

# POSITIVE ECONOMICS OVER >10 YEAR MINE LIFE CLARIFICATION OF STAGE 1 MINERAL RESERVES

# **Highlights**

- ❖ The Definitive Feasibility Study (DFS) for the Borborema Gold Project has been completed on-time and demonstrates the economic viability and robustness of the Project.
- **❖** Borborema will be a standalone gold mine with an initial mine life of 10.2 years producing approximately 729,000 ounces of gold with strong profit margins.
- Strong economic and operational results obtained from the DFS (using US\$1,400 gold price) with:
  - Average gold production of approximately 71,000 ounces per annum over the life of mine, including approximately 88,000 ounces per annum over the first four years at an average C1 cost of US\$622/oz;
  - C1 cash costs of US\$642/oz and AISC of US\$839/oz over Life of Mine (LOM);
  - Compelling returns:
    - > Payback period of 2.4 years
    - Pre-tax NPV<sub>8%</sub> of US\$218M (A\$320M)<sup>1</sup> and IRR 43.6%
    - Post-tax NPV<sub>8%</sub> of US\$203M (A\$299M)<sup>1</sup> and IRR 41.8%
  - EBITDA over LOM of US\$527M, averaging US\$53.8M (A\$79M) per annum (full years)
  - Capital expenditure of US\$88M plus contingency of US\$11M for total US\$99M
- The Project comprises a single open pit and 2Mtpa processing plant utilising industry standard crushing and SAG and ball mill circuits. Tailings will be dry stacked above ground removing the need for a tailings dam;
- DFS identifies additional opportunities to pursue that may further reduce costs and construction timelines.
- ❖ With Environmental Permit and Installation Licence already granted, allowing mine construction to commence, the Operational Licence will be granted subsequent to confirmation that the plant and infrastructure have been designed in accordance with the Licences.
- ❖ The DFS is a key milestone and the Company can immediately advance project finance discussions with the assistance of Araujo Fontes, their financial advisor in Brazil.
- This announcement replaces the announcement made on 19 December 2019 to, among other things, provide supplementary information around the mining schedule and Mineral Reserves described in the original announcement.

Big River Gold Ltd (ASX: BRV) (**Company** or **Big River**) wishes to advise that the Definitive Feasibility Study (**DFS**) on the development of a 2.0 Mtpa operation at the Borborema Project located in north-

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<sup>&</sup>lt;sup>1</sup> AUD:USD 0.68 used in the DFS



eastern Brazil has been completed by managing engineers, Wave International Ltd. Borborema is 100% owned by Big River through its wholly owned subsidiary Cascar Mineração Ltda (Cascar).

This announcement provides replaces the announcement made to the ASX on 19 December 2019 to provide supplementary information on the scheduling of a portion of the Mineral Reserves for mining as part of the Stage 1 production schedule studied in the DFS.

The DFS has confirmed the viability and economic robustness of Borborema and was completed within the accuracy of 10-15% required by international best practice. It comprises a conservative, detailed study of a standalone gold project and estimates a **post-tax NPV of US\$203M** (discounted at 8% pa) and an **IRR of 41.8%**.

The estimated project capital cost is U\$\$87.97M plus contingency of U\$\$11.36M (11.4%) totalling U\$99.3M which compares favourably to the review announced in February 2018 of U\$\$93.4M excluding contingency<sup>3</sup>.

Average C1 operating costs over the 10 year operating mine life are estimated to be **US\$642** per ounce compared with previously estimated US\$737/oz² and an All-In Sustaining Cost (**AISC**) of **US\$839** per ounce (US\$908).

The estimated production costs provide a strong margin for profitability given current and projected gold prices.

The DFS details an initial Stage 1 Life of Mine (**LOM**) of 10.2 years, producing an average 71,250 ounce of gold per annum from a single open pit. Ore will be processed through a single stage crushing circuit and SAG and Ball (SAB) milling circuit followed by conventional cyanide leaching. Metallurgical recoveries are high ramping up to 92.5% with a 36 hour residence time and low reagent consumption. Gold recovered in production Years 1 and 2 is expected to be 83,888 oz and 83,954 oz respectively delivering revenues of US\$235M (A\$346M) in the first two years. Production in Years 3 and 4 will increase to 96,938 oz.

The DFS was managed by international engineering firm Wave International Ltd (**Wave**) who also undertook the process and infrastructure design with key contributions from Gruppo GE21 (mine design and scheduling), Integratio (social and community aspects) and testwork undertaken by ALS Laboratories, Outotec and SGS. The DFS built on previous studies and work completed by TetraTech, Ausenco and others.

With the completion of the DFS and LOM cashflow model the Company is now in the position of advancing discussions with several financial institutions that have expressed interest in providing project finance and were awaiting the finalised cashflow model. That will commence immediately with the assistance of Araujo Fontes, BRV's financial advisors in Brazil.

Chairman Stephen Copulos noted: "The Definitive Feasibility Study represents an excellent outcome resulting from the work of many dedicated people and teams. The reduction in operating costs and containment of capital estimates compared with previous studies provides a strong basis for profitability over the next 10 years at least. The Company's strategy is now to secure financing, investigate opportunities that may further reduce costs and construction time and accelerate the implementation of the Borborema Project."

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<sup>&</sup>lt;sup>2</sup> Refer ASX announcement 8 February 2018.



# **KEY RESULTS**

Summaries of DFS findings and resulting project details including resource/reserves, mine and process designs, capital and operating costs and cashflow modelling with sensitivity analyses are Appended to this announcement for reference. Table 1 below summarises the key operating and financial results of the DFS which was undertaken at a gold price of US\$1400 per ounce.

Table 1. Summary Borborema	DFS key results
Key Parameters	
Mineral Resources (reported above 0.5g/t Au cut off, 2013) <sup>3</sup>	68.6Mt @ 1.10 g/t Au (2.43Moz)
Stage 1 Ore Reserve Scheduled to be mined in DFS <sup>4</sup>	20.0Mt @ 1.22 g/t (784,480 oz)
Gold produced	729,374 ounces
Capital Costs	
Processing plant Capital Costs	US\$ 58.61M
Non Processing infrastructure and Owners costs	US\$29.36M
Contingency	US\$ 11.36M
Total Capital Summary	US\$ 99.33M
NPV (8%, Pre-Tax)	US\$ 218M
NPV (8%, Post-Tax)	US\$ 203M
IRR (Pre-Tax)	43.6%
IRR (Post-Tax)	41.8%
Payback from commencement of production	2.4 yrs
Life of Mine C1 Cash Costs	US\$642/oz
Life of Mine AISC costs	US\$839/oz
Production Summary	LOM
Mine Life (from commissioning date)	10.2 years
Strip ratio (waste (t): Ore(t))	4.2
Mill throughput (total)	20.0 Mt
Grade	1.22 g/t Au
Recovery	92.5%
Gold produced – over Life of Mine	729,374 oz
Project Economics, US\$M	LOM
Study Gold price	\$1,400/oz
Gross Revenue LOM	\$ 1,021M
Operating costs LOM	\$ 494M
Capital:	
Capital – Project Plant (inc contingency)	\$ 99.3M
Capital – sustaining and mine closure costs	\$ 21.0M
Working capital – Mine establishment pre-production	\$ 6.6M
Working capital – Other	\$12.7M
EBITDA	\$527.3M
NPAT	\$328.3M

<sup>&</sup>lt;sup>3</sup> Resources estimated 2013, refer ASX Announcement 24 July, 2017 (inclusive of Reserves).

