EXECUTIVE SUMMARY OF DRAFT EIA REPORT

FOR

Environmental Clearance for Proposed Limestone Mining Project

at

S.N.	Address of Applied land	Land Khasra	Area of applied lease	Total Cluster Area
1.	**Village** – Khamhardih, **Tehsil** – Pathariya **District** – Mungeli	***192/5, 195/4, 197/1, 198/1, 198/2, 199/1, 199/2, 200/1, 200/2, 201/1, 201/2, 202***	**1.356 Hect.**	**8.187 Hect.**
2.	**Village –** Khamhardih, **Tehsil –** Pathariya **District –** Mungeli	***195/1, 195/2, 195/5, 195/6, 195/7,195/8, 196/1, 196/2, 196/3, 196/4, 196/6, 196/7***	**0.66 Hect.**	
3.	**Village –** Bhakhuridih, **Tehsil –** Pathariya **District –** Mungeli	***3, 9/1***	**1.21 Hect.**	

Applicant Name & Address

Name of Applicant	Address
Pawan Kumar Agrawal	**S/o. Shri Bihari Lal Agrawal, City –House no.899, Ward No.12 Main Road, Tehsil –Bilha , District-Bilaspur (C.G)-495224**
Shri Salasar Balaji Infrastructure (Partner Kamal Soni)	**R/o. Marwadi Line Khaparganj Tehsil & District – Bilaspur (C.G.) - 495001**

Terms of Reference

Name of Applicant	Number and date of Terms of reference
Pawan Kumar Agrawal	**Vide letter no. 1610/S.E.A.C.C.G. /Mine/ 2321 Nawa Raipur Atal Nagar, Dated 09/10/2023**
Pawan Kumar Agrawal	**Vide letter no. 1719/S.E.A.C.C.G. /Mine/ 2414 Nawa Raipur Atal Nagar, Dated 20/10/2023**
Shri Salasar Balaji Infrastructure (Partner Kamal Soni)	**Vide letter no. 192/S.E.A.C.C.G. /Mine/ 2739 Nawa Raipur Atal Nagar, Dated 09/04/2023**

ENVIRONMENTAL CONSULTANT

ULTRA-TECH
Environmental Consultancy & Laboratory
(Lab. Gazetted by MoEF-Govt. of India)

M/s. ULTRA-TECH

ENVIRONMENTAL LABORATORY AND CONSULTANCY

NABET Accredited EIA Consulting Organization

NABET Accreditation Number: NABET/EIA/2023/RA019-Rev 01

Valid Upto - Oct 18,2024

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1.0 Introduction

The proposed project is a project of Mining of Limestone (Total lease area in cluster including 3 applied mine is 8.187 Ha of Mineral Limestone) at village – Khamhardih & Bhakhuridih, Tehsil – Pathariya, District - Mungeli, State Chattishgarh. Details of the entire lease are discussed in the further chapters. The lease holders of the cluster are Pawan Kumar Agrawal and Kamal Soni having lease area of 3.226 Hectare respectively. TOR issued in fovour of project proponent whose details is as follow –

SN	Name of the Applicant	Area(Ha.)	Tor Number & Date
1.	Pawan Kumar Agrawal	1.356	1610/S.E.A.C.C.G./Mine/2321 Nawa Raipur Atal Nagar, dated 09/10/2023.
2.	Pawan Kumar Agrawal	0.66	1719/S.E.A.C.C.G./Mine/2414 Nawa Raipur Atal Nagar, dated 20/10/2023.
3.	Shri Salasar Balaji Infrastructure (partner Kamal Soni)	1.21	192/S.E.A.C.C.G./Mine/2739 Nawa Raipur Atal Nagar, dated 09/04/2024.

This mining project comes under Category ‘B1’ (Cluster situation) Project or activity 1(a) as per EIA Notifications 2006, and its subsequent amendments and will be appraised at SEAC, Chattisgarh. The lease is falling in the cluster as per 15th January 2016 EIA Notification of MoEF&CC and NGT order dated13th September 2018.

