

	<p style="text-align: center;">RAPID ENVIRONMENTAL IMPACT ASSESSMENT FOR PROPOSED LIMESTONE MINE AT MONGRAPAL 15.94 HECTARES</p>	<p style="text-align: center;">EXECUTIVE SUMMARY</p>
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## **1.0 INTRODUCTION**

### **1.1 Background**

Vimal Stone Associate proprietorship firm engage in mining and processing of Granite. Vimal Stone Associate active in mining, cutting and polishing of dimension stones. Mainly involved in Granite and supply in Chhattisgarh, all over the India and abroad.

#### **1.1 (1) Mongrapal Deposit**

- (A) It is a small limestone mining project, the proposed maximum capacity will be of 50,000 tones per year at developed stage. The proposed method of mining is semi-mechanized mining method.
- (B) The proposed Mining Lease area is falling on the Survey of India Topo-sheet no.65E/16 and bounded by latitude 19<sup>0</sup> 12'18" North and longitude 81<sup>0</sup> 58' 5" East of Greenwich. The applied area is situated about 2.75 kms .in the direction north –west of Mongrapal village .The District headquarter Jagdalpur is 16 Kms. from the proposed mining lease area.

#### **1.1(2) Demand and supply balance of Lime stone**

Vimal Stone Associate active in mining, cutting and polishing of dimension stones. Mainly involved in Granite and supply in Chhattisgarh, all over the India and abroad.


Recently Vimal Stone Associate (VSA) has acquired mining leases in Mongrapal for 15.94 Hects. area in district Bastar of Chhattisgarh for exploitation of coloured stromatolitic limestone for and dimension stone industries. VSA has also set up a dimension stone cutting polishing unit at Jagdalpur district headquarter of Bastar, Chhattisgarh.

### **1.2 Environmental setting**

The Mongrapal limestone deposit is situated at about 292 km from Raipur connected by all weather road from Raipur, the capital of Chhattisgarh and about 18 km from Jagdalpur which has district headquarters .The nearest railway station is Jagdalpur which is about 18 km from Mongrapal .

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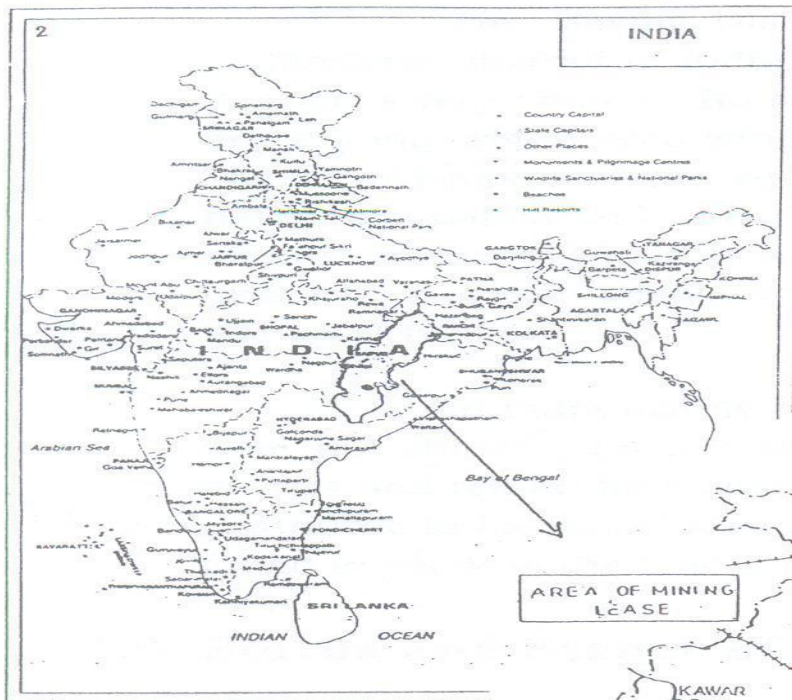
The nearest operational commercial airport is at Raipur and Vishakhapattanam near about 281 km away from deposit .The index map of Mongrapal deposit is given in Figure -1 .The study area map demarking the core zone of Mongrapal is given in Fig 2.

