

4

## **APPENDIX No 2**

# **PROPOSED PROGRAMME FOR MINING OPERATIONS**

## 2.1 Introduction

Arab Contractors Limited is a Zambian registered company under the Company Registration Act. The company has established operations in Egypt and Nigeria, with recent contracts extended to East and Central Africa. The company is actively involved in construction and civil works with a dedicated and experienced team of shareholders. Recently Arab Contractors Limited was awarded a number of construction and civil works contracts in Zambia, a number of which are within Lusaka and Central Provinces. To meet the contractual obligations, the company would require large volumes of quarry products.

It is from this background that the company herein applies for a Large Mining License over the area covered by Prospecting License No. 19393-HQ-LPL.

Upon grant of the license, Arab Contractors Limited intends to start quarrying operations at the identified site within the tenement. The company will invest an initial sum of more than USD 10m mainly on capital plant and equipment, with a further USD 2m in operation costs for the initial two (2) year period. The quarry operations will run on minimal mechanisation, whilst utilizing locally available skilled and unskilled human resource as much as practically possible. As much a matter of policy, and as a part of its operate social responsibility, Arab Contractors will be committed to contributing positively to the local and regional economic growth through the quarrying project at Ngwenya Area in Kafue District.

With increasing demand on quarry aggregates, the company plans to run the quarry throughout the year while maintaining sufficient stock piles to cover for the planned plant maintenance period.

In as much as practically possible, the company will remain committed to the Environmental Management Plan (EMP) herein outline.

## 2.2 Summary of Programme of Operation

| No.    | Activity  | Period        |               | Estimated Cost | Comments   |
|--------|---|---------------|---------------|----------------|--|
|        |   | Start         | End           |                |  |
| 2.2.1  | Prospecting works   | Feb 2014      | April 2014    | 20,000         | Works for phase I works for phase II to be commenced   |
| 2.2.2  | Mobilisation  | March 2014    | June 2014     | 12,000         | Mobilisation for quarrying operations commenced during prospecting   |
| 2.2.3  | Procurement of Plant & Equipment  | February 2014 | June 2014     | 5,000          | Commenced during prospecting   |
| 2.2.4  | Consultative meetings with Stakeholders   | January 2014  | February 2014 | 3,500          | Meeting conducted with stakeholders, forestry department, Zambia Environmental Management Agency, Kafue District Council, Ministry of Agriculture, Ministry of Land, Chiefs representatives and local community. |
| 2.2.5  | Identification of affected households for possible relocation   | January 2014  | January 2014  | 2,000          | No households were identified  |
| 2.2.6  | Survey of tenement and pegging  | February 2014 | February 2014 | 2,500          | Survey of the proposed site was done.  |
| 2.2.7  | Environmental Project Brief EPB General Mining area   | December 2013 | February 2014 | 3,000          | EPB for quarrying operations was prepared by consultant Tropical Environmental Management Experts and submitted to ZEMA.   |
| 2.2.8  | Casting of Crusher Foundation and Crushing Plant assembly, clearing of stock piling area & construction slab  | February 2014 | March 2014    | 150,000        | Site for Crushing Plant identified and crushing plant components delivered.  |
| 2.2.9  | Construction and civil works, Office Block, Workshop & Wash bay, Stores rooms, Ablution Block, First Aid Clinic, Weigh Bridge, Fuel Station & Gen-Set room, Security fence and Gate | March 2014    | April 2014    | 350,000        | Location for crushing plant construction sited   |
| 2.2.10 | Over burden removal   | April 2014    | April 2014    | 2,500          |  |
| 2.2.11 | Quarrying & Crushing Operations   | April         | On-going      | As per Annex   | Open pit mining expected at the identified pit location  |

### **2.3 Processing and Crushing**

The operations at the site will be concentrated at the open pit and crushing plant. The crushing plant will consist of crusher, multiple screen and discharge conveyors will be used. At the crushing plant, quarry material will be off loaded directly into the feeder, which will feed into the Primary Jaw Crusher. From the Jaw Crusher the crushed material will be conveyed via a conveyor belt into a Secondary Jaw Crusher where different quarry products will be produced. The products will then be conveyed on conveyor belts to storage areas awaiting collection by clients. The oversize rocks in the vibrating screen will be routed to the impact crusher and sent back to the Jaw Crusher for further crushing.

### **2.4 Stock Piles and Waste Rocks Dumps (WRDs)**

The project will maintain stone aggregate material on maximum five (5) stock piles based on aggregate sizes at the conveyor tail-ends. The stock piles will act as storage and collection points. The designated stock piling and Waste Rock area will be approximately 0.40 hectares in extent.

