site lighting impacts from the Cowal Gold Operations b) ensure no fixed outdoor lights shine directly above the horizontal or above the building line or any illuminated structure c) ensure no in-pit mobile lighting rigs shine directly above the pit wall and other mobile lighting rigs do not shine directly above the horizontal d) ensure that all external lighting at the Cowal Gold Operations complies with relevant Australian Standards including Australian Standard AS4282 (INT) 1997 – Control of	Evolution proposes to manage potential visual impacts of the Project through a combination of: • compliance with performance and operational conditions • documentation of procedures to record, handle and respond to complaints, non-compliances and incidents within the Project's EMS • implementation of the visual mitigation measures outlined in this Submissions Report (refer Appendix C) which will be documented as relevant in the Project's EMS • Evolution considers the existing operating conditions outlined in DA14/98 Condition 6.5(b) are appropriate to manage potential lighting and visual impacts of the Project.	Evolution proposes to maintain the existing visual management framework. This is considered appropriate considering the findings of the Project's Visual Impact Assessment (refer Appendix Q of the EIS) and the low number of visual related complaints (three) received since 2015 which were all resolved under the mine's established complaints management process.

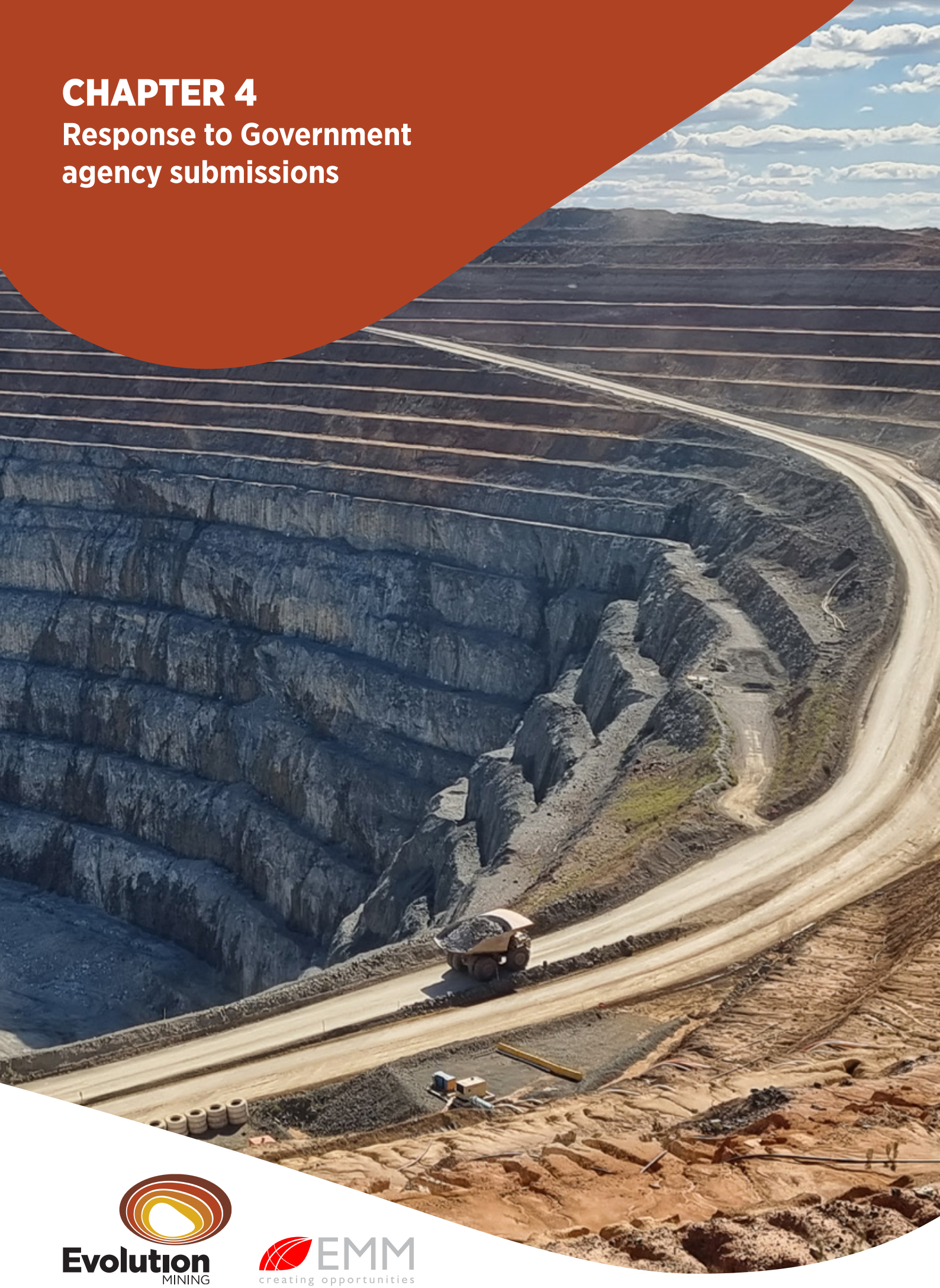
Table 3.2 Proposed Environmental Management Framework

Environmental aspect	Existing management framework	Proposed management framework	Rationale
	Obtrusive Effects of Outdoor Lighting, or its latest version e) take all reasonable and feasible measures to shield views of mining operations and associated equipment from users of public roads and privately-owned residences.		
Bushfire	Evolution currently manages bushfire through: 1. the following conditions of DA14/98 a) Condition 3.6 – ensure the development is suitably equipped to respond to fires on site – assist the RFS and emergency services as much as practicable if these is a fire in the vicinity of the site b) Condition 3.4c Biodiversity management plan which requires a description of measures that will be implemented for bushfire management c) Bushfire management is also detailed in the Land Management Plan required under DA14/98 Condition 3.7.	Evolution proposes to manage the risk of bushfires through a combination of: • compliance with performance and operational conditions • preparation of a bushfire management plan in consultation with the Bland District RFS. Proposed operational conditions include: • ensure that the Project provides for asset protection in accordance with the relevant requirements in the Planning for Bushfire Protection (RFS, 2019) (or latest version) guideline • ensure that there is suitable equipment to respond to any fires on the site • assist the RFS and emergency services to the extent practicable if there is a fire in the vicinity of the site.	As per the recommendations of the Bushfire Risk Assessment (Appendix X of the EIS), a Bushfire Management Plan is proposed to be included in the Project's EMS. Evolution considers a non DPHI approved plan is appropriate for this aspect, as there is firm guidance around the requirements for Bushfire Management Plans in the NSW Planning for Bushfire Protection 2019 and the management plan will be prepared in consultation with the local RFS.
Historic heritage	Evolution currently manages historic heritage through: 1. DA14/98 Condition 3.1(a)(i) which requires the preparation of a Heritage Management Plan.	Evolution proposed to manage potential impacts on historic heritage through the Project's EMS and implementation of the historic heritage mitigation measures outlined in this Submissions Report (refer Appendix C) which will be documented as relevant in the Project's EMS.	As outlined in the Project's Historic Heritage Impact Assessment (HHIA) (Appendix S of the EIS), there are no historic heritage items within the Project disturbance area. Historic heritage can be managed through the mitigation measures (i.e. unexpected finds protocol) incorporated into the overarching Project EMS.
Waste	Evolution currently manages waste (which under the EPL excludes waste rock and tailings) through: 1. the following conditions of DA14/98:	Evolution proposes to manage waste (excluding waste rock and tailings) through operating conditions and implementation of the waste mitigation measures outlined in this Submissions Report (refer Appendix C)	Evolution proposes to continue to manage waste (excluding waste rock and tailings) in accordance with NSW's waste management policies and guidelines.

Table 3.2 Proposed Environmental Management Framework

Environmental aspect	Existing management framework	Proposed management framework	Rationale
	a) Condition 5.4(d) Hazardous Materials Management Plan b) Condition 5.5 Domestic Waste which requires Evolution to manage all solid and putrescible waste to the satisfaction of Bland Shire Council 2. the following conditions of SDD 10367: a) Condition B21 which requires Evolution to: – take all reasonable steps to minimise the waste generated by the development – classify all waste in accordance with the Waste Classification Guidelines (EPA, 2014) – dispose of all waste at appropriately licensed waste facilities – manage on-site sewage treatment and disposal in accordance with the requirements of Bland Shire Council – monitor and report on the effectiveness of the waste minimisation and management measures in the Annual Review.	which will be documented as relevant in the Project's EMS. Hazardous waste will be managed in accordance with the Hazardous materials management plan (refer above). Proposed operating conditions include: • take all reasonable steps to minimise the waste generated by the development • classify all waste in accordance with the Waste Classification Guidelines (EPA, 2014) (or latest version) • dispose of all waste at appropriately licensed waste facilities • manage on-site sewage treatment and disposal in accordance with the requirements of Bland Shire Council.	

CHAPTER 4
Response to Government agency submissions



Evolution MINING

EMM creating opportunities

4 Response to Government agency submissions

4.1 NSW DCCEEW Water Group (formally DPE Water)

4.1.1 Water Licensing

i Water entitlement

1.1. Prior to approval. Recommendation: That the proponent provides a methodology for the construction of works for the lake protection bund extension to ensure the water take is within the existing held entitlement. This is to address an issue of insufficient water entitlement available in the water source to meet the maximum estimated water take.

There is currently insufficient water entitlement available in the water source to account for the maximum 6000 ML estimated to construct the lake protection bund extension. The Bogandillon and Manna Creeks Water Source currently has 2,762 shares in 9 licences, with the proponent currently holding 729 of these shares. As such there is no opportunity to account for the maximum water take which poses a risk to the project. It is noted this maximum water take is based on Lake Cowal being inundated and so would vary depending on the lake water levels. This provides an opportunity to reduce the water take based on the lake water level.

The proponent has proposed the use of a specific purpose access licence (SPAL) to account for the water take which is more than the held entitlement. DPE Water advises there is no SPAL category for the proponent to apply for under in the Water Management (General) Regulation 2018.

Consultation with NSW DCCEEW Water Group through the assessment process has indicated that despite no water being consumed or leaving the water source, in the likely event the LPB is constructed while Lake Cowal is fully or partially inundated, the one-off pumping of water from behind the LPB back to the lake constitutes a 'take' under the *Water Management Act 2000* (the Act) and accordingly a water access licence would be required.

Evolution currently holds water access licence (WAL) 31568 with 729 units of unregulated river entitlement within the Bogandillon and Manna Creeks Water Source, where the Project is located. The estimated maximum amounts that would require dewatering and therefore licensing for the respective northern and southern stages of the LPB if wet conditions continue between now and the time of dewatering are:

- 2,851 ML northern portion of the bund
- 4,365 ML southern portion of the bund.

Evolution has examined various licensing options, including obtaining the necessary water allocations via the water-market for this one-off water dewatering exercise. Unfortunately, there are insufficient water entitlements in the relatively small water source to meet the wet scenario entitlement requirements, particularly for the southern portion of the bund, without imposing material risks to the Project schedule, economics and Project viability. Ultimately there is a significant risk of major job losses if a viable solution is not secured. The applicable water sharing plan rules also prohibit trade from other water sources.

To further understand the risk posed by the identified water licensing constraint, Evolution has commissioned detailed water balance modelling of the LPB staged construction, alongside detailed consideration of the Water accounting rules specified by the *Water Sharing Plan for the Lachlan Unregulated River Water Sources 2012.*

In summary, the outcomes of the modelling demonstrate that the currently held entitlement is likely to be sufficient to dewater the water trapped behind the northern LPB following construction with consideration of the water accounting rules specified by the *Water Sharing Plan for the Lachlan Unregulated River Water Sources 2012.* The modelling indicates that 90% of the time, the volume of water estimated to be trapped behind the northern LPB was less than 1,458 ML (i.e. two times the full WAL entitlement of 729 ML) and could be fully dewatered without being restricted by licence accounting rules. However dewatering of both the northern and

southern portions of the bund, will be heavily constrained by the licensing restrictions with dewatering almost certain to extend beyond 12 months (and possibly up to 3 years) at higher lake levels.

The limitations of the lake water balance model should also be noted in terms of the models reliance on the historical climate record between 1895 and 2022, which may not be sufficiently representative of the future climate during LPB construction. Further, the model uses a daily timestep and pre-set rules/conditions and therefore operational decision making on a day-to-day basis are not captured.

As such, whilst there is a pathway to construct the LPB within the requirements of the *Water Management Act 2000* through the existing water entitlement Evolution hold in the Water Source, there are still significant material risks to the viability of the Project due to the uncertainty surrounding the construction schedule. That is, it is outside of Evolution's control whether it will be possible to dewater the southern position of the bund within its existing licensing entitlement in a reasonable timeframe. The undefinable program length to dewater (c.12–36 months), using existing water access licence allocations, is a major concern to Evolution which puts the Project at risk.

Therefore outside of the assessment process, Evolution has engaged with the NSW Minister of Water regarding an alternate licensing pathway such as a Specific Purpose Access License (SPAL) which could be granted, or an exemption for this type of dewatering provided for in the Water Management (General) Regulation 2018. This could have the benefit of addressing other activities with similar non-consumptive, one-off dewatering and return challenges in water sources where water market depth and liquidity is a barrier.

ii Trading zones

1.2 Prior to approval. Recommendation. That the proponent reviews Table 4.3 of the Water Licensing Strategy (Appendix I) to confirm the water entitlement held in the relevant trading zones.

Description: The Lachlan Regulated River Water Source is split into trading zones restricting trade between the sections of the river upstream and downstream of Lake Cargelligo Weir. Sufficient entitlement must be held in each trading zone. A review and update is required of Table 4.3 to account for these different sources.

A summary of the Project's water licensing requirements is provided in Table 4.1 (Table 4.3 of the Water Licensing Strategy, Appendix I of the EIS) updated to include the water entitlement held by Evolution in the relevant management/trading zones for each water source.

Water is taken for the Project from the Lachlan Regulated River Water Source via the Jemalong Irrigation Limited offtake, located upstream of Lake Cargelligo Weir. The *Water Sharing Plan for the Lachlan Regulated River Water Source 2016* places no restrictions on trade from downstream of Lake Cargelligo Weir to upstream. In years where the current entitlement is predicted to be insufficient to meet Project demands, CGO will enter the water trading market to secure sufficient allocation, continuing the current approach at the site.

Table 4.1 Summary of water licensing requirements – updated table

Water source	Management/trading zone	Current entitlement held	Licensing requirement
Bogandillon and Manna Creeks Water Source		729 units	Refer to Section 4.1.1i
Lachlan Regulated River Water Source	That Part of the Water Source Upstream of Lake Cargelligo Weir	253 units (general security)	1,965 ML[2]
	That Part of the Water Source Downstream of Lake Cargelligo	80 units (high security) 1,400 units (general security)	
Lachlan Fold Belt MDB Groundwater Source	Lachlan Fold Belt MDB (Other) Management Zone	3,294 units	1,664 ML[3]

Table 4.1 Summary of water licensing requirements – updated table

Water source	Management/trading zone	Current entitlement held	Licensing requirement
Upper Lachlan Alluvial Groundwater Source	Upper Lachlan Alluvial Zone 7 Management Zone	4,016 units	1,911 ML[4]

1. Refer to Section 4.1i.
2. Based on peak (90th percentile) water balance model demand predictions by ATC Williams (2023).
3. Based on maximum groundwater inflow volumes (EMM 2023).
4. Based on 0.33 ML/day maximum predicted by EMM (2023) combined with 90th percentile water balance model demand predictions for additional water supply by ATC Williams (2023).

iii Predicted individual maximum

1.3 Prior to approval. Recommendation That the proponent includes the predicted maximum take volumes for the eastern saline bores (ESB) and Bland Creek Paleochannel Borefield (BCPB) in Table 8.2 of Appendix H to the EIS.

Explanation: Table 8.2 of the Appendix H does not include predicted individual maximum take from the eastern saline bores (ESB) and the Bland Creek Paleochannel Borefield (BCPB), therefore it is not a sufficiently conservative comparison with the respective existing entitlement/s listed in this table.

The predicted annual groundwater volumes required to be licensed for the eastern saline bores (ESB) and Bland Creek Paleochannel Borefield (BCPB) presented in Table 8.2 of Appendix H to the EIS are based on the long-term average extraction volumes for these borefields. These long-term average extraction volumes were used for modelling predictions.

Historically, the maximum annual groundwater volumes pumped at the ESB and BCPB are 1.1 ML/day in 2010 and 5.6 ML/day[1] in 2009, respectively.

Updating Table 8.2 of Appendix H to the EIS, as shown in Table 4.2 below, to incorporate the maximum annual groundwater volumes pumped at these borefields, rather than the long-term average indicates that the predicted volume requiring licensing for the operation of the ESB from the alluvium exceeds the currently licensed unit share for the associated WAL (WAL 36569). However, it is understood that licensed allocation can be temporarily transferred from the BCPB to boost licensed extraction from the ESB.

Table 4.2 shows that there are additional unit shares available in the Upper Lachlan Alluvial Groundwater Source Management Zone 7 under WAL 31864 that would be able to account for the additional volumes needed for both the operation of the ESB and saline groundwater supply borefield, as well as pit dewatering. Therefore sufficient entitlement is held by Evolution for the predicted water take from groundwater sources and no additional entitlement is expected to be required for the Project.

[1] Note this excludes pumping of 8.9 ML/day at the BCPB in 2006, which was due to the excess water needs associated with the commissioning of the processing plant. Aside from 2006, historical pumping of the BCPB has always been less than 6 ML/day.

Table 4.2 Maximum groundwater licensing requirements summary

Water sharing plan	Management zone/ Groundwater source	Project use (current)	Predicted groundwater inflow/extraction volume requiring licensing (ML/yr)	Currently licensed unit share
Lachlan Alluvial Groundwater Sources 2020	Upper Lachlan Alluvial Groundwater Source Management Zone 7	ESB	**401.5**[1]	300 units (WAL 36569)
		BCP borefield	2,044[2]	3,350 units (WAL 31864)
		Saline groundwater supply borefield within ML 1535 Pit dewatering	**376 (maximum)**[3]	366 units (WAL 36615)
NSW Murray Darling Basin Fractured Rock Groundwater Sources 2020	Lachlan Fold Belt MDB Groundwater Source	Pit dewatering	1,664 (maximum)	3,294 units (WAL 36617)

1. Based on 5.6 ML/day extraction (maximum historical annual use, excluding 2006 pumping associated with the processing plant commissioning).
2. Based on 8.9 ML/day extraction (maximum historical annual use).
3. Based on 0.7 ML/day extraction from the saline groundwater supply borefield (long-term average) plus 0.33 ML/day peak inflows from the alluvium.

iv Work nomination

1.4 Post approval: Recommendation: That the proponent ensures all relevant nomination of work dealing applications for Water Access Licences (WAL) proposed to account for water take by the project have been completed prior to the water take occurring

Explanation: The proponent mentions three water access licences (WAL 42993, WAL 40424 and WAL 1990) related to the Lachlan River additional water supply which do not nominate a work. These WALs must nominate a work prior to water take being accounted for under these licenses.

Following approval of the Project, Evolution will apply to amend any WALs that do not nominate a work to link them to a Miscellaneous Work for all works associated with the Project or to another relevant work approval. Evolution will ensure that all WALs nominate an appropriate Miscellaneous Work or approval prior to any water take being accounted for under these licences.

v Erosion and sediment control

1.5 Post approval: Recommendation: That the proponent prepares an Erosion and Sediment Control Plan in accordance with industry standards including the guideline, Managing Urban Stormwater: Soils and Construction (Landcom 2004).

The proposed post approval management framework for the Project is outlined in Section 3.4 above. Evolution proposes to manage erosion control through a combination of:

- compliance with performance erosion and sediment control conditions including ensuring the design, installation and maintenance of erosion and sediment controls in accordance with the best management practice guidance series Managing Urban Stormwater: Soils and Construction – Volume 1 (Landcom, 2004) and 2E Mines and Quarries (DECC, 2008)
- a DPHI approved CEMP for the UCDS and LPB, inclusive of erosion and sediment control measures
- implementation of the erosion and sediment control mitigation measures outlined in this Submissions Report (refer Appendix C) which will be documented as relevant in the Project's EMS and Water Management Plan.
- documentation of procedures to record, handle and respond to complaints, non-compliances and incidents within the Project's EMS.

It is important to note that the CEMP will manage construction activities outside of the existing mining footprint. No mining activities will take place in these areas until such time as the operational management plans are in place (refer Section 3.4.4). The controls within the CEMP will reflect the requirements of a construction site and may differ from the requirements listed in the operational management plans that will be developed for mining activities.

4.1.2 Groundwater Impacts and Management

i Updates to groundwater impact assessment

2.1 Prior to approval: Recommendation: That the proponent obtains up to date groundwater information for all production and basic rights bores (including locations, bore construction, shares or entitlement, metered extraction) within the groundwater model domain, then:

b) updates the model calibration including this additional information which should include metered usage data,
c) updates the groundwater impact assessment allowing for cumulative impacts based on actual third party bore information for shares or entitlement,
d) revises as appropriate, the impact assessment presented in Section 6.4.1 of the groundwater impact assessment (GIA) (EIS Appendix H).

Explanation: The list of third-party production bores in the model domain (Table 3.5 - Attachment C of Appendix H) is incomplete. A DPE search of corporate databases indicates that there are approximately 26 third-party production bores holding a total of approximately 11,000 Shares within the model domain that do not appear to have all been accounted for. This data can be obtained from Water NSW by request.

Section 3.6.2 of the Groundwater Impact Assessment (GIA) describes water take from CGOs bore fields and irrigation bores. This section describes that usage for 2020, 2021 and 2022 are estimated from historical use. Recorded annual pumping data is available for all bores in the Lachlan Alluvium and most bores in the Lachlan Fold Belt. For example, GW701679 (ESID 116216) and GW702123 (ESID 116202) located within the Upper Lachlan Alluvial Groundwater Source (Management Zone 5) both have annual usage records with Water NSW dating back at least 10 years. This data can be obtained from Water NSW by request.

In response to NSW DCCEEW's (formally DPE Water) request, EMM submitted a data request to WaterNSW on 18 August 2023 for groundwater information for all production and basic rights bores (i.e. locations, bore construction, licence and approval details, shares or entitlement and metered extraction). On 20 October 2023, WaterNSW provided EMM with this data (noting this data was only provided following WaterNSW sighting of the original request from NSW DCCEEW Water Group. WaterNSW provided records of metered water use for only the last five Water Years (from 1 July 2018 to June 2023), however this period does cover both dry and wet conditions.

Of the 312 potential water supply bores identified in the GIA study area, 148 were listed in the data provided by WaterNSW. All 148 of these bores had Work Approval and Work ID numbers. However, only 16 of the 148 bores had corresponding Licence and WAL numbers. Most of the remaining 132 bores are BLR bores, and therefore do not require licensing. Of the 16 remaining bores with licenses and corresponding metered data:

- seven are already represented in the current groundwater model for both history-matching and predictive analysis
- a further seven had no recorded water use in the period from 1 July 2018 to June 2023
- one additional bore had recorded use (maximum of 672.9 ML in 2019/2020 Water Year) but is located within the southern section of the model domain, well outside of the predicted cumulative drawdown impact area
- one additional bore had recorded use (maximum of 319 ML in 2019/2020 Water Year) and is more centrally located within the vicinity of the borefields.

The third-party production bores used in the Project's model domain are the same bores used in the groundwater models developed for the CGO Underground Project, which was approved in 2021, with the addition of two irrigation bores (GW701679 and GW702123) in the northern part of the model domain. The third-party production bore inputs to the Underground Project groundwater modelling were accepted by NSW DCCEEW Water Group and DPHI in their review of the Cowal Gold Underground Project GIA.

The approach taken for the current Project's groundwater model was to take the two existing numerical groundwater flow models i) mine site and ii) palaeochannel (both developed and used by Coffey for the Underground Project) and combine their domains to result in a single consistent model that addressed DPE Water's concern regarding the previous mine site model cutting off part of Lake Cowal and not being able to simulate cumulative effects. The new model implemented third party groundwater abstraction as applied in previous modelling and assessment by Coffey and reviewed by NSW DCCEEW Water Group.

For history-matching, third-party pumping data was sourced predominantly from the previously approved Coffey borefields model, while the two additional irrigation bores were assumed to take 70% of their annual allocation, over an irrigation period of 9 months. During prediction modelling, the bores were assumed to be pumping at full allocation every year, which is considered conservative with respect to cumulative drawdown as it is considered that these bores would not use their full allocation each year.

Section 3.8.1 of the GIA (EIS Appendix H) stated the following:

> Based on the NGIS database (BoM 2022), there are 312 bores listed within the study area as active, in use or unknown (conservatively assumed to be active for the purpose of this GIA). Groundwater bores that likely provide supply for water users within the study area comprise:
>
> - commercial and industrial bores (1)
> - irrigation bores (21)
> - stock and domestic bores (89)

- water supply bores (115)
- dewatering (15)
- unknown and other bores, conservatively assumed to be active for supply (71).

Locations of these registered groundwater bores were presented on Figure 3.21 of the GIA. These 312 bores were also considered under the AIP impact assessment presented in Section 6.4.1 of the GIA, as shown in figures provided in Appendix G. The above details from the EIS GIA still stand in the revised GIA contained in Appendix G of this Submissions Report.

Given the above including the outcome of the WaterNSW data review, it seems unnecessary to afford the considerable time and effort it would take to update the history-matching and predictive analysis modelling to essentially incorporate one additional bore. It is also noted that currently the prediction modelling scenarios include full allocation for the third-party bores included, which equates to 5,526 ML/yr. If the maximum recorded take for each of the six bores with metered data is added together (despite occurring in different years), this only equates to 4,426.8 ML/yr. Notwithstanding, the additional metered data will be included in the next model update.

ii Drought vs wet period modelling

2.2 Prior to approval: Recommendation That the proponent clarifies the date/s and locations that groundwater levels that were used to construct Figures 3.10, 3.11, 3.12 and 3.13 in Section 3.6.5 of the GIA were taken. In addition, it is recommended that these figures make a comparison between groundwater levels in a drought and during a wet period in the model domain.

Explanation: The measurement dates and locations are not detailed in Section 3.6.5 of the GIA. In addition, this section does not detail if water levels differ during dry conditions (i.e. during summer in a drought) and wet conditions (i.e. during winter in wet conditions).

Figures 3.10, 3.11, 3.12 and 3.13 in Section 3.6.5 of the GIA include the locations of the groundwater bores that were used in the construction of the potentiometric surfaces – referred to as 'Groundwater level point' in the figure key. These figures have been amended in the revised GIA (refer Appendix G) to include detail of the times that the groundwater level data was taken from, as follows:

- Upper and Lower Cowra Formation – 2000 (approximate)
- Lachlan Formation – 1998 (approximate)
- Fractured and weathered rock groundwater systems – 1999-2001.

Additional discussion (including the presentation of several hydrographs) has been included in Section 3.6.5 of the revised GIA to provide commentary on groundwater level variability, including differences observed during drought and wet periods.

iii Information gaps

2.3 Prior to approval: Recommendation: That the proponent provides an explanation for the information gaps (i.e., absence of upper/lower layers) in the Cowra Formation aquifer system (Figures 3.10 and 3.11 of the GIA):

a) across the north of Lake Cowal, and
b) approximately 15 km to the north-east of Lake Cowal, and
c) across the upstream section of the model domain to the east of West Wyalong.

Explanation: Inactive model cells where gaps have been interpreted in these formations results in a flow barrier that may not be present and should be discussed as part of conceptual model uncertainty.

2.4 Prior to approval Recommendation: That the proponent provides an explanation for the gaps or absence of the Lachlan Formation aquifer 15 km to the north-east of Lake Cowal and 10 km south-east (Figure 3.12 of the GIA).

Explanation: Inactive model cells where gaps have been interpreted in the formations results in a flow barrier that may not be present and should be discussed as part of conceptual model uncertainty.

