

**EXECUTIVE SUMMARY
OF
DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT
&
ENVIRONMENT MANAGEMENT PLAN
FOR**

Integrated Cement Plant with production capacity of Clinker: 1.5 Million Tone Per Annum; Cement: 3.5 Million Tone Per Annum (Ordinary Portland Cement, Portland Pozzolana Cement, Portland Slag Cement, Sulphate Resisting Cement, Rapid Hardening Portland Cement & Composite Cement); Captive Power Plant: 20 Megawatt; Waste Heat Recovery System: 9.5 Megawatt; Synthetic Gypsum: 1560 Tone Per Annum (65 Tone Per Hour) and Diesel Generator Sets: 2500 Kilovolt-Ampere (1 x 2500 Kilovolt-Ampere or 2 x 1000 Kilovolt-Ampere & 1 x 500 Kilovolt-Ampere or 1 x 1000 Kilovolt-Ampere, 2 x 500 Kilovolt-Ampere & 2 x 250 Kilovolt-Ampere)

AT

**Villages: Nimsala (Nimsada), Kondhala & Dahegaon, Taluka:
Warora, District: Chandrapur (Maharashtra)**

PROJECT PROPONENT



SHREE CEMENT LIMITED (UNIT: VIDARBHA CEMENT PLANT)

BANGUR NAGAR, POST BOX NO. 33,

Beawar, Rajasthan

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EXECUTIVE SUMMARY

1.0 INTRODUCTION

1.1 Name of the project along with applicable schedule and category as per EIA, 2006.

Shree Cement Limited (Unit: Vidarbha Cement plant) is proposing an Integrated Cement Plant with production capacity of Clinker: 1.5 Million TPA; Cement: 3.5 Million TPA (OPC, PPC, PSC, SRC, RHPC & Composite Cement); CPP: 20 MW; WHRS: 9.5 MW; Synthetic Gypsum: 1560 TPD (65 TPH) and DG Sets: 2500 KVA (1 x 2500 KVA or 2 x 1000 KVA & 1 x 500 KVA or 1 x 1000 KVA, 2 x 500 KVA & 2 x 250 KVA) at Villages: Nimsala (Nimsada), Kondhala & Dahegaon, Taluka: Warora, District: Chandrapur (Maharashtra).

The project falls under S. No. 3 (Material Production), Project Activity '3 (b)' Cement Plants and Category 'A' of the schedule of EIA Notification, 2006 and subsequent amendments till date. It is also proposed to install CPP of 20 MW Capacity and WHRS of 9.5 MW Capacity within the premises of in the Integrated Cement Plant under minor category which falls under S. No. 1 (Thermal Power Plants), Project Activity '1 (d)' Thermal Power Plant.

Application (Form-1 and Pre-Feasibility Report) has been uploaded on MoEF&CC web Portal, New Delhi on 21st April, 2025, First Technical Presentation (for ToR approval) was held before EAC (Industry-I) on 8th May, 2025 and ToR Letter was issued by MoEF&CC, New Delhi on 31st May, 2025 vide letter No. IA-J-11011/149/2025-IA-II(Ind-I).

Shree Cement Limited has also proposed as Interlinked project "Kondhala Limestone Mine" (Mining Lease Area: 105 ha) located near Village: Kondhala, Taluka: Warora, District: Chandrapur, Maharashtra for Mining of 2.25 Million TPA Limestone and installation of 1200 TPH & 500 TPA capacity primary Crusher & 400 TPH secondary Crusher to cater the required limestone of 2.25 Million TPA in Integrated Cement Project for its use.

1.2 Location and accessibility

The plant site is located at Villages: Nimsala (Nimsada), Kondhala & Dahegaon, Taluka: Warora, District: Chandrapur (Maharashtra) with bounded between Latitude 20°17'43.05" N to 20°18'11.39" N and Longitude 78°58'42.85" E to 78°59'26.01" E.

Environmental Setting of the Project site is given as below -

S. No.	Particulars	Details
1.	Nearest Villages	❖ Kondhala (~1.0 km in North Direction) ❖ Dahegaon (~1.4 km in West Direction) ❖ Nimsala (Nimsada) (~1.5 km in SE Direction)
2.	Nearest National Highway / State Highway	❖ NH - 347A (~3.0 km in East direction) ❖ NH - 353E (~6.5 km in SE direction) ❖ SH - 6 (~3.0 km in East direction) ❖ SH - 84 (~7.0 km in South direction)

Integrated Cement Plant with production capacity of Clinker: 1.5 Million TPA; Cement: 3.5 Million TPA (OPC, PPC, PSC, SRC, RHPC & Composite Cement); CPP: 20 MW; WHRS: 9.5 MW; Synthetic Gypsum: 1560 TPD (65 TPH) and DG Sets: 2500 KVA (1 x 2500 KVA or 2 x 1000 KVA & 1 x 500 KVA or 1 x 1000 KVA, 2 x 500 KVA & 2 x 250 KVA)

At Villages: Nimsala (Nimsada), Kondhala & Dahegaon, Taluka: Warora, District: Chandrapur (Maharashtra)

