

**PREFEASIBILITY
STUDY
FOR STONE QUARRY
OF
M/S BANDODKAR
METALS
OF
SMT. UJWALA
RAMACHANDRA
BANDODKAR**

Stone Quarry of M/s Bandodkar Metals

Executive summary

M/s Bandodkar Metals of Smt. Ujwala Ramachandra Bandodkar has applied for environmental clearance for obtaining quarrying lease over an area 1.0100 Ha. at Sy. no. 284 B, Ambadgaon, Taluka-Dodamarg, District: Sindhudurg, State: Maharashtra with average production capacity of 42125.4 Tonnes per year.

The major highlights of the project are:

- The project comes under non agriculture land.
- Ideally located in Ambadgaon Village, Dodamarg-Taluka, Sindhudurg-District, Maharashtra. State Highway no. 02 passes in the north west side-3.08 km away. State Highway no. 01 passes in the south -7.59Km away from lease area. State Highway no. 04 passes -8.62 Km away in the south east Public road passes 770m away from the lease area in the south.
- No displacements of settlement are required.
- The activity is categorized under Schedule – 1 (a), B-2 Category project and is appraised at District level.

Project Description

Location: The site is located Sy. No. 284 B, Ambadgaon, Taluka-Dodamarg, District: Sindhudurg, State: Maharashtra.

Land: There is human settlement is located approx 0.35Km in the south-east of lease area. Village Ambadgaon is located Approx. 1.56 Km in the south. The proponent has applied for a mining lease of 1.0100 Ha.

Co-ordinate: The coordinates of the plant site are as follows

Points	Latitude	Longitude
1	N-15 ⁰ 38'57.59"	E-73 ⁰ 58'44.09"
2	N-15 ⁰ 38'58.08"	E-73 ⁰ 58'45.77"
3	N-15 ⁰ 39.00.19"	E-73 ⁰ 58'45.29"
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Water: Water requirement of the project will be met through the bore well. The water requirement is estimated to be maximum of **12 CMD**.

Electric Supply: The estimated power requirement for the project will be 100 KVA.

Project Cost: The total cost of the project including all facilities is estimated to be INR 00.35 Cr.

Topography: The area is roughly irregular in shape with major dimension along the northeast-southwest direction. Length of the area is about 226m and width of the area is about 74m. Bench mark of the area is at Boundary pillar number 05 and is 69MSL. Overall slope of the area is from east to west with lowest point near the south western boundary (57MSL) while highest level is towards north eastern boundary. The lowest contour in the area is 57MSL while highest contour in the area is 69 MSL Countour are made at an interval of 01m.

Soil Quality: the area in and around lease area is represented by "aa" type of basaltic flows. Basalt is dense with micro prophyritic texture. The rock is grayish black colored medium fine grained. Basalt occurring in the area is hard and compact in nature. None of other rock type is occurring in the area. The basaltic flows are cut by joints. The area is totally covered with trial pit exist in the lease area. This trial pit is roughly oval in shape. It has north south length 15m and east length 37m. the depth of the pit is 1.5m.

Meteorology: the district falls under the 'Assures and High Rainfall zone'. The climate is generally humid. The cold season id from December to February followed by summer from March to May. June to September is the southwest monsoon, while, October and November constitute the post-monsoon season. December is the coldest month with mean daily maximum temperature at 32.7⁰C and the mean daily minimum temperature at 18.7⁰C. April is the hottest month. The relative humidity during winter

and summer months is also above 57%. The normal annual rainfall over the district varies from 2300mm (Malvan) to about 3205mm (Kudal).

Water: Water needed for operation requirement shall be drawn from bore well.

Ecology: the lease area has no considerable vegetation. Few trees are noticed near road side and area under quarrying is barren land. The tree species are Tamrind, Acacia nilotica etc. The area is not populated by wild animals. The area is and around quarry lease is populated with dogs and usual domesticated animals such as Sheep, Cow, Buffalo, Bullock etc.

Socio-economic: The project will provide positive impact on the economic development of the region in terms of employment opportunities. No population will be displaced.

Risk assessment plan

Quarrying activities are comparatively less because the production is not on large scale. Workers do not come across any extreme conditions like excessive heat; moisture etc. people working near crushing plant only come across the dusty environment. The fineness of dust may not be beyond the unsafe limit (5 micron) as there has not been a single case of silicosis or tuberculosis in the past.