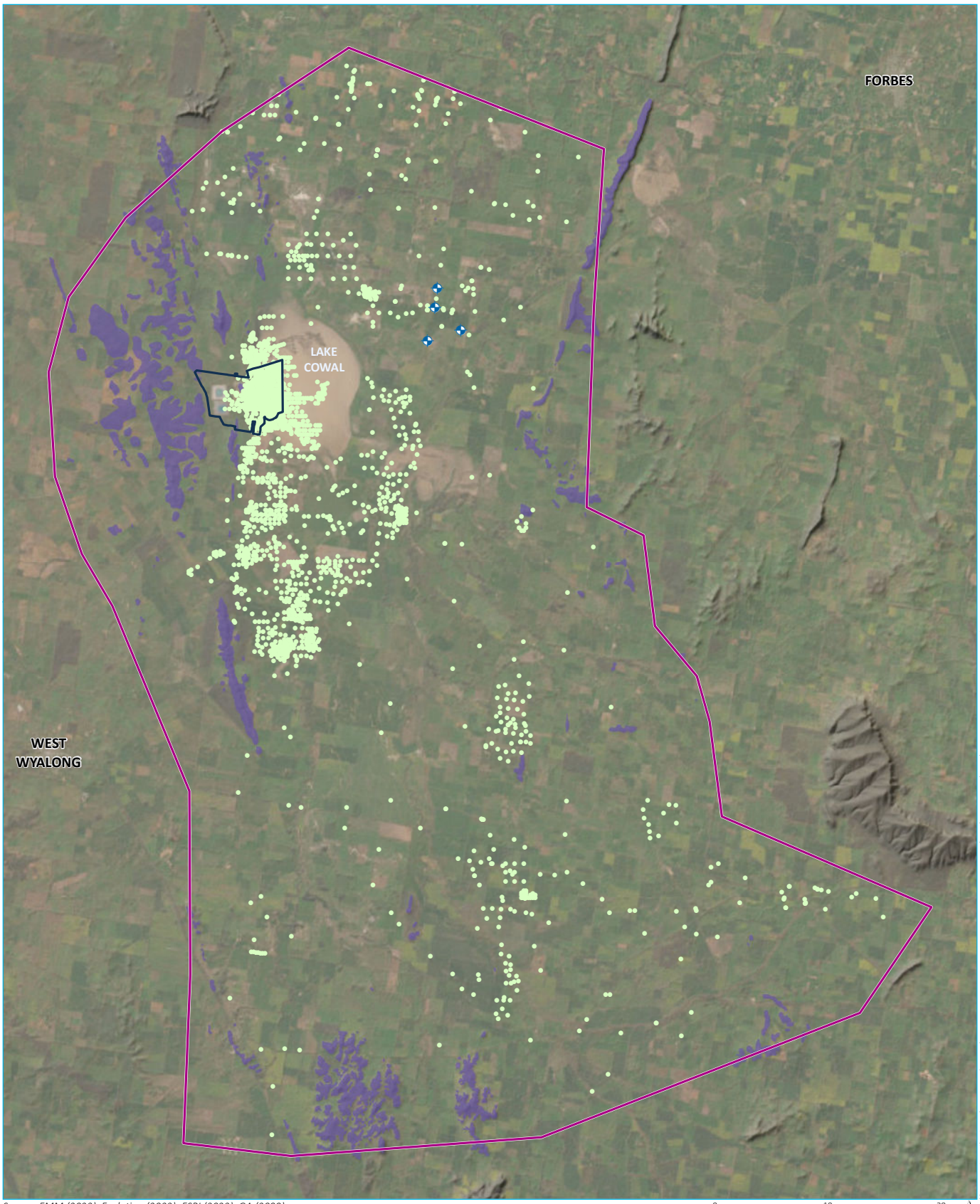
The absence of the upper/lower Cowra Formation and Lachlan Formation groundwater systems (collectively referred to as the alluvial groundwater systems) is based on:

- public mapping data, comprising the:
  - Forbes hydrogeological map (WRC, 1986)
  - Seamless geology surface maps of New South Wales (DPE, 2023)
- lithology logs, comprising 7,057 records collated from:
  - the Cowal Gold Operations drillhole database, comprising 6,493 lithology logs
  - the National Groundwater Information System (BoM, 2013), comprising 564 lithology logs.

Public mapping data was used to delineate areas where rock units of the Lachlan Orogen were outcropping at surface, leading to an absence of the typically overlying alluvial groundwater systems. Geological interpolation (based on the lithological logs) was used to further infer the spatial extent of each alluvial groundwater system.

Locations of lithological logs, indicating the presence/absence of each respective alluvial groundwater system, is provided on Figure 4.1 to Figure 4.3.

As the modelling was conducted using MODFLOW-USG and made use of that software's flexible nodal connection functionality, inactive cells do not behave like no flow cells in older versions of MODFLOW. Instead, where a cell is inactive in a given model layer, the model directly connects the cells in the overlying and underlying model layers, therefore avoiding an artificial barrier to groundwater flow.



Source: EMM (2023); Evolution (2023); ESRI (2023); GA (2009)

0 10 20 km

GDA 1994 MGA Zone 55

N

KEY

- Study area
- Project area
- Bland Creek Palaeochannel Borefield (BCPB)
- Boreholes where Upper Cowra Formation intersected
- Lachlan Orogen rock outcrops

Spatial extent of the Upper Cowra Formation

Evolution Mining
Cowal Gold Operations
Open Pit Continuation Project
Submission Report
Figure 4.1

EMM
creating opportunities

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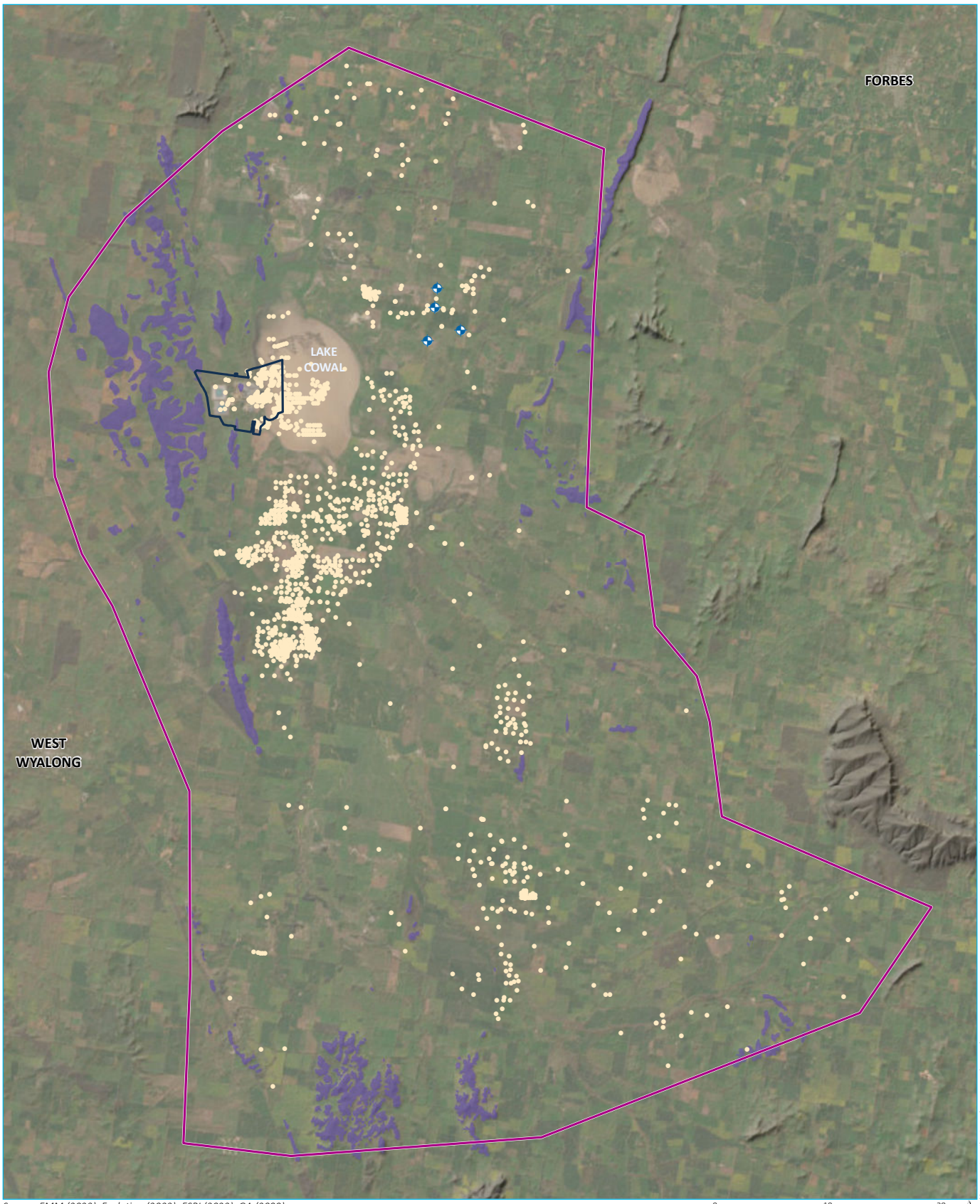

Source: EMM (2023); Evolution (2023); ESRI (2023); GA (2009)

0 10 20 km

GDA 1994 MGA Zone 55

N

KEY

- Study area
- Project area
- Bland Creek Palaeochannel Borefield (BCPB)
- Boreholes where Lower Cowra Formation intersected
- Lachlan Orogen rock outcrops

Spatial extent of the Lower Cowra Formation

Evolution Mining
Cowal Gold Operations
Open Pit Continuation Project
Submission Report
Figure 4.2

EMM creating opportunities

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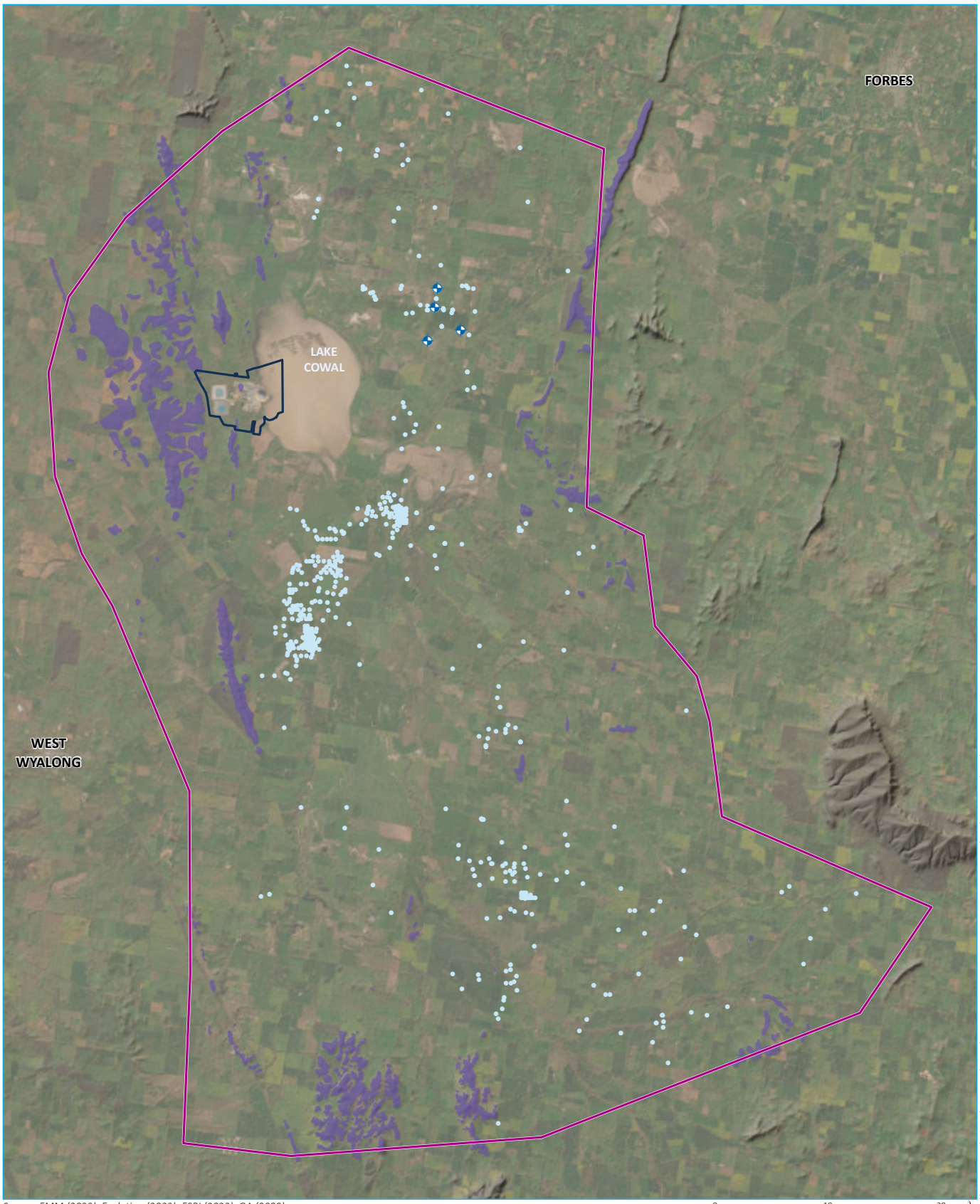

Source: EMM (2023); Evolution (2023); ESRI (2023); GA (2009)

0 10 20 km

GDA 1994 MGA Zone 55

N

KEY

- Study area
- Project area
- Bland Creek Palaeochannel Borefield (BCPB)
- Boreholes where Lachlan Formation intersected
- Lachlan Orogen rock outcrops

Spatial extent of the Lachlan Formation

Evolution Mining
Cowal Gold Operations
Open Pit Continuation Project
Submission Report
Figure 4.3

EMM
creating opportunities

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iv Aquifer water depth measurement

2.5 Prior to approval, Recommendation: That the proponent clarifies from which aquifer (Cowra, Lachlan or Lachlan Fold Belt) the depth to water measurements were taken to construct Figures 4.1 and 4.2 in the GIA.

Explanation: The GIA does not detail from which aquifer the depth to water measurements were taken to construct these figures.

The inferred depth to water measurements shown in Figures 4.1 and 4.2 of the GIA were taken from the shallowest unit with groundwater in it (generally the Upper Cowra Formation), which essentially represents the watertable. These figures have been amended in the revised GIA to include this detail (refer Appendix G).

v Highly productive

2.6 Prior to approval Recommendation: That the proponent updates the groundwater impact assessment where relevant assuming the upper/lower Cowra groundwater system is considered 'highly productive' under the NSW Aquifer Interference Policy (AIP). Note the 'upper/lower Cowra groundwater system' is part of the Upper Lachlan Alluvial Groundwater Source.

Explanation: The NSW Aquifer Interference Policy applies the productive categories at the groundwater source scale.

The upper/lower Cowra groundwater system is part of the Upper Lachlan Alluvial Groundwater Source which is considered 'highly productive'. Additionally, as outlined in section 3.6.1 of the GIA, water supply works installed into the lower Cowra groundwater system can yield up to 40 L/s. DPE Water sample results for selected monitoring bores installed into the Cowra groundwater system within the model domain indicate total dissolved solid concentrations below 1,500 mg/L.

In accordance with the AIP, a groundwater system must have dissolved solid concentrations above 1,500 mg/L and contain water supply works that yield less than 5 L/s in order to be classified as 'less productive'.

EMM stands by its conceptualisation of the regional alluvial system into three distinct hydrostratigraphic units:

- Upper Cowra groundwater system, an unconfined, phreatic groundwater system supporting the watertable (where present). This system is classified as less productive due to its low yield and high salinity.
- Lower Cowra groundwater system, an unconfined/confined groundwater system underlying the Upper Cowra groundwater system. It is classified as less productive due to its high salinity.
- Lachlan groundwater system, a confined, highly productive groundwater system underlying the Lower Cowra groundwater system. The Lachlan groundwater system is generally classified as highly productive due to its good yield.

However, we understand that NSW DCCEEW Water Group is stating that in the strictest sense the NSW AIP applies the productive categories at the groundwater source scale. Therefore all three alluvial groundwater systems are part of the Upper Lachlan Alluvial Groundwater Source which is considered 'highly productive'.

This does not affect the outcomes of the impact assessment presented in the GIA, as the Minimal Impact Considerations for both 'highly productive' and 'less productive' alluvial groundwater sources are effectively the same. The revised GIA has been updated to reflect the change in application of productive categories under the AIP (refer Appendix G).

vi Third party production and basic right bores

2.7 Prior to approval Recommendation: That the proponent adds third-party production and basic right bores to Figures 6.1a, 6.1b, 6.2a and 6.2b of the GIA and re-assesses impacts against the AIP minimal impact considerations.

Explanation: Neighbouring third-party bores are not shown on any of the cumulative drawdown prediction figures (Figures 6.1a, 6.1b, 6.2a and 6.2b [Figures 6, 7, 8 and 9, respectively]).

Figures 6.1a and 6.1b of the GIA indicate that groundwater impacts exceed 2 m in the upper Cowra aquifer system particularly in the vicinity of the Bland Creek Paleochannel bores.

Multiple third-party bores are known to be located adjacent to and in the vicinity of the Bland Creek Paleochannel bores.

For an assessment of impacts at third-party bores against the AIP minimal impact considerations, it is required that these neighbouring third-party bores (both production and basic rights) be added to Figures 6.1a, 6.1b, 6.2a and 6.2b in the GIA. Where impacts on water supply works meet the Level 2 AIP minimal impact considerations, make good provisions will apply.

Section 6.1 of the EIS and revised GIA (which includes figures 6.1a, 6.1b, 6.2a, 6.2b, 6.3a and 6.3b) presents overarching cumulative impacts caused by the Project (defined as approved plus proposed Project operations), with the figures showing drawdown at the end of mining. These are calculated by subtracting the Proposed Project scenario from the Null scenario. This calculates the total drawdown caused by the Project compared to a 'no mining' scenario.

The AIP minimal impact considerations require assessment of cumulative impacts from the commencement of a WSP, which was 2012 for the Lachlan alluvial WSP (the WSP of interest for most of the potentially impacted landholder bores and GDEs). This was calculated by subtracting the Proposed Project scenario from the conditions experienced during 2012. Conditions prior to these periods are acknowledged as pre-existing to the implementation of a groundwater management regime.

As noted in Section 6.4 of the GIA, approved works that are for the primary purpose of extracting groundwater do not require assessment against the AIP minimal impact consideration. This means that the Bland Creek Palaeochannel and Eastern Saline borefields do not need to be assessed against the AIP criteria. However, pumping from the borefields (and existing landholder bores) are included in the assessment of cumulative 'post-WSP' impacts.

The assessment of impacts at third-party bores against the AIP minimal impact considerations is provided in Section 6.4.1 of the GIA. The location of the third-party bores included in the AIP impact assessment are shown in figures provided in Attachment F of the revised GIA. These figures have been updated to show what layer the bores within the 2 m cumulative drawdown probability impact area were modelled in, based on their screen depths observed from available borelogs.

vii Cumulative drawdown prediction

2.8 Prior to approval: Recommendation: That the proponent includes the cumulative drawdown prediction maps (currently provided in the GIA for upper Cowra and Lachlan Fold Belt aquifer systems) for the Lower Cowra and Lachlan formation aquifer systems. The maps should also include locations of all third-party production and basic rights bores.

Explanation: Cumulative drawdown predictions were not included for the Lachlan or Lower Cowra groundwater systems in the EIS (or GIA).

The mine life is proposed to be extended as part of this application, therefore additional impact to Lower Cowra/Lachlan groundwater systems particularly adjacent to the Bland Creek Paleochannel Bores is expected. In addition, a number of third-party bores are known to be located adjacent and in vicinity of the Bland Creek Paleochannel Bores.

Section 6.1.2 of the EIS and revised GIA presents the likelihood of 2 m drawdown exceedance for the cumulative Project, with Figure 6.4 showing the maximum drawdown likelihood, irrespective of time. This figure includes Lower Cowra Formation (Layer 3) and the Lachlan Formation (Layer 4).

The assessment of impacts at third-party bores against the AIP minimal impact considerations is provided in Section 6.4.1 of the GIA. The location of the third-party bores included in the AIP impact assessment are shown in figures provided in Attachment F. These figures include cumulative drawdown figures for the Lower Cowra Formation and Lachlan Formation layers. These figures have been updated in the revised GIA to show what layer the bores within the 2 m cumulative drawdown probability impact area were modelled in, based on their screen depths observed from available borelogs.

viii Level two AIP minimal impact considerations on Groundwater Dependent Ecosystems

2.9 Prior to approval. Recommendation: That the proponent completes appropriate studies to address the requirement of the Level 2 AIP minimal impact considerations for predicted impacts on GDE's of more than 10% of cumulative variation in the water table.

Explanation: The predicted cumulative drawdown impacts for the water table at high priority GDE's (Section 6.4.3 of the GIA) are more than a 10% change in the cumulative variation. This meets the Level 2 minimal impact considerations which requires appropriate studies to demonstrate to the Ministers satisfaction that the variation will not prevent the long-term viability of the dependent ecosystem.

To address the requirement of the Level 2 AIP minimal impact considerations for predicted impacts on GDEs of more than 10% of cumulative variation in the watertable, a supplementary GDE study was undertaken (EMM and 3D Environmental 2024). The works undertaken considered methods and assessments outlined in the GDE toolbox (Richardson S, et al, 2011) and Independent Expert Scientific Committee (IESC) guidelines (IESC 2019 and 2023). Such methods included pre-dawn Leaf Water Potential, Leaf Area Index, auger hole lithological logging, root morphology observations, soil and water salinity sampling and Soil Matric Potentials. The methods were assessed and ecohydrological conceptual models were developed to assess the potential reliance River Red Gums have on the presence of groundwater, that may be subject to impact caused by groundwater drawdown associated with the Project. River Red Gums were focused on in the assessment given this species is the dominant canopy species composing the plant communities where potential drawdown impacts were identified in the EIS.

In summary, the additional studies found that drawdown associated with the development of the Project is not expected to have an impact on River Red Gums due to the absence of casual pathways between the mine dewatering activities and the groundwater sources associated with drawdown and GDEs. This is because the Upper Cowal Formation is affected by mine dewatering, which the GDEs are not reliant upon. The PCTs are taking water from the shallow vadoze zone, generally between 0.4 and 1.5 mbgl, and not from the deeper phreatic surface, where drawdown can occur from.

Further details of this supplementary GDE study are provided in the GDE Assessment contained in Appendix H of this Submissions Report.

ix Groundwater plan revision

2.10 Post approval. Recommendation: That the proponent revises the Groundwater Management Plan to include updated monitoring and management strategies for project related drawdown impacts.

As outlined in Section 3.4, Evolution proposes to develop a new Water Management Plan inclusive of a Groundwater Management Subplan prior to commencement of Project related operations (i.e. development of the satellite open pits). The new Water Management Plan will be developed in consultation with NSW DCCEEW Water Group and EPA and will include updated groundwater monitoring and management strategies.

4.1.3 Groundwater Model

i Model boundary conditions

3.1 Prior to approval Recommendation: That the proponent revises the model boundary conditions currently using constant head boundaries (CHD) for all model layers in areas where no constant source of water is presented in the conceptual model. It is recommended that general head boundaries (GHB) are used instead so that drawdown is not underestimated.

Explanation: The model currently uses constant head boundaries (CHD) for all model layers in areas where no constant source of water is presented in the conceptual model.

Model boundary conditions are summarised in Table 3.4 of Attachment C (Groundwater Model Report) and CHD boundaries are shown in Figure 3.10 to 3.11. Assigned CHD values appear not to line up with groundwater level head contours in the south-east and northern boundaries for the Upper and Lower Cowra layers.

Values assigned to constant head (CHD) boundary conditions in the model were reviewed during the response to submissions phase of the Project and were found to be inconsistent with the conceptual contours. The influence of this on modelling outcomes was tested by running the model with updated heads assigned to the CHD boundary conditions, which showed negligible influence on history-matching performance and predictions. The head values assigned to CHD boundary conditions will be updated, and they can be converted to GHBs, as part of any future modelling works.

Some key comparative history-matching and predictive measures are:

- transient hydraulic head mean absolute residual: 8.25 m reported, 8.40 m following update to CHD (i.e. 1.8% difference)
- total mine dewatering volume: 59.1084 GL reported, 59.1082 GL following update to CHD (i.e. -0.0003% difference)
- hydraulic head hydrographs following update to CHD: difference of -16.70 to 25.292 m, with mean difference of 0.067 m and standard deviation of difference 1.794 m
- drawdown hydrographs following update to CHD: difference of -0.535 to 1.611 m, with mean difference of -0.004 m and standard deviation of difference 0.097 m.

The largest change to model outputs is the absolute hydraulic head at monitoring bores, with 90% of updated modelled values within 3.6 m of those modelled with the use of erroneous heads assigned to CHD boundary conditions. The influence to both mine dewatering and drawdown is negligible, meaning no changes would be made to the groundwater impact assessment as a result of changing the heads assigned to CHD boundary conditions.

The CHD package was used in preference over the GHB package to aid numerical stability across the parameter ensemble and means that the model maintains heads at these boundary locations (i.e. drawdown will not be simulated). However, it means that changes in flux across these boundaries are conservative. The peak modelled induced flux over CHDs associated with proposed mining activities is 170.5 ML/yr, of which 12.4 ML/yr is from the proposed mine expansion. This change is small, meaning that the use of CHD over GHB does not materially influence the predictions of impacts associated with the Project.

ii Base elevation model

3.2 Prior to approval: Recommendation: That the proponent revises the base elevation of the model from -900 m AHD to at least 1.5 times the depth of the underground mining stopes (DRN cells are active to -849 m AHD).

Explanation: To minimise interaction with the no flow boundary.

The model base elevation was set sufficiently far below the base of the underground mining stopes to allow for simulation of groundwater below the base of the mine.

The model design allows for groundwater flow around and beneath the full extent of open cut and underground mine workings. Simulation of groundwater inflow to the mine and resultant drawdown in productive aquifers are not impeded by the depth of the base of the model.

Whilst this can be modified in any future groundwater modelling carried out, there is no scientific basis to do so.

iii Modelled hydraulic parameters

3.3 Prior to approval: Recommendation: That the proponent revises the modelled hydraulic parameters assigned to the paste backfill in the underground mining stopes. The use of pre-mining rock properties is not appropriate and there is the need to include hydraulic properties of the backfill paste in the sensitivity and uncertainty analysis.

Explanation: The paste backfill pre-feasibility study report (Outotec, 2020) reported a representative hydraulic conductivity of 39 mm/hr (0.9 m/day) for the paste backfill. This hydraulic conductivity is at least two orders of magnitude greater than that of the surrounding rock.

Due to the relatively high hydraulic conductivity of the paste backfill compared to the surrounding rock, the backfilled stopes can be considered as equivalent to a void from a groundwater inflow perspective. Therefore, assigning pre-mining rock properties to the paste backfill requires revision in the model.

Hydraulic properties of the backfill paste require inclusion in the sensitivity and uncertainty analysis.

Paste backfill hydraulic properties were not incorporated in the model, as these are not considered to significantly affect the predictive outcomes of the modelling. There may be a minor influence on the post-mining water balance, depending on the specific yield of the backfill material. However, the hydraulic conductivity of paste backfill has minimal impact on the recovery of groundwater post-mining. During the response to submissions phase of the Project, the approach taken was discussed further with the DPHI appointed peer reviewer of the EIS GIA and Groundwater modelling report who agreed that the approach taken by EMM's groundwater technical specialists was reasonable and would have minimal impact on modelling results.

iv Pit inflow and vertical head gradients

3.4 Prior to approval: Recommendation. That the proponent includes vertical head gradients and assessment of the groundwater component of pit inflow for calibration targets to improve the model as a predictive tool prior to reassessment of key impacts (drawdown and fluxes). This reassessment is also to include the revised hydraulic parameters representing backfill materials (refer to point above) and climate change predictive scenarios.

Explanation: Section 3.3.1 of Attachment C to the GIA states model limitations include no calibration of vertical head gradients or pit inflows, no hydraulic property changes representing fracturing or backfill materials and no assessment of climate change impacts.

Inclusion of vertical head gradients and assessment of groundwater component of pit inflow for calibration targets is required to improve the model as a predictive tool. A reassessment is required to assess the changes to key impacts (drawdown and fluxes) with hydraulic property changes representing backfill materials (refer to point above) and climate change predictive scenarios

The model's capability as a predictive tool must be tied to the specific modelling objectives. In this case these broadly relate to predicting:

1. groundwater inflow to the mine
2. the resulting drawdown in the regional groundwater system
3. the fate of potential solutes entering the groundwater system from the IWL.

Whilst the history-matching targets were not formulated as vertical gradient targets, the model was history-matched using head targets and head-change targets. A good match to heads typically infers a good match to vertical gradients (where data on heads with depth are available). It should be noted that the use of vertical gradient targets is not common industry practice. The use of head change targets, particularly in the vicinity of the mine, focussed the model's parameterisation on matching measured responses to the same primary groundwater-affecting activity proposed by the Project.

Regarding the use of flux targets, water pumped from the mine is not disaggregated into groundwater and surface water, nor are evaporation and water entrained in excavated material quantified. This introduces significant uncertainty into the volume of groundwater reporting to the mine voids. Hence, these data were not used as hard history-matching targets but, rather, as a sanity check.

As a validation exercise, EMM analysed the base realisation model performance against measured vertical head differences. In total, the measurement dataset allows for the calculation of 7,314 vertical head differences over the history-matching period. Associated residuals (i.e. difference between modelled and measured) and statistics of this measure are presented in Table 4.3, along with the other performance metrics used for history-matching. The SRMS for vertical head difference is 11.8%, with residual average and standard deviation similar to the equivalent statistics for transient head measurements. This is considered an acceptable level of match between modelled and measured head differences and provides validation that the formulation of targets used to inform history-matching was appropriate.

Table 4.3 Base realisation history-matching statistics

Metric	Initial hydraulic head	Transient head-change	Transient head	Vertical head difference
SRMS	4.8%	4.3%	3.2%	11.8%
RMS (m)	11.72	10.43	13.14	14.03
Minimum residual (m)	-64.36	-95.38	-155.54	-49.52
Maximum residual (m)	61.14	105.10	95.01	87.91
Average residual (m)	0.51	1.93	-1.48	-2.43
Residual standard deviation (m)	11.71	10.24	13.06	13.82
Average absolute residual (m)	7.19	6.40	8.25	9.82
Measurement range (m)	246.54	243.44	410.13	118.93

v Further assessment and clarification

3.5 Prior to approval. Recommendation, That the proponent:

- further assesses measured hydraulic conductivity (K) data and compare to modelled K values,
- provides clarification about whether the values listed in Table 4.4 “Base case hydraulic properties for hydrostratigraphic units (HSUs) using pilot points” (Attachment C of the GIA) are the range of calibrated parameters adopted for the calibrated model from PEST i.e., best overall match to measured data, referred to in the model report as the "base case realisation",
- includes a figure of the key parameters for the whole model domain similar to Figure 4.12 horizontal hydraulic conductivity for saprolite model layer 5 “base realisation”.

