

EXECUTIVE SUMMARY
ENVIRONMENTAL IMPACT ASSESSMENT /
ENVIRONMENT MANAGEMENT PLAN
(AS PER EIA NOTIFICATION SEPT' 2006)

Submitted to
MAHARASHTRA POLLUTION CONTROL BOARD

OF
BAHILAMPUR LIMESTONE & DOLOMITE MINE
Village Bahilampur, Tahsil Zarijamni, District Yavatmal, Maharashtra
(Area 47.12 Ha; Production Capacity @ 0.05 MTPA Limestone/Dolomite)

PROJECT PROPONENT
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EXECUTIVE SUMMARY

INTRODUCTION

Shri Raja Khanderao Deshmukh Palshikar is a Private individual who applied for mining lease Bahilampur Limestone /Dolomite Mine Area 47.12 Ha, Production capacity of 0.05 MTPA situated at Village Bahilampur, Tahsil Zarijamni District Yavatmal, Maharashtra.

The proposed Limestone / Dolomite mine (47.12 Ha) will be developed as Mechanized Opencast mining with Shovel & Dumper Combination. The project was appraised by Expert Appraisal Committee (EAC) during its 4th meeting held during 15-16 January 2015. Accordingly Terms of Reference (TOR) for undertaking EIA study has been prescribed by EAC (Mining MoEF), New Delhi. The EIA/EMP report is based on this TOR.

Location details

Figure 1 gives the location of proposed limestone/Dolomite Deposit along with roads and major towns of area. The applied M.L. area over 47.12Ha is covered within the Survey of India Toposheet No. 56 I/13 on a scale of 1:50,000 and is bounded by the latitude 19°46'08.5" to 19°46'47.5" N and longitude 78° 49'38.6" to 78° 50'01.2"E.

