DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT
&
ENVIRONMENT MANAGEMENT PLAN
of

Berlakala Cluster Bricks Earth Quarry

at

Village: Berlakala, Tehsil: Berla, District: Bemetara, State: Chhattisgarh.

Area 6.67 ha. at Khasra No.

614/3, 615, 639/1, 639/2, 640, 641/1, 641/2, 641/3, 644, 678, 695/3, 695/5, 695/11.

&

591/1, 591/2, 591/3, 591/4, 591/5, 597, 598/1, 598/2, 598/3, 598/4, 599, 601, 600/1, 600/3, 603, 609/1, 609/2, 612

614/1, 614/2, 616, 617, 611, 613, 610, and 602

Total Capacity in Cluster: 5,850 CUM.

Executive Summary English

Project Name	Block/ Khasra	Area (Acres) /(Ha)	TOR Vide Letter No	TOR Granted Date	Proposed Capacity (TPA)
M/s Berlakala Bricks Earth Quarry (Pro. Shri Abhinit Upadhyay)	614/3, 615, 639/1, 639/2, 640, 641/1, 641/2, 641/3, 644, 678, 695/3, 695/5, 695/11.	2.20 Ha /5.44 Acres	485/S.E.A.C., C.G./MINE/2117 Nava Raipur Atal Nagar, Dated 02/06/2023	Dated 02/06/2023	3,350 CUM
M/s Berlakala Bricks Earth Quarry (Pro. Shri Dayaram Yadav)	591/1, 591/2, 591/3, 591/4, 591/5, 597, 598/1, 598/2, 598/3, 598/4, 599, 601, 600/1, 600/3, 603, 609/1, 609/2, 612, 614/1, 614/2, 616, 617, 611, 613, 610, and 602	4.47 Ha /11.05Acres	487/S.E.A.C., C.G./MINE/2116 Nava Raipur Atal Nagar, Dated 02/06/2023	Dated 02/06/2023	2,500 CUM

Applicant

Shri Abhinit Upadhyay and Shri Dayaram Yadav

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GSTIN-09AATFP5994M1ZY
PAN- AATFP5994M

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Executive Summary

Introduction

Environment Impact Assessment (EIA) is a process used to identify the environmental, social & economic impacts of a project prior to decision making. It aims to predict environmental impacts at an early stage of project planning & design, find ways & means to reduce adverse impacts. By using EIA, we can decide the suitable mitigation measures for implementation to maintain healthy working environment and contain pollution within permissible limits.

Area- 2.20 Ha- Shri Abhinit Upadhyay

1. The mining lease is located in Village – Berlakala Tehsil - Berla, District- Bemetara, State – Chhattisgarh, Geo-graphically the ML area extends from Longitude: 81°34'12.51"E to 81°34'20.71"E and Latitude: 21°20'22.98"N to 21°20'32.79"N

Area- 4.47 Ha Shri Dayaram Yadav

2. The mining lease is located in Village – Berlakala Tehsil - Berla, District- Bemetara, State – Chhattisgarh, Geo-graphically the ML area extends from Longitude: 81°34'10.52"E to 81°34'20.49"E and Latitude: 21° 20'33.16"N to 21° 20'41.35"N

Project Description

The project is proposed to 2 Bricks Earth Quarry in total area of 6.67 hectares (under cluster approach). The Mining sites are situated at Village – Berlakala Tehsil - Berla, District- Bemetara, State – Chhattisgarh.

