

MINING PLAN

1.Name of The Project:

IPARAMASA MINING PROJECT

1.2Consultant Name:

1.3Date:

06/05/2024

1.4Address:

IPARAMAS CHATO GEITA TANZANIA

2.EXECUTIVE SUMMARY

The purpose of this project is to mine underground mineral deposits in compliance with Tanzania's existing laws and regulations to obtain usable mineral resources, meet human society's needs for various raw materials, and also bring economic benefits, including employment opportunities, tax revenue, and minerals. Revenue from resource sales. In addition, this mining project requires the use of advanced mining technology and equipment, which promotes the development of local mining technology in Tanzania. The goal of this project is to become a CHATO benchmark project and to operate normally after the completion of a CIP concentrator with a daily output of 300 tons.

On December 14, 2023, The license owener of PML0298GTA Titus Charles Kabuo signed a technical support agreement with SHENG LONG MINING (T) COMPANY LIMITED, and SHENG LONG MINING (T) COMPANY LIMITED will develop the mineral resources in PML0298.

This project is located in Iparamasa Chato Geita, PML NO.0298GTA, According to reliable calculations, the cut-off grade of this project is 0.85g/t. The resource reserves are estimated to be 200,000 cubic meters of ore, containing approximately 67,200 ounces of gold. Calculated based on resource reserves, production rate, mining technology and cost, as well as market demand and price, the LoM is 10.95 years.

The mining method of this project adopts shaft mining, and the equipment used includes: winches, mine cars, tracks, air blowers, air compressors, drilling rigs, cages, water pumps, concrete mixers, vibrators and other equipment to ensure normal work and production. Basic processing equipment includes: jaw crusher, conveyor belt, feeder, silo, ball mill, spiral classifier, cyclone, thickener, Roots blower, leaching tank, reducer and other equipment required to ensure normal production work.

The production target of this project is that one shaft can mine no less than 100 tons per day and process no less than 200 tons per day. This means that we will need to add new shafts in the future.

According to the actual conditions on site, waste rock is generated in three situations. First of all, it is calculated that the amount of waste rock generated during the shaft construction phase is approximately 500 cubic meters. The second stage is to search for ore veins in the tunnel. Depending on underground conditions, the amount of waste rock generated will not exceed

1,000 cubic meters. The third is the tailings waste generated after normal production and processing. Tailings waste will be uniformly discharged to the tailings pond and water quality will be monitored. Waste rock generated from production will be used for on-site road hardening, site leveling and filling of old shafts.

The safety and environment plan for this project mainly includes the following aspects:

1. Risk assessment and management: Assess potential safety risks within the mine and develop corresponding management measures to reduce these risks. This may involve regular inspections and maintenance of the work environment, equipment, operating procedures, etc.

2. Training and education: Provide necessary training and education to employees so that they understand safety regulations and procedures and know how to respond to emergencies.

3. Emergency response plan: Develop an emergency response plan in the event of an emergency, including escape routes, first aid measures and hazardous materials handling methods in the event of fires, accidents and natural disasters.

4. Safety equipment and protective measures: Provide appropriate safety equipment and personal protective equipment, such as helmets, safety shoes, goggles, etc., to ensure employee safety at work.

5. Monitoring and reporting: Establish a monitoring system to regularly check the effectiveness of safety measures and promptly report any safety issues or incidents.

6. Compliance and regulatory compliance: Ensure that mine operations comply with Tanzania's safety regulations and standards, as well as relevant environmental regulations and standards.

By formulating and executing safety and environment plans, mine management teams can maximize the safety of employees and the environment, reduce the possibility of accidents, and improve production efficiency and sustainable development capabilities.

Mine water management systems are systems used to manage water resources inside and outside mines. This system includes a variety of facilities and measures designed to ensure the rational use of water resources, pollution prevention and environmental protection. The following are the main components of the mine water management system of this project:

1. Water resources survey and monitoring: Survey and monitor water resources around the mine, including groundwater, surface water, precipitation, etc., to understand the distribution,

quality and changing trends of water resources.

2. Water resources utilization planning: Develop a reasonable water resources utilization plan, including water collection, utilization and discharge plans, to ensure the reasonable utilization and protection of water resources inside and outside the mine.

3. Drainage system: Set up a drainage system, including drainage ditches, pumping stations, pipelines and other facilities, to drain groundwater and surface water in the mine to maintain dryness and safety in the mining operation area.

4. Water quality control: Take measures to prevent or reduce the pollution of water quality by mine emissions, including the use of sewage treatment facilities, bioremediation, vegetation coverage and other technical means.

5. Rainwater management: Develop a rainwater management plan, including collecting, storing and utilizing rainwater, to reduce the impact of rainwater on the mining operation area and the surrounding environment.

7. Environmental monitoring and reporting: Establish an environmental monitoring system to regularly monitor water quality, water volume and flow dynamics, and report monitoring results in a timely manner to ensure the compliance and effectiveness of mine water management.

By establishing a complete water management system, mines can effectively manage water resources, reduce their impact on the environment, and ensure the sustainability and social responsibility of production activities.

This chapter entails the cost benefit analysis which is based on the feasibility study that was conducted by Boroboro International Consulting Limited, of Dar es Salaam in March 2024. Principal objectives of this cost-benefit analysis are to: determine if it is a sound investment/decision (justification/feasibility); and provide a basis for comparing project alternatives. It involves comparing the total expected cost of each option against the total expected benefits, to see whether the benefits outweigh the costs, and by how much cost benefit analysis is to inform the project proponent and decision makers (Government). For this project the const components will include:

1. Investment Capital;
2. Operation and maintenance costs that included: Staff salaries, remunerations, transport, raw materials, chemicals, OHSE and CSR; and

3. Ongoing exploration

Operating cost estimates include all costs of purchasing mining, processing equipment project consumables, labor and other supplies. The annual consumption of these consumables is estimated based on Geita's existing commodity prices and the surrounding environment. For those goods that cannot be purchased from Tanzania, we add corresponding tariffs and transportation costs based on the price in China. In most cases, the cost estimates were based on professional judgment and experience with Iparamasa's existing gold mining operations. The table below summarizes operating cost estimates.

SN	Description of the Cost Code	Amount (USD)
1	Mine Supplies	215,680
2	Processing Plant Supplies & Consumables	336,548
3	Direct Mine labor Cost	165,896
4	Other Support Services Cost	75,936
5	Administration and Financial Costs	111,258
6	Overhead Expenses	66,354
7	Environmental Management Costs	286,885
8	Costs related to Corporate Social Responsibility	100,000
	TOTAL	1,358,557

Capital and development cost estimates is provided in Table

SN	Description of the Cost Code	Amount (USD)
1	Administration Office & Change House building	50,000
2	Warehouse	50,000
3	Engineering & Workshop building	70,000
4	Workers canteen & Kitchen	50,000
5	Fuel storage tanks & pumps	20,000
6	Electric power extension and transformer	100,000
7	Processing plant foundations and facilities	500,000
8	Mining and haulage equipments Equipments	300,000
9	Water supply system, including drilling boreholes	100,000
10	Access road construction	150,000
11	Tailings Dam construction & water circulation system	300,000
12	Explosives storage building	100,000
13	Working Capital	200,000
	TOTAL	1,990,000

Revenue estimates for gold to be mined is very much dependent on the quality of the gold that has been mines,

In reference to samples collected by a nearby hills belonging to geological data, it was found that in a material sampled, the following was obtained:

Material Source	A	B	C
Recovery gold	71%	75%	79%
Proportion of material in each grade	1.6g/t	2.6g/t	4.2g/t

The project shows an average recovery of 75% which can be considered for this study

Production of Ore per year = $100\text{t/d} \times 240 \text{ days/yr} = 24,000 \text{ tonnes/yr}$

As indicated in table above, an average estimate of 2.8g/t is taken for this study as the average grade.

This then will result into a resource of approximately $80\% \times 2.8 = 2.24$ ounces

Over the entire 10 years of the mine life.

Considering a recovery of 80%, the gold expected to be produced per year will be $80\% \times$

$100\text{t/d} \times 2.8 \times 240\text{d/yr} = 67,200\text{ounces}$

Total Sales per Annum based on the current price of Gold (USD 2250/ounce) = USD

151,200,000

Quality control is a critical process to ensure that the useful minerals and metals extracted from ores meet the required quality standards. The following are the quality control methods and steps planned for this project:

1. Ore sampling: Collect samples from ore piles or mines to representatively reflect the properties and composition of the entire ore body.
2. Laboratory analysis: Laboratory analysis is performed on the collected ore samples, including chemical composition analysis, physical property testing, etc., to determine important parameters such as the grade, gold content, and particle size distribution of the ore.
3. Mineral processing test: Carry out mineral processing test, and determine the best mineral processing process and parameters through mineral processing process simulation experiment to improve the extraction rate and recovery rate of metal.
4. Process monitoring: During the ore processing process, key links are monitored and controlled in real time, including ore crushing, grinding, flotation and other processes to ensure stable product quality.
5. Product testing: Conduct quality testing on processed products, including testing of metal grade, impurity content, particle size distribution and other indicators to ensure that the products meet the specified quality standards.

6. Quality management system: Establish a complete quality management system, including quality control standards, procedural documents, records and reports, to ensure that quality control work is standardized and continuously improved.

7. Personnel training: Provide training on quality control and operating procedures for personnel engaged in ore mining and processing to improve employees' quality awareness and operating skills.

Through the above quality control methods and steps, the quality during ore mining and processing can be effectively controlled, thereby ensuring that the product quality is stable, in compliance with the prescribed standards, and the value of the ore resources is maximized.

Reclamation: This project plans to repair and restore the area after the mining is completed. This includes activities such as cleaning and processing waste left behind by mining activities, filling areas, restoring terrain, restoring vegetation, restoring water bodies, and repairing soil erosion caused by mining. Reclamation aims to restore mining areas to their original or better ecological environment to reduce the impact on the surrounding environment and protect the health of the local ecosystem.

Mine Closure Plan: This project will plan and manage the processes and measures after mine closure. This includes determining closure schedules, developing resource recovery plans, treating equipment and infrastructure, cleaning up legacy environmental issues, monitoring and maintaining closed pit areas, and more. The mine closure plan aims to ensure the safety, stability and sustainability of the mine after closure and to minimize negative impacts on the environment and society.

3. INTRODUCTION

3.1 Location and Accessibility

The project is located in Iparamasa, Chato District, Geita Province, Tanzania, PML0298, and the mining license holder is Titus Charles Kabuo. The geographical location map is as follows



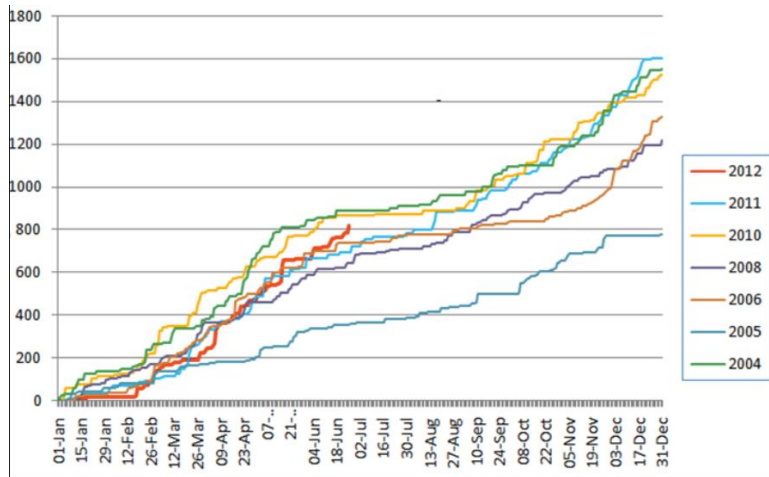
The area has good natural resources. Before this project was completed, there were local mines in the area, which produced good profits. Transportation is convenient, with two major roads leading to the nearest highway. The infrastructure is complete, and power supply, water resources, and communication networks all meet the requirements. There are many natural villages nearby, and the labor supply is guaranteed.