The details of environmental setting are given in TABLE NO. 1

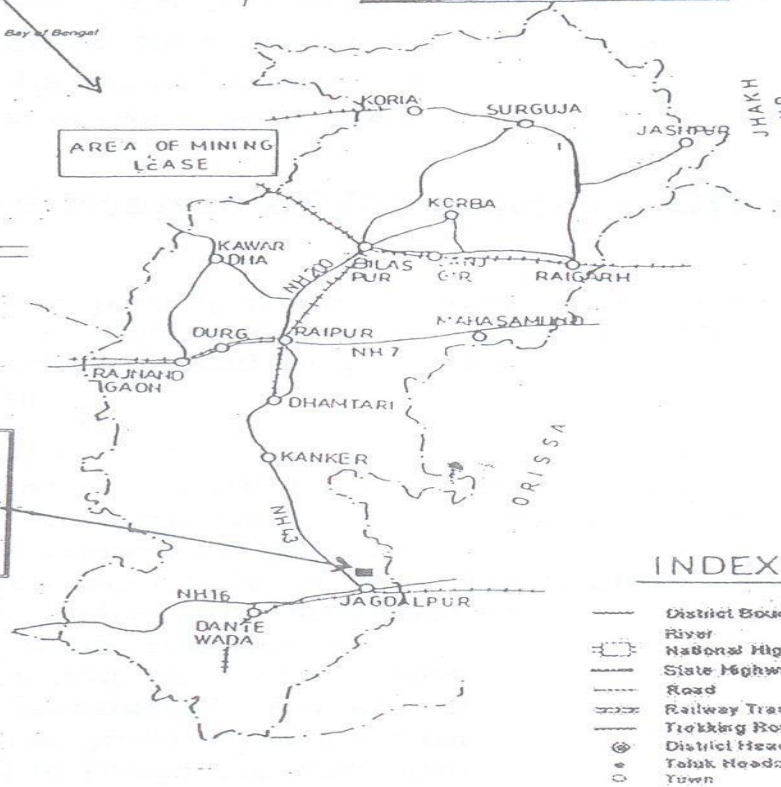
Sr. No.	PARTICULARS	DETAILS
1	Total Mine Lease Area	15.94 Hectares,
2	Latitude	19 <sup>0</sup> 12 00 to 19 <sup>0</sup> 12 ‘10”
3	Longitude	81 <sup>0</sup> 58 05 to 81 <sup>0</sup> 58’ 11”
4	Elevation above Mean sea level	570 MSL –Highest point in lease area.
5	Climate Condition	1.Annual Max Temp:38 to 42 <sup>0</sup> c,2.Annual Max Temp: 5 to 7 <sup>0</sup> c ,3.Annual Max rainfall: 1200 to1400,
6	Nearest Road / Highway	N.H.43,
7	Nearest Railway station	Jagdapur,
8	Nearest Air Port	RYP 281 km Jagdalpur 18,
9	Nearest Major Village	Jagdapur ,BASTAR.
10	Nearest Town	Jagdapur 16km,
11	Ecologically sensitive zone	Nil.
12	Historical places / Ancient monuments	Nil with in 20 km radius.
13	Socio – Economic Factors	No resettlement of rehabilitation of persons involved.
14	Defence Installation	Nil
15	Seismic Zone	Nil