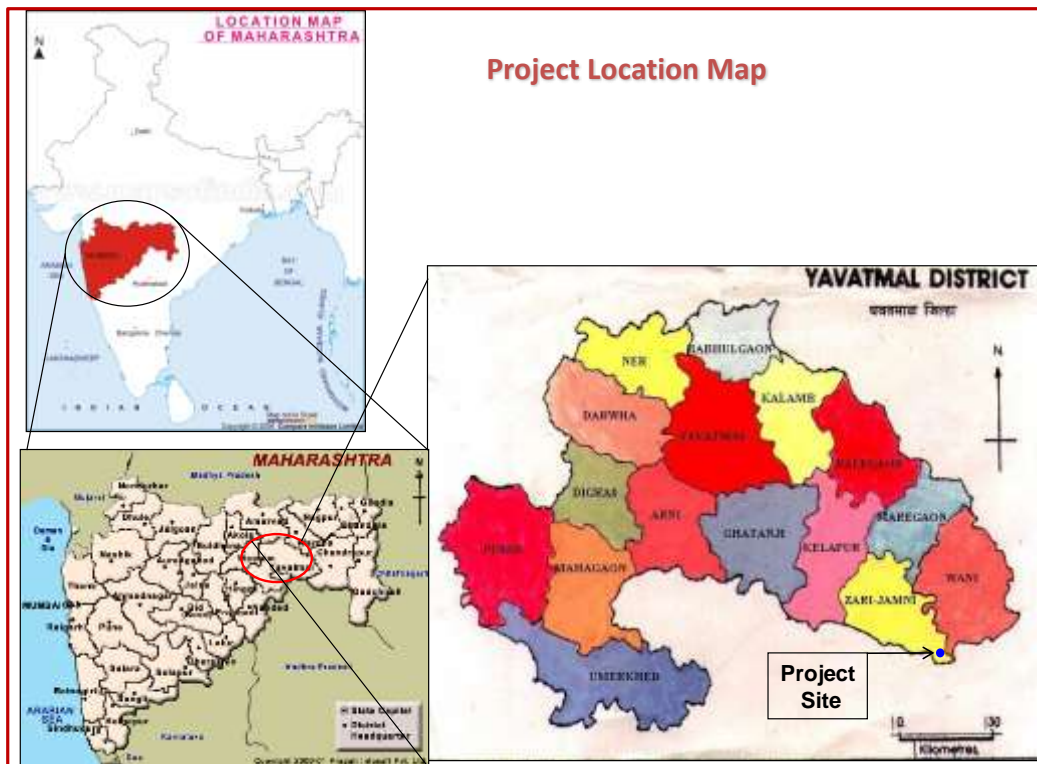


FIGURE 1 LOCATION OF THE PROJECT

Accessibility

The proposed area can be approached from Nagpur to Wani of Yavatmal district and then upto Mukutwan by Wani-Mukutwan Tar road which is 45 km from Wani. From Mukutwan there is diversion towards left for Bahilampur village which is at a distance of 7 km. The site is located at about 132 km from Yavatmal.

Existing Landuse

The applied mining lease area covers 47.12 Ha consisting 42.896 Ha of Government revenue land and 04.224 Ha private land.

Geological formations & Ore Reserves

The regional geology of the area is represented by Penganga beds (Vindhya), Gondwana formations, Lameta beds (Intratrappeans) and basaltic lava flows (Deccan traps). The older formations are flooded by basaltic lava flows, which are eroded at places thereby exposing the underlying formations. The geological litho units belong to Penganga series of Precambrian age. The regional stratigraphic sequence of rock units is as follows.

Basalt Lava flows	Deccan Trap	
Argillaceous sandstone and Cherty Limestone	Lameta Group	Lower Cretaceous
Sandstone	Lower Gondwana	Permo-carboniferous
Limestone & Dolomite	Penganga beds	Pre-Cambrian

The total geological reserves of limestone and Dolomite are estimated to be 11,922,550 tonnes while the mineable reserves are estimated to be 5,961,275 tonnes. It is proposed to produce 0.05 million tonnes / annum of Limestone/Dolomite from this mine.

Mining Method

Mechanized Opencast mining with Shovel & Dumper Combination. The mining operations will include removal of overburden, drilling by diesel compressors & jackhammer drills, blasting and removal of Limestone & Dolomite to the surface screening and sizing. The bench of 6 m height and 18 m width will be developed where the angle of face will be about 70° – 80° but the pit slope will be 45°. The mine road will be developed for ore movements and upto waste dumps/soil dump site.

Out of total production of Limestone & Dolomite 90% will be readily marketable & about 10% will be mineralized rejects. The estimated production is given below. There are many factors such as chemical composition, impurities present, texture of rock, percentage recovery of useable ore, market condition, etc.

Year wise Production for 5 years period is given in Table 1 below

TABLE-1 YEAR WISE PRODUCTION –LIMESTONE & DOLOMITE

Year	ROM Ore Cu. M.	ROM ore Tonnes (BD 2.5)	Graded ore 90% Tonnes	Reject 10% Tonnes	Soil/OB Cu. M.	Bench R.L. m.
1 st	20,100	50,250	45,225	5,025	335	222
2 nd	20,100	50,250	45,225	5,025	335	222
3 rd	20,100	50,250	45,225	5,025	335	222
4 th	20,502	51,255	46,130	5,125	342	222
5 th	20,460	51,150	46,035	5,115	Nil	216
Total	101,262	253,155	227,840	25,315	1,347	

Waste generation & management

The development consists of removal of an overburden, which occurs as a capping over Limestone & Dolomite. The details are given below in **Table 2**

TABLE 2 YEARWISE TOP SOIL GENERATION

Year	Area under mining (Ha.)	Floor RL (MRL)	Limestone produced ROM (Tonnes)	Soil/Reject (Cu.m. / tonnes)
1 to 5	1.4070	218	227840	1,347 / 25,315
6 to 20 years (15 years)	3.400	216	7,500,000	7,225 / 75,000

