



**NSW  
Resources  
Regulator**

FWP0001078

# **MT BOPPY GOLD MINE FORWARD PROGRAM**

Friday 20 May 2022 to Monday 19 May 2025

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## Summary

### DETAIL

<b>Mine</b>	Mt Boppy Gold Mine
<b>Reference</b>	FWP0001078
<b>Forward program commencement date</b>	Friday 20 May 2022
<b>Forward program end date</b>	Monday 19 May 2025
<b>Forward program revision (if applicable)</b>	FWP0001077
<b>Contact</b>	Nadia Aurisch
<b>Mining leases</b>	GL 3255 (1906), ML 1681 (1992), GL 5898 (1906), MPL 240 (1973), GL 5836 (1906), GL 5848 (1906), ML 311 (1973)
<b>Project location</b>	MT BOPPY RESOURCES PTY LTD
<b>Date of submission</b>	Tuesday 2 August 2022

## Important

The department may make the information in your program and any supporting information available for inspection by members of the public, including by publication on its website or by displaying the information at any of its offices. If you consider any part of your program to be confidential, please communicate this to the department via the message function on this submission within the NSW Resources Regulator Portal.

# Three-year forecast – surface disturbance activities

## Project description

The Mine is located approximately 275km west-northwest of Dubbo and 48km east of Cobar. Situated on the western side of the Gilgunnia-Canbelego Road adjacent to the township of Canbelego, approved operations include:

- Mining of up to 630,000 t of gold bearing ore by drill and blast at a rate of up to 150,000 tpa from an open cut developed to a depth of approximately 160 mAHD.
- Placement of waste on to a waste rock emplacement to the northwest and a Tailings Storage Facility to south of the open cut
- Internment of potentially acid forming material within the waste rock emplacement and TSF, and subsequent capping and rehabilitation
- Storage of water removed from the open cut in designated facilities and use for irrigation, dust suppression or rehabilitation
- Transportation of up to 150,000 t of ore from the Mine to external facilities for processing, and
- Progressive rehabilitation of the Mine

There is currently no life of mine or expiry date defined by development consent.

## Description of surface disturbance activities

### Exploration activities

There are no significant exploration activities planned during the next three years. Minor exploration activities to define or delineate the resource may be undertaken from time to time. If undertaken, these activities will be restricted to the mining and exploration lease areas.

### Construction activities

There are no significant construction activities planned during the next three years.

## **Mining schedule**

Mining development method and sequencing and general mine features.

Mining will continue within the existing disturbance footprint of the open cut to recover the remaining 20,000 t of ore retained within the current mine plan (to a depth of 160 mAHD). Initial works (Year 1) within the open cut will focus on dewatering the accumulated surface and ground water to allow for access back to the base of the open cut where ore remains to be mined. On removal of the water, waste rock will be recovered to allow for safe access to the remaining ore.

Further development of the open (waste rock removal) is proposed in Year 3 in preparation for mining below the 160 mAHD (which is the subject of a mine optimization study and further mine planning).

No extension of the current open cut impact footprint is proposed however current exploration will determine what the future footprint may be.

Areas identified for emplacements, the sequencing of emplacements, construction, and management.

Waste rock from the open cut will either be placed on the WRE located to the northwest of the open cut or (if suitable) as a capping material on the TSF. Waste rock is also to be excavated from the WRE and transferred to the TSF for capping.

Manuka Resources plans on completing TSF capping during the term of the Forward Program.

Processing infrastructure activities and the location of tailings facilities and schedule for emplacement

No processing of ore will be undertaken at the Mine.

The TSF will be progressively capped with waste rock obtained from the WRE or the open with completion planned for Year 3.

Waste disposal and materials handling operations.

No change to current management of non-production waste is proposed.

- Domestic and putrescible waste is stored in bins and disposed of to a local licenced landfill
- Waste oils are stored in a bunded tank for collection as required
- Contaminated soil from unplanned spills is contained, cleaned up and is removed from site as required by a licensed contractor.

**Key production milestones**

MATERIAL	UNIT	YEAR 1	YEAR 2	YEAR 3
<b>Stripped topsoil</b> (if applicable)	(m <sup>3</sup> )	0	0	0
<b>Rock/overburden</b>	(m <sup>3</sup> )	0	80,000	650,000
<b>Ore</b>	(Mt)	0	0	0
<b>Reject material<sup>1</sup></b>	(Mt)	0	0	0
<b>Product</b>	(Mt)	0	0	0

<sup>1</sup> This includes coarse rejects, tailings and any other wastes resulting from beneficiation.

