PROJECT SUMMARY

LORENZO ALPHONSO KAMAIRA QUARRY

KAMARIA- LOWER CUYUNI RIVER

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1. INTRODUCTION

Lorenzo Alphonso, a Guyanese miner and developer, has a number of mining interests and has been active in the mining industry in Guyana for decades. The developer is proposing to invest and develop a stone (granite/gneiss) quarry (the Project), within the Cuyuni Mining District, within the Batavia Amerindian Village. The Project will consist of a number of heavy-duty equipment, a crushing plant and conveyor system and support equipment. The Project Summary is prepared as part requirement of the EPA's environmental authorization application process. The summary contains the following information as required by the EPA Act:

- a non-technical explanation of the Project;
- the location, design and size of the project;
- the duration of the project;
- the possible effects on the environment.

2. PROJECT LOCATION

The Project area is located in the Cuyuni Mining District, Administrative Region #7, approximately 11.5 Km west of the confluence of the Cuyuni and Mazaruni Rivers, immediately between the Upper and Lower Kamaira Landings. The Project area is bounded by the Tubutu and Manarabisi Rivers, on the left bank of the Cuyuni River. Access is mainly by river from Parika on the Essequibo River to the Project area, some 11.5 Km (or 5.2 miles) from the mouth of the Cuyuni River. Access can also be had from Ogle to Bartica, thenc by boat up the Cuyuni River to the Project area. The Project area is currently unoccupied and is obliquely-opposite to the Flatrock Quarry, also on the Cuyuni River.

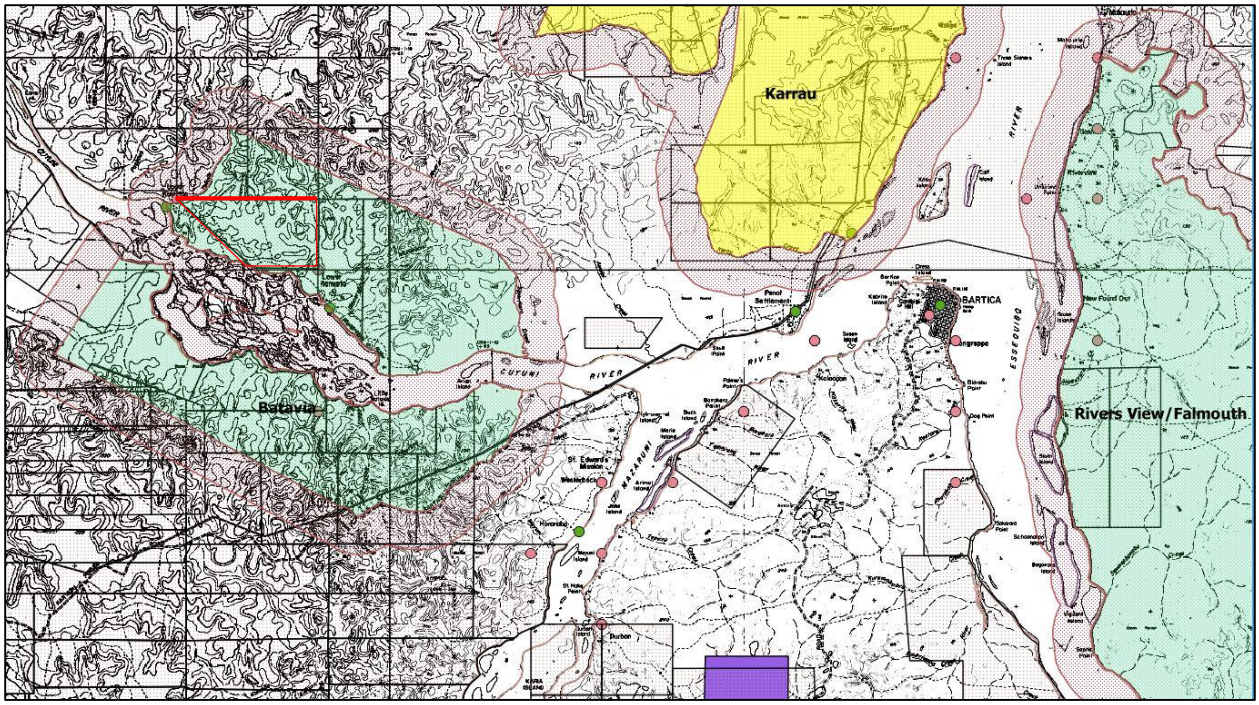


Figure 1: Map showing the location of Kamaira Quarry

The formal description of the property is as follow:

