



**Environmental
Protection
Agency - Guyana**

**ENVIRONMENTAL PROTECTION AGENCY (EPA)-GUYANA
ENVIRONMENTAL AUTHORISATION SCREENING REPORT**

**NAME OF COMPANY: Rexford Jackson, J-1040/000 Quarry
Project**

TYPE OF PROJECT: Stone Quarry

REFERENCE NO.: 20230315-RJSQA

**PROJECT LOCATION: J1040/000, confluence of Corentyne River and
Epira River, Region 6.**

*Please note that the source of information provided in the following report is the
Project Description submitted by the Developer/Company with the Application.*

1.0 INTRODUCTION

PROJECT OVERVIEW AND DESCRIPTION

The Environmental Protection Agency received an Application from Mr. Rexford Jackson on March 16, 2022, for Environmental Authorisation of Stone Quarry to be located at J-1040/MP/000, confluence of Corentyne River and Epira River, Region 6. The following documents were submitted as a part of application's requirement:

- Republic of Guyana Drivers Licence - belonging to Rexford Jackson;
- Certificate of Registration;
- J-1040 Quarry Project Summary;
- J-1040 Quarry Project Block Description; and
- Intention to Grant from GGMC published on December 07, 2022.

The application was screened and aligned with information gathered from an inspection for a project that is located in proximity to this one and as such the following details were obtained from the inspection.

The proposed project will be situated at J-1040/MP/000, confluence of Corentyne River, Region 6, and will occupy an area that is approximately 938 acres in size. The Company's intention is to transform approximately 153.2 acres of state land into a Stone Quarry. The area is characterized by low rolling hills and valley with minor drainage lines. The rocks within the area are medium grained, hard, massive granite formed by a NW-SE trending dyke that passes through the entire area.

Rock Mass Classification- The main rock classification in the project area is Granite and Diorite. Granite and Diorite in this region have a density of approximately 2.6 and 2.7 tons per cm³ respectively. Diorite is an intrusive igneous rock, which forms from molten rock that cools and solidifies below the Earth's surface. Granite, is classified as an extrusive igneous rock because it forms from lava that cools and solidifies above ground, with even texture and light colour, primarily composed of feldspar, higher quartz than Diorite and along with various other minerals in varying percentage.

During operations, the stone quarry expects to produce ~50,000 metric tons of stone annually. The only suitable access to the area of the future quarry and processing site is via the Corentyne River. The same route will be used to transport quarried materials.

The quarry development and quarry access road, will start from the processing plant in the north, due to high probability of low reserves in the area and head towards to Corentyne River in the southern direction. The placement of the primary crushing and screening technology will be at the North – Eastern section of the project area.

The operation phase (Pit) of the project will be mined using an open cast semi-mechanical. The processing plant at J-1040 Quarry Project will consist of a two-stage crushing and screening system, where typical drill, blast and haul cycles will be used. The process plant will operate on one (1) eight-hour shift, six (6) days a week, to meet local aggregate production demands.

The proposed Project is dominated by gradual and gentle slopped hills running into a flat plateau.

The characteristics of the soil include vegetative cover, top soil, Saprolite and clay. The estimated volume of this overburden is unknown; however, it is expected that approximately 10 meter of overburden will be required to be excavated to reach

rocks for processing. The topsoil and overburden will be stripped and stockpiled for rehabilitation purposes. Overburden spoil piles will be located in areas of poor/no stone reserves. As it relates to drilling and blasting, stone will be fragmented by blasting in the form of several standard bench blasts, rock breakers will be utilized in place of secondary blasting. In order to meet the annual production capacity (100,000 metric tons) blasting will be conducted once to twice per week.

Within the Northern and Western part of the deposit a main haul road will be constructed for access to the quarry benches. The length of the road will be approximately 2500 m. The quarry operation will utilize the required equipment for loosening raw material (drilling equipment, explosives), and for loading and hauling blasted rocks. Rock handing will be transported within three stages/ categories; Haulage by quarry machinery inside area, Haulage of raw materials from quarry to processing plant and transport of end products – shipping.

The proposed project is expected to last twenty (20) years, after which a Rehabilitation and Closure Plan prepared by the Company will be implemented. The facilities will be progressively closed over the duration of the operations. Final closure of the facility will occur in two stages. The first stage will entail the following activities:

- All fuel, chemicals, waste hydrocarbon products, etc. will be removed from the site;
- Pit dewatering will cease;
- Land will be reshaped consistent with the existing topography; and
- Water treatment will cease once runoff water no longer requires treatment.

