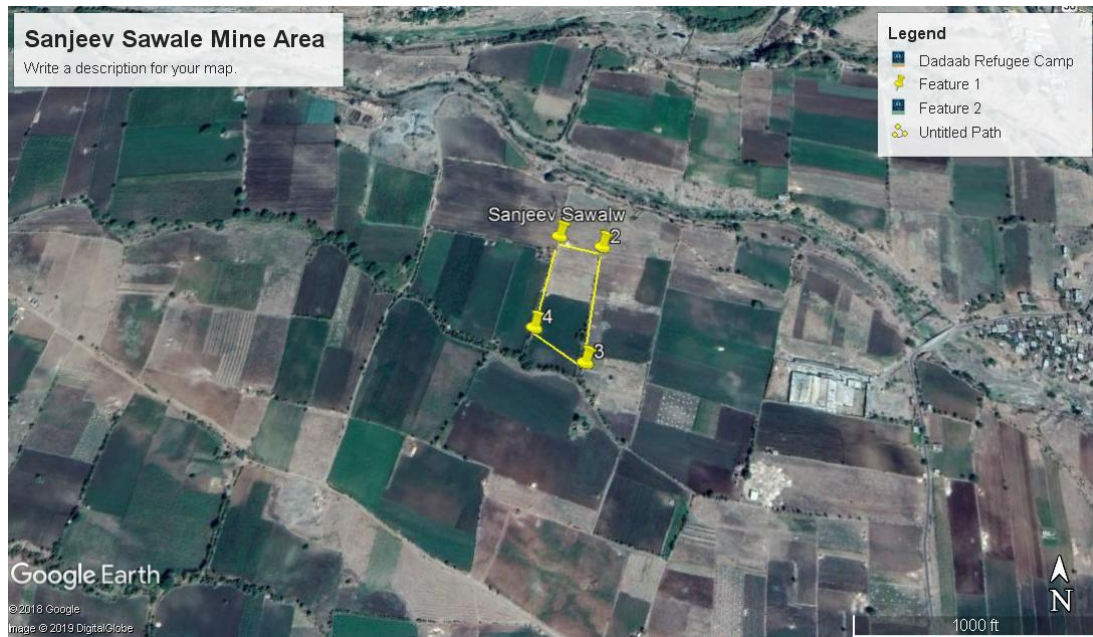


## **ENVIRONMENT MANAGEMENT PLAN (EMP)**

### **BALJHIRI STONE QUARRY (MINING LEASE AREA 1.00 Ha)**

Located at  
Khasra No- 99/1,99/2,  
Village- Baljhiri, Tehsil- Pansemal,  
District- Barwani, State-Madhya Pradesh



### **PROPONENT**

Shri. Sanjeev Sawale S/o Shri Devram Sawale  
Resi.- Pansemal, District- Barwani (MP)

### **PREPARED BY**

MILIND KUNDAL  
REGD. NO. RQP/DGMMP/197/2018  
PLOT NO 501, PALITANA APARTMENT,  
SILICON CITY, INDORE (M.P.)

## INTRODUCTION

### **IDENTIFICATION OF PROJECT AND PROJECT APPLICANTS:-**

The Proposed Stone Quarry is situated at Khasra No. 99/1,99/2 in Village – Baljhiri, Tehsil- Pansemal, District – Barwani (MP). This site is 25.00 km away from District- Barwani (MP). Area is marked by authorized agency for excavation of stone and there is a proved reserve of mineable stone. Applicant Shri Sanjeev Sawale S/o Shri Devram Sawale, Resi.- Pansemal, Dist.- Barwani (M.P.). The applicant has applied for lease on 19th Sep 2017 and LOI was issued by District Collector on 30th June 2018 in the name of Shri. Shri Sanjeev Sawale S/o Shri Devram Sawale, Resi.- Pansemal, Dist.- Barwani (M.P.) for a period of 10 years over an area of 1.00 Ha located at Khasra No. 99/1,99/2, Baljhiri Village, Tehsil Pansemal, District Barwani, Madhya Pradesh State. The total applied area is 1.0 hectare. The proposed production of Stone- 5,000 CUM/Annum,

Mining will be done in a semi-mechanized way, i.e. partially by machinery and partially by manual methods. Hence some impacts on air, water, soil, noise and land are envisaged. To prevent these impacts during stone mining operations following mitigation measures are adopted.

The environment management plan has to be developed with a view to bring down the level of impacts during proposed mining activities. In each of the areas of impact, measures have to be taken to reduce potentially significant adverse impacts and where these impacts are beneficial such impacts are to be enhanced/ augmented so that overall adverse impacts are reduced to low level possible.

