

## Executive Summary: Consolidated Terramin Documents

The attachments to this executive summary constitute a consolidation of Terramin's statutory applications in support of the Bird in Hand Gold Project (BIHGP). The following documents are separate applications, but together constitute the project and are combined here for ease of reference:

1. Mining Proposal and forms for ML application;
2. Management Plan and forms for MPL application; and

The first two documents have been compiled on publication. Relevant secondary approvals including water, works approvals and safety under the *Natural Resource Management Act 2004*, *Environment Protection Act 1993*, *Work Health and Safety Act 2012* and their associated regulations will be obtained at the appropriate time from the appropriate governing departments.

This executive summary is provided for convenience and does not constitute a part of any single application or any combination of the applications above.

### Project Overview

Terramin Australia Limited and its subsidiary Terramin Exploration Proprietary Limited (Terramin) are proposing to develop a small, high-grade underground gold mine, which targets the historic Bird in Hand Gold deposit, located near Woodside, approximately 35 km east from Adelaide, and 30 km north of Terramin's existing processing facilities (Angas Processing Facility (APF)) at the Angas Zinc Mine (AZM), near Strathalbyn. The proposed mine is known as the Bird in Hand Gold Project (the 'Project' or 'BIHGP').

At a very high level, the Project has a Resource of 265,000 ounces of gold at 12.6 g/t. The Project will be South Australia's highest grade gold mine and one of Australia's highest grade gold mines. The Project will provide employment opportunities and positive economic outcomes to the regional communities of Woodside and Strathalbyn, and more broadly, South Australia. The project will contribute to diversifying the local economy, and provides opportunities for South Australian mining professionals to work close to home as well as provide career paths for young South Australians.

The gold bearing ore will be mined in an underground mine at the BIHGP site near Woodside (the 'site'), and transported via truck to the APF to be beneficiated to produce a gold concentrate product for sale. No gold concentrate processing infrastructure or tailings storage is required at the site.

In summary it is estimated that:

- The Project will generate a total positive impact on Gross State Product of an estimated \$222 million over 8 years (excluding the Gross Operating Surplus of the mining operation itself).
- This includes \$185 million of estimated wages and salaries paid to households, and the provision of a modelled 2,380 person years of employment (or an average of around direct and indirect 600 full time equivalent jobs at its peak – equating to 2350 Full time Equivalent (FTE) jobs over the life of the Project). Only 25% of the jobs created are in Project operations itself. The remainder is spread through the rest of the economy and impacts on sectors such as retail trade, business services, education, health services etc. generated through a combination of the support spend for the project, but also the on-spend of wages and taxes generated.
- 60% of the economic benefit will occur in the Adelaide Hills Council area, around Woodside (an estimated 420 FTEs at peak equating to 1400 FTE over the life of the project), and 20% would be

expected in the Fleurieu Peninsula, around Strathalbyn (an estimated 170 FTEs at peak equating to 500 FTE over the life of the project).

### **BIHGP site**

The Project has a Joint Ore Reserves Committee (JORC) Resource of 650,000 tonnes at 12.6g/t for 265,000 contained ounces of gold and 5.8g/t for 122,000 contained ounces of silver. The mineralisation is located within Terramin's exploration licences 5469 (EL 5469) and 6319 (EL 6319), which collectively cover approximately 31,400 hectares. The mineralisation lies within Mineral Claim (MC) 4473, which covers approximately 195 hectares. The proposed ML boundary does not exceed that of MC 4473.

Minimal infrastructure is required at the Project site, as processing will occur at AZM. Site infrastructure outside of the underground access and workings includes a workshop, batching plant, water treatment plant and dam, offices and an integrated mullock landform (IML) for excess mullock. Mullock is unmineralised rock which does not contain gold removed during development of the decline and access drives. The underground design includes an underground magazine, as well as ventilation raises and a secondary means of egress (emergency escape-way).

The Bird in Hand (BIH) gold mine was one of 17 gold mines in the Woodside gold field during the 1800's. The historic BIH deposit has had a varied history. It started in July 1881, with the discovery of gold by Dr. D. M<sup>c</sup>Cracken. Soon after the Bird in Hand Gold Mining Company was formed and mining commenced. By the end of 1889 the BIH mine included eight shafts, adits and stopes, the deepest shaft extending 125 m deep.

### **AZM & APF**

AZM, which includes the APF, operated under the approved ML 6229 and was placed into care and maintenance in October 2013 due to the falling metal prices. AZM mine was developed on the zinc-lead-copper-gold-silver deposit and the mine site incorporates the processing facilities, tailings storage facility (TSF) and general site infrastructure nameplated to process 400,000 tonnes of ore annually. The care and maintenance plan keeps the infrastructure in a suitable condition for restarting the facility. With minor modification, the processing plant will be able to treat the precious metal ore feed from the Projects.