Project Location

The proposed mining lease area is located in Khamhardih & Bhakhuridih village, Pathariya Tahsil, and Mungeli District of Chhattisgrah State. Khamhardih & Bhakhuridih Limestone Quarry mine of Pawan Kumar Agrawal, Shri Salasar Balaji Infrastructure who is in same cluster can be located in the Survey of India Toposheet No. 64 G/13 65G/13 . The mining area is a private land. Khamhardih & Bhakhuridih Limestone Quarry mine are located at a distance approx. 33.50 km from district head quarter Mungeli and 80 km from State Capital Raipur. Nearest Bus Stand Salpha Bus Stop situated about 1.35 km distance whereas Nearest Railway Station is located at Bilha railway station about 9.90 km in south from the lease cluster. The location Index map of the project sites are given in **Error! Reference source not found.** elow-

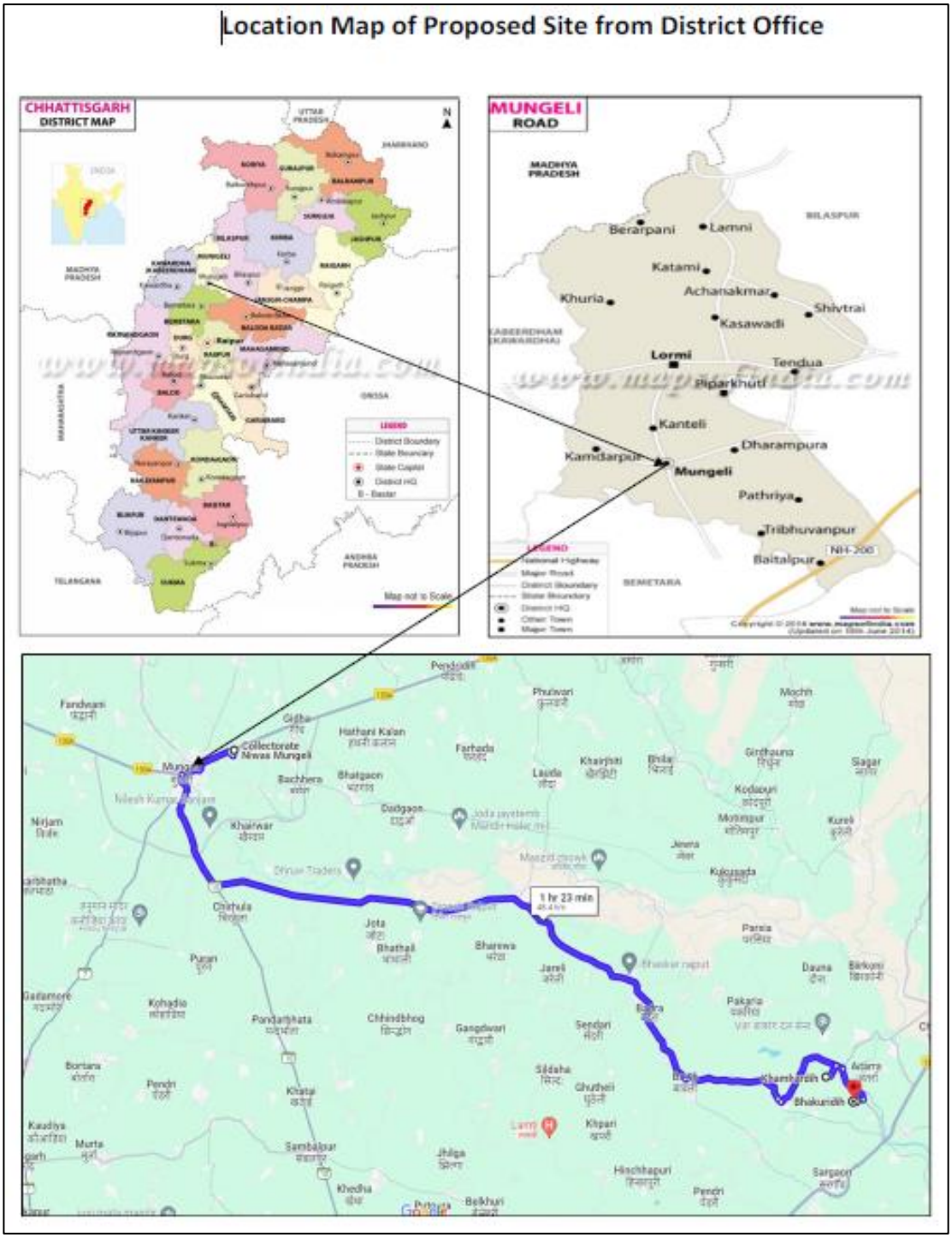

Figure E-1: Location map of the Project Site

Table E.1: Environmental Setting of Proposed Limestone Mining Projects

<table>
<tr><th>Particulars</th><th colspan="3">Descriptions</th></tr>
<tr><td>Name of the Applicant</td><td>Pawan Kumar Agrawal</td><td>Pawan Kumar Agrawal</td><td>Shri Salasar Balaji Infrastructure (partner Kamal Soni)</td></tr>
<tr><td>Name of Project & Area</td><td>Khamhardih Limestone Quarry
Area: 1.356 Ha (Pvt. Land)</td><td>Khamhardih Limestone Quarry
Area: 0.66 Ha (Pvt. Land)</td><td>Bhakhuridih Limestone Quarry
Area: 1.21 Ha (Pvt. Land)</td></tr>
<tr><td>Project location</td><td>Village-Khamhardih ,
Tehsil- Pathariya
District- Mungeli
State- Chhattisgarh</td><td>Village-Khamhardih ,
Tehsil- Pathariya
District- Mungeli
State- Chhattisgarh</td><td>Village-Bhakhuridih,
Tehsil- Pathariya
District- Mungeli
State- Chhattisgarh</td></tr>
<tr><td>Geographical Location : GPS Co-Ordinates of Project</td><td>
<table>
<tr><th>Boundary Points</th><th>Latitude</th><th>Longitude</th></tr>
<tr><td>BL1</td><td>21°55'52.17"N</td><td>81°59'07.46"E</td></tr>
<tr><td>BL2</td><td>21°55'52.13"N</td><td>81°59'08.02"E</td></tr>
<tr><td>BL3</td><td>21°55'52.42"N</td><td>81°59'08.40"E</td></tr>
<tr><td>BL4</td><td>21°55'52.42"N</td><td>81°59'09.34"E</td></tr>