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S. No.	Particulars	Details
3.	Nearest Railway Station	❖ Chikni Road Railway Station (~3.3 km in NNW direction) ❖ Warora Railway Station (~6.5 km in SSE direction)
4.	Nearest Airport	❖ Dr. Babasaheb Ambedkar International Airport Nagpur (~85 km in North direction)
5.	Nearest River	❖ Seasonal Nalla (Passing though the project site in NNW direction) ❖ Canal (Adjacent to the project site, However, passing through main gate area) ❖ Lendi Nala (~0.7 km in NW direction) ❖ Daiwal Nadi (~1.5 km in West direction) ❖ Sonariya Nala (~2.0 km in ESE direction) ❖ Bamandoh Nala (~6.0 km in East direction) ❖ Shirnai Nadi (~8.0 km in SE direction) ❖ Wardha River (~8.0 km in SW direction)
6.	Nearest Seaport	None within 10 km radius study area
7.	Reserved/ Protected Forest within 10 km radius	❖ Shegaon RF ~5.5 km in ESE direction ❖ Kawadapur RF ~6.5 km in NNE direction ❖ Temurda RF ~8.0 km in NNW direction ❖ Shindola RF ~9.5 km in NNE direction
8.	National Park, Wildlife Sanctuary, Tiger/ Elephant Reserve, Eco- Sensitive Zone etc.	None within 10 km radius study area
9.	Archaeological site	None within 10 km radius study area
10.	Seismic Zone	Zone – III as per IS: 1893 (Part-I): 2002

2.0 PROJECT DESCRIPTION

2.1 Resource requirements (Land; water; fuel; manpower)

Land - The total area for the proposed plant is 42.76 ha. complete land is under the possession of the company. Land use is private agriculture land and will be used as industrial purpose after conversion of it into Industrial land use.

Basic requirements of the project are as below -

S. No.	Particular	Detail	Source
1.	Water (KLD)	1368 KLD (Including Fresh Water Requirement: 1253 KLD & Recycled Water from STP & RO Rejects: 115 KLD).	Ground water & Mine pit water as per availability
2.	Power (MW)	28.20	Captive Thermal Power Plant (20 MW) & Waste Heat Recovery System (9.5 MW), State Grid Power Supply and DG Sets 2500 KVA (for emergency backup).

Integrated Cement Plant with production capacity of Clinker: 1.5 Million TPA; Cement: 3.5 Million TPA (OPC, PPC, PSC, SRC, RHPC & Composite Cement); CPP: 20 MW; WHRS: 9.5 MW; Synthetic Gypsum: 1560 TPD (65 TPH) and DG Sets: 2500 KVA (1 x 2500 KVA or 2 x 1000 KVA & 1 x 500 KVA or 1 x 1000 KVA, 2 x 500 KVA & 2 x 250 KVA) At Villages: Nimsala (Nimsada), Kondhala & Dahegaon, Taluka: Warora, District: Chandrapur (Maharashtra)	
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S. No.	Particular	Detail	Source
3.	Manpower (No. of Persons)	1670 Persons (In construction phase-870 persons & in operation phase-800 persons)	Preference will be given to the local people based on requirement, eligibility, qualification and experience.
4.	Cost Details	Total Cost of the Project - Rs. 1737.20 Crores Cost for Environmental Protection Measures: - Capital Cost: Rs. 167 Crores - Recurring Cost: Rs. 3.40 Crores per annum	

Basic Requirement of Limestone Mine

S. No	Requirement of the Project	
1.	Water Requirement	100 KLD Source: Ground water and Mine Pit water
2.	Power Requirement	3.4 MW Source: State Grid Supply
3.	Man Power Requirement	63 Persons Source: Preference will be given to local people based on qualification, skills and experience.

Raw Material Requirement of Integrated Cement Plant

Major raw material required for Clinker & Cement production is Limestone, Iron Ore, Bauxite, Gypsum (Mineral, Synthetic, Chemical & Imported), Fly ash and Slag. Details regarding quantity of raw materials required, their source along with distance and mode of transportation are given in Table - 1 (a), (b) and (c):

Table - 1 (a)

Details of Raw Material Requirement along with source and Mode of Transport

S. No.	Name of Raw Material	Basis	Quantity (Million TPA)	Source	Mode of Transportation & Distance
1.	Limestone	1.5 T/ T of Clinker	2.25	SCL Kondhala Limestone Mine	Adjacent to the plant; Covered Conveyor belt
2.	Iron Ore	0.015 T/ T of Clinker	0.0225	Nearby Area	~100 to 500 km by Road /Rail
3.	Bauxite	0.044 T/ T of Clinker	0.066	Nearby Area	~100 to 500 km by Road /Rail
4.	Gypsum (Mineral, Synthetic, Chemical & Imported)	0.07 T / T of Cement	0.245	Proposed in-house Sy. Gypsum Plant and Imported Gypsum through Coromandel- Vizag, Hindalco Dahej, NTPC Solapur FGD etc.	~500 to 950 km by Road /Rail
5.	Fly ash	0.35 T/T of Cement	1.225	Rattan India Amravati, GMR Warora, Vidarbha Ind (Reliance, Butibori), Chandrapur Thermal plant etc.	~ 05 to 315 km by Road
6.	Slag	0.55 T/T of Cement	1.925	Sunflag Iron, Uttam Galva etc.	~180 to 320 km by Road