<sup>&</sup>lt;sup>4</sup> Pit optimisation and Reserves estimated using gold price of US\$1250/oz; DFS cashflow analysis used US\$1400/oz. Only Measured and Indicated Resources were scheduled in mining – no Inferred Category Resources have been considered.



Effect of varying gold price	US\$1300	US\$1350	US\$1400	US\$1450	US\$1500
NPV (8%, post-tax), US\$	162M	183M	203M	224M	244M
IRR (post-tax)	36.0%	38.9%	41.8%	44.6%	47.3%
Payback (from start production)	2.8 yrs	2.6 yrs	2.4 yrs	2.3 yrs	2.1 yrs
Ave EBITDA (Full years), US\$	46.7M	50.3M	53.83M	57.4M	61.0M

# Next Steps & Implementation

The implementation schedule for the Project indicates a construction period of 23 months subject to the conclusion of financing arrangements. Big River believes this to be conservative and the lag time between completion of the DFS and securing finance is an opportunity to investigate critical tasks that impact the execution schedule. These tasks can be undertaken for relatively low cost which the Company is in a position to fund and have the potential to reduce the execution schedule and costs.

In moving forward Big River plans to:

- Appoint and relocate a Project Director to Currais Novos, to oversee implementation, value engineering, completion of remaining contracts and construction of the project.
- Complete contracts and design for supply of waste water and power.
- Appoint General Manager for Borborema operations
- Secure debt financing.
- Issue contracts for procurement and fabrication of plant.

Commercial opportunities in terms of mica by-products will continue to be investigated with metallurgical testwork and market assessment through ANZAPLAN in Germany to assess the potential for saleable quality product. If proven viable, potentially significant revenues could be added for relatively little cost. It would require some amendments to the process design but provision has been made for that in the design.

## **Funding**

The staged development plan aims to minimise initial capital, operating expenditures and funding requirements whilst generating revenue. It also provides an avenue for a rapid payback period of only 2.4 years following commencement of commissioning.

The Project's financial, economic and marketing metrics are robust with good operating margins, and the reported Mineral Resource and Ore Reserve has the potential to deliver a production opportunity over at least 10 years. In addition, the Project's location in Brazil is within a mature, low sovereign risk mining jurisdiction.

Funding in the order of \$118M is required to commence production and achieve the outcomes indicated in the DFS. This includes capital works, contingency, mine pre-production costs and other working capital requirements. The Company's Board and Management have a successful track record of obtaining finance for the exploration, evaluation and development of mineral resource projects. This includes the Posse Iron Ore mine in Brazil which the Company brought into production in 2014 and operated before selling the project in 2017. More recently, in June 2019, the Company successfully completed an entitlement offer to raise \$4.12M (before costs) which provided funds to complete the DFS and sold non-core assets to establish a cash reserve which currently stands at approximately US\$3.13M (A\$4.6M).

The company is currently assessing whether the current cash reserves may be applied to investigating aspects of the pre-production costs and optimising the project development plan to reduce capital and operating costs and shorten the construction timeline.



It is anticipated that the finance will be sourced from a combination of equity and debt instruments from existing shareholders, new equity investment and debt providers from Australia and overseas. The Board and management believe that a debt:equity ratio upwards of 70/30 is potentially achievable for the project. The Company's aim is to avoid dilution to existing shareholders, to the greatest extent possible.

As previously announced, the Company has engaged Araujo Fontes as their financial advisors to source debt and equity options in Brazil. With the completion of the DFS, their discussions with funding partners can now be advanced significantly. In addition, the Company has been approached by a number of Australian and overseas banks and institutions to discuss various funding options and structures.

For the reasons outlined above, the Board believes there is a reasonable basis to assume that funding to develop the project will be available as and when required. However, investors should note there is no certainty that the Company will be able to raise the amount of funding required to develop the project when needed. It is also possible that such funding may only be available on terms that may be dilutive or otherwise affect the value of the Company's shares, or that the Company may pursue other 'value realisation' strategies such as a sale, partial sale or joint venture of the project (which may reduce the Company's proportionate ownership of the project).

Going forward, the Company will continue to assess all possible commercial mechanisms to determine the optimum financing solution for the Project.

This announcement was authorised to be given to the ASX by the Directors of Big River Gold. For further information please contact: Andrew Richards

Yours sincerely,

**Andrew Richards** 

**Executive Director** 

## **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 Brazil; a country the Company believes is underexplored and offers high potential for the discovery of world class mineral deposits. The Company's key asset is the Borborema Gold Project.

## **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. Big River



confirms that it is not aware of any new information or data that materially affects the information included in these previous announcements and that all material assumptions and technical parameters underpinning the Ore Reserve estimate continue to apply and have not materially changed.





PROJECT OVERVIEW &
DEFINITIVE FEASIBILITY STUDY SUMMARY





# The Borborema Project - Overview

Borborema is located in the Seridó area of the Borborema province in north-eastern Brazil. It is 100% owned by Big River through its wholly owned subsidiary Cascar and consists of three mining leases covering a total area of 29 km² including freehold title over the main prospect area.



Big River owns the freehold land for the area considered by the mine, plant and infrastructure within the DFS. The main Environmental and Installation Permits have also been granted by the relevant Government authorities which will allow construction of the project to commence subject to financing.

There is little or no competing land use in the region, with low density cattle and goat farming as the only other commercial activities. The immediate project area is not populated and there are no indigenous tribes in the 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.



Figure 2. View to the south west over Borborema pit showing exposed ore zone and infrastructure – existing and designed.



# The DFS Study Team

The key inputs to this DFS were delivered by Australian based engineers *Wave International Ltd* who undertook plant design and operating cost and capital expenditure estimation and incorporated technical aspects from:

- *GE21 Consultoria Mineral* for the mine reserve and pit optimisation, geotechnical and general site infrastructure:
- Intergratio for the community and social research, and
- ALS Metallurgy, SGS Laboratories, Testwork Desenvolvimentos, HDA and Outotec for metallurgical testwork.

Results obtained from previous Pre Feasibility Studies and reviews were incorporated into the DFS with input from:

- Trepanier Pty Ltd and EGRM Consulting Pty Ltd for Mineral Resource estimates
- Kirk Mining Consultants and Auralia Mining Consulting for Mining and Mineral Reserve estimates for larger Stage 3 pit (60Mt)
- TetraTech Inc who were principal consultants for a draft Bankable Feasibility Study for a 4.2 Mtpa operation in May 2013
- Ausenco for partial Scoping Study and process design
- Metifex Pty Ltd, Orway Mineral Consultants and ALS for metallurgical testwork and process design.