The following PPE will be provided to the persons working in the quarry area:

- ❖ Steel-shoed Industrial Safety Shoes
- ❖ Dust masks
- ❖ Ear plugs/earmuffs
- ❖ Safety Helmet
- ❖ Splash goggles
- ❖ Gloves
- ❖ Protective apron
- ❖ Vapor respirator

Conclusion

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The minor mineral project of stone mining will not have any adverse impact on the environment. Altogether the project will have a positive impact on social environment by providing employment opportunity for the skilled and unskilled labors living in the surrounding villages. Also the infrastructure around the site will be improved due to the project. The project proponent will help in building a green environment by providing plantation around the site.

PREFEASIBILITY REPORT

1. INTRODUCTION OF THE PROJECT

1.1 Identification of the project proponent

M/s Bandodkar Metals Stone Quarry of Smt. Ujwala Ramchandra Bandodkar has applied for environmental clearance for obtaining quarrying lease over an area 1.0100 Ha. in Sy. no. 284 B, Ambadgaon, Taluka-Dodamarg, District: Sindhudurg, State: Maharashtra with average production capacity of 42125.4 Tonnes per year.

The major highlights of the project are:

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- No displacements of settlement are required.
- The activity is categorized under Schedule – 1 (a), B-2 Category project and is appraised at District level.

Crushing Activity

Each cycle of operation shall consist of removal of murrum soil, weathered basalt wherever present, followed by extraction of exposed basalt subject to following condition being strictly complied with:

1. Quarrying operation shall be conducted from top to bottom level.
2. No person shall be engaged on work or allowed to travel close to high sides/benches, from which he may likely to fall from more than 1.8m height vertically down, unless he is provided with and used a safety belt or rope.
3. A garland of 7.5m of barrier will be maintained.
4. At surface all along the lease boundary vegetation growth will be generated to isolate mining operation from rest of the area.

5. The surface drainage channels governing the water drainage of the area will be maintained by proper garland drain to collect the water at the periphery of excavation and discharge the same at the natural outlets by passing the excavation.
6. Wherever top murrum soil is excavated would be stacked properly for the use of vegetation.

The following basalt will be used for:

- i. In the stock yards of Railway plots:
- ii. Road works.
- iii. In construction line for filling and flooring
- iv. In irrigation department for lining and for Bandhara
- v. Other Sectors

1.2 Description of Nature of the Project

Over the last 10 years, the Construction sector has been registering strong growth rates in the range of 7-8%. Housing and construction is one of the major drivers of growth in more than 40 allied industries including laterite stone construction. Several projects are in progress and are being commenced shortly which will have high demand of laterite Stone all over the Sindhudurg District and nearby Goa State. In order to make up the backlog and meet the projected requirements for the next 20 years, overall housing construction has to raise 50,000 housing units per annum. This process leads to construction of new houses, markets etc resultantly gear up construction activities and more use of laterite stones. The aforementioned facts and statistics provide enough evidences, assuring a steep and continuous growth vis a vis investment opportunity in the stone extraction business.

1.3 Need of the Project

The project proponent has proposed inclusion of Stone Crushing in the mining lease as explorations have shown that these deposits occur in the subject lease area. The proposed mining production is covered under the Ministry of Environment & Forests Notification 2006. This report of Prefeasibility & Environmental Management Plan is given here as a part of the information to be furnished to the MoEF, Govt of India for obtaining Environmental Clearance as per office Memorandum No. L-11000/47/2011/IA-II(M) dated 18.05.2012 .To meet the ever-increasing local demand for Crushed stone by the building industry and construction quarry the project proponent intends to produce the

following quantities of crushed stones by Manual method of quarry activity. The year wise production and development details for the five years plan period are summarized in the table below.

Table No. 1

Production Plan for Five years

Year	Annual Production Capacity
I	42125.4
II	42125.4
III	42125.4
IV	42125.4
V	42125.4
Total	2,10,627

1.4 Demand Supply Gap

Since it is an allied industry of the construction sector, growth in construction sector may be considered as proxy for the growth in stone crushing sector, i.e. around 7-8%.