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Table - 1 (b)

**Details of Raw Material Requirement for different types of Cement Manufacturing
(OPC/ PPC/PSC/SRC/ RHPC/Composite Cement Production)**

Requirement (in Million TPA) for Cement (OPC/PPC/Composite Cement/PSC/RHPC/SRC) Production					
S. No.	Raw Material	OPC / RHPC/ SRC	PPC	PSC	Composite Cement
1.	Clinker *	3.26 (93%)	2.03 (58%)	1.33 (38%)	1.33 (38%)
2.	Gypsum	0.25 (7%)	0.25 (7%)	0.25 (7%)	0.25 (7%)
3.	Fly ash	0.00	1.23 (35%)	0.00	1.23 (35%)
4.	Slag	0.00	0.00	1.93 (55%)	0.70 (20%)
	Total Capacity (MTPA)**	3.50	3.50	3.50	3.50
Note: * Clinker will also be sent to the sister grinding units, market sale and will also be received (through rail and road) from outside (SCL Plants), if Clinkerization plant is not in operation or in case of shortfall of clinker. ** Cement production will be done 3.5 Million TPA only either from various options as OPC/RHPC/SRC/PPC /PSC/ Composite Cement.					

Table - 1 (c)

Raw Materials Requirement for Synthetic Gypsum Manufacturing Unit

S. No.	Material	Requirement 65 TPH / 1560 TPD		Source
		%	TPD	
1.	Limestone	50 - 62	780 - 968	Limestone mine
2.	H ₂ SO ₄ 98%	40 - 42	624 - 655	Birla Copper at Dahej
3.	Water	15- 35	234 - 546	Ground Water & RO reject

Interlinked Project: Details of limestone mine mentioned below:

To cater the required limestone of 2.25 Million TPA in Integrated Cement Project “Shree Cement Limited is proposing “Kondhala Limestone Block” (ML Area: 105.0 ha.) with Limestone Production Capacity of 2.25 Million TPA, Total Waste: 3.214 Million TPA, Top Soil: 0.022 Million TPA & ROM Rejects: 0.225 Million TPA (Total Excavation: 5.711 Million TPA) and total material handling: 6.711 Million TPA including Re handling of waste material: 1.0 Million TPA from proposed dumps and installation of Primary Crushers: 1200 TPH & 500 TPH and Secondary Crusher: 400 TPH along with Wobbler near Village: Kondhala, Taluka: Warora, District: Chandrapur, Maharashtra.

2.2

Operational activity

Shree Cement Limited is proposing an Integrated Cement Plant with production capacity of Clinker: 1.5 Million TPA; Cement: 3.5 Million TPA (OPC, PPC, PSC, SRC, RHPC & Composite Cement); CPP: 20 MW; WHRS: 9.5 MW; Synthetic Gypsum: 1560 TPD (65 TPH) and DG Sets: 2500 KVA (1 x 2500 KVA or 2 x 1000 KVA & 1 x 500 KVA or 1 x 1000 KVA, 2 x 500 KVA & 2 x 250 KVA) at Village: Nimsala (Nimsada), Kondhala & Dahegaon, Taluka: Warora, District: Chandrapur (Maharashtra).

Manufacturing Process of Integrated Cement Plant, Captive Power Plant and WHRS are given as follows -

Integrated Cement Plant

The manufacturing of cement will be based on dry process and essentially consist of the following unit operation steps:

- ☞ Crushing of limestone at the mine site and transportation through covered conveyor belt.
- ☞ Pre-blending of crushed limestone by Stacker & Reclaimer.
- ☞ Grinding-cum-Drying of Raw Materials and Coal/ Petcoke, Dolochar and Biomass.
- ☞ Homogenization of raw meal in a blending silo.
- ☞ Clinkerization of the raw meal in a rotary kiln with preheater, calciner and Cooler.
- ☞ Grinding, storage and packing of cement.
- ☞ Transportation of Clinker & Cement through Road & Rail Networks

Captive Power Plant - 20 MW

In the proposed Captive Power Plant, power will be generated by the utilization of thermal energy of steam to rotate the turbine that in turn rotates an alternator. The steam will be generated in the boiler by burning of coal as the fuel. The generated steam will be utilized to rotate the Steam Turbine, which will in turn rotate an alternator (electric generator) to generate electricity/power.

Waste Heat Recovery System-9.5 MW

SCL is also proposing to install Waste Heat Recovery System (WHRS) of 9.5 MW for re - utilization of the exhaust gases from the Pre – heater / cooler to generate electric power and consequently reduce consumption of grid power. There is a good amount of waste heat available from the expelled gases of Pre-Heaters (PH) and Air Quenched Coolers (AQC). The energy used in cement plant consists of heat energy and electrical energy.

