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Executive Summary

EXECUTIVE SUMMARY

1.0 PROJECT DESCRIPTION

1.1 INTRODUCTION OF PROJECT PROPONENT

Shree Cement Limited (SCL) is a Limited Company and environment friendly business organization incorporated under the Companies Act, 1956 on 25th October 1979. The Company's Cement and Clinker manufacturing facilities are located at Beawar & Ras in Rajasthan, Balodabazar - Bhatapara in Chhattisgarh, Sedam in Karnataka and Ras Al Khaimah (RAK) in United Arab Emirates (UAE). It has split grinding units at nine locations viz. Khushkhera, Suratgarh, Jobner in Rajasthan, Roorkee in Uttarakhand, Aurangabad in Bihar, Bulandshahr in Uttar Pradesh, Panipat in Haryana, Saraikela-Kharsawan in Jharkhand and Cuttack in Odisha and Patas in Maharashtra.

Presently, the cement production capacity of SCL group stands at 46.4 Million TPA. Total thermal power plants capacity is 924.7 MW (including 211.5 MW WHRS, 124.1 MW Solar Plant, 50 MW Wind Plant).

1.2 TYPE OF PROJECT

SCL has proposed a Limestone Mine (ML Area: 127.046 ha) with limestone production capacity of 1.5 Million TPA, OB: 0.16 Million TPA, IB: 0.008 Million TPA, Screen Waste: 0.167 Million TPA & Top Soil: 0.012 Million TPA (Total Excavation: 1.85 Million TPA) and installation of Primary Crusher: 800 TPH & Secondary Crusher: 400 TPH along with Wobbler in ML Area: 127.046 ha. near Villages: Mohra, Patharchuwa and Bhalukona, Tehsil: Simga & Palari, District: Balodabazar - Bhatapara, Chhattisgarh.

As per EIA Notification dated 14.09.2006, as amended thereof, this project falls in Category 'B' Project or Activity 1(a)-4 for "Mining of Minerals" and Project or Activity 2(b)-3 for "Mineral Beneficiation (Crusher with Wobbler)".

1.3 BRIEF DESCRIPTION OF THE PROJECT

S. No.	Particulars	Details					
Α.	Nature of project	Proposed Opencast Fully Mechanized Limestone Mine					
в.	Size of project						
1.	ML area	127.046 ha					
2.	Proposed Production Capacity	Total excavation – 1.85 Million TPA					
		Limestone: 1.5 Million TPA					
		> Top Soil: 0.012 Million TPA;					
		 Over burden: 0.16 Million TPA, 					
		Inter burden: 0.008 Million TPA,					
		Screen Waste: 0.167 Million TPA					
		> Installation of Crusher – Primary Crusher: 800 TPH &					
		Secondary Crusher: 400 TPH along with Wobbler					

Table – 1 Brief Description of the Project

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S. No.	Particulars	Details				
C	Project Location	-				
1.	Villages	Village Mohra of Tehsil Simga and				
		Village F	Village Patharchuwa and Bhalukona of Tehsil Palari			
2.	Tehsil	Simga & Palari				
3.	District	Baloda I	3azar – Bhatapara			
4.	State	Chhattis	garh			
5.	Coordinates	Latitude	e - 21° 29'51.68" N to 21° 30	'29.20" N		
		Longitu	de -81° 58'10.93" E to 81° 5	59'07.07" E		
6.	Toposheet No.		& 64 G/15			
D	Environmental Setting Details (with appro	ox. aerial	distance & direction from t	he mining lease		
	boundary Nearest Habitation	C No		Distant and		
1.		S. No	Nearest Habitation	Distant and		
				Direction		
		1.	Habitation of Village-	~400 m in North		
			Patharchuwa	direction		
		2.	Habitation of Village-	~700 m in SSW		
			Bhalukona	direction		
		3.	Habitation of Village-	~1.60 km in North		
			Semaradih	direction		
		4.	Habitation of Village-	~1.7 km in NNW		
			Bardih	direction		
		5.	Habitation of Village-	~3.3 km in WSW		
			Mohra	direction		
2.	Nearest Health Centre	➢ Primary Health- Sub Center, Mohra (~2.0 km in W				
		direction)				
		Primary Health- Sub Center, Rengadih (~3.0 km in SE				
		direction)				
3.	Nearest School	Primary	School Patharchuwa (0.25	km in E direction)		
4.	Nearest Highway	> Tilda	i Simga Road (~11 km in SW	/ direction)		
		NH – 130B (~11 KM in South direction)				
5.	Railway Station for connectivity	Tilda Railway Station (~18.5 km in WNW direction)				
6.	Airport for connectivity	Swami V	'ivekananda Airport, Raipu	r (~42 km in SW		
		direction	ר)			
7.	Nearest Town/ City	Balodab	azar (~25.0 km in NE direc	tion)		
8.	National Park, Wild Life Sanctuaries,	None wit	hin 10km radius study area	Э.		
	Biosphere Reserves, Tiger Reserves,					
	Wildlife Corridors etc.					
9.	Reserved / Protected Forest within 10 km	Khaulida	abri PF (~7.0 km in SW dire	ction)		
	radius study area					
10.	Water Bodies within 10 km radius study	≻ Ten	gna Nala (~0.17 km in SE di	rection)		
	area	 Chitawar Nala (~0.5 km in North direction) 				