Project Name	Block/ Khasra	Area (Acres) /(Ha)	Location	Type of Land	Consent Letter
M/s Berlakala Bricks Earth Quarry (Pro.	614/3, 615, 639/1, 639/2, 640, 641/1, 641/2, 641/3, 644,	2.20 Ha /5.44 Acres	Village- Berlakala Tehsil- Berla District- Bemetara State – Chhattisgarh.	Private Land Non-Forest, Non	Shri Abhinit Upadhyay

Shri Abhinit Upadhyay)	678, 695/3, 695/5, 695/11.			Agriculture, Barren Land	
M/s Berlakala Bricks Earth Quarry (Pro. Shri Dayaram Yadav)	591/1, 591/2, 591/3, 591/4, 591/5, 597, 598/1, 598/2, 598/3, 598/4, 599, 601, 600/1, 600/3, 603, 609/1, 609/2, 612, 614/1, 614/2, 616, 617, 611, 613, 610, and 602	4.47 Ha /11.05Acres	Village- Berlakala Tehsil- Berla District- Bemetara State – Chhattisgarh.	Private Land Non-Forest, Non Agriculture, Barren Land	Shri Dayaram Yadav

Location Details

The mine lease area is located in village – Berlakala, Tehasil–Berla, District – Bemetara, Chhattisgarh covered in the Survey of India Topo Sheet No – 64 G/11.

Land Use Pattern of the Study Area

S. No.	Land Use Type	Area (Ha.)
1	Scrub Land	520.51
2	Agriculture Land	29,893.19
3	River/Water Bodies	315.88
4	Settlement	960.10
5	Stone Quarry	65.77
	Total	**31755.45**

Water Requirement (KLD)

Total water requirement for all the mines located in cluster will be 14 KLD**,** which will be met from mine water and bore well**. The range of water require for individual mine will be from 7-7 KLD.**

Manpower Requirement

S. No.	Name of Owner	Number of Person
1	Shri Abhinit Upadhyay	33
2	Shri Dayaram Yadav	30

Power Requirement

The electric power requirement for mine facilities will be received from Chhattisgarh State Electricity Board, as is the case in existing mine.

Extent of Mechanisation

The list of machines as existing and additional to be used is as follows**.**

List of Machinery

S. No.	Name of Owner	Tractor/Trolley	Spade, Kudali, Crowbar, Bucket
1	Shri Abhinit Upadhyay	2	25
2	Shri Dayaram Yadav	2	22

Reserves at Village Berlakala, (2.20 Ha)

S. No	Category	Reserves
1	Total Geological Reserve	42,344 CUM
2	Mineable Reserve	33,839 CUM
3	Proposed Production	3,350 MT
4	Ultimate depth of Mining	2 m from Surface level

Reserves at Village Berlakala, (4.47 Ha)