3.2 Topography and Climate

3.2.1 Rainfall

Information collected by the metering station located in the Chato region shows that there are two distinct rainy seasons, namely "long rains" from March to May and "short rains" from November to May.

The average rainfall in 2011 was 109 mm. The wettest months are April (179.7 mm) and May (161.6 mm). The driest month is July (37.0 mm). The average annual rainfall in these two places is: 1461 mm in katoro and 830 mm in Iparamasa. April is the wettest month of the year in both places. Image showing average monthly rainfall records for the Geita region from 2004 to June 2012.



3.2.2 Temperature

The proposed project area is located within 1.5 degrees south of the equator; hence the temperature remains relatively constant throughout the year. According to Chato District Council average monthly temperature range is 18°C recorded during May- June to 32.2°C during November – January. However information used to calculate average monthly data for the period may be a misrepresentation of average conditions as the averages were calculated using a very limited number of values whereas in some cases (n=2 to n=4 for each month).

3.2.3 Evaporation

Average monthly total evaporation values measured at Iparamasa between January 2005 and December 2008 ranged from 163mm in June to 198mm in January. The evaporation value for individual months was lowest in November 2006 (138mm) and highest in January 2006 (243mm). Average monthly evaporation exceeded the rainfall during this period. This difference was greatest in August (147mm) and the least in December (11mm).

3.2.4 Wind

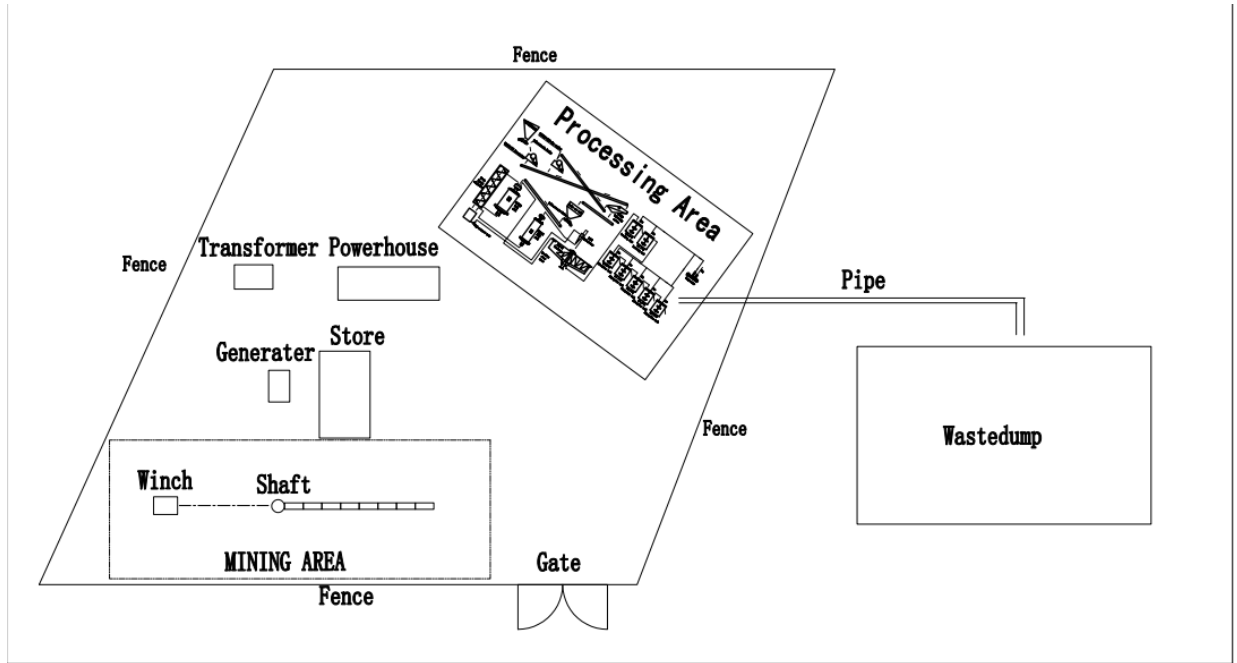
Wind speed is low in the study area. Wind speed data were collected in the area near the project site between June 2005 and August 2009. The average monthly wind speed during this period ranges from 22.3 km/h (June) to 30.1 km/h (March). Southerly is the daily dominant wind direction in all months. Average monthly wind direction ranges from 163 degrees in December to 185.4 degrees in July.

3.2.5 Topography

Plateau and mountains: The Geita region is located in part of the East African Plateau. The terrain is mostly undulating mountains and plateaus with relatively high altitudes.

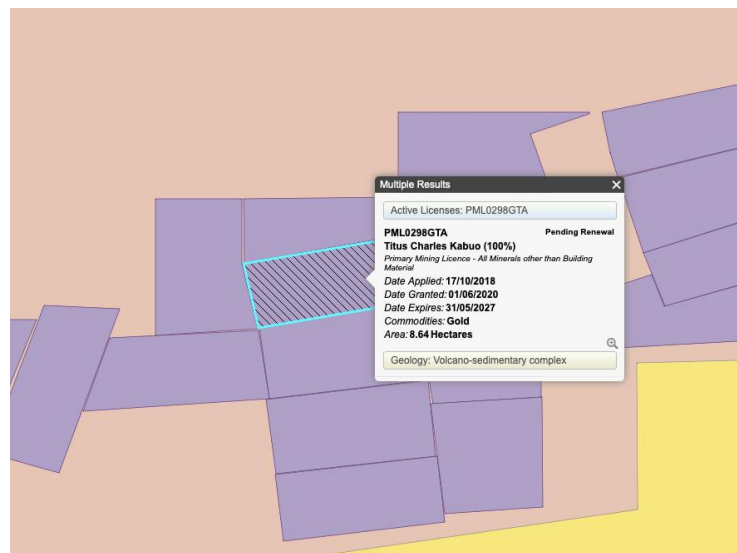
Lakes and Rivers: Lake Victoria is the most prominent body of water in the Geita region, and its influence contributes to the region's relatively humid climate.

3.3 Mine Layout



3.4 Mineral Tenure and Surface Rights

The mining license owner of this project is Titus Charlels Kanuo, and the surface land owner is Titus Charlels Kanuo.



4.GEOLOGY AND RESOURCE

4.1 Regional and local Geology

The Geita greenstone belt has been the most productive in Tanzania with a nearly continuous history of activity from 1932 to the present. The overall geology of the Geita District comprises E–W trending greenstone belts, and variably distributed late-kinematic felsic granites, bounded by WNW–ESE trending migmatitic-granitoid gneiss domains to the north and south.

The gold-enriched Geita District is underlain by extensive greenstone rocks of diverse lithologic types, rheology and chemical reactivity, and a high density of linear, E–W and NW–SE trending felsic granitoids. The bounding gneisses and granitoids are cut by strong, NW–SE trending, sinistral strike-slip shear zones bounding ENE–WSW trending curvilinear thrust faults and associated shear-foliated quartz veins, and N–S trending extensional quartz veins, consistent with the deformation history.

A substantial portion of the project area is under a thick lateritic and saprolitic weathered horizon up to 50 m in vertical depth. Little outcrop is present on the property limiting the amount of local bedrock mapping to artisanal pits (where deep enough). Based on the drilling results and mapping done in artisanal pits, the felsic and mafic volcanic units of the Lower Nyanzian stratigraphy constitute the lithologies of the license area. Quartz veins crosscut the lithologies and are generally mineralised in gold within shear zones that have developed on lithological contacts. Mineralisation is pronounced when veins are associated with sulphide minerals (i.e. FeS₂).

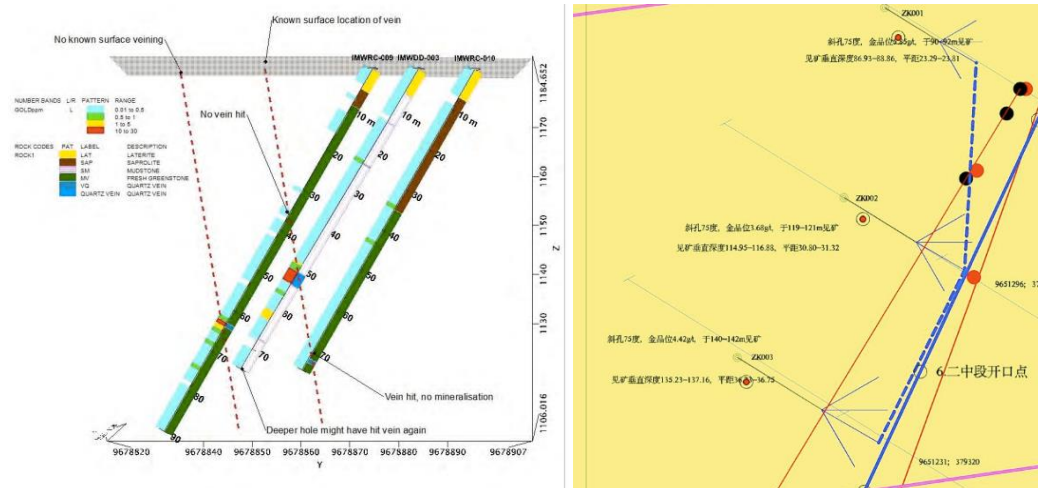
4.2 Drilling

SHENG LONG MINING (T) COMPANY LIMITED commissioned Tianyu Geological Monitoring Center (Tanzania) Co., Ltd. to carry out drilling work on Certificate No. PML0298.

A total of 3 drill holes were drilled, and all of them found mineral veins.the drilling hole inclination is 75 degrees, The specific data are as follows.

NO	Horizontal distance	vertical distance	grade
1	23.2m-23.8m	90m-92m	5.85g/t
2	30.08m-31.32m	114m-116m	3.68g/t
3	36.33m-36.75m	135m-137m	4.42g/t

Judging from the angle, depth, and horizontal distance of the drilling holes, there are two mineral veins in the area, and the angle between the mineral veins is approximately 75 degrees.



4.3 Resource model

the mine resource model covers many aspects such as geological model, resource volume model, grade model, three-dimensional geological modeling and mining planning model, which together constitute a comprehensive analysis and evaluation of mineral deposit resource characteristics and development potential. Important tool.

Geological model: The geological model is the description and modeling of the geological characteristics of the mineral deposit, including information on ore body morphology, origin, structure, lithology, mineralization type, etc. The geological model is the basis of the mine resource model, which can help understand the formation mechanism and spatial distribution rules of mineral deposits. A substantial portion of the project area is under a thick lateritic and saprolitic weathered horizon up to 50 m in vertical depth. Little outcrop is present on the property limiting the amount of local bedrock mapping to artisanal pits (where deep enough). Based on the drilling results and mapping done in artisanal pits, the felsic and mafic volcanic units of the Lower stratigraphy constitute the lithologies of the license area. Quartz veins crosscut the lithologies and are generally mineralised in gold within shear zones that have developed on lithological contacts. Mineralisation is pronounced when veins are associated with sulphide minerals (i.e. FeS₂).

The project area comprises three primary geological units:

- Greenstones of Massive Metavolcanic origin without magnetite;
- Greenstones of Metavolcanic origin with magnetite;
- Greenstones of Metavolcanic origin with porphyritic white feldspar, with or without syngenetic round quartz grains (± 2 mm diameter). There were no boreholes that intersected contacts of these units. Accordingly, the contact relationships could not be determined. However, the gradual change in magnetite or feldspar content, in any given borehole intersection and between closely spaced boreholes (laterally), suggests that the contacts between these units are gradational. Figure shows a quartz vein within the metavolcanic (fresh) unit of the Lower stratigraphy. Illustrated is the presence of sulphides. This vein is too thin to sample and it cannot be stated whether it is mineralised.