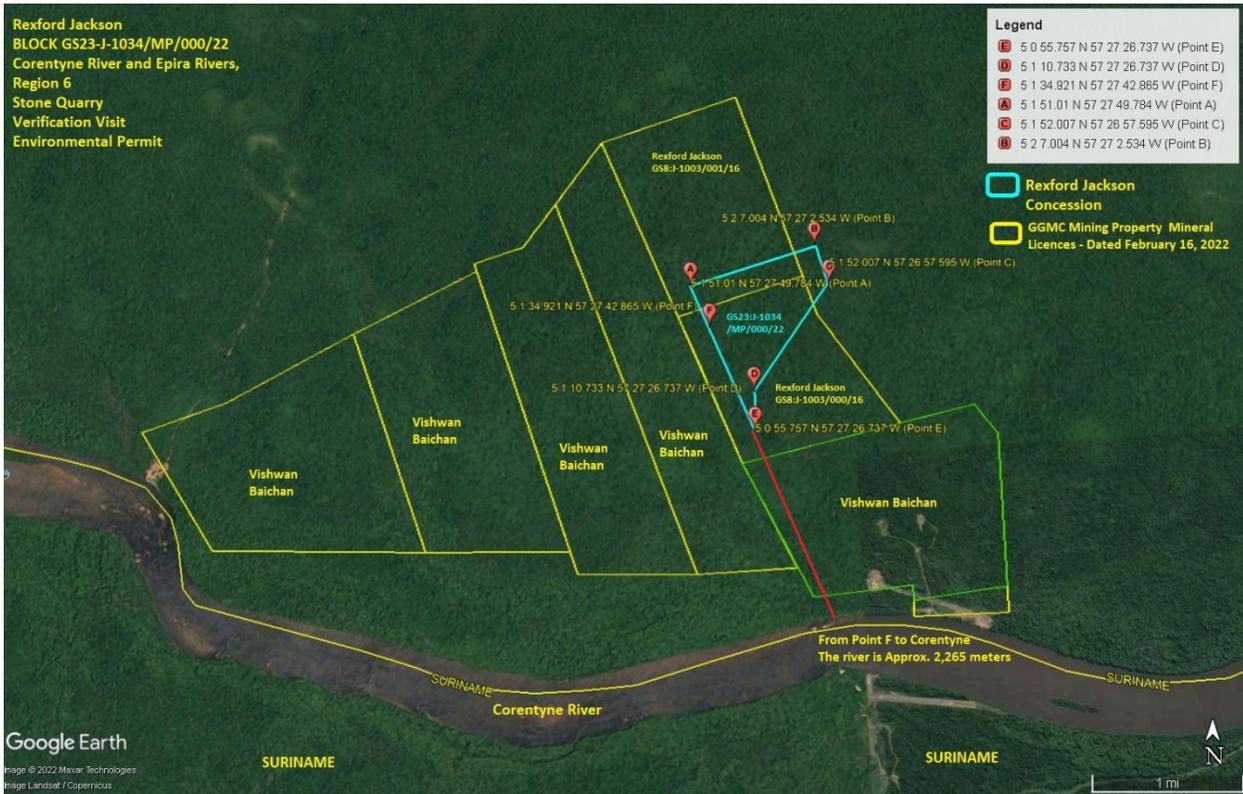
The second stage of final closure will involve the removal of all equipment, machinery, and storage tanks for reuse or recycle. Where reuse or recycle is not possible these materials will be disposed of in a suitable way. All structures will be removed and/or be demolished. Once all operations have been completed, all buildings and infrastructure will be removed from within the activity areas. In addition, the water management pond will be closed and all disturbed areas will be rehabilitated, with the exception of roads needed for access during long term monitoring.