Crushed stone has a very minor share among the exports of non-metallic mineral products of India. It is observed that total export volume of the crushed stone has been very low, whereas, Marble has the highest share and remained at the top. The market scope for crushed stone is found to be encouraging in local market with the increased demand from building industry & construction fields. There is also a sufficient demand from Govt. Contractors for laying of roads and construction of industries etc. The entry in the target market is easy and there is a narrow gap in the supply and demand, which is expected to grow in the coming years. The business opportunity to fill the demand and supply gap would be quite profitable.

1.5 Employment Generation

The establishment of this project will improve the socio-economic status of the surrounding area by way of direct & indirect employment. The Employment opportunity will be created for skilled and mainly unskilled people.

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2. PROJECT DESCRIPTION

2.1 Location:

The project is located on a plot of land measuring 1.0100 Hectare at Ambadgaon, Taluka-Dodamarg, District: Sidhudurg, State: Maharashtra. The land is declared as a revenue waste land by the government authority. Stone quarry of the capacity 42125.4 TPA.

Table No.2 SALIENT FEATURES OF LOCATION

Project Site	Sy. No.284 B, Ambadgaon, Dodamarg, District: Sindhudurg, State: Maharashtra																																							
Co-ordinates	<table border="1"><thead><tr><th>Sr. No</th><th>Latitude</th><th>Longitude</th></tr></thead><tbody><tr><td>1</td><td>N-15⁰38'57.59"</td><td>E-73⁰58'44.09"</td></tr><tr><td>2</td><td>N-15⁰38'58.08"</td><td>E-73⁰58'45.77"</td></tr><tr><td>3</td><td>N-15⁰39.00.19"</td><td>E-73⁰58'45.29"</td></tr><tr><td>4</td><td>N-15⁰38'59.83"</td><td>E-73⁰58'48.76"</td></tr><tr><td>5</td><td>N-15⁰38'59.83"</td><td>E-73⁰58'50.36"</td></tr><tr><td>6</td><td>N-15⁰39'01.31"</td><td>E-73⁰58'50.29"</td></tr><tr><td>7</td><td>N-15⁰39'02.58"</td><td>E-73⁰58'49.72"</td></tr><tr><td>8</td><td>N-15⁰39'01.28"</td><td>E-73⁰58'47.06"</td></tr><tr><td>9</td><td>N-15⁰39'01.47"</td><td>E-73⁰58'46.39"</td></tr><tr><td>10</td><td>N-15⁰39'01.14"</td><td>E-73⁰58'45.47"</td></tr><tr><td>11</td><td>N-15⁰39'00.60"</td><td>E-73⁰58'45.30"</td></tr><tr><td>12</td><td>N-15⁰38'58.96"</td><td>E-73⁰58'43.65"</td></tr></tbody></table>	Sr. No	Latitude	Longitude	1	N-15 ⁰ 38'57.59"	E-73 ⁰ 58'44.09"	2	N-15 ⁰ 38'58.08"	E-73 ⁰ 58'45.77"	3	N-15 ⁰ 39.00.19"	E-73 ⁰ 58'45.29"	4	N-15 ⁰ 38'59.83"	E-73 ⁰ 58'48.76"	5	N-15 ⁰ 38'59.83"	E-73 ⁰ 58'50.36"	6	N-15 ⁰ 39'01.31"	E-73 ⁰ 58'50.29"	7	N-15 ⁰ 39'02.58"	E-73 ⁰ 58'49.72"	8	N-15 ⁰ 39'01.28"	E-73 ⁰ 58'47.06"	9	N-15 ⁰ 39'01.47"	E-73 ⁰ 58'46.39"	10	N-15 ⁰ 39'01.14"	E-73 ⁰ 58'45.47"	11	N-15 ⁰ 39'00.60"	E-73 ⁰ 58'45.30"	12	N-15 ⁰ 38'58.96"	E-73 ⁰ 58'43.65"
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Nearest Highway	State Highway no. 02 passes in the north west side-3.08 Km away. Colvalem-Revora-Pirna-Mercurem road passes in the north-westside - 3.52 Km away. State highway no 01 passes in the south-7.59 away from lease area. State highway no 04 passes- 8.62 Km away in the south east. Public road passes 770m away from the lease area in the south.																																							
Nearest City	Bicholim city is located at an aerial distance of 9.7 kms from the project site .																																							
Nearest Railway station	Thivin Railway Station is located at an aerial distance of 11.16 kms from the project site.																																							
Water bodies	Gad located at a distance 84 Kms, Karli is at distance 92kms, Terekhol located at a distance 69 kms, Tillari is located at a distance 53kms,																																							