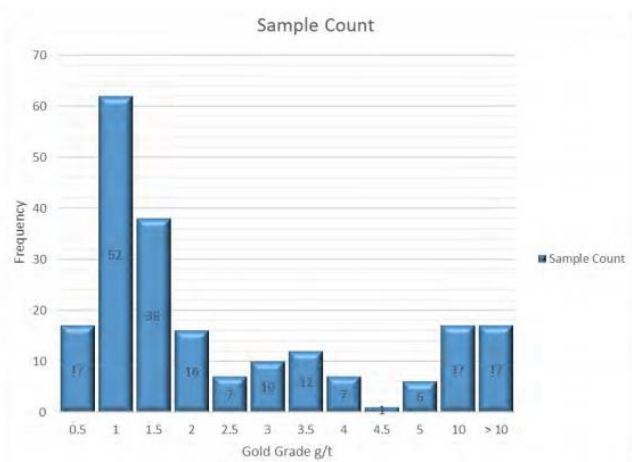
4.4 Mineral Resource/Reserve Estimates

The August 2023 Mineral Resource estimate is based on a detailed review completed by LVG and MG of current local conditions. It has incorporated LVG's current view of long-term metal prices, foreign exchange and cost assumptions, plus mining and metallurgy performance to select cut-off grades and physical mining parameters. The resulting geological and mining models show that the quoted Resource has "reasonable prospects for eventual economic extraction" as required by the JORC Code (2012). The Mineral Resource estimate has been prepared under the direction of the Competent Person under the JORC Code using accepted industry practice and has

been classified and reported in accordance with the JORC Code. The Mineral Resources quoted are extractable via open-pit mining and underground mining methods. Resources are reported inclusive of Mineral Reserves and represent the Resources located inside a pit shell developed using a gold price of US\$2000 per oz., and underground mining methods. A cut-off criterion of 0.85 g/t Au has been applied to Mineral Resources for reporting purposes in August 2023, based on a gold price assumption of US\$2000 per oz.

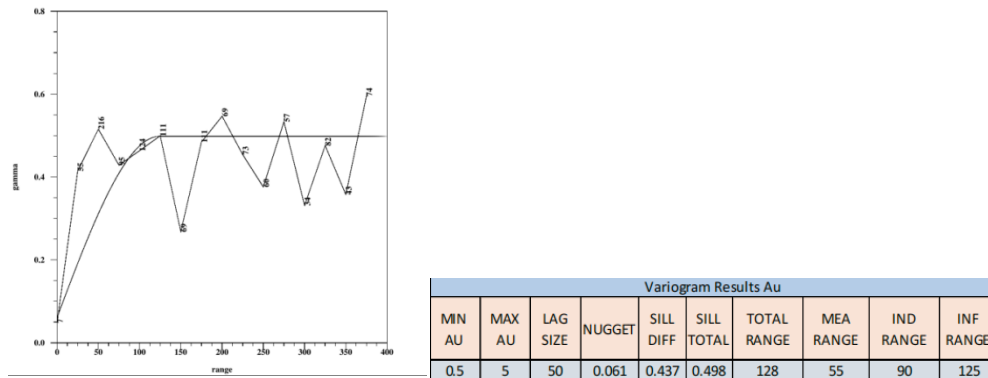
The risk of overstating Resource tonnes is reduced by putting less weight on the extreme gold grade results throughout the mineralised zones. The risk of understating Resource tonnes has been reduced by restricting the mineralised zones to the lower grade cut-off of 0.5 g/t. The higher grades (up 15 g/t) have been restricted to a grade cap of 7 g/t. As a working guide, top cuts are chosen to limit the top 1% of samples to approximately 5% of the contained metal.

Drill hole data was composited to 1 m intervals for gold limited to the mineralisation envelopes (composited from the top of hole) and coded to the relevant domains which are then used for geostatistical studies, grade estimation and reporting. The composited data was analysed to detect any below-grade composites (below 0.85 g/t) and then located to determine whether the hole should be coded as a mineralised zone. Remodelling of the domain is completed and the raw drill hole data is then composited again until the below cut-off grades are eliminated to reflect the gold mineralization targets. Figure shows the sampling frequency of the gold grades used in the Mineral Resource estimate.

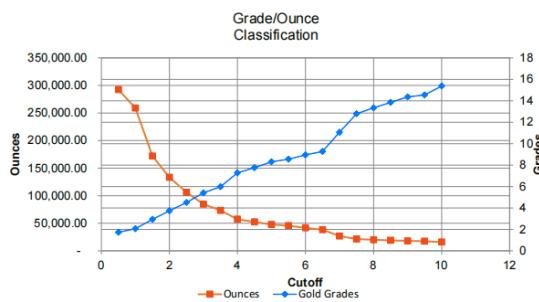


Variography was completed for gold. The best variogram model was aligned to the average orientation of the mineralised zones which was structured enough to demonstrate unambiguous directions of continuity. The interpreted plane of maximum continuity for the Iparamasa

mineralised domains strikes 100o. The variogram models were generally interpreted as being isotropic in the plane with shorter ranges perpendicular to the plane of maximum continuity.



A grade ounce curve was created from the Resource model for comparison and analysis.



5. MINING

5.1 Geotechnical

A substantial portion of the project area is under a thick lateritic and saprolitic weathered horizon up to 50 m in vertical depth. Little outcrop is present on the property limiting the amount of local bedrock mapping to artisanal pits (where deep enough). Based on the drilling results and mapping done in artisanal pits, the felsic and mafic volcanic units of the Lower stratigraphy constitute the lithologies of the license area. Quartz veins crosscut the lithologies and are generally mineralised in gold within shear zones that have developed on lithological contacts. Mineralisation is pronounced when veins are associated with sulphide minerals (i.e. FeS₂).

This project conducts detailed investigations and records of the geological structure, rock formation characteristics, lithology distribution, etc. in the surrounding areas of the mine. Identify and describe geological structural units within the mining area, such as faults, folds,

magmatic rock bodies, etc. It is estimated that the geological structure has no impact on the stability of the mining area and engineering design. The physical and mechanical properties of rocks are also tested and analyzed, including compressive strength, tensile strength, shear strength, etc. Test and analyze rock fracture properties, deformation characteristics, etc. Evaluate the stability of rock mass to provide basis for blasting design and support design. By investigating and measuring the distribution, water level, flow direction, water quality and other characteristics of mine groundwater. The assessment concluded that groundwater has no impact on mining projects, including groundwater seepage on slope stability and groundwater on mining projects, all of which meet the requirements. By sampling and testing the surface soil in the mining area, the physical properties, mechanical properties, moisture content and other parameters of the soil were determined. Evaluate the bearing capacity, stability and suitability of surface soil to provide basis for site leveling, facility construction, road paving and other projects. In addition, we also investigate and analyze geological disasters in mining areas, such as landslides, collapses, earthquakes, etc. Assess the potential danger and scope of impact of geological disasters, and take corresponding prevention and control measures.

5.2 Mining Design

(1) Site exploration and evaluation

According to the analysis of drilling data, the inclination of the ore vein in the area is about 75 degrees, the width of the ore vein is about 1.4-1.6m, and the average grade is about 5.8g/t. According to the analysis of professional geologists, vertical shaft mining is the most suitable mining method for this area.

(2) Mine planning and design

The mining method is vertical shaft mining. The vertical shaft is planned to use a circular shaft with a diameter of 2.4 meters and a depth of 200m. When it reaches 80m, some mining work will be carried out first to find the specific location of the ore vein and mine. The soil layer of the vertical shaft excavation is manually excavated and supported by reinforced concrete. The excavation diameter is 2.6m and the thickness of the reinforced concrete support is 20cm. After reaching the rock layer, blasting and manual slag are mined. It is expected to be about 1.5m a day, and it will arrive at the designated location in 2 months to start mining.

Minerals and waste slag are hoisted by winch. The winch drum diameter is 1.2m, the motor is

55kw, the hoisting speed is 1.2m/s, and the maximum hoisting weight is 1.8t when the vertical shaft is 400m, with a total of 10 up and down gears. The lifting derrick is 9m high and welded with 159mm diameter steel pipes. The lifting cage is 2.4m high, 1.8m long and 1.1m wide. There are several tank trucks, each of which can accommodate 1.2t. The stabilizing rope uses 4 22mm diameter steel wire ropes and the diameter of the sheave is 1.2m. The water pump uses 1 100m head water pump, 11kw, 1 200m head water pump, 18.5kw, and 150m head centrifugal pump, 50kw. 3 water pumps ensure the safety and normal operation of the lower part, one for use, one for standby, and one for maintenance. There are 2 7.5kw fans and 1 11kw fan to ensure the normal air quality at the bottom of the well. The maximum capacity of the air compressor is 10 cubic meters, 50kw, to ensure the normal use of at least two drilling rigs. The drilling rig uses a 28 drilling rig, with drill rod lengths of 1m, 1.5m, 1.8m, 2.4m, and 3m, and a drill bit diameter of 42mm.

The vein strikes roughly 20-60 degrees north-east, with two veins in total, and the vein dip angle is 75 degrees. In order to increase the ore recovery rate and maximize economic benefits, it was decided to adopt the filling mining method, which is an underground mining method mainly suitable for cases where the ore body has a large inclination or complex geological conditions. Its basic principle is to use the stability of the rock itself to leave a certain height of space above the ore body, and then gradually fill materials (such as tailings, slag, etc.) from the bottom to form a filling body that supports and reinforces the ore body, so as to achieve safe and efficient mining of ore. The advantages of the filling mining method include reducing ground subsidence, improving the recovery rate of the ore body, and reducing the risk of geological disasters during mining.

(3) Target plan

According to the predetermined geological exploration information, after finding two veins, the tunneling along the veins will be excavated: both sides of the two veins will start at the same time, with two shifts of blasting per day. The vein thickness is about 1.5m and the height is about 2m. The amount of mining that can be done per day is $1.5 \times 2 \times 2 \times 4 \times 2 \times 2.8 = 134t$. After the tunneling along the veins is completed, the fill mining method will be used to excavate the shaft and the ore will be placed using a funnel. The target plan should be set according to the actual situation.

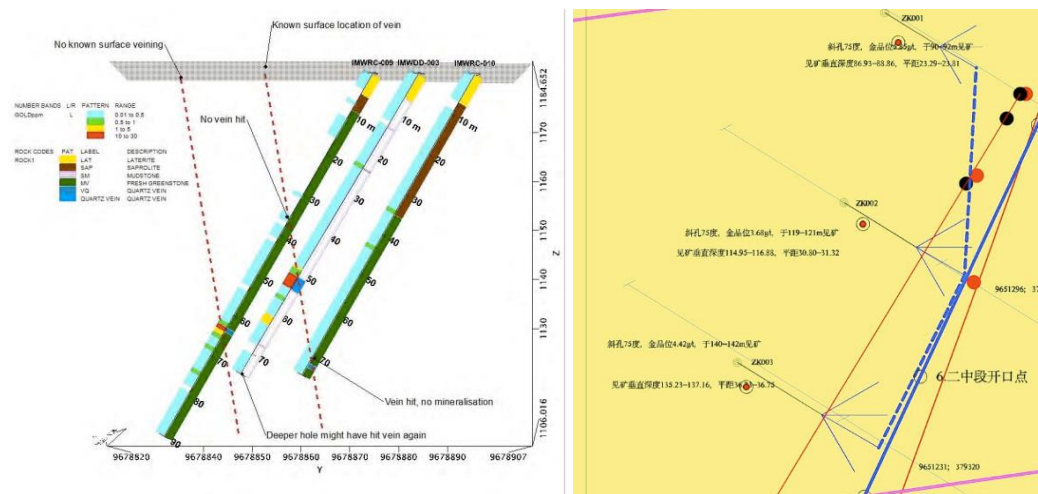
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3	36.33m-36.75m	135m-137m	4.42g/t

Judging from the angle, depth, and horizontal distance of the drilling holes, there are two mineral veins in the area, and the angle between the mineral veins is approximately 75 degrees.