## Mineral Resource & Reserve

Borborema contains a Mineral Resource (JORC 2012) totalling 69Mt at 1.1g/t Au containing 2.43 Moz gold (refer ASX Announcement dated 24 July 2017).

A Total Mineral Reserve for the Borborema Gold Project (Stages 1-3) was announced to the ASX on 6 March 2018 and the resulting Mineral Resources and Reserve estimates reported in accordance with the JORC (2012) Reporting Guidelines are presented in Tables 2 and 3 below. The Mineral Resources are inclusive of the Mineral Reserves.

The Mineral Reserves are entirely in the Proven or Probable category as they are derived from the Measured and Indicated categories of the Mineral Resource. No Inferred category resource is included in the schedule.

Table 2. Borborema Mineral Resource by Multiple Indicator Kriging estimation							
Category (>0.5g/t COG)	Tonnes (Mt)	Grade (g/t Au)	Au Ounces (kOz)				
Measured	8.2	1.22	320				
Indicated	42.8	1.12	1,547				
Measured + Indicated	51.0	1.14	1,867				
Inferred	17.6	1.00	566				
Total Resource	68.6	1.10	2,430				

Mineral Resource (JORC 2012) reported above 0.5 g/t Au cut-off. Parent Block  $25mx \times 25mx \times 5mRL$ . Selective Mining Unit  $5mx \times 6.25mx \times 2.5mRL$ . Note, appropriate rounding has been applied, subtotals may not equal total figures. (ASX Announcement 24 July 2017).

The reader is referred to the previous announcements for details.



Table 3. Borborema Total Mineral Reserves as at 6 March, 2018							
С	ategory	Tonnes (Mt)	Grade (g/t Au)	Contained Au (kOz)			
Proven	Oxide	0.65	0.80	17			
	Sulphide	7.26	1.25	292			
Probable	Oxide	1.68	0.70	38			
	Sulphide	32.82	1.20	1,260			
Total in Pit Re	serve	42.41	1.18	1,610			

Total Ore Reserve estimate for the Borborema Gold Project (Stages 1- 3),.
Reported at a 0.4g/t Au cut-off for oxide and 0.5 g/t Au cut-off for fresh material. Note appropriate rounding has been applied, subtotals may not equate total figures.

# DFS Stage 1 Mine Schedule

The Stage 1 open pit designed by GE21 Consultorio Mineral for the DFS, incorporated a portion of the previously announced 1.61 Moz Au Mineral Reserve. The portion of the reserves that will be mined in the 10.2 year Life of Mine schedule total 20 Mt grading 1.22 g/t Au containing 784,000 ounces gold are summarised in Table 4. This comprises approximately 48% of the current Mineral Reserve.

The remaining resources and reserves outside of the 20Mt defined for Stage 1 will potentially be exploited in later stages of mining at Borborema.

GE21 reviewed the Mineral Resources and Reserves to identify higher grade, contiguous material that could be preferentially mined in the initial Stage 1 open pit. The resulting Stage 1 Mine Schedule comprises 20Mt at 1.22g/t Au containing 784,100 ounces (Table 4) of which 37% of the contained gold is in the Proven Reserve category and 63% in the Probable category.

Table 4. Borborema Mineral Reserves Scheduled for Stage 1 Mining							
Category		Tonnes (Mt)	Grade (g/t Au)	Contained Au (kOz)			
Proven	Oxide	0.47	0.93	14.1			
	Sulphide	6.77	1.27	276.4			
Probable	Oxide	0.55	0.83	14.7			
	Sulphide	12.21	1.22	478.9			
Total in Pit Re	serve	20.0	1.22	784.1			
Mineralised W	/aste Stockpile*	15.6					
Waste		71.9					
Total Waste +	· LG	87.5					
REM		4.14					

<sup>(1)</sup> Block Dimensions 25x25x5 (m); (2) Final slope angle range: 37º to 64º; (3) Mine Recovery 98% - Dilution 0% (4) JORC (2012) definitions followed for Mineral Reserves. (5) Mineral Reserves are inclusive in Mineral Resources (6) Reserves were estimated following the parameters:

Gold price US1,245 /oz, mining costs: US\$ 2.72/t mined, processing costs: US\$ 10.96/t milled and G&A: US\$ 4.20 /oz. Recovery 94%.

\*See explanation in next section 'Mine/Process Schedule and Stockpiles'



The ultimate pit and mine plan for the Stage 1 Borborema DFS were derived following the Whittle optimisation, based on Measured and Indicated Resources only. Reserves are reported using a gold price of \$1,245/oz and summarised in Table 4.

All ore considered in the mine and process schedule is derived from the Measured and Indicated categories of the Mineral Resource. No Inferred category resource is included in the schedule.

# Mine/Process Schedule and Stockpiles

The mine schedule detailed in Table 4 underpins the process schedules for Stage 1 production at Borborema as summarised in Table 5.

The mine production schedule is based on a production rate of 2 Mtpa and all mined material is separated by grade and stockpiled accordingly. Material above a cut-off grade of 0.7 g/t Au are sent directly to the ROM Stockpile while material grading between 0.5 g/t and 0.7 g/t Au is initially stockpiled separately and processed in the following years as mining costs decline.

The mill processes the higher grade preferentially, starting with the ROM Stockpile in Years 1 to 4 and feeding the medium grade material in Years 5 onwards to augment the millfeed and maintain a throughput of 2 Mtpa.

The remaining mineralised waste (Low grade at approximately 0.3g/t Au) material is considered marginal waste and is unlikely to be processed without a significant increase in gold price.

Table 5. Production Schedules for Stage 1									
			MI	NE SCHEDU	ILE		PRO	CESSING SCH	HEDULE
	RC	)M*	Stockp	ile MG**	Mineralised Waste	Waste	Mt	g/t Au	Rec'd
	Mt	g/t Au	Mt	g/t Au	Mt	Mt			gold (oz)
Pre-stripping						2.4			
Year 1	2.0	1.45	1.1	0.63	3.1	11.8	2.0	1.45	83,888
Year 2	2.0	1.41	1.2	0.63	3.2	10.6	2.0	1.41	83,955
Year 3	2.1	1.50	0.9	0.63	2.8	11.6	2.0	1.50	87,822
Year 4	2.0	1.64	0.8	0.62	1.2	12.2	2.0	1.64	96,968
Years 5-7	3.7	1.25			2.1	20.7	6.0	1.03	183,318
Year 8- Final	4.3	1.22			3.0	2.7	6.1	1.07	193,423
Total	16.1	1.37	4.0	0.63	15.5	71.9	20.1	1.22	729,374

<sup>\*</sup>ROM – High Grade >0.7 g/t Au \*\*MG – Medium Grade (0.5<Au<0.7 g/tAu), Mineralised waste – Low Grade ( $^{\sim}$ 0.3 g/t Au)

No stockpiles described in Table 5 pre-exist mining. They are all derived entirely from the mined Mineral Reserve detailed in Table 4. Mining will extract 107.5 Mt material comprising the Mineral Reserve of 20Mt to be processed and the remaining 87.5Mt which will be stockpiled as mineralised waste (Low Grade) and Waste.