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S. No.	Particulars	Details			
		 Mahanadi Canal (Baloda Branch) (~0.5 km in West direction) Kumhari Tank (~5.5 km in WSW direction) 			
		 Khorsi Nala (~6.5 km in ENE direction) 			
		 Banjari Nala (~7.0 km in NW direction) 			
		Ameri Diversion Canal (~8.0 km in NNW direction)			
		➢ Kumhari Irrigation Channel (~9.0 km in NW direction)			
		➢ Mahanadi Canal (Lowan Branch) (~9.5 km in SE			
		direction)			
11.	Seismic Zone	Zone – III as per IS: 1893 (Part-I) : 2002			
D	Cost Details				
1.	Project Cost	Rs. 76.57 Crore			
2.	Cost of EMP	Capital Cost: Rs. 3.85 Crore			
		Recurring Cost: Rs. 0.45 Crore/annum			

Source: Site Visit & Pre-feasibility Report

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1.4 LOCATION MAP

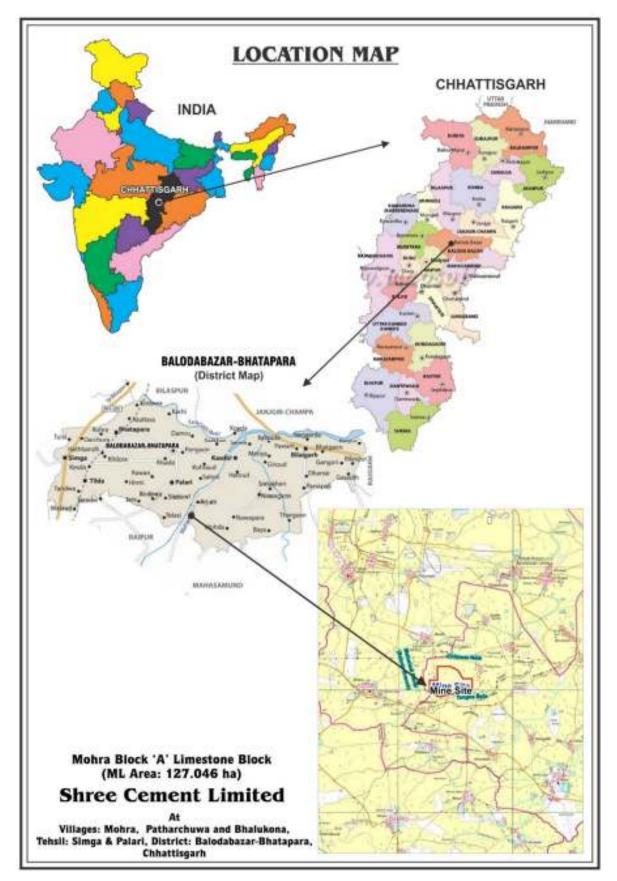


Figure-1: Location Map (Showing general as well as specific location of the ML area)

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1.5 MINE DESCRIPTION

1.5.1 MINING LEASE STATUS

- Letter of Intent (LOI) has been issued by State Government of Chhattisgarh for Mohra (Block

 A) Limestone Block for mineral Limestone over an area of 127.046 ha in favour of Shree Cement Limited vide their letter no. F3-05/2020/12, dated 31.01.2022.
- > Mining Lease is yet to be executed and registered.