Tract of state land located in the Cuyuni Mining District No. 4 as shown on Terra Surveys Topographic Map 27NW, at scale 1: 50,000 with reference point 'X' located at the confluence of the Cuyuni and Manarabisi River located with geographical co-ordinates of longitude *-58° 45' 42"W and* ***latitude*** *6° 24' 18"N****.***

Thence at true bearing of **335°**, for a distance of approximately **1561 yards**, to point of commencement

Point A, located at geographical coordinates of longitude **58° 45' 59"W** and latitude **6° 25' 1.1"N**, thence at true bearing of **270°**, for a distance of approximately 1 mile **75 yards**, to **Point B**, located at geographical coordinates of longitude **58° 46' 54"W** and latitude **6° 25' 1.2."N**, thence at true bearing of **310°**, for a distance of approximately **1 mile 1203 yards**, to **Point C**, located at geographical coordinates of longitude **58° 48' 0.0"W** and latitude **6° 25' 59.9"N**, thence at true bearing of **90°**, for a distance of approximately **2 miles 515 yards**, to **Point D**, located at geographical coordinates of longitude **58° 45' 59.7"W** and latitude **6° 25' 59.9"N**, thence at true bearing of **180°**, for a distance of approximately **1 mile 234 yards** to the point of commencement at **Point A**.

Thus, enclosing an area of approximately **1200 acres,** save and except all lands lawfully held or occupied.

Kamaira Quarry will focus on 'Site A' which has an estimated resource of 5,130,000 tons of rip rap and aggregate granite and gneiss rocks. Mapping was done by Alphonso Mining that identified the two sites with suitable topography and rock exposure. No other significant exploration has been carried out within the proposed Project area. The resource information is based on the geological information available along with the topography and extrapolation of GGMC drill date from Teperu. Drilling is estimated to cost approximately $100/hr for a defined resource. This is estimated for Site A, about US $70,000 (GUY 14 million) and Site B, about US$ 100,000 (GUY 20 million). This will commence 3 months after license is granted.

Regionally, the geology is similar to other areas of the Greenstone Belt of Guyana, with the oldest rocks consisting of gneiss of the Lower Proterozoic, Barama-Mazaruni Supergroup, intruded by Younger Granites, and both units intruded by Younger Basic Rocks. Locally, the area consists of the Bartica Gneiss Complex which has been intruded by the Younger Granites of the Kartabu Granite Suite tot eh south-east of the proposed Project area.

