

# EXECUTIVE SUMMARY

<b>Project</b>	<b>Dolomite &amp; Limestone Mine</b>
<b>Client</b>	<b>M/s. Kamath Minerals Resources Pvt. Limited</b>
<b>Project location</b>	<b>Village Anaval and Kadarkoppa, Badami taluk, Bagalkote District, Karnataka</b>
<b>Area (ha)</b>	<b>24.75 Ha (61.16 Acres)</b>
<b>Project Capacity</b>	<b>1, 50,000 TPA Dolomite</b>

## 1.0 INTRODUCTION

M/s. Kamath Minerals Resources Pvt. Limited has been applied for Dolomite & Limestone mine lease over an area of 24.75 Ha (61.16Acres) in Sy.No. 12, 13, 135 & 136 at Village Anaval and Kadarkoppa, Badami taluk, Bagalkote District, Karnataka. Application was inspected and The Letter of Intent was issued by The Director, Mines & Geology Department Karnataka, **vide letter No GBHUE/GAGUSHA/749AML2009/2013-2014, Dated 24.07.2013** attached as **Annexure-1**.

M/s. Kamath Mineral Resources Pvt. Limited has been since seventeen years in the field of logistics, automobile spares distribution & agriculture and now desires to establish in dolomite mines. The dolomite will be supplied to steel plants.

As per the EIA notification of Ministry of Environment Forests and Climate Change, Government of India (MoEF&CC), dated 14th September, 2006, as amended from time to time. this project falls under category 'B' project, activity 1(a) of EIA Notification, an Environmental Impact Assessment (EIA) and Environmental Management Plan (EMP) is required for obtaining Environmental clearance based on TOR as approved by the statutory authority, the TOR was presented to SEAC, Bangalore, Karnataka and TOR was granted on dated **10.09.2015 (No. SEIAA 520 MIN 2015)**.

## 2.0 BRIEF DESCRIPTION OF THE PROJECT

S.No	Particulars	Details
<b>A.</b>	<b>Nature of project</b>	Dolomite & Limestone Project
<b>B.</b>	<b>Size of project</b>	
<b>1.</b>	Mining Lease area	24.75 Ha (61.16Acres), Patta Land
<b>2.</b>	Proposed Dolomite Production capacity	1,50,000TPA
<b>C.</b>	<b>Project location</b>	
<b>1.</b>	Village	Anawal & Kadarakoppa
<b>2.</b>	Tehsil	Badami
<b>3.</b>	District	Bagalkot
<b>4.</b>	State	Karnataka
<b>5.</b>	Survey No	12,13 & 135,136
<b>6.</b>	Land	Patta Land
<b>7.</b>	Toposheet No Latitude & Longitude	47P/8 Latitude: 16°06'24.5'' to 16°06'53.2'' North Longitude: 75°25'20.2'' to 75°28'42.3'' East
<b>D.</b>	<b>Environmental Settings Details(With approx. aerial distance and direction from the mining lease boundary)</b>	
<b>1.</b>	Nearest City	Bagalkot- 20km (NE)
<b>2.</b>	Nearest National Highway	NH-218- 13km (E)- Gulbarga-Bijapur-Hubli-Hwy
<b>3.</b>	Nearest Railway station & Airport	Bagalkot- 20km (NE), Airport-Hubli-100km.
<b>4.</b>	Archeological Place	No Archeological place in the study area.
<b>5.</b>	National Park , Wild Life Sanctuary, Wild Life Corridors, Biosphere Reserves, Migratory routes for Birds.	None
<b>6.</b>	National Park, Wild Life Sanctuaries, Biosphere reserve, Protected Forest etc. within 10	None

	<b>Km radius study area</b>	
7.	Reserve Forest and Protected Forest within 10 Km radius	Reserve Forest-2km-(NE) Reserve Forest-3.7km-(NE) Reserve Forest-8km-(NE) Reserve Forest-0.7km-(SE) Reserve Forest-2.8km-(SE) Reserve Forest-3.6km-(SE) Reserve Forest-7.5km-(SE) Reserve Forest-7.8km-(SE) Reserve Forest-5.5km-(S) Reserve Forest-5.2km-(S) Reserve Forest-1.3km-(S) Reserve Forest-1.8km-(S) Reserve Forest-6.6km-(S) Reserve Forest-7.3km-(S) Reserve Forest-8.0km-(NW)
8.	Water bodies within 10km radius	Kalaskoppa kere-5km-(NE) Nandihal Kere-8km-(SW) Nallah-0.3km-(N)
9.	Seismic Zone	Zone-III
<b>E.</b>	<b>Cost Details</b>	
1.	Total Project Cost	50 Lakhs
2.	Cost for Environmental Protection Measures	Capital Cost-2,52,750 lakhs Recurring Cost-5,00,200 lakhs