# Three-year rehabilitation forecast

## Rehabilitation planning schedule

### Rehabilitation planning schedule

The Mine will continue to operate within the approved limits of the Mine which will all be active over the Forward Program and present minimal opportunity to rehabilitate the active mining area, infrastructure or water management area Mining Domains.

The focus of rehabilitation activities during the term of the Forward Program will be on preparing the TSF landform for rehabilitation. The western, southern and eastern walls of the TSF are stable with a landform and revegetation complying with development consent and final landform objectives. As such, no further works on these walls is planned.

Over the term of the Forward Program, the upper surface of the TSF will be capped with waste rock and profiled such that it sheds surface runoff. Once capped and profiled, the northern wall of the TSF will be profiled in preparation for soil application. At this stage, soil application is proposed beyond the term of the Forward Program.

Manuka Resources also plans on rehabilitating completed exploration pads during Year 1 of the Forward Program.

### Stakeholder consultation

Annual consultation with neighbouring landowners and residents will continue.

### Rehabilitation studies, risk assessments and/or design work

Research trials recommended by soil specialists Landloch (Landloch Pty Ltd, 2021) and ecologists AREA consultants (AREA, 2021) will be reviewed and confirmed as part of the first Annual Rehabilitation Report.

Rehabilitation research trials to develop various growth media (in the absence of topsoil) and revegetation techniques are planned to be conducted on the western side of the TSF and WRE (two proposed test site areas).

## Rehabilitation research and trials

RRT NUMBER	PROJECT/TRIAL NAME	OBJECTIVE OF TRIAL/PROJECT	METHODOLOGY	EXPECTED DATE OF COMPLETION	STATUS
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FWP0001078



## Rehabilitation maintenance and corrective actions

Adaptive management will be a key mechanism to address the major threats to, current and emerging risks to, the successful implementation of rehabilitation. Adaptive management steps include regular review of the RMP, including adaptation of targets and performance indicators, recognising potential risks to the successful implementation of the RMP and having a framework in place for corrective actions.

Where rehabilitation monitoring indicates that there is a significant threat to rehabilitation, Manuka Resources will undertake adaptive management in accordance with the Rehabilitation Trigger Action Response Plan as provided in the RMP.

## Rehabilitation schedule

### Year 1

- Landform Preparation: Waste rock to be excavated from the WRE and used as capping material on the TSF
- Landform Preparation: Exploration sites to be profiled and allowed to revegetate naturally

### Year 2

- Landform Preparation: Waste rock to be transferred from the open cut and/or excavated from the WRE and used as capping material on the TSF.

### Year 3

- Landform Preparation: Waste rock to be transferred from the open cut and/or excavated from the WRE and used as capping material on the TSF.
- Landform Preparation: Northern wall of TSF profiled

### All Years

- Rehabilitation maintenance: Vegetation currently growing on the TSF will be monitored and opportunities for in-fil plantings or remediation of areas of poor growth identified.
- Rehabilitation maintenance: Landform and growth media stability on the WRE will be monitored with intervention undertaken in accordance with the TARPs nominated in the RMP.
- Rehabilitation maintenance: Soil stockpiles will be monitored and inventories updated

## **Subsidence remediation for underground operations**

There is no subsidence monitoring or expected remediation works proposed during the term of the Forward Program.

Whilst underground mining has historically been undertaken within the area, current mining activities only occurs within the footprint of the open cut. Furthermore, the potential for blasting to result in the collapse of any underground workings, not contained within the immediate blast zone, is considered to be non-existent.

## Progressive mining and rehabilitation statistics

### Three-yearly forecast cumulative disturbance and rehabilitation progression

FORECAST	UNIT	YEAR 1	YEAR 2	YEAR 3
A Total surface disturbance footprint	(ha)	61.7	61.7	61.7
B Total active disturbance	(ha)	52.77	52.77	52.77
C Land prepared for rehabilitation	(ha)	2.23	2.23	8.39
D Ecosystem and land use establishment	(ha)	6.75	6.75	6.75

### Rehabilitation key performance indicators (KPIs)

FORECAST	UNIT	YEAR 1	YEAR 2	YEAR 3
O Total new active disturbance area	(ha)			
P Area proposed for active rehabilitation	(ha)	0.06		6.16
Q Annual rehabilitation to disturbance ratio				