Explanation: Further assessment of measured hydraulic conductivity (K) data and subsequent comparison to modelled K values is required. There is a large database of measured K data in the study area from a range of testing methods including pumping tests, slug tests and laboratory testing. This information is not described in the report or in the indicative K values shown in Table 2.1 of Attachment C.

It is best practice to tabulate the number and types of tests for each HSU.

The proponent needs to clarify that values listed in Table 4.4 of Attachment C “Base case hydraulic properties for HSUs using pilot points” are the range of calibrated parameters adopted for the calibrated model from PEST i.e. best overall match to measured data, referred to in the model report as the "base case realisation".

Table 4.4 provides a large range in parameters. If the full range constitutes the calibrated model rather than the arithmetic mean, key parameters need to be illustrated for the whole model domain, similar to Figure 4.12 horizontal hydraulic conductivity for saprolite model layer 5 “base realisation”.

Noted and agreed. This comparison has been undertaken and is included in Section 4.3 of the groundwater modelling report (refer Attachment C of the Revised GIA contained in Appendix G of this report).

vi Compliance bores and drawdown multipliers

3.6 Prior to approval. Recommendation, That the proponent:

- revises Section 4.2.2ii of Attachment C to clarify the discussion of calibration results at three compliance bores (GW036553, GW036611 and GW036597) where modelled groundwater heads are greater than 10 m higher than observed groundwater levels.
- provides further clarification to section 5.4.1 of Attachment C regarding the multipliers used to scale the predicted groundwater levels at the three compliance bores. Assessment of climate change impact, particularly dry conditions, requires inclusion in the predictive scenarios to understand the likely breach of triggers once pumping data has been updated in the model and full shares (entitlements) are modelled.

Explanation: Revision of section 4.2.2ii is required to provide context, as the model is used to make predictions of the likelihood of a breach of investigation and mitigation levels.

Figure 4.8 of the model report should include GW036611 and GW036597 as well as GW036553, rather than referring to those hydrographs in Appendix C of the EIS.

Section 5.4.1 requires further clarification regarding the multipliers used to scale the predicted groundwater levels at the three compliance bores. As detailed in the independent review of the model report, discussion of the likelihood of breaches of the trigger levels should focus on the base and P10 estimates from the model simulated scenarios.

Additionally, the assessment of climate change impact particularly dry conditions requires inclusion in the predictive scenarios to understand the likely breach of triggers once pumping data has been updated in the model and full allocations are modelled.

Model history-matching was undertaken with the intent of minimising mismatch between modelled and measured groundwater levels and trends at 415 monitoring sites. Targets associated with compliance monitoring bores were not assigned a higher statistical weighting than those from other nearby bores and, therefore, PEST[2] did not attempt to achieve a better match at these locations. During the groundwater impact assessment, it was determined that the model under-represented drawdown at these locations, and therefore did not provide a conservative impact assessment. It was decided to apply a drawdown multiplier to the relevant modelled hydrographs, facilitating a more representative impact assessment without necessitating a full revision of the history-matching process. Modelled hydrograph for GW036597/1 are presented in Figure 4.4 showing the comparison before and after applying the drawdown multiplier (left and right respectively).

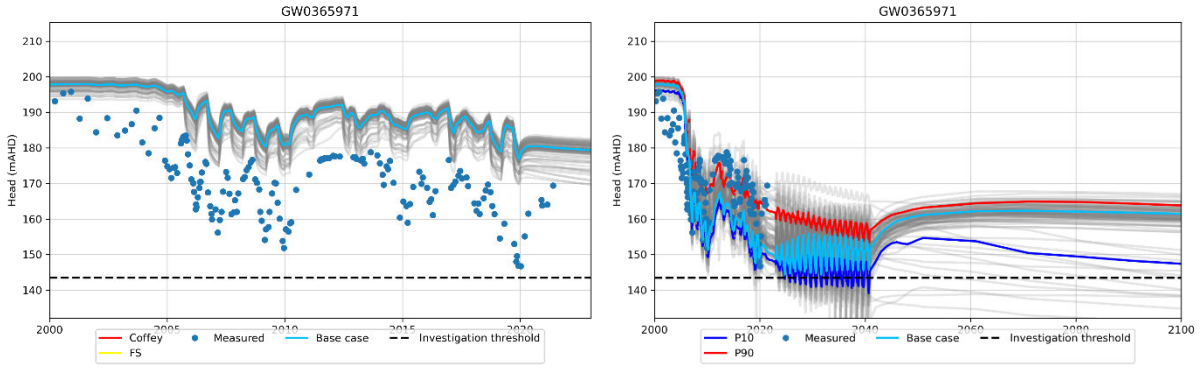


Figure 4.4 Modelled hydrographs at GW036597/1, prior to assigning drawdown multiplier (left) and following drawdown multiplier (right)

This additional discussion has been included in Section 5.4.1 of the groundwater modelling report. Any future history-matching will incorporate higher performance scrutiny at compliance monitoring bores, ensuring a better match to measured data and removing the requirement to use a drawdown multiplier to support impact assessment.

With regards to the assessment of climate change impacts, Section 2.1.6 of DPE (2022) states the following:

> The actual impact of predicted climate change on a Major Project will be highly variable depending on the type of project, duration of the activities, and the location. Therefore, the need for consideration of the potential impacts of climate change is complex.
>
> There is a number of datasets on predicted climate scenarios available to proponents, such as the NARCliM predictions. These datasets must be taken into consideration for Major Projects that have a lifespan of more than 50 years or are located in areas where considerable changes to the hydrological cycle (rainfall, runoff) are predicted. Where appropriate, climate change prediction datasets can be used for scenario modelling to determine the impact of climate change on the activities, including the cumulative impact. In some instances, predicted changes in climate may reduce the impact of an activity on groundwater resources.

The Project will only extend the total mine life to 2042, which is within a 50 year lifespan. A review of the NSW Climate Projections[3] indicated that in the near future (2020-2039), the annual change in rainfall at the mine site would only be +0.73% while the annual change in temperature would only be 0.66°C. Therefore specific climate change scenarios were not considered necessary to address the regulatory requirements for this Project.

[2] PEST – PESTPP-IES version 4.2.16 is an automated tool employed in history matching

[3] https://www.climatechange.environment.nsw.gov.au/projections-map - the interactive NSW Climate Projections map data is sourced from NSW and Australian Regional Climate Modelling (NARCliM).

vii Metered pit inflow

3.7 Prior to approval. Recommendation, That the proponent assesses metered pit inflow data for the groundwater component and include as a calibration parameter.

Explanation: The groundwater component of the pit inflow data requires assessment and inclusion as a model calibration parameter. A model with flux as well as head targets is more robust.

While inflows were used as a sanity check, they were not incorporated in the history-matching process as hard targets due to inconsistency of data collection and the uncertainty associated with the data (net total of groundwater and surface water inflow without accounting for evaporation and water entrained in excavated material). Data from horizontal drains installed in 2013 show initial cumulative outflow of approximately 5 ML/d, reducing to 0.5 ML/d within two weeks. These values bound the annual average modelled mine dewatering flux (excluding bore dewatering), suggesting suitable model performance without using flux targets.

viii Potential range in predicted flux impacts

3.8 Prior to approval. Recommendation: That the proponent revises section 5.2 of Attachment C to the GIA to include the potential range in predicted flux impacts from the full ensemble of 200 realisations.

Explanation: This is required to quantify the likely uncertainty in a prediction rather than only the base realisation i.e., best fit calibrated model.

The total modelled water balance has been analysed to obtain an estimate of potential flux impact ranges. Modelled pit inflows (simulated via the DRN package) are presented in Figure 4.5, showing the base realisation and percentiles from P10 to P90. The range from P33 to P67 is fairly tight around the base realisation, with a range of approximately 0.5 ML/d above and below the base realisation in the predictive period. The P10 and P90 predictions are wider, showing total modelled peak inflow from 3 to 6 ML/d.

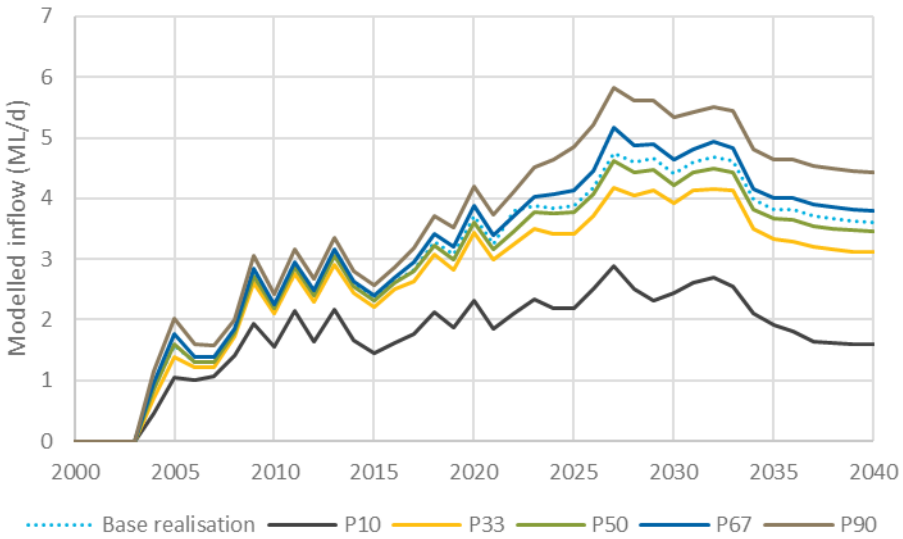


Figure 4.5 Modelled mine inflow predictive uncertainty analysis

This discussion has been included in Section 5.2 of the groundwater modelling report. Further discretisation (e.g. inflows per pit, flux changes at Lake Cowal) require re-running of the ensemble and can be performed as part of future modelling.

ix Water balance budgets

3.9 Prior to approval: Recommendation: That the proponent updates the water balance budget results to separate baseflow flux for the creeks and Lake Cowal.

Explanation: Separate baseflow flux results for the creeks and Lake Cowal are required to allow assessment of impacts separately for Lake Cowal, which is conservatively modelled as connected to the groundwater system, compared to the creeks in the model domain.

The model water balance has been updated to separate leakage from and baseflow to the creeks and Lake Cowal. In the steady state (pre-development) stress period, the simulated fluxes are:

- leakage: total flux 3.25 ML/d; 0.01 ML/d Lake Cowal, 3.24 ML/d creeks
- baseflow: total flux 0.23 ML/d; 0.21 ML/d Lake Cowal, 0.02 ML/d creeks.

This is discussed in Section 4.2.3 of the revised groundwater modelling report (refer Attachment C of Appendix G).

x PCT baseline realisation

3.10 Prior to approval, Recommendation: That the proponent revises section 5.4.2 of Attachment C to the GIA where modelled groundwater levels from the base realisation are presented at the plant community type (PCT) locations. The discussion of drawdown is brief and requires further detail in the Appendix H, rather than referencing the biodiversity development assessment report (BDAR).

Explanation: The discussion of drawdown in section 5.4.2 is brief and requires further detail in the GIA report rather than referencing the biodiversity development assessment report (BDAR).

As detailed in Section 4.1.2viii above, further studies have been undertaken to address the requirement of the Level 2 AIP minimal impact considerations for predicted impacts on GDEs of more than 10% of cumulative variation in the watertable. Section 6.4.3 of the revised GIA has been updated to provide further discussion of GIA impacts, including a summary of the further studies that have been undertaken.

xi Pit water level recovery scenario

3.11 Prior to approval, Recommendation: That the proponent include/integrate into the GIA (Appendix H) and Attachment C of the GIA, the more realistic pit water level recovery scenario using the separate water balance model reported in the model report scenario addendum.

Explanation: This is required to allow assessment of long-term impacts considering the required model revisions above.

The adopted approach in the Project's groundwater modelling and GIA is defendable. The modelling presented two cases that were 1) conservative in terms of drawdown (i.e. dry pit in perpetuity) and 2) conservative in terms of solute transport (recovered pit). If both end members are acceptable for their respective risks, then anything in between should be acceptable.

xii Uncertainty relating to boundary conditions

3.12 Prior to approval, Recommendation: That the proponent add discussion to Attachment C of the GIA regarding conceptual model uncertainty including uncertainty relating to boundary conditions, hydrostratigraphic layers, hydraulic properties and recharge rates.

Explanation: This is to assist in understanding uncertainty in model development and hence impact predictions.

Noted and agreed. Additional discussion regarding conceptual model uncertainty has been included in Section 3.3.1 of the revised Groundwater Modelling Report (refer Attachment C of Appendix G).

xiii Model RIV stages

3.13 Prior to approval Recommendation: That the proponent update model RIV stages for the Bland Creek water levels with stream gauging data.

Explanation: Lake Cowal and other surface water features (Bland Creek, Barmedman Creek and the irrigation channels) were modelled with the MODFLOW River (RIV) package. Only the stage for Lake Cowal is based on measured data, with the creeks and irrigation channels being set to ground level, with the bed elevation 1 m below ground level. This is not appropriate for the creeks and the RIV stage for the creek water levels need to be updated with stream gauging data.

EMM did not consider the effort of incorporating stream gauging data for defining RIV stage elevations to be commensurate to improving the model's predictive capability as Bland Creek, Barmedman Creek and irrigation channels are not major watercourses.

These watercourses are relatively small features that are included in the model so that potential changes to their interaction with the groundwater system can be quantified. The changes are brought about by the imposed stresses (primarily mine dewatering and wellfield operation). The influence of modelled river stage is considered minor with respect to history-matching performance and predictive capability and, therefore, the approach taken in the groundwater modelling is considered appropriate.

xiv Recharge rates

3.14 Prior to approval Recommendation: That the proponent includes recharge rates such as from a literature review for the conceptual model discussion and compare to calibrated model recharge rates.

Explanation: No recharge assessment has been included in the GIA or model report (Attachment C). Inclusion of recharge rates such as from a literature review for the conceptual model discussion and comparison to calibrated model recharge rates is recommended.

Noted and agreed. Additional discussion of conceptual recharge rates has been added to Section 2.3 of the Groundwater Modelling Report (refer Attachment C of Appendix G).

xv Additional predictive modelling scenarios

3.15 Prior to approval: Recommendation: That the proponent includes additional predictive modelling scenarios and uncertainty analysis showing drawdown and flux impacts with the Gilmore Fault Zone acting as a preferential flow pathway.

Explanation: The Gilmore Fault Zone is described in the GIA and model report (Attachment C) however no information is provided regarding how the fault plane acts as a preferential flow conduit and is therefore excluded from the numerical model.

Discussion of regional geological structure in the conceptual model and how this would influence the groundwater flow system is required.

By using pilot points the modelling process allowed representation of regions of higher or lower conductivity and storage properties. Should the fault be either a conduit or barrier to groundwater flow, and there be monitoring data sensitive to this, the pilot points were enabled, through the history-matching process, to reflect this.

Whilst a sensitivity run could be conducted implementing a forced conduit representation, it may be that this would result in poor history-matching performance.

xvi Rainfall recharge and evapotranspiration figures

3.16 Prior to approval: Recommendation: That the proponent clarifies the water budget figures for rainfall recharge and evapotranspiration (ET) during wet and dry calibration periods.

Explanation: In the transient model when Lake Cowal is full during a wet period in January 2023 recharge is reported as 24.17 ML/day and ET 26.4 ML/day. This contrasts with a dry period in January 2009 when Lake Cowal is dry, recharge is reported as 11.25 ML/day and ET 12.25 ML/day.

During a wet period, the watertable is observed to rise in association with increased recharge. Within the groundwater model, this results in more groundwater within the evaporation extinction depth (i.e. near surface), and a resultant increase in modelled evapotranspiration. This discussion has been included in Section 4.2.3 of the revised Groundwater Modelling Report (refer Attachment C of Appendix G).

4.2 Biodiversity Conservation Division

4.2.1 Native Vegetation – Scattered Tree Module

Native Vegetation.

The scattered tree module has not been applied

Recommended action: 1.1 Apply the scattered tree module in accordance with Appendix B of the BAM and prepare a scattered tree related case under the parent case in BOAMS.

Following discussions with BCD, the scattered tree module was applied to cropped land/ Category 1 land, as requested (See Appendix D of the revised BDAR). Methods and results for applying this module are provided in Section 4.2.3 and 4.3.5, respectively of the revised BDAR. The revised ecosystem credit liability (48 Credits required) is reported in Section 8.10 of the revised BDAR (refer Appendix F).

4.2.2 Prescribed impacts – Austral Pillwort

Prescribed impacts

Residual prescribed impacts for Austral Pillwort are not adequate. The species polygon for direct impacts to Austral Pillwort is 1.15 ha of which 0.83 ha require offsets for residual direct impacts. The remaining 0.32 ha occurs on Category 1 land as mapped by EMM and has been assessed as a non-native vegetation prescribed impact. While BCS agree with this approach, we do not agree that there are no residual prescribed impacts to Austral Pillwort. We propose that additional species credits should be generated for the residual prescribed impacts to Austral Pillwort using a pro rata approach from the species credits generated for direct impacts to this species across the four impacted zones.

Recommended actions: 2.1 Calculate species credits for residual prescribed impacts to Austral Pillwort on Category 1 land and include these in the species credit summary in Table 8.14 and 8.15 of the BDAR.

Austral Pillwort credit liability was also calculated for Category 1 land as agreed upon with BCD (Appendix D of the BDAR). The approach to calculating and overall species credit liability, now including credits from Category 1 land, is reported in Section 8.10.2 of the revised BDAR. The revised number of species credits required for Austral Pillwort is 43 credits.

4.2.3 Mitigation measures – vehicle strike

Prescribed impacts

Mitigation measures for potential impact of vehicle strike during construction need more detail. Section 3.1.3 of the Traffic Assessment (EIS Appendix R) assumes an additional 15 light vehicle and 17 heavy vehicle trips per day during peak construction.

The assessment of vehicle strike during construction and measures in Table 8.3 recommends speed restrictions for vehicles and vessels during construction but does not specify kilometres per hour.

It would be informative to include a summary of existing data collected under section 6.1 of the current Flora and Fauna Management Plan (May 2015), along with specifying the speed limits imposed through section 9.11 of the FFMP.

Recommended action

3.1 Specify speed restrictions in Table 8.3 to minimise risk of fauna strike by boats/vessels and vehicles during construction.

Speed restrictions to minimise risk of fauna strike by boats/vessels and vehicles during construction have been added to Table 8.3 of the BDAR (refer Appendix F).

The maximum speed of 6-knots is to be applied when operating within 30 m of shore and areas of dense lignum, in effort to reduce potential disturbance to or risk of collision with waterbirds.

Speed limits will be imposed on vehicles, with an upper maximum speed of 60km/hr, which is for haul roads only. Many areas of the Project will have lesser speed limits applied depending on operational requirements. Signs will be installed to remind personnel of the danger of vehicles to wildlife.

4.2.4 Impact assessment – monitoring Austral Pillwort

Impact assessment

4. Monitoring of measures to protect Austral Pillwort during construction is inadequate

Monitoring of sedimentation measures to protect mapped locations of Austral Pillwort (Table 8.4) needs to be more frequent than the annual Pillwort monitoring cycle. Assessment of risk of failure of erosion and sedimentation measures is needed, along with performance monitoring details.

The process proposed in Table 8.4 for additional post approval offsetting of Austral Pillwort impacts if protective fencing is breached, requires discussion and agreement with the Department before project approval.

Recommended actions 4.1 Assess the risk of failure of sedimentation measures for protecting Austral Pillwort locations and specify regular monitoring during construction

4.2 In consultation with the Department, and before project approval, determine a feasible offset approach for failure of measures to protect Austral Pillwort during construction.

The revised BDAR (Table 8.4) has been updated to include the addition of weekly inspections of sediment/erosion controls at the retained Austral Pillwort locations, as well as more frequent checks during episodic events including high intensity rainfall events, as recommended by BCD. An assessment of risk of failure and details of performance monitoring are also now provided in Table 8.4 of the revised BDAR for fencing to prevent access and sediment/erosion controls.

Agreement was reached with BCD (Appendix D of the revised BDAR) for the proposed approach for offsetting Austral Pillwort in the event the Before-After-Control-Impact survey design and adaptive management in Table 8.4 of the revised BDAR identify that mine construction and operation has resulted in the decline and/or absence of Austral Pillwort in known locations adjacent to the operational boundary. As suggested by BCD, a commitment was included in Table 8.4 of the revised BDAR that post approval offsetting will require further consultation with DPHI in the event additional offsets are required.

4.2.5 Impact assessment – CEMP

Impact assessment

Four measures in Table 8.3 have no risk of failure and rely on a Construction Environmental Management Plan (CEMP) for performance monitoring details. The CEMP has not been provided.

5.1 Provide details about performance monitoring and risk of failure for all measures in Tables 8.2 and 8.3

As outlined in Sections 3.4.4 and 3.4.5, Evolution proposes to prepare and submit for DPHI approval a Construction Environmental Management Plan (CEMP), which would outline the construction phase management framework for the UCDS, LPB and ancillary infrastructure, inclusive of necessary biodiversity, surface water and dewatering management measures. The CEMP will be informed by detailed design and detailed construction scheduling with consideration to the site and seasonal conditions (i.e. whether the lake is inundated or construction activities in relation to identified bird breeding areas).

The mitigation measures in the BDAR and EIS will be reviewed and refined with additional measures added in the CEMP if relevant to managed potential impacts on biodiversity during construction activities. The CEMP will be prepared in consultation with BCD, DPI Fisheries, NSW DCCEEW Water Group and the EPA.

Details of performance monitoring and risk of failure now included for all measures in Tables 8.2 and 8.3 of the BDAR (Appendix F).

4.2.6 Impact on Compensatory Wetland

Offsets

6. Impact to the Compensatory Wetland area has not been addressed

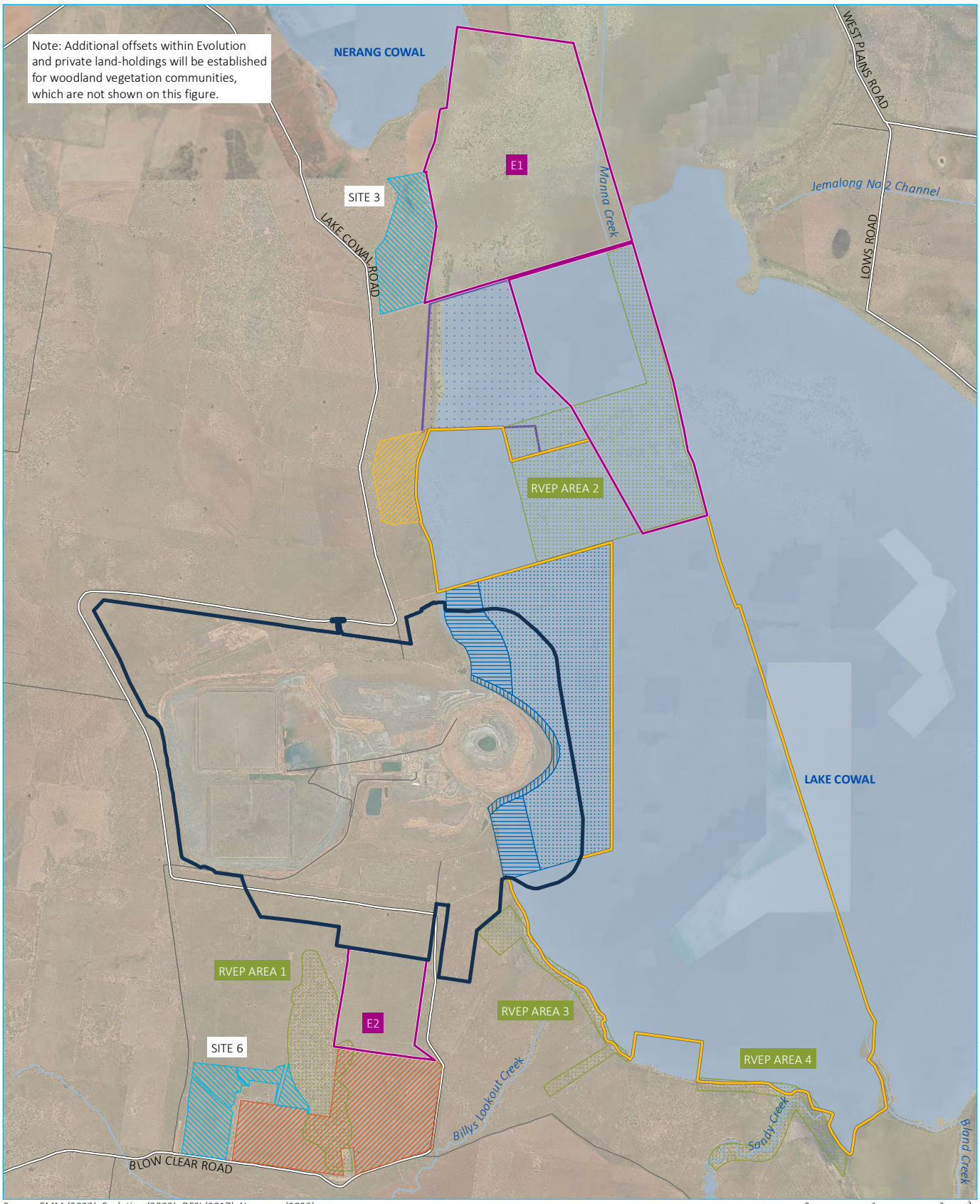
Condition of Approval 3.3 of the Consolidated Development Consent for Cowal Gold (DA14/98-MOD-16) requires enhancement of an area of wetland as compensation for the loss of 120 hectares of wetland for the original development. This area is identified and managed through Compensatory Wetland Management Plan (Barrick 2003) (Figure B3).

The EIS mentions the compensatory wetland area (s3.16.2) and proposes re-instatement of the lake foreshore following the concepts in the CWMP (Section 4.5.3). The BDAR reference list includes monitoring reports for the compensatory wetland areas but does not identify or include any discussion about impacts of the proposal on the area, or implications for the offsetting intent of the original consent.

Recommended actions:6.1 Identify and discuss impacts to the Compensatory Wetland area and how it will be addressed by the Biodiversity Offset Strategy (Section 10) of the BDAR.

The Project's impact on Compensatory Wetland areas established under Condition 3.3 of DA14/98 are now identified and discussed in Section 10 of the revised BDAR. Section 10 of the BDAR also now includes an approach to providing in perpetuity offsets to account for impacts to areas currently managed through the Compensatory Wetland Management Plan (Evolution 2003). Evolution has gained in principle support from BCD for a 1:1 area ratio approach to providing in perpetuity offsets to account for impacts to areas currently managed through the Compensatory Wetland Management Plan (refer Appendix D of the revised BDAR). It is important to note that these offsets are in addition to that required by the NSW BOS.

Evolution's landholdings have been reviewed, and a proposed land area proposed for the establishment of a BSA to compensate for impacts to land managed under the Compensatory Wetland Management Plan is presented in Figure 4.6, alongside other proposed areas to offset impacts to wetlands.



Source: EMM (2023); Evolution (2023); DFSI (2017); Nearmap (2023)

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GDA 1994 MGA Zone 55

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KEY

- OPC footprint
- Major road
- Minor road
- Named watercourse
- Named waterbody
- Stewardship sites 3 and 6 (approval in progress)
- Northern offset
- Southern offset
- RVEP area

Compensatory Wetland Management Plan

- *Compensatory wetland area (140 ha)*
- *New lake foreshore (30 ha)*
- *Enhancement of remaining wetland areas within ML1535 (620 ha)*
- Proposed stage 1, 2a and 2b offset area
- Area within Evolution's landholdings available for establishing offsets for OPC stage 4a and 4b - Southern LPB. Exact extent TBD
- Proposed area to offset impacts to compensatory wetland areas (subject to agency approval)

Proposed compensatory wetland and stage 1, 2a and 2b, 4a and 4b biodiversity stewardship sites

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Figure 4.6

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4.2.7 Groundwater dependent ecosystems

Groundwater Dependent Ecosystems (GDEs)

7. Monitoring, triggers, and actions for potential impact of groundwater drawdown on GDEs (PCTs 10 & 249) need commitment and further consideration

We note in section 6.3.2 that current monitoring shows no degradation of River Red Gum-dominated vegetation. Monitoring will be required to demonstrate that high risk vegetation has not been impacted by groundwater drawdown. To demonstrate the predicted level of impact to PCTs 10 and 249, the BDAR should include a commitment to monitoring replicate sites in high-risk locations as per the suggested approach in Table 8.4 (pg193, top row). The trigger and response for impact to GDEs in Table 8.4 requires more specific information. We recommend this be prepared in consultation with the Department.

Recommended actions: 7.1 Provide a commitment to assess long-term health of PCTs with a high risk of drawdown impacts and further define a TARP for impacts to GDEs, in consultation with BCD.