# Mining

The mine will be an open pit with contractor operated equipment including excavators with 3.5 m<sup>3</sup> buckets and 45 t trucks. The access roads will be 15 m wide with 10% maximum inclination, meeting safety standards and specifications of the mining fleet. The operational slopes will have 5 m benches in ore and 10 m benches in waste, with a total height of 20 m.



It is anticipated that only 70% of mined material will require blasting.

Operations are based on 24 hour per day, 365 days a year in 8-hour shifts. Where production jobs operate on three shifts there is a panel of four persons per task rotating on shift, on a permanent basis.

Waste rock and low-grade mineralised material will be dumped close to the pits. The sites will be prepared to include drainage at base levels with channels to direct the flow of water ultimately to maximise geotechnical stability and minimise erosion.

## Material storage:

- The ROM (Run of Mine) ore >0.7 g/t Au will be transported by trucks and discharged directly into the ROM receiving hopper at an average feed rate of 330 tph. Oversize will be removed and broken by hydraulic hammer. Three days crusher feed of 18,000 tonnes will be stockpiled for wheel loader recovery and production continuity.
- Medium Grade Ore (0.5g/t Au to 0.7g/t Au) in the first 4 years, will be transported to the allocated NW1 Stockpile close to the plant. From years 5 to 10, this material will be reclaimed to feed the plant.
- Marginal ore with less than 0.5 g/t Au, will be stockpiled in the NW Waste stockpile (Figure 3) which will be reserved specifically for low grade or mineralised waste.
- The waste rock will be transported to the NE Waste stockpile where it will be co-disposed with the filtered tailings generated in the Filtration Plant.

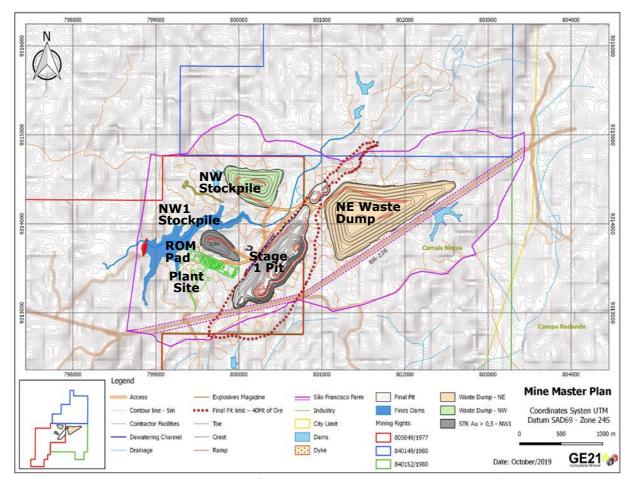


Figure 3. Mine Master Plan showing final Stage 1 pit design, process plant and infrastructure.



# **Process Description**



Figure 4: Planned process plant site overview

The proposed plant design is based on a nominal feed of 2 Mtpa of ore and a plant availability of 90% supported by crushed ore emergency stockpile and stand-by equipment in critical areas. The design includes single stage primary crushing with a SAG & Ball Milling (SAB) circuit to a  $P_{80}$  106 $\mu$ m product before leaching to achieve > 92.5% gold recovery. Refer Figure 7.

The plant design incorporates the following unit process operations:

- Single stage primary crushing to produce a crushed product size of 80% passing (P<sub>80</sub>) of 92mm.
- Transfer conveyor feeding a surge bin with an overflow ore stockpile (48 hours total capacity). Ore reclaim from the bin via apron feeders with emergency reclaim by front end loader.
- Two stage SAG / Ball milling in closed circuit with hydrocyclones to produce a  $P_{80}$  grind size of 106  $\mu m$ .
- A Carbon in leach circuit incorporating six CIL tanks containing carbon for gold adsorption.
- Six tonne capacity split Anglo (AARL) elution circuit, electrowinning and precious metal smelting to recover gold and silver from the loaded carbon to produce doré.
- Thickener unit to recover the cyanide and reduce overall reagent consumption.
- Tailings treatment incorporating cyanide destruction using sodium metabisulphite / air.
- Tailings filtration station to obtain a filter cake which will be transported by conveyor to a tailings stockpile for collection and disposal by truck to the waste dump.



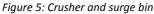




Figure 6: Grinding and classifying



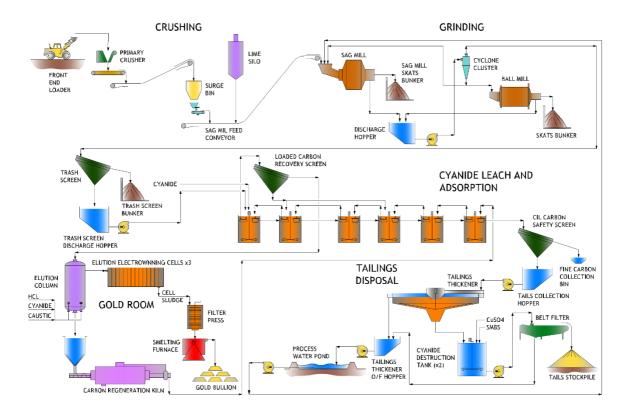


Figure 7. Simplified general process flow diagram

The crushing plant will be able to operate at a design throughput of up to 304 tph at an availability of 90%. Excess ore from the surge bin will be stockpiled and reclaimed from the emergency stockpile (capacity of approximately 12,000 t) via reclaim front end loader (FEL) and emergency stockpile transfer conveyor to the SAG mill feed conveyor.

The (SAB) circuit design has been selected to produce a  $P_{80}$  106  $\mu$ m product with a throughput rate of 254 t/h. The SAG mill will be equipped with a variable speed drive and the ball mill with fixed speed drive. The design allows for a cyclone underflow return line from the mill cyclone cluster to the SAG mill feed to allow the circuit to operate as a single stage SAG mill when the Ball mill is unavailable. The estimated throughput rate in single stage SAG mode is 112 t/h at the 106 $\mu$ m product grind size.

A configuration with six carbon in leach (CIL) tanks was adopted to achieve a gold recovery of >92.5% with consistently low tails grades. The tanks will be identical in size with cyanide added to the CIL tanks as required. The residence time will be 36 hours at 254 t/h solids with 40% w/w density. Air will be sparged to maintain an adequate dissolved oxygen level for leaching in the CIL tanks.

A six-tonne capacity split Anglo Elution circuit has been selected based on the feed grade and the annual ore feed and the gold extraction. The Anglo circuit has been selected as it offers more operational flexibility. Three electrowinning cells will operate with two in duty and one in standby.