## 2.1 Basic Requirements for the Project

SI. No.	Requirements	Quantity	Source
1	Land	24.75 ha	New Mine, The Letter of Intent was issued by The Director, Mines & Geology Department Karnataka,
2	Water	9.76 KLD	The existing bore wells from nearby village
3	Manpower	22	Majority from nearby villages

## 2.2 Details of Mining

SI. No	Particulars	Details	
1	Method of Mining	Open Cast Semi-Mechanized mining	
2	Proposed Dolomite Production per year	1, 50,000 TPA	
3	Mineable Reserve	Dolomite reserve estimated are about 301,075 tonne and Limestone 51,288 tonne	
4	Life of Mine	6 Years	
5	Bench Height	3 m	
6	Bench Width	6 m	
7	Elevation Range	Highest elevation is 572 mRL and Lowest elevation is 560 mRL	
8	General Ground Level	573 mRL	
9	Ground Water table	Pre Monsoon	0.42 mbgl to 14.55 mbgl

	<b>(Source-CGWB, Bagalkote)</b>	Post Monsoon	0.36 mbgl to 11.30 mbgl
10	Ultimate Working Depth	15 m	
11	Overall Pit Slope	45 <sup>0</sup> .	
12	Number of Working Days per year	300 days	
13	Number of Shifts per day	Only One shift	
14	Total waste generation at the end of life of mine	Black cotton soil about <b>75,016 tons</b> of waste and Mineral rejects of about <b>25,615 tones.</b>	

### 2.3 Drilling & Blasting

The drilling will be done by jack hammer and for blasting with 25mmdia cartridge form of slurry explosive and Ammonium nitrate fuel oil mixture is used for blasting. Total material handled (Max) shall be 160459 tons in the second year. The drilling and blasting is 75%. For developing 3 m height bench the actual drilling requires 3.0m per hole and burden and spacing of 1.0m X 1.5m.

The charge per hole shall be about 4 kg including 3 kg ammonium nitrate and 1kg slurry. At a time of 15 holes shall be blasted and maximum charge per delay shall be about 60 kg. However, the blast design would be optimized for minimum vibration, noise and throw.

### 2.4 Use of Mineral

The dolomite finds use in a number of applications as a sintering agent in iron ore pelletization and as a flux agent in steel making, as a source of magnesium and used in glass and ceramics manufacture.

## 2.5 Land Use Pattern

S. No.	Particulars	Present land use pattern	End of the fifth year	Conceptual land use pattern
1	Excavated pit	0.05	5.01	6.62
2	Storage of Black Cotton Soil	--	0.31	0.31
3	Overburden dumps	--	0.16	0.17
4	Mineral Storage	--	0.20	0.20
5	Infrastructure-mine office workshop etc.	--	0.02	0.02
6	Road	0.19	0.26	0.26
7	Green belt	--	1.50	16.97
8	Crushing and Screening Plant	--	0.20	0.20
9	Others(Area for future use)	24.51	17.09	--
<b>Total</b>		<b>24.75</b>	<b>24.75</b>	<b>24.75</b>
<b>Afforestation on Dumps</b>		<b>---</b>	<b>0.16</b>	<b>0.01</b>

## 3.0 ENVIRONMENTAL STATUS

The baseline environment study was carried out over a radial distance of 10 km around the Mine Lease area during post monsoon season of **2015** covering the months of **October 2015-December 2015**.

### 3.1 Meteorology

The Summarized Meteorological Data for the Monitoring Period (Oct 2015 – Dec 2015) is given below:

Month	Wind Speed (m/s)		Temperature (°C)			Relative Humidity (%)			Rainfall (mm)	
	Max	Min	Max	Min	Avg	Max	Min	Avg.	Total	No. of rainy Days
Oct 2015	7	1	37	10	25.9	100	9	51.4	0	0
Nov 2015	8	1	37	18.6	26.9	100	14	67.0	0	0
Dec 2015	8	1	37	12	26.8	100	15	51.5	0	0

### 3.2 Ambient Air Quality

9 air sampling stations were established in the study area including one in core zone, 2 stations are in 500mt downwind direction and 6 in buffer zone during monitoring period. The minimum and maximum level of PM<sub>10</sub> recorded within the study area was in the range of 33.9 µg/m<sup>3</sup> to 48.6 µg/m<sup>3</sup> with the 98th percentile ranging between 37.8 µg/m<sup>3</sup> to 48.6 µg/m<sup>3</sup>.