<tr><td>BL5</td><td>21°55'53.75"N</td><td>81°59'09.14"E</td></tr>
<tr><td>BL6</td><td>21°55'54.30"N</td><td>81°59'10.54"E</td></tr>
<tr><td>BL7</td><td>21°55'58.75"N</td><td>81°59'11.23"E</td></tr>
<tr><td>BL8</td><td>21°55'59.34"N</td><td>81°59'09.98"E</td></tr>
<tr><td>BL9</td><td>21°55'57.36"N</td><td>81°59'09.41"E</td></tr>
<tr><td>BL10</td><td>21°55'57.10"N</td><td>81°59'08.75"E</td></tr>
<tr><td>BL11</td><td>21°55'57.04"N</td><td>81°59'07.74"E</td></tr>
<tr><td>BL12</td><td>21°55'54.51"N</td><td>81°59'07.96"E</td></tr>
<tr><td>BL13</td><td>21°55'53.63"N</td><td>81°59'06.95"E</td></tr>
<tr><td>BL14</td><td>21°55'53.28"N</td><td>81°59'06.87"E</td></tr>
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</td><td>
<table>
<tr><th>Boundary</th><th>Latitude</th><th>Longitude</th></tr>
<tr><td>BL1</td><td>21°55'53.94"N</td><td>81°59'4.05"E</td></tr>
<tr><td>BL2</td><td>21°55'50.72"N</td><td>81°59'5.18"E</td></tr>
<tr><td>BL3</td><td>21°55'52.17"N</td><td>81°59'7.46"E</td></tr>
<tr><td>BL4</td><td>21°55'53.28"N</td><td>81°59'6.83"E</td></tr>
<tr><td>BL5</td><td>21°55'53.60"N</td><td>81°59'6.84"E</td></tr>
<tr><td>BL6</td><td>21°55'54.64"N</td><td>81°59'7.89"E</td></tr>
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<table>
<tr><th>Boundar</th><th>Latitude</th><th>Longitude</th></tr>
<tr><td>BL1</td><td>21°55'36.30"N</td><td>81°59'10.70"E</td></tr>
<tr><td>BL2</td><td>21°55'38.10"N</td><td>81°59'17.80"E</td></tr>
<tr><td>BL3</td><td>21°55'35.70"N</td><td>81°59'18.10"E</td></tr>
<tr><td>BL4</td><td>21°55'35.50"N</td><td>81°59'11.10"E</td></tr>
</table>
</td></tr>
<tr><td>Size of the Project</td><td>1.356 hect.</td><td>0.66 hect.</td><td>1.21 hect.</td></tr>
<tr><td>Nearest Highway</td><td>NH 130 at 2.30 km towards south-east.(Raipur-Bilaspur Road)</td><td>NH 130 at 2.35 km towards south-east.(Raipur-Bilaspur Road)</td><td>NH 130 at 1.85 km towards south-east.(Raipur-Bilaspur Road)</td></tr>
<tr><td>Nearest railway station</td><td>Bilha railway Station at 9.90 km.</td><td>Bilha railway Station at 9.90 km.</td><td>Bilha railway Station at 10.00 km.</td></tr>
</table>