2.3 Key pollution concerns

The proposed Integrated Cement Plant will be based on state of art technology with efficient Air Pollution Control Equipments and also, the plant will be followed Zero Liquid Discharged policy to avoid water pollution. Noise pollution will be addressed properly as per rules and regulations.

3.0 BASELINE ENVIRONMENT STUDIES

3.1 Ambient air quality

Ambient Air Quality Monitoring reveals that Ambient Air Quality Monitoring reveals that the concentrations of PM_{2.5} and PM₁₀ for all the 12 AAQM stations were found between 20.3 to 50.6 µg/m³ and 39.5 to 80.1 µg/m³ respectively. The concentration of PM_{2.5} & PM₁₀ is maximum at Nimsada and Sunflag Iron and Steel Mine.

As far as the gaseous pollutants NO₂ and SO₂ are concerned, the prescribed CPCB limit of 80 µg/m³ has not been surpassed at any station. The concentrations of NO₂ and SO₂ were found to be in range of 8.2 to 24.2 µg/m³ and 4.2 to 14.5 µg/m³ respectively. The concentration of CO was found to be (BDL) to 0.84 mg/m³. Maximum value was found at Village Nimsada. It was observed that CO

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is within the NAAQS standard i.e., 04 mg/m³. Whereas CO concentrations were found below detection limit at Village Majara Rai, Village Dongargaon, village Yensa, Village Dahegaon and Village Sunfal Iron & Steel Mine. PAH & HC as Methane was found BDL at all locations.

Air Quality Prediction Modelling of the Proposed Cement Plant -

- For PM₁₀, maximum predicted incremental GLC for the proposed project is found to be 1.73 µg/m³ at Within the Plant Site in SW direction.
- For PM_{2.5}, maximum predicted incremental GLC for the proposed project is found to be 0.693 µg/m³ at Within the Plant Site in SW direction.
- For SO₂, maximum predicted incremental GLC for the proposed project is found to be 1.63 µg/m³ at Within the Plant Site in SW direction.
- For NO_x, maximum predicted incremental GLC for the proposed project is found to be 2.32 µg/m³ at Within the Plant Site in SW direction.

3.2 Ambient Noise quality

Ambient noise levels were monitored at 12 locations in and around the plant site a noise level varies from 46.1 Leq dB to 54.2 Leq dB (A) and at night noise level varies from 38.3 Leq dB (A) to 44.6 Leq dB (A).

3.3 Traffic Study

Traffic survey has been conducted for a week by considering weekday i.e. Monday & weekend i.e. Sunday at National Highway-347A (3.0 Kilo Meter in East direction) for type of vehicles, Frequency of vehicles for transportation of materials, Additional traffic due to proposed project. The traffic volume count at National Highway-347A are Motor cycle/ scooter, Passenger Car / Van / Auto-rickshaw, Trucks, Trailer, Buses, Tractors and Cycle.

Due to the proposed project, there will be addition of Heavy and Light motor vehicles in the existing traffic (Total No. of increased trucks per day (inward + outward) = 321 + 354 = 675) and total number of increased Trailer per day (inward) 83, in the existing traffic. The existing Level of Service of the road NATIONAL HIGHWAY-347A is “Excellent” which will remain unchanged after installation of Proposed project. Thus, it can be concluded that the present road network is good enough to bear the increased traffic load.

3.4 Surface water quality

The surface water analysis for 04 sampling station shows that pH ranges between 7.69 to 8.05 and is slightly alkaline in nature, Total hardness (142.2 to 279.5 mg/l), Total dissolved solids (268.0 to 507.0 mg/l), Alkalinity (118.1 to 264.4 mg/l) and conductivity (396.0 to 583 µS/cm). The COD (6.4 to 13.0 mg/l) and BOD are (1.2 to 4.6 mg/l).

3.5 Ground water quality

The sample was taken from Nine locations i.e Mine Site, Village-Kondhala, Nimsada, Dahegaon, Yensa, Dongargaon, Belgaon Desh, Naideo and from proposed Cement Plant. The pH of the ground

water ranges from 7.05 to 7.77 indicating slightly alkaline in nature. Taste and Odour were found aggregable. The concentration of chloride was found to be (27.68 to 243.7 mg/l), Fluoride was found (0.49 to 0.81 mg/l) and sulphate was (28.85 to 314.8 mg/l). The concentrations of other micro and macro nutrients were also at low level i.e., nitrate (0.92 to 13.62 mg/l), calcium (40.26 to 141.4 mg/l), magnesium (26.23 to 76.47 mg/l), and iron (0.33 to 0.96 mg/l).

From the above study, it can be concluded that from the baseline sampling results for groundwater that all samples, were observed to be within the permissible limits and complies to the drinking water standard (IS: 10500-2012).

3.6 Soil quality

Soil monitoring was carried out at 09 locations and the analysis results show that pH ranges from 7.26 to 8.09, 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, Sulphur 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 (177.46 to 266.14 kg/ha), Phosphorous (10.78 to 25.60 kg/ha), Potassium (233.85 to 843.51 kg/ha), Magnesium (366.34 to 902.41 mg/kg), Calcium (1967.75 to 7581.73 mg/kg). Higher calcium values in the soil sample are due to the presence of alkaline soil in nature within the area, thus would positively affect the plant growth. These results indicate that the soils quality within the study area is of a good quality and contains sufficient macronutrients which are vital for healthy plant growth.