Air/ SO2 has been selected as the Cyanide destruction method after tailings slurry is introduced to a thickener where cyanide is recovered into the process water to be reused. With a higher solids percent in the slurry the efficiency in the filtration system was achieved in order to obtain dry tailings to conform with Brazilian regulations.



### **Tailings Disposal**

The tailings dam option has been replaced with a co-disposal system of tailings and waste rock. The tailings will be dewatered at the plant and after detoxification will be filtered and sent to the co-disposal dump sites at NE Waste Dump (Figure 3) along with waste from the open pit.

## *Infrastructure*

Borborema has excellent existing infrastructure and the key features of the Project's layout are its compact nature and easy internal and external access, including the process plant, roads, helipad, plant and mining services areas, mine open pit and mine waste dump. Haulage distances to the waste dumps and ROM pad are centrally located adjacent to the pit. The plant will be built in a location with solid foundation conditions.

The overall site development plan is shown in Figure 3.

- The main access to the mine site is from the BR-226 highway, 130 km from Natal or 26 km from Currais Novos. The road design internal to the project covers 3,314 meters of which 1,927 will be paved.
- Water from Currais Novos wastewater pond will be pumped to the process plant storage tank
  located adjacent to the plant where it will be treated on site for use in the plant. The wastewater
  treatment will be a combination of filtration, chlorination and reverse osmosis. Conventional
  treatment will provide raw water for use in all areas of the process with the exception of the elution
  circuit and WAD cyanide analyser which will receive high-quality water from reverse osmosis
  treatment.
- Power to the Project will be supplied from the grid by tapping into the Currais Novos II substation
  and installing a 30km, 69kV transmission line to the project site. The infrastructure and power supply
  up to the new main sub-station will be provided by power utility COSERN Companhia Energética
  do Rio Grande do Norte. The Company is currently in advanced discussions with the utility and will
  prioritise a formal supply agreement.

# Capital Requirements

The Company plans on utilising a processing plant with industry standard crushing and SAB milling circuits. The Capital Cost Estimate (CCE) for the Project scope was developed to meet the requirements of a Class 2 estimate as defined by the American Association of Cost Engineers' (AACE) Cost Estimation and Classification System (as applied for Mining and Minerals Processing Industries) with an accuracy range of -10% to + 15%.

The CCE reflects the capital to enable the Company to operate at a mining and process plant throughput of 2 Mtpa. The CCE includes all costs associated with project implementation starting with detailed design through commissioning.

The total capital required to implement the Project has been estimated at US\$99.3M including contingency of US\$11.4M. Based on the works scope definition status and the extent of study work completed a weighted contingency of 12.9% was calculated (or 11.4% of total CAPEX).

The CCE for the Project is summarised in Table 6 below. All costs are expressed in US dollars with a base date of November 2019.

mated at US\$99.3M including contingency of US\$11.4M. Based on the works scope definition status and the extent of study work completed a weighted contingency of 12.9% was calculated (or 11.4% of total



CAPEX).
Table 6: Summary of Initial Capex by Area

DESCRIPTION	QΤΥ	SUPPLY (US\$)	INSTALL (US\$)		TOTAL (US\$)	% OF TOTAL
DIRECT FIELD COSTS		37,068,000	27,918,000	% OF TOTAL	64,986,000	63.5%
Earthworks	399,000 m <sup>3</sup>	1,000	7,286,000	100.0%	7,287,000	7.1%
Building and Architectural		1,341,000	1,946,000	59.2%	3,287,000	3.2%
Civil and Concrete	3,900 m <sup>3</sup>	62,000	2,615,000	97.7%	2,676,000	2.6%
Structural Steelwork	1,100 t	3,418,000	2,807,000	45.1%	6,225,000	6.1%
Mechanical / Platework		24,762,000	5,043,000	16.9%	29,804,000	29.1%
Piping and Valves	7,000 m	4,095,000	1,863,000	31.3%	5,959,000	5.8%
Electrical, Controls and Instrumentation	29,000 m	3,390,000	6,358,000	65.2%	9,748,000	9.5%
INDIRECT / OTHER FIELD COSTS	OF DISCIPLINE	6,140,000	7,208,000		13,348,000	13.4%
Preliminaries						
Earthworks	6.0%	-	437,000		437,000	0.4%
Building and Architectural	6.0%	80,000	117,000		197,000	0.2%
Civil and Concrete	6.0%	4,000	157,000		161,000	0.2%
Structural Steelwork	6.0%	205,000	168,000		373,000	0.4%
Mechanical / Platework	6.0%	1,486,000	303,000		1,788,000	1.8%
Piping and Valves	6.0%	246,000	112,000		358,000	0.4%
Electrical, Controls & Instrumentation	6.0%	203,000	381,000		585,000	0.6%
ISSQN		498,000	1,461,000		1,960,000	2.0%
Transport / Delivery to Site		-	2,957,000		2,957,000	3.0%
Vendor Support		-	884,000		884,000	0.9%
Mobile Equipment		646,000	-		646,000	0.6%
Mobilisation and Demobilisation		954,000	231,000		1,184,000	1.2%
Spares	3.4%	951,000			951,000	1.0%
First Fills	3.5%	867,000	-		867,000	0.9%
HOME OFFICE COSTS			9,636,000		9,636,000	9.4%
EPCM Labour and Expenses			4,964,000		4,964,000	5.0%
Owners' Team Labour and Expenses			3,171,000		3,171,000	3.2%
External Consultants and Peer Review			150,000		150,000	0.2%
Insurances			1,350,000		1,350,000	1.4%
	TC	OTAL CAPEX (EXC	UDING CONTIL	NGENCY)	87,970,000	88.6%
CONTINGENCY					11,361,000	11.4%
			TOTA	AL CAPEX	99,331,000	100.0%



# **Operating Costs**

The operating cost estimate (OPEX) was developed as a "bottom-up" estimate over a 10 year mine life to obtain average operating costs. The methodology adopted allows for an accuracy of +/- 10 to 15%.

The total operational expenditure for the project is estimated to be US\$642 per ounce produced or US\$23.36 per treated tonne.

## Methodology

Cost estimates were provided for each activity and were benchmarked against the following:

- First principle estimates;
- Suppliers' budget quotations; and
- Consultant data derived from similar external projects.

The OPEX was generated utilising the information from the mass balance, direct process engineering input for reagent usage, mining operating costs and the equipment maintenance aligned with the equipment provided for in the capital estimate.

#### Cost areas

The major cost areas contributing to the overall OPEX is presented in Table 6 which shows Mining cost as the greatest cost contributor at 45% with HV power costs second at 17%.

Reagent costs are expected to be significantly lower than other operations based on testwork. The average consumption is 0.24 kg/t for cyanide and 0.46 kg/t for lime, which is in line with the consumption on master composite sample.