The waste and rejects will be dumped in non mineralized zone within the mining lease. Dumps after stabilization will be biologically reclaimed. Presently there is no dump in the area. Build of dumps from year to year is shown in 5 years Development & Production Plan

Drainage: The proposed area is having almost flat topography on a basement containing thick limestone and dolomite beds in almost horizontal situation. The maximum contour value is 228 m and minimum contour value is 220 m. The proposed

area is covered with thin alluvial soil in places its thickness may vary from 0.1 m to 0.3m. The drainage of the area is towards south-west and flows into small rivulet. This rivulet is flowing in south direction and ultimately joins Penganga river at a distance of about 1.5 km from the area. The proposed area is surrounded by agricultural and waste land

Ground water

The water table in the wells will not be disturbed due to shallow nature of drilling and blasting. There will be no contamination in water as no processing and no toxic elements are present in the limestone & dolomite

Arrangement for Dewatering

The water accumulated during the rainy season in the pits will be pumped out by suitable capacity diesel driven pumps. The water will be tested for any toxic elements before pumping & discharging into the nalla, which is on the western and south west side.

BASELINE ENVIRONMENTAL STATUS

The total project area of the proposed **Bahilampur Limestone/Dolomite** Mine is considered as Core Zone while the 10 Km surrounding area of core zone is considered as Buffer Zone The baseline environmental quality data for various components of environment, viz. Air, Noise, Water, Land and Socio-economic were generated during March 2016 to May 2016 in the study area covering 10 km around the proposed opencast Limestone/ Dolomite Mine. Other environmental data on flora and fauna, land-use pattern, forest etc were also generated through field surveys and also collected from different State Govt. Departments.

Landuse of the Buffer Zone

As per census the total area estimated within 10 km radius of buffer zone (study area) around proposed Limesone/Dolomite block was 47.12 Ha. The maximum area was under cultivation 66.87% (irrigated 1.74% and un-irrigated 65.13%). Followed by area under culturable waste land was 5.00 %, area not available for cultivation was 9.00 %. While area under forest was 19.13%. The Geocoded Satellite Imagery for the study area covering 10 Km study area was procured from National Remote Sensing Agency (NRSA), Hyderabad.

Ground Water Level

Well inventory of 30 numbers dug wells in 18 villages had been done in the buffer zone . The water level in buffer zone during pre-monsoon is varies between 3.5-11.1 m bgl average 6.48 m bgl, while during post monsoon it is 0.82 to 7.70 m bgl average being 3.09 m bgl. The average water level fluctuating between two extreme seasons is 3.39m.

Water Quality Monitoring

The water quality monitoring stations were selected with a view to represent the surface and ground water bodies in and around proposed lease area. There are number of seasonal nallahs and there is no perennial stream in the buffer zone. The stations were selected taking all these water courses into account, as per MoEF norms. A total of five surface & five ground water sampling stations were monitored. The analysis of physico-chemical characteristics of the water samples one season are appended in Chapter 3 of EIA/EMP.

Ambient Air Quality Monitoring

The monitoring was carried out for 13 continuous weeks beginning from March 2016 to May 2016 as per norms stipulated by the Central Pollution Control Board. To assess the base line ambient quality nine air quality monitoring location were selected on the basis of wind direction and other meteorological parameters in core and buffer zone area.

Air Quality: The PM₁₀ PM_{2.5} SO₂, NO_x values for all 9 stations were below.

- **Particulate Matter₁₀:** The 24 Hourly maximum concentration of PM₁₀ reported during the survey ranged from 43.6-54.8 $\mu\text{g}/\text{m}^3$. This is lower than the NAAQ permissible level of 100 $\mu\text{g}/\text{m}^3$.
- **Particulate Matter_{2.5}:** The 24 Hourly maximum concentration of PM_{2.5} reported during the survey ranged from 18.2-29.6 $\mu\text{g}/\text{m}^3$. This is lower than than the NAAQ permissible level of 60 $\mu\text{g}/\text{m}^3$.
- **SO₂:** The 24 Hourly maximum concentration of SO₂ reported during the survey ranged from 11.8-26.4 $\mu\text{g}/\text{m}^3$. This is lower than than the NAAQ permissible level of 80 $\mu\text{g}/\text{m}^3$.
- **NO_x:** The 24 Hourly maximum concentration of NO_x reported during the survey ranged from 15.8-25.9 $\mu\text{g}/\text{m}^3$. This is lower than than the NAAQ permissible level of 80 $\mu\text{g}/\text{m}^3$.