## Attachment 1 – Reporting Definitions

REPORTING CATEGORY	DEFINITION
<p><b>A</b> Total disturbance footprint – surface disturbance</p>	<p>All areas within a mining lease that either have at some point in time or continue to pose a rehabilitation liability due to surface disturbance activities.</p> <p>The total disturbance footprint is the sum of the total active disturbance, decommissioning, landform establishment, growth medium development, ecosystem and land use establishment, ecosystem and land use development and rehabilitation completion (see definitions below).</p> <p>Underground mining operations should not include the footprint of underground mining areas/subsidence management areas in the total disturbance footprint.</p>
<p><b>B</b> Total active disturbance</p>	<p>Includes on-lease exploration areas, stripped areas ahead of mining, infrastructure areas, water management infrastructure, sewage treatment facilities, topsoil stockpile areas, access tracks and haul roads, active mining areas, waste rock emplacements (active/unshaped/in or out-of-pit), tailings dams (active/unshaped/uncapped) and temporary stabilised areas (e.g. areas sown with temporary cover crops for dust mitigation and temporary rehabilitation).</p>
<p><b>C</b> Rehabilitation – land preparation</p>	<p>Includes the sum of all disturbed land within a mining lease that have commenced any, or all, of the following phases of rehabilitation – decommissioning, landform establishment and growth medium development.</p> <p>Refer to the glossary of terms in this document for the definition of these phases of rehabilitation.</p>
<p><b>D</b> Ecosystem and land use establishment</p>	<p>Includes the area which has been seeded/planted with the target vegetation species for the intended final land use. However, vegetation has not matured to a stage where it can be demonstrated that it will be sustainable for the long term and or require only a maintenance regime consistent with target reference/analogue sites.</p> <p>Typically, rehabilitation areas would be in this phase for at least two years (and usually more) before rehabilitation can be classified as being in the ecosystem and land use development phase. This phase does not apply to infrastructure areas that are being retained as part of final land use for the site.</p>

REPORTING CATEGORY	DEFINITION
<b>O</b>	The area of any new active disturbance that will be created during the next three years, as defined under definition A1 (definition A1 Table 5).
<b>P</b>	The sum of any new rehabilitation to be commenced in the next three years. These areas may be in the phases “Rehabilitation - Land Preparation” or the “Ecosystem & Land Use Establishment” (definitions C & D in Table 5).
<b>Q</b>	The rehabilitation to disturbance ratio (S / R) indicates how many hectares of new rehabilitation are undertaken for each hectare of land disturbed during the three years. A ratio of 1/1 indicates that the area of new rehabilitation and disturbance in that period are the same.

## Attachment 2 – Definitions

WORD	DEFINITION
<b>Active</b>	In the context of rehabilitation, land associated with mining domains is considered ‘active’ for the period following disturbance until the commencement of rehabilitation.
<b>Active mining phase of rehabilitation</b>	In the context of rehabilitation, the active mining phase of rehabilitation constitutes the rehabilitation activities undertaken during mining operations such as salvaging and managing soil resources, salvaging habitat resources, and native seed collection. This phase also includes management actions taken during operations to manage risks to rehabilitation and enhance rehabilitation outcomes such as selective handling of waste rock and management of tailings emplacements.
<b>Analogue site</b>	In the context of rehabilitation, an analogue site is a ‘reference site’ that represents an example of the defining characteristics (such as vegetation composition and structure or agricultural productivity) of the final land use. Characteristics of analogue sites can be assessed to develop the rehabilitation objectives and completion criteria for final land use domains.
<b>Annual rehabilitation report and forward program</b>	As described in the Mining Regulation 2016.
<b>Annual reporting period</b>	As defined in the Mining Regulation 2016.
<b>Closure</b>	A whole-of-mine-life process, which typically culminates in the relinquishment of the mining lease. It includes decommissioning and rehabilitation to achieve the approved final land use(s).
<b>Decommissioning</b>	The process of removing mining infrastructure and removing contaminants and hazardous materials.
<b>Decommissioning Phase of Rehabilitation</b>	Activities associated with the removal of mining infrastructure and removal and/or remediation of contaminants and hazardous materials. In the context of the rehabilitation management plan this phase of rehabilitation may also include studies and assessments associated with decommissioning and demolition of infrastructure or works carried out to make safe or ‘fit for purpose’ built infrastructure to be retained for future use(s) following lease relinquishment.

