

## Engineering Cost Estimate and Exploration Update

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### HIGHLIGHTS

- **Delivery of Engineering Cost Estimate Update extended to incorporate ongoing and additional engineering design and cost factors.**
  - **Consideration of relocation of infrastructure close to the proposed open pit with a view to progressing studies assessing the feasibility of expanding plant throughput from 2Mtpa up to 4-6Mtpa.**
  - **Efforts to increase availability and volume of off-site process water sources are in progress with a view to reduce potential risk for the planned 2Mtpa plant and underpin future throughput expansion.**
  - **Process water preliminary studies have indicated the site water deficit to be less than previously considered which potentially de-risks the operation.**
  - **Exploration plans commenced with remote sensing analysis and target generation undertaken in the region and efforts underway to secure drill rigs for both near-project and regional exploration programs.**
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Big River Gold Ltd (ASX: BRV) (the **Company** or **Big River**) wishes to advise on progress with the Plant/Project Engineering Cost Estimate Update (**ECE**) for the Borborema project, as well as recent developments in site infrastructure engineering and in the regional exploration and resource extension work that has recommenced.

### Borborema Project Progress

#### ECE Progress.

The company has extended the schedule for the review of the Borborema 2Mtpa DFS and an Engineering Cost Estimate update (**ECE**) as outlined below. A draft report was received from GR Engineering Services (**GRES**) in late August and is currently being reviewed. The GRES ECE incorporated additional findings and developments arising out of ongoing engineering studies. Some items in the 2019 DFS study were considered to have been understated and cost estimates for those areas will increase as a result including EPCM and Owners Costs.

The core process plant components of the estimate will likely be relatively unchanged while some equipment and layout changes have been incorporated to reduce risk, increase resilience, and to capitalise on opportunities presented by economies of scale. More of these are presenting as ongoing mine planning detail comes available and gold pricing and recovery assumptions are updated.

There has also been a significant increase in mining and exploration activity in Brazil over the last 12-18 months. This has seen an increase in costs and prices as well as demand on service providers and suppliers. The process of updating budget pricing and quotations to 2021 conditions has been slower than anticipated and pricing is being carefully interrogated where increases are apparent.

The update is focussing on the initial 2 million tonnes per annum (Mtpa) Stage 1 of the Borborema Project. However, selection of equipment and layout has been revised to accommodate a possible mine expansion in Year 3 or 4 of Stage 1 which recognises the significant scale of the Borborema resource and the economies which would result from increased plant throughput.

Preliminary studies have commenced in parallel to investigate the potential of expanding the pit to 4-6Mtpa. This work includes consideration of the eventual relocation of the adjacent highway and regional powerline and de-risking, especially relating to securing sufficient process water supplies to underpin process throughput.

Restrictions on travel to Brazil for Australian based staff and contractors has created some project management challenges. However, there are plans and processes in place to ensure that the project teams in both Australia and Brazil are coordinated and working well together. The company recognises that this has meant longer and some unusual working hours for a number of key people.

## Process Water Supply

Activities progressed in mitigating risks regarding process water supply and ensuring that secure and resilient water sources are available for base and expansion scenarios. These focussed on:

- Upgrading the sewage water delivery system at the nearby city of Currais Novos; to provide reliable water supply to the project.
- Advancing discussions with other nearby cities to secure future additional sewage water;
- Initiating investigation of aquifers 40km north of Borborema with a view to establishing bore fields;
- Updating the engineering costs estimate based on expected wastewater sample data and vendor preliminary proposals for treated waste water that can be safely and effectively stored and used on site,

Significantly, a site-wide dynamic water balance study is being undertaken by SRK Consultants (**SRK**) taking into account site water and storage capacities. Preliminary results have indicated that the deficit of process water is significantly less than previously estimated in the plant water availability study. This preliminary data indicates the demand on external sources such as the sewage water will be reduced. Nevertheless, the company will continue to secure as much additional water as possible to reduce risk, provide for resilience to natural and unforeseen events, and underpin the project expansion.