Though no substantial Over Burden operation will be done at the OMQ, a WRD will be maintained. Both Stock piles and WRDs will be located on the windward side so as to check on dust effect on both personnel and general work environment.

The Stock piles and WRDs operated and maintained in adherence to the EMP outlined herein.

### **2.5 Infrastructure Development**

Infrastructure development at the quarry site will include among others the following:

- Construction of main access road from the main road to the quarry site

- Construction of Office Block, First Aid Clinic, Ablution Block, Work Shop & Wash Bay, and Stores Rooms, Explosive Magazines, Fuel Station, Gen-Set house, Weigh Bridge, Security fence & Gate of bore hole.
- Construction of Crushing plant and Stock pile concrete slab.

## 2.6 Capital Plant and Equipment

| S/No.  | Item Description                        | Quantity | Value (USD) | Condition      |
|--------|---|----------|-------------|----------------|
| 2.6.1  | Sandvik Crusher Plant-200ph             | 1        | 3,500,000   | New            |
| 2.6.2  | Dump Trucks (Caterpillar725)            | 4        | 1,360,000   | New, Available |
| 2.6.3  | Excavator (Kunatsu)                     | 2        | 800,000     | New, Available |
| 2.6.4  | Sandvik Crawler Hydraulic Drill (DX700) | 1        | 360,000     | New, Available |
| 2.6.5  | Front-End-Loader (Kumatsu WA 470)       | 2        | 750,000     | New, Available |
| 2.6.6  | Bull Dozer (CAT D&R)                    | 1        | 476,000     | New, Available |
| 2.6.7  | Water Bowser                            | 1        | 180,000     | New            |
| 2.6.8  | Gen-set (150kVA)                        | 1        | 80,000      | New, Available |
| 2.6.9  | Gen-Set (850kVA0                        | 1        | 325,000     | New, Available |
| 2.6.10 | Fuel Pumps and Tanks                    | 2        | 45,000      | Available      |
| 2.6.11 | Metal Storage Containers                | 2        | 20,000      | Available      |
| 2.6.12 | Weigh Bridge                            | 1        | 50,000      | New            |
| 2.7.13 | Utility Trucks                          | 2        | 70,000      | New            |

## 2.7 Safety and Safety

The safety and Health of the workforce, surrounding communities and the environment is considered to being one of the key to success in this project. As such a full Safety and Health programme will established and staffed in order to produce the required outcome. This will be in line with current mine safety and health practices, and will include providing adequate medical facilities to cater for emergencies whilst providing adequate access for all other medical needs. In this regard, the project will coordinate adequately, and participate in all government health programmes concerning the local community with the responsible government departments in Kafue District.

The project will also create awareness on HIV/AIDS, prevention, and HBC amongst the employees and their families in collaborations with the DHMT.

## **2.8 Production Estimates**

### **2.8.1 Introduction**

Quarrying operations at the site are planned to run throughout the year with 11 months of Crusher Plant operations, giving an allowance of one (1) year month shut down for planned maintenance works. Following the climate pertain, pit production is planned for a 10 months working period with annual crushing plant production estimated 315, 000 tonnes. A crushing month cover of 55% will be maintained at the Raw Materials stock pile.

Lower utilization of the Crushing Plant is expected during the initial two years of PHASE I of the project, with gradual increase starting from third (3<sup>rd</sup>) year of operations

### **2.8.2 Crushing Plant (CP) Parameters**

The CP will operate on raw material feed from the quarrying operations, and will run on parameters as indicated below;

- Designed tonnes per hour - 200TPH
- Availability - 85%
- Utilization - 60%

### **2.8.3 Pit Production**

Production at the pit will be generated by drilling and blasting operations. The Sandvik DX700 Crawler Hydraulic Drill will be used to drill 76mm blast holes with Anflex/Emulsion and electric detonators, and electrically blasted to break the granitic rock. Excavators will be used to further loosen the broken material, and loading onto Dump truck which would then haul material to the Crushing Plant.

The pit production will be confined within the identified open pit sites in the designated blasting area of extent approximately 40 hectares.

#### **2.8.4 Crushing Plant (CP) Production**

The Crushing Plant will at the maximum produce about (5) range of quarry products depending on demand. The following ranges will be produced at indicated portions. The products would be conveyed to stock piles at conveyor tail-ends.

Quarry products ranges:

|                |   |     |
|----------------|---|-----|
| Quarry Dust    | - | 5%  |
| 0mm-9.38mm     | - | 15% |
| 9.38mm         | - | 30% |
| 12.5mm-18.75mm | - | 30% |
| 18.75mm        | - | 20% |

The Crushing Plant will be confined in a designated area of extent approximately 0.70 hectares. The CP has a pollution control kit, with the conveyor tail-ends fitted with water-sprays for dust suppression.