5.4 Blasting and Haulage

In mine blasting, the specific value of the agent factor will be adjusted and determined based on factors such as ore body properties, rock hardness, blasting design, geological conditions, etc. In ore and rock blasting, the corresponding agent factors are usually calculated based on the characteristics of the rock and blasting design requirements to determine the appropriate amount of explosives to achieve the desired blasting effect.

$$\text{Powder Factor} = \frac{\text{Mass of Explosive (kg)}}{\text{Volume of Rock (m}^3\text{)}}$$

1. Commonly used formulas for shallow hole step blasting, and the value range of each parameter: 1. Main blasting hole: (1), hole diameter: $d=(36-42)\text{mm}$.

(2) Resistance line: $w=(20-40)$ or $w=(0.4-1)H$.

(3) Step height: $H \leq 5\text{m}$.

(4). Hole distance: $a=(1-2)w$.

(5). Row spacing: $b=(0.8-1)w$.

(6). Explosive unit consumption: $q=(0.35-0.45)\text{kg/m}^3$ (limestone, commonly used).

(7). Single hole charge: $Q=q.a.b.H$.

2. Pre-split hole:

(1). Hole distance: $a=(8-12)d$.

(2), Super deep: $h=(0.1-0.15)H$.

(3) Single hole charge: $Q_{pre}=Q_{main} (1/2-1/3)$ If the rock integrity is good, take a small value, otherwise take a large value.

(4) Line charge density: $L_{line} = 4Q_{pre}/\pi d^2 L$ Unit: kg/m d : blast hole diameter, explosive density, expanded explosive: 800kg/m^3 emulsified explosive: 1000kg/m^3 .

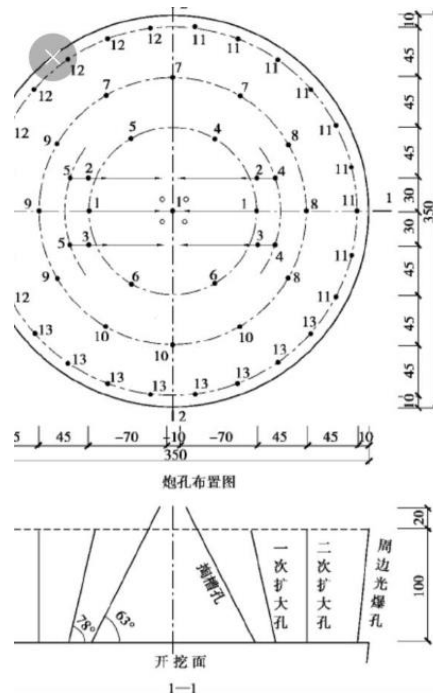
3. Safety control formula:

(1), blasting vibration formula: $V=k(Q^{1/3}/R)^a$ k is 150, a is 1.5.

(2), blasting flying rock formula: $R_f=20k_f n^2 w$ $k_f=(1-1.5)$ safety factor, n : blasting action index: loose blasting: $(0.35-1.0)$, throwing blasting: $(1-3)$.

(3) Blasting shock wave safety distance formula: $R=kQ^{1/3}$ unit m , k : coefficient related to charge path and blasting degree, for buildings $k=1-2$ and for personnel: take $k=10$.

According to rock properties, blasting design, site conditions, safety and environmental protection requirements and production needs, this project uses $0.35-0.45\text{kg/m}^3$



Blasthole diameter: The blasthole diameter should be compatible with the diameter of the charge roll. If it is too large, the blasting effect will be affected. Generally, the blasthole diameter is 4~6mm larger than the charge roll diameter. Currently, the commonly used charge roll diameters in our country are 32mm and 35mm. The diameter of the chemical roll used in the design is 32mm, the diameter of the drill head is 38mm, and the length of the drill rod is 2.2m;

The detonation uses a millisecond delayed detonator and a reverse detonation, that is, the detonating charge is placed near the bottom of the hole, and the slotted hole is blasted first, collapsing a wedge-shaped slot hole to create a second free surface, and then blasting the auxiliary eye, which can A large amount of rocks collapse to increase the free surface for the blasting of the peripheral eye. Then the peripheral eye is blasted, whose objective role is to control the tunnel contour. Finally, the bottom hole is blasted, with the purpose of throwing and loosening the rocks in the tunnel.

Rock drilling is the main process of tunnel excavation. Its quality directly affects the blasting effect, cyclic footage and the quality of tunnel engineering. When drilling rock, choose according to the specific conditions such as rock conditions, section size, rock drilling equipment used and convenience of operation. Appropriate cutting method and blasthole arrangement, and at the same time, the direction and slope of the tunnel must be mastered.

The existing rock drilling equipment in this mine is the 7655 air leg rock drill. The maximum

drilling depth is generally less than 36-43mm in tunnel excavation. It has a wide range of use and is most suitable for medium or hard drilling. =12~14 Drill horizontal or inclined blastholes in rocks. The equipment is light, flexible and easy to move. Based on the actual situation of the mine, the 7655 air leg rock drill is suitable for the needs of the mine; the blasthole diameter is average. It is 38mm, the drill pipe length is 2.2-2.5m, and the hole depth is 1.8-2.0m.

For safe production, when drilling, check and handle the pumice on both sides and the top plate. Check the rock drill and air legs, apply enough lubricating oil, prepare the drill pipe and drill bit, and check whether the drill pipe is straight and whether the drill pipe and bit are tightly connected. , whether the center hole is ventilated; check whether the pressure pipe and water supply pipe are leaking, whether the water pressure and air pressure meet the requirements, etc.; after everything is normal, pull the water pipe to the working surface, connect it to the rock drill, and prepare to drill.

Rock drilling work should be carried out according to the blasting chart, and the eye position, eye depth and angle must be mastered; in addition, the following matters should be paid attention to: it is absolutely not allowed to drill holes in the remaining holes; when opening the holes, do not open the valve suddenly. After drilling for a period, fully open the hole; in order to avoid breaking the drill and injuring people, do not push the drill too hard, let alone pressurize it laterally; when there is a lack of water or a water outage, drill holes should be stopped immediately; when drilling the bottom hole, Care should be taken to eliminate gravel around the hole, and use large stones to protect it after drilling; after drilling all the blast holes on the working surface, the machine tools should be cleaned and moved to a specified safe place for storage, and the rubber water pipes should also be coiled up. , move away from the working surface and protect it.

Blasting work is an important part of achieving the expected blasting effect during excavation, and it is also a process that has a significant relationship with personal and equipment safety; therefore, the blasting operation cannot be ignored and must be taken seriously; blasting work should be carried out by people with practical experience. Workers work full-time or part-time.

1. Preparation work before charging: Check whether the depth, angle and spacing of the blastholes are reasonable; blow off the rock powder and water in the blastholes with pressure and process them in a specified safe place

The number of detonating charge rolls is limited to meet the needs of this blasting, and loss must be prevented. 2. Loading work

During tunnel excavation, the detonating charge roll equipped with the detonator is placed at the eye opening and the fundus, and the energy-gathering holes of the detonator are all facing the explosive; in order to avoid impact and moisture, the detonating charge roll is generally placed at the first position of the fundus, usually in a long strip. shaped charge.

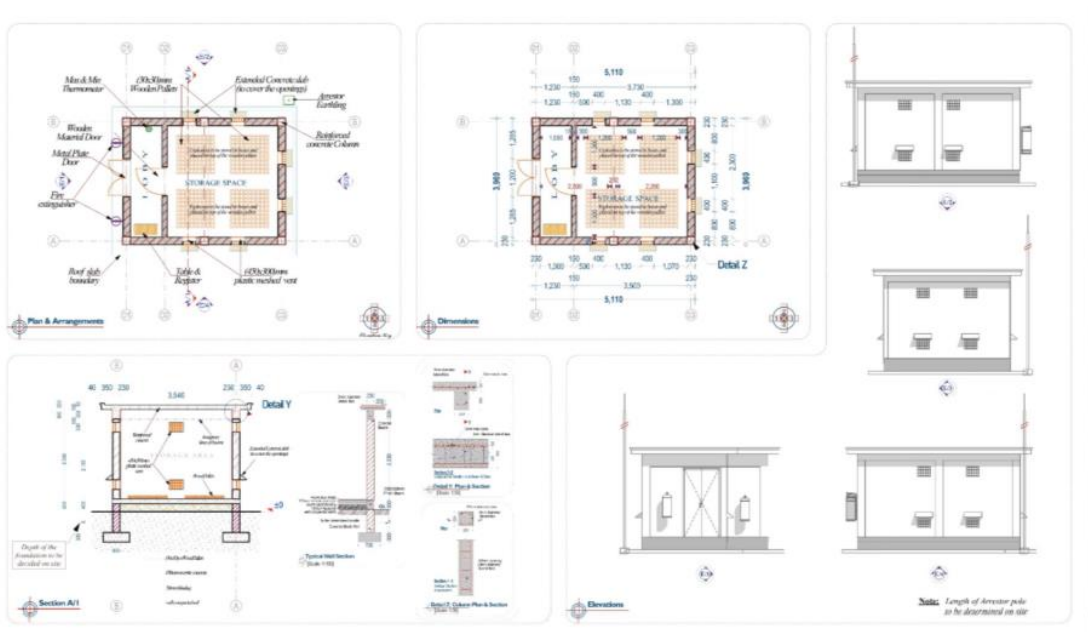
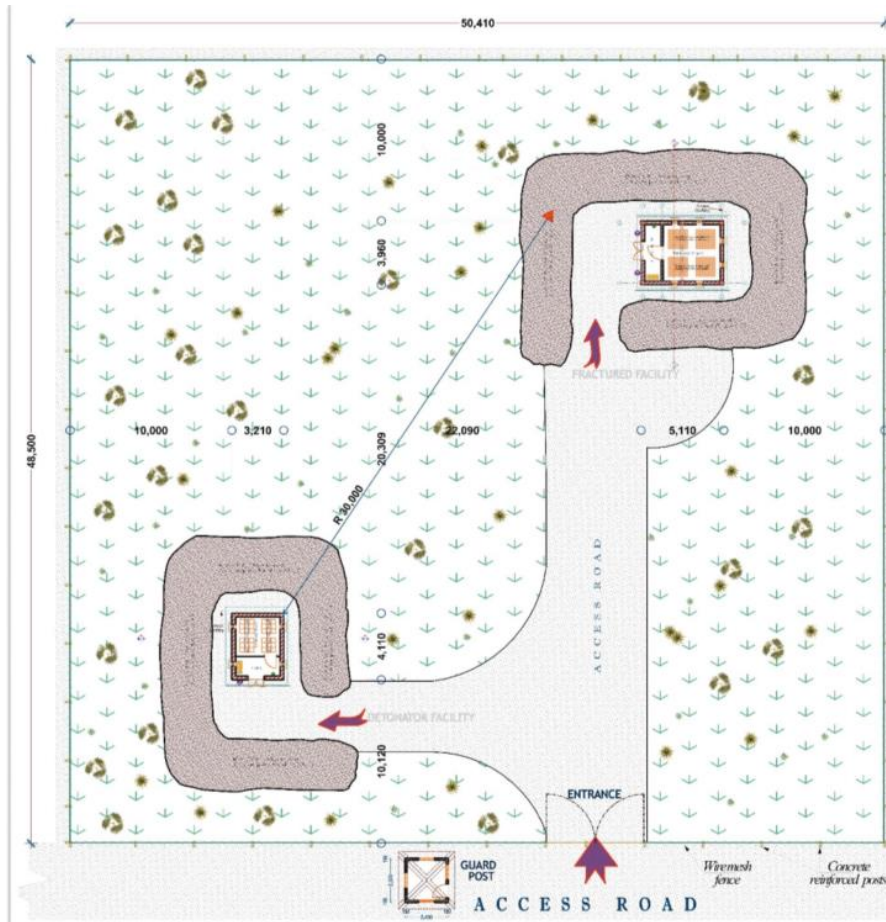
When charging, you must carefully install the explosive roll into the fundus; for blastholes with water, especially the bottom hole, you must use waterproof powder rolls or add waterproof sleeves to prevent the explosive from getting wet and detonating, which will affect the blasting effect; after the explosive roll is loaded , use cannon clay to seal the eye opening.