As agreed with BCD, if additional GDE data collected for PCTs 10 and 249 indicates that they are not GDEs, monitoring would not be required. As such, an additional field-based assessment was undertaken to test the dependence of these vegetation communities on groundwater.

As outlined in Section 3.3.3 of this Submissions Report, detailed field-based investigations and ecohydrological conceptualisations were undertaken to identify characteristics of GDEs, in particular, River Red Gum trees. This report is provided in Appendix H of this Submissions Report and Appendix N of the revised BDAR. River Red Gums were focused on in the GDE assessment given this species is the dominant canopy species composing the plant communities where potential drawdown impacts were identified in the EIS.

The study considered the potential reliance River Red Gums have on the presence of groundwater, that may be subject to impact caused by groundwater drawdown associated with the Project.

The key conclusions drawn from GDE assessment included:

- Drawdown associated with the development of the Project is not expected to impact on River Red Gums (i.e. PCTs 10 and 249) due to the absence of casual pathways between the mine dewatering activities and these potential GDEs. This is because the Upper Cowal Formation is affected by mine dewatering, which the GDEs do not appear to be reliant upon. Any aquifer disruption, through excavation activities for example, have the potential to affect the shallow systems supporting a perched aquifer, however this is not considered a risk for the Project.

- Based on a lack of expected impacts of groundwater drawdown on River Red Gum communities (i.e. PCT 10 and 249) by the Project, it is considered that adaptive management (i.e. ongoing monitoring and associated trigger, action response plans) are not considered necessary.

The GDE assessment in Chapter 6 of the BDAR has been updated based on the findings of the GDE Assessment and the former recommendation for adaptive management removed from Section 8.3.2.

4.2.8 Threatened species – credit species

Threatened species

8. Exclusion of ecosystem credit species for some vegetation zones requires further justification

Additional justification is required in Table 5.1 for the exclusion of predicted species where they are not limited by geographic, or habitat constraints listed in the BAM-C. For example, DNG condition zones have been removed for the Superb Parrot although the species is known to forage on the ground.

Recommended actions:

8.1 Provide further justification for the exclusion of predicted species from some vegetation zones.

Additional justifications for exclusions of predicted ecosystem credit species (Glossy Black-Cockatoo, Pied Honeyeater, Black-chinned Honeyeater, Painted Honeyeater, Speckled Warbler, Varied Sittella, Purple-crowned Lorikeet, Swift Parrot, Malleefowl, Hooded Robin, Gilbert's Whistler and Grey-headed Flying-fox) are now provided in Table 5.1 of the revised BDAR (refer Appendix F). Superb Parrot has now also been predicted to occur in Derived Native Grassland (DNG) condition zones, as recommended by BCD.

4.2.9 Threatened species – flora and fauna survey methods

Threatened species

9. Flora and fauna survey methods and effort require further information

Table 5.5. of the BDAR outlines the general survey effort and method for candidate flora species. To better understand the adequacy of the survey effort for each species, this table should include a list of the associated PCTs and vegetation zones for each candidate species for survey. Each species should also include the area of associated PCTs where surveys were completed. As the surveys were conducted over multiple years using a combination of survey methods, this should be recorded for each species and associated PCT.

Table 5.8 outlines the use of thermal drone surveys in inundated areas of Lake Cowal to survey for nesting raptor species such as the White-bellied Sea-Eagle. Figure 5.16 and the thermal drone report in Appendix G show no drone survey effort over the inundated areas. Further evidence is required to support the outcomes of survey effort by drones in inundated areas for nesting raptor species and the validity of the survey results.

Recommended actions: 9.1 Update the flora survey effort to include associated PCTs and areas required to be surveyed and the area covered for each survey method for each species.

9.2 Provide further information on the locations of drone surveys over the inundation areas for raptor nest surveys.

The survey effort in terms of % area covered for potential habitat for candidate threatened flora species, including extent of associated PCTs surveyed and coverage by parrel transect and two-stage survey methods, are now summarised in Table 5.6 of the revised BDAR.

Drone surveys for nesting raptors over inundated areas of Lake Cowal are displayed in Figure 5.16 of the revised BDAR. Additional text to describe and references to justify this survey method are now provided in Table 5.9 of the revised BDAR.

4.2.10 Threatened species – habitat characteristic for Austral Pillwort

Threatened species

10. Further detail is required about the inundation area that could not be surveyed and its habitat characteristics for Austral Pillwort to justify conclusions in the expert report.

The expert report for Austral Pillwort concluded that the entire impact inundation area that was unable to be surveyed is not suitable for this species. However, given the extensive new records and proximity of some of these records to the edges of the inundation area, further information is required in the expert report to justify this conclusion.

While the expert report outlines the characteristics of the habitat where the records were found in the current surveys, there is minimal information in the expert report identifying what the inundation area not surveyed looks like. Additional information around potential habitat at the lake margins and variability of depths throughout the extent of the impacted inundation area should be included. The review should include an assessment of the records of the species from Doodle Comer Swamp near Henty in southern NSW. BCD can provide further details regarding these records. The review should be supported by photographs and other relevant data as appropriate.

Recommended actions

10.1 Provide additional information in the expert report for Austral Pillwort around the habitat characteristics in the impact inundation area to support the conclusions in the report.

Further information was collected as suggested by BCD, which further justifies and strengthens the conclusion of the expert report that the Austral Pillwort was unlikely to occur in unsurveyed areas of Lake Cowal. The updated expert report (see Appendix K of the revised BDAR) now provides additional habitat characteristics in the inundation area, including details of depth variability, to support the conclusions of the report. The expert report also now considers habitat in Doodle Comer Swamp, which was visited by the species expert during the RtS phase. Additional photographs, hydrological data, bathymetric data and floristic data are also now provided to support the conclusions of the report.

4.2.11 Survey limitations

General

11. Survey limitations are not documented in the survey methods or project introduction

The prolonged inundation of Lake Cowal has affected preparation of the BDAR including PCT mapping, collection of vegetation integrity plots and candidate species surveys. Documentation of this, and other weather associated limitations is critical to the approach taken to some aspects of the BDAR and should be clearly documented in the introduction of the BDAR and then in relevant detailed sections of the BDAR. While documents are provided in Appendix D to support these decisions, they should be clearly outlined in the body of the BDAR. For example, section 5.3.3(i) documents the survey methods for candidate flora species but does not outline that for three flora species a combination of surveys and expert reports were used due to prolonged inundation.

Recommended action: 11.1 Prepare a limitations section in the introduction of the BDAR regarding climatic conditions, prolonged inundation and other assumptions or limitations that have impacted preparation of the BDAR.

Limitations to the assessment of vegetation mapping, vegetation integrity and survey for threatened flora due to inundation are now added to the main text in Section 1.6.4 of the revised BDAR. Alternative approaches applied to the assessment due to inundation are now presented in Sections 4.2.1iii, 4.2.2iand 5.3.3iii of the BDAR. Limitations to survey, due to other factors, such as access, safety, seasonality and data availability and accuracy are now provided in Section 5.3.4 of the BDAR.

4.2.12 Mitigation measures

General

12. Mitigation measures in Tables 8.3 are not numbered. To provide line-of-sight between the BDAR and post-approval plans for compliance and auditing, please clearly number each measure in Table 8.3. This numbering must be consistent with statements of commitments in the main EIS.

Recommended action: 12.1 Number each mitigation measure in Table 8.3.

Mitigation measures in Table 8.3 of the BDAR are now numbered to align with commitments in the overarching EIS.

4.3 NSW Resources Regulator

4.3.1 Final landforms across IWL and WREs

1. Clarification of the final landform across the top elevations of the IWL and WRE is required to show how surface water across these areas will drain internally via nominated "shallow swales".

Information on the capacity of internal drainage in these areas post-closure, considering these will form relatively large catchments and likely create a significant volume of surface water to be managed for significant rainfall events, consistent with modelling requirements in ANCOLD 2019.

The drainage of the IWL at closure is in line with current approved conceptual final landform, and all of the rehabilitation profiles align with approved Rehabilitation Management Plan (Evolution 2023). Prior to mine closure, detailed designs for rehabilitation of the IWL's top surfaces will be undertaken including drainage designs. Rehabilitation with vegetation will play a major role in minimising erosion, and CGO is currently achieving c.70% vegetation cover on trial rehabilitation (on slopes of 25%). Further details of the proposed water management / internal drainage for the IWL (North) are given in the feasibility report – IWL North Expansion Feasibility Design (AECOM, 2023), Appendix C – Basis of Design.

Surface water from the IWL would ultimately report to the ICDS. The site's water management operates as follows:

Both the UCDS and ICDS will be left in place for mine closure as the separation of the two water sources are current post closure requirements. During mining operations surface water around the pits will be directed to the ICDS, the water will report to the perimeter dams (D21, D23 and D24) where pumping and transfer of water will be managed by the open pit mining process to manage water around site. Upon closure the dams will be decommissioned and backfilled however the drainage system will be left in place, hence the water will continue to drain into the ICDS and down to the eastern most point of the mining area (this is the lowest RL). It is currently in the interest of CGO to keep water out of the pit not only due to the cost of rehandling this water out of the mining area but also to ensure the integrity of the oxide zone. As this area is an active stockpiling (topsoil/subsoil) area with live stockpiles the drainage designs have not yet been presented, however the nature of the natural flow is to the east and operations will manage drainage for this.

The planned closure concept at this point is that water captured to the east of the pits will use an open rock drain in the oxides on the eastern side of the E42 pit (current grade of the oxide approximates 22 degrees). This would drain down to the primary rock and then the ramp system will direct the water to the base of pit.

For water to the west of the dam, the existing drainage system would be utilised. At closure this drain would be rock armoured and water directed to the ramp system of the E42 pit which would be re-graded to act as a final landform drain. All ramps within the oxide zone have 2.0 m of primary rock placed as a part of the road engineering so no additional rock would be required just recontouring of the ramp to maintain water in the centre of the ramp. The ramp in the primary rock zone will not be modified.

4.3.2 Slope stability

2. Further information on slope stability analysis undertaken and justification of factor of Safety that has been adopted to predict stable landforms in final voids side walls. There are references to geotechnical assessments by AECOM 2023, SLR2023, and Mining One 2020, none of which have been provided/attached to the EIS.

i Background

Mining One has been assisting Evolution since 2007, providing geotechnical advice / reviews, pit design assessments, and on-site support. The following work has been completed for the Project:

- CGO OPC Feasibility Study, Chapter 6: Geotechnical and Hydrogeology (June 2023). This work summarised the comprehensive geotechnical stability and hydrogeology modelling completed by between 2021 to early 2023.

- Cowal Stage H, Operational Design Support – Mining One letter report (July 2023) which provided further clarity about alternative batter configurations for the remainder of Stage H. The report informs the batter designs for Stage I, and arose from a recommendation in the Project's feasibility study (FS) to complete a statistical analysis of joints. This analysis will be calibrated after further mining and observations of slope performance. This study also included an updated rockfall simulation to further augment the Project's FS.

ii Independent Peer Review

Mining One's geotechnical and hydrogeology study was subjected to two phases of peer review:

- an Independent Peer Review (IPR) process which was undertaken by AMC Consultants (for geotechnical) and Valenza Engineering (for hydrogeology) during the FS at 30%, 60% and at completion. This provided review and improvement through the process

- an Independent review by Stacey Mining Geotechnical Ltd: "Independent Review of the Mining One Cowal Open Pit Continuation (OPC) Study Slope Design Process", letter report by Dr. Peter Stacey (November, 2022).

iii Summary of findings

Mining One's FS was based on a comprehensive Pre-Feasibility Study (PFS) geotechnical model, which was further developed from additional data acquisition and analysis. In addition, a thorough review was undertaken of current (Stage H) pit slope performance including reviews of rock fall history, bench crest loss and achieved berm width, alternative batter configuration trials (triple benching), and blasting practices.

The FS included the following work and findings:

- Assessments of batter configurations regarding stability and rock fall hazards, and provisions for crest retention improvements.

- Inter-ramp and overall slope stability was assessed for E42 pit with advanced numerical finite difference modelling using Cavroc SlopeX and FLAC3D. This included a detailed back analysis process to refine and calibrate parameters, based on historical monitoring data and failure records.

- The cover sequence was initially assessed using limit equilibrium methods to determine an optimum slope design profile, and then was modelled using 3D numerical modelling. The cover sequence has experienced several historical failures. Two large failures of the east wall in 2007 provided an opportunity to back analyse the failures with 3D numerical modelling, to provide additional calibration of geotechnical parameters and to ensure a more robust forward model.

- Progressive displacement in the Transported Sediments in the southeastern corner of the pit was noted in early 2020. This was also modelled as part of the back analysis and calibration. Further work was recommended to understand displacement thresholds for ongoing site management, and to refine the strength criterion to provide opportunities to optimise cover sequence designs in the shallower oxide pits. The back analysis work completed was considered adequate for the purposes of the FS.

- Mining One developed a groundwater model to support this geotechnical modelling. The hydrogeology conceptualisation is adapted from previous studies. The model calibration was developed in a transient simulation for the period of 2018 to 2020. Active piezometer data was used as a basis for calibration with model predictions being compared with 1416 points of monitoring data. After calibration, a predictive model was developed for end-of-mine scenarios. Five scenarios were developed for forward modelling to account for residual uncertainties that remain after calibration. These account for a range of depressurisation cases from no drainage, to active drains at various spacings and operational efficiencies.

The overall outcome of the IPR process was that no fatal flaws were identified, and that the methodology and the basis for the stability assessment conform with industry standards.

iv Waste rock emplacement designs

Waste rock emplacements are generally designed to a geotechnical factor of safety (FOS), however at CGO due to the amount of oxide waste on the waste rock emplacements, the overarching design criteria is driven by erosion. This has established a final landform slope of 1:5 which exceeds the general design FOS criteria of 1.3 (FOS are generally based on the risk if failure occurs). CGO is considered low risk and the current 1:5 results in very safe waste rock emplacement designs. Assessment of the waste rock emplacements during PFS determined that designs exceed a FOS of 1.3 and in most cases exceeds a FOS of 2. It is concluded that a detailed investigation program was not necessary. Hence the geotechnical FOS has been validated and, in all instances, the waste rock emplacements' geotechnical design criteria is exceeded. Design of the waste rock emplacements is driven by erosion limitations rather than geotechnical limitations, which explains somewhat why geotechnical considerations did not receive significant attention at the PFS/FS stages.

4.3.3 Soils

3. Further information is required on the proposal to remove benches in sodic soils within E42 final void landform and placement of rock/soil matrix on these slopes. Further information on what material (what depth within the final void) this surface treatment will apply to considering problematic oxides intercepted in the voids.

Further information on the batter angle for the final voids for this treatment to be practicably applied, considering the batter angle is currently 45 degrees in oxides in E42 void. Clarification that the final void landform and associated footprint take this into account.

The Project's cutback of the E42 Pit and earthworks across the shoulder to link the E42 pit with the GR pit will remove some of the upper benches with existing areas of erosion in the upper sodic soils. Consideration of the treatment of the residual benches is on-going and will be subject to future details designs, and further details are given below and in Appendix J.

At this stage, the Project has been supported by feasibility level designs for the development and operation of the open pits, underground mine and integrated waste landforms. There have been technical studies undertaken to support the engineering studies during the EIS approval process. The EIS level of assessment for the open pits has documented how the open pit design will be developed to be safe, stable, non-polluting, and sustainable for operations.

The open pits have weathered and oxidised zones extending to depths of 50–100 m bgl. The pit walls have been designed and built using standard open pit mining and construction methods, which is entirely appropriate to ensure viable economic and mine safety outcomes. The open pits will however, transition from an operational phase to a closure phase that will need to preserve the integrity of Lake Cowal.

Ongoing assessment and design work will be undertaken over the mine life to develop detailed designs for rehabilitation of the open pits including the upper erodible layers. These designs will transition from a geotechnical and mine safety lens, to a landform design perspective that provides a sustainable outcome for the site and the stakeholders on the adjoining land.

The rational for this approach and the objectives are outlined in Appendix J (Section 4).

Having addressed surface water drainage and groundwater management systems to minimise erosion post mine closure, Evolution will look at a number of methods to stabilise the batters in the oxides levels that could include:

- remediate sodic strata on as-built benches, berms and batters with chemical amelioration (e.g. gypsum), other chemical solutions that may become available to stabilise slopes
- revegetation – with plants such as Chrysopogon zizanioides, commonly known as vetiver grass
- use of rock armour
- reprofiling the faces / benches
- geofabrics.

Evolution will trial and monitor a range of solutions as part of its progressive rehabilitation program before closure and believes different solutions, or a range of options in combination, may be required for different parts of the upper pit walls.

4.3.4 Erosion modelling

4. It is noted that erosion modelling has not been undertaken on the final void landforms.

It is recommended that erosion modelling, preferably Landform Evolution Modelling, is conducted in these areas due to the known highly dispersive soils and erodible oxides identified in the sidewalls of the final voids. This is considered necessary due to the lake protection bund being located within a relatively close distance of the crest of the final voids. An understanding of likely long-term post-closure erosion and potential crest cutback for the final void landforms is required and will inform the need for erosion treatments of these areas.

Evolution and EMM have considered this request and have sought expert independent advice from SLR.

Landform evolution modelling requires a detailed final landform design, and while there is a feasibility study level design for the operational development of the open pits (that will be taken through to detail design and implementation by Evolution in due course) and a conceptual final landform presented in the EIS and Rehabilitation Strategy (refer Appendix Z of the EIS), the detailed final void landform design for the pit walls, has not yet been fully defined and will evolve over the Project's operational life in response to geological conditions, ongoing review of the geotechnical model and mine economics.

Collectively, it is believed that there is very limited value in undertaking extremely detailed numerical analyses of the existing pit walls or the proposed pit walls using SIBERIA for example, when this assessment would be based on a broad series of assumptions including using one material type over the entire surface of the pit walls when the material types in the pit walls have significantly different chemical and physical properties within the soil and regolith profile (see SLR Technical Memo in Appendix J, Section 4).

Whilst we do not discount the value of erosion measurement, erosion modelling and landform evolution modelling of the final void pit walls, it is felt that the work needs to occur in a staged approach that reflects the processes defined in Section 4 of the SLR Technical Report (See Appendix J) to provide value to Evolution and the NSW Resource Regulator.

4.3.5 Geotechnical design

The mine has a long history of significant rockfall events primarily due to aggressive wall angles, which needs to be considered as part of the extension project. The application states that the geotechnical inputs used in the design process is in a Mining One 2020 report that has not been supplied in the application. Therefore, further information is required on the geotechnical design of the pits and the proposed controls to be implemented through the Safety Management System for the protection of workers.

Evolution believes that the rockfalls are localised and surficial with complex rock structure causing crest loss to contribute to the geotechnical events. All geotechnical studies and reports have come to this conclusion and stated this.

It is expected that final design batters and any benching that may be required to meet the mine's operational requirements will be confirmed as part of the later design stages of the Project.

The existing safety management system for open pit operations was not modified as a part of the Project's PFS as the PFS assumed the same pit design criteria as the current Stage-H pit design. Noting, geotechnical guidance for the FS modified the PFS design assumptions which introduced some flatter, overall slope angles in later designs).

4.4 Heritage NSW

As outlined in Section 3.3.6, an Addendum AHCA has been prepared to supplement the EIS ACHA to address matters raised in Heritage NSW's submission on the EIS. The Addendum ACHA is contained in Appendix K of this Submissions Report while summary responses to Heritage NSW are contained in the following sections.

4.4.1 AHIP management

> Greater clarity is required on the current management provisions of sites under existing AHIPs and whether the management of these sites will change under the proposed SSD. For example, site #39-4-0311 is currently listed in Schedule A (No Harm) in AHIP C0004570 but will be impacted by this proposal. Further justification is required on the change in management of sites where it will occur. Where adequate justification is not provided, Heritage NSW may recommend that the original AHIP conditions remain in place.

The Addendum ACHA provides a review of the existing permits and approvals in Section 3. Section 3.4 specifically provides a comparison of the existing versus proposed management of Aboriginal sites. The main difference between the previous and proposed mitigation strategy is that latter proposes a finite program focussing on sites of significance. Once complete there would be no further or ongoing surface collection or monitoring of future ground disturbance activities as has been implemented under the established Indigenous Archaeology and Cultural Heritage Management Plan (IACHMP).

With respect to site #39-4-0311, this site was previously and remains encompassed as permissible for removal in Permit 1468/Consent 1467. The careful removal and recovery ex situ of this site type has been regularly undertaken across the Project area for 20 years with the involvement of the Aboriginal participants. It is considered that comparable mitigation measures could be applied for this #39-4-0311.

4.4.2 Significance assessment

> Please include additional information on whether the significance assessment for all valid sites within the project area have changed since their original designation.

The Addendum ACHA provides a review of the significance assessments in Section 4.4 with comparative ratings provided in Table 4.2. When reviewing previous assessments of the cultural assemblage with both the EIS ACHA and the Addendum ACHA, there is broad consistency.

Two sites are identified as of high significance, including LC 2 and the lake's edge zone, which conforms with earlier albeit un-classified findings by Cane (1995, 1996, 1998) and Pardoe (2003, 2009a, 2009b, 2013).

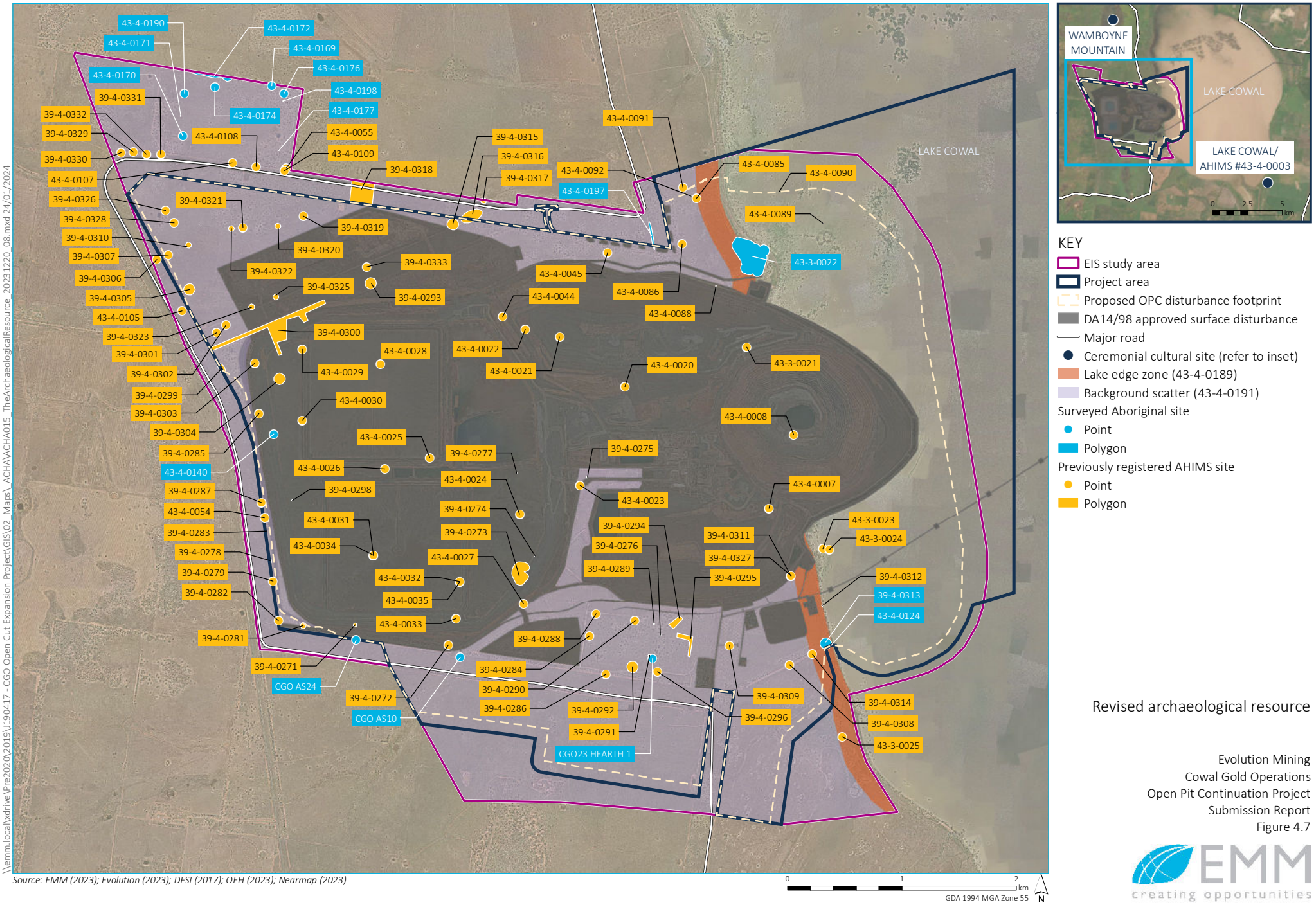
Moderately significant sites, primarily focussed on culturally modified trees, are assigned similar classifications by both Niche (2018, 2019a) and EMM (2023). There are some minor differences in relation to moderately significant stone artefact sites. The EIS ACHA identified #43-4-0194 as of moderate value, a site which was identified during the field investigations and therefore not captured in Niche's previous assessments. This site was identified primarily based on cultural significance and Aboriginal participant's views, rather than technological composition. Niche's (2019a) investigation identified #39-4-0313 as of high significance, whereas EMM (2023) and this report has concluded this site to be of only moderate value. Niche based their assessment on the relatively high number of artefacts (=20) recovered during their investigations and potential for subsurface deposits. EMM's reconsideration reaches similar conclusions, but in comparison with other sites encountered, notably #43-3-0022, it was considered of lesser value against the broader cultural assemblage. It is, however, noted that the site is captured within the lake's edge zone (#43-4-0189), which is assessed as of high significance.

Finally, with the revision of many of the hearths following field investigations to low significance, they now align more closely with previous findings.

4.4.3 ACHA GIS

Please update figures to include polygons of all sites (both valid and destroyed) across the project area to provide greater clarity on the spread of Aboriginal cultural heritage.

Section 4.3 of the Addendum ACHA discusses the revised archaeological resource which is presented in Figure 4.7. Additional figures are available in the Addendum ACHA with respect to hearth investigations undertaken including those existing and destroyed.



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Source: EMM (2023); Evolution (2023); DFSI (2017); OEH (2023); Nearmap (2023)

Revised archaeological resource

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4.4.4 Potential for regionally significant Aboriginal heritage

The Management Strategy and Recommendations (Section 10 of the ACHAR) should include provisions for project redesign if further investigations in CGO LEZ and CGO BS1 identify regionally significant Aboriginal cultural heritage.

Heritage NSW sought that where regionally significant cultural materials are encountered a process of Project re-design is undertaken. The Aboriginal cultural heritage assessment addendum developed in response to this issue and broader questions, provides definitions of regionally significant cultural materials and commits to consideration of Project re-design where encountered. However, due to the location of the E46 and E41 satellite ore bodies, some parts of the Project cannot be re-designed while maintaining its viability.

In a situation where regionally significant cultural materials are encountered, Project re-design would always be explored, however where this proves unfeasible due to ore body locations, Evolution would liaise with DPHI, Heritage NSW, archaeologist and registered Aboriginal parties to implement additional mitigation measures and activities beyond those proposed in the Aboriginal cultural heritage management plan in lieu of avoidance.

4.4.5 ACHMP

Heritage NSW recommends that an ACHMP be developed and implemented for the project. Heritage NSW recommends the ACHMP should be included in the Conditions of Approval and that an ACHMP be created and approved by Department of Planning and Environment prior to any development activities occurring within the project area.

Should the Project be approved, Evolution will prepare an ACHMP in accordance with the requirements of any conditions of consent, and in consultation with the registered Aboriginal parties. The Project area is already subject to an ACHMP for their current operation, so is familiar with the framework and requirements of cultural heritage management under these instruments of approval.

4.5 DPHI Crown Lands

4.5.1 Crown roads

There are multiple Crown roads adjoining the proposed development area. Section 2.4.v of the EIS summary report notes several crown roads that are utilised for worker and supply access. It is noted that portions of Blow Clear Road are a Crown Road. If a Crown road is impacted by the proposed development, consideration should be made in regards to the transfer of the road to the local council, or application by the proponent to close and purchase the road. As authority to access or use Crown roads is required prior to the commencement of any works or access, and to avoid any delays for the proposal, a tenure may be required in the interim.

A portion of Lake Cowal Road running along the southern boundary of the existing ML will be impacted by the Project (refer Figure 4.8 below).This portion of Lake Cowal Road is currently under the management of Bland Shire Council and has been leased to Evolution for the purposes of maintaining and managing this road as there are no other users that require access. The road is prone to closure due to wet weather and therefore both parties agreed that Evolution is best placed to manage and maintain this road.

For Crown roads within ML 1535, a compensation agreement under Section 265 has been secured, as described in further detail in Section 4.5.4.

Further, it is intended this portion of Lake Cowal Road will be acquired by Evolution as part of the acquisition of the affected portions of Lot 100 in Deposited Plan 1059150 (Lot 100 DP 1059150) from Crown Lands. Upon completion of the process, Evolution will effectively be the landholder of the portion of Lake Cowal Road captured within the Project area.