Nearest Airport	Bilaspur at 14.25 km.	Bilaspur -14.50 km.	Bilaspur -14.50 km.
Nearest water body	Nalla- at 155m towards north-west.	Canal - at 137 m towards south-west.	Village pond - at 330 m towards south-east.
Major water bodies within 10 km radius	River – Maniyari river at 700 m towards north-east. Canal – at 220 m towards south-west. Village Pond –at 480 m towards east.	River – Maniyari river at 840 m towards north-east. Seasonal Nalla– at 300 m towards north. Village Pond –at 560 m towards east	River – Maniyari river at 1.0 Km towards north-east. Seasonal Nalla– at 440 m towards south. Canal –at 2.50 Km towards north-west
Densely populated or built-up area	Bilha at 9.00 km	Bilha at 9.00 km	Sargaon at 2.50 km
Archaeologically important places	None within 10 km radius		
Protected areas as per Wildlife Protection Act (Tiger reserve, Elephant reserve, Biospheres, National parks, Wildlife sanctuaries, community reserves and conservation reserves)	None within 10 km radius		
Reserved / Protected Forests	None within 10 km radius		
Defense Installations	None within 10 km radius		
Seismicity	Since project site comes under Seismic zone II, which is least active zone for earthquakes as per IS: 1893 (Part 1: 2002).		

Wildlife Sanctuary	None within 10 km radius
National Park	None within 10 km radius
Biosphere reserves	None within 10 km radius
Important migration routes of birds	None within 10 km radius
Ramsar sites (Wetlands of International Importance	None within 10 km radius
Unique or threatened ecosystems	None within 10 km radius
Important topographical features, including ridges, river valleys, shorelines, and riparian areas	None within 10 km radius
Mangrooves	None within 10 km radius
Physical Sensitive Receptors	None within 10 km radius
Notified Ground Water Zone by CGWA	None within 10 km radius
Critically Environmental polluted Area	None within 10 km radius
Pollution Sources	None within 10 km radius

2.0 Project Description

The porposed project of Khamhardih & Bhakhuridih Limestone mine are the mining projects near village – Khamhardih & Bhakhuridih, tehsil – Pathariya, district- Mungeli, State: Chattishgarh.

The mining lease area of Khamhardih Limestone mine covers an area of 1.356 Ha under Khasra No. 192/5, 195/4, 197/1, 198/1, 198/2, 199/1, 199/2, 200/1, 200/2, 201/1, 201/2, 202 and 0.66 Ha. khasra no. 195/1, 195/2, 195/5, 195/6, 195/7, 195/8, 196/1, 196/2, 196/3, 196/4, 196/6, 196/7 of Pawan Kumar Agrawal and lease covering an area 1.21ha. bearing khasra no. 3, 9/1 belongs to Kamal Soni respectively as lease holder.

Table E.2: Salient Features of Proposed Project

INFORMATION	DETAILS		
Name of Lease holders	Pawan Kumar Agrawal	Pawan Kumar Agrawal	Shri Salasar Balaji Infrastructure (partner Kamal Soni)
Address and Contact details of Lease Holders	Pawan Kumar Agrawal S/o Shri Bihari Lal Agrawal City/ Post - House no.899, Ward no.12,Main Road, BilhaTehsil-Bilha, District- Bilaspur (C.G.) Pin code - 495001	Pawan Kumar Agrawal S/o Shri Bihari Lal Agrawal City/ Post - House no.899, Ward no.12, Main Road, Bilha, Tehsil- Bilha, District- Bilaspur (C.G.) Pin code - 495001	Partner – Kamal Soni R/o. Marwadih Line Khaparganj Tehsil & District – Bilaspur (C.G.) Pin code - 495001
Name of the project	Khamhardih Limestone Quarry	Khamhardih Limestone Quarry	Bhakhuridih Limestone Quarry
Village	Khamhardih	Khamhardih	Bhakhuridih
Tahsil	Pathariya	Pathariya	Pathariya
District	Mungeli	Mungeli	Mungeli
State	Chhattisgarh	Chhattisgarh	Chhattisgarh
Toposheet No	64 G/13	64 G/13	65 G/13
Name of the Mineral to be mined	Limestone	Limestone	Limestone
Type of land	Private Land. There is no Forest land. No human settlement.	Private Land. There is no Forest land. No human settlement.	Private Land. There is no Forest land. No human settlement.
Status of Operation (New Project or Existing Project operating since)	Existing Project	Existing Project	Existing Project
Mine Area	1.356 hect.	0.66 hect.	1.21 hect.