<b>WORD</b>	<b>DEFINITION</b>
<b>Department</b>	The Department of Regional NSW.
<b>Disturbance</b>	See Surface Disturbance.
<b>Disturbance area</b>	<p>An area that has been disturbed and that requires rehabilitation.</p> <p>This may include areas such as on-licence exploration areas, stripped areas ahead of mining, infrastructure areas, water management infrastructure, sewage treatment facilities, topsoil stockpile areas, access tracks and haul roads, active mining areas, waste emplacements (active/unshaped/in or out-of-pit), tailings dams (active/unshaped/uncapped), and areas requiring rehabilitation that are temporarily stabilised (i.e. managed to minimise dust generation and/or erosion).</p>
<b>Domain</b>	<p>An area (or areas) of the land that has been disturbed by mining and has a specific operational use (mining domain) or specific final land use (final land use domain). Land within a domain typically has similar geochemical and/or geophysical characteristics and therefore requires specific rehabilitation activities to achieve the associated final land use.</p>
<b>Ecosystem and Land Use Development</b>	<p>This phase of rehabilitation consists of the activities to manage maturing rehabilitation areas on a trajectory to achieving the approved rehabilitation objectives and completion criteria.</p> <p>For vegetated land uses this phase may include processes to develop characteristics of functional self-sustaining ecosystems, such as nutrient recycling, vegetation flowering and reproduction, and increasing habitat complexity, and development of a productive, self-sustaining soil profile.</p> <p>This phase of rehabilitation may include specific vegetation management strategies and maintenance such as tree thinning, supplementary plantings and weed management.</p>
<b>Ecosystem and Land Use Establishment</b>	<p>This phase of rehabilitation consists of the processes to establish the approved final land use following construction of the final landform.</p> <p>For vegetated land uses this rehabilitation phase includes establishing the desired vegetation community and implementing land management activities such as weed control. This phase of rehabilitation may also include habitat augmentation such as installation of nest boxes.</p>
<b>Exploration</b>	Has the same meaning as that term under the State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007.

WORD	DEFINITION
<b>Final landform and rehabilitation plan</b>	As defined in the Mining Regulation 2016.
<b>Final land use</b>	As defined in the Mining Regulation 2016.
<b>Form and way</b>	Means the form and way approved by the Secretary. Approved form and way documents are available on the Department’s website.
<b>Growth Medium Development</b>	<p>This phase of rehabilitation consists of activities required to establish the physical, chemical and biological components of the substrate required to establish the desired vegetation community (including short lived pioneer species).</p> <p>This phase may include spreading the prepared landform with topsoil and/or subsoil and/or soil substitutes, applying soil ameliorants to enhance the physical, chemical and biological characteristics of the growth media, and actions to minimise loss of growth media due to erosion.</p>
<b>Habitat</b>	Has the same meaning as that term under the <i>Biodiversity Conservation Act 2016</i> and the <i>Fisheries Management Act 1994</i> (as relevant).
<b>Indicator</b>	An attribute of the biophysical environment (e.g. pH, topsoil depth, biomass) that can be used to approximate the progression of a biophysical process. It can be measured and audited to demonstrate (and track) the progress of an aspect of rehabilitation towards a desired completion criterion (i.e. defined end point). It may be aligned to an established protocol and used to evaluate changes in a system.
<b>Land</b>	As defined in the <i>Mining Act 1992</i> .
<b>Landform Establishment</b>	<p>This phase of rehabilitation consists of the processes and activities required to construct the final landform.</p> <p>In addition to profiling the surface of rehabilitation areas to the approved final landform profile this phase may include works to construct surface water drainage features, encapsulate problematic materials such as tailings, and prepare a substrate with the desired physical and chemical characteristics (e.g. rock raking or ameliorating sodic materials).</p>
<b>Large mine</b>	As defined in the Mining Regulation 2016.
<b>Lease holder</b>	The holder of a mining lease.