3.7 Biological Environment

Flora Diversity: During the field survey, within the Core Zone & buffer zone of project site, a total of 77 species of trees, 35 species of Shrubs & Herbs, 21 species of climbers and 16 types of grasses & Bamboos were recorded and observed within the studied area based on primary observation as well as based on information collected from the secondary data.

Faunal Diversity: Among faunal diversity, within the 10 km radius of Buffer Zone 19 species of Mammals, 17 species of Birds, 02 species of Reptiles and 06 Species of Butter Flies were recorded. whereas in Core zone, 02 species of mammals, 04 species of Birds, 01 species of reptiles and 01 species of Butterfly were recorded and observed.

There are 14 schedule -I species i.e., Indian Leopard (*Panthera pardus*), Wild dog (Dhole) *Cuon alpinus*, Golden Jackal (*Canis aureus*), Bengal Fox (*Vulpes bengalensis*), Jungle Cat (*Felis chaus*), Gaur-Bison (*Bos gaurus*), Indian Crested Porcupine (*Hystrix indica*), Indian Peafowl (*Pavo cristatus*), Grey Jungle fowl (*Gallus sonneratii*), Sarus Crane (*Grus antigone*), Cotton Pygmy Goose (*Nettapus coromandelianus*), Indian Star Tortoise (*Geochelone elegans*), Striped Hyena (*Hyaena hyaena*) and Sambar Deer (*Rusa unicolor*) were recorded in the study area during field survey; which are categorized as Schedule- I fauna according to I Wildlife (Protection) Amendment Act (W(P)AA),

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2022 conservation status. Wildlife Conservation plan for Schedule - I has been prepared and has been submitted to DFO - Chandrapur for the approval.

3.8 Land use

Other classes which includes Settlement (4.86 %), Forest (6.14%), Road (1.48 %), industry (1.17 %), Surface water bodies (1.70 %), Railway (0.08 %), Mine Area (3.55%). Surface water Bodies such as river/nallah comprises of 1.70 % of the total buffer area. There are six surface water body namely Lendi Nala (~0.7 km in NW direction), Daiwal Nadi (~1.5 km in West direction), Sonariya Nala (~2.0 km in ESE direction), Bamandoh Nala (~6.0 km in East direction), Shirnai Nadi (~8.0 km in SE direction) and Wardha River (~8.0 km in SW direction) within 10 Km radius of study area of the project site. 1.17 % of the total study area is occupied by the industry within 10 km radius of the study area.

3.9 Socio-economic environment

The population as per 2011 Census records is 97810 (for 10 km radius). Total no. of household is 23217 in the study area. Sex ratio is 969 (females per 1000 males). SC population distribution is 9.41% in the study area. ST population distribution is 17.67 % in the study area. Total No. of villages observed within the 10 km radius from the project area are 54.

4.0 ANTICIPATED IMPACTS

Content No.	Parameters	Anticipated Impacts
4.1	Ambient Air Quality	○ Increase in Particulate Matter (dust) and NO_x concentration due to Leveling activity and Heavy vehicular movement during construction phase ○ Increase in concentration of Fugitive emissions and Stack emissions (SO₂, NO_x and PM) during operation phase
4.2	Ambient Noise Quality	Noise will be generated due to following activities / processes ○ Movement /operation of transport and construction vehicles / equipment ○ Other important activities involved in construction stage such as excavation, earthmoving, compaction, concrete mixing, crane operation, steel erection, mechanical /electrical installation. ○ Piling work during laying down of foundation for infrastructure. ○ Increase in noise levels within the plant area, which will be generated from the machineries and equipment such as Raw mill & Clinker grinding mill, turbines, fans, compressors, motors, and D.G. Sets itself; and from transportation activities.
4.3	Road and Traffic	○ Increase in the Road traffic density which will result in deteriorating the ambient air quality. ○ Rapid Movement of heavy - duty vehicles will cause in increase noise level. ○ Slight impact is envisaged on the flora and fauna of the vicinity area due to noise/ or the vibrations. ○ Increased traffic volume may increase the probability of accidental incidences in the area.

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Content No.	Parameters	Anticipated Impacts
4.4	Surface Water Resources and Quality	○ Increase in suspended solids due to soil run-off during heavy precipitation and due to lose soil at construction site ○ Waste water generated from the project will have an impact on the surface water quality of the nearby area if not managed properly.
4.5	Ground Water Resourced and Quality	○ The extraction of groundwater may result in decrease in ground water table and & waste water generated may deteriorate the quality of groundwater. ○ Waste water generated from the project will have an impact on the ground water of the nearby area if not managed properly. ○ waste water will be generated from the drinking & domestic utilities from the plant.
4.6	Terrestrial and aquatic habitat	○ Fugitive emissions (dust) generated due to construction activity may impact the terrestrial flora. The settlement of dust on the laminar surface of plants can impede the efficiency of photo-transduction and thereby, affect the productivity of plants. ○ Increased noise level due to running of machinery may scare the wild fauna and force them to migrate to other areas.
4.7	Socio-economic Environment	○ About 870 nos. of people will get employment during the construction stage and 800 nos. of people (Total 1670 People) in operation phase resulting in the ancillary development and growth. ○ Long term exposure to the pollutants such as PM, SO₂, NO₂, Cement dust have a potential to create health impacts such as risk of cardiovascular and respiratory disease, eye irritation, bronchitis, lung damage, increased heart ailments, etc. ○ Other impacts, associated with the proposed project will create a positive impact as it will result in the overall development of the area in respect to the infrastructure development, educational growth, health facilities etc. as a part of the CSR activity.