Ultimate depth of mining	15 m	15 m	14 m
Minable Reserve	1,81,880.575 MT	52,905.525 MT	2,24,000 MT
Production Capacity	16,400 Ton/ Year	4,977.17 Ton/ Year	21,322 Ton/ Year
Life of Mine	30 years from the date of lease agreement	30 years from the date of lease agreement	30 years from the date of lease agreement
Quantity of topsoil and Overburden estimated to be removed	NIL	NIL	Top Soil – 8500Cum Overburden - Nil
Depth of Ground Water Table	Approx. 40 meters of below from the normal surface level		
Method of Mining	Opencast Semi-Mechanized		
No. of working days	240 Days		
SeismicZone	Seismic Zone II		

2.1 Mining methodology

The mode of working will be open cast semi mechanized method of mining with low capacity blast. Small scale drilling and blasting will be carried out for exploration of stone. Rock breaker, Jack Hammer will yield the sufficient quantity of stone. Further the stone will be sized and dressed according to the required specification and stacked on the mine surface.

2.2 Water Requirement

The total water requirement shall be 15.00 KLD for three mines of Pawan Kumar Agrawal& Shri Salasar Balaji Infrastructure for domestic, green belt and sprinkling purpose, which will be sourced from Water Tankers from nearby village or feom borewell. Detail of water requirement is given below:-

Table E. 3.1: Water Requirement for Plantation

SN.	Name of the Applicant	Lease Area in hect	Number of saplings	Water required per day per Saplings	Total water need for Sprinkling on plantation (KLD)
1.	Pawan Kumar Agrawal	1.356	864	2.5	2.50
2.	Pawan Kumar Agrawal	0.66	525	2.5	1.50
3.	Shri Salasar Balaji Infrastructure	1.21	861	2.5	2.50

Table E. 3.1.A: Water Requirement for Dust Suppression

SN.	Name of the Applicant	Lease Area in hect	Length of Remp & Haul Road	Width of Road/ Remp	Requirme nt per Squre Meter	Number of Rounds Per Day	Total Water Need for Dust Suppression
1.	Pawan Kumar Agrawal	1.356	500	4	0.50	2.0	**2.0**
2.	Pawan Kumar Agrawal	0.66	500	4	0.50	2.0	**2.0**
3.	Shri Salasar Balaji Infrastructure	1.21	500	4	0.50	2.0	**2.0**

Table E. 3.1.B: Water Requirement for each Mine

SN.	Name of the Applicant	Lease Area in hect.	For Greenbelt Development	For Dust Suppression	For Domestic purpose	Total in KLD
1.	Pawan Kumar Agrawal	1.356	2.50	2.0	0.50	5.00
2.	Pawan Kumar Agrawal	0.66	1.50	2.0	0.50	4.00
3.	Shri Salasar Balaji Infrastructure	1.21	3.00	2.0	1.00	6.00

***2.3 Power* Requirement**

No power is required for mining purpose only for labour, admin building and for machine. State electricity board will supply the electricity. Electric power is available in the lease area.