#### Manning

The Company will have a staff complement of 128 full time employees across General Administration, Management, Mining, Processing, Engineering and Stores management with an additional 247 contractors.

Table 7: OPEX by Cost Centre

Cost Centre	%	Cost (US\$M)/a	US\$/oz Au	US\$/t ore
Mining	45%	20.8	288	10.47
Labour Estimate	6%	2.7	37	1.36
Water	2%	1.0	14	0.52
Power - Excluding Fuel Cost	17%	7.8	107	3.90
Diesel	1%	0.2	3	0.12
Natural Gas	1%	0.6	8	0.28
Maintenance	5%	2.5	34	1.24
Reagents and Consumables	10%	4.5	63	2.28
Equipment Hire	2%	1.1	15	0.56
Transport	3%	1.3	18	0.64
Contract/General Expenses	9%	4.0	55	1.99
Total	100%	46.5	642	23.36



# Cash Flow Analysis

#### Cash flow model

A cash flow model was developed by Wave International Ltd to conduct discounted cash flow analysis of the Project. The base case model is based on a gold price of US\$1,400/oz, an 8% discount rate and an exchange rate of USD:BRL of 0.24.

The model includes a comprehensive tax treatment, incorporating all taxes and duties applicable to capex and opex and to revenues. The standard Brazilian corporate tax rate is 34%, comprising 25% income tax and 9% CSLL (social tax). A tax concession is currently in place for projects in the north-east of Brazil, reducing the 25% income tax component to 6.25% (i.e., a total of 15.25%) and has been applied. This benefit has been routinely extended for periods of 10 or 5 years since its introduction in 1973. In addition, a series of tax concessions negotiated with the Rio Grande do Norte state government have been included in the capex and opex estimates.

The base case after-tax NPV is US\$203m with an IRR of 41.8% and an undiscounted payback period of 2.4 years from first production. The project generates life of mine EBITDA of US\$527m and an after-tax free cash flow of US\$328m.

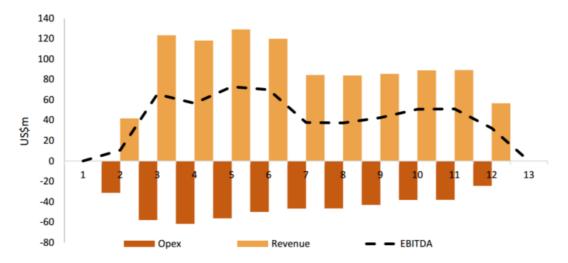


Figure 8: Life of Mine EBITDA

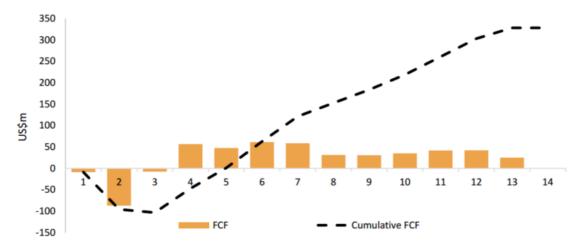


Figure 9: Life of Mine Cumulative Cashflow



#### US Dollar Gold Price Sensitivities

The DFS has been evaluated at a gold price of U\$\$1,400 per ounce. The average U\$\$ gold price per gold ounce for the period from January 2015 to current day was U\$\$1,265 per ounce. During the period, the U\$ dollar gold price has been in steady uptrend from a low of U\$\$1,270 in April 2019 to its current price of U\$\$1,465 per ounce.

#### Currency Exchange Rates

The DFS has been evaluated using a number of currencies, namely Brazilian Real (BRL), US Dollars (USD) and Australian Dollars ((AUD), in which the goods or services are supplied and converted to a standardised USD figure using USD:BRL = 0.2400 and AUD:USD = 0.6800. Approximately 65% of the operating costs and 67% of the initial capital costs are priced in BRL. The BRL:USD exchange rate has averaged 0.2648 over the last 2 years and the consensus of financial institutions compiled by Bloomberg (18 November 2019) suggests a downward trend will continue.

# Commercial opportunities

Minor silver is present in the ore but has been not accurately quantified during the resource estimation. Additional investigation of the leach kinetics may see a small but significant contribution to the revenue line.

Testwork to investigate the potential for producing commercial quality mica products is ongoing. This has the potential to provide significant cashflows for a small cost and little additional processing. Quality of the product and marketing will be key to unlocking this potential.

# Sensitivity Analysis

Sensitivity analysis has been conducted on the key financial drivers of the project. These and their respective impact on the project in terms of NPV are shown in Figures 10 to 11.

The variables that have the greatest impact on the NPV of the Project are Ore Grade, factors affecting Gold Price and Recovery. The major sensitivities are revenue affecting, indicating the risk to the Project economics is most levered to the gold price or quantity of gold sold.

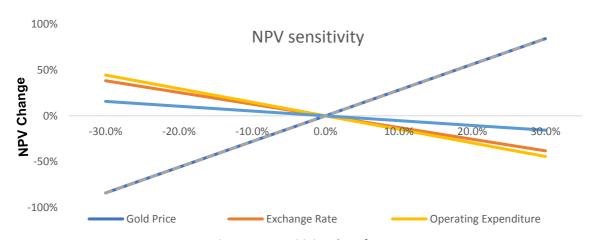


Figure 10: Sensitivity Chart for NPV



Sensitivities have been run on variations in pre-operational capex, operating costs and gross revenue (gold price or recovered grade). Results are summarised in Figure 11. The project shows relatively low sensitivity to capex variations, a modest sensitivity to opex and a high sensitivity to gold price (or grade).

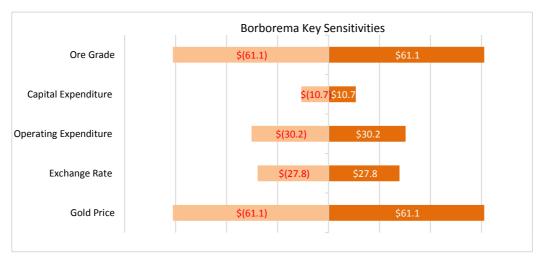


Figure 11: Summary of Sensitivity Analysis – Effect on the NPV (8%) of a 10% change in key parameters

The effect of changing the gold price on key parameters of the financial model are summarised in Table 8.

Table 8. Sensitivity of Key Parameters to changing gold price								
Parameter affected US\$1300 US\$1350 US\$1400 US\$1450 US\$1500								
NPV (8%, post-tax), US\$	162M	183M	203M	224M	244M			
IRR (post-tax)	36.0%	38.9%	41.8%	44.6%	47.3%			
Payback (from start production)	2.8 yrs	2.6 yrs	2.4 yrs	2.3 yrs	2.1 yrs			
Ave EBITDA (Full years), US\$	46.7M	50.3M	53.83M	57.4M	61.0M			

# **Environment & Environmental Impact**

Following submission of a study by Ausenco do Brazil Engenharia Ltda (Ausenco) of the Project's processing plant design in 2018, the following two licences were granted:

- 1. The Environmental License (Licença Prévia LP) in April 2017 and updated 30 July 2018;
- 2. The Installation License (LI) or Installation Permit approved one year later in April 2019 by the Rio Grande do Norte State Government Environmental Department (IDEMA).

