May, 2025

EXECUTIVE SUMMARY FOR DEVELOPMENT AND OPERATION OF DAHEGAON GOWARI UNDERGROUND COAL MINE

Dahegaon-Gowari Underground Coal Mine
Area: 1562 ha for production capacity of 1 MTPA

Village: Gowari, Sindi, Khairi, Tonda Khairi, Borgaon Khurd, Belori, Jhunki, Tehsil – Kalmeshwar and villages Walani, Khandala, Pardi, Tehsil – Nagpur Gramin, District – Nagpur, Maharashtra.

STUDY PERIOD: December 2023 to February 2024 Collected By: M/s SKS Test Labs Pvt. Ltd.

[The proposed project is listed under Schedule 1(a) Mining of Minerals under the Schedule of EIA Notification, 2006 and categorized as Category-A]

PROJECT PROPONENT

M/s Ambuja Cements Limited

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ENVIRONMENT CONSULTANT

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(QCI/NABET ACCREDITED NO. NABET/EIA/2326/RA 0284_Rev.01)

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EXECUTIVE SUMMARY

1.1 INTRODUCTION

The project is proposed for Dahegaon-Gowari Coal Mine (Kamptee Coalfield) for a Capacity of 1.0 MTPA (UG) over a mining lease area of 1562 ha at villages Gowari, Sindi, Khairi, Tonda Khairi, Borgaon Khurd, Belor, Jhunki, Tehsil – Kalmeshwar and villages Walani, Khandala, Pardi, Tehsil – Nagpur Gramin, District – Nagpur, Maharashtra, has been allotted to **M/s Ambuja Cements Limited (ACL)** for Commercial Coal Mining by GoI, Ministry of Coal vide order no. NA-104/11/2023-NA, dated 08.06.2023.

The proposed production capacity of the mine is 1.0 MTPA. Mine Plan and Mine Closure Plan has been approved by MoC vide application no. Dahegaon-Gowari coal mine MHMR019/APP00296/2024 dated 24.09.2024.

The project envisages;

I. Production of coal with production capacity 1.0 MTPA.

II. coal handling arrangment with the system capacity as 350 TPH rated and 385 TPH design, keeping the production capacity in mind.

The proposed project is listed under activities 1(a) under the Schedule of EIA Notification, 2006 and categorized as Category-A.

1.2 PROJECT DESCRIPTION

Eighteen (18) coal seams are present in block.

(Seam Local-1, Seam X, Seam IX, Seam VIII Top, Seam VIII Bot + Comb., Seam VII Top, Seam VII Bot + Comb., Seam VI, Seam V, Seam IV, Seam Local-2, Seam Local-3, Seam Local-4, Seam III, Seam Local-5, Seam II, Seam I and Seam IB) Out of those 6 seams are proposed for mining. (Seam X, Seam VIIIT, Seam VIII Comb. /Bottom, Seam VII Comb. / Bottom, Seam V & Seam III)

Thickness: 0.5-4.26 m

Dahegaon Gowari Coal mine consists of 189.74 MT Net Geological reserve as per GR. After detail working, 79.537 MT are estimated as mineable reserve in proposed mining plan and 46.19 MT are extractable. Therefore, life of mine at proposed rate of mining as per the approved mining plan is projected to be 50 years including 1.5 years of pre-construction from Mine Opening. This report is for mining of Coal from Dahegaon-Gowari Coal block by underground mining at a capacity 1.0 MTPA.

Detail of the project is summarized in below attached table:

Table 0.1: Detail of the Project

S. No.	Description	Particulars
1.	**Name of the Organization**	M/s Ambuja Cements Limited
2.	**Coal Field**	Kamptee Coalfield
3.	**Coal Block**	Dahegaon-Gowari Block
4.	**No. of coal seams**	Eighteen (18) coal seams are present in block. (Seam Local-1, Seam X, Seam IX, Seam VIII Top, Seam VIII Bot + Comb., Seam VII Top, Seam VII Bot + Comb., Seam VI, Seam V, Seam IV, Seam Local-2, Seam Local-3, Seam Local-4, Seam III, Seam Local-5, Seam II, Seam I and Seam IB) Out of those 6 seams are proposed for mining. (Seam X, Seam VIIIT, Seam VIII Comb. /Bottom, Seam VII Comb. / Bottom, Seam V & Seam III) Thickness: 0.5-4.26 m
5.	**Net Geological Reserves**	189.740 MT
6.	**Net Mineable Reserves**	79.537 MT
7.	**Extractable reserve**	46.19 MT
8.	**Average GCV & Grade of Coal**	G 9 (Avg. GCV = 4865 Kcal/Kg)
9.	**Total OB/Inter burden to be excavated**	Not Applicable
10.	**Average Stripping Ratio**	Not Applicable
11.	**Rated Production Capacity**	1.0 MTPA
12.	**Life of the Mine**	50 Years including construction period
13.	**Forest Land Requirement**	78.22 ha of forest land
	Non-forest Land within ML Area	Govt. Non Forest-161.50 ha and Tenancy land 1322.28 ha
	Total Land requirement	1562 ha
14.	**R & R Involved**	It is an underground mine with limited surface activity. R & R plan will not be applicable. Wherever, only 24.05 Ha private land will be required, it will be purchased on a mutually agreeable basis.
15.	**Technology**	Underground mining with Bord and Pillar method by deploying Continuous Miner technology.
16.	**Details of External OB Dumps**	Not Applicable

S. No.	Description	Particulars
17.	**Details of backfilling (at the end of mine)**	The seams are proposed to be mined using underground mining operation therefore, No waste shall be generated. The solid waste generated from the proposed project during incline drivages and shaft sinking etc. is estimated to be about 1,81,000 Cum of solid waste. The solid waste produced during these drivages will be separately stacked on the surface and used in embankment for preparation bank head and filling of low-lying areas, development of the land for infrastructure and development of greenery.
18.	**Details of afforestation**	At the end of the conceptual period, a total 24.05 Ha (60,125 Sapling) will be afforested.
19.	**Density of Plantation**	2500 No./ha
20.	**Coal Linkage**	Direct sale to long term buyers
21.	**Coal Evacuation**	
	Transportation	The mode of transport of coal is proposed by conveyors from underground to surface and from surface to Kalmeshwar railway siding through covered Trucks. Surface to Kalmeshwar railway siding- Road (18 Km) by covered trucks. The nearest railway station is at Kalmeswar, about 3 kms aerial distance on the Nagpur-Delhi Main Line of central railway which passes through the southern part of the Dahegaon Dhapewada block.
22.	**Employment potentiality**	Project will generate employment for about 700 persons directly.
23.	**Total cost of the project**	Rs. 1,43,614 Lakhs
24.	**Fund Provision for EMP**	Capital- Rs. 1589 Lakhs Recurring-Rs. 211 Lakhs
25.	**Name of the EIA Consultant Organization**	M/s Vardan EnviroNet LLP
26.	**QCI / NABET Accreditation**	Certificate No. NABET/EIA/2326/RA 0284_Rev.01; Validity: May 04, 2026.

1.3 DESCRIPTION OF THE ENVIRONMENT

Environmental data have been collected in relation to proposed mining for Air, Noise, Water, Soil, Ecology and Biodiversity. The generation of primary data, as well as collection of secondary data and information from the site and surroundings was carried out during post monsoon Season, i.e. **December 2023 to February 2024** by M/s SKS Test Labs Private Limited, NABL Accredited Lab, in accordance with the guidelines of EIA issued by the Ministry of Environment Forests and Climate Change, Govt. of India and CPCB, New Delhi. Secondary data was collected from different Government sources. The scope of the study has been done as per ToR. The study is being done for the Mine Lease (Core Zone) and in an area of 10 Km distance from the mine lease boundary (Buffer Zone), both of which together comprise the study area.