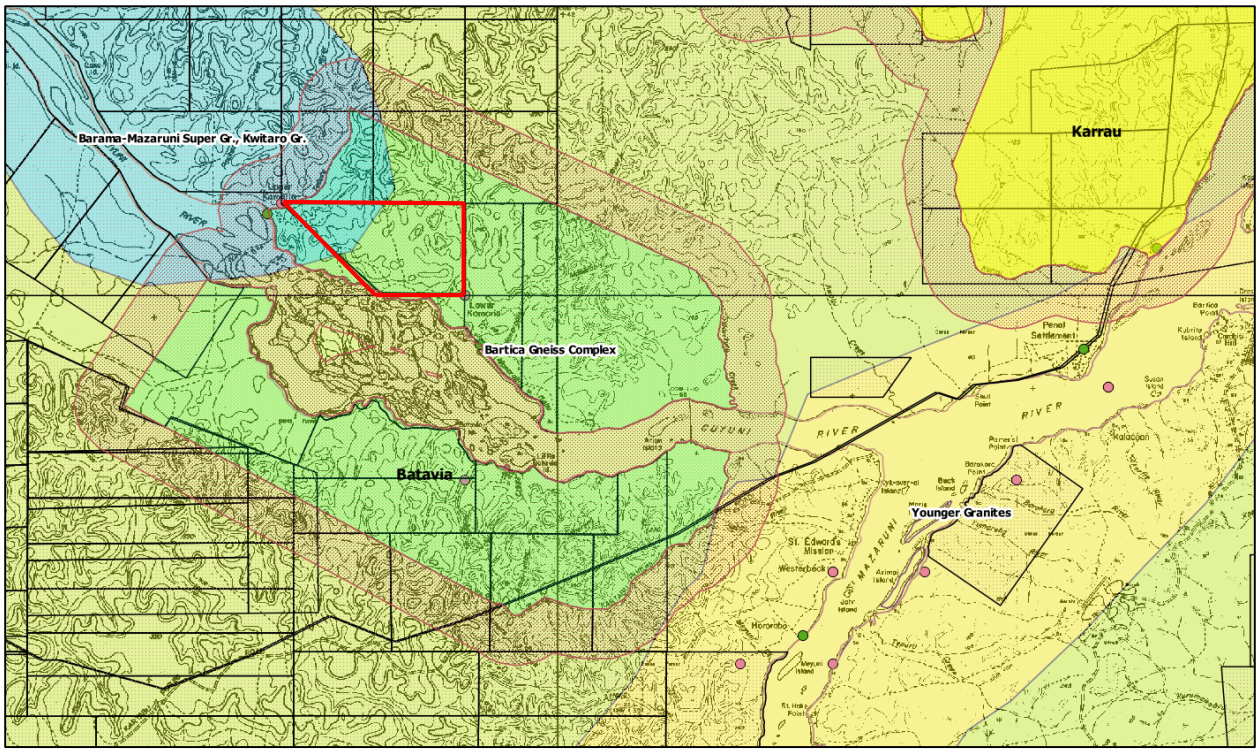
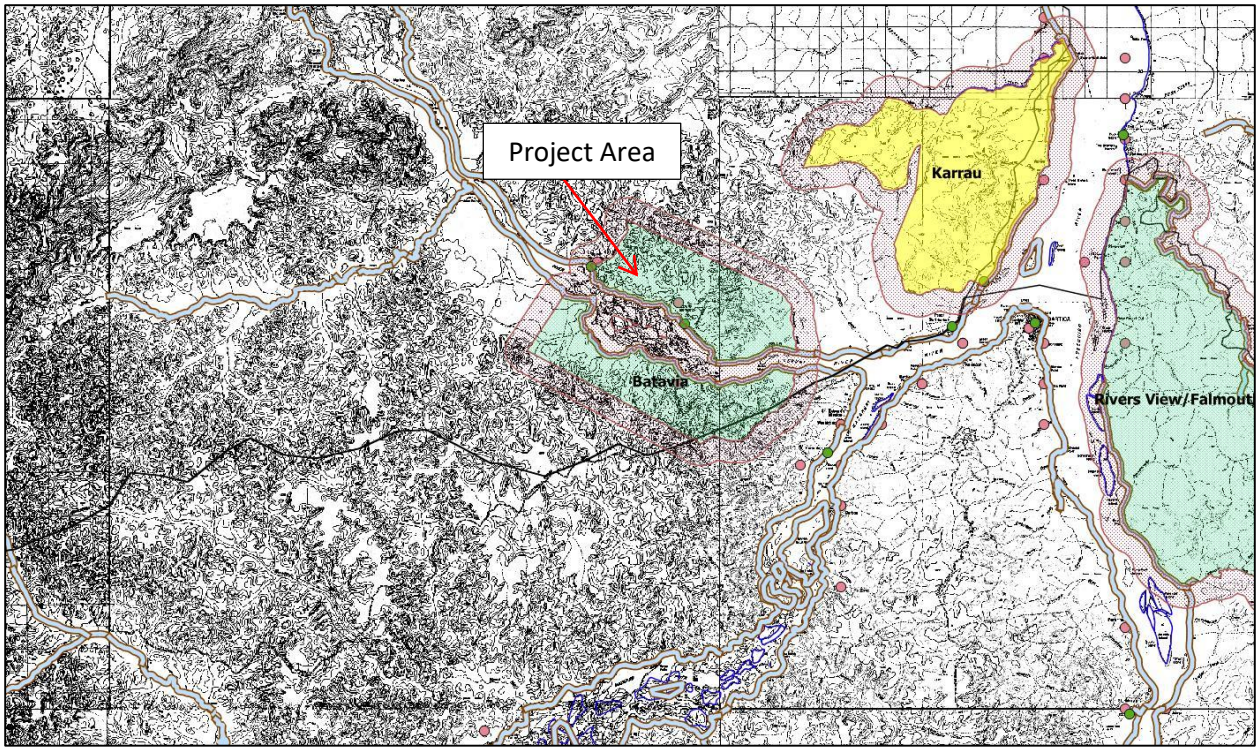