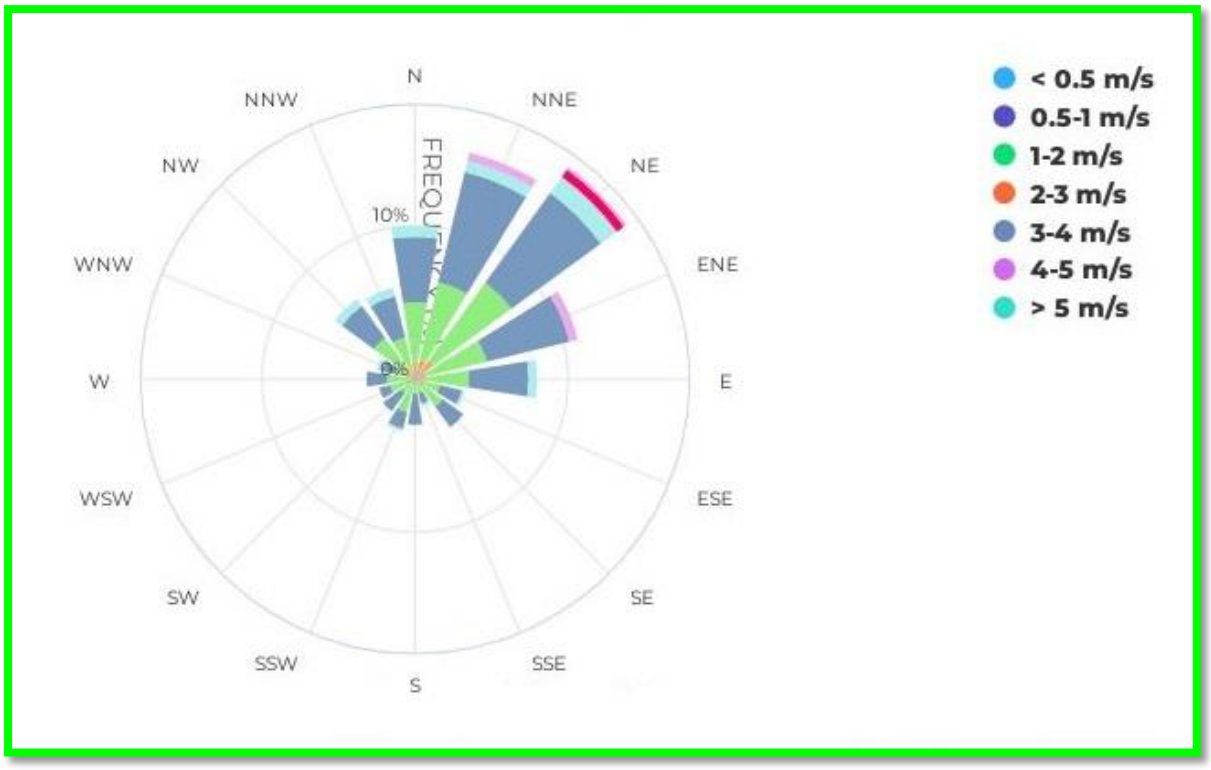
S. No	Category	**Reserves** MT
1	Total Geological Reserve	89,400 CUM
2	Mineable Reserve	73,095 CUM
3	Proposed Production	2,500 CUM
4	Ultimate depth of Mining	2 m from Surface level

Reserves of Cluster (6.67 Ha)

S. No	Category	**Reserves** CUM
1	Total Geological Reserve	1,31,744 CUM
2	Mineable Reserve	1,06,934 CUM
3	Proposed Production	5,850 CUM
4	Ultimate depth of Mining	4 m from Surface level

Metrological Data

Month	**Temperature ˚C**		**Relative Humidity %**
	Min	Max	
December 2022	15.2	28.3	13.6
January 2023	16.4	30.2	12.2
February 2023	17.2	32.3	13.2



3.2 Ambient Air Quality

The ambient air quality was monitored in the impact area as per MoEF & CC guidelines. The study area represents entirely rural environment. The prime objective of the baseline air quality study was to assess the ambient air quality of the mining lease area.

Interpretation of Primary Data

The Ambient Air Quality Monitoring reveals that of monitoring stations with minimum Concentrations of PM10 were 42.14µg/m^3 at AAQ5 and maximum 68.37µg/m^3 at AAQ8. The result of PM2.5 reveals that the minimum concentration of 24.16µg/m^3 at AAQ5 while maximum concentration of 46.81µg/m^3 was found at AAQ8.

The gaseous pollutants SO2 and NOx were within the prescribed CPCB limit of 80 µg/m^3. For residential and rural areas at all stations. The minimum & maximum concentrations of SO2 were found to be 9.02 µg/m^3 at AAQ5&14.84µg/m^3 at AAQ8 respectively. The minimum & maximum concentrations of NOx were found to be 10.05µg/m^3 at AAQ 5&20.11 µg/m3 at AAQ8 respectively.

The free silica content in PM10 was found to be minimum 1.02 µg/m3 and maximum 2.66µg/m3 at AAQ5 and AAQ8respectively.

3.3 Ambient Noise Levels

Noise monitoring reveals that the minimum & maximum noise levels at day time were recorded as 44.12dB (A) at NQ5&64.05dB (A) at NQ7 respectively. The minimum & maximum noise levels at night time were found to be 31.33dB (A) at NQ5 &51.35 dB (A) at NQ11 respectively.