The Angas zinc-lead-silver deposit was discovered in 1991 during an exploration program by Aberfoyle Resources Ltd but was considered too small at the time to be an economic mining proposition. Follow-up drilling by Terramin Australia Ltd from 2004 to 2007 demonstrated probable ore reserves of 2.15 Mt of ore grading 7.6. % zinc, 2.9 % lead, 0.2 % copper, 31 g/t silver and 0.5 g/t gold, plus indicated and inferred resources of 0.53 Mt grading 3.3 % zinc, 1.6 % lead, 0.1 % copper, 20 g/t silver, and 0.4 g/t gold. Underground development commenced in July 2007 and ore production and first shipment of concentrates was achieved in July 2008. The lead/zinc ore was processed using flotation to produce a zinc concentrate and a lead-copper-gold-silver concentrate. The mine life was expected to be seven years, with ore production of 400,000 tonnes per year, however, global prices for zinc forced the mine to enter into care and maintenance during October 2013.

There are a number of old mines dating back to the 1850s in the Strathalbyn area. Wheal Ellen, located about eight kilometres north of Strathalbyn, opened in 1857 was one of the most significant and is reported to have produced an estimated 8000 tonnes of ore with grades of 25% zinc, 20% lead and 12 ounces per ton of silver. The old Strathalbyn Mine located 1.3 km north of the Angas Zinc Mine, opened

in 1848. The mine was the second lead/zinc mine in Australia, the first being Wheal Gawler at Glen Osmond. Glenalbyn mine, 2km north west of Strathalbyn, near Paris creek road was opened in 1850.

### **About Terramin**

Terramin Australia Limited was incorporated in December, 1993 as Playford Resources NL with the objective of exploring and developing Australian mineral resources opportunities. In 1997, the Company acquired the Fleurieu Project situated in Australia's first base metals mining belt east of Adelaide. The tenements included the Angas lead-zinc-silver resource. The AZM at Strathalbyn in South Australia was commissioned in July 2008. The first shipments of zinc and lead concentrate were dispatched in the same month. In September 2013 the mine was placed into care and maintenance. In December 2013, Terramin acquired the BIHGP and a portfolio of highly prospective Adelaide Hills exploration tenements. An internal Scoping Study was completed early in the same month and was updated in 2018.

### **Project Proposal**

The proposed Project will see Terramin develop a small, high-grade gold mine beneath the historic BIH gold mine. The Project will involve:

- Construction of BIH site infrastructure development, estimated to take 12 months.
- Five years (includes the 12 months of site infrastructure development) "life of mine" based on the known BIH Resource.
- Underground mining by mechanised cut and fill.
- Ore being transported off site to Terramin's existing AZM processing facility at Strathalbyn.
- Crushing and grinding of the ore at AZM followed by gravity separation and flotation to gold concentrate and possibly gold dore.
- Gold and silver products sold and freighted to domestic and international markets.

Although the deposit is small, the grade is extraordinarily rich which is unique to meso-thermal gold deposits. The concentrate to be produced will be high value with gold levels of approximately 170 grams per tonne gold and 80 grams per tonne silver. The concentrate will be sold to market for further beneficiation and refinement.

### **Statutory Approvals Process**

#### **Mining Lease Proposal**

The application for the BIHGP is subject to a range of South Australian legislative controls and government regulatory approval processes.

Approval for the proposed mine is being sought under the Mining Act which is regulated by the South Australian Department for Energy and Mining (DEM) on behalf of the Minister for Energy and Mining (the Minister). Under the Mining Act, the proponent (Terramin) must be granted a ML and ensure that a Program for Environment Protection and Rehabilitation (PEPR) is in force before it can commence any mining operations.

To be granted a ML, Terramin must submit an application accompanied by a MLP (the first annexure to this executive summary), setting out the mining operations that are proposed to be carried out, the environmental impacts of those proposed mining operations, the environmental outcomes that are expected to occur and the results of any consultation undertaken in connection with the mining operations.

The objective of the MLP is to demonstrate:

- That the BIH gold deposit can be ‘effectively and efficiently mined’;
- All potential environmental and social impacts, including benefits have been identified;
- The proposed level of impact (environmental outcomes) are acceptable given the economic and social benefits; and
- The proposed control strategies, set out as proposed outcome measurable and leading indicator criteria will achieve an acceptable level of impact for all identified environmental and social aspects considered.

The MLP has been completed in accordance with the *Ministerial Determination for a Mining Proposal for the Bird in Hand Gold Project*, which describes the “minimum information required to be provided in a mining proposal and/or management plan for a mineral lease (ML) and any associated miscellaneous purposes licence (MPL) applications for a project incorporating the Bird in Hand Gold Deposit located in Woodside South Australia”. This Ministerial Determination (MD) was tailored for the BIHGP in accordance with Regulations 30(3) and 49(3) of the *Mining Regulations 2011*.