Table 0.2: Baseline Environment Status

Parameters	Baseline Status (December 2023 to February 2024)
Ambient Air Quality	PM_{10} – 42.30 to 72.50 µg/m^3 $PM_{2.5}$ – 18.80 to 40.40 µg/m^3 SO_2 – 5.30 to 15.30 µg/m^3 NOx – 9.70 to 29.20 µg/m^3 CO – 0.44 to 0.76 mg/m^3
Noise Level	During Day Time (6:00 AM to 10:00 PM) – 48.24 to 53.92 dB(A) During Night Time (10:00 PM to 6:00 AM) – 37.55 to 43.04 dB(A)
Water Quality	Ground Water: All the Parameters Like pH varies from 7.22 to 7.65, Total Hardness varies from 208 to 275 mg/l, Total Dissolved Solids varies from 290 to 404 mg/l, Chlorides varies from 40.21 to 54.28 mg/l etc. are found within the permissible limits.
	Surface Water: All the Parameters Like pH varies from 7.02 to 7.58, Total Hardness varies from 135 to 190 mg/l, Total Dissolved Solids varies from 250 to 370 mg/l, Dissolved Oxygen varies from 5.7 to 6.5 mg/l etc. are found within the permissible limits.
Soil Quality	pH - 7.55 to 7.88 Organic Matter - 0.40 % to 0.49 % Available Nitrogen – 152.75 to 163.77 Kg/ha Available Phosphorus - 15.25 to 19.64 Kg/ha Available Potassium - 61.44 to 88.76 mg/ha
Ecology and Biodiversity	Flora and Fauna study in and around the lease area has been conducted. Schedule-I species has been observed during the study period. Wildlife Conservation Plan will be prepared and approved for Schedule-I species.
Socio Economic	The proposed project will provide positive impact to the nearby area. The project will provide direct and indirect employment to nearby villagers.

1.4 ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

The proposed mining operations are not anticipated to raise the concentration of the pollutants beyond prescribed limits. However, the measures are suggested to mitigate any harmful impacts of pollutants, like the plantation of trees especially near settlements, to help to reduce the impact of dust on the nearby villages; planning, transportation routes of mined material so as to reach the nearest paved roads by shortest route; regular water sprinkling on unpaved roads to avoid dust generation during transportation etc. The mining activities is likely to increase the per capita income of local people by which the socio-economic status of the people will be improved. The local people will be provided with either direct employments or indirect employment such as transport & other business, contract works and development work like roads, etc. and other welfare amenities such as medical facilities, conveyance, free education, drinking water supply etc. Except dust generation, there is no source which can show a probability for health related diseases. Regular water sprinkling will be done with water sprinklers and dust masks will be provided to the workers. All workers will be subjected to a medical examination as per Mines Rule 1955 both at the time of appointment and at least once in a year. Medical camps will be organized for this activity. Insurance for all employees as per the rules will also be carried out.

Table 0.3: Anticipated Environmental impacts and mitigation

Environmental Component	Project Activities	Impacts	Adverse / Beneficial	Mitigative Measures
Air Pollution	Mining	PM_{10}, $PM_{2.5}$, SO_2 and NO_2		• The most effective method of dust suppression in underground mine is to suppress the dust at the source of generation before the dust becomes airborne. Dust suppression spray is an integral part of Continuous Miner. Most Continuous Miner use water for the cooling of electric motors. This water is discharged at the cutting head to suppress dust from cutting. • As per regulation no 214 (4) of CMR 2017 Continuous Miner shall be equipped with air-scrubber system to remove as much dust as • To ensure that the cutting face is properly ventilated. Workings away from the active areas should be stone dusted as per statute. • All loading and coal discharge /transfer point on conveyor belts shall be installed with dust suppression systems. For monitoring the level of dustiness and quality of dust, regular sampling and analysis of mine dust shall be done as per statute and all suitable precautions shall be taken accordingly.
	Transportation	Increase in SPM levels in ambient air due to dust generation and NO_2, HC, SO_2 and CO concentration levels in ambient air due to vehicular emissions.	Adverse	• It is an underground mine with limited surface activities. • All transfer points will be provided with Water sprinklers. • Use of tarpaulin covered trucks for transportation of coal outside the ML area. • Regular water sprinkling on access roads and all transfer points. • Roads no longer required will be re-vegetated as soon as possible.