Figure 2: Geology Map of Kamaira Project Area.



Map showing the major water courses and known places in the Cuyuni-Mazaruni area

3. PROJECT DESCRIPTION

The project will see 300,000 to as much as 450,000 tons of stone being mined and produced annually from the Kamaira Quarry over a mine life of five (5) years. The extensions from Site A and Site B will be based on market analysis and drilling. Quarrying operations are expected to commence in first quarter 2022 once all regulatory approvals are obtained.

The capital investment in the project is US $3, 135, 399 but initial investment will be USD1,000,000 or GUY $200,000,000. Through the Project's capital investment and the initial life of five years, the estimated annual turnover is USD 1,597,000 (GUY $319,400,000). The Project will see about 50 employees for the life.

The production objective for the quarry is to produce rip rap for the local market. Based on suitability, most of the rocks will be for rip-rap in the initial phase of the 5-year life. Building material will also be produced based on mechanical properties of the rocks.

The development stages of the Project will consist of:

- **Exploration/Design Phase** – which will include drilling boreholes for the geotechnical and hydrogeologicalinvestigation and environmental surveys of the Project area;
- **Construction Phase** – which will include land clearing, over burden stripping and stockpiling, construction of quarry access roads, on-loading facility, office and camp facilities, and the procurement of the crushing plant;
- **Operation Phase** – which will include granite/gneiss excavation, ripping and blasting, rip-rap stockpiling, crushing aggregates, screening, on-loading, screening and barge transport;
- **Closure Phase -** based on extensions and future development of resources and reserves, once exploited, the buildings will be decommissioned, site clean-up, and rehabilitation.