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**CHHATTISGARH**



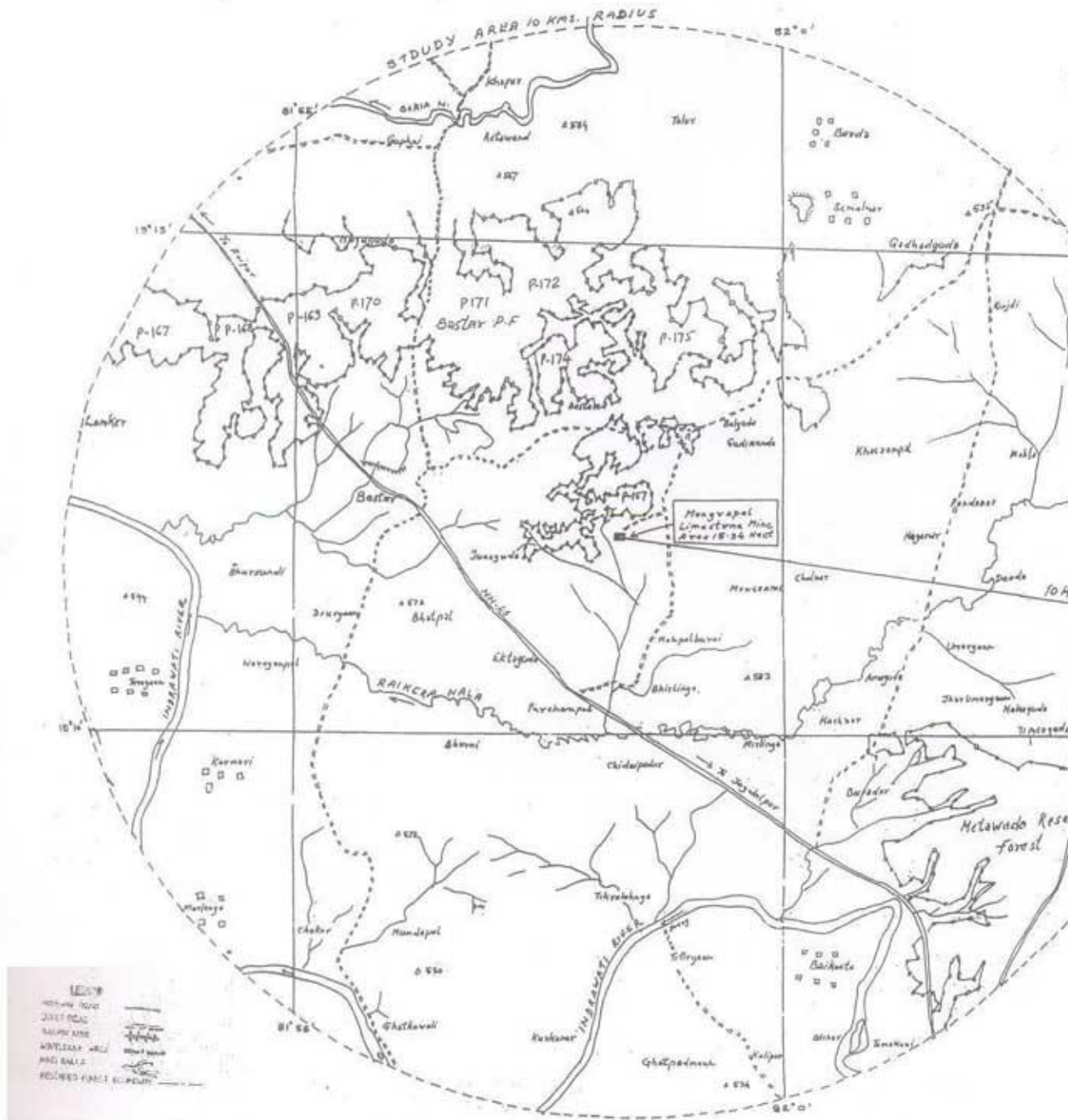
**MONGRAPAL  
LIMESTONE MINE  
AREA 15.94  
Hectas.**

**INDEX**

- District Bound
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## 1.2(1) Drainage

The proposed mining lease area is situated on flat ground and there will be no water accumulation in the mine, hence the area does not require any specific drainage pattern. It has already been mentioned that water table start within 12 meters to 10 meters and depth of proposed working pit is 1.3 meters from the surface.

Hence there will be no fear of adverse effect .During the rainy season pumping of water will be managed through portable diesel pumps. Raykera nala and indravati rivers are the main river of this area flowing in south – east Direction of the lease area and situated more than 5 kms. The drainage pattern of the area is dendratic and general slope of the area as towards south – west.