2.4 Manpower

The mining project will generate direct & indirect employment. About per day 48 people will get direct employment, and some persons will also be affected indirectly and employed with allied and related industries, such as transportation, maintenance, etc. Following staff & workers are proposed to be employed: -

Table E. 4: **Manpower Details**

S.No.	Category	No. of Persons		
		Pawan Kumar Agrawal (Area – 1.356Hect.)	**Pawan Kumar Agrawal (Area – 0.66 Hect.)**	**Shri Salasar Balaji Infrastructure (Area – 1.21 Hect.)**
1	Mining Mananger	1	1	1
2	Part Time Mining Engneer / Gologist	1	1	1
3	Mining Mate	-	-	1
4	Supervisor	-	-	2
5	Skilled labours	14	-	5
6	Unskilled labours	-	5	15
7	Crusher operator &Assistant	-	-	-
Total		**16**	**7**	**25**

3.0 Description of Environment

The area around the proposed mining site has been surveyed for physical features and existing environmental scenario. The field survey and baseline monitoring has been done from the period of **1st March 2023 to 31st May 2023** (Summer Season).

The observations for summer season - (1st March 2023 – 31st May 2023) are summarized below:

3.1 Meteorology

The secondary meteorological data of the study period collected from (https://www.nasa.gov.in/). . The month wise meteorological data is given in Table 3.1. The wind rose during the study period is presented in **Table E-5.**

Table E 5: Summary of the Meteorological (NASA Power)

Period	Wind Speed (m/s)			Temp (°C)			Relative Humidity (%)			Rainfall (mm)			Solar Radiation		
	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg
March -23	7.07	0.21	1.95	37.23	17.3	27.23	96.31	10.81	39.39	2.17	0	0.06	963.09	0	227.20

April - 23	9.53	0.14	2.48	43.89	18.8	31.03	88.81	8.75	36.47	5.07	0	0.06	962.97	0	245.67
May - 23	7.57	0.13	2.85	44.18	20.03	32.95	93.56	10.5	40.54	3.53	0	0.09	998.74	0	278.88

Source: 1st March 2023 – 31st May 2023 (https://www.nasa.gov.in/

3.2 Air Environment

The ambient air quality is carried out at 10 locations in and around the project site and studies are carried out as per CPCB standards. It is observed that, all the values are within the prescribed limits as per National Ambient Air Quality Standards (NAAQS), 2009.

The observations for summer season - (1st March 2023 – 31st May 2023) are summarized below

Particulate Matter (PM_{10}) :

A maximum concentration of PM_{10} is 71 μg/m^3 was observed at the AAQM-9 and minimum value of 41 μg/m^3 was observed at AAQM – 8.

Respirable Particulate Matter ($PM_{2.5}$) :

A maximum concentration of $PM_{2.5}$ is recorded to be 34 μg/m^3 at AAQM-10 and minimum value of 15 μg/m^3 was observed at AAQM-2,3,6,8.

Sulphur Dioxide (SO_2):

Maximum concentration of SO_2 is observed to be 26 μg/m^3 at AAQM – 1,and minimum value of 5 μg/m^3 observed at AAQM- 2,3,7,8.

Oxides of Nitrogen (NO_X):

Maximum concentration of NO_x is observed to be 35 μg/m^3 at AAQM – 1, & minimum value of 8 μg/m^3 observed at AAQM – 4.

Carbon Monoxide (CO):

Maximum concentrations in the region are observed to be 1.6 mg/m^3 at AAQM- 5 and minimum value of 0.6 mg/m^3 observed at AAQM-.7

Silica

Silica in the ambient air of the 10 Km radius of the study area of the project site has been analysed from the PM_{10} filter paper of the Ambient Airquality monitoring stations mentioned in Table 3.5 (7601 ,Issue 3 as per NIOSH Methods). The result indicates that silica concentration in the surrounding of project site was found to be in the range of 0.1μg/m^{3}to 0.4 μg/m^3.

The results are compared with the standards prescribed by Central Pollution Control Board (CPCB).The overall ambient air quality around the proposed mine lease is within the limits of ambient air quality standards prescribed by CPCB.

3.3 Noise Environment

Noise levels were monitored in eight locations including project within the study area. The noise levels ranged between 51.0 to 72.2 dB (A) during day time and noise levels ranged between 41.7 to 64.3 dB (A) during night time. Over all the monitored noise levels are found to be within the stipulated standards set by CPCB.

3.4 Water Environment

In order to establish the baseline water quality, 4 ground water and 4 surface water samples were collected and analyzed in the study area. The quality of surface water samples was compared with surface water specification IS 2296:1982 and the surface water quality comes under Class D (Propagation of wildlife and fisheries). The ground water samples were compared with drinking water specification IS 10500:2012 standards.