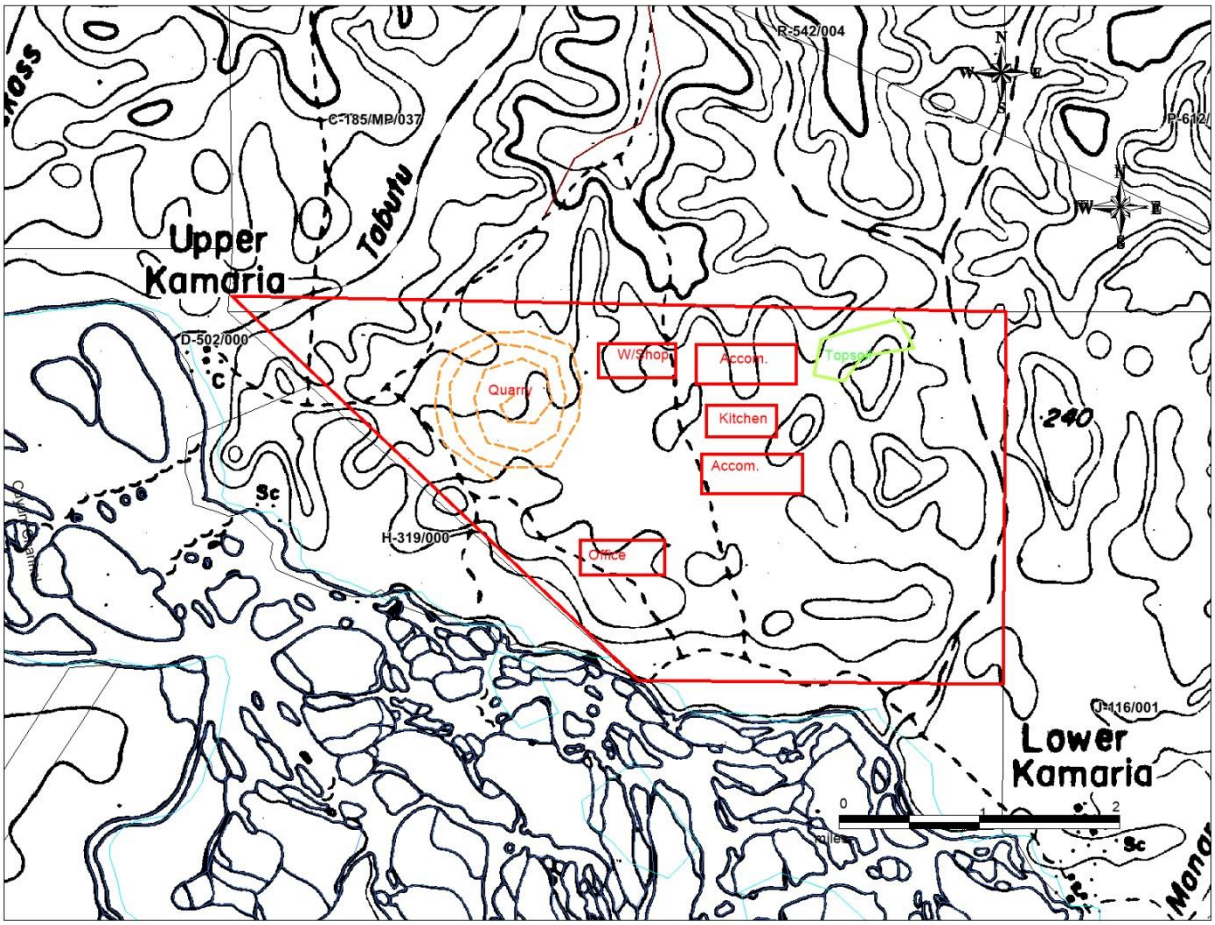


Figure 3: Kamaira Proposed Quarry Layout

3.1 MINING AND ORE PROCESSING

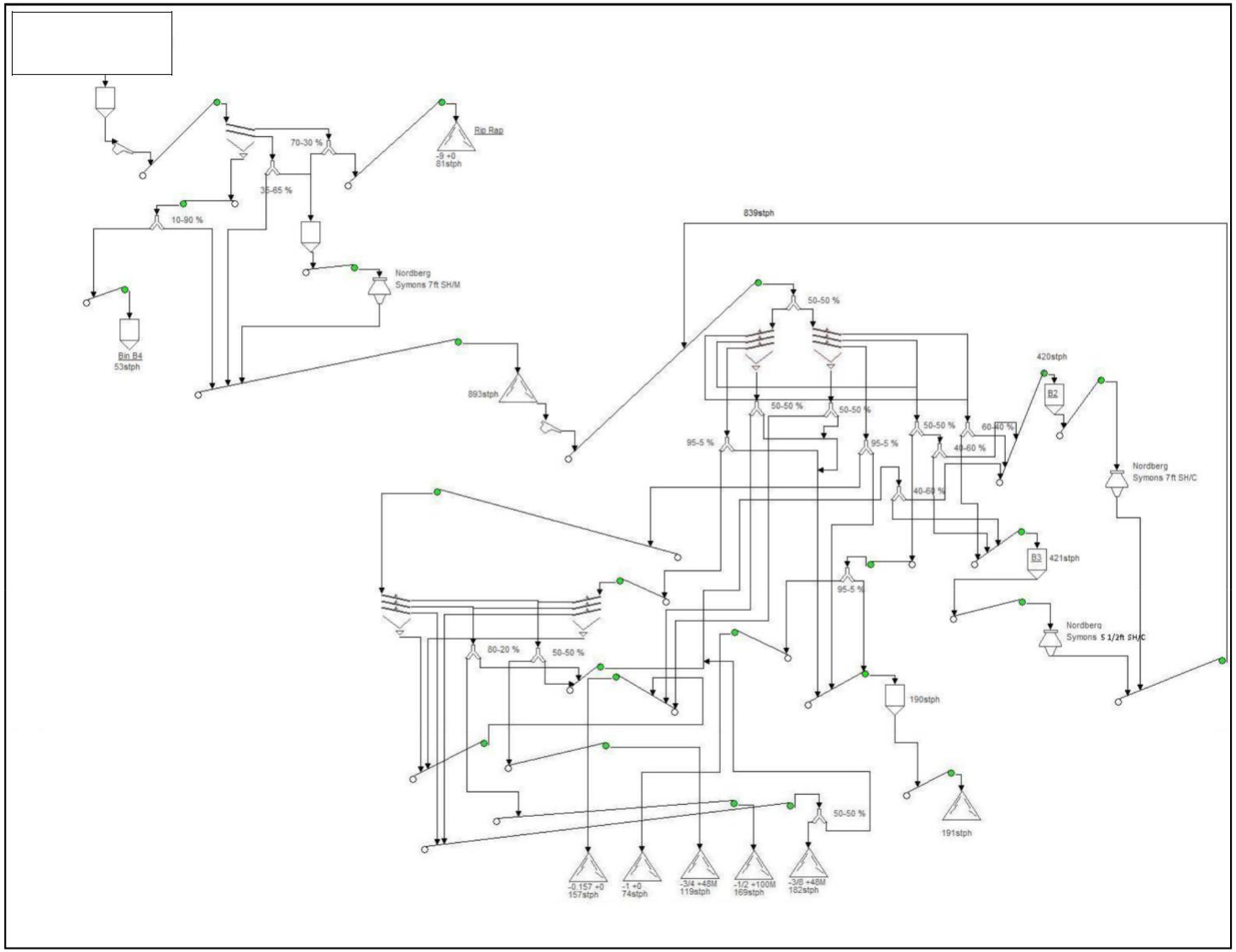
Quarrying will be conducted in accordance with industry best practices. Vegetation clearing will be limited to specific areas for quarrying operations such as the open pit, access roads, crushing plant and camp areas. Topsoil overburden will be stockpiled for reclamation purposes. After stripping, once a desirable surface is exposed, granite and gneiss will be extracted by ripping or blasting, as may be required.