PROJECT LOCATION

As mentioned earlier, the Project is located at the J-1040/MP/000- confluence of Corentyne River and Epira River, Region 6. It is centered at grid reference 057° 18' 3.744" W 5° 9' 18.403" N on 1:50,000 topographic sheet. The project area can be defined by the following grid references based on the 1:50, 000 topographic map sheet 47SW: be defined by the following by the following grid reference based on the 1:50,000 topographic map sheet 47SW:

North Eastern Corner – Longitude 57°28'18.779"W, Latitude 5°3'418" N
North Eastern Corner – Longitude 57°27'26.474"W, Latitude 5°3'19.526" N
South Western Corner – Longitude 57°27'26.179"W, Latitude 5°3'18.623" N
South Eastern Corner – Longitude 57°27'2.534"W, Latitude 5°2'7.004" N
South Eastern Corner – Longitude 57°27'49.784"W, Latitude 5°1'51.01" N

The closest community is, Siparuta approximately some 35.468 km north, all distances along terrestrial routes. Orealla Amerindian Titled Lands is located approximately 44.624 km north downstream the Corentyne River with respect to the project area. The project area is 0.51 km from Epira Airport. Corentyne River and Epira River is approximately 2.265 km south and 28.312 km north respectively. Aside from tracks and trails made by small scale artisanal loggers the forest cover has essentially been preserved, only very selective logging practices are carried out in the area by Vishwan Baichan-Baichan Forestry Concession. Addition there a Stone Quarry already in operation adjacent to the Project Site, there high probability of the cumulative impacts from both operations affecting the environment.



GOOGLE IMAGES: ILLUSTRATING THE PROJECT LOCATION AND BOUNDARY LINES

Flora

The general description of the vegetation present in the area is consists of mixed forest with common species found through-out Guyana. There are a number of species are abundant, and even locally dominant in the area. Such species include Bat seed, Brown and yellow Silverbali, Dukali, Fukadi, Itebali, Munirdan, Simarupa, Wamara, White Cedar, Tatabu, and Tauroniro and others.

Fauna

Mammals- The most abundant order was Carnivora which was represented by four (4) species, while the orders Rodentia were represented by two (2) species respectively. Birds- The family with the greatest recorded species diversity of sixteen (16) species are the Thamnophilidae (antbirds, antshrikes and antwrens).

- Protection - Identify and protect sites deemed as valuable habitats or containing threatened species.

Relocation - Where important habitats or species cannot be protected at the site the following should be considered:

- Relocation of fauna species, nesting sites and others to a suitable nearby location.
- Multiple replanting, or conservation activities at an alternative site, as an offset strategy for mature vegetation that has to be removed.
- Buffers - Provide vegetative buffers to protected areas.
- Vegetation linkages - Retain vegetation linkages to intact ecological communities on the boundary of the site as far as possible.
- Wetlands - Incorporate wetlands into sedimentation pond designs to provide additional or alternative habitat for wetland flora and fauna species.

Soil Type

The soil type consists of gravelly sandy clay, clay loam, gravelly clay loam, sand, loamy sand. These are further classified as follows: ferralic Cambisols, dystric Leptosols, lithic Leptosols, acri-haplic ferralsols, albic arenosols, caJCIc podsols, ferralic/luvic Arenosols, acri-haplic/acri-xanthic Ferrasols, terric Histosols, terric Histosols/gleyc Cambisols, gleyic Cambisols, and Fluvisols

2.0 CHARACTERISTICS OF POTENTIAL IMPACTS

SURFACE WATER

Resulting from the field inspection conducted for this project and the information submitted in the various submissions, surface water quality can be affected during the Mine development and operational phases of the proposed project. It is noted that land clearing and earthmoving activities associated with development of the

quarry infrastructure, including the water management ponds may increase the potential for erosion and the associated increase in sediment being transported to waterways and cause sedimentation of the waterways within the Project area. Additionally, during the construction and operation of the mine site along with facilities there is potential for accidental discharges of fuel, oils and grease from operating equipment, acid mine drain from stock pile runoff, increase sediment loads from construction activities. The foregoing activities and synonymous with mining and are mitigable.

Mitigation Measures - Water Quality (not limited to)

The key objective of the mitigation measures is to protect existing waterways and groundwater resources from impacts from the mining and mining related activities. The mitigation measures that can be considered for water quality improvement include:

- Implementation of the Water Management Plan and Erosion and Sediment Control Plan, channeling storm water discharge from fuel storage areas to an oil water separator.
- **Drainage flow** - As far as possible, drainage should follow existing drainage lines with vegetation along the drainage lines retained.
- **Cut-off drainage** - Cut-off drains or diversion banks can prevent surface flows from entering the quarry works areas. These should discharge into vegetated natural drainage lines, or as distributed flow across an area stabilised against erosion.
- **Sedimentation ponds** - Run-off from work areas should be routed towards sedimentation ponds. These trap sediment and reduce suspended sediment loads before runoff is discharged from the stone quarry site. Sedimentation ponds should be designed based on runoff, retention times, and soil characteristics. There may be a need to provide a series of sedimentation ponds to achieve the desired outcome.
- **Flow barriers** - Additional methods for trapping sediments include using barriers to flow such as silt fences, crushed rock filters, hay bales, logs, or sandbags.
- **Vegetation buffer** - A vegetated buffer strip around the perimeter of the site where surface water flow passes through can be effective, and should be provided along any significant waterways passing through the site.