<b>WORD</b>	<b>DEFINITION</b>
<b>Life of mine</b>	The timeframe of how long a mine is approved to mine, from commencement to closure.
<b>Mine rehabilitation portal</b>	<p>Means the NSW Resources Regulator’s online portal that lease holders must use (via a registered account) to:</p> <ul style="list-style-type: none"> <li>■ upload rehabilitation geographical information system (GIS) spatial data</li> <li>■ develop rehabilitation GIS spatial data (using online tracing functions)</li> <li>■ generate rehabilitation plans and rehabilitation statistics using the map viewer and Rehabilitation Key Performance Indicator functionalities.</li> </ul> <p>Data submitted to the mine rehabilitation portal is collated in a centralised geodatabase for use by the NSW Resources Regulator to regulate rehabilitation performance of lease holders.</p>
<b>Mining area</b>	As defined in the <i>Mining Act 1992</i> .
<b>Mining domain</b>	A land management unit with a discrete operational function (e.g. overburden emplacement), and therefore similar geophysical characteristics, that will require specific rehabilitation treatments to achieve the final land use(s).
<b>Mining land</b>	As defined in the <i>Mining Act 1992</i> .
<b>Native vegetation</b>	Has the same meaning as that term under section 60B of the <i>Local Land Services Act 2013</i> .
<b>Overburden</b>	Material overlying coal or a mineral deposit.
<b>Performance indicator</b>	An attribute of the biophysical environment (for example pH, slope, topsoil depth, biomass) that can be used to demonstrate achievement of a rehabilitation objective. It can be measured and audited to demonstrate (and track) the progress of an aspect of rehabilitation towards a desired completion criterion, that is, a defined end point. It may be aligned to an established protocol and used to evaluate changes in a system.

<b>WORD</b>	<b>DEFINITION</b>
<b>Phases of rehabilitation</b>	<p>The stages and sequences of actions required to rehabilitate disturbed land to achieve the final land use. The phases of rehabilitation are:</p> <ul style="list-style-type: none"> <li>■ active mining</li> <li>■ decommissioning</li> <li>■ landform Establishment</li> <li>■ growth medium development</li> <li>■ ecosystem and land use establishment</li> <li>■ ecosystem and land use development.</li> </ul>
<b>Progressive rehabilitation</b>	<p>The progress of rehabilitation towards achieving the approved rehabilitation completion criteria. This may be described in terms of domains, phases, performance indicators and rehabilitation completion criteria.</p>
<b>Rehabilitation Completion</b>	<p>The final phase of rehabilitation when a rehabilitation area has achieved the approved rehabilitation objectives and rehabilitation completion criteria for the final land use. Rehabilitation areas may be classified as complete when the NSW Resources Regulator has determined in writing that the relevant rehabilitation obligations have been fulfilled following submission of <i>Form ESF2 Rehabilitation completion and/or review of rehabilitation cost estimate</i> application by the lease holder.</p>
<b>Rehabilitation Completion criteria</b>	<p>As defined in the Mining Regulation 2016.</p>
<b>Rehabilitation cost estimate</b>	<p>As defined in the Mining Regulation 2016.</p>
<b>Rehabilitation management plan</b>	<p>As defined in the Mining Regulation 2016.</p>
<b>Rehabilitation objectives</b>	<p>As defined in the Mining Regulation 2016.</p>
<b>Rehabilitation risk assessment</b>	<p>As defined in the Mining Regulation 2016.</p>
<b>Rehabilitation schedule</b>	<p>The defined timeframes for progressive rehabilitation set out in the forward program.</p>

WORD	DEFINITION
<b>Relevant stakeholders</b>	<p>Means any persons or bodies who may be affected by the mining operations, including rehabilitation, carried out on the lease land, and includes:</p> <ul style="list-style-type: none"> <li>■ the relevant development consent authority</li> <li>■ the local council</li> <li>■ the relevant landholder(s)</li> <li>■ community consultative committee (if required under the development consent) or equivalent consultative group</li> <li>■ affected land holder(s)</li> <li>■ government agencies relevant to the final land use</li> <li>■ affected infrastructure authorities (electricity, telecommunications, water, pipeline, road, rail authorities)</li> <li>■ local Aboriginal communities, and</li> <li>■ any other person or body determined by the Minister to be a relevant stakeholder in relation to a mining lease.</li> </ul>
<b>Risk</b>	The effect of uncertainty on objectives. It is measured in terms of consequences and likelihood (AS/NZS ISO 31000:2009).
<b>Secretary</b>	The Secretary of the Department.
<b>Security deposit</b>	An amount that a mining lease holder is required to provide and maintain under a mining lease condition, to secure funding for the fulfilment of obligations under the lease (including obligations that may arise in the future).
<b>Surface disturbance</b>	Includes activities that disturb the surface of the mining area, including mining operations, ancillary mining activities and exploration.
<b>Tailings</b>	A combination of the fine-grained solid material remaining after the recoverable metals and minerals have been extracted from the mined ore, and any process water <sup>2</sup> .
<b>Waste</b>	Has the same meaning as that term under the <i>Protection of the Environment Operations Act 1997</i> .