Environmental Component	Project Activities	Impacts	Adverse / Beneficial	Mitigative Measures
	General equipment operations	Increase in SPM, NO_2 and CO concentrations in ambient air.	Adverse	• Regular maintenance of all equipment to minimize particulate matter and gaseous emissions from diesel driven vehicles & equipment. • Use of non-electric initiation and computerized blast design to maximize the explosive energy for fragmentation and minimum fume generation in blast.
	All activities	Excessive exposures to airborne particulate matter.	Adverse	Personal protective equipment (PPE) will be provided to all workers working in dusty environment.
Noise Levels and Ground Vibrations	Drilling and Blasting	High impulsive noise levels, overpressure and ground vibrations impacts and noise related community annoyance	Adverse Adverse	➢ **Noise Control Measures** • Controlled blasting with proper spacing, burden and stemming will be maintained; • The blasting will be carried out during favorable atmospheric condition and less human activity timings; • Provision of sound insulated chambers for the workers deployed on machines • Green belt will be developed all along the lease boundaries to attenuate noise. • A thick green belt will be provided in phased manner around the periphery of the mine to attenuate noise; • Trees will be planted on vacant land. • Personal Protective Equipment (PPE) like ear muffs/ear plugs will be provided to the operators and persons working near machines; and • Reducing the exposure time of workers to the higher noise

Environmental Component	Project Activities	Impacts	Adverse / Beneficial	Mitigative Measures
				levels. • Regular monitoring of Noise level will be carried out. ➢ **Measures to Control Ground Vibration** • Proper quantity of explosive, suitable stemming materials and appropriate delay system are to be adopted for safe blasting. Computerized blast design to be used. • A safe blasting zone is kept. • Overcharging will be avoided; • The charge per delay will be minimized and preferably more number of delays will be used per blasts;
Water Resources and Quality	Water required for mine, (dust suppression systems, workshop, domestic facilities and greenbelt development)	Except water demand for drinking & domestic purpose or quarry discharge.	Adverse	Coal Mining is proposed through Bord and Pillar with Caving by deploying Continuous Miner and Solid Blasting with SDL or LHD. Therefore, due care will be taken in monsoon period during mining operation so that the additional make of water arising out of fractured rock strata in upper horizons is safely pumped out of the underground mine. When the underground mining activities are about to close, a plan is needed for underground storage of water in voids that remain in the underground workings. The underground water bodies thus formed have their advantages which outweigh the disadvantages in most situations as they become a permanent source of water and may tend to reactivate the aquifers and the water table. The compliance of the conditions of EC, CPCB/SPCB or other relevant guidelines issued by Concerned Agencies will be followed in

Environmental Component	Project Activities	Impacts	Adverse / Beneficial	Mitigative Measures
				Dahegaon Gowari Coal Block.
Flora and Fauna	Mine development and operations Mineral Transportation	Displacement of existing fauna. Loss of vegetation	Adverse	• Management of flora and fauna both at core and buffer zone shall be done as per the approved site specific wildlife conservation plan. Suitable reclamation, rehabilitation and restoration of the land shall be made to protect the biodiversity. • However, progressive afforestation and green belt development in the ML area has been carried out and shall continue till the life of the mine.
Occupational Health & Safety	Overall Mining & allied activities	Occupational health problems due to dust & noise. Accident probability due to slope failure, movement of machinary, handling of explosives.	Adverse	The gassiness study for the proposed underground mine will be done at earliest, in the meanwhile the nearby mine like Saoner, Patansaongi & Gondkhari has been classified as Degree-I gassiness. Hence, it can be proposed that the Dahegaon Gowari underground mine is a Degree-I gassiness mine. As per the statute the regular gas survey shall be carried out. All precautions towards early detection of spontaneous heating and firefighting arrangements and precautions towards noxious gases, inflammable gases and coal dust explosions shall be taken as per the provisions of statute. Regular monitoring of the underground mine environment shall be done with multi gas detectors and with installation of telemonitoring system with sensors placed in the return airways of all districts and main return. Development is planned by installing sufficient number of auxiliary fans for coursing adequate quantity of air up to the faces and also adequate quantity of air is coursed to the depillaring districts, as per the requirements of statue. All precautions shall be observed while

Environmental Component	Project Activities	Impacts	Adverse / Beneficial	Mitigative Measures
				working near fault etc. so that accumulation of inflammable gas does not take place in the working face. A geological plan shall be maintained from the initial stage of Mine Development showing all the faults and other geological disturbances likely to be met during development and updated on a regular basis. Gas surveys shall be conducted immediately after encountering faults and emission of methane gas shall be monitored regularly to take precautions against accumulation of inflammable gas in the working face. As per regulation 214 of CMR 2017 Methane monitors will be installed on all cutting machines, loading machines and other mechanized equipment used to extract or load coal.
Socio-economic Aspects	Mining operations	Increase in economic status of local people & in the region due to Increase in employment opportunities both direct and indirect.	Beneficial	The project will provide opportunity to the local people for direct and in-direct employment. The proposed project will create opportunities for indirect employment in the field of transportation business, vehicle hiring, labours, trading of construction materials, carpenters etc.