4.5.2 Lineal infrastructure

If lineal infrastructure (such as pipelines and/or electricity transmission lines) are expected to traverse Crown land, roads and/or waterways, an easement over said Crown land, roads and/or waterways will be required for protection of the infrastructure. To discuss easement requirements, please contact the Acquisitions team at the earliest opportunity at: cl.acquisitions@crownland.nsw.gov.au.

In order for transmission lines to traverse Crown land and/or roads, the proponent will need to apply for easements. As the easement process may be lengthy, it is also recommended that the proponent apply for a licence for each Crown road and Crown land lot as soon as possible. A licence will be temporarily authorise use and access for the infrastructure to traverse Crown roads and Crown land whilst the easement applications are being processed.

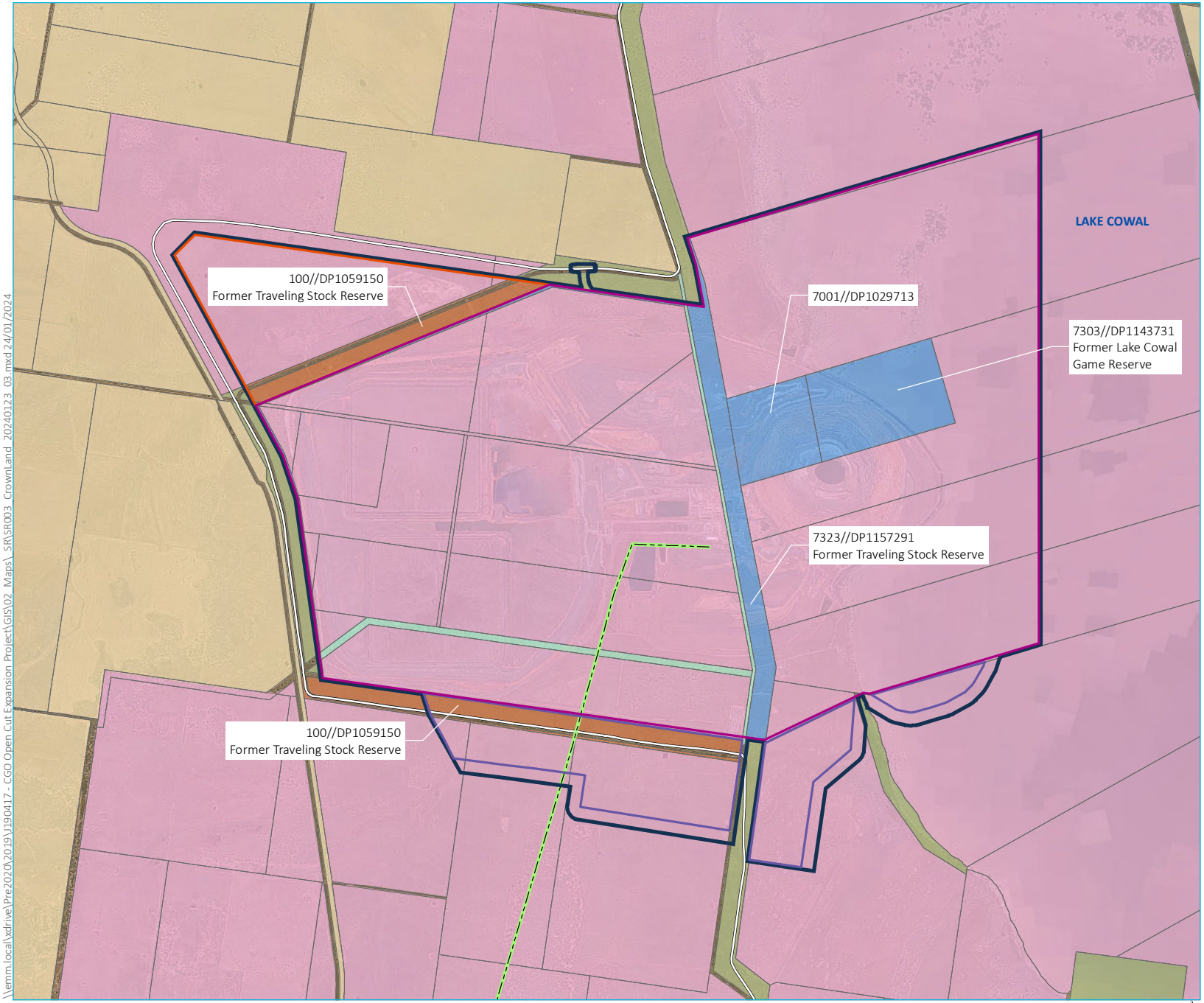
It is important to note that licences or easements must be in place before infrastructure can traverse Crown land or roads.

It is important to note that authority must be in place before Crown land or roads can be used, traversed, accessed or infrastructure can be built.

The Project does not include additional linear infrastructure. However the existing external water supply pipeline will be redirected around the new open pit mining areas within the existing ML. The final alignment of this water supply pipeline realignment within the ML is yet to be finalised however there is the potential that the pipeline realignment may traverse Crown Land parcels within the ML.

While an easement would normally be required for the purposes of providing a right of access and use Crown Land, this tenure arrangement is not necessary for land subject to a Mining Lease granted under the *Mining Act 1992* (NSW) ("Mining Act") which, among other things, grants a right to access and exercise rights as permitted under the Mining Lease subject to securing a compensation agreement under Section 265.

For land subject to ML 1535, a compensation agreement under Section 265 has been secured, as described in further detail in Section 4.5.4.



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Source: EMM (2024); Evolution (2023); DFSI (2017); Nearmap (2023)

Crown land within the project area

Evolution Mining
Cowal Gold Operations
Open Pit Continuation Project
Submission Report
Figure 4.8

EMM
creating opportunities

4.5.3 Aboriginal land claims

Lot 100 DP1059150 is a Travelling Stock Reserve. This Crown land is managed by Local Land Services and is currently the subject of an undetermined Aboriginal Land Claim (ALC). As such, concurrence with the NSW Aboriginal Land Council (NSWALC) would be required. Additionally, consent and on ongoing tenure will be required to authorise any use to this lot …

… An incomplete Aboriginal Land Claim is present over Lot 7001 DP1029713. Concurrence with the NSW Aboriginal Land Council (NSWALC). would be required.

An Aboriginal Land Claim (ALC) formerly affected Lot 100 DP1059150 and Lot 7001 DP 1029713. This ALC (ALC 12211) was determined and refuted on 21 June 2021. Written confirmation was provided by Crown Lands to that effect on 28 June 2021. A subsequent enquiry has since been made with Crown Lands on 23 August 2023 to re-confirm whether there are any current ALC's over Lot 100 DP1059150 and Lot 7001 DP 1029713. On 23 August 2023, written confirmation was provided by Crown Lands that their internal databases, inclusive of CLID, CrownView and Crown Tracker, did not indicate there were any current ALC's affecting Lot 100 DP1059150 and Lot 7001 DP 1029713. As such, concurrence with the NSW Aboriginal Land Council for the Project will not be required.

4.5.4 Section 265 Compensation Agreements

Lot 7303 DP1143731 (Reserve R753097) is a reserve for future public requirements. This parcel adjoins the proposed site area. Please see the attached map for location. Tenure of Lot 7303//1143731, is granted under Mining Lease agreements ML1535. However, Crown Lands do not have file of any previous 265 Access Agreements for the tenure of this land under the Mining Act 1992.

Lot 7001 DP1029713 (Reserve R753097) is a reserve for future public requirements. This parcel adjoins the proposed site area. Please see the attached map for location. Tenure of Lot 7001//1029713, is authorised under Mining Lease agreements ML1535. However, Crown Lands do not have file of any pervious s265 Access Agreements for the tenure of this land under the Mining Act 1992.

Lot 100 DP 1059150 is not currently authorised under a mining lease. The proponent will also need to seek a Section 265 Access Agreements for the tenure of this land under the Mining Act 1992 prior to the commencement of any works.

The "Section 265 Access Agreements" referred to in the Crown Land submission relate to the requirement for compensation agreements to be negotiated for Mining Leases pursuant Section 265 of the Mining Act.

With respect to the current curtilage of Mining Lease No 1535 (1992) (ML 1535), there is an existing Section 265 compensation agreement in force between Crown Lands and Evolution (formerly Barrick Australia Limited), executed on March 2004, for ML 1535 (2004 Compensation Agreement). The compensation agreement encompasses the following land:

- the land otherwise known as the Lake Cowal Game Reserve
- Travelling Stock Reserve 17085
- Lot 37 in DP 39733
- Lots 23, 24 and 25 in DP 753097
- Roads (closed or otherwise) within ML 1535.

The 2004 Compensation Agreement still encompasses Lot 7303 DP 1143731 and Lot 7001 DP 1029713, given:

- Lot 7303 DP 1143731, as currently designated, was formerly known as the Lake Cowal Game Reserve

- Lot 7001 DP 1029713 formerly formed part of Travelling Stock Reserve 17085. Although the Travelling Stock Reserve was amended to exclude Lot 7001 by way of revocation in 2004, Crown Lands maintained its status as the 'landholder' over the title.

Whilst not noted in the Crown Lands Submissions as lacking a Section 265 compensation agreement, the affected portion of Lot 7323 DP 1157291 is also encompassed by the 2004 Compensation Agreement between Crown Lands and Evolution, as the title still forms part of Travelling Stock Reserve 17085.

Accordingly all activities proposed under the Project affecting Crown land within the curtilage of ML 1535 are captured within the existing 2004 Compensation Agreement and will be undertaken in accordance with the terms of this agreement.

For the affected portion of Lake Cowal Road within the Project area, but outside of ML1535 which falls under the control of Bland Shire Council (i.e. Lot 100 DP 1059150), an existing lease agreement is in place for Evolution to maintain and manage the road. The requisite Mining Act tenure will be secured to conduct the activities proposed under the Project and ownership of the impacted portions of Lot 100 DP 1059150 will be transferred to Evolution following execution of the Land Transfer. As such, no compensation agreement under Section 265 of the Mining Act will be required for Lot 100 DP 1059150.

4.5.5 Travelling stock reserves

It is advised that the proponent authorise the occupation of Travelling Stock Reserves with Crown Lands in consultation with Local Land Services. It is noted that Lot 100/1059150 is currently in negotiations for a land exchange agreement which is currently unresolved

The portions of the Travelling Stock Reserve which overlays Lot 100 DP 1059150 and the Project area are to be acquired by Evolution by way of revocation of the current reserves and execution of Land Transfer Deeds. In addition, an application for a Mining Lease has been submitted with the Department of Regional NSW which is proposed to encompass the Southern portion of Lot 100 DP 1059150, which is currently situated outside the curtilage of ML 1535.

Upon finalisation of the mentioned land transfer process, grant of the Project approval and a Mining Lease in satisfaction of the Mining Lease Application, all tenure requirements for Lot 100 DP 1059150 will have been addressed.

As outlined in Section 4.5.4, all activities proposed under the Project captured within the boundaries of ML 1535 will be undertaken in accordance with the conditions of title for ML 1535 and the existing 2004 Compensation Agreement between Crown Lands and Evolution. As noted in the terms of the 2004 Compensation Agreement, this is inclusive of all Crown roads (closed or otherwise) captured within the curtilage of ML 1535.

As outlined in the EIS, Evolution is currently in discussions with Bland Shire Council and Local Land Services (LLS), who manage and regulate the TSRs in the vicinity of Lake Cowal, regarding realignment of the TSR, a process which is under way outside of the Project approval process.

4.5.6 Crown waterways

If encroachment of the Crown waterway, of which Sandy Creek and Bland Creek occur within proximity to the proposal area, is required, authority to access and/or use the Crown waterway will be required. It is noted that the waterbody of Lake Cowal is not a Crown waterway

The Project will not impact on any Crown waterways. The nearest Crown waterways are Sandy Creek and Bland Creek which flow into southern extent of Lake Cowal approximately 4.5 km and 5.5 km to the south-east of the Project area (refer Figure 1.2).

4.5.7 Post closure and rehabilitation

Crown Lands notes that the proposal has identified ongoing management and maintenance for Crown land involved in the project area, and the consequences if mismanaged, however long-term management and maintenance strategies are specified in Appendix Z for when the Crown land is no longer required for the proposal. Lot 7303 DP1143731 and 7001 DP1029713 will form the E42/ GR void, planned for 700 year rehabilitation of ground water equilibrium. A tenure agreement is to be sought for the entirety of the rehabilitation plan for Lot 7303 DP1143731 and 7001 DP1029713.

As per Section 73(1) of the Mining Act, the holder of a Mining Lease granted in respect of a mineral or minerals may "mine" on the land specified in the lease. The term "mine", when used as a verb, is defined under the Mining Act as:

> "…to extract material from land for the purpose of recovering minerals from the material so extracted or to rehabilitate land (other than a derelict mine site) from which material has been extracted…" (emphasis added).

To that end, it is acknowledged a current Mining Lease will be required to undertake rehabilitation operations on land from which materials have been extracted.

Lot 7303 DP 1143731 and Lot 7001 DP 1029713 are captured within the curtilage of ML 1535, for which an existing compensation agreement has been executed with Crown Lands. Being a Mining Lease granted in respect of minerals, ML 1535 permits Evolution to undertake mining operations within the land subject to the title, inclusive of rehabilitation.

Rehabilitation of the affected Crown land within ML 1535 will be undertaken to the satisfaction of the Department of Regional NSW – Mining, Exploration and Geoscience and the Resources Regulator in accordance with the development consent granted for the Project, conditions of title and the relevant rehabilitation management documentation for ML 1535.

As such, it is considered all Crown land tenure requirements have been addressed and will be maintained for all future rehabilitation operations on ML 1535.

4.5.8 Mining lease

For mining operations involving Crown land or Crown Roads, the following requirements apply:

1. All Crown Land and Crown Roads within a Mining Lease (with surface rights), subject to mining or mining related activity, must be subject to a Compensation Agreement issued under Section 265 of the Mining Act 1992, to be agreed and executed prior to any mining activity taking place. The Compensation Agreement may include conditions requiring the Mining Lease Holder to purchase Crown land impacted on by mining activity.

2. All Crown Land and Crown Roads located within an Exploration Licence, subject to exploration activity, must be subject to an Access Arrangement issued under Section 141 of the Mining Act 1992, to be agreed and executed prior to any exploration activity taking place.

3. All Crown Land and Crown Roads within a Mining Lease (with sub-surface rights only) must be subject to a Section 81 Consent under the Mining Act 1992 where surface activities are proposed, to be agreed and executed prior to any surface activity taking place.

4. All Crown Roads within a Mining Lease or Exploration Licence must be subject to a works consent approval under s138 and or s71 of the Roads Act 1993 where exploration, mining or mining related activity impact on these roads.

5. Without the above agreements in place any mining or mining related activity on Crown land is in breach of the Mining Act 1992.

All activities proposed under the Project captured within the boundaries of ML 1535 will be undertaken in accordance with the conditions of title for ML 1535 and the existing 2004 Compensation Agreement between Crown Lands and Evolution. As noted in the terms of the 2004 Compensation Agreement, this is inclusive of all Crown roads (closed or otherwise) captured within the curtilage of ML 1535.

For the affected portions of Lake Cowal Road (Lot 100 DP 1059150), which fall under the control of Bland Shire Council, an existing lease agreement is in place for Evolution to maintain and manage the road. Following the finalisation of the land transfer process for Lot 100 DP 1059150 from Crown Lands to Evolution, it is intended that the affected portion of Lake Cowal Road will be acquired by Evolution, thereby addressing all tenure requirements with respect to all roads (Crown Lands or otherwise) captured within the Project area.

For Lot 100 DP 1059150, the requisite Mining Act tenure will be secured to conduct the activities proposed under the Project and ownership of the impacted portions of Lot 100 DP 1059150 will be transferred to Evolution following execution of the mentioned Land Transfer Deeds. As such, no compensation agreement under Section 265 of the Mining Act will be required for Lot 100 DP 1059150.

Given the tenure sought will be a Mining Lease, sub-point 2 of the Crown lands presented above will not be relevant to the Project. In relation to sub-point 3, it is noted the consent under Section 81 of the Mining Act will not be required, given the Mining Act tenure sought will include the surface of the land in question and allow the undertaking operations on the surface.

An application for the grant of a Mining Lease has been lodged by Evolution on 29 September 2023, now designated Mining Lease Application No 638 (1992) (MLA 638). MLA 638 covers an area of approximately 345 ha and encompasses the surface to depth of 20 m, inclusive of the surface. Figure 4.8 shows the area subject to MLA 638.

As such, all requisite Crown land agreements and approvals have and/or will be secured by Evolution prior to undertaking of the activities proposed under the Project.

4.6 Bland Shire Council

4.6.1 Water

Council notes previous concerns of adjoining landholders with regard modifications to overland flow paths that redirected water resulting in nuisance flooding to lands otherwise not impacted. Council acknowledges that to the best of its knowledge that these matters have previously been investigated and resolved between the applicant and affected landholders.

Evolution recognises that flooding is a sensitive issue at properties surrounding and within Lake Cowal. As part of the EIS studies, various flood scenarios and a Lake Water balance were carried out following recognised industry standards and guidance (refer Appendix G of the EIS). The work has shown that whilst the lake floods following particular rain events, which is already well known, the impacts of the Project are very minor (refer Section 5.2.2i and Appendix L) for further discussion.

Evolution and its consultants have consulted and met the landholders who live around Lake Cowal on a number of occasions during the preparation of the EIS and have taken them through the findings of the flooding and Lake water balance studies.

4.6.2 Traffic and transport

Traffic and the transport of materials etc for development of a project of this magnitude is sizable and whilst noted there will be a minor impact upon the local road network during the construction phase, Council requests Evolution continue to communicate with Council on its traffic and transport demands.

Council notes the project is not anticipated to result in any additional operational traffic impacts beyond what is currently approved. However should there be any need to change traffic routes during times of flood emergency these continue to be communicated to Council in accordance with current agreed and approved routes.

Evolution currently has a Memorandum of Understanding on Road Maintenance dated July 2021 in place with Bland Shire, Forbes Shire and Lachlan Shire which will continue to apply to the project.

Council also has a Voluntary Planning Agreement with Evolution as part of the new Underground Development (SSD 10367) which also includes further Road Maintenance considerations

Evolution will continue to communicate with Council over access to the mine during operations and during the construction period of the Project. Likewise, should access routes change due to emergency situations or events, such as floods, Evolution will proactively liaise with the Council to ensure the safety of the local community and its own staff. This Project is a continuation of its open pit mining which continues local employment and local / regional economic benefits though to 2042 and as such it is not anticipate that the Council or community will notice a significant change in traffic from the status quo during the operational phase of this Project.

4.6.3 Socio-economic benefits and impacts

Council notes the proposed development will not increase worker numbers but will maintain the existing open pit mining workforce over an extended period beyond what is currently approved. This is important for Bland Shire as it will have a net economic benefit for the economy (local and state), and support the service industry employment base.

Mine closure would have dire social effects for Bland Shire and the local district if not managed and planned for with strong collaboration required between state/local government and Evolution.

Evolution are particularly aware of this and continue to work closely with Council and other stakeholders to find ways to support communities in a manner that provides long lasting benefits rather than just providing direct funding.

Over recent years there has been a clear lack of housing on the local market that has resulted in challenges in being able to attract employees to the area. This has been felt in trying to bring people in the health, education, emergency services and local government sectors to the area, particularly when Evolution is seeking to identify short-term accommodation during peak construction periods.

Council notes that Evolution are currently finalising the development of a mining village in West Wyalong, which will provide some respite to the market. Evolution have also been proactive in working with a building developer to look to develop further land in West Wyalong providing various accommodation configurations (1, 2 and 3 bed dwellings). As part Councils involvement in seeking to activate residential development in the area, an Expression of Interest has been submitted to the NSW Government Growing Regional Economies Fund for enabling infrastructure.

Evolution recognises the importance of the continued employment for the local and regional economy, as well as the longevity of its operation. Evolution will continue to work closely with Council to ensure Council understands Evolution's plans and future in the region.

The ongoing housing shortage, not only in West Wyalong, but also in many areas of NSW and nationally, is an issue that is front of mind for Evolution. Evolution planned and developed the mining village in West Wyalong in order to minimise its impact on local housing, as the Underground Mine is developed. The construction workforce for the proposed Project has been assessed in detail taking into account accommodation across Bland Shire, and it is currently predicted, based on interviews with all local operators, that the short-term workforce can be accommodated in local hotels / motels. Evolution will continue to work with and support Council on both long-term and short-term housing concerns to minimise the effects it has on the local and regional housing markets.

4.6.4 Voluntary planning agreement

Council has had preliminary discussions with Evolution on the establishment of a Voluntary Planning Agreement under subdivision 2 (s7.4) of the EP&A Act (formally s93F) and the NSW DPIE Planning Agreements Practice Note (February 2021).

As the proposal is considered State Significant Development Council does not receive Development Application fees nor local Developer Contributions, so a Planning Agreement can deliver infrastructure and public benefit outcomes where there is a connection between the development proposed and the community of interest. Preliminary discussions have recognised the importance in ensuring that any Voluntary Planning Agreement seeks to support programs or fund infrastructure that does provide a social benefit beyond the life of mine without imposing a burden on future generations. This will complement the Voluntary Planning Agreement in place as part of the new Underground Development (SSD 10367).

Evolution and their consultants have continued to engage with Council on the proposal over the past 12 months, including a presentation to the August 2022 Council meeting, and through various discussions/presentations to Council staff.

Council maintains a strong working relationship with Evolution Mining (Cowal) and is appreciative of the efforts made by Evolution to engage the community and work alongside Council on various projects.

Evolution values its strong relationship with Bland Shire Council and its on-going support for the CGO. This Project is a continuation of its open pit mining which continues local employment and local / regional economic benefits though to 2042. The economic assessment undertaken for the EIS (refer Appendix N of the EIS) assessed the need for a Voluntary Planning Agreement (VPA) and found that the Project is not expected to result in any tangible changes in demand and requirements for local infrastructure and service provisions beyond what is currently available. As such, the economic assessment suggested that any VPA would be based around continuing Evolution's existing levels of contributions and community support. CGO welcomes the opportunity to discuss its support with Bland Shire Council through the current VPA, and find a mutually agreeable outcome to benefit the community.

4.7 Forbes Shire Council

4.7.1 Voluntary planning agreement

While this application only increases environmental impact on Forbes in a minor way, the overall impact of the continued expansions and modification of the subject Mine has had a large cumulative impact on the Forbes Shire and its community members. Council therefore expresses disappointment that the management of the Evolution Mining has continuously failed to participate in good faith negotiations with Forbes Shire Council regarding the creation of a Planning Agreement. In regards to the matter currently before Department of Planning and Environment, Council raises no objections. Council would, however, welcome the re-opening of Planning Agreement discussions at any time from Evolution Mining.

Evolution has a strong working relationship with Forbes Shire Council and Council's support for the CGO and its resident staff is appreciated. As set out in the EIS, this Project is a continuation of CGO's open pit mining, which will continue local employment of the open pit workforce with local / regional economic benefits though to 2042.

As part of the EIS, the economic assessment (refer Appendix N of the EIS), as requested by the SEARs, considered the need for a VPA and suggested there would not be significant additional impacts to the region, especially outside of Bland Shire Council where most of the Project is situated.

CGO recognises that it has a unique relationship with its local shires, and whilst most of its employees reside in Bland Shire Council and the town of West Wyalong, it recognises the importance of Forbes Shire to some of its staff (8% of its workforce) and its operation. CGO's workforce lives in the region and, as such, CGO is embedded in the local community. It has important relationships with local businesses, agencies and contractors, and directly and indirectly helps to support many businesses in the region, including within Forbes Shire Council. Evolution welcomes the opportunity to discuss with Forbes Shire Council the support Evolution provides Council through the current Memorandum of Understanding (MoU) on road maintenance to find a mutually agreeable outcome to benefit the community.

4.8 Lachlan Shire Council

4.8.1 Road impacts

The Applicant (Evolution Mining – EM) currently has a Memorandum of Understanding with Lachlan, Forbes and Bland Shire Council's in relation to road maintenance. As part of this agreement, Lachlan Shire Council receives $150,000 every three (3) years which is spent on the roads that provide access to/from the mine through our Shire. However, it has been noted that during periods of wet weather people travelling to/from the mine towards Forbes take a different route which causes more of the Lachlan Shire's roads to deteriorate. During 2022 the wet weather caused disruption to the wider road network for more than six months and our road network was impacted by EM traffic given it was the only option. These situations occur on a frequent basis with similar impacts experienced during 2016. Should the Applicant seek to extend or expand the project the Applicant will need to provide increased funding for the maintenance of roads within Lachlan Shire.

Evolution recognises that one of the identified alternate traffic routes from Forbes in CGO's approved Traffic Management Plan is via Lachlan Shires Council (LSC) roads. This route is typically only used during or after flood events. Currently the normal situation is one bus, each way to the CGO site from Condobolin when the crew (20 staff or 4% of CGO's employees) is rostered on for 7 days. On the alternate weeks, the buses do not run.

As mentioned by LSC, CGO already provides $150,000 once every three years to assist its road maintenance costs. Despite, the low volume of traffic using roads Evolution welcomes the opportunity to discuss with Council the support it provides through the current MoU on road maintenance to find a mutually agreeable outcome to address the impacts of these weather events.

4.8.2 Voluntary planning agreement

We are of the view that these contributions should be consolidated into a Voluntary Planning Agreement (VPA) due to the direct and indirect impacts on the community within our Shire, not just in relation to the impact on our road network but also the social impacts on our community as well. We would like to ensure that there continues to be a high degree of transparency throughout the VPA process and to continue to preserve the integrity of the development assessment process. It is important that the public can see what additional benefits EM is offering to provide and believe that a VPA is the best way of doing this.

Evolution values its relationship with Lachlan Shire Council and its on-going support for the CGO. This Project is a continuation of CGO's open pit mining which continues local employment and local / regional economic benefits though to 2042. The economic assessment undertaken for the EIS found that the Project is not expected to result in any tangible changes in demand and requirements for local infrastructure and service provisions beyond what is currently available, especially outside of Bland Shire Council where most of the Project is situated. Bland Shire also supports over 80% of CGO's workforce compared to Lachlan which currently supports approximately 4% of CGO's workforce

Notwithstanding, and as set out above, Evolution welcomes the opportunity to discuss with Lachlan Shire Council the support it provides Council through increases to the current MoU.

4.8.3 Workforce accommodation

There is currently limited accommodation available in West Wyalong and Wyalong. It is highly likely that there will be a need for workers to be accommodated in both Condobolin and Forbes which also have limited availability in the current market. The Applicant believes that when a major development currently under construction finishes that this will free up the required accommodation for their workforce. We are not convinced that this is the case as all short term accommodation markets in regional NSW are running at or near capacity.

We would be willing to discuss how a construction workforce in Condobolin could be accommodated, with the Applicant.

Evolution thanks Lachlan Shire for its offer of assistance. The social impact assessment (SIA) carried out for the EIS (refer Appendix M of the EIS) undertook a thorough review of a) the Project's required temporary construction workforce; b) CGO's own on-going accommodation requirements which are partly met by the new accommodation village in West Wyalong; c) accommodation available in Bland Shire (particularly within West Wyalong); and d) in the region including Forbes and Lachlan Shire. The assessment also considered current projects such as the local solar farms that were under construction during the assessment process. The SIA concluded that the Project's construction workforce would not have a significant impact upon the availability of short-term accommodation in West Wyalong particularly considering the short duration of the Project's peak construction activities.

4.9 Mining, Exploration and Geoscience

4.9.1 Biodiversity offsets

MEG requests that the Proponent consider potential resource sterilisation should any future biodiversity offset areas be considered. The Proponent must consult with MEG and any holders of existing mining or exploration authorities that could be potentially affected by the proposed creation of any such biodiversity offsets, prior to creation occurring. This will ensure there is no consequent reduction in access to prospective land for mineral exploration or potential for the sterilisation of mineral and extractive resources.

This submission is noted. Evolution intends to meet the vast portion of Project biodiversity offsets through the establishment of stewardship sites within Evolution owned land in the vicinity of CGO with some stewardship sites also planned for nearby non-Evolution owned landholdings.

As outlined in Section 3.1.5, the Project will be developed in stages, with the northern area of the Project's additional disturbance area developed first. Evolution is required to meet its biodiversity offset obligations prior to the disturbance of each of stage. Assessment of stewardship sites required for the first stage of the Project development has commenced to ensure biodiversity credits are available prior to the start of construction for the first stage of the Project. Assessment of stewardship sites for subsequent stages will progress over the next 1–5 years.

Evolution has and continues to consult internally with CGO's exploration program in identifying and progressing potential biodiversity stewardship sites on Evolution owned land to avoid the potential for future resource sterilisation.

The indicative boundaries of the proposed stewardship sites to meet the Project's early stages are shown on Figure 4.6 in Section 4.2.6 above and are all within Evolution's exploration leases.

Evolution will consult with MEG during the early phases of the respective stewardship site assessments.

4.9.2 Resource and assessments review

The Project has adequately addressed MEG's environmental assessment requirements submitted in May 2022.MEG considers the Proponent has provided a report consistent with the Australasian Code for Reporting Exploration results, Mineral Resources and Ore Reserves - JORC Code. MEG is satisfied that, should the operational outcomes be achieved, the proposed mine design and mining method submissions may adequately recover resources and is projected to provide an appropriate return to the state. The Proponents royalties' estimates calculations are consistent with the requirements of the Mining Regulation 2016. If the Project does not proceed, the economic benefits outlined above will not be realised.