## 1.3 Details of Mining

### (A) Exploration and Reserves

The Mongrapal limestone deposit was first reported by the Directorate of Geology and Mining and some prospecting work was done on regional scale in the area .The Directorate of Geology and Mining estimated about 11 million tones of limestone in the proposed lease area, but no report published up-to yet . How ever applicant made one borehole in the center of the proposed lease area to collect the additional information of this deposit, prior to the grant of mining lease. It is also found that limestone formation may be continuing below the 15.03 meters depth.


### (B) Characteristics of Ore and Waste

The general geology of the applied area is simple and clear .The rocks found in the area are stromatolitic Limestone. The Limestone of the area is pink to brown in colour. Presence of cavities and stromatolite colonies seen in this limestone. The outcrop of limestone seen in this area having very thin overburden of alluvial soil , which is brown in colure. The Shale is mostly purple in colour and seen above the limestone formation.

Soil encounter occasionally the waste rock is mainly weathered limestone which found only at upper side only.

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### (C) Proposed Method of Working

Opencast semi-mechanized method of mining proposed for this mining project .The overburden is very less compared to the volume of limestone. It is proposed to open a working pit by removing top soil/ overburden from the central part of the proposed lease area. The overburden will be removed from

the working pit and stacked along the north –western lease boundary for reclamation purpose only. The thickness of top soil in the pit is in average 0.3 meters only. So the height of the bench will be of 0.3 meters and production bench will be 1 meter.

Initially the lengths of working pit will 50 meters long and 8 meters wide. This development will be completed at the end of first year of mining operation and the limestone bed will clearly open for second year working. 2<sup>nd</sup> year and onwards, bench will advances in the south –western direction and gradually increasing the dimension of the pit. In this process at the 5<sup>th</sup> year the working pit will be 50 meters x 10.7 meters .Overburden which generate due to mining operation stacked properly in prescribed place till reclamation Slope of working face will not more than 60 degree.

**(D) Proposed working depth in BGL and MSL**

Working depth will proposed 15 meters below ground up to 559 meters above MSL.

**(E) Extent of Mechanization**

It has already been mentioned that ,the complete mining operation will be of semi-mechanized in nature .Drilling will be carried out by compressed air operated jack hammer and very light blasting by nitrate mixture with detonator and safety fuse. Overburden will be removed with the help of excavator partially. Sizing of limestone boulder and blocks as per the requirements done by wire saw cutter, and loading etc. done by local Labour of the nearby area with the help of mobile crane.

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**List of equipment proposed for mining operation**

S.No.	Details of Machinery	Quantity
1.	Drilling – Atlas Copco Compressor	1
2.	Jack Hammer – 2 nos. 34 mm	1
3.	Excavator / Loader – J C B Escort	1
4.	Tractor	1
5.	Tipper	1



6.	Crane 20 Tones	1
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(F) Transportation and raw material

After the loading of limestone in tippers or trucks, it will be dispatched as per the demand to various destinations. The capacity of dumper/truck will be depend on size of the blocks.

**1.4 Site services**


1.4(1) Land use breakup pattern

Mograpal deposit is a total lease out area of 15.94 hectare the breakup of land use given below :-

Descripton	Land use after 5 years in Hects. Including presently under use	Land use after 20 years in Hects.
1. Area under pits	0.227	1.000
2. Area for Dumping	0.090	0.300
3. Area for approach road	0.110	0.330
4. Plantation	0.075	0.375
5. Infrastructure	0.015	0.020
6. other to be specified		13.915
<b>Total area</b>		<b>15.940</b>

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1.4(2) Power requirement

An application is being submitted to Chhattisgarh State Electricity Board for a 50 HP power connection .The electricity line is passing near the lease area at a distance of 0.5 km.

1.4(3) Manpower requirement

Following will be the manpower requirement:

Mines Manager:	1	Qualification as per rule

Part time Mining:	1	Qualification as per rule
Mining Mate:	2	Qualification as per rule
Supervisor:	2	Metric Pass
Skilled Labours:	5	
Semi- skilled Labours:	5	
Un – skilled labours:	10	

1.4(4) Service Centre

Repairs of machinery will be carried out at a private workshop in Mongrapal.