1.5.2 MINING DETAILS

S. No.					
5. NO.	Particulars	Details			
1.	Method of mining	Fully Mechanized Opencast Mining			
2.	Total Geological Reserves	56.847 Million TPA			
3.	Mineable reserves	51.234 Million TPA			
4.	Proposed Life of the Mine	42 years			
5.	Bench Height	12.0 m			
6.	Working Bench Width	30 m			
7.	Ultimate Pit Slope	45°			
8.	Elevation Range	271 m AMSL to 282 m AMSL			
9.	General Ground Level	276 m AMSL			
10.	Water Level	Pre-Monsoon: 271 m RL (5 m bgl)			
		Post monsoon: 273 m RL (3 m bgl)			
11.	Ultimate Working Depth	250 m RL (31 m bgl)			
12.	Stripping Ratio Mineral: Waste	Max during plan period: 1:0.54			
	(cu.m.: cu.m.)	For proposal: 1: 0.23			
13.	Number of working days	300			
14.	Top Soil OB, IB and screen reject	Top Soil: 0.398 Million Tonnes			
	generation during entire life of	Over-Burden: 5.554 Million Tonnes			
	mine	Inter burden: 0.284 Million Tonnes			
		Screen Reject: 5.693 Million Tonnes			

Table – 2 Mining Details

Source: Approved Mining Plan & Progressive Mine Closure Plan

1.5.3 METHOD OF MINING

- Mining will be done by fully mechanized opencast method adopting a system of benches. Hydraulic excavators will be deployed for progressing benches and for handling ore/waste material. Drilling and controlled blasting will be adopted. Dumpers will be used for loading and dumping of over burden/ore.
- Transportation of limestone from working face to crusher hopper will be carried out by dumpers.

2.0 DESCRIPTION OF THE ENVIRONMENT

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2.1 PRESENTATION OF RESULTS (AIR, NOISE, SURFACE WATER, GROUND WATER & SOIL)

Ambient Air Quality Monitoring reveals that the concentrations of PM2.5 and PM10 for all the eight AAQM stations were found between 23.2 to 45.9 μ g/m³ and 42.4 to 83.4 μ g/m³ respectively.

The concentration of PM2.5 and PM10 is maximum in village Mohra and at location \sim 2.5 km in West direction.

As far as the gaseous pollutants SO₂ and NO₂ are concerned, the prescribed CPCB limit of 80 μ g/m³ has not been surpassed at any station. The concentrations of SO₂ and NO₂ were found to be in range of 5.3 to 12.5 μ g/m³ and 11.6 to 26.7 μ g/m³ respectively.

The minimum concentration for CO was found 0.53 mg/m³ at Rengadih & Tildabhantha as well as maximum concentration at location mohra was 0.73 mg/m³. It was observed that CO is within the NAAQS standard i.e., 4 mg/m³. Whereas CO concentrations were below the detection limit at mine site and village- Bhalukona, Near Bhalesur and Patharchuwa.

<u>Ambient noise levels</u> were measured at eight locations in and around the proposed mine site. Noise level varies from 45.7 to 54.6 Leq dB (A) during day time and from 34.3 to 44.0 Leq dB (A) during night time.

Surface water analysis has been done from the nearby water bodies. The pH of the water bodies ranges from 6.92 to 7.41 indicating slightly alkaline in nature. The colour and turbidity were of permissible range and odour was found agreeable at all the locations. Less turbidity in the above-mentioned water bodies indicates that it is good for the growth of aquatic life.