There are several sources in the 10 km radius of study area, which contributes to the local noise level of the area. On the commencement of the project, the sound from traffic activities will add to the ambient noise level of the area. This will be kept under chak by taking proper suggestive measures.

3.4 Water Environment

- The pH limit fixed for drinking water samples as per IS-10500 Standards is 6.5 to 8.5 beyond this range the water will affect the mucus membrane or water supply system. During the study period, the pH was varying for ground waters from 6.72 to 7.74. The pH values for all the samples collected in the study area during study period were found to be within the limits.

- The desirable limit for total dissolved solids as per IS-10500 Standards is 500 mg/L whereas the permissible limit in absence of alternate source is 2000mg/L. In ground water samples collected from the study area, the total dissolved solids are varying from 340mg/L to 482mg/L. The TDS of the samples were within the desirable limit & the permissible limit of 500mg/L& 2000 mg/L respectively.

3.6 Biological Environment

Flora Biodiversity of the Study Area

Naturally grown trees are rarely observed in the core zone, there is no forest land involved in mine lease area, planted trees observed along the mine periphery which includes *Pongamiapinnata, Delbergiasissoo, Delonixregia, Cassia fistula, Azadirachtaindica, Ailanthusexcelsa, Mangiferaindica, Psidium* guava, *Leucaena leucocephala*&*Peltophorum pterocarpum*. However, various shrubs and herbs are naturally grown with the planted trees and along the surface water tank and natural drain in the core zone; a consolidated list of flora in Core Zone is given in EIA/EMP report**.**

The tree species, herbs and shrubs and major crops in the study area were documented during this baseline study. The list of floral species documented in the study area is enlisted in EIA/EMP report.

Faunal Biodiversity of the Study Area

For the documentation of the faunal biodiversity were studies in core and buffer zone (study area) with respect to Mammals, reptiles, birds, and butterfly species, a baseline survey had been

conducted on December 2022 to February 2023 Core zone is devoid of major animals, however, list of species pertaining to Mammals, Reptiles, Avifauna and butterflies are given in EIA/EMP report.

3.7 Socio-Economic Environment

The socio-economic status (Based on Census 2011) of the villages within the study area is given in table below:

Public opinion is the aggregate of individual attitudes or beliefs. It is very important to take opinion of the villagers about the project. The awareness will not only promote community participation but also enable them to understand the importance of the project and encourage them to express their view. To know the awareness and opinion of the villagers about the project, group discussion, meeting with school teachers/village leaders has been taken in the study area.

- Villagers want good infrastructure facility
- Most of the villagers are aware about Berlakala mining site
- Villages asked better health/medical facility.

The expectation of villagers from the mine management is for:

- Establishment and improvement of Health Centers
- Construction and improvement of sanitation and Drainage system including community Toilets
- Improvement of roads including making them pucca and culverts.
- Building construction for Aanganwadi and primary schools
- Construction of Hand Pumps
- Play ground

4.0 Anticipated Environmental Impacts and Mitigation Measures

4.1 Air Pollution Control Measures

Following measures shall be adopted to mitigate air pollution generated due to the mining activities:

A. No blasting under unfavorable wind and atmospheric conditions..
B. Water sprinkling on haul roads at regular intervals.
C. Installing fixed or mobile water sprinklers at ground stock yard and surface transport roads.
D. Regular maintenance of vehicles and machinery.
E. Dust respirators to workmen.
F. Continuation of green belt development/plantation around lease boundary, road sides and dumps.
G. Re-vegetation of backfilled area and inactive dumps.
H. Good housekeeping would be practiced to control air pollution.

4.2 Ambient Noise Levels

The following control measures are being adopted to keep the ambient noise levels well below the limits. The same will be continued and strengthen in proposed expansion project:

- Proper maintenance, oiling and greasing of machines at regular intervals is being and will be done to reduce generation of noise.
- Green Belt/Plantation is being and will be developed around the mining activity area and a long haul roads.
- Periodical monitoring of noise is being and will be done.