The overall pit configuration will reflect local geological conditions of rock orientations and stability. The influence of ones of fractures and weaknesses will be used for pit design and blasting. The pit will follow the Bartica Formation orientation (E-N). High-walls and benches will be designed based on the geotechnical results recorded from drilling.

Areas that have increased hardness, that cannot be ripped by an excavator will be drilled and blasted. This process will fragment rocks to allow mechanical excavation and loading by excavators. Holes will be drilled behind the working face and packed with explosives, usually Magnafrac, and detonated by electric detonators. This will created manageable fragments which will be hauled to the crushing plant for size reduction and screening. All blasting will be designed to reduce noise and vibration given the proximity of the Amerindian community.

Once the fragments are loaded into haul trucks using excavators and front-end loaders, they will be transported to the primary crusher and screening plant. The product will be stored as stockpiles on the Project area. Stockpiles of different size-fractions will be established to store run-of-mine and crushed material such that crushing and loading capacities will not be exceeded. Crushing operation will commence with a mobile crusher rated at 300/ton per hour. Crushing and stockpiling will be done during daylight operation.

Figure 4: Conceptual Crushing and Stockpiling Circuit



Out-loading will be done using with one (1) 2000 Hp tug and two (2) 1,500 tons barges (one equipped to extremely heavy decking for rip-rap). The estimated barge turn-around is 49 hours (21 hours on the river, 13 hours at the quarry, and 15 hours for off-loading). There is clear river access for tugs and barges using the Essequibo and Cuyuni Rivers.

Offloading sites are available at Parika and Georgetown, with road access available to transport the product to the market. If international markets become available, transport from the Essequibo River is suitable.

Power supply for the plant will be via a 18 KVa generator and camp, a 5 Kva generator. Potable water for domestic use will be sourced from a well and collected (and treated) rain water. No process water is required for the quarry. Water obtained from the proposed quarry water ponds will be routinely sprayed from a water tanker onto all access roads and the stockpiles. Water spray bars will be installed on crushing equipment to suppress dust.

Topsoil will be stockpiled for rehabilitation, while overburden will be stored in a spoilpile and used for road maintenance, or progressive backfilling. Logs obtained from clearing will be used for camps and other facilities and for erosion-control structures.