Noise Levels: A Recorded Noise Levels in the proposed lease buffer zone are in the range of 37.6-54.9dB (A) at all nine monitoring stations. Maximum levels of noise have recorded in day hours which are natural as our most of activities have done in day hours.

Soil Quality

Soil samples were collected at 4 selected locations in the study area to assess the existing soil conditions around the proposed mine. Characteristic of both waste and forest land soil are little deficient in nutrients concentration. Whereas, all two agricultural land soils are moderately suitable for cultivation of climatic crops and have good fertility.

Biological Environment

The core and buffer zones include the village settlements with their cultivated fields, forest areas as well as vast areas reduced to wasteland. Flora-Fauna: The detailed inventory of floral and faunal assemblage of the core and buffer zone has been prepared. The details of flora and fauna are provided in EIA/EMP. There are no ecologically sensitive areas such as Biosphere Reserves/National Parks/WL Sanctuaries/ Elephant Reserves, migratory corridors of fauna, and areas where endangered fauna and plants of medicinal and economic importance found in the 15 km area of the buffer zone.

Human Settlement and Demography

The area selected for the study constitutes 50 inhabited villages. The population is distributed among 9769 households in the study area. The 50 inhabited villages have a population of 50223 comprising of 25754 males and 24469 females.

Proposed Social Responsibility Measures

The details of proposed social responsibilities are given in Chapter 4. A systematic approach for the implementation of the peripheral area development in selected villages in the buffer zone starting from the nearest village will be drawn up with the help of local community based organization & in consultation with the villagers. The area selected for the study constitutes 50 inhabited villages. The village size as estimated from the number of inhabitants as per the census indicated that 18 villages fall within 1-500 population size, while majority of the villages i.e. 14 village fall in range of 501-1000 population size, only 15 villages fall in range of 1001-2000 population size and 3 villages having population more than 2000. Village **Mehandi** with population of 59 is the least populated village while **Mukutban** with population 6785 is the most populated

Risk Assessment & Disaster Management Plan

In any mining project, work safety is taken care of as per provisions in the Mines Act, Rules framed there under. Inundation, fly rocks during blasting operations, risks associated with handling and use of explosives, during operations of equipment and movement of vehicles has been dealt. The risk management plan as per the directives of competent authorities will be Implemented strictly.

ENVIRONMENTAL MANAGEMENT PLAN

Air Pollution Management

- a) Haulage roads will be frequently sprinkled with water for which truck mounted water tankers with sprinkler arrangement have been provided.
- b) Ore will be covered by tarpaulins to prevent spread of dust from it during transportation.
- c) Regular maintenance of vehicles and machineries will be carried out in order to control emissions.
- d) Green belt development will be taken up at various places.
- e) The dust respirators will be provided to all the workers.
- f) Good house keeping and proper maintenance will be practiced which will help in controlling the pollution.

Water Pollution Management

The water quality during mining operations is unlikely to be changed. The general slope of the lease area is towards west. As the lease area lies on the slopes the rainwater falling from the ridge is also likely to flow as surface runoff beside water incident on the lease itself during monsoon season. In order to arrest the loose particles it is proposed to build a retaining wall inside the lease boundary along with garland drain on the lease boundary on the slope of adequate dimension. The water collected in the garland drain after adequate, settling of solids will be reused for sprinkling of water and plantation. The garland drain will be regularly cleaned to remove the sediments.