Impact Significance

The potential for negative impacts to fauna, flora and aquatic life is considered to be low and can only occur if no mitigative or corrective action is taken by the Project

proponents to address any foreseeable impacts.

Further, and based on the fact that the area is surrounded by trees/vegetation that will act as natural filters of storm water runoff and as such will result in the reduction of sediment flow and as such sedimentation of surface water is going to be low. Apart from the above, the Developer has no intention to alter any of the major existing drainage systems within the area. It is also the intent of the Developer to develop Spill Prevention and Contingency Plan, installation of sedimentation ponds and flow barriers, silt fence etc. Implementation of these mitigation measures will further mitigate any project related impact that maybe experienced on water quality during construction and operation (low likelihood of occurring, low severity).

Ground Water

Ground water dewatering may be required during construction of foundations for project infrastructure. Spills of fuel and oils may occur within the vicinity of foundation excavations etc. During operation spills of fuel and oils may occur from equipment, fuel storage, hazardous storage areas and from servicing areas. During Mine closure, surface and groundwater quality can be affected if water management/sedimentation ponds fail. In addition, the dismantling and cleanup of fuel storage tanks, hazardous waste receptacles, and other accumulated materials during closure can lead to spills which could contaminate surface water and/ or groundwater as well as soils. It should be noted that the forgone impacts would be localized to the immediate area of impact, would be low in nature and would have a low level of significance if no mitigative measure is applied.

Mitigation Measures – Ground Water Quality (*not limited to*)

- Implementation of the Emergency Response Plan (ERP); including measures such as siting of fuel containment tanks on impervious bases located within an impermeable enclosure designed to hold 120% of the contents in the tank.
- The ERP will detail plans for utilization of sorbents, biological agents, chemical dispersants and gelling agents.
- Enforcement of a program to check for equipment leaks.
- Impermeable liners will be placed over the base of the water management/sediment ponds during construction. This will reduce recharge to ground water.
- Installation / implementation of drip pans on all equipment.

- Periodic monitoring of surface and groundwater conditions in the of the sedimentation and water management ponds.

Impact Significance

There is potential for negative impact on ground water during all phases of the project if no mitigative or corrective action is taken by the Project proponents to address any foreseeable impact. There is little to no potential for fuel spills accidental release, seepage of waste water contained in sedimentation/water management ponds, contamination of groundwater within solid waste disposal pits at the project site if the necessary precautionary measure and taken and implemented. Once the necessary measures are taken and implemented then the potential for occurrence will be rated as having (low likelihood of occurring, low severity) to groundwater quality.

SOIL IMPACTS

Soil Erosion and Sedimentation

The potential for impacts to soil may emanate from the clearing of vegetation, landscape grading, and re-contouring to ensure proper drainage, and other construction activities. These impacts are expected in steeply sloping areas and where the soils erosion potential is severe. If not mitigated, soil erosion can also lead to the cumulative effects of siltation and sedimentation in streams and rivers downstream as well as reduced depth of riverbeds and watercourses, which inhibits navigation low-lying areas. Further, any disturbance of the in-situ soil will elevate the potential for increased soil erosion and run-off in particular steep faces that are typical of open pit operations and areas very prone to erosion

Mitigation Measures – Soil Impacts (*not limited to*)

- Implementation of best management practices in a Storm Water Management Plan for soil erosion, storm water runoff, and sedimentation control.
- **Sedimentation ponds** - Provision of sedimentation ponds based on the finalized mine plan to capture material eroded at the site before discharge.
- **Ground cover** - Design of surface ground cover to minimise soil exposure to intense rainstorm. Adequate soil compaction works should be conducted at the end of each working day to reduce soil erosion.
- **Retain vegetation** - Retain existing or re-plant the vegetation at the site wherever possible.
- **Run-off diversion** - Minimise or divert high velocity runoff away from

sensitive/ easily prone to erosion areas through provision of proper drainage systems.