The Company has an agreement with Currais Novos for the offtake of up to 70m<sup>3</sup>/hour of water to meet the requirements of the Borborema 2Mtpa operation. Ongoing discussions are being held with the relevant authority (CAERN) to improve the agreement terms to secure more access and increase the available water resource.

Big River is negotiating with CAERN to assume a more responsibility for parts of that system and is working to improve the flow rates from the transfer *Casca e Pesca* pumping station. At present the water flow does not meet requirements due to poor pump performance and availability, blockages in the channels and trash screens and other issues at the sewage station.

The Company is approximately one third of the way through refurbishing several aspects of the sewage collection station to improve volume and reliability of supply. We also plan to replace existing pumps and add extra pumping capacity to improve system reliability.

Other potential sources of additional process water are also being assessed both as backup for the Currais Novos delivery as well as to meet the requirements of any expansion above 2Mtpa throughput.

## Fines Dyke - Geotechnical

Geotechnical drilling for the “Fines Dyke” catchment continued with the wall design to commence upon receiving results. The preliminary water balance modelling has confirmed that the fines dyke is the key site water storage reservoir and a critical part of the site water management infrastructure. Thus, the company will be looking to prioritise the detailed engineering and construction of this facility

Areas of potential borrow material for use in the dam construction were also investigated and the available material was found to be unsuitable. Other sources of borrow material are being identified and options evaluated including:

- modified embankment engineering solutions
- Processing of on-site material to improve its suitability.
- Trucking suitable, commercially available, material to site from elsewhere

This work is ongoing.

## Exploration Activity

Work has commenced on both near-project exploration and regional exploration withing the surrounding Serido Shear Zone.

Following a review of the existing database, plans to establish a drilling team at Borborema over the longer term commenced and enquiries made of several experienced drilling companies. However, the mining and exploration boom in Brazil has resulted in very poor drill rig availability with several companies unable to provide rigs until next February, 2022. However, we do hold hope that we can secure at least 1-2 rigs from experienced drilling companies within a reasonable timeframe.

## Near project drilling

- Big River has planned ~5,000 meters first stage Diamond Core program initially targeting the following
  - High grade down plunge extensions (Figures 1 and 2 below)
  - Resource upgrade from Inferred to Indicated &
  - Exploration targets North and South of existing drilling
- The down dip plunge of the Borborema pit has a higher-grade zone that will be targeted at depth (includes 15m @ 3.61g/t from, CRDD-134). Step out drilling 100m from prior intercepts down plunge will test these continuous higher-grade zones.
- 2 proposals have been received to date by drilling contractors, with an additional proposal expected. All contractors have a 3-to-5-month lead time for rig availability.