### 3.3 Noise Levels

Ambient noise level were studied at five locations were selected one at project site and four for the sampling of noise levels are in nearby villages. It can be seen that the values of noise observed in some of the areas are primarily owing to vehicular traffic and other anthropogenic activities. Assessment of night time Leq (Ln) varies from 41.8 to 43.9 dB (A) and the daytime Leq (Ld) varies from 54.2 to 52.1 dB (A) within the study area.

### 3.4 Water Quality

To assess the water quality, 5 monitoring stations were set up in which 4 were for ground water and 1 for surface water. All the ground water samples analyzed can be considered fit for drinking purpose in the absence of alternate sources. For surface water quality, comparing the values of pH, DO, BOD and total coliforms with 'Use based classification of surface waters' published by Central Pollution Control Board; it can be seen that all the analyzed surface waters can be compared with class C and can be used as drinking water sources after conventional treatment and disinfection.

### 3.5 Soil Characteristics

Soil samples were collected from 5 locations. In the study area, variations in the pH of the soil were found to be neutral (8.34 to 8.82). Electrical conductivity (EC) is a measure of the soluble salts and ionic activity in the soil. In the collected soil samples the conductivity ranged from 82-564  $\mu\text{mhos/cm}$ .

### 3.6 Socioeconomic Scenario

According to Census 20011, the total population of the study area is 37691. The sex ratio has been worked out to 19054 females per 7122 males. There are Primary schools, Middle schools and high schools in the study area. Drinking water facility is available in all the villages located in the study area. Other infrastructure facilities such as electricity and roads (Tar/Kacha) are available in some of the villages whereas for remaining it is under planning. At present agriculture is the main occupation of the people depend on agriculture and agriculture related occupation.

### 3.7 Biological Environment

Survey of the flora and fauna of the mine lease area and its buffer zone was carried out during February 2016. It is a patta land. A part of the mine lease was under rain fed cultivation of Cotton. The land is covered by rocky outcrops. Other than mesquite (*Prosopis juliflora*) there were no trees in the mine lease area. Except for a few small dry pits, there are no water bodies in the mine lease area. Among the shrubs, *Cassia auriculata*, *Jatropha curcas*, *Chromolaena odorata*, *Lantana camara* and *Calotropis procera* were occasionally found in the mine lease area. The project site is almost barren with some shrubs scattered over the area. As far as the vegetation pattern of core zone of study area is concerned, there are no trees present within the boundary of the mine area. Some shrub species like *Lantana camara* and *Argemon* species has seen over there. A total of 13 tree species, six shrub and thirteen herb species are recorded near to core zone.

As there are forests but no wildlife reserves or other protected areas around the MLA. Among the mammals, monkeys, squirrels and rats were found. There are no reports or indications or pointers to the presence of endangered Indian Gray Wolf or Leopard or Hyena etc.



#### **4.0 ANTICIPATED ENVIRONMENTAL IMPACTS**

**4.1 Impact on air** - Various mining activities i.e. drilling, blasting, loading, removal of overburden and movement of other transport vehicles used in mining will generate dust (PM10). Proper water sprinkling shall be carried out at the mine site. Green belt/plantation will be developed all along the haul roads and other places to arrest dust and Ambient Air Quality Monitoring will be conducted on regular basis to assess the quality of ambient air.

#### **4.2 Impact on water environment**

**4.2.1 Impact on surface water bodies-** There is no seasonal nalla within the leasehold area. The seasonal nalla could be seen at the slope area outside the leasehold area at north western area. The rainwater draining from the hill slopes pass through the seasonal nalla.

**4.2.2 Impact on ground water table-** Mining will be carried out above the ground water table. No chemical having toxic elements will be used for carrying out mining activity. Also, neither dolomite nor overburden contains any kind of toxic element which can contaminate the water.

#### **4.3 Noise Impact**

Operation of heavy earth moving machines and allied mining operations such as transport, workshop activities etc. may produce noise pollution in the mining area unless appropriate abatement measures are planned and effectively carried out. The noise generated from blasting will be for a very short duration and will be conducted during such time such as at the end of shift or when most of the workers have been withdrawn to safe places.