- **Drainage** - Construction of high-volume drainage systems conforming to site conditions to handle concentrated or increased runoff from intense rainstorms.
- **Monitoring and maintenance** - Regular monitoring and maintenance of erosion control systems so that they perform as specified.
- **Benching** - Provision for slope benching system at the quarry face.
- **Turfing** - Turfing should be carried out to establish vegetation on the slope making it more stable.
- **Weather condition** - Blasting activities and related earthworks should not be carried out during wet and rainy weather conditions.
- **Retain vegetation** - Existing vegetation on hill slopes especially on undeveloped areas are to be retained as much as possible to act as natural buffers.
- **Checking slope areas** - Regular checking of the slope surface and surrounding areas for signs of possible slope failure and soil erosion should be carried out.

Impact Significance

Significant impacts to soils are only expected to occur in steeply sloping areas and where the soils erosion potential is severe such as the mine pits and overburden stockpiles only if no mitigative or corrective action is taken by the Project proponents to address any foreseeable impacts. Additionally, the implementation of best management practices in a Storm Water Management Plan and Erosion and Sediment Control Plan for soil erosion, storm water runoff, and sedimentation control and the segregation of topsoil or surface soil from subsurface layers during construction activities will all aid in making the potential impact to soil having low likelihood of occurring and a low severity.

AIR POLLUTION

Dust generation has a low likelihood of occur during construction and operation activities from the movement of vehicles and machinery, land clearing, blasting and excavation and loading and unloading of soil, crushed rocks, etc. In the operation phase of the project, one is expected to see some level of dust generation and combustion emissions from activities such as:

- stripping of topsoil and overburden;
- drilling and blasting;
- loading and unloading of haul trucks;
- Transport of extracted ore materials;

- Vehicle traversing site roads;
- Wind erosion of stockpiles; and
- Operation of heavy-duty equipment/machinery.

Mitigation Measures – Air Quality (*not limited to*)

- **Location of stockpiles** - At the planning stage, there should be an assessment of prevailing winds, and this should guide the location of stockpiles, spoil mounds, conveyors, and others to minimize dust being blown outside the site boundary.
- **Vegetation barriers** - These consist of dense stands of mature trees, can act as windbreaks to help alleviate dust generation.
- **Dust control for crusher plant** - Conveyors and transfer points can be major sources of dust generation. Acceptable mitigation measures for these can be any or all the following:
 1. Enclosures, Mist sprays,
 2. Dust extraction equipment.
- **Minimising distance** - Minimising the distance between the discharge point and the top of the stockpile can reduce dust generation.
- **Cease operations** - During periods of high wind speeds operations may be ceased or curtailed to prevent excessive dust leaving the site.
- **Water spraying** - Grounds of the quarry site and stockpiles including overburden areas and access roads may be regularly sprayed with water to reduce dust generation. The frequency should be determined based on-site conditions.
- **Wheel washing facility** - Provide a wheel washing facility at site exit points to avoid dirt being carried out of the project area. Water from the washing facility should be changed regularly to ensure clean water (without silt) at all times. The facilities should be connected to the sedimentation basin to treat dirty water, prior to final discharge.
- **Speed limit** - Speed limits should be applied to unsealed roads to limit dust generation (as well as noise, and maintenance requirements).
- **Material cover** - Dust can also be reduced during the transportation of materials by covering loads on trucks. Less effective, but still useful is to limit the fill height of material in the tray to the level of the top of the tray.
- **Site Entrance** - Quarry entrance can be sealed/ layered with aggregates to minimize dirt carried offsite on vehicle tyres.

Impact Significance moderate

There is the potential for negative impact on employees within the confines of the project area if no mitigative or corrective action is taken by the Project proponents

to address any foreseeable impacts that may arise. Other pollutants such as VOCs, SO₂, etc. can be generated from the power generating equipment, machinery and explosive materials used for blasting. These emissions will be short-term and may only occur via the use of certain equipment. Further, the impact to air may only occur during the dry weather season with a low likelihood of occurring and at low severity.

NOISE POLLUTION

Construction and operation activities are expected to create a high threshold of noise. These activities include the operation of heavy earthmoving machinery. During the quarrying (crushing and screening operations) high noise levels are also expected. Periodic elevated noise levels will also be generated from blasting activities and loading and transporting of quarry materials. Primary noise receptors in the area will be individuals involved in construction activities at the site. Elevated noise levels will also have an effect on many species of wildlife that are sensitive to increased noise levels.