Before blasting, make sure that all personnel must evacuate to a safe place outside the cordon. Before blasting, the squad leader must personally arrange special personnel to guard the cordon and all possible access routes to the blasting site. Warning personnel must be on guard at a safe location; at the cordon Warning signs, railings or pull ropes should be set up; the distance from the detonation site to the blasting site must be specified in the operating procedures; blasting warning requirements: all personnel should be evacuated outside the warning line, and dedicated personnel should be assigned to guard; the team leader is responsible for evacuation and guarding; All roads that may lead to the blasting site will be guarded, and the gunners will be responsible for guarding all the way.

The key to the blaster must be carried by the blaster and is strictly prohibited from being handed over to others. The key is not allowed to be inserted into the blaster until the blasting is powered on. The key must be pulled out immediately after blasting, and the busbar must be removed and twisted into a short circuit. Before blasting, the blaster must be the last person to do so. Leave the blasting site, send a blasting signal before detonating, wait at least 5 seconds before detonating, and the blasting operator must operate it personally.

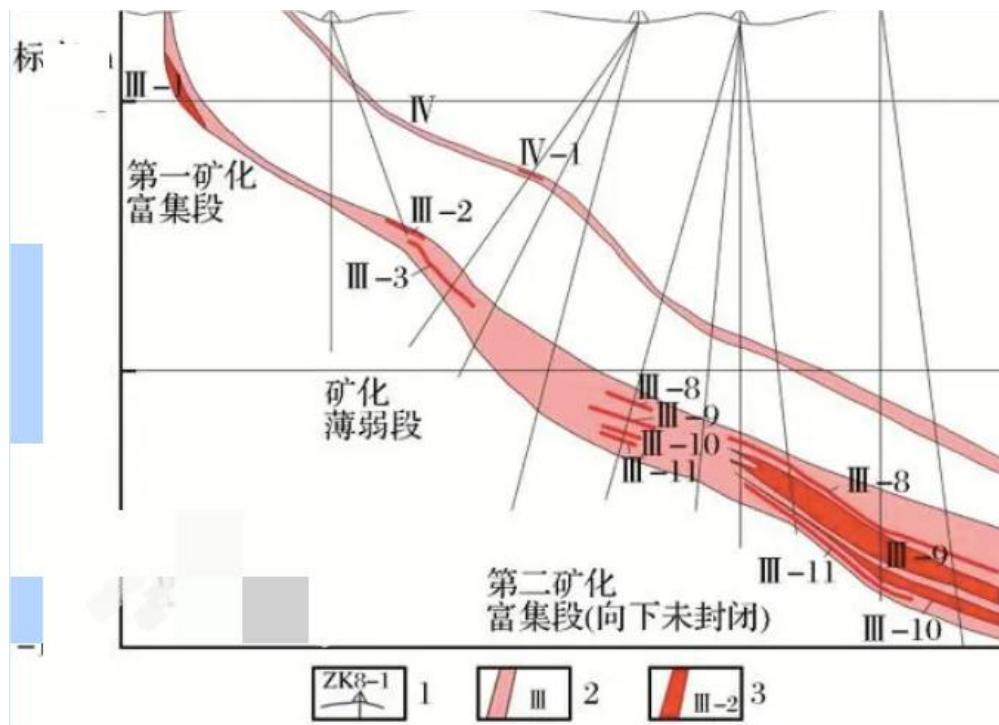
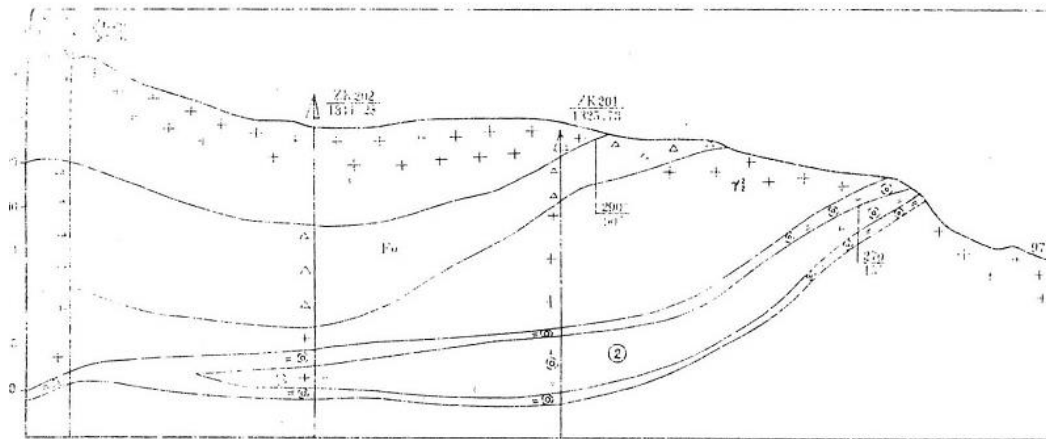
After the blast, ventilate and sprinkle water. Fifteen minutes later, the blasters and safety officers will carefully inspect the situation behind the blast. The blasters must abide by the relevant provisions of blasting safety regulations when handling rejected explosions and residual explosions. They must complete the processing on duty and wait until everything is completed. Construction can be resumed as normal.

Below is the construction design drawing of the explosives depot:



5.5 Mine operation

According to the analysis of drilling data, the inclination of the ore vein in the area is about 75 degrees, the width of the ore vein is about 1.4-1.6m, and the average grade is about 5.8g/t. According to the analysis of professional geologists, vertical shaft mining is the most suitable mining method for this area.



This project plans to form an initial scale in 2024, with a daily production of 100 tons of ore and a processing capacity of 100 tons of ore. After half a year of normal operation, the original equipment was upgraded and a new shaft was installed. Gradually reach the scale of daily production of 300 tons of ore and processing of 300 tons of ore.

The support system of this project uses reinforced concrete as support in the soil stage. In

the rock stage, measures such as shotcrete will be used as support according to specific conditions to ensure normal and safe production on site.

The ventilation system of this project uses 11kw fans and 7.5kw fans. Each working surface is equipped with two fans to ensure normal ventilation and work underground.



5.6 Equipment Selection

The first jaw crusher of this project adopts the size of 400*600, with an output of 64 tons per hour, and the second jaw crusher adopts the size of 250*1250, with an output of 50 tons per hour. The conveyor belt adopts 800mm size, the raw material bin size is 50 cubic meters, and the distribution bin size is 110 cubic meters. The ball mill adopts the size of 2100*3600 and has an output of 20 tons per hour. The thickener has a diameter of 10 meters and can store 200 tons of slurry. The leaching tanks are cylindrical with a diameter of 5 meters and a height of 8 meters, with a total of 8 tanks, meeting the theoretical planning goal of processing 100 tons of ore per day.



5.7 Stockpiles

There is a special ore storage site on site, which can deposit a total of about 5,000 tons of ore. It is planned to build a tailings pond that can accommodate 50,000 cubic meters of ore, a total of about 100,000 tons of ore.

5.8 Production rate, Mining sequence and Scheduling

The mining plan of this project is to first mine along the ore line, and then use the filling mining method upwards after discovering stable and good-grade mineral seams. The filling mining method is an underground mining method that is mainly suitable for situations where the ore body has a large inclination or the geological conditions are complex. The basic principle is to use the stability of the rock itself to vacate a certain height space in the upper part of the ore body, and then gradually fill it with materials (such as tailings, slag, etc.) from below to form a filling body that supports and reinforces the ore body to achieve Mining ore safely and efficiently.

The main steps of infill mining include:

1. Preparation work: Survey and evaluate the ore body, determine the mining plan, and make necessary engineering preparations, such as digging ventilation and drainage wells, etc.

2. Mining: Gradually mine the ore from underground upwards, while leaving a certain height of space during the mining process.

3. Filling: Use tailings, slag and other materials to fill the mining space from below to form a filling body to support and reinforce the ore body.

4. Maintenance and management: Regularly check and maintain the stability of the filling body to ensure the safety of the mining process.

The advantages of the infill mining method include reducing ground subsidence, improving the recovery rate of ore bodies, and reducing the risk of geological disasters during the mining process.

5.9 Waste rock management

According to the actual conditions on site, waste rock is generated in three situations. First of all, it is calculated that the amount of waste rock generated during the shaft construction phase is approximately 500 cubic meters. The second stage is to search for ore veins in the tunnel. Depending on underground conditions, the amount of waste rock generated will not exceed 1,000 cubic meters. The third is the tailings waste generated after normal production and processing. Tailings waste will be uniformly discharged to the tailings pond and water quality will be monitored. Waste rock generated from production will be used for on-site road hardening, site leveling and filling of old shafts.

6. DRAINAGE AND HYDROLOGY

Mining area drainage engineering refers to the construction and management of various drainage facilities in order to ensure the safety and smooth progress of mines, pits or underground working surfaces during mining and production, and to prevent the rise of groundwater levels and the influx of surface water. . These projects include drainage system design, installation of drainage pipes, construction of drainage pumping stations, etc. The effective implementation of mining drainage projects is crucial to the safe production of mines.

The drainage project in this mining area includes the following aspects:

1. Drainage system design: According to the mine geological conditions and hydrogeological conditions, design a reasonable drainage system, including drainage wells, drainage pipes,

drainage pump stations, etc.

2. Drainage pipeline installation: Lay drainage pipelines in the mining area to ensure smooth drainage and discharge groundwater from the mining area in a timely manner.

3. Construction of drainage pump stations: Build drainage pump stations where needed, and pump out groundwater through the pump stations to keep mines or underground working surfaces dry.

4. Maintenance and management of drainage equipment: Regularly inspect and maintain drainage equipment to ensure its normal operation, and deal with faults and problems in the drainage system in a timely manner.

5. Surface water management: Surface water management is also part of the drainage project, including collecting, treating and discharging surface water to prevent the impact of surface water on the mining area.

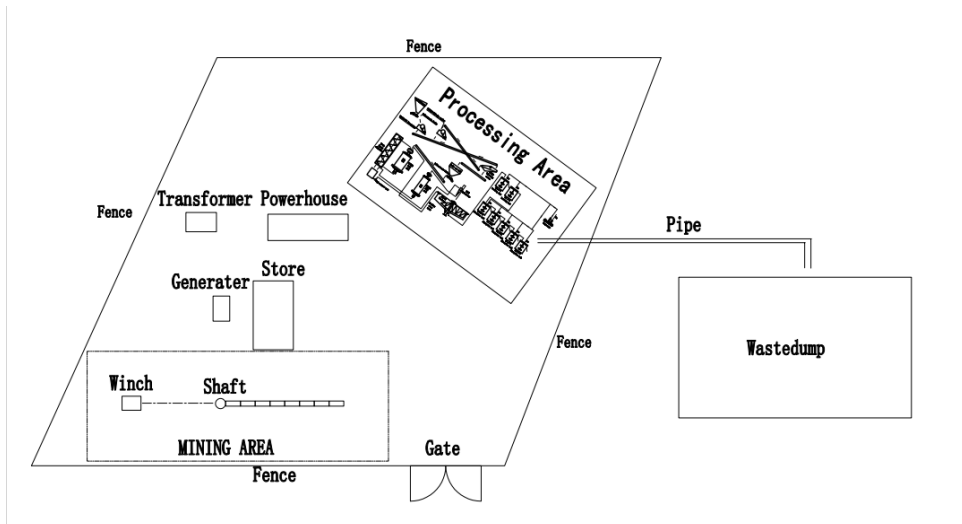
6. Drainage effect monitoring: Monitor and evaluate the effect of the drainage system, adjust and improve the drainage project plan in a timely manner, and ensure the safety and stable production of the mine.