## **Environmental Licensing**

The environmental licensing procedure is initiated with the relevant environmental agency which sets out required projects and studies for coordination via an environmental agency subordinated to SISNAMA. The Company must engage and participate with the public through open hearings. The environmental licensing steps are a basic framework to be followed by the owner, making it possible to control and inspect the proposed economic activity throughout the licensing procedure for each type of licence.



Procedures for obtaining Environmental Licences for projects involving exploitation of minerals are outlined in two resolutions of CONAMA (the National Environment Council). CONAMA resolution number 09/90 deals with environmental licensing of areas under the Concession and Authorization Regime through DNPM. In turn, the Licensing Regime is dealt with in CONAMA Resolution number 10/90.

CONAMA Resolution number 237/1997 has involved three (3) types of environmental licence: Preliminary, Installation and Operational. The Project has already been granted one of the environmental licences which is the Installation Licence (LI), granted in April 2019. This replaces the previous Preliminary licence (LP) obtained in 2017. In the case of mineral exploitation, these licences are applied for through IDEMA.

Additional requirements that were met for the Preliminary licence included:

- A request for authorization for vegetation suppression (where IDEMA is also the competent environmental agency);
- A water use approval obtained from SEMARH; and
- An authorizing decree for archaeological diagnosis from IPHAN. If required, an authorizing decree for archaeological exploration from the same government department may be requested.

## (i) Preliminary (Previous) Licence (LP)

During the preliminary licensing process, several factors will be analysed in order to define the feasibility, or not, of the project in question. It is during this phase that:

- A survey is made of the probable environmental and social impacts of the project;
- Extent and "footprint" of such impacts are evaluated;
- Measures are formulated to eliminate or reduce these impacts;
- Comments from competent environmental agencies are received;
- Comments from various entities and agencies from the project are received;
- The environmental impacts with respective mitigating and compensating measures are discussed with the community; and
- A decision related to environmental feasibility is made taking into consideration the location and likely impacts of the environmental and social mitigating measures.

The effective term of the preliminary licence will be at least equal to the timetable required for development of the plans, programmes and design of the project or activity and cannot be longer than five years. After the preliminary licence is obtained, work can begin on detailing the construction design including environmental control measures required. It is not advisable to develop the basic design prior to issue of the preliminary licence. Furthermore, an application for this licence does not give the owner any assurance that it will be granted. It is also possible that the project may have to undergo changes in aspects such as location and technical solutions. Therefore, it is recommended that this second phase be developed after the preliminary licence is granted to assure environmental feasibility of the project in terms of location and project concept.

#### (ii) Installation Licence (LI)

The environmental agency granted the Installation Licence that verifies the project is compatible with the affected environment. This licence validates the proposed strategy for handling environmental issues during the construction phase.

Now that the Installation Licence has been granted for the Project, the environmental agency will have:

- Authorized the owner to start work;
- Agreed with the specifications in the environmental plans, programs and projects, their details and respective implementation schedules;
- Verified compliance with all conditions established in the preliminary licence;
- Established environmental control measures to ensure the implementation phase will conform to environmental quality standards established by regulations or laws;



Established installation licence conditions (mitigating and/or compensatory measures).
 The effective term of the installation licence will be at least equal to that established by the timetable for installation of the project or activity for a period no longer than six (6) years.

#### (iii) Operating Licence (LO)

The operating licence authorizes a party to start its activities. Its purpose is to approve the how the project proposes to integrate with the environment and establish conditions for operational continuity.

The operating licence (LO) is not open-ended and does not have a definitive nature. Therefore, the owner must renew it periodically and comply with any new conditions. Its validity term should consider the environmental control plans; at least four (4) and at the most ten (10) years as established by the environmental agency with a maximum of six (6) years in Rio Grande do Norte.

LO renewal will be requested by the owner at least 120 days prior to its expiration date. Renewal request will be published in the official newspaper of the state where the project is located and in a regional or local newspaper with broad circulation. If the environmental agency fails to complete its review within this period, the licence will be automatically renewed until a definitive decision is given.

In conformity with the environmental law in force (Law 6.938/81), the licensing activity is generally the responsibility of the state whereas IBAMA (a federal agency) has a complementary participation in the event of absence or omission on the part of the state agency. The federal agency does not have the duty to review the environmental licence granted by the states.

By legal provision, IBAMA also has the original competence for licensing. This agency is responsible for licensing activities wherever there is significant environmental impact at the national level or when the project affects two or more states of the Federation.

In the event of dam construction or intervention affecting a federal highway section, such activities will be subject to other environmental licensing procedures which must be registered with IDEMA and will involve other agencies such as SEMARH, DER and DNIT.

#### **Environmental Impact and Management**

The major studies incorporated by the Environmental Impact Study (EIA) and Environmental Impact Report (RIMA) undertaken for the Project included the following:

- Physical environment assessment;
- Terrestrial fauna and flora inventory survey;
- Physical-chemical and bacteriological analyses of water;
- Aquatic fauna and flora inventory survey and assessment;
- Socioeconomic assessment;
- Analysis of environmental impacts, impact mitigation measures and environmental control programs;
   and
- Archaeological inventory survey.

The studies address the following three main areas:

- The Area of Indirect Influence (AII), defined as the area in which there is a probability of direct or indirect impacts occurring, potentially linking the environmental characteristics of this area with the operation;
- The Area of Direct Influence (AID), defined as the area immediately adjacent to the mining project such as adjacent farms and peripheral urban areas., The limits of the AID are determined by the extent of the direct effect of the project over the quality of the environment beyond the immediate area of the project; and



The Directly Affected Area (ADA) comprising the area occupied by the project installation in all its various phases including the mine, processing plant, support services, waste piles, effluent treatment system and other associated infrastructure.

#### Flora and Fauna

Of the flora identified, only the species *Myracrodruon urundeuva* and *Amburana cearensis* are on the list of endangered species. The majority of the animal species observed in the EIA study area are reptiles and birds, none of which are currently endangered.

The results of the aquatic flora and fauna analyses suggest that water environments within the EIA study area are already under stressing environmental conditions which can be explained by the anthropic influence and by the fact that some of the dams and other water bodies are under water stress due to the drought currently being experienced.

#### Socioeconomic

From a broader perspective the local socio-economic development and historical mining culture already existing at Currais Novos are positive factors for the development of the project. This situation makes the Project a viable alternative for growth and income generation in the Project area. This has been the experience of other companies who previously worked on the project and others that are still active in the region such as Mineração Tomaz Salustino (MTS), Largo Minerals and Brazil Tungsten.

Today's work by Mineração Tomaz Salustino on its theme park and museum at "Mina Brejuí" is a reference point for local development and community relations. Any development undertaken by the Company should receive similar acceptance to those of MTS since the community already has a basis for reference.