This submission is noted.

4.10 Department of Primary Industries – Fisheries

4.10.1 Aquatic biodiversity

The Policy and Guidelines for Fish Habitat Conservation and Management (2013) requires a minimum 2:1 offset for Type 1-3 Key Fish Habitats to help redress identified impacts. The NSW Biodiversity Offsets Policy for Major Projects outlines requirements for site-based offsets to compensate for the loss of each aquatic habitat type being PCT17 and PCT53 which are identified as Key Fish Habitat. Since the Biodiversity Assessment Development Report has identified the requirements for purchase of credits (or land) to meet these obligations, DPI Fisheries request that PCT17 and PCT53 credit offsets should be located in the Lachlan catchment where possible to meet the requirements of the NSW Biodiversity Offsets Policy for Major Projects, Fact Sheet - Aquatic Biodiversity (http://www.environment.nsw.gov.au/resources/biodiversity/14817aqoffs.pdf) thereby maintaining aquatic biodiversity values within the same catchment.

Evolution is progressing the assessment of stewardship sites within Lake Cowal to offset the loss of aquatic and terrestrial habitat within Lake Cowal (i.e. PCT 17 and PCT 53) due to the Project.

While recognised as a nationally important wetland, Lake Cowal is not protected under any Commonwealth or State government reservation mechanism. The establishment of stewardship sites within Lake Cowal will ensure in-perpetuity conservation outcomes for large areas within Lake Cowal, meeting both the requirements for aquatic offsets, outlined in NSW Biodiversity Offsets Policy for Major Projects, Fact Sheet - Aquatic Biodiversity and terrestrial offsets under the BC Act.

Further details regarding the Project's biodiversity offset strategy are provided in Chapter 10 of the revised BDAR (refer Appendix F).

4.10.2 Dewatering

In addition to the Fauna Management Plan, the dewatering plan (DMP) needs to consider the use of pump screens to reduce the impacts of pump infrastructure removing and damaging fish during construction of the expanded LPB. The potential impacts of pump infrastructure (both direct and indirect) include:

-The entrainment of eggs, larvae, and juvenile fish

-Mechanical damage and fish mortality from pump infrastructure

In the event the LPB is constructed while Lake Cowal is inundated, a detailed dewatering plan will be prepared as part of the CEMP prior to the commencement of dewatering activities. The dewatering plan will include consideration of pump screens to minimise impacts on aquatic ecology during dewatering activities.

4.10.3 Flora and Fauna management

Flora and Fauna management plan: Continued monitoring, reporting, and improved protocols for identifying and investigating fish and aquatic invertebrates, particularly fish kills are recommended given the increased scrutiny on these projects and the concerned recreational fishers. Consultation with recreational fishers is highly recommended.

As outlined in Table 3.2 in Section 3.4, the management of aquatic ecology during the Project is proposed to be governed by two key management plans covering the construction and operational phases of the Project. The CEMP will include a biodiversity management measures to manage potential construction related impacts on terrestrial and aquatic ecology during the construction of the expanded LPB and UCDS. During operations, ongoing management of aquatic ecology will be guided by the biodiversity management plan. Both the CEMP and the operational Biodiversity Management Plan will be prepared in consultation with DPI Fisheries and BCD and approved by DPE.

Due to being located on freehold land with limited public access, there are limited opportunities for recreational fishing within Lake Cowal. The Project's potential impacts on recreational fishing was not raised during consultation with local landholders or the broader community during the preparation of the EIS. Further, surface water quality monitoring and aquatic ecology monitoring carried out over the course of the existing mine's operational life has not shown any material adverse impacts to water quality or aquatic ecology within Lake Cowal attributable to the CGO. As such, potential impacts on recreational fishers downstream of Lake Cowal are not expected and therefore consultation with recreational fishing groups is not proposed as part of the preparation of the above management plans.

4.11 NSW Rural Fire Service

No objection is raised to the proposal subject to inclusion of the following conditions of consent:

1. Recommendations listed in Table 2 of the Bush Fire Risk Assessment by Coolburn Fire & Ecology are implemented for the life of the development; and

2. A Bush Fire Management Plan shall be prepared for the proposed facility by a suitably qualified bush fire consultant and provided to the local NSW RFS District Office for comment. Any return comment from the District shall be adopted into an amended Plan. As a minimum, the Plan shall include:

- 24-hour emergency contact details including alternative telephone contact
- Site infrastructure plan
- Firefighting water supply plan
- Site access and internal road plan
- Asset protection zones and their continued maintenance
- Location of hazards (physical, chemical, and electrical) that will impact on firefighting operations
- Mitigation measures designed to prevent a fire occurring within the site, and prevent a fire from escaping the site and developing into a bush/grass fire risk to the surrounding area
- Such additional matters as required by the NSW RFS District Office.

This submission is noted. A Bushfire Management Plan will be developed by a qualified bushfire consultant in consultation with the Bland / Temora Rural Fire Service (RFS) and will include the requirements outlined in the NSW RFS submission on the EIS and the recommendations outlined in the Project's Bushfire Fire Risk Assessment (Appendix X of the EIS).

CHAPTER 5
Response to organisation and community submissions

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5 Response to organisation and community submissions

5.1 Overview

As outlined in Chapter 2, the submissions received during the public exhibition of the EIS demonstrate the overwhelming local support for the Project and the CGO in general with 97% of community and special interest groups submissions received in support of the Project. The community submissions received in support of the Project predominately raised local employment, community benefits, positive economic impact on surrounding businesses and local and regional economic benefits associated with the Project, as well as CGO's positive work environment and workplace health and safety culture as reason for support.

Key themes raised in the small proportion of community and special interest group submissions in objection or comment on the Project predominantly related to surface water and groundwater resources and biodiversity. Each theme raised in the community and special interest group submissions has been reviewed and considered by Evolution and as relevant by the technical specialists who prepared the EIS technical assessments. Detailed responses are provided on a thematic basis in the following subsections. In some cases, additional assessment has been carried out to respond to matters raised as detailed in Section 3 and the relevant subsections below.

5.2 Water resources and hydrology

Water resources and hydrology were the most often raised matters of concern by the community and special interest groups, not only in the EIS submissions, but also during the EIS community consultation process. The key areas of concern raised on the Project included the Project's impact on Groundwater resources, the potential for the Project to displace water within Lake Cowal due to the expanded LPB, and the potential for the Project to change the hydrology of Lake Cowal.

Surface water and groundwater assessments were undertaken as part of the EIS to assess the potential effects of the Project on existing water resources and sensitive receptors (Appendices G and H of the EIS). A revised Groundwater impact assessment (Appendix G), Surface water technical memorandum (Appendix L) and LPB water balance modelling memorandum have been prepared during the response to submissions phase of the Project to provide additional information and assessment where required to respond to matters raised in the agency and community submissions. The findings of the additional assessments are consistent with the findings of the assessments carried out for the EIS and demonstrate that the Project will have a minimal impact on water resources and hydrology.

This section provides responses to submissions regarding the Project's potential impacts on water resources and hydrology.

5.2.1 Impacts on groundwater

One special interest group objecting to, as well as five special interest groups and one community submission providing comments on the Project, raised the Project's potential impacts on groundwater.

Matters raised included:

- the potential for extraction of water from the Bland Creek Paleochannel Borefield for a longer period to impact on the water security of landholders
- preference that Evolution prioritise its use of the Saline Borefield and Lachlan River water supply via the Jemalong irrigation channel over the Bland Creek Paleochannel groundwater
- groundwater licensing
- long-term Project impacts on GDEs and third-party bores including agriculture, with consideration to climate change and the potential for increased frequency of droughts
- groundwater monitoring data

i Groundwater security of surrounding landholders

All of the seven submissions which raised groundwater issues, including local Water Users Groups, the Lake Cowal Foundation and one community submission, noted concern that the Project would continue to rely on, and result in additional take from, local groundwater resources and in particular the Bland Creek Paleochannel.

The Project will not change approved external water supply sources or change the approved processing rate for CGO. The Project will not increase overall demand on external water supply sources. To the contrary, the Project's water balance model prepared for the EIS (refer Appendix G of the EIS) predicted a reduction in the average annual extraction from the Bland Creek Paleochannel bores to 782 ML/yr compared to the 1,628 ML/yr predicted in the Underground Mine Project Surface Water Assessment (HEC, 2020).

The findings of the revised Groundwater Impact Assessment (GIA) (which have not materially changed from the EIS GIA) found the Project, including the continued operation of the CGO borefields in association with the Project, will not result in groundwater level drawdown changes greater than 2 m from CGO's current approved operations, and there will be no material change in groundwater level drawdown at any landholder bore associated with the Project when it is considered on its own (i.e. incremental drawdown). Groundwater levels will also remain above the investigation and mitigation trigger levels at the DPE Water bore GW036553 (located near the mine borefield). This is even though future extraction from the Bland Creek Paleochannel borefield has been conservatively modelled in the groundwater model used to support the GIA, as an extraction volume of 1,460 ML/yr was simulated. This is almost double the extraction volume predicted to be required as part of the Project's water balance model, detailed above.

Consistent with the current development consent requirements, the Project will continue to implement make good provisions if water supply at private bores is directly affected by the Project.

ii External water supply

CGO will continue to manage the supply of water from external sources in a sustainable manner and will alternate between external sources to manage groundwater levels and provide flexibility with respect to extraction rates and the availability of allocations in the Lachlan River.

As noted above, the Project's water balance model carried out to inform the EIS found the Project is actually predicted to decrease reliance on external sources (the eastern saline borefield, the Bland Creek Paleochannel borefield and licensed extraction from Lachlan River water entitlements). The decreased demand is related to an increase in simulated tailings water recovery (based on calibration of that component of the model), the increase in the catchment area of the CGO and the number and depth of open pits planned as part of the Project.

As outlined in CGO's existing approved water management plan (Evolution 2022), Evolution has identified and continues to investigate several additional external water supply options with the view of decreasing use of fresh groundwater resources. In particular, Evolution continues to explore the development of additional bores or borefields in saline aquifers in the region.

iii Groundwater licensing

Lachlan Valley Water and the Lake Cowal Foundation provided comment in their submissions on the EIS regarding CGO's existing groundwater entitlement. While the Project does not require additional groundwater entitlement, consideration has been given to responding to the comments made regarding CGO's existing groundwater entitlement.

Lachlan Valley Water noted in its submission on the EIS that:

> 300 ML of the original 3650 ML groundwater licence has been converted to an Eastern Saline Borefield licence. It is therefore important to ensure that there cannot be trades which allow the conversion of a saline groundwater supply to a freshwater palaeochannel licence

While the WSP permits trading within each water source or management zone in the in the Upper Lachlan Alluvial groundwater source subject to assessment and approval by DPE Water, Evolution will not convert existing Eastern Saline Borefield entitlement to permit additional extraction from the Bland Creek Paleochannel. Subject to the development of additional saline bores (refer Section 5.2.1iii above), Evolution may however convert further Bland Creek Paleochannel entitlement to be used for additional saline water extraction.

Lachlan Valley Water also noted:

> The total licenced entitlement for the Upper Lachlan Alluvial Groundwater area (Zones 1 – 8) is 175,605 ML, plus there are 6,280 ML of basic landholder rights, which do not require a licence. While the usage limit is 94,168 ML, (p13, Appendix H), this includes the 6,280 ML of basic landholder rights, which are assumed to be used every year, therefore the usage limit for licensed entitlement is 87,888 ML, or 50% of the actual licence entitlement. While the Evolution Mining licence WAL 31864 currently allows 3350 ML/year to be pumped from Upper Lachlan Zone 7, and in conjunction with other licences, WAL 36569 and WAL 36615 which are linked to saline groundwater, this allows extraction of 4016 ML, the reality is that in severe dry conditions if there is a consistent increase in usage across the entire Upper Lachlan Alluvial Groundwater, the allowable access could be reduced to less than 1 ML/share in order to manage compliance with the usage limit.

Evolution is aware of the extraction limit for Upper Lachlan Alluvial Groundwater Source and the measures in the Lachlan Alluvial Water Sharing Plan to manage available water determinations and/or the maximum water account debits to maintain total extraction within this limit. It is also closely following the current extraction against the limits and assessing any potential risks to supply. Recent assessment by the Department[4] shows a 5-year rolling average annual extraction at the end of the 2022/23 water year of about 68,000 ML, well below the compliance limit 'trigger' of 103,585 ML (being 94,168 ML plus 10%). Even during the severe drought of 2017 to 2020, the compliance trigger was not reached and as such, it is very unlikely that there will be non-compliance with the extraction limit. Notwithstanding, in the highly unlikely event extraction limit compliance action is necessary, Evolution would source any necessary supply shortfall from the allocation market – either groundwater or surface water.

[4] https://water.dpie.nsw.gov.au/allocations-availability/extraction-limits/tracking-groundwater

Lake Cowal Foundation noted:

> Applicable groundwater licensing terms have changed over the CGO lifespan inclusive of an increasing level of take available. This doesn't appear to be considered in overall groundwater water resource planning or modelling in the context of long-term resource security and changing climate processes.

Sufficient entitlement is held for the predicted water take from groundwater sources and no additional entitlement is expected to be required for the Project. The Project is not seeking additional entitlement. The impacts of the Project groundwater take is outlined above and below, and in the EIS.

iv Long term impacts on third-party bores

The groundwater model predicts potential impacts on the groundwater system both during and post mining. The model has been developed to consider the groundwater system up to 1,000 years post mining (i.e. January 3041) and considers climate stress, pumping stresses from registered bores and post-mine recovery.

The modelled groundwater level from the year 2000 to 2100 at groundwater monitoring trigger bore GW036553 (located in the alluvial groundwater system in the immediate vicinity of the borefields) was shown in Section 6.5 of the GIA and is reproduced here at Figure 5.1. This drawdown is based on the Proposed scenario and includes landholder pumping, as well as the approved and proposed CGO operations (including borefields). The drawdown shows that at the completion of the Project in early 2041, the groundwater recovers to levels above those historically observed during approved mining operations (during which time third-party bores have been able to access groundwater). Therefore, the Project is not considered to have long-term impacts on third-party bores.

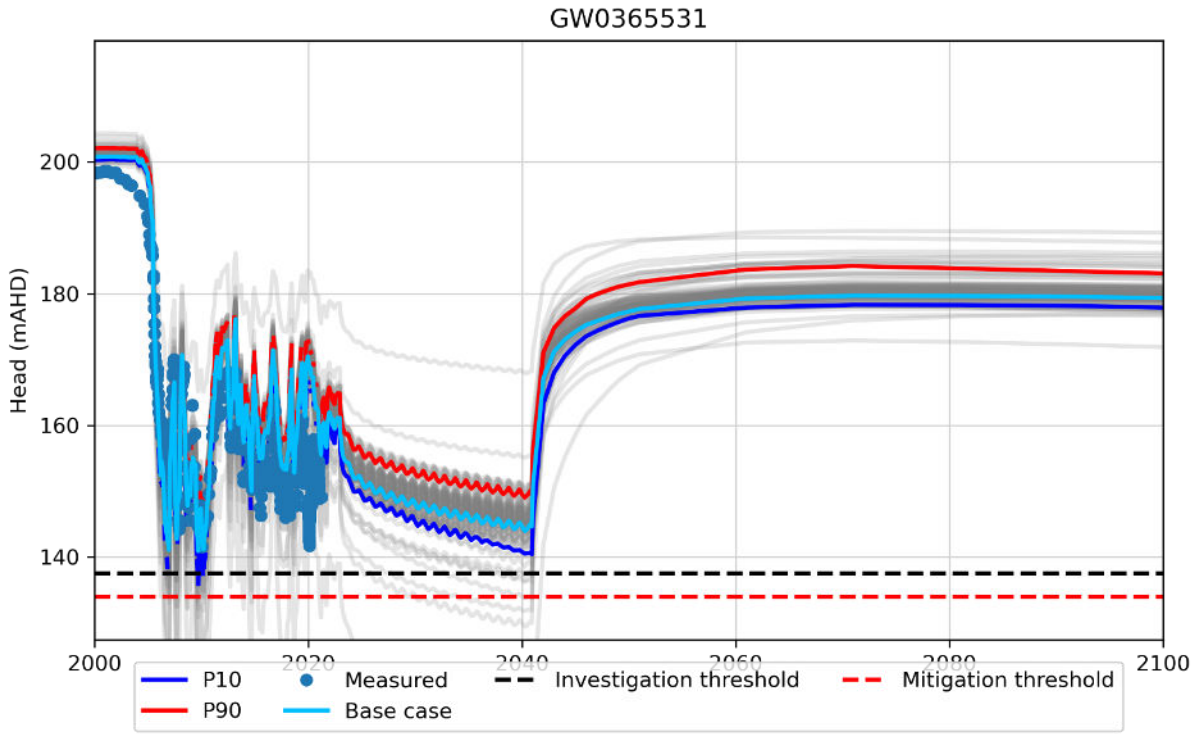


Figure 5.1 Modelled drawdown at trigger bore GW036553

v Long term impact on GDEs

As outlined in Section 3.3.3, both the EIS BDAR and GIA identified potential GDEs that had the potential to be impacted by the Project. Accordingly Evolution commissioned EMM and 3D Environmental to carry out a Groundwater Dependent Ecosystem Assessment (GDE Assessment) which is contained in Appendix H of this Submissions Report.

The Assessment found drawdown associated with the development of the Project (including cumulative drawdown) is expected to have no impact on the identified potential GDEs due to the absence of casual pathways between the mine dewatering activities and the GDEs. This is because the Upper Cowal Formation is affected by mine dewatering, which the GDEs are not reliant upon.

vi Groundwater monitoring data

Lachlan Valley Water requested in its submission that the groundwater monitoring information be made publicly available. CGO currently publishes groundwater monitoring carried out in accordance with the groundwater monitoring program outlined in the DPE approved CGO Water Management Plan (Evolution 2022) on its website and carries out annual reporting which includes a review of CGO's environmental performance with respect to Groundwater. The Annual Reviews are also published on the CGO website (refer https://evolutionmining.com.au/cowal/).

As outlined in Section 3.4, a new Water Management Plan, including a Groundwater monitoring program will be prepared prior to the start of Project open pit mining operations in consultation with NSW DCCEEW Water Group and EPA and approved by DPHI.

5.2.2 Impacts on the hydrology of Lake Cowal

The key theme raised in the one community submission objecting to the Project related predominantly to the potential for the expanded LPB to increase flood levels within Lake Cowal.

One community submission which provided comment on the Project, as well as the Lachlan Valley Water and Lake Cowal Foundation submissions raised the potential for the LPB to displace water within Lake Cowal and increase water levels and/or to change the hydrology (including wave action) of Lake Cowal during the filling/flooding and drying cycles of the Lake and potential impacts on ecological processes and agricultural productivity.

Lake Cowal Foundation and Inland Rivers network raised the risk of climate change and the potential for increased extreme weather events to result in potential impacts to the receiving environment including during the post closure phase.

In summary these submissions raised the following matters:

- the view that an increase of any size of flood levels, even the 15 mm increase predicted in the Project's flooding study, would be substantial for landowners on the eastern side of Lake Cowal in terms of potential safety impacts to residents and impacts to property and livestock.
- the Project's impact on lake volume and the view that the Surface Water Assessment's calculation of the volume increase of Lake Cowal is inaccurate
- efficacy of the hydrological modelling carried out for the EIS and a request for more detailed modelling
- the Project's potential impacts on wind and wave action on Lake Cowal
- increases to Lake Cowal inundation timeframes
- climate change risk and the potential for extreme weather events to cause unforeseen surface water impacts

The Project's Surface water assessment was prepared by ATC Williams (2023) (refer Appendix G of the EIS). ATC Williams has prepared detailed responses to address the above matters raised. These complete responses are included in Appendix L and summarised in the following sections.

i Increased flood levels

The level-volume graph for the area behind (upslope of) the proposed expanded LPB is provided below in Figure 5.2. The LPB is estimated to displace approximately 3,900 ML at 205.6 mRL, the estimated level at which Lake Cowal overflows to Nerang Cowal.

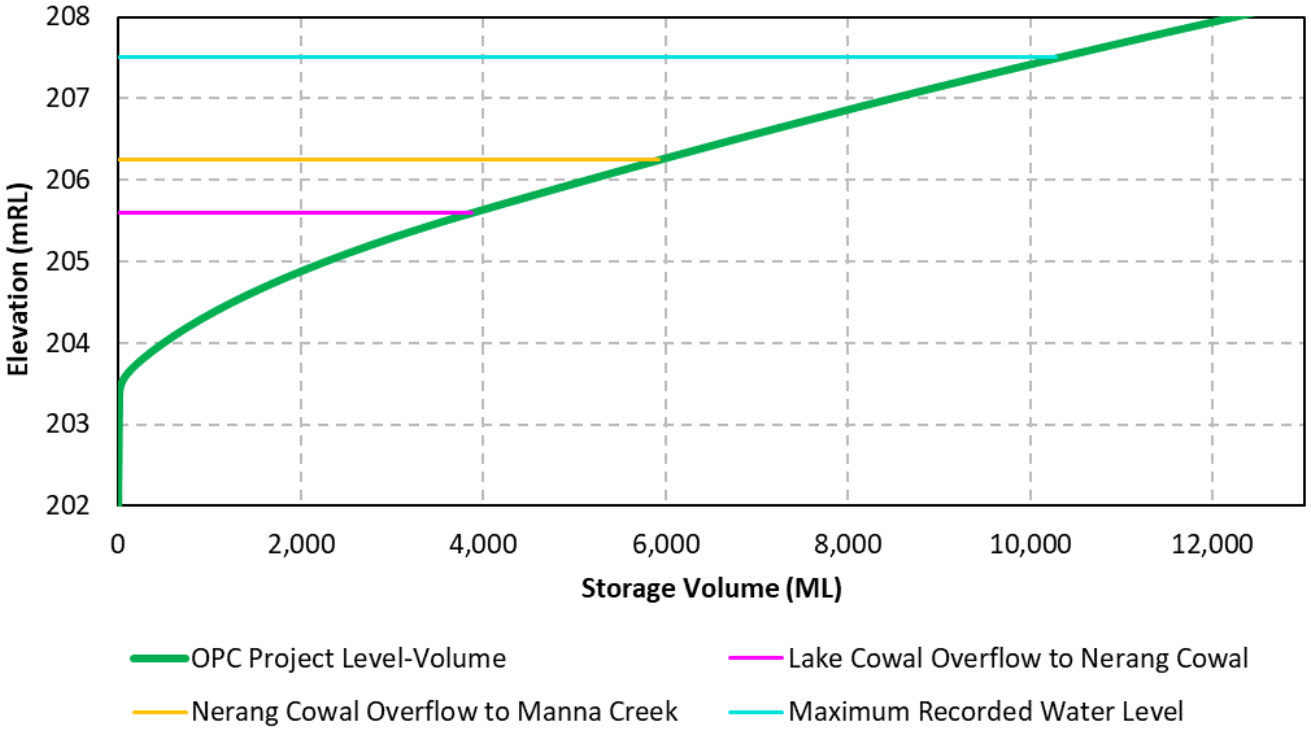


Figure 5.2 Proposed Lake Protection Bund Level-Volume Graph (ATC Williams 2024)

a Impact assessed by flood modelling

Section 6.5.2.3 of the EIS Surface water assessment (Appendix G of the EIS) states: "*The increase in predicted peak flood level was small with an average change of 0.013 m for the cross-section for the 1% AEP, 0.014 m for the 0.1% AEP and 0.010 m for the PMF*". Table 5.1 provides key information to assess how these flood level changes compare as a percentage increase in peak water level due to the Project.

Table 5.1 Percentage Increase in peak water level due to the Project

AEP Rainfall Event		1%	0.1%	PMF
Simulated initial water level (mRL)			206.300	
Simulated peak water level (mRL)	Existing	208.524	209.262	210.534
	Project	208.537	209.276	210.544
Change in water level during the simulation (m)	Existing	2.224	2.962	4.234
	Project	2.237	2.976	4.244
Increase in peak water level due to the Project (m)		0.013	0.014	0.010
Percentage increase in peak water level due to the Project		0.59%	0.48%	0.24%

Table 5.1 shows that for the existing case and the 1% AEP rainfall event, the peak water level is 2.224 m higher than the initial water level whereas the peak water level for the Project is 2.237 m higher than the initial water level. This means that the Project peak water level increases the simulated 1% AEP flood level by 13 mm or 0.59% of the predicted flood level. This percentage increase in peak water level due to the Project decreases to 0.48% for the 0.1% AEP rainfall event and to 0.24% for the PMF. These percentage increases are considered minor and are supported by the maps in Appendix 2 of the Surface water assessment (Appendix G of the EIS) which show the predicted flood depth change due to the Project (i.e. Map 011, Map 015 and Map 019).

ii Lake volume calculations

The Project's Surface water assessment (Appendix G of the EIS) outlined that the expanded LPB is expected to decrease the lake surface area (at its spill level to Nerang Cowal) by approximately 1.7% and its capacity by approximately 1.9% (ATC Williams 2023).

The local community submission objecting to the Project felt the 1.7% calculation was inaccurate as the "*EIS only states the water in Lake Cowal itself and does not include the total area of Lake Cowal, Nerang Cowal and their feeder creeks EIS*". For clarity, the 1.7% reduction in lake storage volume, due to the Project, is the maximum reduction calculated at all elevations (with the 1.7% corresponding to 206.2 mRL).

The area and volume reductions at some key water levels in Lake Cowal, Nerang Cowal and surrounds are presented in Table 5.2. The level-volume relationship for Lake Cowal and surrounds is provided in Figure 5.3, while Figure 5.4 shows the plan area extent of three of the tabulated key levels which were used to calculate the areas in Table 5.2.

The lake level-volume relationship was derived from a combination of available data, comprising lake bathymetric survey (underwater survey of lake floor) undertaken in October 2021, Light Detecting and Ranging (LiDAR) aerial survey flown in January 2022 for the above water lake area/surrounds and the national ELVIS[5] database for other areas.

As shown in Table 5.2 the maximum decrease in lake area and volume occurs at 206.2 mRL and results in a 1.7% decrease in both of these parameters due to the Project.

Table 5.2 Calculated Lake Area and Volume at Key Levels

Key level (m RL)	Description	Existing area (ha)	Project area (ha)	Change in area (%)	Existing lake volume (ML)	Project lake volume (ML)	Change inlake volume (%)
205.6	Lake Cowal Overflow to Nerang Cowal	13,589	13,282	-2.3%	197,360	194,558	-1.4%
206.2	Maximum Calculated Change	18,567	18,243	-1.7%	294,538	289,846	-1.7%
206.3	Nerang Cowal Overflow to Manna Creek	19,382	19,057	-1.7%	306,814	302,224	-1.5%
207.5	Maximum Recorded Water Level	41,807	41,631	-0.4%	699,987	696,045	-0.6%

5 Elvis Elevation and Depth is a cloud-based system allowing users to obtain Australian elevation and bathymetry data available within an area of interest. Refer https://elevation.fsdf.org.au/.