5.0 ALTERNATIVE ANALYSIS

Keeping in view of proximity to the Limestone Mine, accessibility to NH-347A and other raw material sources the proposed site has been selected for setting up of Integrated Cement Plant at Villages: Nimsala (Nimsada), Kondhala & Dahegaon, Taluka: Warora, District: Chandrapur (Maharashtra). Three alternative sites in close proximity of the Limestone Mine were studied and based on the environmental considerations and other aspects the proposed site was selected.

6.0 ENVIRONMENTAL MONITORING PROGRAM

S. No	Attributes / Aspects	Monitoring Parameter	Location	Frequency	Responsibility
Construction Phase					
1.	Ambient Air quality Monitoring	PM ₁₀ , PM _{2.5} , SO ₂ , NO ₂ and CO as per NAAQS, 2009	01 location in down wind direction of dominant Wind direction and 02 locations on project boundary	As per EC/CTE/CTO conditions	Environment engineer

Integrated Cement Plant with production capacity of Clinker: 1.5 Million TPA; Cement: 3.5 Million TPA (OPC, PPC, PSC, SRC, RHPC & Composite Cement); CPP: 20 MW; WHRS: 9.5 MW; Synthetic Gypsum: 1560 TPD (65 TPH) and DG Sets: 2500 KVA (1 x 2500 KVA or 2 x 1000 KVA & 1 x 500 KVA or 1 x 1000 KVA, 2 x 500 KVA & 2 x 250 KVA)

At Villages: Nimsala (Nimsada), Kondhala & Dahegaon, Taluka: Warora, District: Chandrapur (Maharashtra)

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S. No	Attributes / Aspects	Monitoring Parameter	Location	Frequency	Responsibility
2.	Water Quality	pH, Turbidity, Colour, Odour, Taste, TDS, Total Hardness, Calcium hardness, Magnesium hardness, Chloride, Fluoride, Sulphate, Nitrates, Alkalinity, Iron, Copper, Manganese	Set of grab samples during pre and post - monsoon for ground and surface water for 10km distance	As per EC/CTE/CTO conditions	Environment engineer
3.	Water level	Water Table Depth, Hydraulic Head, Piezometric Level, Groundwater Flow Direction and Gradient	Nearby Ground water sources and as per CTO conditions	Every season / As per NOC from Central Ground Water Authority (CGWA)	Environment engineer
4.	Noise Level	Day & Night dB (A)	Plant boundary and near construction activities	As per EC/CTE/CTO conditions	Environment engineer
5.	Medical Checkup	Spirometry, Audiometry, Biochemical Parameter (Sugar, Blood), ECG, Vision Test and Chest X-ray	Pre-placement Medical Checkup Periodical Examination	Yearly as per Factories Act	Environment engineer, Plant Unit Head and HR Department
Operation Phase					
1.	Meteorological monitoring	Wind speed, Wind direction, Dry bulb temperature, Wet bulb temperature, Relative humidity, Rainfall, Solar Radiation, Cloud Cover, Environmental Lapse Rate	Minimum 1 site in the plant impact area.	Regular by Weather Monitoring Station	Environment engineer and team
2.	Ambient Air quality Monitoring	PM ₁₀ , PM _{2.5} , SO ₂ , NO ₂ and CO as per NAAQS, 2009	Near to the entrance Gate of Plant Site and towards the Villages in upwind & downwind direction from the plant site, as per the max. GLC obtained and as per EC / CTO conditions.	As per CTO & Revised National Ambient Air Quality Standards (NAAQS) vide MoEF&CC circular, dated 16.11.2009	Environment engineer and team
3.	Fugitive Emission Monitoring	SPM	Cement Mill, Packing Plant, Raw Materials Handling Area & Coal Yard	As per EC/CTE/CTO conditions	Environment engineer and team