<sup>2</sup> Commonwealth of Australia (DITR), 2007. *Tailings Management*.

## Attachment 3 – Plans

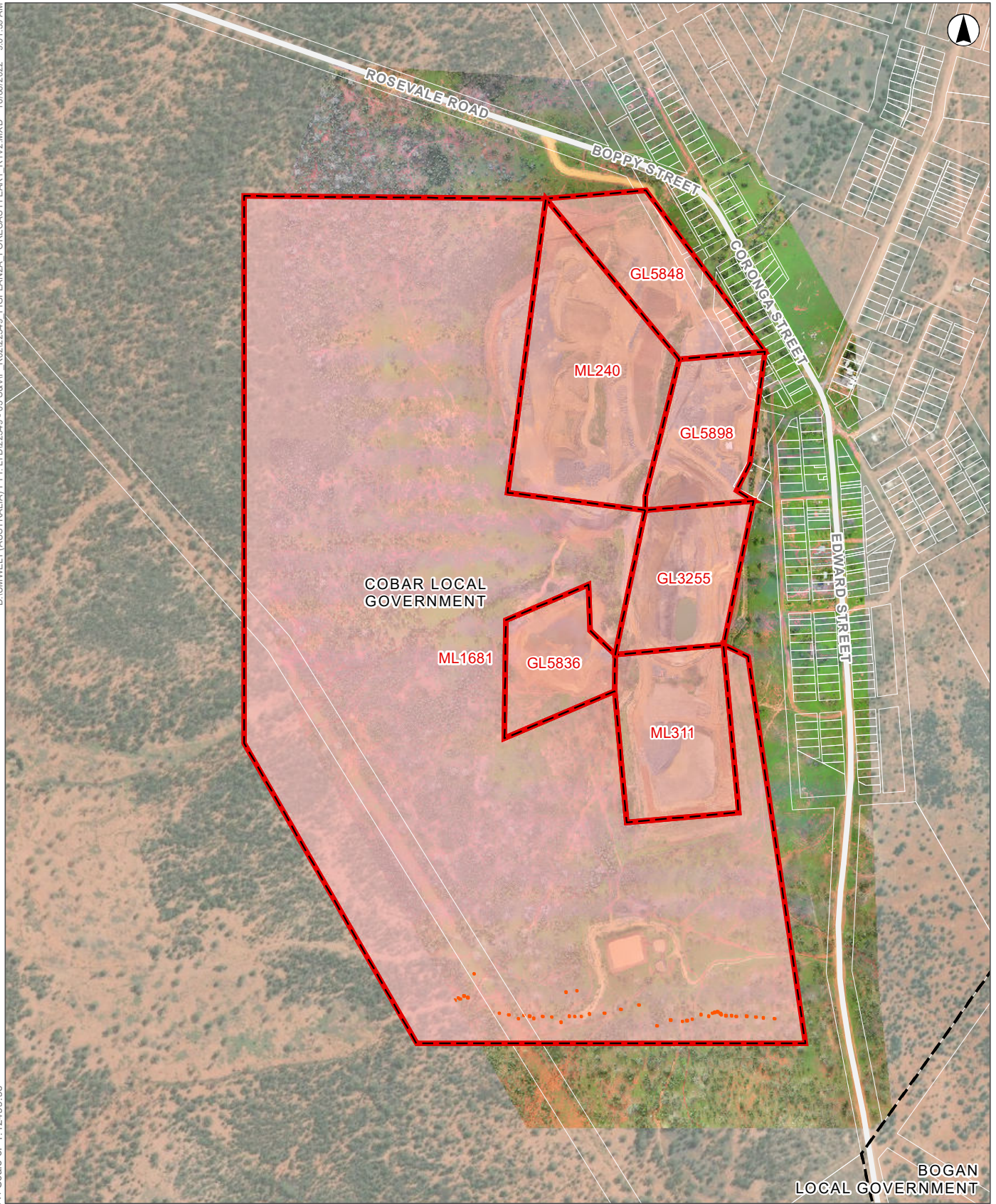
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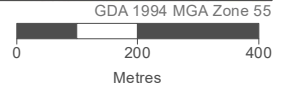
Forward Program (LARGE MINE) v2.1