### **PROJECT DESCRIPTION:-**

- I. **TYPES OF PROJECT:** - Mining (Basalt)
- II. **LOCATION OF THE PROJECT**

<b>S.NO.</b>	<b>Particular</b>	<b>Details</b>															
1	Name of Applicant	Shri Sanjeev Sawale S/o Shri Devram Sawale,															
2	Address	Resi.- Pansemal, Dist.- Barwani (M.P.).															
3	District	Barwani															
4	Tehsil	Pansemal															
5	Village	Baljhiri															
6	Khasra No	99/1,99/2															
7	Area	1.0 Hect.															
8	Location	<p>The Area falls in SOI, Topo-sheet No. 46 K The geographical location of the mine with respect to the boundary pillar of lease area are given below :-</p> <table border="1" style="margin-left: 20px;"> <thead> <tr> <th><b>BP. No.</b></th> <th><b>Latitude</b></th> <th><b>Longitude</b></th> </tr> </thead> <tbody> <tr> <td>A</td> <td>21°39'04.65"N</td> <td>74°41'34.91"E</td> </tr> <tr> <td>B</td> <td>21°39'04.07"N</td> <td>74°41'37.13"E</td> </tr> <tr> <td>C</td> <td>21°38'58.03"N</td> <td>74°41'36.16"E</td> </tr> <tr> <td>D</td> <td>21°38'59.79"N</td> <td>74°41'33.64"E</td> </tr> </tbody> </table>	<b>BP. No.</b>	<b>Latitude</b>	<b>Longitude</b>	A	21°39'04.65"N	74°41'34.91"E	B	21°39'04.07"N	74°41'37.13"E	C	21°38'58.03"N	74°41'36.16"E	D	21°38'59.79"N	74°41'33.64"E
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**Figure 1: Google image of Proposed Quarry with Crusher**



### **LAND ENVIRONMENT MANAGEMENT**

Land degradation and ecological disturbances occurs in opencast mining. In preparation of this plan for Baljhiri Stone mine, emphasis on environmental protection has been given to reduce the adverse impact on the present environmental scenario.

#### **Impacts envisaged during mining operations:**

1. Land degradation
2. Disturbance in the ecology of the area.
3. Excess creation of waste dumps.

#### **Mitigation measures should be adopted:**

1. Mining operations will be carried out at day time only.
2. Mining will be done in systematic and scientific way to prevent the disturbance in ecology of the area.
3. Mining will be done in steps and geological formation is having slopes.
4. The mined out area or the excavated area will be restored or reclaimed by filling top soil, excess waste and plantation will be done to keep the loose soil intact.

### **AIR QUALITY MANAGEMENT**

The proposed mining operations are not anticipated to increase the concentration of the pollutants beyond the prescribed limits. Air pollution is the very major and common during drilling and blasting operations. However, higher levels of SPM are envisaged on air environment.

#### **Impacts envisaged during mining operations:**

1. Higher dust levels.
2. Higher NO<sub>x</sub> levels.

3. Higher CO levels.

**Mitigation measures should be adopted:**

1. Water sprinkling on haul road and approach road.
2. Plantation around the mining lease area will be provided to arrest dust emissions.
3. Monitoring of Air quality will be done on regular basis.
4. Tractors/Trolleys will be covered by tarpaulin sheets during transportation.
5. Regular maintenance of vehicles.
6. Sharp drill bits will be used for drilling to reduce generation of dust and noise level.
7. Drilling machines will be equipped with water injecting system to prevent dust to get air borne.
8. Rock breaker will be used for breaking over size boulders in order to reduce dust and noise generation, which otherwise generates due to secondary blasting.
9. Controlled blasting and optimization of use of explosive energy will be done which helps in reducing the above emissions.
10. All the vehicles that will be used for transportation i.e. trucks, tippers, and dumpers will be maintained regularly and checked for Pollution under Control.
11. Personal Protective Equipment like dust mask will be provided to all employees working in the likely dusty areas.
12. Covered transport of the stone from mine to the crusher location.

**WATER ENVIRONMENT MANAGEMENT**

The proposed project will not have any significant impact on water environment. However, following precautions or mitigation measures shall be adopted to minimize the impact on water.

**Impacts envisaged during mining operations:**

1. Water logging.

**Mitigation measures should be adopted:**

1. No wastewater will be generated in mining activities except sanitary waste.
2. Sanitary wastewater will be treated in septic tank/soak pits.
3. Garland drains will be created around mine area and dump area to prevent water logging.
4. The wash off and leachates from dump sites will be collected by providing garland drains around the dump sites and they will be de-silted in these drains.
5. The drains will be cleaned regularly before onset of monsoon.
6. Surface runoff will be discharged through sedimentation tank.
7. Provision of garland drains around mine lease area to arrest silt wash off and collection of surface run off in a settling tank.