1.5 ANALYSIS OF ALTERNATIVES

We have analyzed all the option for technology alternatives of the proposed project. Since it is a mineral specific project therefore analysis of alternative site is not applicable.

1.6 ENVIRONMENTAL MONITORING PROGRAM

In order to maintain the environmental quality within the stipulated standards, regular monitoring of various environmental components is necessary which will comply as per conditions. For this the lessee has taken the decision to formulate an Environment Policy of the mine and constitute an Environmental Management Cell and committed to operate the mine with the objectives mentioned in Environment Policy. EMP may also require measurement of ambient environmental quality in the vicinity of a site using ecological/biological, physical and chemical indicators. Monitoring may include socioeconomic interaction, through local liaison activities or even assessment of complaints. Regular Monitoring of all the environmental parameters *viz.*, Air, Water, Noise, SE,EB and Soil, as per the formulated program based on CPCB and MoEF&CC guidelines will be carried out every year. The location of the monitoring stations will be selected on the basis of prevailing micro meteorological conditions of the area like; wind direction and wind speed, relative humidity, temperature.

1.7 ADDITIONAL STUDIES

Additional Studies as per ToR have been carried out, the report of which have been attached as Annexures to the EIA report.

As per Ministry's OM dated 30.09.2020, the Ministry has decided to deliberate on the and commitments made by the project proponent to address the issues raised in the Public Hearing. This Draft EIA/EMP is now being submitted for Public hearing. Details of Public Hearing will be incorporated after completion of Public Hearing.

1.8 PROJECT BENEFIT

Project will generate employment for about 700 persons directly. In addition, more than 2000 people will be benefited indirectly. Management will engage Skilled, semi-skilled and unskilled workers from the nearby villages. The company management will contribute to the Educational Development, Infrastructure Development etc. for the welfare of the villagers. It has proposed to plant **60,125** no of trees till the Mine Closure. The respective regulatory authority will strictly monitor the compliance of the mine lease in this regard. Other than this social development of the village will be considered as per social requirement of locality.

1.9 ENVIRONMENTAL MANAGEMENT PLAN

As per above discussion there is no major impact on the environment due to mining except fugitive emission in the form of dust generated during mining and its allied activity. The adequate preventive measures will be adopted to contain the various pollutants within permissible limits. Plantation program will be carried out which will

be an effective pollution mitigate technique, and help avoid soil erosion during monsoon season. Employment opportunities will be provided to the locals. A budget of **Rs. 15.89 Crore** as a capital cost and **Rs. 2.11 Crore** for recurring cost for plan period has been kept for Environment Management Plan.

1.10 CONCLUSION

NITI Aayog, India's central government think tank, has stated in its report that coal demand will be in the range of 1192-1325 Mt by 2030, led by usage from the electricity sector. It has been forecasted that coal consumption will increase at an average annual rate of 3.9 per cent, to reach 1185 Mt in 2024. Therefore industrial and economic growth of India depends to a large extent on coal, which is the prime source of energy. Our requirement of coal is increasing every year and the demand of coal by the major volume will come from the power sector. The balance coal is required for other industries like Cement, Sponge iron etc.

The industrial development and consequent economic development should lead to improvement of environment through better living and greater social awareness. With the progress in technology and processes, mining activities has gained a better traction and a higher productivity stance, our best solution lies in progressive & innovative planning along with a better environmental management and protection as a part and parcel of the mining system.

The proposed project will have impacts on surrounding environment as detailed in the report however the impacts can be minimized by effective implementation of Environment Management Plan and continus monitoring of EMP to overcome any other remedial measures required as suggested in the EIA study. On the other hand, this project is likely to have several benefits like improvement in direct and indirect employment generation and economic growth of the area, by way of improved infrastructure facilities and better socio-economic conditions.