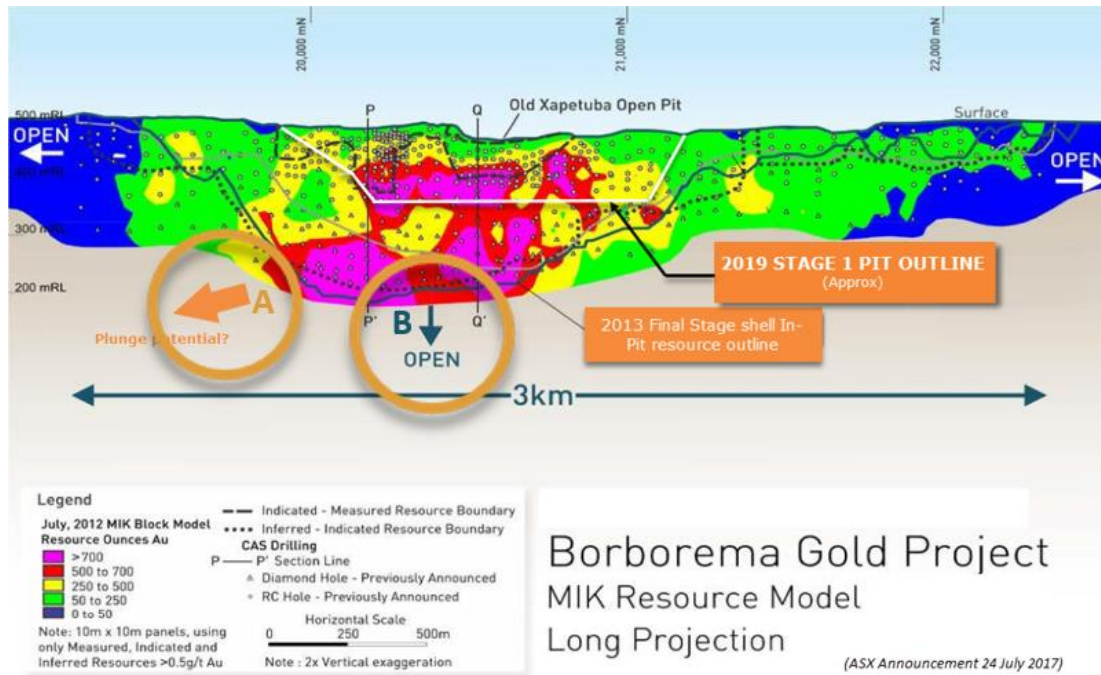
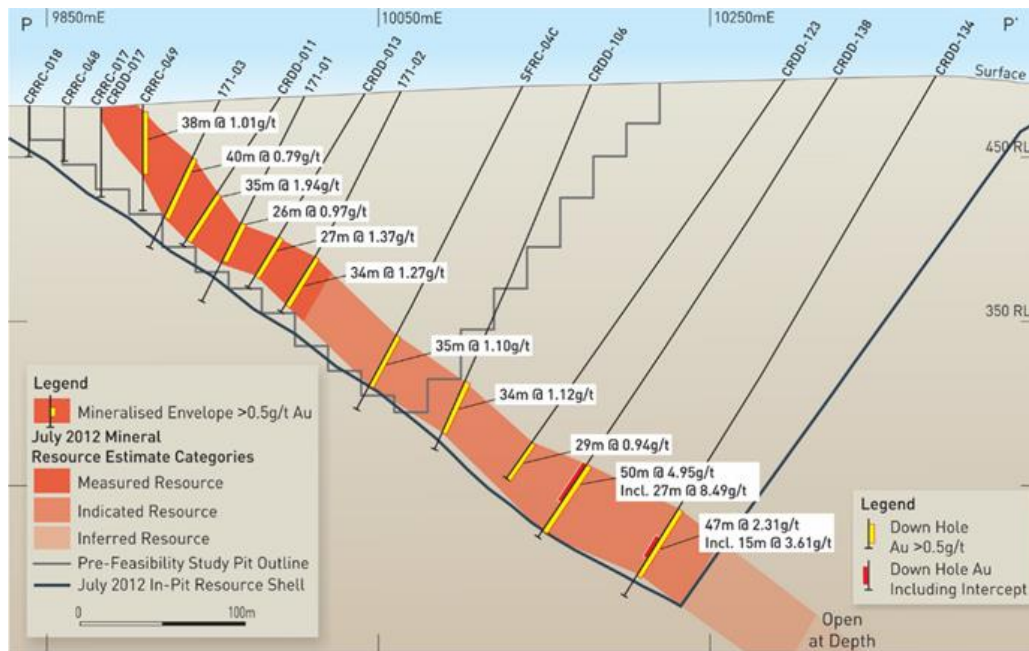


Figure 1 – Long section of Borborema Gold project showing down plunge and down dip drill targets A and B respectively. Examples of drill intercepts suggesting the existence of high grade mineralisation at depth are shown in Figure 2.