Total hardness (94.1 to 188.1 mg/l), Total dissolved solids (136to 288 mg/l), Alkalinity (76 to 156.7 mg/l) and conductivity (212 to 456 μ S/cm) were found to be within standards in water samples. The COD (4 to 36 mg/l) and BOD (2.1 to 9.4 mg/l) indicates that bhalesur village water body is slightly polluted as compared to the other surface water sampling locations. The nutrients were also found low viz. sulphate (7.55 to 36.5 mg/l), nitrate (0.21 to 2.12 mg/l), calcium (21.78 to 61.38 mg/l), magnesium (4.81 to 12.04 mg/l) indicated clean nalla as well as river water. The Dissolved oxygen (6.6 to 7.3 mg/l) indicated that the water bodies are safe for aquatic biodiversity.

The physico-chemical quality of groundwater compared with drinking water standard (IS:10500-2012). All the groundwater samples showed good Ground water quality; The pH of the water samples ranged from 7.09 to 7.48 indicating slightly alkaline in nature; and maximum pH was recorded in village Bhalesur. The colour and turbidity were found to be BDL, and odour and taste were agreeable at all sampling locations. The observed values of parameter varied from: total hardness (198 to 435.6 mg/l), alkalinity (178 to 342 mg/l), total dissolved solids (276 to 698 mg/l) however, maximum total hardness and total dissolved solids were found in the samples of village KathiyaThe concentration of chloride was found to be (139.03 to 222.75 mg/l) and sulphate was (63.37 to 134.5 mg/l). The concentrations of other micro and macro nutrients were also at low level i.e., nitrate (5.04 to 12.35 mg/l), calcium (61.32 to 117.17 mg/l), magnesium (139.03 to 222.75 mg/l), and iron (0.28 to 0.93 mg/l).

<u>The soil samples</u> majorly exhibit light browning to dark brownish colour in all the locations. The organic matter present in the soil observed to be appropriate (0.64 % to 0.82 %) for the plant growth. The texture of the soil samples were clay loam at Mohra & Boidih village except these

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texture was clay for all locations. The pH ranged from 6.85 to 7.87, which is an optimal range for most of the plants to thrive and grow Six essential nutrients required for an ideal plant growth are Nitrogen, Phosphorus, Potassium, Magnesium, Sulfur and calcium.

All the essential nutrients were observed to be present in a higher amount than the other micro nutrient and macro nutrient such as Nitrogen (121.06 to 229.73 kg/ha), Phosphorous (66.58 to 126.35 kg/ha), Potassium (223.32 to 619.06 kg/ha), Magnesium (244.27 to 677.12 mg/kg), Calcium (1575.91 to 4368.51 mg/kg). thus would positively affect the plant growth. These results indicates that the soils quality within the study area is of a good quality and contains sufficient macronutrients which is vital for healthy plant growth.

2.2 BIOLOGICAL ENVIRONMENT

Within the buffer zone of mine site, a total of 85 species of trees, 40 species of Shrubs, 10 species of Herbs, 13 species of climber and 19 types of grasses, 6 aquatic species and 1 species of Plant Parasite were recorded, whereas in core zone, 11 species of trees, 10 species of shrubs, 3 species of Herbs, 3 species of climber and 3 types of grasses were recorded were recorded.

Among faunal diversity, within the 10 km radius of buffer zone, 8 species of mammals, 5 species of reptiles, 3 species of amphibians, 5 species of fishes, and 14 species of Butterfly were recorded, whereas in core zone, 2 mammalian species and 2 reptiles and 1 species of amphibians were recorded within the 10 km study area. Among avifauna (Birds), 40 species were recorded in buffer zone and 20 species were recorded in core zone. Total 15 species come in Schedule- I fauna according to Wildlife (Protection) Amendment Act, 2022 dated 19th December 2022.

2.3 SOCIO-ECONOMIC ENVIRONMENT

Chhattisgarh is a state in Central India. It is the 10th largest state in India, with an area of 135,192 km2. With a population of 25.5 million, Chhattisgarh is the 17 th most populated state of the nation. It is a source of electricity and steel for India. Chhattisgarh accounts for 15% of the total steel produced in the country. Chhattisgarh is one of the fastest developing state in India. Balodabazar-Bhatapara is a district in Chhattisgarh state of India with its headquarters at Balodabazar. Before its creation, it was part of Raipur district. The district is subdivided into six development blocks called tahsils, namely Palari, Baloda Bazar, Kasdol, Bilaigarh, Bhatapara and Simga and 3 subdivisions namely Baloda Bazar, Bhatapara and Bilaigarh.