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S. No	Attributes / Aspects	Monitoring Parameter	Location	Frequency	Responsibility
4.	Stack Monitoring	PM, SO ₂ , NO _x , Dioxin & Furans during co - processing	Stacks of Raw Mill/ Kiln, Clinker Cooler, Coal Mill and Cement Mill.	As per EC/CTE/CTO conditions / Continuous Online Monitoring	Environment engineer and team
5.	Water Quality	pH, Turbidity, Colour, Odour, Taste, TDS, Total Hardness, Calcium hardness, Magnesium hardness, Chloride, Fluoride, Sulphate, Nitrates, Alkalinity, Iron, Copper, Manganese	Set of grab samples during pre and post - monsoon for ground and surface water for 10km distance	As per EC/CTE/CTO conditions	Environment engineer and team
6.	Water level	Water Table Depth, Hydraulic Head, Piezometric Level, Groundwater Flow Direction and Gradient	Nearby Ground water sources and as per CTO conditions	Every season / As per NOC from Central Ground Water Authority (CGWA)	Environment engineer
7.	Waste water	pH, BOD, COD, Oil & Grease, fecal coliforms, TSS, TDS	Inlet & Outlet of Sewage Treatment Plant	As per EC/CTE/CTO conditions	Environment engineer and team
8.	Noise Level Monitoring	Day & Night dB (A)	Plant boundary	As per EC/CTE/CTO conditions	Environment engineer
9.	Medical Checkup	Spirometry, Audiometry, Biochemical Parameter (Sugar, Blood), ECG, Vision Test and Chest X-ray	Pre-placement Medical Checkup	Yearly as per Factories Act	Environment engineer, Plant Unit Head and HR Department
			Periodical Examination		
10.	Performance evaluation of APCE's / Adequacy Study	Inlet & outlet dust of APCE's	Raw Mill / Kiln Bag house, Coal Mill Bag House, Cement Mill Bag House, Clinker Cooler ESP and CPP ESP	Six Monthly	Environment engineer and team

7.0 ADDITIONAL STUDIES

7.1 Risk assessment

Shree Cement Limited will have an Emergency Plan (Onsite & offsite) at the plant site. Suitable Risk Control Measures with respect to Risk Assessment will be implemented to minimize the risk to an

acceptable level. Regular Training, Implementation of SOPs and compliance of relevant Personal Protective Equipment (PPEs) will help to minimize the health hazards and incidental casualties.

7.2 Public Consultation

Public Hearing is yet to be conducted for the proposed Integrated Cement Plant with production capacity of Clinker: 1.5 Million TPA; Cement: 3.5 Million TPA (OPC, PPC, PSC, SRC, RHPC & Composite Cement); CPP: 20 MW; WHRS: 9.5 MW; Synthetic Gypsum: 1560 TPD (65 TPH) and DG Sets: 2500 KVA (1 x 2500 KVA or 2 x 1000 KVA & 1 x 500 KVA or 1 x 1000 KVA, 2 x 500 KVA & 2 x 250 KVA) at Villages: Nimsala (Nimsada), Kondhala & Dahegaon, Taluka: Warora, District: Chandrapur (Maharashtra) by Shree Cement Limited (Unit: Vidarbha Cement Plant).

7.3 Action plan to address the issues raised during public consultation as per MoEF&CC O.M. dated 30/09/2020

Company will prepare the detailed Socio-economic Development Plan based on the issues or need will be raised during Public Hearing as per the OM of MoEF&CC dated 30th Sept., 2020, & 20th Oct., 2020.

8.0 PROJECT BENEFITS

Apart from providing direct employment opportunities, Kondhala Cement Plant will generate a fair amount of indirect employment avenues in the area in the form of contractor, shopkeepers, agents, Stockists, transportation, workshop, etc. and other casual employment. The local economy will receive a boost due to employee spending and services generated by the company. The overall effect will improve the buying power of employees and thus a higher standard of living viz. better education, improved health and sanitation facilities, housing etc. This is envisaged as a major positive benefit, which will ultimately lead to the sustainable development of the region.

9.0 ENVIRONMENT MANAGEMENT PLAN

Particulars	Details
Air Quality Management	- Raw Mill / Kiln, Cement Mill, Coal Mill and Synthetic Gypsum Plant will be provided with Bag house (4 Nos.) and Clinker Cooler with ESP (1 No.) and CPP will be provided with ESP (1 Nos.) along with this Three stage Venturi Wet Scrubber will be provided with Synthetic Gypsum Plant. 42 Nos. Bag filter at Clinkerization Pyro Plant, 41 Nos. Bag filter at Cement Mill and 5 Nos. Bag filter at CPP Boiler will be installed to control fugitive emission. - ESP (1 Nos.) will be attached with CFBC Boiler for extracting Fly ash from flue gas Iron Ore, Bauxite & Pond ash will be stored in the covered sheds/Yards. - Covered Conveyor belts will be used for transfer of raw materials / finished products inside the plant. - Fly ash will be received through closed bulkers & fed into silo through pneumatic system. - Raw Meal, Clinker, fly ash and Cement will be stored in the silos. - Gypsum, Slag, Dolochar, Biomass, Coal and Petcoke will be stored in the covered sheds. - Sulphuric Acid will be stored in Storage Tanks with an additional Blank tank. - Water sprinkling will be done to control dust. - Proper maintenance of vehicles will be done to reduce gaseous emissions. - Using/allowing PUC certified vehicles inside the plant premises. - All the movement area will be concreted.