## Regional Exploration

### Remote Sensing Study

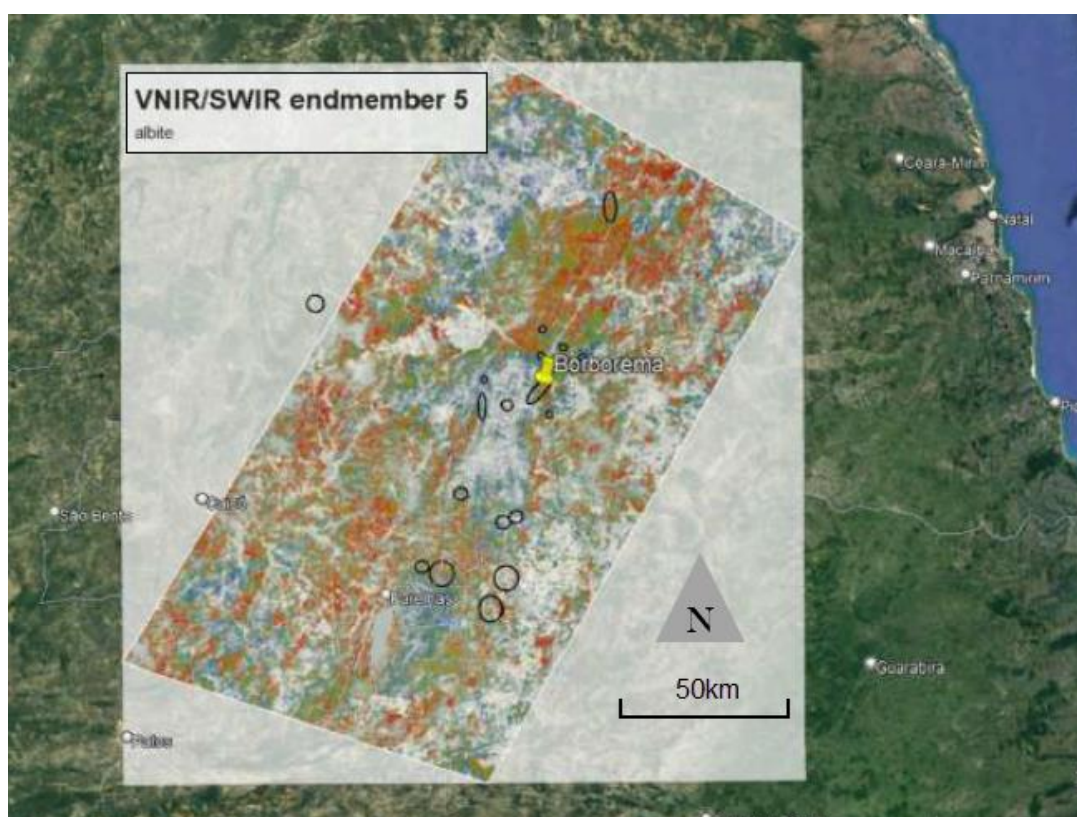
- Big River completed a regional remote sensing review of the Serido Fold Belt in north-east Brazil which contains the shear hosted Borborema Gold project. Borborema gold mineralisation is closely associated with re-crystallised sulphides and feldspar minerals (albite, labradorite,

oligoclase, anorthite). The total sulphide content of the deposit is relatively minor at 1% - 3% and mostly comprises pyrrhotite with minor amounts of pyrite, chalcopyrite, sphalerite and galena

- The remote sensing satellite camera captures the reflectance signals from surficial material containing these minerals and separates reflectance data into signatures indicative of vegetation, water and minerals.
- The sulphides can be mapped in outcrops and soils from space to produce anomalous signatures that warrant follow-up.

An example of one of 16 minerals targeted, Albite or #5 Endmember, is shown below in Figure 3.

This remote sensing exercise has resulted in the development of numerous coincident anomalies representing targets, with or without geochemical or geophysical data that may have been obtained previously, which warrant follow up and detailed assessment.



*Figure 3 - # 5 Endmember identifies and highlights plagioclase feldspar and albite minerals considered known to be associated with gold mineralisation at Borborema*

#### **Additional Exploration activities**

- *Magnetics and Radiometrics* – Big River are planning to improve existing magnetic data surrounding the mine to assist in structural controls of mineralisation. Both existing airborne data and new ground-based magnetics will be undertaken.
- *Geochemistry* – 18 regional geochemical targets were defined from prior exploration activities conducted by Big River. These targets have had little or no follow up and will be revisited with infill geochemistry and geological mapping.