4.3 Water Environment

Impact of Mining on Surface Water and its Management

Mining activity inevitably leads into sediment and suspended load due to erosional activity of overburden dump and loosened soil activity. The following measures will be taken up to reduce this load.

- Dense plantation within mining lease area and OB dumps
- Construction of siltation tank.
- Construction of Garland drains around OB dump connected to settling tank.
- Construction of toe wall at the base of OB dumps.

Rainwater may cause some problem due to accumulation in the pit. Such water will be collected in sump in the mining pit and will be allowed to store and pumped out to surface setting tank to remove suspended solids if any. This collected water will be judiciously used for dust suppression onwards and such sites where dust likely to be generated and for developing green belt.

To check water quality quarterly monitoring will be carried out at following locations through monitoring agencies approved by MoEF.

i) Inlet and outlet of setting tank.
ii) Diversion and joining points of diverted nullah.
iii) Existing surface water body within mine lease area.

Drinking water to the workers will be provided from bore wells whose quality has already been tested and found potable.

Land-use pattern

There is no forest land or agriculture land in the mine lease area. The entire mining lease is covered with alluvial soil and Clay soil.

It is evident from the above that at the end of approved mining scheme, the mined out area will be converted into a water body at the end of the mine life. The temporary land use for soil and waste dumps will also be converted into total plantation area.

4.5 Impact on Biological Environment & Mitigation Measures

Impact on terrestrial Flora

• Dust deposition on leaf lamina observed on nearby local plant species which may results in decline the rate of photosynthesis and retards the plant growth.

Measures for Minimizing Impact on Flora

• Dust issues are mainly raised in the area due to kuchha road, cumulative fugitive dust emissions by various To mitigate the impact regular water sprinkling will be carried out within the mine lease area as well as approach road.

• Stabilization of dumps by proper vegetation cover shall be done.

Impact on Wildlife

• There is no National Park, Wildlife Sanctuary and Biosphere Reserve within 10 km radius of the project site. Natural habitats are confined to very limited area like forest located near Berlakala village, which is away from the Cluster.

• No rare, endemic & endangered species are reported in the buffer zone. However, during the course of mining, the management will practice scientific method of mining with proper Environmental Management Plan including pollution control measures especially for air and noise, which will not cause any adverse impact on the surrounding wildlife.

• Fencing around the mine lease area already exist to restrict the entry of stray animals

• Green belt development will be carried out which will help in minimizing adverse impact on the flora found in the area.

Measures for Minimizing Impact on Fauna

Following measures will be adopted to minimize the impact of mining on faunal environment of the area.

• Measures will be taken to curb pollution due to mining activities on air, water, land & noise environment. Plantation around mine area will help in creating habitats for local faunal species and to create better environment for various fauna. Creating and developing awareness for nature and wildlife in the adjoining villages.

Impact on Aquatic Ecology

- Mining activities will hardly disturb the existing aquatic ecology as very little mine water mostly having suspended solids will be pumped out and even this pumped out water will be treated before reaching the surface water body. Hence, there will not be any deterioration of water quality of water bodies due to mining
- Mining activity may increase sediment load and total dissolved solids in streams due to, surface run off, erosional activity of overburden dumps and loosened soil by blasting activity especially during rainy season and may affect water quality of natural water body and stream within mine lease area.

Greenbelt Development & Plantation Programme

In order to facilitate the greenbelt activities, a nursery has been developed in the area and species such as Neem, Karanj, Gulmohar etc. have been planted. It is proposed to have plantation at 3 M x 3 M spacing, the rate of survival was aimed at 70 to 80% by regular watering & fencing was proposed to keep plants away from animal grazing. Local species have been/will be planted in consultation with local horticulturist. Mine owners also committed to plantation around the area as per mining plan.