**NOISE AND VIBRATION ENVIRONMENT MANAGEMENT**

As there is no heavy earth moving machinery is involved, there will not be any major impact is envisaged. But due to drilling and blasting operations significant noise levels are envisaged. Noise generation may be for an instant, intermittent or continuous periods, with low to high decibels.

**Mitigation measures to control ambient noise levels:**

1. Green Belt/Green Cover will be developed around mine pits to attenuate noise levels.
2. Employees will be provided with personal protection equipment (PPE's) at high noise area.
3. Operator enclosure will be provide with aquatics prove cabin.
4. Proper maintenance, oiling and greasing of machines at regular intervals will be done to

reduce generation of noise.

5. Provision would be made for noise absorbing pads at the foundation of vibrating equipment to reduce noise levels.

#### **Mitigation measures to control vibrations and fly rock:**

1. Blasting will be performed strictly as per the guidelines specified under blasting technology.
2. Blasting operations will be carried out only during daytime as per mine safety guidelines.
3. Proper warning signals will be used.
4. Adequate safe distance from center of blasting will be maintained.
5. During blasting, other activities in the immediate vicinity will be temporarily stopped.
6. Overcharging will be avoided.
7. Optimization of blasting
8. Usage of staggered pattern
9. Supervision of drilling and blasting operations to ensure design blast geometry.
10. Sub-drilling will be kept just adequate to tear-off the bench bottom

#### **SOIL CONSERVATION**

##### **Impacts envisaged during mining operations:**

Soil erosion

##### **Mitigation measures**

1. Garland drains will be provided wherever required to arrest soil from the mine lease area carried away by rain water.
2. There will be no outside discharge from mining lease area.
3. There is no toxic element present in the mineral which may contaminate the soil.
4. Bench levels will be provided with water gradient against the general pit slope.
5. Retaining walls will be provided around the stockpile.
6. Plantation will be done to prevent soil erosion.

#### **PLANTATION PLAN**

Green belt will be developed along the access roads at mine premises and along the periphery of stone mining site. While selecting the plant species, preference will be given for planting native species of the area. Supply saplings to surrounding villagers for green belt development in their villages and encourage the plantation by means of social forestry. The species to be grown in the area are dust tolerant and fast growing species so that permanent green belt is created. Apart from the green belt and aesthetic plantation for elimination fugitive of emission and noise control, all other plantation efforts shall be decided and executed with the assistance and co-operation of the local community. Trees will be planted to arrest dust and they will also act as noise barrier. In these stone mining project FIVE yearly plans is proposed for the plantation purposes. Proposed species of trees which will be planted is mentioned below.

**Table 1: Yearly Plantation Schedule**

<b>Year</b>	<b>No Of Trees</b>
<b>1<sup>st</sup></b>	<b>100</b>
<b>2<sup>nd</sup></b>	<b>100</b>
<b>3<sup>rd</sup></b>	<b>100</b>
<b>4<sup>th</sup></b>	<b>100</b>
<b>5<sup>th</sup></b>	<b>100</b>

Baljhiri Stone Quarry at Village- Baljhiri, Tehsil- Pansemal, Dist – Barwani of Shri Sanjeev Sawale S/o Shri Devram Sawale (Area: 1.00 Ha)	EMP
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<b>Total</b>	<b>500</b>
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**Table 2: List of trees species proposed**

S. No.	Scientific name	Common Name	Pollution control features
1	<i>Azadirachta indica</i>	Neem	Tolerant to SO <sub>2</sub>
2	<i>Mangifera indica</i>	Aam	Tolerant to Dust control
3	<i>Tectona grandis</i>	Sagon	Tolerant to Dust control
4	<i>Ficus benghalensis</i>	Bargad	Tolerant to Dust control
5	<i>Dalbergia sisoo</i>	Sisoo	Dust particles absorbance
6	<i>Ficus religiosa</i>	Peepal	Dust particles absorbance

### BIOLOGICAL ENVIRONMENT

Aspects	Potential Impact	Mitigation Measures
Mining operation	Marginal vegetation loss	Mining operation will create marginal impact of local vegetation as presence of trees is scanty in the mine area. Predominant vegetation in the form of dense shrubs and seasonal herbs which will be affected during mining operation. However, it will be compensated by developing dense plantation around the safety zone
Dust emission due to mining and mineral transportation	Dust deposition on vegetation around periphery of ML area may retard the photosynthesis activities of plants	Transportation of excavated stone minerals will be carried out by covered truck. Regular water sprinkling within the mining area and also on haulage road will be carried out which helps to reduce the fugitive dust emission in the area. Plantation will be carried out in safety zone of mine lease area
Impact on Aquatic Ecology	Mining activity increases sediment load and total dissolved solids in streams due to erosion activity of overburden dump and loosened soil by blasting activity especially during rainy season may affect water quality of nearby area	Dense plantation will be carried out around safety zone, construction of siltation ponds/tanks will also implemented at mine site. Garland drains and retention walls will be provided around the toe of the waste dump to arrest silt wash off.