## Project divestment

Divestment of non-core exploration projects are underway including the Serido Iron Ore project and the Mara Rosa Gold Project in Goias State.

Andrew Richards, Executive Chairman of Big River Gold, commented:

*“While we had hoped to be in a position to release the engineering cost update in the third quarter, there have been strong improvements in the engineering plans being developed and the strategy for moving forward to best exploit the Borborema deposit. In particular the efforts to secure process water for the planned operation have proven very positive and will influence possible future expansion for which the timing is currently being assessed.”*

*On behalf of the Board.*

Andrew Richards  
**Executive Chairman**  
Big River Gold Ltd

### **About Big River Gold**

Big River Gold Ltd (ASX:BRV), is a mineral exploration and development company listed on the Australian Securities Exchange. Its major focus is the 2.43M ounce Borborema Gold Project in Brazil; a country the Company believes is underexplored and offers high potential for the discovery of world class mineral deposits.

### **Borborema Gold Project**

Borborema is a project with a resource of 2.43Moz gold<sup>1</sup> including a mineral reserve totalling 1.61Moz gold<sup>2</sup>, located in the Seridó area of the Borborema province in north-eastern Brazil. It is 100% owned by Big River and consists of three mining leases covering a total area of 29 km<sup>2</sup> including freehold title over the main prospect area.

The Project benefits from a favourable taxation regime, existing on-site facilities and excellent infrastructure such as buildings, grid power, water and sealed roads. It is close to major cities and regional centres and the services they can provide.

### **Definitive Feasibility Study (DFS)**

A DFS for development and construction of Stage 1 of the Borborema Project was completed in December 2019 (refer ASX Announcement of 23 December, 2019) and updated in July 2020 as detailed in the ASX Announcement of 9 July, 2020. It confirmed the project's strong economics and optimised a profitable open pit with a mine life of more than 10 years producing approximately 729,000 ounces gold at a C1 cash cost of US\$554/oz and AISC of US\$729/oz.

Assuming a gold price of US\$1,550 per ounce, the pre-tax NPV (8%) returned US\$342M with an IRR of 64.7%. The project returns an average EBITDA of US\$72M pa.

All material assumptions underpinning the production targets and forecast financial information continue to apply and have not changed materially.

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<sup>1</sup> Refer ASX announcement 24 July 2017

<sup>2</sup> Refer ASX announcements of 6 March 2018, 29 March 2018 and 11 April 2018



Figure 4. View to the south west over the Borborema pit showing the exposed ore zone and infrastructure.

## Competent Person Statements

### ***Borborema mineral resource estimate***

The information in this announcement that relates to the mineral resource estimate for the Borborema Project was first reported in accordance with ASX Listing Rule 5.8 on 24 July 2017. Big River confirms that it is not aware of any new information or data that materially affects the information included in the announcement of 24 July 2017 and that all material assumptions and technical parameters underpinning the Mineral Resource estimate continue to apply and have not materially changed.

### ***Borborema ore reserve estimate***

The information in this announcement that relates to the Ore Reserve estimate for the Borborema Gold Project was first reported in accordance with ASX Listing Rule 5.9 on 6 March 2018, 29 March 2018 and 11 April 2018. All material assumptions and technical parameters underpinning the Ore Reserve estimate continue to apply and have not changed materially.

That portion of the Ore Reserve that was included in the Stage 1 Mining Schedule for the December 2019 Definitive Feasibility Study (DFS) was reviewed by Porfirio Cabaleiro Rodriguez, BSc. (MEng), MAIG of GE21 as part of the DFS. The Ore Reserve was first reported in accordance with ASX Listing Rule 5.9 on 24 July 2017 and updated on 6 March 2018 and is based on information compiled by Mr. Linton Kirk, Competent Person who is a Fellow and Chartered Professional of The Australasian Institute of Mining and Metallurgy. Mr. Kirk is employed by Kirk Mining Consultants Pty Ltd and is an independent consultant to the company.