This project uses two sewage pumps with 100m head and 18kw, two sewage pumps with 200m head and 22kw, and one centrifugal pump with 55kw and 150m head. Use these professional equipment to ensure on-site underground dryness and safe and normal production. The drainage sites are three existing ponds on site, with an estimated water storage capacity of 10,000 cubic meters.

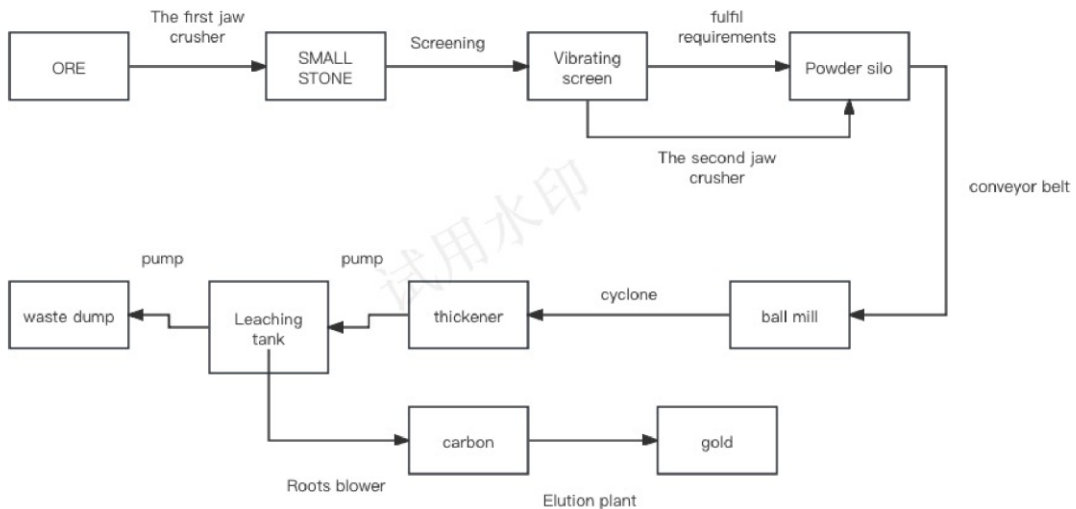
7. MINERAL PROCESSING

7.1 Processing Layout

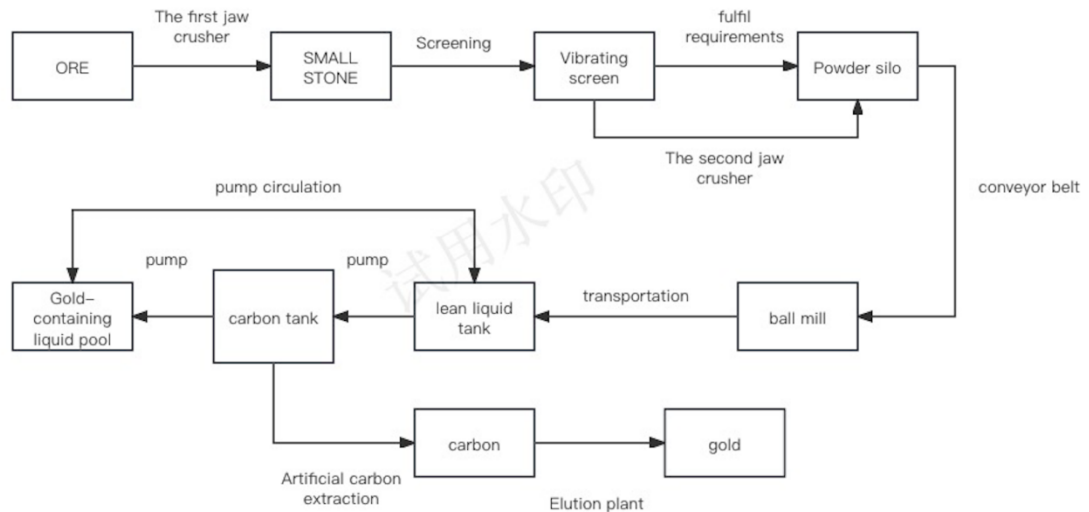
The mineral processing layout of this project is designed based on the properties of the gold ore and the gold extraction process, including several steps such as crushing and grinding, roughing and concentrating, gravity separation and cyanidation, and tailings treatment. The on-site mineral processing layout is as follows



According to the actual situation on site, there are two methods for processing gold in this project. One is to use CIP to extract gold, as shown in the figure below.



Considering the long-term nature of CIP construction, in order to carry out production activities as soon as possible, we plan to adopt another method to extract gold using the heap leaching method during the CIP construction process. The specific process is shown in the figure below.



7.2Crushing and Grinding

The original gold ore is crushed into a particle size suitable for further processing through crushing equipment, and then finely ground through grinding equipment to improve the release of gold ore.

7.3 Equipment Selection

The first jaw crusher of this project adopts the size of 400*600, with an output of 64 tons per hour, and the second jaw crusher adopts the size of 250*1250, with an output of 50 tons per hour. The conveyor belt adopts 800mm size, the raw material bin size is 50 cubic meters, and the distribution bin size is 110 cubic meters. The ball mill adopts the size of 2100*3600 and has an output of 20 tons per hour.

7.4 Tailing Storage Facility

Gold mine tailings storage is a facility used to store tailings and waste rock generated during the mineral processing process. It is usually located near the mine or in the surrounding area of the mineral processing plant. The design and construction of tailings ponds is an important link in the mine development and production process. The construction of tailings ponds in this project mainly includes the following aspects:

1. Geographical location selection: Tailings ponds should be located in areas with stable geology and good drainage conditions, away from densely populated areas and water sources, to reduce the impact on the environment and human health.

2. Design and construction: The design of the tailings pond should take into account the tailings output, tailings properties, geological conditions and other factors of the project, and adopt appropriate engineering measures and facilities, such as anti-seepage, drainage, slope stability, etc., to ensure that the tailings Safe operation and environmental friendliness of mine depots.

3. Operation management: The operation and management of tailings ponds includes tailings filling, tailings treatment, tailings concentration, etc. It is necessary to comply with relevant environmental protection regulations and safety production standards, regularly monitor the operation of tailings ponds, and deal with possible problems in a timely manner. problems.

4. Tailings treatment: Different treatment methods can be adopted for the tailings in the tailings pond to improve the metal recovery rate and resource utilization efficiency of the tailings.

The construction and management of tailings ponds are crucial to the sustainable development and environmental protection of mines. Scientific and reasonable measures need to be taken to minimize the impact on the environment and ensure the safe and stable operation of tailings ponds.

we plan to build a tailings pond that can accommodate 50,000 cubic meters of ore, a total of about 100,000 tons of ore.

8. MINE INFRASTRUCTURE, EQUIPMENT AND POWER SUPPLY

8.1 Technology & Equipment Selection

Mining infrastructure includes various types of equipment and tools used to support mining, production, and transportation in mines. The following basic equipment of this mine:

1. Excavation equipment: YT28 rock drill used for mining and excavation of ore in mines.
2. Transport equipment: used to transport ore from the mining site to the mineral processing plant or other processing facilities. Loaders, tricycles, etc.
3. Mining equipment: used for the collection, transportation and lifting of ore. The mine car is 1 ton, the track is 15kg, and the winch is 1.2 meters. Generator 300kva.
4. Ventilation equipment: used to ensure the circulation and supply of air in the mine and maintain a ventilated and fresh working environment. 50 air duct, 7.5kw, 11kw fan
5. Drainage equipment: used to drain groundwater in the mine and keep the mine or working surface dry. Sewage pump 18kw, 22kw; centrifugal pump 55kw.

6. Lighting equipment: lighting fixtures, lighting facilities, etc., used to provide sufficient lighting conditions in the mine to ensure the safety of workers and the progress of production work.

7. Safety equipment: explosion-proof equipment, safety warning signs, safe passages, etc., are used to ensure the safety of staff and prevent accidents.

8. Auxiliary equipment: cameras, bells, telephones, generators, welders, air compressors, etc. are used to maintain and manage mining facilities and provide office and management support. These basic equipment play an important role in the normal operation and production process of the mine, ensuring the safe and efficient operation of the mine.

8.2 Maintenance plans

1. Maintenance goals and scope

Goal: Ensure efficient, safe and reliable operation of equipment, reduce downtime and extend equipment life.

Scope: Includes all key equipment such as crushers, grinders, pumps, generators, conveyor belts, etc.

2. Maintenance type

Preventive maintenance: Regular inspection and maintenance to prevent breakdowns.

Corrective maintenance: Repairing equipment when it breaks down.

Predictive maintenance: Predict and prevent failures by monitoring equipment condition.

3. Maintenance plan

Daily inspection:

- Check the operating status of the equipment and confirm that there are no abnormal noises or vibrations.

- Check the lubrication system to ensure the oil level is normal.

- Check and clean filters and radiators.

- Weekly inspection:

- Check the tightness of all bolts and fasteners.

- Check the electrical connections to make sure they are not loose or corroded.

- Check belt tension and belt wear.

- Monthly inspection:

- Change or clean oil and grease.
- Check bearings and gears for wear.
- Check and calibrate sensors and instruments.
- Quarterly inspection:
 - Conduct detailed equipment inspections and disassemble key components for inspection.
 - Check the hydraulic system to make sure there are no leaks.
 - Check and test the emergency shutdown system.
- Annual inspection:
 - Perform a complete equipment overhaul, including replacement of wearing parts.
 - Conduct equipment performance testing and evaluation and record operating parameters.
 - Evaluate the effectiveness of the maintenance plan and make necessary adjustments.

4. Recording and reporting

- Maintenance records: record the date, content, problems found and solutions of each maintenance.
- Failure report: Record the details of equipment failure, including failure cause, repair measures and downtime.
- Regular evaluation: Regularly evaluate the implementation and effect of the maintenance plan, and adjust the maintenance strategy.

5. Maintenance personnel training

- Regularly train maintenance personnel to ensure they are familiar with equipment operation and maintenance procedures.
- Updated training content to cover new equipment and technologies.

6. Spare parts management

- Ensure sufficient inventory of commonly used spare parts to reduce waiting time for repairs.
- Regularly check spare parts inventory to avoid expiration or damage.

7. Security measures

- Develop and follow safe operating procedures for equipment maintenance.
- Ensure maintenance personnel are equipped with necessary personal protective equipment (PPE).

Through the above steps, a systematic and effective gold mine equipment maintenance plan can be developed to ensure that the equipment operates in optimal conditions and improve the reliability and efficiency of gold mine production.

8.3 Power sources and Supply

1. Need analysis

- Electricity demand assessment:

- Calculate the total power requirements of all equipment in the mine, including crushers, grinders, flotation cells, pumps, lighting, ventilation systems, etc.

- Consider peak load and normal load power requirements.

2. Power supply selection

- Grid power:

- Assess the reliability and supply capacity of the local power grid.

- Determine grid access points and size of required transformers.

- backup power:

- Equipped with diesel generator as emergency backup power supply.

- Evaluate and install renewable energy systems (e.g. solar, wind) as auxiliary power sources.

3. Electricity supply network

- High voltage power transmission:

- Build high-voltage transmission lines from grid access points to mines.

- Determine voltage levels and wire specifications to ensure power transmission efficiency.