**1.5 Baseline environmental status around the project site**

1.5(1) Soil quality

In the study area circle different types of soils are present . Lateritic soil is the common type . In the plains adjoining big rivers, certain amount of black – cotton soil partly mixed with coarse sandy loam is present.

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1.5(2) Temperature

The winter season starts from December and continues till the end of February. December is the coldest month with the mean daily maximum temperature at 28.2<sup>0</sup> c. with the mean daily minimum temperature at 8.8<sup>0</sup> c. Both the day and night temperatures increase rapidly during the onset of pre-monsoon season from March to May . During pr- monsoon season the mean maximum temperature (May) is observed at 39.2<sup>0</sup> c. With the main minimum temperature at 24.6 <sup>0</sup> c. By end of September with the onset of post-monsoon ,day temperatures decrease slightly with the mean maximum temperature at 30.7 <sup>0</sup>c.The relative humidity range 34.5% to 60.4% .The rainfall recorded 1200 mm to 1400 mm.The maximum atmospheric pressure on the sitter ranged from 941.4 to 953.9 mb.



1.5(3) Ambient air quality

The concentration of SPM, RPM, SO<sub>2</sub>, NO<sub>x</sub> & CO in ambient air are will below the NAAQ standard for Industrial Areas and Residential areas.

1.5(4) Dust Fall Measurements

There will be no major dust fall.

1.5(5) Water Quality

The physio- chemical and biological analysis revealed that these waters are will within prescribed limits of IS :2296 – Class”c” and could be used for industrial purposes.

1.5(6) Noise Levels \_


Ambient noise levels were measured at 1 location around the project site. The day time levels were observed 40-43db (A) in the study areas.

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1.5(7) Biological Environment

The study area did not record the presence of any critically threatened species. Some variety of birds, a few species of mammals and reptiles have been observed in the project area.


1.5(8) Social environment

The area is thinly populated and average density per . sq. km. is also low. The area is mostly inhabited by agriculture based people as agriculture is the major source of income. The people are mostly in very low income group and they are engaged either in some government sponsored civil work or relief work where normally local people are engaged. The mining activity will provide employment to the local people. Their source of entertainment is mostly local festival, folk songs and dance. A list of village with their direction, distances from the proposed lease area and population is given below:

<b>Sl.No.</b>	<b>Name of Village</b>	<b>Direction</b>	<b>Distance</b>	<b>Population</b>
1.	Bastar	NW	3.00 Kms	5500

2. Chonthiguda	NE	2.75 Kms	850
3. Gudimunda	NE	3.00 Kms	800
4. Belguda	NE	2.75 Kms	340
5. Khasrampal	NE	5.00 Kms	675
6. Cholnar	SE	3.50 Kms	890
7. Mongrapal	SE	2.75 Kms	1190
8. Mohupalbarai	SE	2.50 Kms	1050
9. Bhirling	SE	3.50 Kms	1260
10. Mirlinga	SE	5.00 Kms	975
11. Chindiapadar	S	5.00 Kms	580
12. Parchanpal	S	3.50 Kms	1500
13. Kolchur	S	5.00 Kms	960
14. Ektaguda	SW	3.00 Kms	830
15. Takraguda	SW	4.00 Kms	950
16. Junaguda	SW	2.00 Kms	635
17. Bhatpal	SW	4.00 Kms	1200
18. Deurgaon	SW	5.00 Kms	890

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## **1.6 Impact Assessment**

### **1.6(1) Impact On Topography**

The proposed leasehold area is having flat topography surrounded by agricultural land and forest land. The area is mostly covered with alluvial soil and laterite. There is no other activity in the area excepting proposed mining operation and the area is mostly at present barren. As the deposit is in a flat ground and the surrounding area is agricultural land of single crop pattern depending on proper and sufficient rainfall. The surrounding area is mostly private land, occupied by private individual. In the proposed lease area as well as in surrounding area there is no sufficient cover of alluvial soil so that agricultural activities are being not carried out properly. The applied area is a waste govt. land.