Mitigation Measures - Noise Pollution (*not limited to*)

The mitigation measures that can be considered for noise pollution control include (but are not limited to):

- **Vehicles/Equipment** - Avoid deployment of poorly maintained, or old transport vehicles and equipment.
- **Physical Barriers** - Noise attenuation may be achieved to some degree by barriers. These may be bund walls installed at the site, zinc hoardings, vegetation barriers, or natural topographic features.
- **Vegetation barriers** - If trees are being considered as effective noise attenuation means, the trees need to be mature, the plantings relatively dense, and the width of the barrier greater than 20 meters. The stand of trees also needs to extend to well above the point source of the noise.
- **Silencers** - Machinery such as compressors, engines, generators, and exhausts may be fitted with silencers to reduce their impact, if necessary.
- **Speed limit** - Truck noise on access roads and haulage roads can be reduced by maintaining low speeds and through regular vehicle maintenance. Proper selection of access roads can also reduce noise impacts.

Impact Significance

Noise and vibration will be emitted during all phases of the project. There is the potential for negative impact on employees and fauna within the confines of the project area if no mitigative or corrective action is taken by the Project proponents to address any foreseeable impacts. Noise and vibration will be from blasting, heavy

machinery movement and operation of genset. Noise impact will also be localized. Further, there is no person or communities that would be proximity to the area of noise impacted. The closest community is Siparuta which is located approximately 35.4 km from the Project site. This impact will be direct and short term to the project site only with a low (low likelihood of occurring, low severity) significance.

WASTE MANAGEMENT

Large quantities of waste will be generated throughout the lifetime of the quarry (construction and operation phases) Operation. The operation is expected to generate different streams of waste, both solid and liquid (non-hazardous and hazardous/toxic). Waste generated by quarry activities include:

- Sludge (usually clay/ silt) materials collected in sedimentation ponds.
- Waste oils or chemicals from vehicle, machinery, or other uses.
- Domestic wastes (sewage, drainage) from on-site sanitary or kitchen facilities.
- Vegetative waste from site clearing activities.

If not properly managed, this waste can lead to contamination of soils and water, as well as the generation of odors, attraction of vermin and the creation of human health and safety hazards.

Mitigation measures (not limited to)

- Implementation of a Waste Management Plan for each type of waste anticipated to be generated by the quarry operation, during construction and operation.
- **Minimise waste** - All efforts must be made to minimise the amount of waste generated through recycling and prudent procurement and operation. Where feasible, waste should be removed to public waste disposal sites. Where this is not feasible, pits may be dug at safe distances from water bodies and to a depth that does not pose any instability to slopes or offer opportunities to wildlife or pests to dig it up. It is imperative that groundwater is not impacted by the disposal of wastes in these pits.
- **Zero burning** - Biomass waste from site clearing may not be burned but can be left for natural decomposition. The environmental consultant should emphasise options for better utilisation of smaller dimensions of woody biomass (such as small trees and branches) from site clearing.
- **Provision of waste bins** - Provision for sufficient waste bins for collection

of solid waste generated onsite. These bins should be emptied on a regular basis and the waste collected should be disposed of at the local authority's approved disposal sites.

- **Housekeeping** - Good housekeeping practice onsite (wastes should be properly disposed of at designated containers/ areas).
- **Location of facilities** - The location of workshops and fuel/ lubricant storage facilities (if any) should be at least 50 metre distance from the nearest natural waterway and installed with proper oil traps and spill containment.
- **Oily/scheduled waste** - Collect used oil and oily wastes from machinery and transportation vehicles and store and label in proper containers for disposal. A temporary storage facility should be constructed within the project site, and should be fenced, covered, bunded, sign posted, have impervious flooring, and be provided with spill containment, proper drainage and oil trap. The facility should be sited more than 50 m away from any river, stream or sensitive area.
- Overburden will be placed in spoil piles in the mined-out area.

Impact Significance

During all phases of the project waste will be generated. Vegetation and overburden/topsoil will be generated from the construction and operation phases of the project. Non-hazardous solid waste will also be generated more so during operation such as trash, scrap metal, rubble, domestic wastes. Hazardous waste such as waste oil will be generated at each phase of the project from the use and serving of machinery, equipment and vehicles. Explosives and fuel will be stored, transported and handle during operation. If no mitigative or corrective action is taken by the Project proponents improper management of solid waste will affect employees of the Quarry. This impact is rated as low (low likelihood of occurring, low severity).