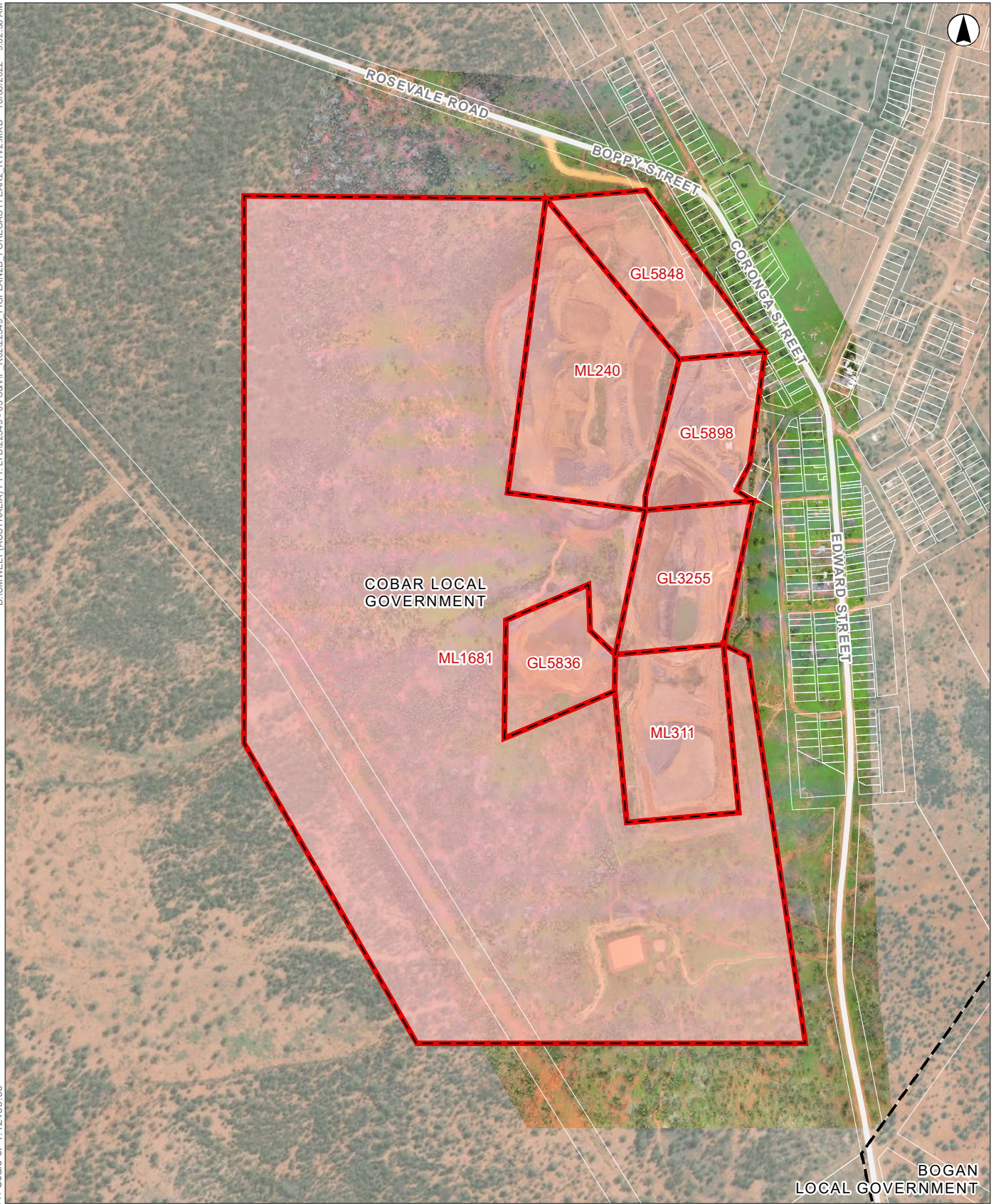
**Legend**

- Roads
- Local Government Area
- Project Approval Boundary
- Minerals - Current Titles
- Forecast Data Year1**
- Forecast Land Prepared for Rehabilitation



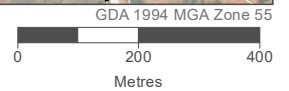
**FIGURE 2A**  
**MT BOPPY GOLD MINE**  
 Mining and Rehabilitation - Year 1