Domestic wastewater will be directed to a soak away filter treatment system prior to discharge to the Manarabisi River and eventually, the Cuyuni River. Discharge into the river will be in accordance with EPA domestic wastewater discharge limits. All sewage will be directed to septic tanks will filter bed treatment installed. Hazardous materials and waste will be managed in accordance with the EPA's hazardous waste management regulations/requirements. A laydown yard with an impervious base will be constructed onsite.

The following equipment are proposed to be used in the quarrying and processing of materials at Kamaira Quarry:

- Excavator Caterpillar 320
- Wheel Loader 35 tons CAT
- Bulldozer D6 CAT
- CAT 90 ton articulated truck
- Wate cart 400 L
- Barges 1500 tons and 2000 Hp tug

The plant equipment consists of:

No.	Name	Type	Qty	Unit	Capacity (kw)
1	Feeder	GZT1148	1	No.	2x5.5
2	Jaw crusher	PE750x1060	1	No.	110
3	Cone crusher	SMH250	1	No.	200
4	Small feeder	GZG125-4	1	No.	2x1.1
5	Heavy vibrate sieve	2YKRH1860	1	No.	18.5
6	Vibrate sieve	3YK2160	1	No.	30
7	De-ironing separator	RCYD-10	1	set	3
8	Belt conveyor		12	No.	
9	Integrated circuit control system		1	set	
10	Non-standard part and leg of belt conveyor		1	set	

4. POTENTIAL EFFECTS ON THE ENVIRONMENT

Lorenzo Alphonso desires to conduct its Kamaira Quarry operations in an environmentally responsible mannerand is committed to address all issues to ensure proper stewardship of public lands, preservation of wildlife and flora. Details of environmental mitigation measures are outlined in the Environmental Management Plan (EMP) prepared for Lorenzo Alphonso. The EMP will address the potential impacts of the construction, operation and closure phases of the quarry.

POTENTIAL IMPACTS TO LAND AND SOIL

Soil erosion and sedimentation, top-soil mixing, compaction during construction and operation of the quarry. Soil contamination could also occur as a result of accidental release of fuels, waste oils and lubricants.

Mitigation Measures:

Erosion control management plans will be used to minimize soil erosion and sedimentation. Storm water will be appropriately drained and collected in a designated pond. Fuel oils, lubricants and waste oils will be stored in an area with an impervious base and a bund.

POTENTIAL IMPACTS TO AIR QUALITY

Fugitive dust from access roads, the pit excavations and the crusher along with diesel engines emissions are the main elements of air quality concerns at the quarry.

Mitigation Measures:

Fugitive dust will be managed by routine wet suppression on roadways, process areas and accessible working faces. Speed limits will be sternly enforced within the quarry to limit fugitive dust. Spray bars will be installed at strategic points on the crushing equipment to limit dust generation and escape.

Vehicles will be maintained based on a schedule and kept in good working order.

NOISE AND VIBRATIONS

Noise and vibrations will be produced from the operation of heavy equipment, the generator, pit excavation and blasting.

Mitigation Measures

Noise emissions will be mitigated by installing sound suppression equipment on vehicles, e.g. mufflers. Vehicles will be maintained according to the manufacturer's specifications and routinely serviced t maintain good working order. Vegetative buffer will be used between the quarry pit and the accommodation areas which will serve as a noise buffer.

Blasting will be conducted in accordance with the GGMC Code of Practice for Quarrying and will be done according to the blast management plan, under supervision of a certified blaster, engineer and police ranks.

IMPACTS TO WATER (SURFACE AND GROUND)

Vegetation clearing for construction, access roads and quarrying activities will reduce interception of surface water with the forest floor cover and may result in increased discharge into the Tabutu and Manarabisi Rivers, and eventually the Cuyuni River. Erosion may affect the water quality of the receiving bodies of water.

Ground water may be affected by infiltration and leaching of chemicals from exposed minerals, spoilpiles and spills of oils and grease.

Mitigation Measures

Surface and ground water impacts will be mitigated through the implementation of storm water and sediment control structures. Erosion control management plan will be used from construction to closure of the quarry.