The population as per 2011 Census records is 96,155 (for the 10 km buffer zone). Total no. of household is 1619, 7686 and 10583 respectively, in primary, secondary and outer zone. Sex ratio is 1004, 991 and 1000 (females per 1000 males) observed in primary, secondary and outer zone respectively. SC population distribution is 2716, 9580 and 12357 respectively in primary, secondary and outer zone. ST population distribution is 900, 1667 and 2440 respectively in primary, secondary secondary and outer zone respectively.

It can undoubtedly be said that this proposed mine work will provide direct and indirect employment and improve the infrastructural facilities and standards of living of the area. In the nearby areas, gross economic production will increase substantially due to the proposed Limestone mining projects in the area.

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3.0 ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

A. AIR QUALITY MANAGEMENT

- Drilling machines will be equipped with wet/dry drilling with de-dusting arrangements to prevent dust.
- Controlled blasting will be adopted and optimum use of explosive energy will help in reducing the air pollution.
- Blasting will be done by latest blasting technique (NONEL) using stock tube detonator (Downline detonator in combination with noise less trunk line detonators).
- Use of Rock breaker in place of secondary blasting to reduce generation of fly rocks and ground vibration.
- Water Spray arrangement will be provided at crusher hopper and haul roads, loading & unloading areas to control the fugitive emission.
- Haul roads will be kept wide to support smooth traffic movement. The roads will be properly maintained by road compactor and regular water spraying will be done during work hours to prevent generation of dust from vehicular movement.
- PPE's including dust masks will be provided to workers & operators working in dusty zones.
- Vehicular emissions will be kept under norms by regular maintenance of vehicles & machineries.
- Greenbelt & plantation will be developed around mine boundary, mine office, crusher area, approach roads and backfilled areas.
- > Periodic air quality monitoring will be carried and the records will be maintained properly.

B. NOISE LEVEL MANAGEMENT

Following measures will be taken for noise pollution control: -

- Drilling will be done with sharp drill bits to achieve optimum drilling performance and to reduce noise generation at source.
- Ground vibrations will not affect the structures in the vicinity of Limestone block area as blasting will be done in accordance with standards prescribed by DGMS for controlled blasting.
- > Explosives charge per hole and per delay will be maintained as per DGMS guidelines.
- > NONEL will be used to control ground vibrations, noise & fly rocks.
- > Blasting will be carried out during day time only.
- > Crusher will be installed in closed building to control the noise pollution.
- > Development of green belt & plantation in the vicinity of the crusher.
- > Air-conditioned closed cabin will be provided in HEMM to reduce generation of noise.
- Proper maintenance, oiling and greasing of machines at regular intervals will be done to reduce generation of noise.
- The workers employed will be provided with personal protective equipment, earmuffs and earplugs as a protective measure from the high noise level generated at the mine site and wherever required.

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- Planting of trees will be done along the mining lease boundary for controlling noise apart from acting as barrier for propagation of noise outside the mine lease boundary.
- > Regular monitoring of noise will be carried out regularly.

C. WATER AND WASTE WATER MANAGEMENT

- > No seasonal nallah falling within the mining lease area
- The depth of water table is around 3 to 5 m bgl and the ultimate working depth of the mining operation will be (31 m bgl). Hence, groundwater will be intersected due to any mining activity during the 2nd year of plan period. As per the approved Mine Plan with Progressive Mine Closure Plan and field survey data, it is evident that intersection of groundwater will occur during the second year of plan period. The pit will be used for rainwater harvesting and the water accumulated within the pit after evaporation and recharge will be used for different mining activities like dust suppression, greenbelt development & plantation after approval of groundwater abstraction from competent authorities.
- Water requirement of 95 KLD will be sourced from CGWA after taking permission from CGWA during initial stage and from mine sump as and when developed
- Rain water will be accumulated in bottom most bench of pit and same will be utilized in dust suppression and plantation etc.
- No waste water will be discharged out of the mining lease area.
- The waste water generated from mine workshop (12 KLD) and RO reject water (0.5 KLD) will be reused for dust suppression.
- Waste water generated (3 KLD) from mine office, toilets & canteen will be disposed-off in soak pits via septic tanks.
- > Constructions of One Check Dam are proposed to arrest silt to go into natural drainage.
- Garland drains and retaining wall is proposed around the waste dumps to prevent flow of surface off outside the mining lease area as per details given in below table:

Year	Retaining Wall			Garland Drain		
	Dimension Location (Co-ordinate			Dimension	Location (Co-ordinates)	
	(L*W*H)	From	То	(L*W*D)	From	То
Year 2	270*1*1	E601400	E601600	290*1*1	E601400	E601600
		N2378500	N2378700		N2378500	N2378700
	190*1*1	E601900	E602100	210*1*1	E601900	E602100
		N2377900	N2378100	210*1*1	N2377900	N2378100

- Ground water quality analysis will be done regularly.
- Surface Water Quality Analysis (Mine Sump) will be monitored regularly.

D. GREENBELT/ PLANTATION

- Total greenbelt/plantation will be done on 44.746 ha area, in which green belt will be done on 3.746 ha area on 7.5 m safety zone of lease boundary and Plantation will be done on backfilled area of 41.00 ha reclaimed by plantation and re-grassing.
- > Trees will be planted @ 2500 saplings per ha on 7.5 meter periphery and @ 1500 saplings per ha on backfilled area.

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Native species like Sagwan, Palash, Saja, Bija, Khair, Amla, Arjun, Pipal, Safed Siris, Dhok, Dhaura, Shisham, Neem, Mango, Mahua, Gulmohar, Amaltas, Karanj, Yellow Gulmohar, Kasood, Bargad, Ashok, Dubai tree, Jamun, Imli, Guava, Chiku will be planted as per CPCB guidelines.

E. SOLID WASTE MANAGEMENT

- At conceptual stage, 0.398 Million Tonnes of Topsoil will be generated which will be used for greenbelt development and plantation.
- Total Waste of 5.838 Million Tonnes (OB-5.554 Million Tonnes & IB 0.284 Million Tonnes) along with ROM Rejects of 5.693 Million Tonnes will be generated at the end of life of mine.
- > Total Waste including ROM rejects will be backfilled up to 16-meter height in the excavated area of 41.0 ha and later on will be stabilized by the plantation and re-grassing.

4.0 ADDITIONAL STUDIES

Additional Studies i.e., Hydro –Geological Study, Risk Assessment & Disaster Management Plan, Land use and land cover study, Ecology and Biodiversity, Rehabilitation and Resettlement Plan are covered in Draft EIA/EMP Report as per the Terms of references granted by SEIAA, Chhattisgarh vide letter no. 1517/S.E.A.C.C.G/Mine/2121/Nava Raipur Atal Nagar dated 03.10.2023 in favor of Shree Cement Ltd.

5.0 PROJECT BENEFITS

The project activity will help in meeting the growing demand of cement & hence help in the economic growth of the country. Shree Cement Limited will actively involve in the implementation of CSR activities. It will be helpful in the development of basic needs of the local area like education, Health & family welfare, women empowerment, Natural resource management, water conservation, roads etc. It will result in growth of the surrounding areas by increasing direct and indirect employment opportunities in the region including ancillary development, overall improvement in Human Development Index and supporting infrastructure.

6.0 CONCLUSION

The limestone Mine project will prove beneficial to the local people as direct and indirect employment opportunity will be generated improving their living. There will be increase in revenue generation to the government by way of royalty, NMET, DMF, TCS and government taxes etc. Further improvement in infrastructure will take place like education, roads, availability of drinking water, medical facilities and growth of allied in adjacent villages.

There will be no significant pollution of air, water, soil and noise. Regular monitoring of all the components of environment will be done. Increased social welfare measures taken by the company will bring development in the near-by villages.