#### **4.4 Impact on Land Environment**

Opencast mining activities may alter the landscape of the lease area and also cause some disturbance to the surface features of the surrounding areas. At the conceptual stage, out of the total mining lease area (i.e. 24.75 Ha), total mined out area will be 6.62 ha, out of which 16.97 will be backfilled (Handed over to the villagers for afforestation/agriculture purpose), during plan period 1.50 (safety zone) & dump area 0.16 will be developed by greenbelt.

#### **4.5 Impact on forest and vegetation**

**4.5.1 Impacts on Biodiversity-** There are no endangered species, wildlife sanctuary, wildlife corridors, faunal migratory routes or eco-sensitive area near the whole study area.

**4.5.2 Impacts on agriculture-** There is no agriculture activities are practicing at the surrounding mine site therefore no significant impact on the agriculture around the project site is expected.

#### **4.6 Socio economic environment**

The impact of mining activity in the area is positive on the socio-economic environment of the region. M/s. Kamath Mineral resources Pvt. Limited is providing employment to local population and it will be give preference to the local people whenever there is requirement of man power.

### **5.0 POST PROJECT MONITORING PROGRAM**

<b>SI. No.</b>	<b>Description</b>	<b>Frequency of Monitoring</b>
<b>1</b>	Ambient Air Quality	Quarterly/Half yearly
<b>2</b>	Meteorological data	Daily
<b>3</b>	Noise Level Monitoring	Half yearly
<b>4</b>	Water Level & Quality	Quarterly/Half yearly
<b>5</b>	Soil Quality	Yearly
<b>6</b>	Monitoring of Agricultural crops	Yearly

### **6.0 ADDITIONAL STUDIES**

The Additional Studies conducted are Risk Assessment & Damage Control and Disaster Management Plan.

### **7.0 PROJECT BENEFITS**

The project will prove beneficial to the people as the company has already agreed to provide infrastructural facilities to the villagers like Educational facilities, Medical facilities, Transportation facilities, water supply etc. which will improve the socio-economic environment of the area.

### **8.0 ENVIRONMENT MANAGEMENT PLAN**

#### **8.1 Air Management**

Following measures will be taken to control air pollution during mining operation:

Sharp drill bits will be used for drilling; the drill machines will be kept leakage free and equipped with wet drilling arrangements, Drill operators will be equipped with Personal Protective

Equipment. Blasting will be done in controlled manner with use of Non-electric delay detonator to minimize dust to get air borne and also limit the fly rocks within 50-60 m.

Competent persons will carry out blasting and precautions laid down under MMR - 1961 circulars and directions of DGMS issued from time to time will be followed, Overcharging of blast holes will be avoided, Rock breaker will be used to avoid secondary blasting

Excavator will be involved for excavation and loading of dolomite and overburden, Water Sprinkling will be done on muck pile by water tanker fitted with water pump to reduce generation of dust during loading, Skilled operators will operate the machines.

### **8.2 Water Management**

No waste water generation is envisaged during the mining process. The sanitary waste generated from the mine office will be treated in the septic tanks via soak pits.

No subsurface water is expected to come into the mine pit. Only rain water from direct precipitation over the pit area may enter in the pit. Any excess rain water accumulated in the pit during monsoon will be discharged to surface water drain after monitoring its quality in the pit.

### **8.3 Noise Management**

- All precaution will be taken and noise level survey will be done at regular intervals.
- Ear protectors or earplugs will be given to persons working in higher noise level area or on machines.
- Regular measurement of noise level is proposed near drilling equipment and other heavy earth moving machinery & steps will be taken to improve the maintenance of all equipments so that the noise level will remain within permissible limits.
- Plantation of trees on internal roads and barriers.

### **8.4 Land Reclamation**

The activity will affect the present land-use of the ML area. The original topography of the ML area will be affected mainly due to the actual mining operation.

Since mining will be continued for not less than 5 years and beyond after detailed exploration, question of rehabilitation or reclamation at this stage does not arise. However, Lease area will be fenced and at the later stage this pit can best be rehabilitated by utilizing as irrigation pond or fish pond.

### **8.5 Green Belt/Plantation**

So far as afforestation is concerned, saplings would be planted at a spacing of 2.5 m along the boundaries of the M.L. area and dump area. Local species will be planted in the area as per availability. A total of 3320 nos. of sapling will be planted year wise, till the end of the 5 years planning period.