Noise & Vibration Management

- Noise is best abated at source by choosing machinery and equipment suitably, by proper mounting of equipment & ventilation systems and by providing noise insulating enclosures or padding where practicable.
- Proper maintenance/working will be done which keeps the noise level within limits.
- At the boundary of mining lease green belt of local trees will be planted which will act as acoustic barriers. Planting of bushy trees of rich canopy in and around the mine area to intercept noise transmission. A 7.5 m wide belt of trees of different heights will be useful to act as noise attenuator in the mining areas.
- Delay detonators millisecond delay interval will be used. For keeping the vibrations minimum.

Land Reclamation Measures

The mining will be by opencast method of mining. The ore reserves will be lost long even after the ML period expires, the same will be renewed for further period, hence question of back filling /reclamation does not arise at this stage. However it is proposed to carryout plantation in the non mineralized area on regular basis.

Plantation

It is proposed to select the local tree species with the help of forest department having 5 tier arrangements for implementation all along the mining lease in order to control dispersion of fugitive dust from the mining lease.

Proposed Afforestation Programme

Plantation	No. of Plants	Area under plantation (Ha.)
1 to 5 years	500 plants @ 100/ year	0.45
6 to 20	1500 plants @100/ year	1.80
21 to end	2500 plants	Block A - 3.4

Occupational health:

- All the mine workers will be sent to nearest Hospital which has the facilities for chest X-ray, pulmonary function test & audiometry, TB, Malaria, HIV etc. once in 5 year. Free Transport will be provided.
- It is proposed to supply treated water for drinking water for the mine workers.
- A safety committee will be constituted to implement the proposed OSHA management plan and environment management programme and take proper mitigative measures as per EIA/EMP.
- Services of Occupational Health Specialist will be arranged regularly.
- The proponent will bear all the expenditure related to health check up and treatment of the mine workers.
- Individual health record of every worker will be maintained till the end of service or the end of mining operations. Records will be maintained and corrective action if required, shall be taken by the management Budget has been allocated under Recurring Annual Cost for Environmental protection

Employment Potential: Around 35 labourers will be required for this mine. Managerial staff – consisting of Mines Manager (Environment), Mining Engineers, Geologist, Mining foreman, mining mate and safety engineer (Silviculturist) will also be deputed. It is proposed to deploy local manpower meeting the eligibility criteria required for the job under consideration.

Resuming of industrial activity like mining will benefit people residing in the nearby villages within the buffer zone by direct and indirect employment opportunities. People will also be beneficiaries for the facilities developed due to mining activity. A budgetary provision of Rs 5 lakhs as capital investment and recurring expenditure of Rs 5 lakhs is made in the management plan.

The mitigation measures suggested above shall be implemented so as to reduce the impact on environment due to operations of proposed mining activities. In order to facilitate easy implementation, mitigation measures are phased as per the priority implementation. A separate budgetary allocation of the funds is made for the environmental protection measures. The monitoring of the pollution to know the effectiveness of the applied control measures will be carried out at regular interval.

AN EPILOGUE

In compliance with the environmental procedure the environmental clearance application is made. Necessary scientific studies have been undertaken as per the guidelines set by the Ministry of Environment and Forests (MoEF). The suggestions/recommendations of all the experts, competent authorities, and government officials are being sought for the impacts of the proposed project. Views and guidance of the local residents, community based organizations, social organizations are extremely important in order to devise a full proof Environment Management Plan for the proposed mining project and also mitigate the damages caused due to the project. Allocation of necessary funds, manpower and machinery will be made to for the protection and conservation of all the components of environment. It is ensured that all mandatory clearances will be sought from respective competent authorities before operating the proposed **Bahilampur Limestone/Dolomite Mine (47.12 Ha)**. Raja Khanderao Deshmukh Palshikar is committed to implement the suggestions for the improvement of the environment and assure that every attempt will be made for the conservation and protection of the natural resources to the maximum extent.