### **1.6(2) Impact on Air Quality** \_\_\_\_\_

The proposed mining activities in Mongrapal likely to contribute very minor Suspended Particular Matter (SPM), dust from area sources and Oxides of Nitrogen (NOx) and hydrocarbons from automobile exhaust. As the number of machineries are very less and that to be used not regularly as the mining operation are small. Thus there will not be much SPM, SO<sub>2</sub> and NO<sub>x</sub> levels in the ambient air. Based on the USEPA approved ISCST3 air quality dispersion modeling predicted concentrations, it can be inferred that the maximum ground level concentrations are occurring within the mine lease area outside M.L area is unlikely to be affected significantly due to the proposed mining activity.

**1.7 Impact on Water Resources and Quality**

**1.7(1) Impact on Water Resources**


At present there is no water source which is passing through the proposed lease area and nearby surroundings. As the lease area is in small flat ground there is no chances of accumulation of surface water during the rainy season.

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It is already mentioned that ground water is available below 12 meters of the surface level and available in nearby well, bore well etc. As the proposed working will be much above ground water table, so there will be no effect on the ground water.

The ground water is available in the well, bore well and tank etc. is of potable in nature and no adverse effect has been noticed in the past due to human consumption and in future also there will not be any change in quality due to future mining activity.

**1.7(2) Impact on Ground Water Quality**

Ground water pollution may take place only if the waste rock dumps and mineral stockpiles contain chemical substances. These chemical get leached by the precipitation water and percolate to the ground water table thus polluting it. Any nearby well or other sources of water can be rendered unfit for drinking and even for industrial use. This is not the case with this deposit as the limestone or waste dump does not contain any harmful ingredients, which could leach down to the water table.

The entire mine operations in this deposit confined to the top of the deposit and the depth of the mine extends from 574 meters above MSL to 559


meters above MSL. The water table is well below 559 meters above MSL, which is ultimate pit bottom. Thus, there is no possibility of contamination of ground water at water table.

## **1.8 Impact of Noise Level**

As the mining operation include small sized and less in numbers therefore the noise level will not be affected much.

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### **1.8(1) Impact due to Blast Induced Ground Vibrations**

The maximum hole for blasting is 1.2 M therefore there will be minimum impact due to very low level of blasting as well as transportation.

### **1.8(2) Impact of Soil Quality**

During mining operation the soil will be manually removed and will be stacked in the Eastern boundary at the lease area which will later used for reclamation of land.

## **1.9 Impact of Flora and Fauna**

The area does not fall in forestland. There is no major vegetation also, There are some other trees but they are away from the mining site and will not be disturbed.

### **1.9(1) Impact On Aquatic Ecology**

There is no major water body seen direct vicinity of this mining project. Indirawati river is 8 kms. and boria river is also 8 kms from the project boundary. The surrounding nallas of the mine areas where the come from surrounding area more than 1 kms . The aquatic fauna in these water bodies is not of major importance. No any kinds of effluents discharge into any streams because no processing of ore proposed for is project. Garland drain and salutation tank will already proposed for arrest of the solids generating from waste dump .Check dams , garland drains , retaining walls all around the waste dumps will be provided to arrest the suspended solids generated due to soil erosion and from waste dumps . Further due to the plantation proposed on the overburden dumps, there will be reduction in soil erosion. Hence , no impact is envisaged from the proposed mining operations on aquatic and around this proposed mining operation.





## **1.12 Environment Management Plan**

### **1.12(1) Air Pollution Management**

The proposed level of mining is not anticipated to raise the concentration of the pollutants beyond the prescribed limits of CPSB. However the following additional control measures will be adopted at mining sites to control the SPM levels in ambient air.