Despite not having any direct impact on neighbouring communities, there may be some who will expect some kind of commercial benefit. At the community of Maxixe for instance, the Company already employed several local residents. Other communities to be considered will be Povoado da Cruz, Santo André, São Luiz, São Sebastião, São Rafael and Liberdade.

#### **Evaluation of Environmental Impacts**

The potential environmental impacts related to the various phases of the project have been evaluated through the use of a correlated quality-quantitative matrix, rating the relative potential of the impact, its nature and the mitigating measures to be taken at each phase of the operation (implementation, operation and de-commissioning).

Due to the project's size, operational characteristics and impact area, the evaluation of adverse impacts over the physical, biological and social environments indicates low levels of impact and a low degree of importance.

## Mitigating Measures and Environmental Management

Environmental management systems will be established for the treatment of industrial effluents, sanitary waste and used oils and impoundment of tailings, controlled disposal of waste, minimisation of the effects of noise and dust on the surrounding areas, preservation of areas of ecological relevance and rehabilitation of degraded areas. Environmental management will follow internationally recognised Equator Principles, demonstrating social responsibility and democratic dialogue with the community.

Sanitary waste generated in all administration and operational areas will be treated in independent systems. Mine drainage water will be pumped to the Onça dam and re-used in the overall water demand.

Residual cyanide in the plant tailings will be detoxified, tailings dewatered to a dry cake and co-disposed with waste rock from mining operations.



To avoid the consequences of erosion, stable geometries will be established where the original morphology has been modified. Correctly designed drainage systems will be installed to control surface water run-off and erosion in order to preserve slope stability in the pit areas, waste dumps, operational areas and accesses.

Dust from internal roads will be controlled by the use of water trucks and dust-binding chemicals. Dust in the crushing area will be controlled by the use of fine water sprays.

Mine closure, comprising rehabilitation of all degraded areas, will involve dismantling of all physical structures, spreading of stockpiled topsoil on impacted areas, including waste dumps and planting of native flora grown in an on-site nursery. Wherever possible, rehabilitation will take place progressively during operations.

## Archaeology

As part of the environmental risk analysis and report (EIA / RIMA) of the Project, it was necessary to perform an archaeological study over the EIA study area. The scope of this study was defined by the Institute of Historic Patrimony and National Art (IPHAN) of Brazil and was carried out by the consultants Arqueologia Brasileira Consultoria Ltda. The study was submitted to IPHAN and subsequently approved.

The findings of the archaeological studies will not impede the progress of the Project. However, during the implementation phase, ongoing work will be required as defined by IPHAN such as monitoring and monthly reporting to IPHAN and the collection and registry with IPHAN of items and objects of significance from within the ADA of the project.

## Acid Rock Drainage

Global Resource Engineering Ltd. (GRE) was contracted by the Company to perform a geochemical waste characterisation programme assessing acid rock drainage (ARD) for the Project.

The initial investigation revealed that some material in the onsite waste rock dumps from historic mining activities has the potential to generate acid rock drainage. The second phase of investigations was designed to determine if the Project waste rock presents a geochemical risk to the project from either acid rock drainage or alkaline rock drainage. Subsequent static and kinetic geochemical testing however revealed that Borborema waste is geochemically inert for the following reasons:

- Most samples have low acid generating potential (AP);
- All samples contain some neutralizing potential (NP) with most of the samples containing significant
   NP;
- Those few samples with the potential to generate acid had slow acid generating kinetics (acid production over time);
- No samples demonstrated alkaline rock drainage behaviour.

# Social & Community

The Currais Novos region has a strong mining tradition based largely on the tungsten mining industry which reached its peak in the 1970's. By the late 1990s, the majority of the mines had either closed or were operating on a semi-artisanal basis although there is currently a move to re-open a number of the old mines. Historical gold mining at an industrial scale is limited to Borborema (formerly São Francisco).

Borborema is located in the municipality of Currais Novos, 30km east of the town of Currais Novos and 12km west of the township of Campo Redondo. A number of small villages are located within a radius of 10km of the project of which the closest is Maxixe, ~4km to the east. None of these settlements will be directly impacted by the project, except as sources of labour. The company already employs a number of field workers from surrounding villages.



Big River owns the freehold land for the area considered by the mine, plant and infrastructure within the DFS. The main Environmental and Installation Permits have also been granted by the relevant Government authorities which will allow construction of the project to commence subject to financing.

There is little or no competing land use in the region, with low density cattle and goat farming as the only other commercial activities. The immediate project area is not populated and there are no indigenous tribes in the area.

A traditional community descendant from 19th century escaped slaves known as a quilombola is located approximately 10km to the west of the project area and outside the area of direct impact of the mine.

Following a detailed analysis of the project's stakeholders, including federal, state and municipal bodies and agencies, other mining companies and business enterprises, property owners, educational institutions, religious bodies and society leaders, the company has maintained an active communication and education programme to ensure that stakeholders are fully informed of the company's objectives and strategy. This programme uses the town's broad range of communication outlets including a number of radio stations, local television channels and two newspapers, and is designed to carefully manage community expectations regarding the offer of jobs and other benefits.

Due to the region's mining heritage and a relatively high unemployment level, the Company's presence in the region is openly welcomed, resulting in a low overall social risk. The scarcity of water is a major issue in the region, and the company's plans to pump water to Borborema will need to take into account likely demand to share water resources with surrounding communities.

The level of educational and social development in Currais Novos is considerably above that of other towns in the region, partly as a result of its mining heritage. There is a total of 49 schools in the municipality, a technical college and two universities, including a campus of the UFRN, the Federal University of Rio Grande do Norte, which offers courses in administration, social studies, arts, teaching and tourism.

The Company is actively pursuing opportunities to develop social programmes and establish partnerships with local educational institutions. Emphasis will be placed on educational partnerships of potential mutual benefit to the community and the company, assisting the latter in meeting its requirements for semi-skilled and skilled labour.



## Construction Schedule

The timeline in the DFS assumes commencement of construction upon securing project financing although some aspects may commence prior. The DFS provides for a construction period of 23 months due to several long lead items. BRV considers this to be a conservative estimate and Wave has identified several opportunities and strategies which may reasonably be expected to reduce the cost and construction time.

## Opportunities to improve costs and construction schedule

The DFS provides a conservative and robust plan to bring the gold project into production. Big River believes there are several areas in which opportunities to improve the project economics in terms of both construction time and capital and operating costs should be considered. These include but are not limited to:

- Changing the nature of inclusion of key sections such as the crushing circuit employing contractor
  or BOOT style contracts to reduce capital expenditure and development timeline by several
  months.
- Direct employment of Project Directors as part of the implementation process;
- Continued testwork to investigate using a ceramic disk filter rather than the standard belt filters to improve operating efficiencies and costs.
- Commence certain pre-production tasks prior to project financing using available funds to accelerate timeline.