4.6 Impact on Socio-Economic Aspects & Management Measures

The development of the project and associated activities will strengthen the economic development, civic amenities, and educational facilities in the project vicinity. Overall, due to employment generation and economic progress, there will be positive changes in the socio-economic condition of the people residing in the vicinity of the project site.

The proposed project of mining activities will provide additional employment to persons of different skills and trades. The local population will have preference to get an employment. The employment potential will improve economic conditions of these families directly and provide employment to many other families indirectly who are involved in business and service oriented activities. This will in-turn improve the quality of life in the region.

The proposed project will also help in development of ancillary industries. These will further boost the economic avenues for the local population.

5.0 Environmental Monitoring Programme

The environmental monitoring for the mining operations of enhanced production will be carried out as follows:

- Air quality;
- Water and wastewater quality;
- Noise levels;
- Soil quality; and
- Greenbelt development.

A centralized environmental monitoring cell is established for monitoring of important and crucial

environmental parameters to assess the status of environment regularly during mine operations. With the knowledge of baseline conditions, the monitoring program will serve as an indicator for any deterioration in environmental conditions due to operation of the mine and so that suitable mitigation steps could be taken in time to safeguard the environment.

6.0 Additional Studies

Occupational health needs attention both during construction and operation phases. However, the problem varies both in magnitude and variety in the above phases. The problems concerning occupational health in the operation and maintenance phase are primarily due to dust and noise, which could affect the workers from respiratory and hearing problems. The necessary personnel protective equipment will be given to all the workers.

All working personnel will be medically examined at least once in every year and at the end of his term of employment. This is in addition to the pre-employment medical examination.

7.0 Project Benefits

7.1 Improvements in the Physical Infrastructure

After the commencement of mining activities, the impact on the civic amenities will be substantial due to the increase in production. This will be taken care by widening and strengthening the road wherever required.

The construction of new roads in the project area has enhanced overall transportation facilities. With improved transportation facilities including widening & strengthening, the communication facilities will improve after the commencement of mining activities.

The basic requirement of the community needs will be strengthened by extending health care, educational facilities developed in the mining area and township to the community, providing drinking water to the villages, building/strengthening of existing roads in the area.

Mine Owners will initiate developing the above amenities either by providing or by improving the facilities in the area, which will help in uplifting the living standards of local communities.

All working personnel will be medically examined at least once in every year and at the end of his term of employment. This is in addition to the pre-employment medical examination. These medical facilities will also be available to local people in the surrounding in case of emergencies and in the form of regular medical health camps.

7.2 Socio-Economic Benefits Arising out of Mining

The activities involved in mining and subsequent preparation of limestone to end users will generate and enhance the employment potential both directly and indirectly. Local people will have employment opportunities as skilled, semi-skilled and unskilled laborers in mining, transportation and allied activities. Thus there will be an overall improvement in the socio-

economic status of the people of the surrounding areas.

8.0 Budgetary Allocation For Environmental Management Programme

The details of Environmental Management Programme for different environmental protection and control activities along with capital and annual recurring cost are given in EIA/EMP Chapter.

9.0 Conclusion

The proposed mining of limestone in cluster by open cast method will have positive impact on the local environment. With the effective implementation of the environment management measures as suggested in the EIA/EMP report and as recommended by MoEF, CPCB and State Pollution Control Board, the negative impacts will be minimized to a great extent. However, development of this expansion project will have overall beneficial impact/effect in terms of growth in regional economy, transform the region's economy from predominantly agricultural to significantly industrial, increase Government earnings and revenues and accelerate the pace of industrial development in the region.

The project will enhance the direct employment to the personals, mostly to the local/regional people. This project will also generate indirect employment to a considerable number of families, who will render their services for the employees and other associated workers of the project. The project will also encourage ancillary industries in the region, which will not only increase the employment potential but also the economic base of the region will be further strengthened. Thus, in view of considerable benefits from the project, the proposed project is most suitable to meet the limestone requirement of nearby area and industries and is advantageous to the region as well as to the nation.