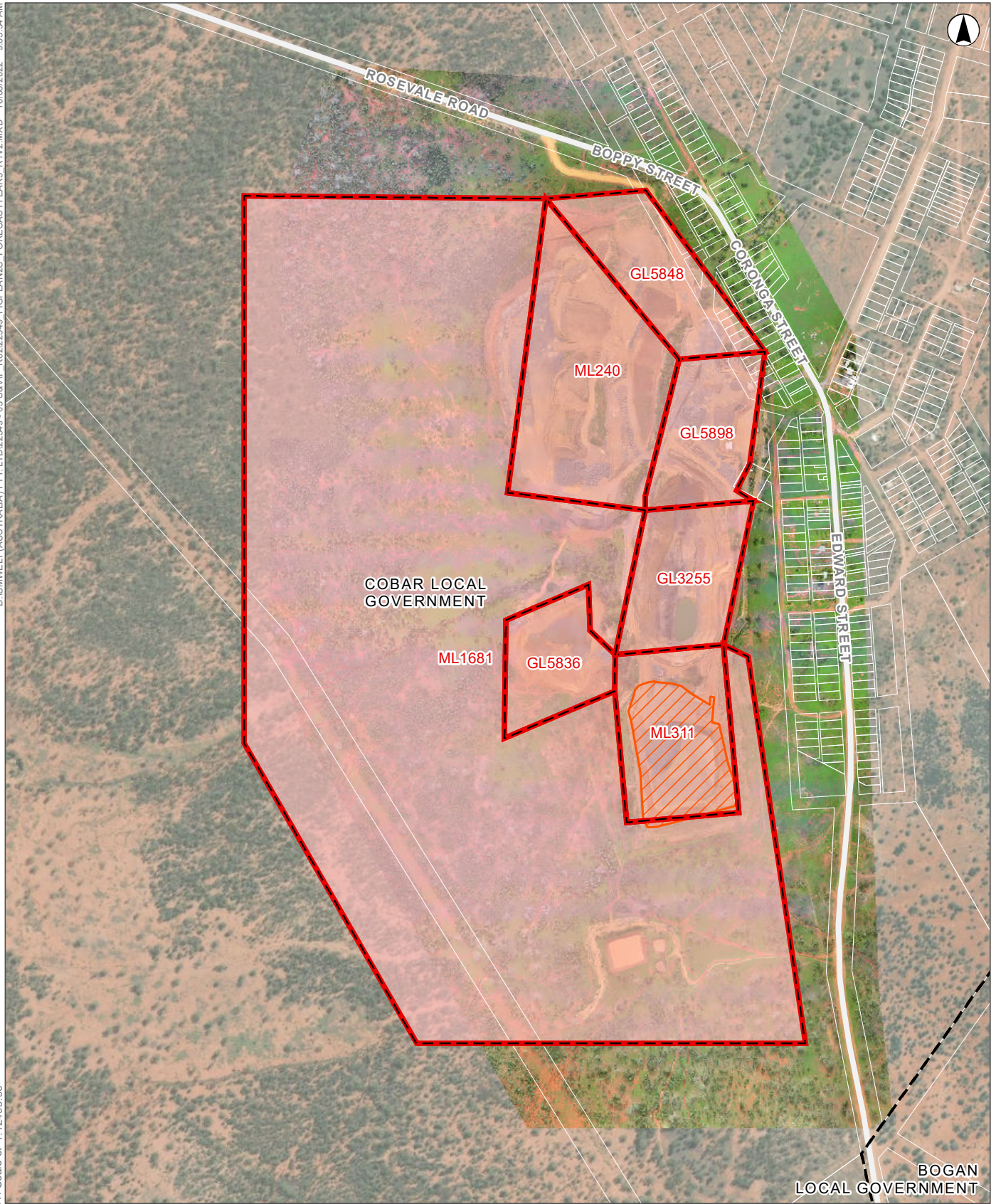
**Legend**

- Roads
- Local Government Area
- Project Approval Boundary
- Minerals - Current Titles



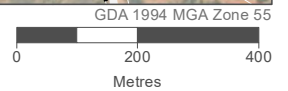
**FIGURE 2B**  
**MT BOPPY GOLD MINE**  
 Mining and Rehabilitation - Year 2





**Legend**

- Roads
- Local Government Area
- Project Approval Boundary
- Minerals - Current Titles
- Forecast Data Year3**
- Forecast Land Prepared for Rehabilitation



**FIGURE 2C**  
**MT BOPPY GOLD MINE**  
**Mining and Rehabilitation - Year 3**