- Proper maintenance of the moving machinery and vehicles.
- Regular water sprinkling shall be carried out to suppress the dust on haul roads and mining face.
- The haul roads and service roads shall be graded to remove the accumulated loose material.
- Blasting would be avoided during high winds, night time and temperature inversion period.
- The waste dumps shall be given proper slopes so that during rainy season waste would not be flowing down from the waste dumps.
- During high winds, excavation and transport operations would be suspended.
- The tippers should not be overloaded so as to prevent spillage of the ore on the bench floors and haul roads during transportation.
- Good housekeeping shall be practiced at all the development and production benches and at utility service places; and
- Good canopy greenbelt shall be developed around the mining area and along mine haul roads, which acts as barrier between mining operation and outside mining area.
- The vehicles would be maintained properly and exhaust emission are to be checked regularly; and
- Speed restriction should be imposed on the vehicles to minimize the dust generation in mining and mineral processing plant area.





#### 1.12(2) Water Pollution

The control measures to be adopted for controlling water pollution are as follows :

- Proper drainage arrangements at mine should be maintained.
- Degraded land should be stabilized by a forestation.
- Buttress wall and contour trench would be made at the toe of waste
- Contour bounding at the toe of waste dump should be done before onset of monsoon.

#### 1.12(3) Noise Abatement Measures

The following control measures shall be adopted to keep the ambient noise levels well below the prescribed limits:


- Blasting shall be restricted to day time hours only.
- Proper and timely maintenance of mining machinery.
- Speed of moving Tippers running in the mine shall be limited to moderate speed (25 Km/hr) to prevent undue noise as per DGMS circulars enforcing safety standards.
- Provision of user friendly, soft type ear muffs/ear plugs to workers in noise prone zone in the mine.
- Effective arrangements shall be made for timely repairs and original equipment manufacturer's recommendations with respect to scheduled maintenance procedures & practices in respect of entire mineral processing plant equipment and principal mining machineries;
- The operator's chamber shall be safely guarded from the noise pollution by preventing it from the noise arising because of machinery;
- The noise level generated by blasting is only momentary and is less than 100 db(A).
- Developing greenbelt on the sides.

### **1.13 Reclamation and Rehabilitation**

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Since the top benches would act as carriage way to reach the lower levels, it is not possible for concurrent reclamation at any stage of active mine life .Therefore, biological reclamation of the mined out areas will envisaged only after the closure of the pit.

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1.13(1) Soil Conservation

In the mining area of Mongrapal the total volume of soil generated will be 577 Cu.M at the end of 5<sup>th</sup> year. All the soil will be staked in the stacking yard in the northern boundary.

1.13(2) Occupational Safety and Health

The management of Mongrapal mining operation will agree to conduct periodic medical check- up of employee and also in surrounding villages of buffer zone , Time to time training programmes and health check – up comp will be provided by the management .Health awareness programmes will also conducted by the film and drama in local language. Special attention to be .

Capital cost RS.50, 000 and annual recurring cost RS. 20,000 per year already proposed in budget for the purpose of occupational health. Periodic health checkup in mine worker and the people of the surrounding village will be conducted by the owner of the proposed project. It will also include the time to time awareness and training programmes for mine workers and villagers by film show and drama in their own language. Specially awareness programmes to be conducted for malaria, HIV. As already stated that the mining operation is small in nature, transportation of limestone and dump will be of limited, no mineral crushing proposed for this project, therefore no any fear from the mineral dust. Regular water will be sprinkled during the dry season on dusty road and mine road . The company shall engage a fulltime Doctor who is rained in occupation health surveillance.

- (A) As per the Director General of Mines Safety , all the necessary safety equipments such as helmet , safety goggle , boot, gloves , nose, mask, year plug , first aid facilities , medical checkup , treatment, drinking water and rest shelter will be provided by the management of the Mongrapal mine to all the workers.

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#### **1.14 Rehabilitation and Resettlement**

No rehabilitation and resettlement is involved as there are no house holds in lease area.

#### **1.15 Disaster Management plan**

TO tackle the consequences of major emergency inside the mine of in the immediate vicinity, a Disaster Management Plan (DMP)has been formulated.