- Distribution System:

- Establish medium-voltage and low-voltage power distribution systems within the mining area to cover all power consumption points.

- Install distribution cabinets, switch stations, transformers and other facilities to ensure reasonable power distribution.

4. Power management and monitoring

- Automation and monitoring systems:

- Install a SCADA (Supervisory Control and Data Acquisition) system to monitor power supply and usage in real time.

- Equipped with smart meters and sensors to record power consumption data in real time.

- Load management:
 - Implement time-of-use electricity pricing strategies to optimize electricity usage costs.
 - Through the load management system, automatically adjust the running time of non-critical equipment to reduce peak load.

- 5. Maintenance and security

- Regular maintenance:
 - Develop and implement a schedule for periodic inspection and maintenance of electrical equipment.
 - Inspect and test backup power systems to ensure they will function properly during an emergency.

- Safety measures:
 - Install necessary protective devices such as circuit breakers, overload protectors and lightning arresters.
 - Ensure that electrical equipment is installed and maintained in compliance with safety standards and regulations.
 - Conduct regular training for maintenance personnel to ensure they are familiar with electrical safety operating procedures.

6. Emergency plan

- Emergency plan for power outage:
 - Develop a detailed emergency plan for power outage, including emergency power start-up procedures and protection measures for important equipment.
 - Regularly drill emergency plans to ensure that all staff are familiar with emergency operation procedures.

- Recovery plan:
 - Establish a rapid recovery plan to reduce the impact of power outages on mine production.

- Determine the equipment and systems that should be restored first to ensure that key production links resume operation as soon as possible.

7. Environmental impact and sustainability

- Environmental protection measures:

- Assess the impact of electricity supply on the environment and take measures to reduce carbon emissions.

- Prioritize the use of renewable energy and reduce dependence on fossil fuels.

- energy efficiency:

- Use high-efficiency and energy-saving equipment to reduce power consumption.

- Optimize power usage efficiency through energy management system.

Through the above steps, a comprehensive and reliable mine power supply and supply plan can be developed to ensure the stability and safety of mine operations, while improving energy efficiency and reducing environmental impact.

9. ENVIRONMENT AND SOCIAL COMPLIANCE

9.1 Environmental and Social Management programs

1 Overview

- Objectives: Clarify the overall objectives of the ESMP, including protecting the environment, promoting social harmony, complying with regulations and improving the sustainability of mine operations.

- Scope: Define the scope of application of the ESMP, covering the mine construction, operation and closure phases.

2. Regulations and Standards

- Regulatory Compliance: Lists applicable national and local environmental, health and safety regulations as well as international standards.

- Industry Standards: Reference to Tanzanian industry best practices and standards.

3. Environmental management

- Environmental Impact Assessment (EIA):

- Conduct a comprehensive environmental impact assessment to identify potential environmental impacts.

- Develop mitigation measures to reduce negative environmental impacts.

- Air quality management:

- Monitor and control dust and harmful gas emissions.
- Implement greening works and wet work to reduce dust.

- Water resources management:

- Protect surface and groundwater resources and prevent pollution.
- Establish a water recycling system to reduce water consumption.

- Waste management:

- Classification, treatment and safe disposal of waste generated by mines.
- Adopt waste reduction, reuse and recycling technologies.

- Land reclamation:

- Develop a land reclamation plan after mine closure.
- Restore and improve ecosystems and ensure sustainable land use.

4. Social management

- Community Involvement:

- Establish a communication mechanism with the community and hold regular community meetings.

- Share information on mine activities openly and transparently, and listen to community opinions and suggestions.

- Social Impact Assessment (SIA):

- Conduct social impact assessments to identify the impacts of mining activities on local communities.

- Develop measures to mitigate negative social impacts and promote community development.

- Health and safety:

- Provide community health and safety education to reduce the health risks of mining activities to the community.

- Ensure the safety of the working environment of mine employees and provide necessary safety training and equipment.

- economic development:

- Provide employment opportunities and skills training to enhance the employability of

local residents.

- Support local small businesses and supply chains to promote economic diversification and development.

5. Continuous monitoring and evaluation

- Environmental monitoring:

- Regularly monitor environmental indicators such as air quality, water quality, noise levels, etc.

- Publish environmental monitoring reports to ensure transparency and accountability.

- Social monitoring:

- Regularly assess community satisfaction and social impact.

- Track the implementation effects of social management measures and make timely adjustments and improvements.

6. Emergency plan

- Environmental emergency plan:

- Develop environmental emergency plans to deal with sudden environmental accidents.

- Regularly drill emergency plans to improve emergency response capabilities.

- Social emergency plan:

- Establish social emergency plans to deal with community-related emergencies.

- Ensure the community and employees are aware of emergency procedures and contact details.

7. Continuous improvement

- Review and improvements:

- Regularly review the implementation of ESMP and conduct internal and external audits.

- Continuously improve the management plan based on review results and latest developments.

- Training and capacity building:

- Provide ongoing environmental and social management training to employees and the community.

- Improve the environmental awareness and social responsibility of relevant personnel.

Through the above steps, a comprehensive and systematic environmental and social

management plan will be developed to ensure that mining projects meet best practice standards in terms of environmental protection and social responsibility, and to promote the sustainable development of mines.

1. Objectives and Scope

- Target:

- Increase local employment opportunities and improve the skills and income levels of local residents.

- Promote the development of local supply chains and increase the participation of local businesses.

- Promote community economic diversification and sustainable development.

- scope:

- Covers the entire life cycle of mine construction, operations and closure.

- Includes involvement of local workforce, suppliers and service providers.

2. Policies and regulations

- Compliance with regulations:

- Ensure that the program complies with the Tanzanian government's local content regulations and requirements.

- Work with government agencies to understand and implement relevant policies.

- Industry Standard:

- Ensure the effectiveness and sustainability of local content plans by referring to international industry best practices.

3. Local employment

- Recruitment strategy:

- Develop recruitment strategies to prioritize local residents.

- Post recruitment information in local communities and hold job fairs.

- Skills Training:

- Carry out skills training programs to enhance the employability of the local workforce.

- Cooperate with local vocational schools and training institutions to provide customized training courses.

- Career Development:

- Develop employee career development plans and provide promotion opportunities and continuing education.

- Establish apprenticeship and internship programs to help new employees gain experience.

4. Local sourcing

- Supplier development:

- Identify and evaluate potential local suppliers.

- Provide training and technical support to help local suppliers improve their capabilities.

- Procurement policy:

- Develop priority procurement policies to encourage and support local enterprises to participate in the mining supply chain.

- A transparent and fair tendering process to ensure local businesses have equal opportunities to compete.

- Contract management:

- Establish a local supplier contract management mechanism to ensure the effectiveness and compliance of contract execution.

- Monitor and evaluate supplier performance and provide feedback for continuous improvement.

5. Community Development

- Community investment:

- Invest in infrastructure such as roads, schools, health facilities and water systems.

- Support community economic development projects such as agriculture, handicrafts and small business development.

- Education and health:

- Fund local schools to improve education quality and facilities.

- Organize health education and medical services to improve community health.

- Social Welfare:

- Establish social welfare projects to help disadvantaged groups and poor families.

- Support cultural and sporting activities and promote social cohesion in the community.

6. Continuous monitoring and evaluation

- Grade:

- Regularly evaluate the implementation and effectiveness of local content plans.
- Establish performance indicators and track key data such as employment rate, purchase volume, and community satisfaction.

- Feedback mechanism:

- Establish a community feedback mechanism to regularly collect and analyze community opinions and suggestions.
- Based on feedback results, promptly adjust and optimize local content plans.

7. Communication and reporting

- Transparent communication:

- Communicate regularly with the community and stakeholders to share program progress and results.
- Hold public meetings and issue reports to ensure transparency and disclosure of information.

- Stakeholder engagement:

- Establish stakeholder engagement mechanisms to ensure communities and local businesses have a say in the decision-making process.
- Work with local governments, community leaders and NGOs to promote program implementation.

8. Sustainable Development

- long term planning:

- Develop long-term goals and development roadmap for local content initiatives.
- Ensure plans are aligned with the mine life cycle to achieve sustainable development.

- Environmental protection:

- Incorporate environmental protection measures into local content plans to reduce reliance on and damage to natural resources.
- Promote green technologies and sustainable practices to protect ecosystems and biodiversity.

Through the above steps, a comprehensive and effective local content plan for the mine will be developed to promote local economic development and social progress, enhance the win-win

relationship between the mining project and the community, and ensure the sustainability and social responsibility of the mine operation.

9.3 Mine closure programs

Mine closure planning is an important step in ensuring environmental restoration, minimization of social impacts and economic sustainability after mine operations are completed.

Below is a detailed mine closure planning framework:

1 Overview

- Goal: Ensure safe and orderly mine closure process, restore the environment, and promote sustainable development of local economy and society.
- Scope: Covers preparations before mine closure, closure implementation and post-closure monitoring and maintenance.

2. Regulations and Standards

- Regulatory Compliance: Ensure closure plans comply with national and local environmental regulations, land reclamation standards, and mining laws.
- Industry standards: refer to international mining industry best practices and standards.

3. Environmental restoration

- Environmental Assessment:
 - Conduct a comprehensive Environmental Impact Assessment (EIA) to identify environmental elements that need to be restored following closure.
- Land reclamation:
 - Develop a detailed land reclamation plan to restore the topography and soil of the mining area.
 - Carry out vegetation restoration and select plant species with strong local adaptability.
- Water resources management:
 - Monitor and treat mine water to ensure it does not contaminate surface water and groundwater.
 - Restore and protect water ecosystems and ensure water quality meets standards.
- Waste disposal:
 - Clean up and dispose of mine waste to ensure its impact on the environment is minimized.

- Use sealing or stabilization technology to prevent the leakage of harmful substances.

4. Social impact management

- Community communication:

- Continuous communication with the community and stakeholders to share closure plans and progress.

- Establish a transparent communication mechanism to respond to community concerns and suggestions in a timely manner.

- Economic Transformation:

- Support community economic diversification and promote the development of alternative industries, such as agriculture, tourism, etc.

- Provide skills training and employment support to help mine employees and local residents transition.

- Health and safety:

- Assess health and safety risks during closure and take necessary protective measures.

- Provide community health support to mitigate the health impacts of mine closures.

5. Asset and Infrastructure Management

- Disposal of equipment and facilities:

- Develop disposal plans for equipment and infrastructure and assess asset value.

- Recycle or safely dismantle mining equipment to ensure no impact on the environment.

- Infrastructure transfer:

- Assess the potential use of mine infrastructure (e.g. roads, power, water supply systems).

- Transfer or convert useful infrastructure to public use in consultation with local governments and communities.

6. Monitoring and Maintenance

- Environmental monitoring:

- Establish a long-term environmental monitoring plan to continuously monitor water quality, air quality, soil and ecosystem recovery.

- Regularly publish environmental monitoring reports to ensure transparency and accountability.

- Risk Management:

- Assess and manage potential environmental and social risks, such as geological disasters, pollution spread, etc.

- Establish emergency plans to ensure rapid response and handling of emergencies.

7. Post-closure management

- Ongoing support:

- Develop post-closure support plans to continue supporting the economic and social development of the community.

- Work with local governments and NGOs to promote community projects and infrastructure.

- Review and improvements:

- Regularly review the implementation of the closure plan and summarize experiences and lessons learned.

- Adjust and improve closure measures based on review results and actual conditions.

8. Financial arrangements

- Fund protection:

- Ensure adequate funding for mine closure and rehabilitation.

- Establish a mine closure trust fund or bond to ensure funds are used for closure and restoration efforts.

- Cost management:

- Develop detailed closing cost budget, control and monitor closing expenses.

- Evaluate and optimize the cost-effectiveness of various tasks during the closure process.

9. Documents and Reports

- File management:

- Establish a comprehensive mine closure profile, including all relevant assessment reports, monitoring data and execution records.