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Average rainfall	Annual rainfall over the district varies from 2300mm to 3205mm
Average temperature	18.7 °C – 32.7 °C
Average humidity	During Southwest monsoon is 86-90% & during winter and summer months is above 57%
Archaeological monument	Not present in the 10 km radius of the site.
Human settlement	Nearest human settlement is Ambadgaon village at a distance of 0.35Km from the lease area in south east direction.
Shed Provided	Temporary shed for the workers will be provided.
Crusher Location	Crusher is located within the lease area.

Method of mining: Quarry will be worked by open cast manual method.

Mine Life: The anticipated life of the quarry would be about 10 years minimum @ 42125.4 TPA.

Geological Reserve

Table No - 4

Total Geological Reserve (Tonnes)	Mineable Reserve (Tonnes)	Extractable Reserve (Tonnes)	Per cent (%) of Extraction
344520	78010 Brass	375000	49.95%

Details of Deposits:

Table No - 5

Depth of over burden	Grade of ore	Stripping ratio
1.50 m to 1.75m	Not applicable as it is basalt	The applied lease area is capped by basalt only.



Fig 1: Google Earth Image of the project site

2.2 Land Distribution around Site

The project site is having quarry area, crushing area, office area and shelter provided for the workers. The land is a privately owned area.

Sr No.	Particulars	Present Pattern Sq. Mtrs	Proposed Pattern Sq. Mtrs
1	Area covered under pits	0.0510 Ha	0.5073 Ha
2	Area for storage	Nil	Nil
3	Dumps and others	Nil	Nil
4	Green belt	--	0.2862 Ha

2.3 Size and Magnitude of Operation

The estimated cost of the project is going to be INR 0.350 Cr., including a capital expenditure of INR 1.5 lakhs on environmental matters. It is expected that the recurring costs on environmental matters would be INR 1.50 lakhs. The project capacity is 42125.4 Tonnes/Annum.

2.4 Present mining technology

Open pit mining is done for the said quarry. The overburden (top soil) if any, from the quarry site is removed manually to the expose the underneath rock. Controlled Blasting is done for developing initial cracks inside the rock by a blasting license holder. The stone is then drilled out from the exposed cracks. The excavated stone is then crushed as per the desired size and then dispatched off.

2.5 Water Sources

Water is required in the project site for various purposes like spraying to control the dust generation. Water is also used during the drilling process. The water requirement will be around 12.0 CMD. The source of the water will be Bore well.

Consumption Details

Sr. No.	Activities	Demand (CMD)
1	Domestic Purpose	1.0
2	Mine a. Drilling b. Dust Suppression c. Equipment/Vehicle washing	2.5
3	Screening Dust suppression	4.5
4	Green Belt	4.0
	Total	12.0 CMD

2.6 Power Sources

The power requirement of the project will be 100 KVA.

2.7 Waste Generated

The possible waste generated by the mining process will be some rejection which can be used for leveling of the land. No solid or liquid waste will be generated from the mining process.

2.8 Explosive Storage

Project proponent conducts explosions at site through help of licensed practioner. Hence there is no storage of explosives on the quarry site.

2.9 Manpower

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The total manpower is 6 people at the project site. Both the skilled and the unskilled labors are included.

Table No. 5 Organization Table

Sr. No	Category	Operative Phase
1	Accountant	1 No.
2	Manager	1 No.
3	Watch Man	1 No.
4	Labour	3 No

Conclusion

Based on the foregoing study as summarized above, it is observed that there will be marginal increase in the dust pollution, which will be controlled by sprinkling of water and transportation of stones in closed/tarpaulin covered trucks. There will be no major impact on the ambient environment & ecology due to the mining activities moreover the mining operation will lead to direct and indirect employment generation in the area. Ambadgaon village, Dodamarg Taluka, Sindhudurg District will have a positive impact on the **Socio Economics** of the area and lead to sustainable development of the region. The applicant will ensure the implementation of the environmental protective measures within the mine area & surroundings and will comply with the terms & conditions to be laid down by the Ministry of Environment & Forests as required under the Environmental Protection Act-1986 and its amendments.