Further, it is noted that non -hazardous solid waste will be disposed of in a controlled and lined solid waste pit. Plan to implement proper collection and storage of waste oil on site such as leak-proof containers, construct impervious base for storage and storage distance from waterways. Establishing a storage bond with impervious base for explosives. With implementation of these measures the impact associated with hazardous and non-hazardous waste generation is considered to be minor (low likelihood of occurring, low severity).

3.0 PROJECT SIGNIFICANCE

CRITERION 1 PROJECT LOCATION (FOR EXAMPLE, A DENSELY POPULATED AREA; OR HIGH-DENSITY INDUSTRIAL ZONE)

As mentioned earlier the project is situated at J-1040/MP/000 - Confluence of the Corentyne River and Epira River, Region 6. The closest Community to the project site is approximately 35.468 km away from area. The landscape is dominated with active forest concession that are operating on Laterite and Saprolite soils. The area is highly forested and comprised many known commercial forest species and lesser-known forest species. Vegetation coverage is dense and the area is with scattered marsh and swamps. The project block is located next to an active Stone quarry operation that is immediately adjacent to its southern boundary and other stone quarries are earmarked for the area.

CRITERION 2 ENVIROMENTAL SENSITIVITY: WILL THE PROJECT BE LOCATED IN AN ENVIRONMENTALLY SENSITIVE AREA)

The project is not located in close proximity to any environmentally sensitive areas or ecological systems. However, the Project Area is influenced by a logging concession, creeks within the Corentyne River watershed area in the Southern direction. It is not envisioned that this Project will impact these resources in any way that may be deemed environmentally sensitive.

CRITERION 3 LEVEL OF PUBLIC CONCERN

Level of Public Concern is considered low. The closest Community (Siparuta) is located approximately 35.4 km away from project site and as such will not be exposed to any negative impact from this Project. Further, the immediate surrounding land use of the area is forest.

4.0 SUMMARY OF IMPACT RESULTS TABLE

| Receptor(s) | Likelihood | Reversibility | Extent /Duration | Severity/Magnitude | Receptors |
|---------------------------------------|-------------------|----------------------|--|---|---|
| Air Quality/Noise/Radiation | low Likelihood | Reversible | Within the boundaries of the project. Lifetime of project (5 years) | low likelihood of occurring, low severity | Workers, flora and fauna within and around the project area. |
| Surface water quality/quantity | Low Likelihood | Reversible | Within and outside of the boundaries of the project. Lifetime of project (5 years) | Low likelihood of occurring, low severity | Workers and ecosystem within and downstream of the project. |
| Groundwater quality/quantity | Low Likelihood | Reversible | Within the boundaries of the project area. Lifetime of project (5 years) | Low likelihood of occurring, low severity | Workers, and ecosystem within and around the project area. |
| Soils | Low Likelihood | Reversible | Within the boundaries of the project area. Lifetime of project (5 years) | Low likelihood of occurring, low severity | Workers, fauna and ecosystem within and around the project area. |
| Waste Management | Low Likelihood | Reversible | Within and outside the boundaries of the project area. Lifetime of project (5 years) | Low likelihood of occurring, low severity | Workers, air, soil, water within and outside of the boundaries of the project area. |

4.0 RECOMMENDATION/CONCLUSION:

It is concluded based on existing data, technical review, observations/field inspection and exercise of discretion that the environmental and human impacts from the proposed stone quarry are known and the likelihood and severity of these impacts are infrequent and localized to the project area. However, it is not envisioned that any significant environmental impacts will occur once mitigation measures outlined in section 2 of this report are implemented and followed and once best management practices are adopted by the Developer.

It is therefore recommended that an EIA is not needed for this Project in-keeping with the Environmental Authorisation Regulations, and that the Project can be issued with an Environmental Permit. However, the project will be required to submit an Environmental Assessment Management Plan (EAMP) outlining mitigative measures for potential project impacts.

PHOTOS

| Picture | |
|--|---|
|  |  |
| <p>Picture 1: Showing forestry activities in the area</p> | <p>Picture 2: Showing Baichan Quarry</p> |
|  |  |
| <p>Picture 3: Showing the proposed Project Site</p> | <p>Picture 2: Showing the entrance into the Mining Block</p> |
|  <p><small>29/09/2022</small></p> | |
| <p>Picture 1: Showing down wind of the operation in the southern direction of the Mining block</p> | |