- Ensure all documents comply with regulatory requirements and are available for review and oversight.

- Reporting mechanism:

- Regularly report to government, community and stakeholders on the progress and results of the closure plan.

- Transparently share challenges and solutions during the closure process to enhance public trust.

Through the above steps, a comprehensive and systematic mine closure plan will be developed to ensure that the environment is effectively restored after the mine is closed, the community economy and society receive continued support, and the mine operation reaches the goal of sustainable development.

10. FINANCIAL EVALUATION

10.1 Capital costs

This chapter entails the cost benefit analysis which is based on the feasibility study that was conducted by Boroboro International Consulting Limited, of Dar es Salaam in March 2024. Principal objectives of this cost-benefit analysis are to: determine if it is a sound investment/decision (justification/feasibility); and provide a basis for comparing project alternatives. It involves comparing the total expected cost of each option against the total expected benefits, to see whether the benefits outweigh the costs, and by how much cost benefit analysis is to inform the project proponent and decision makers (Government). For this project the cost components will include:

4. Investment Capital;
5. Operation and maintenance costs that included: Staff salaries, remunerations, transport, raw materials, chemicals, OHSE and CSR; and
6. Ongoing exploration

Operating cost estimates include all costs of purchasing mining, processing equipment project consumables, labor and other supplies. The annual consumption of these consumables is estimated based on Geita's existing commodity prices and the surrounding environment. For those goods that cannot be purchased from Tanzania, we add corresponding tariffs and transportation costs based on the price in China. In most cases, the cost estimates were based on professional judgment and experience with Iparamasa's existing gold mining operations. The table below summarizes operating cost estimates.

SN	Description of the Cost Code	Amount (USD)
1	Mine Supplies	215,680
2	Processing Plant Supplies & Consumables	336,548

3	Direct Mine labor Cost	165,896
4	Other Support Services Cost	75,936
5	Administration and Financial Costs	111,258
6	Overhead Expenses	66,354
7	Environmental Management Costs	286,885
8	Costs related to Corporate Social Responsibility	100,000
	TOTAL	1,358,557

Capital and development cost estimates is provided in Table

SN	Description of the Cost Code	Amount (USD)
1	Administration Office & Change House building	50,000
2	Warehouse	50,000
3	Engineering & Workshop building	70,000
4	Workers canteen & Kitchen	50,000
5	Fuel storage tanks & pumps	20,000
6	Electric power extension and transformer	100,000
7	Processing plant foundations and facilities	500,000
8	Mining and haulage equipments Equipments	300,000
9	Water supply system, including drilling boreholes	100,000
10	Access road construction	150,000
11	Tailings Dam construction & water circulation system	300,000
12	Explosives storage building	100,000
13	Working Capital	200,000
	TOTAL	1,990,000

10.2 Operating costs

1. Direct costs

1.1 Mining costs

- Drilling and Blasting: Includes costs for drilling rig operation, explosives and blasting equipment.
- Mining Equipment*: The cost of purchasing, leasing and maintaining mining equipment (e.g. scrapers, loaders, trucks).
- Labor costs: wages and benefits for miners and field operators.
- Transportation costs: The cost of transporting ore from the mining site to the processing plant.

1.2 Ore processing costs

- Crushing and Grinding: Operation and maintenance costs of crushers and grinding equipment.

- Ore dressing: the operation and maintenance costs of mineral processing equipment (such as flotation machines, gravity separation equipment), and the cost of mineral processing chemicals.
- Tailings treatment: Construction, operation and maintenance costs of tailings treatment and storage facilities.

1.3 Refining and smelting costs

- Smelting equipment: acquisition, operation and maintenance costs of smelting equipment.
- Chemical reagents: the cost of chemicals and catalysts required during the smelting process.
- Energy costs: the cost of electricity, fuel and other energy consumption.

2. Indirect costs

2.1 Infrastructure and facility maintenance

- Infrastructure construction: construction costs of mine roads, bridges, power and water supply systems.
- Facility maintenance: maintenance costs for mine office buildings, dormitories, warehouses and other facilities.

2.2 Environmental management costs

- Environmental monitoring: Environmental monitoring equipment and personnel costs.
- Pollution Control: Operation and maintenance costs of pollution treatment and control facilities.
- Land reclamation: Land reclamation costs during mine operations and after closure.

2.3 Safety and Health

- Safety equipment: Cost of safety equipment and personal protective equipment.
- Safety training: Cost of safety training courses and safety awareness campaigns.
- Health Services: Costs of health examinations and medical services for miners.

3. Financial and administrative costs

3.1 Administration

- Management Compensation: Salaries and benefits for mine management personnel.
- Administrative expenses: office supplies, communications, travel and other daily administrative expenses.

3.2 Legal and Compliance

- Permits and Licenses: Application and renewal fees for various operating permits and licenses.

- Legal services: legal advice, contract review and litigation costs.

3.3 Financial costs

- Financing costs: loan interest, financing fees and other financing-related expenses.
- Insurance costs: The cost of operating insurance, property insurance and liability insurance.

4. Variable costs and fixed costs

4.1 Variable costs

- Raw materials: The cost of raw materials changes according to the production volume.
- Energy consumption: The cost of energy consumption such as electricity and fuel fluctuates with the scale of production.

4.2 Fixed costs

- Equipment depreciation: Depreciation expenses for equipment and infrastructure.
- Fixed salary: Fixed salary for management and administrative staff.

5. Cost optimization strategy

5.1 Technology upgrade

- Automation and intelligence: Introduce automation and intelligent equipment to improve production efficiency and reduce labor costs.
- New technology application: Use advanced mining and mineral processing technology to improve resource utilization and reduce material consumption.

5.2 Supply chain management

- Optimize procurement: Reduce raw material and equipment procurement costs by optimizing supply chain management.
- Logistics optimization: Optimize transportation routes and methods to reduce transportation costs.

5.3 Energy management

- Energy-saving measures: Implement energy-saving measures to reduce energy consumption.
- Renewable energy: Use renewable energy to reduce dependence on traditional energy.

5.4 Human resources management

- Training and development: Provide employee training and career development programs to improve employee skills and work efficiency.
- Incentive mechanism: Establish an effective incentive mechanism to stimulate employees' work enthusiasm.

By comprehensively analyzing and managing the above types of costs, mines can optimize operating costs and improve economic efficiency and competitiveness.

10.3 Market and Price&10.5 Revenues

Revenue estimates for gold to be mined is very much dependent on the quality of the gold that has been mined,

In reference to samples collected by a nearby hills belonging to geological data, it was found that in a material sampled, the following was obtained:

Material Source	A	B	C
Recovery gold	71%	75%	79%
Proportion of material in each grade	1.6g/t	2.6g/t	4.2g/t

The project shows an average recovery of 75% which can be considered for this study

Production of Ore per year = 100t/d x 240 days/yr = 24,000 tonnes/yr

As indicated in table above, an average estimate of 2.8g/t is taken for this study as the average grade.

This then will result into a resource of approximately 80% x 2.8 = 2.24 ounces

Over the entire 10 years of the mine life.

Considering a recovery of 80%, the gold expected to be produced per year will be 80% x 100t/d x 2.8 x 240d/yr = 67,200 ounces

Total Sales per Annum based on the current price of Gold (USD 2250/ounce) = USD 151,200,000.

10.6 Government payments

1. Mining rights fees

1.1 Permit and License Fees

- Mining license fee: pays for the application and renewal of mining rights.
- Prospecting license fee: pays for a mineral resource exploration license.

- Environmental permit fees: pay for environmental impact assessments (EIA) and other environmental permits.

2. Taxes

2.1 Mining tax

- Mineral resource tax: a tax based on the quantity and value of mined minerals.
- Mining area royalties: fees paid based on the mining area or the mine's annual output.

2.2 Corporate income tax

- Profits income tax: A tax paid based on the net profits from mine operations.
- Withholding tax: tax withheld and paid on the income of foreign investors.

2.3 Value Added Tax (VAT)

- VAT on goods and services: VAT on equipment, materials and services purchased by the mine.

3. Royalties

3.1 Royalty fee

- Mineral royalties: royalties paid based on the production and sales revenue of mineral resources.
- Government agreement fee: the fee stipulated in the concession agreement signed between the government and the mining company.

4. Environmental and social responsibility expenses

4.1 Environmental Restoration Deposit

- Restoration Fund: Fees paid during mine operations to be used for future environmental restoration and land reclamation.
- Deposit: used as a deposit for environmental recovery after mine closure to ensure that mining companies fulfill their environmental responsibilities.

4.2 Social Development Fund

- Community development fee: Mining companies pay fees for community development based on agreements with local governments or communities.
- Social welfare fees: fees for community health, education and infrastructure construction.

5. Labor and insurance costs

5.1 Labor insurance

- Social insurance premiums: including workers' medical insurance, pension insurance and unemployment insurance, etc.

- Worker's compensation insurance premium: used to pay compensation costs for workers injured at work.

5.2 Expenses stipulated in labor laws

- Minimum wage: the minimum wage and other labor benefits paid in accordance with legal provisions.

- Training fees: Vocational training fees provided to workers based on government requirements.

6. Financial reporting and compliance

6.1 Financial reporting

- Periodic reporting: Submit periodic financial reports and operational status reports to the government.

- Tax filing: Submit tax returns and pay corresponding taxes on time.

7.2 Audit and Compliance

- Internal Audit: Regularly conduct internal audits to ensure financial and operational transparency and compliance.

- External audit: Accept audits from government and third-party agencies to ensure that mining companies comply with all financial and legal regulations.

Through the above-mentioned payments and financial obligations, mining companies can ensure the legality and compliance of their operations and make positive contributions to the local economy and society. These payments are not only a legal requirement, but also an important manifestation of corporate social responsibility.

10.7 Financial model for at least 5 years projections

The construction of financial models needs to follow some basic principles and steps to ensure the accuracy and reliability of the model. The following is a detailed description of the basic principles and steps: Data collection: Collect project-related financial data, including historical financial data, market data, industry data, etc. Ensure data accuracy and completeness. Hypothesis formulation: Develop reasonable assumptions based on the characteristics and goals of the project. These assumptions include assumptions about revenue growth rate, cost structure, cost of capital, etc. Model Building: Construct a financial model based on collected data and formulated assumptions. Financial models can include income statements, balance sheets, cash flow statements, etc. Parameter estimation: Estimate the parameters in the model based on historical data and market conditions. This can be

done through statistical analysis, regression analysis, etc. Sensitivity analysis: Conduct sensitivity analysis to evaluate the sensitivity of the model to changes in key parameters. This helps to understand the robustness and risks of the model. Model verification: Compare and verify the model with actual data to test the accuracy and reliability of the model. Make corrections and adjustments if necessary. Interpretation of results: Interpret and analyze the financial status and performance of the project based on the output of the model. This helps support decision-making and strategy development. Continuous monitoring and updating: Financial models are dynamic tools that require constant monitoring and updating. As projects progress and market conditions change, models are adjusted in a timely manner to maintain accuracy. By following the above basic principles and steps, a reliable financial model can be constructed to provide strong support for financial decisions on mining engineering projects.

11. CONCLUSION AND RECOMMENDATIONS

1. Mining site selection: Evaluate the resource volume, mining difficulty, environmental impact and other factors of each potential mining site to determine the optimal site.
2. Production plan: Develop a reasonable production plan to balance resource extraction speed and cost to ensure long-term sustainable operation.
3. Cost control: Control costs and improve profitability by optimizing production processes, managing supply chains, reducing energy consumption, etc.
4. Market forecast: Analyze market trends and competitor movements, and formulate flexible sales strategies to respond to market fluctuations.
5. Environmental protection: Develop sustainable development strategies, protect the environment, comply with regulations, and ensure that the impact of mining activities on the surrounding environment is minimized.