### OCCUPATIONAL HEALTH AND SAFETY MEASURES

1. The fugitive dust emission will be suppressed by water sprinkling on haul and transportation road. The level of dust emissions will be controlled as per permissible limit.
2. Dust mask will be provided to prevent from lung disorders etc.
3. All workers (regular and daily) will be registered under PHC for regular monitoring of their health and occupational diseases.
4. All employees regular or contractual will be selected for complete health check and occupational disease check in ESIC hospital which comes under Ministry of Labor.
5. Any suspected case will be further examined by PHC occupational health detection center.

## ENVIRONMENT MANAGEMENT COST

**Table 3: Environment Management Cost**

S. No.	Environment Activities	Annual Expenditure (Rs. In lakhs)
1.	Air Pollution Control (dust suppression along road –mobile water sprinklers)	2.50
2.	Plantation & Maintenance 200 plants per year (within mining area and along transport road outside mine lease area @ Rs. 500 per plant	0.50
3.	Environment Monitoring (Air, Water, Noise & Soil Monitoring @ 1 times in a year)	0.40
4.	Construction & maintenance of settling tank, garland drains, etc	0.50
5.	Personal protective equipments (Helmets, safety shoes, dust masks, ear plugs, etc)	0.18
6.	Provision of fencing around mine pit	0.25
7.	CSR activities in nearby villages	0.70
<b>Total</b>		<b>5.03</b>

## ENVIRONMENT MONITORING PROGRAM

The project proponent shall follow the standard methods of six monthly monitoring various environmental parameters i.e. air, water, noise and soil through accredited laboratory and submit the compliance as per EC conditions.

Sr. No.	Attributes	Parameters	Frequency
1	Ambient Air Quality	PM10,PM2.5,SO <sub>2</sub> ,NO <sub>x</sub>	24 hourly samples, once each during each season (excluding Monsoon). 1 locating in mining area and 1 location in Girari Khurd village
2	Noise levels	Noise levels in dB (A)	Hourly noise levels for 24 hours once each during each season (excluding Monsoon) 1 locating in mining area and 1 location in Girari



Baljhiri Stone Quarry at Village- Baljhiri, Tehsil- Pansemal, Dist – Barwani of Shri Sanjeev Sawale S/o Shri Devram Sawale (Area: 1.00 Ha)	EMP
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Sr. No.	Attributes	Parameters	Frequency
			Khurd village
3	Water quality	Physical, Chemical and Bacteriological parameters Ground water level	1 ground water sample from Girari Khurd village once each during each season
4	Soil quality	Physico chemical properties of soil	1 location from green belt area and 1 sample from nearby agriculture field. Once in a year (non-monsoon season)
5	Ecology	Survival rate of plantation	Greenbelt & Plantation in mine lease once in a year
6	Occupational Health & Safety	Medical health checkup of mine employees	Once in a year

### Socio economic Measures

Socio-economic was been conducted in 4 to 5 villages of the study area out of villages. The selected villages under its CSR plan identifies the needs of the surrounding villages and has developed a social management plan to benefit the surrounding areas. Thus the surrounding villages have been benefited from the mining activity. Local employed generated approximate 18 numbers as per the qualification and skill unskilled. Has already carried out number of welfare activities in the area like: Proposed CSR activate

- Samuhik Kanya Vivah
- Deeping of local pond
- Free Medical Camp (Eye & Dental check-up)
- Contribute to Local Area Development Fund
- Free drinking water supply facility to nearby village by Tanker

BUDGET FOR CSR ACTIVITIES		
S.No.	DESCRIPTION	COST TO BE INCURRED (PER YEAR)
1	Funds for maintenance of school aaganvadi kendra of nearly villages and construction children play ground	70,000
<b>TOTAL</b>		<b>70,000</b>



## CONCLUSION

All possible environment aspects have been adequately assessed and necessary control measures have been formulated to meet the statutory requirements. Thus implementing this stone mining project will not have appreciable negative impacts.



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