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Particulars	Details
	- Using Vacuum sweeping machine for better housekeeping. 33.0 % of area (14.11 ha.) will be developed under greenbelt & plantation
Noise Management	- Machine operators and Persons working just close to machine are will be provided with personal protective equipment viz. Ear plugs / Ear muffs etc. - Proper maintenance, oiling and greasing of machines at regular intervals will be done to reduce generation of noise. - Green belt will be developed all around the plant boundary & thick towards village (Nearest Habitation- Kondhala village ~1.0 Km in North direction). - Regular monitoring of noise level will be carried out and corrective measures in concerned machinery will be adopted accordingly. - However, noise level at the plant boundary will be maintained below 75 dB (A) in day time and below 70 dB (A) in night time.
Solid & Hazardous Waste Management	- No solid waste will be generated from the plant. However, dust collected from the air pollution control equipment (Bag house & Bag filters) (~220TPD) will be 100% recycled back to the process. - Sewage sludge (2 kg/day) will be generated from STP's & will be used as manure in horticulture & green belt development. - Fly ash generated from CPP (98.40 TPD) will be utilized in cement manufacturing process. - Used oil / Spent oil (70 KL / annum), Waste/ Residue (contaminated cotton rags) containing oil (2.0 Tonnes / Annum) and Empty barrels (120 Nos./Annum) will be generated as per Schedule- I of Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016; which will be sold to CPCB/ SPCB authorized recycler. Used Oil/ Spent oil will be filled in Empty barrels and further sold to CPCB/ SPCB authorized recycler. - Used Lead acid batteries (50 Nos./Annum) will be generated and which will be stored in the designated storage area and will be disposed-off/ sold to registered vendors as per Battery Waste Management Rules 2020. - E- Waste (~0.125 Tonnes/annum) will be generated in the form of used electrical equipment, Cables, CFL/ LED Lights, which will be sold to registered vendors as per E- Waste Management Rules, 2016.
Effluent Management Plan	- No waste water will be generated from the Cement manufacturing process & "Zero Liquid Discharge" will be maintained at all the point. - Domestic Waste water generated from plant office & Canteen (30 KLD) will be treated in STP capacity of (35 KLD) and treated water (28 KLD) will be used in greenbelt development plantation & landscaping. - RO reject water will be reused for dust suppression. - Use of water sprinkler for gardening and other purposes to reduce water demand - Periodic preventive maintenance of water distribution systems. - Regular monitoring of water quality will be carried out. - Training and awareness programmes on water conservation measures are will be organized for the locals.
Storm Water Management Plan	- Storm water drains will be made immediately after starting construction activity. The drains will be properly aligned in conformity with the site drainage pattern so that the alteration is kept to the minimum and flooding or soil erosion does not occur. - Sedimentation pits will be provided at appropriate location to trap the silt laden runoff water and prevent excessive silt from going outside. The storm water drains will be diverted to a

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Particulars	Details
	water reservoir to collect the runoff. This stored water will be utilized for civil construction purpose. ○ In the operation phase of the project, proper storm water drain will be constructed for Rain water harvesting and will be connected with rainwater storage pond.
Rain Water Harvesting	○ Rainfall runoff inside Plant is calculated to be 2,45,753 cum/yr. The slope of rainfall drains shall be maintained in such a way as to facilitate natural flow. ○ Two large-size storage ponds (one is: 60*42.6*3 m & another is 50*30.9*3 m) will be built to hold the rainfall cum rainfall-runoff produced in the Plant site. ○ The harvested water (Evaporation and other handling losses account for a 20% reduction) that is 29,522 cum/year may be utilized for greenbelt development, domestic, sanitation and some project activities reducing the groundwater withdrawal to some extent.
Occupational health and safety management plan	○ The occupational health surveillance of the employee will be done on a regular basis and records of the same will be maintained as per the Factories Act. ○ The occupational health surveillance Programme will include lung function; sputum analysis and audiometric analysis on regular basis to observe any contraction due to exposure to dust and noise and corrective measures will be taken accordingly ○ Vocational training programmes will also be conducted.
Greenbelt Development / Plantation	○ The total project area is 42.76 ha, out of which, 33.0 % area (14.11 ha.) has been earmarked to be developed as greenbelt development & plantation and 15 m wide greenbelt will be done along the plant boundary. ○ The proposed greenbelt development & plantation area will be developed in upcoming 3 years with 35275 numbers of trees with density of plantation are 2500 trees per ha. ○ Native Plant Species will be planted for greenbelt & plantation development. Survival Rate of 90 % will be maintained.
Socio-economic Management Plan	○ Project will be implemented based on issues will be raised during the public hearing, community priorities and with significant local contributions. Important areas identified through Socio-economic study. This approach will strengthen the group & empower the members. ○ As per OM dated 30th September, 2020, company will propose a detailed action plan along with budgetary allocation after conducting Public Hearing, considering issues raised during the public hearing. ○ The funds allocated will be spent for various socio-economic development activities proposed to be undertaken in the study area with a priority to villages falling in the impact zone, which may be further extended to other villages depending upon the budget and requirement.
Project cost and EMP implementation budget.	Total Cost of the Project - Rs. 1737.20 Crores Cost for Environmental Protection Measures: ○ Capital Cost: Rs. 167 Crores ○ Recurring Cost: Rs. 3.40 Crores per annum