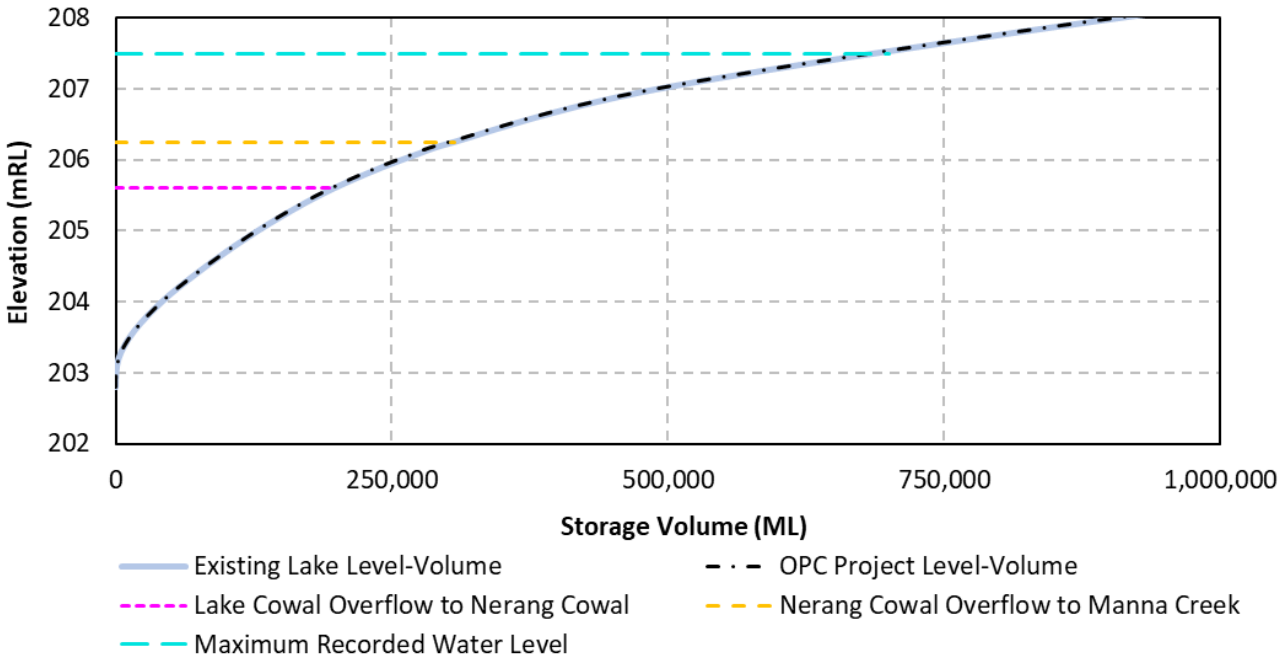
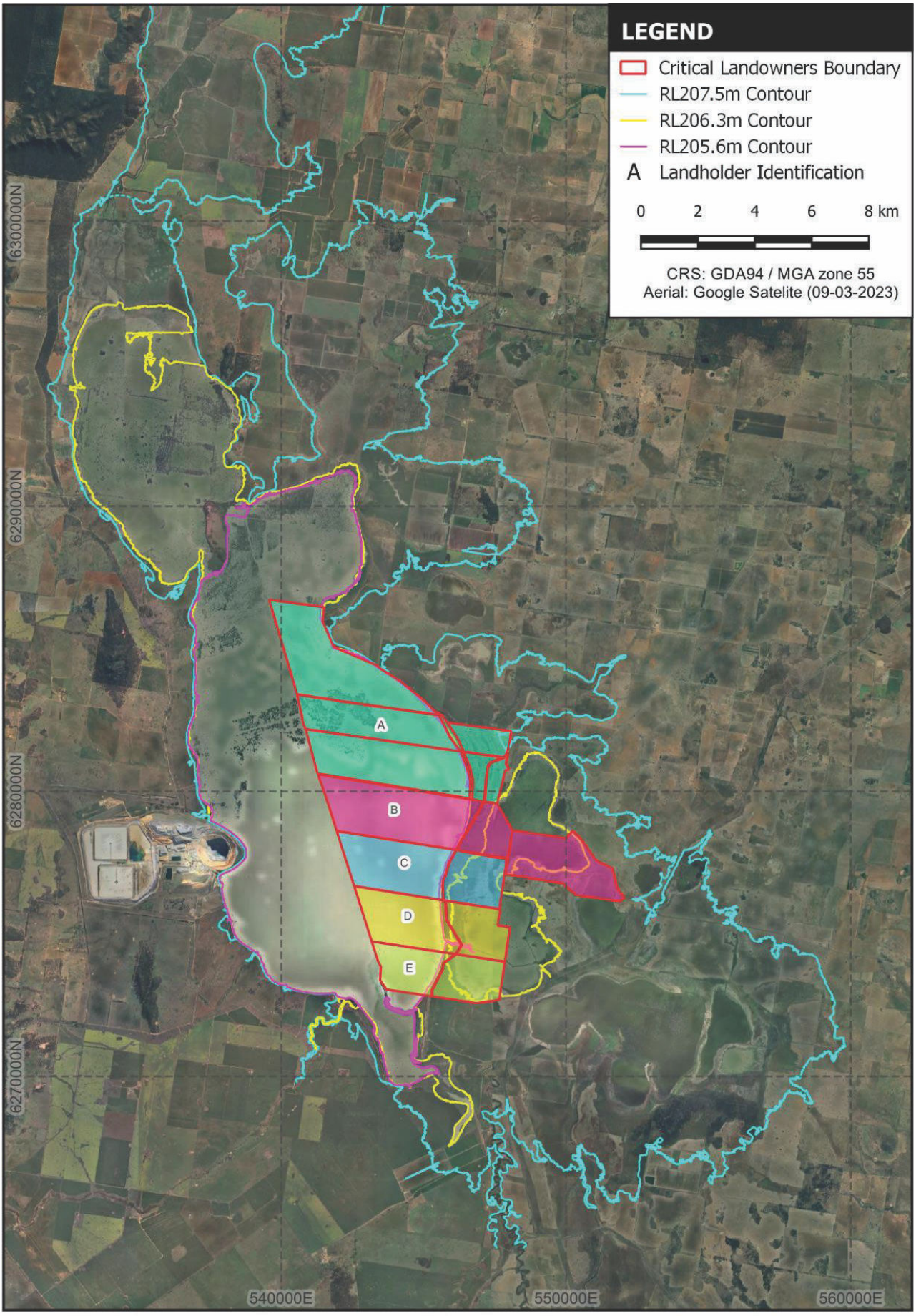


Figure 5.3 Lake Cowal and surrounds level-volume graph (ATC Williams 2024)



(Source ATC Williams 2024)

Key Levels in the Lake Cowal level-volume graph with reference to private landholders

iii Hydrological modelling

The Lake Cowal Foundation noted in their submission that more extensive and detailed hydrological modelling is required to account for the inherent system complexities and to identify appropriate mitigations. The flood modelling and lake balance modelling carried out for the Project, detailed in the Surface Water Assessment, have been prepared by specialist hydraulic engineers and are in accordance with industry practice. The studies carried out are comprehensive and fit for purpose in identifying the potential change to the hydrology of Lake Cowal from the Project, a discrete activity, within the broader system.

The aim of overalll modelling was to demonstrate the likely incremental change to lake flood levels as a result of the Project irrespective of the source of the inflow in the broader system. Hydraulic modelling therefore assumed that the lake system was full at the start of each flooding event. Both lake hydrology and hydraulics have been modelled and assessed as part of the Surface water assessment (refer Section 6.5.2 of Appendix G of the EIS) with and without the Project.

The lake hydrology is not affected by the footprint area but is affected by the volume of water displaced by the expanded LPB and the changed level-volume relationship of the lake. The Surface Water Assessment lake water balance takes cognisance of this.

No government agencies, including BCD, EPA or NSW DCCEEW Water Group, raised in their submissions on the EIS, any matters or concerns relating to the hydrological studies carried out to inform the Surface Water Assessment.

iv Project changes to wind and wave action

Two community submissions (one objecting and one commenting), raised the potential for the Project to change the wind and wave action on Lake Cowal including the potential to increase the size of the waves due to the small increase in lake levels. One of these two submissions noted that no modelling had been carried out to consider the effects of wind action on the lake.

ATC Williams has carried out additional calculations and assessment to respond to these submissions. The lake water balance model prepared for the EIS (refer Section 6.5.1 of Appendix G of the EIS) predicted the average increase in water levels due to the Project would be approximately 9 mm, while the average increase during times of high lake water levels (when lake levels are above 206 mRL) is less than 3 mm. Whereas the flood modelling predicted a small increase in peak flood level, with an average change of 0.013 m for the 1% Annual Exceedance Probability (AEP), 0.014 m for the 0.1% AEP, and 0.010 m for the PMF (ATC Williams 2023).

To compare the potential increase in lake water level due to wind and waves, ATCW calculated the increased water level due to wind and waves (i.e. wind induced lake superelevation[6] and the height of waves caused by wind using methods both from Fell[7] and USBR[8]) for different AEP events with the results listed in Table 5.3. Two relatively high lake levels have been chosen: the spill level from Lake Cowal to Nerang Cowal (205.6 mRL) and the maximum recorded water level in Lake Cowal (207.5 mRL).

[6] This refers to the effect of wind shear increasing the lake level at the down-wind end of the lake.

[7] Fell, R. et al (2015). "Geotechnical Engineering of Dams 2nd edition".

[8] U.S. Department of the Interior Bureau of Reclamation (2012). "Design Standards No. 13: Chapter 6: Freeboard". DS-13(6)-2: Phase 4 (Final), September.

Table 5.3 Wind and wave calculations

Lake Level (m RL)	Description	Scenario	AEP	Wave Height (m)	Wind Induced Superelevation (m)	Calculated lake level increase due to waves and wind induced superelevation (m)
205.6	Spill to Nerang Cowal	Existing	10%	0.10	0.78	0.88
		Project	10%	0.09	0.77	0.86
		Existing	0.1%	0.12	1.42	1.55[1]
		Project	0.1%	0.12	1.42	1.54
207.5	Maximum recorded lake water level	Existing	10%	0.12	0.68	0.80
		Project	10%	0.12	0.68	0.80
		Existing	0.1%	0.16	1.25	1.41
		Project	0.1%	0.16	1.24	1.40

1. The total calculated increase is affected by rounding (0.124 m+1.424 m = 1.548 m).

Table 5.3 shows that the calculated lake water level due to wind and waves is marginally lower for the Project than for the existing scenario (i.e. the waves are marginally smaller due to the Project). This is because the relationship between wave height and depth of water are inversely proportional. In other words, the deeper the water, the lower the height of the wave. The Project is predicted to increase the average water depth in Lake Cowal by 0.015 m hence the wave height (and wind induced superelevation) will not be as high for the OPC scenario. This relationship holds at both lower and higher wind speeds, illustrated by the 10% AEP and 0.1% AEP rainfall events scenarios. The sensitivity of the wave height and wind induced superelevation are relatively insignificant when compared to the potential increased distance for runup to occur due to a higher lake level for the Project, even at the maximum recorded lake water level (207.5 mRL).

v Changes to inundation times

The Lake Cowal Foundation and one community submission providing comment on the Project raised the potential that the Project would increase the time land within the lake bed is inundated and the potential of this to impact on agricultural productivity of the lake bed.

The level-volume graph for the area within the proposed expanded LPB is provided below in Figure 5.5. The LPB is estimated to displace approximately 3,900 ML at 205.6 mRL, the estimated level at which Lake Cowal overflows to Nerang Cowal.

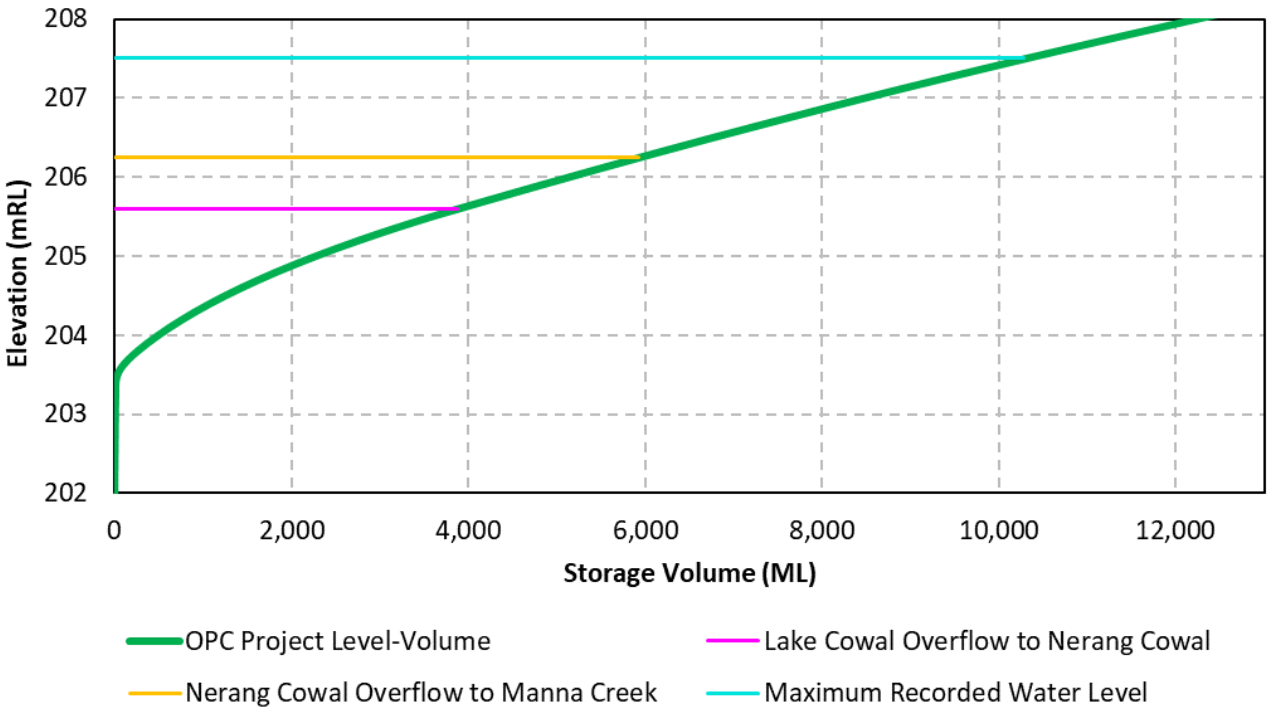


Figure 5.5 Lake area within proposed LPB level volume graph (ATC Williams)

To assess the likely impact to inundation days due to the simulated increase in lake water levels as a result of the Project, the lowest elevations of landholders properties on the eastern side of Lake Cowal were identified (refer Figure 5.4 and Table 5.4). The Lake Cowal water balance model (refer Section 6.5.1 of the Surface water assessment Appendix G of the EIS) was used to estimate the change in the number of days that the modelled water levels would be above the minimum level for each landholder's properties for both the existing situation and with the proposed Project.

Table 5.4 Simulated increase in days above landholding minimum levels

Landholder	Minimum Level on Landholdings (mRL)	Percentage increase in number of days water level in lake exceeds minimum landholding level**		Percentage increase in number of days water level in lake exceeds minimum landholding level (days per annum)
		Existing	Project	
A	203.1	42,535	42,641	0.25% (0.79 days/year)
B	203.0	43,551	43,607	0.13% (0.42 days/year)
C	202.8	45,113	45,148	0.08% (0.26 days/year)
D	202.7*	48,765	48,765	0.00% (0 days/year)
E	202.9	44,493	44,544	0.11% (0.28 days/year)

* Note that this is equal to the minimum simulated level in the lake.

** Note that the simulation duration is 48,765 days.

Table 5.4 shows that the predicted increase in the number of days above minimum levels on landholdings are minor (all less than 1 day/year). At 202.8 mRL, there is a simulated 0.08% increase in the number of days the level is exceeded from the existing situation to the Project. The maximum percentage increase simulated is 0.25% (0.79 days/year) for Landholder A where a minimum level of 203.1 mRL was identified.

The total simulation period is 48,765 days (133.6 years). It is noted that the minimum level on the landholdings of Landholder D is equal to the minimum simulated level in the lake and the lake is not simulated to completely empty. Hence, for both the existing and with Project simulations, the number of days the water level in the lake exceeds the minimum level in landholding of Landholder D is equal to the simulation duration. As such, there is no increase to the number of inundated days.

vi Climate change risk

The Lake Cowal Foundation and the Inland Rivers network both raised the risk of climate change and the potential for increased extreme weather events to result in potential impacts to the receiving environment including during the post closure phase.

The Up-Catchment Diversion System has been designed to accommodate peak flow rates up to the 0.1% Annual Exceedance Probability (AEP) event. Furthermore, the modelled water storages on site are not simulated to spill during the modelled period for all simulated climatic realizations (i.e. equivalent to a less than 1% spill risk). Rainfall intensity data used in the ATC Williams analyses conform with current industry standards.

Section 6.4 of the Surface Water Assessment (refer Appendix G of the EIS) provides information regarding the potential implications of climate change on the water balance model noting that annual rainfall is predicted to decrease while annual evapotranspiration is predicted to increase which would reduce the risk of spill from the Project water management system. Final void modelling has included these predicted changes to climate variables and results show the final void water levels should stabilise well below spill levels and below the local water table level.

5.3 Biodiversity

Impacts to biodiversity, and in particular riparian and wetland ecosystems was the second most issue raised by the community and special interest groups submissions which commented or objected to the Project. The key areas of concern raised in the submissions included impacts on wetlands, both adjacent and downstream of the Project, migratory birds and the effectiveness of biodiversity offsetting.

A Biodiversity Development Assessment Report (BDAR) and Aquatic ecology and biodiversity development assessments were undertaken as part of the EIS to assess the potential effects of the Project on threatened biodiversity and aquatic species values (Appendices J and K of the EIS). A revised BDAR assessment (refer Appendix F of this Submissions Report) has been prepared to account for the minor refinement in the Project's additional disturbance area (refer Section 3.1) and to provide additional information and assessment where required to respond to matters raised in the BCD's submission on the EIS and through consultation with the Commonwealth DCCEEW.

The following subsections provide response to submissions regarding the Project's potential impacts on biodiversity.

5.3.1 Impact on wetlands and riparian ecosystems

Two special interest group and one community submission, objecting to the Project and one special interest group commenting on the Project raised the Project's potential impacts on biodiversity, particularly riparian and wetland ecosystems and wetland birds both adjacent and downstream of the Project.

Matters raised included:

- Direct impacts of extended surface open pit mining operations into Lake Cowal, a significant ephemeral wetland system
- Impacts on riparian and wetland ecosystems substantial water bird breeding colonies within Lake Cowal adjacent to the Project (both within Evolution owned land and a neighbouring property).
- Potential for contamination to impact on wetlands and riparian ecosystems both adjacent and downstream of the Project particularly via the extension of

i Direct impacts to riparian and wetland ecosystems and wetland birds

The Project has been designed to avoid and minimise impacts on biodiversity where possible with all design iterations considering the potential direct and indirect impacts on biodiversity values. Due to the location of the target satellite ore bodies being predominately under Lake Cowal, there have been limited opportunities to minimise the Project's additional disturbance area within riparian and wetland ecosystems. Given the shallow nature of the target ore bodies, conventional open pit mining methods (versus underground) have been determined to be the only economical means of extraction. Notwithstanding these limitations, the design reiteration process has succeeded in reducing the additional disturbance within Lake Cowal and the Lake Cowal foreshore as shown on Figure 4.6. Design optimisation of the LPB has reduced the additional disturbance footprint within Lake Cowal by approximately 40 ha compared the Project's Scoping Phase design. This LPB design refinement led to a reduction of impact to waterbird habitat, including potential roosting/breeding habitat.

The additional disturbance area of the expanded LPB and new mining areas within Lake Cowal represents an increase of ~1 to 2% from the existing CGO footprint within Lake Cowal and around 3% to 5% of the total area of Lake Cowal (depending on the lake edge definition). The Project will directly impact 375.22 ha of riparian and wetland ecosystems consisting of:

- PCT 53 Shallow freshwater wetland sedgeland in depressions on floodplains on inland alluvial plains and floodplains – 311.19 ha
- PCT 249 River Red Gum swampy woodland wetland on cowals (lakes) and associated flood channels in central NSW – 51.99 ha
- PCT 17 Lignum shrubland wetland of the semi-arid (warm) plains (mainly Riverina Bioregion and Murray Darling Depression Bioregion) – 12.04 ha.

The above PCTs provide habitat for wetland birds, including listed migratory species.

The current terrestrial and aquatic biodiversity values of the above riparian and wetland areas within the additional disturbance area have been assessed under the Revised BDAR (refer Appendix F) and residual impacts will be offset in accordance with relevant legislation and policy.

Evolution proposes to, and is actively pursuing, establishment of Stewardship sites within and surrounding Lake Cowal in Evolution owned land and other local landholdings to offset the biodiversity impacts of the Project. It is anticipated that significant extent of lands will be placed into a Biodiversity Stewardship Agreement (BSA) estimated at over 2,500 ha in total, which would provide long-term conservation security for large areas of wetland and riparian ecosystems and habitat for waterbirds which frequent Lake Cowal.

ii Indirect impacts to riparian and wetland ecosystems and wetland birds

The revised BDAR (refer Appendix F), identifies a range of potential indirect impacts on migratory and wetland waterbirds including potential for noise and vibration and lighting impacts.

As outlined in Section 8.4.1 of the revised BDAR, thresholds of noise effects have been devised within a waterbird disturbance toolkit by Cutts et al. (2013) who made the following definitions for impacts of noise on waterbirds: high noise level effects (sudden noise over 60 dB or a more prolonged noise over 72 dB); moderate noise level effects (occasional noise events above 55 dB, a more regular noise 60–72 dB or long-term regular noise above 72 dB); and low noise level effects (noises less than 55 dB or a more regular noise 55–72 dB in some highly disturbed areas). Cutts et al. (2013) noted however that birds are liable to habituation as they usually become more tolerant to both aural and visual disturbance stimuli with increased exposure time to regular activities.

The BDAR further outlines in Section 8.4.1 that, the predicted noise impacts of construction and operation noise at waterbird breeding areas (N03 and N04) are expected to be a maximum of 54 $L_{Aeq,15min}$. Maximum instantaneous L_{Amax} levels for construction and operation are predicted to be lower than the maximum $L_{Aeq,15min}$ (i.e. <54 dB). As a per Cutts et al. (2013), such noise levels of less than 55 dB are classed as likely to have a low noise level effect on waterbirds.

Despite the potential for light and noise generated by mining activities at CGO to impact waterbirds within Lake Cowal, analysis of waterbird community trends from monitoring undertaken since 1989 has yet to detect any such impact. That is, a comparison of waterbird communities adjacent to the existing CGO before and after operations by AMBS (2013) concluded that “there does not appear to be any difference in the number of birds, the number of species, or the diversity of birds recorded along the transect closest to the mine site, compared with those present prior to the development of Cowal Gold Mine”, indicating that construction and operation of the existing CGO has not impacted the waterbird community.

The revised BDAR found that there are no residual indirect impacts expected to result in changes in vegetation integrity scores outside of the additional disturbance area, in other words the Project will not indirectly impact on vegetation outside of the impact footprint.

iii Potential for contamination both adjacent and downstream of the Project

a Project design

The Project has been designed cognisant of the important biodiversity values of Lake Cowal and downstream environments. The extended LPB has been designed to meet or exceed the required flood protection, slope stability and factor of safety (FoS) design criteria and geotechnical considerations. The Detailed Design Report (SLR 2023) contemplated flood risks and associated risks of LPB embankment failure both to the receiving environment and the CGO. Accordingly, the LPB has been designed higher than the 0.1% AEP event and has been designed to remain structurally stable in a 0.1% and Probable Maximum Flood (PMF) event (SLR 2023).

Similarly, the Up-Catchment Diversion System (UCDS) which diverts surface water upstream of CGO operations to ensure no interaction with mining operations, has been designed to accommodate peak flow rates up to the 0.1% AEP event (ATC Williams 2023a). The water storages within site are not simulated to spill during the modelled period for all simulated climatic realizations (i.e. equivalent to a less than 1% spill risk) (ATC Williams 2023a).

As such the Project has been designed to provide to maintain the mutual separation and protection between the CGO and Lake Cowal and therefore the risk of contamination of Lake Cowal and downstream environments due to the Project is considered low.

b Existing operations

As detailed in Appendix G of the EIS, water quality monitoring has been carried out since 1998 and is currently conducted in accordance with the approved Water Management Plan (Evolution 2022). Based on assessment of the monitoring data, there is no evidence that activities at CGO have resulted in changes to water quality in Lake Cowal (ATC Williams 2023a) and as noted in Section 5.3.1ii above there does not appear to be any difference in the number or the diversity of birds (AMBS 2013). As such existing operations are not considered to be resulting in contamination of Lake Cowal.

c Potential for construction water quality impacts

The Surface water assessment prepared for the EIS (refer Appendix G of the EIS) assessed in the detail the potential for the construction of the expanded LPB, particularly during wet conditions, to impact on the water quality of Lake Cowal.

Placement of inert waste rock directly into Lake Cowal during construction of the Temporary Isolation Bund and LPB has the potential to affect the water quality within Lake Cowal. Generally, the comparison of metal concentration in primary waste rock water extracts analytical results and onsite water storages against the site specific guideline values (SSGVs) outlined in the Surface water assessment (refer Appendix G of the EIS) suggests that the potential for elevated concentrations in runoff from the expanded Temporary Isolation Bund and LPB relative to Lake Cowal is likely to be low considering the limited exceedances observed against the SSGVs. The volumes of runoff from the expanded Temporary Isolation Bund and LPB are expected to be low compared to total catchment runoff reporting to Lake Cowal mitigating the potential for increased concentration of these metals in Lake Cowal. The risk to Lake Cowal water quality will be mitigated by stockpiling the waste rock material to be used within the CGO existing disturbance area and undertaking a geochemical testing program to confirm that the material is inert (i.e. non acid forming, not sodic/dispersive or saline and contains relatively low soluble environmentally significant constituents).

Placement of inert waste rock onto the floor of the lake during construction of the LPB is likely to generate locally increased turbidity and suspended material. Placement of a continuous silt curtain around the perimeter of the Temporary Isolation Bund is planned to trap fine sediment and control the migration of suspended material into the lake. As outlined in Section 8.1.3 of the Surface water assessment, appropriately designed and installed silt curtains have found widespread use in recent years, including in freshwater lakes and impoundments, and have been effective in controlling turbidity. Ongoing testing of Lake Cowal water quality at monitoring locations close to and remote from CGO would provide a means of directly assessing any effects on water quality as a result of LPB construction activities and during the return of captured water. The frequency of sampling and testing at lake water quality sites would be increased during construction.

As outlined in Section 3.4above, a CEMP for the construction of the LPB will be approved by DPHI prior to the commencement of Project construction . The CEMP will detail construction activities, testing frequency, environmental management, monitoring and contingencies. The CEMP will include adaptive management (such as a trigger action response plan) for assessing water quality, including contingency measures, such as changes to water treatment.

d Post closure

The final landform will be refined throughout the mine life to ensure it is safe and stable in the long term and does not pose any risk to Lake Cowal and downstream environments.

The majority of the CGO site post-closure would continue to drain to the final E42 void and would therefore have no impact on the water quality of Lake Cowal. The final profiles of the WREs, IWL, LPB and final voids have or will be designed to effectively preclude instability which could cause impact on the Lake.

Final void water balance modelling carried out as part of the EIS Surface Water Assessment (refer Appendix G of the EIS) suggests the risk of discharge from the final void water bodies to Lake Cowal is low as the final void water levels should stabilise well below spill levels and below the local water table level under both natural conditions and with consideration to potential climate change effects.

Stabilisation of the outer batters of the expanded mine WREs (using rock mulch and vegetation) would be undertaken well ahead of mine closure, allowing time for "proving" the stability of these batters. Similarly, the expanded UCDS would be designed and profiled such that peak flow velocities and bed shear stresses generated during the design event would not result in significant erosion or geomorphic instability. The expanded UCDS would have been in operation for approximately 18 years at the end of the Project life. This again allows time for "proving" the stability of the UCDS. Any unforeseen instability would lead to remedial works which would result in an improvement in the durability of the UCDS.

5.3.2 Biodiversity offsets

The one community submission and one special interest group submission objecting to the Project raised that the Project was reliant on discredited offset mechanisms and that biodiversity offsets could not deliver compensation or replacement of the biodiversity values impacted by the Project.

The Lake Cowal Foundation also noted Biodiversity Stewardship site will require a higher level of commitment than currently apportioned to similar current offset areas to achieve the desired environmental (offset) outcomes noting management plans and actions require higher levels of landscape scale rehabilitation, pest animal and weed control, bushfire management, monitoring and evaluation.

i Offsets for the Project

Evolution requires a range of biodiversity offsets to meet New South Wales and Commonwealth legislative requirements to execute the Project.

These offsets are grouped into three types:

1. Ecosystem and Species credits as required under the NSW BOS which will satisfy the Commonwealth legislative requirements under the Bilateral Agreement

2. Offsets required for impacts to migratory shorebirds under Commonwealth legislative requirements that are not captured under the Bilateral Agreement

3. Offsets to account for impacts to areas currently managed through the Compensatory Wetland Management Plan.

Evolution will pursue biodiversity offsets required for the Project, prioritising local outcomes through securing Stewardship sites and/or credits within and nearby Lake Cowal where possible.

While included in the Directory of Important Wetlands in Australia, Lake Cowal sits wholly within privately-owned land and is currently not protected under any Commonwealth or State government reservation mechanism. Historically, the entire lake bed has been cropped and/or grazed when conditions allow. Currently when dry, the eastern half of the lakebed is primarily used for cropping and grazing by local landowners. The western half is owned by Evolution and the company has chosen to manage that land for biodiversity purposes.

While the Project will have an additional disturbance area of 1,032.16 ha including approximately 367.4 ha within Lake Cowal, it will provide a mechanism to conserve large areas of Lake Cowal and its immediate surrounds in perpetuity via the establishment of biodiversity stewardship sites under the BC Act to offset the impacts of the Project. Approximately 2,500 ha of land will be secured in stewardship sites in perpetuity and actively managed. This will provide long-term conservation security which is not currently provided under the existing tenure.

In order of preference, the pathway to secure the biodiversity offsets required for the Project includes:

- establishment of Stewardship sites on Evolution-owned land
- purchase of credits (or land) from nearby external landholders to meet the anticipated credit shortfall
- purchase of credits on the NSW DCCEEW's Biodiversity Credit Market
- limited use of the NSW Government Biodiversity Conservation Fund (BCF).

Evolution will firstly pursue the establishment of Stewardship sites over their landholdings to provide local outcomes to benefit biodiversity at Lake Cowal. Locally sourced credits will partially meet the requirements for Ecosystem and Species credits required under the NSW BOS, whilst fully satisfy Commonwealth offset requirements for migratory shorebirds and offsets to compensate impacts to Compensatory wetland areas. As outlined in Section 3.1.5, the Project is proposed to be developed in stages, and thus for biodiversity credit obligations to also occur in a staged manner. The proposed biodiversity stewardship sites on Evolution owned landholdings proposed to meet early stages of the Project as well as the Compensatory Wetland additional offsets are shown on Figure 4.6 in Section 4.2.