The MD requires amongst other things peer reviews of particular aspects of the Project. This includes control measures proposed to manage, limit or remedy groundwater impact events must be peer reviewed by a suitably qualified independent expert as required by the Ministerial Determination. Terramin have undertaken peer reviews on the grouting, the groundwater assessment, the managed aquifer recharge strategy and the site water balance. Peer reviewers were chosen for their qualifications and experience in the requisite areas. All peer reviewers qualifications are included in their respective reports.

In regards to the groundwater model, a final independent peer review report must include; an assessment of whether the model is fit for purpose, verification of model inputs, the results of the review of the model against the Australian groundwater modelling guidelines (National Water Commission Waterlines Report Series No. 82, June 2012), the scope of the review and details of any actions undertaken as a consequence of the findings of the review. This has been completed by Innovative Groundwater Solutions during 2017, and again in 2019 with the updated groundwater model.

Lastly, the MD includes assessment of economic impacts on permissible land use which must be developed by a person who is suitably qualified and experienced in economic impact assessment. Information relating to permissible land use must be peer reviewed by a suitably qualified (experienced in economic impact assessment) independent expert. The scope of the review, the report arising from the review, and a report of any actions undertaken as a consequence of the findings of that review must be included as an appendix to the mining proposal.

Once a ML has been granted, Terramin must only conduct the mining operations in accordance with the terms and conditions of the lease and in accordance with an approved PEPR. An appropriate environmental/rehabilitation bond will also need to be assessed and in place before any operations can commence.

### **Miscellaneous Purposes Lease**

Approvals for the ancillary infrastructure required to support the BIHGP (specifically, the APF located at AZM) are being sought pursuant to Section 52 of the Mining Act, which allows the Minister to grant a MPL to any person in respect of mineral land for operating plant for the treatment of ore recovered in the

course of mining operations. An MPL may be granted where the proposed activity will achieve better environmental outcomes if located outside the mining lease. Terramin believe that utilising the existing processing facilities and TSF provides better environmental outcomes for South Australia, than establishing a new processing plant and associated TSF. Using the Strathalbyn facility also provides an opportunity to employ a mix of both experienced former employees and younger local people to maximise the benefit to the Strathalbyn community. The local people directly employed will be 41, Terramin’s local employment policy means contractors will either be locally based or sub-contract locally, with an expectation there will be significant local contractors engaged to modify or update the processing plant.

The application for the AZM Miscellaneous Purposes Licence (MPL) is also subject to a range of South Australian legislative controls and government regulatory approval processes.

The proposed MPL covers an area of approximately 83 Ha and overlies a portion of ML 6229. ML 6229 was registered to Terramin on 17/08/2006.

MPLs are regulated pursuant to Section 52 of the *Mining Act*, which is regulated by the South Australian Department of Energy and Minerals (DEM) on behalf of the Minister for Energy and Minerals (the Minister). The *Mining Act* allows the Minister to grant a miscellaneous purpose licence (MPL) to any person in respect of mineral land for operating plant for the treatment of ore recovered in the course of mining operations. An MPL may be granted where the proposed activity will achieve better environmental outcomes if located outside the mining lease. Terramin believe that utilising the existing processing facilities and tailings storage facility provides better environmental outcomes for South Australia, than establishing a new processing plant and associated tailings storage facility.

Under the *Mining Act*, the proponent (Terramin) must be granted an MPL and ensure that a Program for Environment Protection and Rehabilitation (PEPR) is in force before it can commence any processing operations. To be granted an MPL, Terramin must submit an application accompanied by a MPL Proposal (this document), setting out the proposed processing operations to be carried out, the environmental impacts of those proposed processing operations, the environmental outcomes that are expected to occur and the results of any consultation undertaken in connection with the processing operations. This has been completed in accordance with the *Ministerial Determination 006*, which describes the “[m]inimum information required to be provided in a mining proposal and/or management plan for a mineral lease (ML) and any associated miscellaneous purposes licence (MPL) applications for metallic and industrial minerals (excluding extractive coal and uranium)”.

Once a MPL has been granted, Terramin must only conduct the processing operations in accordance with the terms and conditions of the licence and in accordance with an approved PEPR. An appropriate environmental/rehabilitation bond will also need to be assessed and in place before any operations can commence. Terramin currently have an approved bond in place for the entirety of ML 6229.

Together, the MPL for the APF and the ML for the BIHGP form the overarching Project.

## Document Structure

Terramin have structured this consolidation as follows:

### CONSOLIDATION STRUCTURE

Contents Pages
Executive Summary

1. Mining Lease Application
2. Miscellaneous Purposes Lease
3. Appendices

for Terramin Australia Limited and Terramin Exploration Pty Ltd

A handwritten signature in black ink, appearing to read "Richard Taylor".

**Richard Taylor**

CEO

21 June 2019