Where Evolution cannot source suitable land from within their landholdings, local sources of credits and/or land will be sought to meet any shortfalls where possible. Based on initial assessments of vegetation in Evolution's landholdings, it is expected that there will be a shortfall for PCTs 26, 55, and 244, irrespective of whether Stewardship site arrangements were pursued over all Evolution's landholdings. Evolution will seek to meet any shortfall through purchasing credits (or land) across the same or adjoining IBRA subregion as the Project.

The potential to acquire credits or land from external landholders to meet this credit shortfall is currently being pursued. So far an agreement has been established for the future purchase of suitable credits from the variation of a nearby BSA. Preliminary vegetation mapping has also been undertaken across multiple landholdings near Lake Cowal to gauge the potential to generate credits for PCTs 26, 55, and 244. Negotiations are being undertaken to pursue the option of either establishing a BSA on behalf of the landholder then purchasing the generated credits at a negotiated price, or purchasing the land so that Evolution can establish the BSA.

Any residual credit liability required by the NSW BOS not met through the above offset strategies will be met through the payment into the NSW government Biodiversity Conservation Fund (BCF).

ii Existing conservation areas

As the Lake Cowal Foundation correctly identifies in its submission on the EIS, biodiversity stewardship sites established by the Project will have stringent management plans and actions with funding secured via the total fund deposit to deliver the identified biodiversity outcomes in perpetuity. These arrangements differ from the remnant vegetation enhancement programme areas and the Compensatory Wetland areas established under the existing conditions of consent which only require conservation management to be carried out until the relinquishment of the mining lease. Once the mining lease is relinquished, a lack of protection and ongoing management over these areas would likely see a marked decline in habitat condition, given the high value of this land for agriculture (which currently impacts approximately half of the lake) and ongoing pressures from threats such as weed/ pest animal invasions and climate change.

As such the biodiversity stewardship sites that will be established under the Project are a significant improvement on previous biodiversity outcomes. Further, the emphasis by Evolution on local delivery of biodiversity offsets, wherever possible, means that there will be a strong local biodiversity benefit.

There are also two existing biodiversity areas established under Condition 3.4 of DA 14/98. Following approval of the Project and prior to the surrender of DA 14/98 these areas will be secured in perpetuity via either a Conservation Agreement or a Biodiversity Stewardship Agreement under the BC Act. Evolution is currently liaising with DPHI and CST regarding this process.

5.3.3 Migratory birds

One special interest group submission raised the importance of Lake Cowal for migratory birds and noted Australia's obligations under the JAMBA and CAMBA international conventions to ensure the safety of migratory birds.

While the Project will remove 375.22 ha of riparian and wetland habitat for migratory birds, it will provide a mechanism to conserve large areas of Lake Cowal and its immediate surrounds in perpetuity via the establishment of biodiversity stewardship sites to offset the impacts of the Project with approximately 2,500 ha in total being secured in stewardship sites providing long-term conservation security not currently provided under the existing tenure to migratory and other wetland birds.

Evolution has consulted closely with the Commonwealth Department of Climate Change, Energy, the Environment and Water (Commonwealth DCCEEW) during the Scoping and EIS phases and public exhibition phases of the Project including Evolution's proposed approach to offset the Project's impact on migratory birds which seeks to meet 100% of the Project's offset liability for migratory birds within Evolution owned land in Lake Cowal. The EPBC Act environmental offsets policy tool identified that 1,438.2 ha of migratory bird species habitat would be required to offset for the residual impact to the following species:

- Latham's Snipe (*Gallinago hardwickii*)
- Sharp-tailed Sandpiper (*Calidris acuminata*)
- Glossy Ibis (*Plegadis falcinellus*)
- Habitat important to EPBC Act listed migratory shorebirds.

Commonwealth DCCEEW has agreed upon a 1,515 ha area of Evolution-owned land in Lake Cowal composed on PCTs 17, 53 and 249 as having the appropriate type and extent of habitat for the migratory birds listed above. DCCEEW also agreed that this offset site would be established as a biodiversity stewardship site under the BC Act in accordance with the BAM. Commonwealth DCCEEW was satisfied with this approach as it would result in meeting 100% of the offset required for the proposed impact for all stages of the Project prior to the commencement of Stage 1 works. The extent of land proposed for the establishment of a BSA to compensate for impacts to migratory shorebirds is presented in Figure 4.6.

A copy of the EPBC Act environmental offsets policy tool calculation for impacts to migratory shorebirds (and justification for the inputs), and correspondence from Commonwealth DCCEEW confirming the proposed approach to offsetting impacts to migratory bird habitat is provided in Appendix N of the revised BDAR.

5.3.4 Mitigation measures

One community submission objecting to the Project and the Lake Cowal Foundation special interest group submission providing comment on the Project raised concerns regarding the Project's proposed mitigation measures suitability in addressing the potential Project impacts to wetland and riparian ecosystems of Lake Cowal, or downstream.

The Lake Cowal Foundation raised particular concerns relating to the proposed biodiversity and surface water mitigation measures that will be implemented during the construction phase of the LPB.

The existing CGO was constructed and has operated for almost 20 years adjacent to Lake Cowal guided by a comprehensive environmental management framework including detailed management plans and monitoring programs. This management framework has sought to avoid and/or reduce indirect impacts on the surrounding environment.

Several management plans have been prepared and applied by CGO to meet comprehensive requirements to reduce indirect impacts on biodiversity. The environmental performance of CGO has been subject to independent environmental audits, with the annual environmental performance of CGO publicly released within annual reviews. Based on ongoing assessment of environmental performance, and adopting feedback from independent audits, an independent monitoring panel and relevant regulators, these management plans have evolved since commencement in 2005.

Despite the potential for mining activities at CGO to impact on Lake Cowal, comprehensive surface water monitoring and ecological monitoring carried out since the commencement of environmental assessments for the original EIS approval in the 1990s and continued through formal DPHI approved monitoring programs throughout the mine's life have not identified impacts on the terrestrial and aquatic ecology and surface water quality of Lake Cowal that can be attributed to the CGO.

As outlined in Section 3.4, the Project will revise and enhance as appropriate CGO's existing management framework in consultation with key government agencies and stakeholders. The revised environmental management framework will be guided by a risk based approach with a strong commitment to adaptive management for uncertain or any unforeseen impacts.

Regarding, the Lake Cowal Foundation's concerns with respect to mitigation measures for the construction phase of the LPB, the proposed measures outlined in the BDAR and included in Appendix C of this Submissions Report will inform the preparation of the CEMP.

The CEMP will be informed by detailed design and detailed construction scheduling with consideration to the site and seasonal conditions (i.e. whether the lake is inundated or construction activities in relation to identified bird breeding areas). The mitigation measures in the BDAR and EIS will be reviewed and refined with additional measures added in the CEMP as relevant to managed potential impacts on biodiversity during construction activities.

5.3.5 Feral animals

The community submission which provided comment on the Project raised an observed increase in feral animals especially wild pigs in the lakebed, and requested details of the control measure Evolution intends to use to help mitigate this issue noting the impact feral pigs pose a considerable threat to bird breeding habitat in the lakebed.

CGO actively manages feral animal populations within its landholdings in consultation with Local Land Services. Management in accordance with CGO's responsibilities under the NSW *Biosecurity Act 2015*. Existing management includes:

- regular property inspections to assess the status of feral animals within Evolution owned land
- feral animal control of priority pest species identified in the *Riverina Regional Strategic Pest Animal Management Plan 2018-2023* (LLS 2018) which have been observed within Evolution owned landholdings
- monitoring of feral animal control measures implemented to assess effectiveness.

Most recently, CGO has actively worked with LLS over the last six months to conduct two successful aerial shooting programs, targeting pigs, foxes, cats and other introduced species.

CGO will continue managing feral animal populations within its landholdings throughout the Project including mine closure phases.

With respect to the proposed biodiversity stewardship sites both within and surrounding Lake Cowal, each stewardship agreement will include an Integrated Feral Pest Management Plan as a component of the overarching management plan which will actively manage feral animals in perpetuity (funded through the biodiversity stewardship agreement). Management will include monitoring of pest species presence / absence

using remote cameras. Should monitoring identify pest species requiring further control, additional measures will be implemented including poison baiting, warren ripping for feral rabbits, ground shooting and trapping. Feral animal control within stewardship sites will be integrated with LLS control programs for the region.

5.4 Bushfire risk

The community submission which provided comment on the Project raised concerns that the Project's proposed offset areas on Evolution Land pose a risk by fire to the lakebed and neighbouring properties if not managed properly and requested further details regarding the management policy to reduce the bush fire risk. This submission also noted the risk bushfire poses to destroying vulnerable bird breeding habitats in the lakebed.

A bushfire risk assessment was completed for the Project by a Bushfire Planning and Design (BPAD) Accredited Practitioner (Level 3)[9] and was prepared in consideration of the *NSW Rural Fires Act 1977* and the relevant guidance document from the Rural Fire Service (RFS); Planning for Bushfire Protection (RFS 2019). The assessment was summarised in Section 7.18 and included as Appendix X of the EIS.

The bushfire risk was completed in recognition of the potential bushfire risks associated with the Project; in relation to both the bushfire risk to the surrounding environment associated with potential ignition sources from mine operations, and conversely the potential threat bushfires originating in areas outside the CGO area pose to infrastructure at the CGO and the safety of staff and contractors on site.

To ensure bushfire-related risks can be effectively mitigated, the bushfire risk assessment proposed a number of bushfire mitigation strategies (refer Section 3 of Appendix X). A bushfire management plan will be prepared for the CGO, biodiversity offset sites and surrounding land holdings in consultation with the Bland Temora NSW RFS district office and will incorporate the following recommended bushfire mitigation strategies:

- Asset Protection Zone (APZ)s and fuel load management
- access provisions
- water supplies
- annual monitoring of fire mitigation works for the CGO and surrounding Evolution owned land holdings.

Each of the Biodiversity Stewardship sites that will be established within and surrounding Lake Cowal will also outline proposed ecological burns in accordance with the Fire for Conservation Management Plan in their respective Biodiversity Stewardship Site Assessment Reports and Management Plans.

5.5 Consultation and community engagement

One special interest group and one community submission objecting to the Project raised inadequate community consultation [and social impact assessment] had been carried out to inform the EIS. These submissions noted there is no evidence that any parties downstream of Condobolin were contacted, even though many communities and wetlands along the Lachlan are potentially affected if there were to be a failure of the various mitigation measures proposed

Evolution uses a range of engagement mechanisms to consult with neighbouring property owners, the local community, Federal, State and local government, regulators, service providers, local community groups, Aboriginal groups and CGO's CEMCC. These engagement mechanisms were used and expanded upon in the stakeholder and community engagement activities carried out to support the Project. Consultation carried out

[9] BPAD accredited practitioners are accredited by the Fire Protection Association Australia and are recognised by the NSW RFS as suitably qualified consultant in bushfire risk assessment with level 3 being the highest level of accreditation.

during the Scoping and EIS phases of the Project was in accordance with the consultation requirements set out in the *Undertaking Engagement Guidelines for State Significant Projects November 2021* (SSD Engagement Guidelines) (DPIE 2021).

As outlined in Section 6.2 of the EIS, the Project stakeholders and potentially impacted community members were identified through a stakeholder identification process in accordance with the principles of the IAP2 Core Values and Spectrum of Engagement. Consultation undertaken as part of previous CGO developments was also reviewed to confirm that all potentially affected stakeholders were identified and assessed and classified according to the anticipated levels of Project impact and the respective stakeholder levels of interest. None of the technical assessments carried out to inform the Project's Scoping Report or EIS identified potential Project impacts downstream of Lake Cowal and as such communities beyond Forbes, Lachlan and Bland local governments were not directly consulted.

A variety of communication and engagement tools were activated for the Project, as part of promoting inclusive, transparent, structured and meaningful engagement for all identified stakeholders. The tools were designed to provide information about the Project and encourage feedback consistent with the SSD Engagement Guidelines and the SEARs with the summary of consultation activities carried out during the EIS and scoping phase summarised in Figure 6.2 of the EIS (reproduced as Figure 5.6 below). Consultation generally identified overwhelming local support for the Project and the CGO in general.

Figure 5.6 Engagement reach

Public information sessions held during the Scoping and EIS phases of the Project in Bland, Forbes and Condobolin generally were not well patronised with only a handful of community members attending, despite being advertised in local newspapers. With the exception of matters raised by immediately adjacent landholders and local special interest groups, no matters of concern were raised by the broader community.

Notice of the Project's Public exhibition was published in the Australian Newspaper on 15 June 2023 by DPHI. Despite national circulation, the large majority of the of the community and special interest submissions came from the local region (i.e. Bland Shire, Forbes Shire and Lachlan Shire LGAs) indicating generally low community interest in the Project outside of the local region.

5.6 Rehabilitation

One special interest group objecting to the Project noted the EIS did not outline in any clarity a credible plan for long-term ownership and management responsibility [including ongoing erosion, weed & pest animal control] after the conclusion of operations.

The NSW Resources Regulator is responsible for regulating rehabilitation under the *Mining Act 1992* to ensure that land disturbed by exploration and mining activities is returned to a safe, stable and sustainable land use. Under Part 12A of the *Mining Act 1992*, the Minister (or delegate) may impose and vary security deposit conditions on authorisations and petroleum titles to cover the obligations of the title holder. The security deposit is required for the fulfilment of obligations under the title, including those related to rehabilitation, and obligations that may arise in the future.

Title holders are required to submit a rehabilitation cost estimate (RCE) whenever a potential change in rehabilitation liability occurs and at other key points throughout the tenure of a title. The RCE is used by the department to assist in determining the amount of the security deposit required for the title.

5.7 Land use conflict

One special interest group and one community submission objecting to the Project raised the mine development is fundamentally incompatible with the long-term maintenance of ecological health and protection of the significant biodiversity of the Lake Cowal ecosystem.

As noted in Section 5.3.3, the existing CGO was constructed and has operated for almost 20 years adjacent to Lake Cowal guided by a comprehensive environmental management framework including detailed management plans and monitoring programs. This management framework has sought to avoid and/or reduce indirect impacts on the surrounding environment.

Despite the potential for mining activities at CGO to impact on Lake Cowal, comprehensive surface water monitoring and ecological monitoring carried out since the commencement of environmental assessments for the original EIS approval in the 1990s and continued through formal DPHI approved monitoring programs throughout the mine's life have not identified impacts on the terrestrial and aquatic ecology and surface water quality of Lake Cowal that can be attributed to the CGO.

5.8 Other matters

The following matters were raised by one or two special interest group and/or community submissions objecting to or commenting on the Project:

- Precautionary principle
- Biodiversity assessment framework
- Planning process
- Further expansion of CGO beyond the scope of the current Project
- Formal protection for Lake Cowal
- Ongoing support for Lake Cowal Foundation

5.8.1 Precautionary principle

One special interest group objecting to the Project raised the Precautionary principle. The Project's consistency with the precautionary principle was considered in Section 8.3.4 of the EIS. The Precautionary Principle reinforces the need to take risk and uncertainty into account, particularly in relation to threats of irreversible environmental damage.

During the Project planning phase and preparation of this EIS, experts identified and assessed the potential environmental impacts of the Project in accordance with current government policies and guidelines. Decisions have been guided by careful evaluation to avoid, wherever practicable, irreversible damage to the environment.

Consistency with the precautionary principle has been further demonstrated for the Project in the response to submissions phase by:

- completion of a revised environmental risk assessment to identify key issues that pose the greatest environmental risk and the likelihood and consequence of their occurrence (Appendix E)
- use of industry-standard and peer-reviewed predictive models for groundwater backed up by long-term data
- revision of completion of independent peer reviews for subsidence and the groundwater model
- commitment to update the existing environmental management framework at the CGO to reflect current best practice for mining projects and thereby ensuring that the Project will comply with contemporary criteria and standards during construction, operation and closure
- updated mitigation measures to minimise environmental impacts (refer Appendix C).

5.8.2 Biodiversity assessment framework

One special interest group commenting on the Project raised the biodiversity assessment framework for the Project with the view that the framework results in an elemental assessment approach with the recommendation that an integrated systems-based assessment process would be more appropriate considering the complexity of the Lake Cowal ecosystem.

The framework for assessing biodiversity under the BC Act, EPBC Act is strictly legislated. The biodiversity assessment for the Project has been carried out as required under the NSW Biodiversity Assessment Method (BAM). The BAM provides a consistent method to assess impacts on biodiversity values from a proposed development. The survey and assessment effort required by the BAM is scaled according to the extent and risk of impacts on biodiversity from a proposal, the availability and quality of existing information (such as native vegetation maps), and the area of land being assessed. The BAM provides the number and class of biodiversity credits that need to be offset to achieve 'no net loss' of biodiversity, but only after attempts to avoid, minimise and mitigate impacts have been considered and addressed. The BAM is part of the BOS, a legislated framework that is required when addressing impacts on terrestrial biodiversity from development and clearing and ensures that land used to offset impacts is secured in the long term.

The NSW Assessment Bilateral Agreement (the Agreement) streamlines the assessment process for major projects that require both NSW and Australian Government environmental approvals. It is made under the Commonwealth's EPBC Act. Under the Agreement, the NSW Government assesses development applications on behalf of the Australian Government. The Australian Government remains the decision-maker for the EPBC Act approval, considering the NSW Government assessment report.

5.8.3 Planning process

One special interest group objecting to the Project raised the volume of assessment material contained in the EIS as disempowering for many people.

Under the NSW planning framework, the Project is SSD. SSD incorporates a wide range of significant and complex types of development that are assessed via the same process legislated under the EP&A Act and EP&A Regulation. This process is well established in NSW.

EIS documentation for the Project was comparable with the level of complexity and detail of other large mining Projects. It is appreciated that most community members will not have sufficient time and/or technical understanding to review all of the available content that accompanies an EIS. Technical review of the documentation is completed by regulatory agencies in NSW, who provide advice on their relevant justification to the DPHI as part of the assessment process. The executive summary of the EIS provides a succinct summary of the Project and the outcomes of the technical assessments.

To support the community in accessing information, Evolution undertook a range of measures to assist the community in understanding the Project as outlined in Chapter 6 of the EIS.

5.8.4 Further expansions beyond current Project

One special interest group and one submission objecting to the Project raised concerns regarding further CGO expansions beyond what is included in the current Project. Further potential developments at the CGO do not form part of the development application for this Project. Evolution are not actively planning further expansions to CGO beyond the Project, however notwithstanding Evolution continue to conduct exploration activities within its exploration leases. Further potential developments, if deemed feasible, would be subject to separate environmental approvals and associated detailed environmental assessment.

5.8.5 Formal protection of Lake Cowal

One special interest group recommended that wetland and grassland areas outside of mining operations should have their land titles transferred in perpetuity to a body committed to conservation and cultural heritage management. While this matters is outside the scope of the Project, as outlined in Section 5.3.2, Evolution proposes to, and is actively pursuing, establishment of Stewardship sites within and surrounding Lake Cowal in Evolution owned land and other local landholdings to offset the biodiversity impacts of the Project. It is anticipated that significant extent of lands will be placed into a Biodiversity Stewardship Agreement (BSA) estimated at over 2,500 ha in total, which would provide long-term conservation security for large areas of wetland and riparian ecosystems and habitat for waterbirds which frequent Lake Cowal not currently provided under the existing tenure.

5.8.6 Ongoing support for the Lake Cowal Foundation

Two special interest groups including the Lake Cowal Foundation raised ongoing support for the Lake Cowal Foundation in their submissions. The Lake Cowal Foundation is a not-for-profit Environmental Trust established in June 2000 whose primary goal is to protect and enhance Lake Cowal. The Lake Cowal Foundation is primarily sponsored through an existing MoU with Evolution. The Lake Cowal Foundation are an important stakeholder for CGO and Evolution will continue to maintain all existing funding and support. The existing MoU is actively managed by the Board of Directors for the Lake Cowal Foundation in accordance with its agreed constitution. It is worth noting that Evolution Mining provide support to the Lake Cowal Foundation in addition to the obligations of the MoU through shared value projects, local event support and local business opportunities.

CHAPTER 6
Updated evaluation of merits

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6 Updated evaluation of merits

This chapter provides an updated overall evaluation of the Project, with regard to the strategic need for the Project, community views of the Project and the Project's environmental, social and economic impacts and benefits.

6.1 Strategic and statutory context

The Department of Regional NSW's *Factsheet for Gold Opportunities in NSW* (2021) identifies the CGO as the second most significant gold resource in NSW and as such the Project will play an important contribution to Australian gold production and in meeting world gold demand.

Consistent with the objectives of the Mining Act, the Project will extract a State-owned resource for the benefit of the State of NSW, providing an estimated $76 million in royalties. The Australian Government is estimated to receive approximately than $250.3 million in present value terms in various taxes over the life of the mine.

An assessment of the Project against all relevant government policies, plans and provisions in relevant environmental planning instruments was undertaken in the EIS which concluded that the Project is able to be undertaken in a manner that is generally consistent with these instruments.

At regional and local levels, the Project is consistent with the objectives and key priorities set in the *Riverina Murray Regional Plan 2041*, the *Central West Orana Regional Plan 2041* and local strategic planning statements and plans for Bland Shire, Forbes Shire and Lachlan Shire, which highlight the importance of the mining sector to this region. Mining continues to be one of the top three economic opportunities for the Riverina-Murray and Central West-Orana regions

6.2 Submissions and community views on the project

The submissions received during the public exhibition of the EIS demonstrate the overwhelming local support for the Project and the CGO in general. Of the community submissions received during the public exhibition of the EIS, 98 submissions (i.e. 97%) were in support, 2 submissions objected and 1 submission provided comments. Three special interest groups objected to the Project and 5 provided comments. A large majority of the of the community and special interest submissions came from the local region (i.e. Bland Shire, Forbes Shire and Lachlan Shire local government areas (LGA)), with all community submissions received from the Bland LGA (63 submissions) supporting the Project.

The community submissions received in support of the Project predominately raised local employment and community benefits associated with the Project as reason for support. The submissions reflect the overall appreciation within the community for the opportunities and benefits currently provided by CGO in relation to employment, training, community donations and boosts to the local and regional economy. The community also supported the objective of the Project; the continuation of existing open pit operations to maintain these jobs and associated opportunities and benefits.

Key themes raised by the small proportion of community and special interest group submissions who objected or the submissions that provided comments on the Project predominantly related to surface water and groundwater resources, and biodiversity. Issues relating to Lake Cowal associated with the construction of the expanded Lake Protection Bund and potential flooding impacts were also raised. All matters raised have been responded to in detail in this Submissions Report with additional assessment carried out where required as detailed in Chapter 5 of this report.

6.3 Impacts of the Project

The Project has been carefully and deliberately designed to avoid and minimise impacts on the surrounding environment, particularly Lake Cowal. Residual biodiversity impacts will be offset in accordance with relevant legislation and policy providing in perpetuity biodiversity conservation of large areas within and around Lake Cowal through the establishment of biodiversity stewardship sites.

The Project will continue the established water recycling and management practices that are currently undertaken at the CGO which are preferred over water use from external sources. Overall, predicted water demand for the Project from external sources is less than previously predicted for approved operations. CGO will continue to manage the supply of water from external sources in a sustainable manner and will alternate between external sources to manage groundwater levels and provide flexibility with respect to extraction rates and the availability of allocation assignments in the Lachlan River. As such the Project will be unlikely to significantly affect regional water resources.

6.4 The public interest

Evolution is an Australian listed gold miner with a proven record of developing gold mining operations and is one of the top five Australian gold companies by market capitalisation and production. Evolution has a long established relationship with the local community and is committed to making a positive contribution to the local and regional economies through procurement and funding initiatives.

A range of technical investigations have been carried out to support this EIS. These assessments have considered the scale of the Project and its context, and identified residual impacts of the Project and appropriate mitigation measures to address these impacts.

Alternative designs have been evaluated, based on extensive geological, environmental, financial and other technical investigations that have been undertaken over a number of years. This process has facilitated the development of a considered, well-designed Project that will efficiently recover a highly valuable resource, while minimising environmental impacts and potential land use conflicts.

The Project will provide a range of direct and indirect benefits to the local, regional and State economies over its 19 year life. The Project is estimated to bring significant net social benefits to NSW of $910.7 million (present value at 7% discount rate) relative to what would otherwise be expected to occur without the Project including $666.7 million to the local economy.

The Project is considered to be in the public interest as it will extract a State owned resource to provide significant benefits to the State. Whilst the project does have some environmental impacts which have been documented in the EIS and this Submissions Report, the range of project specific biodiversity offsets, alongside the mitigation and management measures that will be put in place, as they are for current operations, will ensure the protection of the environment throughout the life of the Project. Taking this into consideration, alongside the local and regional social and economic benefits, indicates this project should be supported.

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Abbreviations

Abbreviation	Definition
ACHA	Aboriginal cultural heritage assessment
ACHMP	Aboriginal cultural heritage management plan
AEP	Annual exceedance probability
AHD	Australian height datum
AHIP	Aboriginal heritage impact permit
AIP	Aquifer interference policy
AQGHG	Air quality and greenhouse gas
BAM	Biodiversity assessment method
BAMC	Biodiversity Assessment Method Calculator
BCD	Biodiversity Conservation Division
BCF	Biodiversity Conservation Fund
BCPB	Bland Creek Paleochannel Borefield
BDAR	Biodiversity Development Assessment Report
bgl	below ground level
BOAMS	Biodiversity Offsets and Agreement Management System
BoM	Bureau of Meteorology
BOS	Biodiversity Offsets Scheme
BPAD	Bushfire Planning and Design
BSA	Biodiversity stewardship agreements
CEMCC	Community Environment Management Consultive Committee
CEMP	Construction Environmental Management Plan
CGO	Cowal Gold Operations
CHD	constant head boundaries
Commonwealth DCCEEW	Commonwealth Department of Climate Change, Energy, and the Environment and Water
CWMP	Compensatory Wetland Management Plan
DA14/98	Existing development consents for the current open-pit operations
DNG	Derived Native Grassland
DPE	Department of Planning and Environment (now the Department of Planning, Housing and Infrastructure, DPHI; formerly the Department of Planning, Industry and Environment, DPIE)
DPHI	Department of Planning, Housing and Infrastructure (formerly the Department of Planning and Environment)
DPI	Department of Primary Industries
EIS	Environmental impact statement
EMS	Environmental Management System

Abbreviation	Definition
EP&A Act	NSW Environmental Planning and Assessment Act 1979
EPA	NSW Environment Protection Authority
EPBC Act	Commonwealth Environmental Protection and Biodiversity Conservation Act 1999
ESB	eastern saline bores
ET	evapotranspiration
FFMP	Flora and Fauna Management Plan
FoS	Factor of Safety
FS	Feasibility study
GDE	Groundwater dependent ecosystems
GHB	general head boundaries
GIA	Groundwater impact assessment
Ha	Hectare
HCNSW	Heritage Council of NSW
HSU	hydrostratigraphic units
ICDS	Internal catchment drainage system
IESC	Independent Expert Scientific Committee
IPR	Independently peer reviewed
IRN	Inland Rivers Network
IWL	Integrated waste landform
K	hydraulic conductivity
km	kilometres
km/hr	kilometres per hour
L/s	litres per second
LEZ	Lake edge zone
LGA	Local government area
LiDAR	Light Detecting and Ranging
LLS	Local Land Services
LPB	Lake protection bund
m	metres
MEG	NSW Mining Exploration and Geoscience
mg/l	milligrams per litre
ML	Mining lease
ML/d	mega litres per day
MOU	Memorandum of Understanding

Abbreviation	Definition
mRL	metres Relative Level
Mt	Million tonnes
Mtpa	Million tonnes per annum
NCC	Nature Conservation Council
NGIS	National Groundwater Information System
NPA	National Parks Association
NSW	New South Wales
NSW DCCEEW	NSW Department of Climate Change, Energy, and the Environment and Water
NVIA	Noise and vibration impact assessment
OPC	Open Pit Continuation
P#	percentiles
PCT	Plant Community Type
PFS	Pre-Feasibility Study
PMF	Probable Maximum Flood
RCE	rehabilitation cost estimate
RFS	NSW Rural Fire Service
RR	Department of Regional NSW Resource Regulator
RtS	Response to submissions
SSD	State significant development
SSD-10367	Existing development consent for the underground operations
SSGVs	Site specific guideline values
t	tonnes
TfNSW	Transport for NSW
UCDS	Up-catchment diversion systems
UG	Underground
WAL	Water Access License
WRE	Waste rock emplacement
WSP	Water Sharing Plan
yr	year

Australia

SYDNEY
Ground floor, 20 Chandos Street
St Leonards NSW 2065
T 02 9493 9500

NEWCASTLE
Level 3, 175 Scott Street
Newcastle NSW 2300
T 02 4907 4800

BRISBANE
Level 1, 87 Wickham Terrace
Spring Hill QLD 4000
T 07 3648 1200

CANBERRA
Level 2, Suite 2.04
15 London Circuit
Canberra City ACT 2601

ADELAIDE
Level 4, 74 Pirie Street
Adelaide SA 5000
T 08 8232 2253

MELBOURNE
188 Normanby Road
Southbank VIC 3006

PERTH
Level 9, Suite 9.02
109 St Georges Terrace
Perth WA 6831

Canada

TORONTO
2345 Yonge Street, Suite 300
Toronto ON M4P 2E5

VANCOUVER
60 W 6th Ave Suite 200
Vancouver BC V5Y 1K1

linkedin.com/company/emm-consulting-pty-limited

emmconsulting.com.au