3.5 Soil Quality

A total of 10 samples in and around the project site are collected and analysed. It has been observed that the pH of the soil quality ranged from 7.1 (S3) to 7.7 (S7) indicating that the soil is slightly alkaline in nature.

Particullar	Number of Locations	Description
Background Ambient Air Quality Monitoring	Sampling was done at 10 Locations	PM_{10} :-41 to 71 μg/m^3 $PM_{2.5}$:-15to 34 μg/ m^3 SO_2 :- 5 ug/m3 to 26 μg/ m^3 NOx:-8 to 35 μg/ m^3 CO:-0.6 to 1.6 mg/ m^3
Noise Level Monitoring	Monitored at10 Locations	Noise Level During Day Time :– 51.0 to 72.2 dB(A) Noise Level During Night Time:–41.7 to 64.3 dB(A)
Water Sampling	Ground water sampling was done at 4 Locations	pH :- 7.2 to 7.8 TDS :- 395 -544 mg/l ; Total Hardness :- 260 -336 mg/l SO_4 :-54 mg/l to 69 mg/l; Chloride :- 58 mg/l to 87 mg/l; Zn & Fe:- Below detectable limit.
	Sampling:- 4 at Surface water	pH :- 7.5 to 7.7 ; TDS :- 239 mg/l to 591 mg/l; Dissolve oxygen: - 5.6 to 5.9 mg/l. Chloride :- 51 mg/l to 125 mg/l; Calcium :- 30 mg/l to 66 mg/l; Magnesium :- 14 mg/l to 37 mg/l;

		Total Hardness :- 136 to 318 mg/l ;
Soil Sampling	Sampling was done at 10 Locations	pH :- 7.1 to 7.7 Nitrogen:- 115 to 170 kg/ha Phosphorus:– 63 to 80 kg/ha Potassium :– 176 to 463 kg/ha Electric Conductivity:- 0.305 to 0.406 ms/cm

Land Use/Land Cover of the Study Area

The project location is situated in Bhakhuridih & Khamhardih village. Tehsil/Taluka is Pathariya, District is Mungeli & State **Chhattisgarh.** Figure 11.2 shows a pie diagram of the 10-kilometer research region's land use and land cover maps. The LULC map, shown in Figure 11.2, shows that the analysis is separated into five areal classes: Agricultural land, Built up-area, water bodies, vegetation, mining.

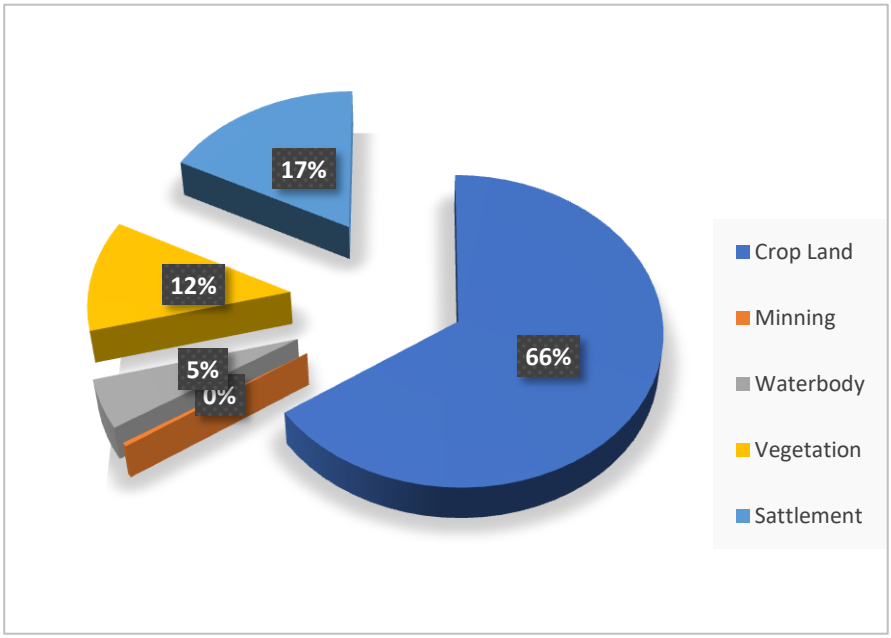

Figure E-2: LULC Classification (10 km radius of the Proposed Project Area)

3.6 Ecology and Biodiversity

As per guidelines of MoEF & CC for Environmental Impact Assessment, the study area was restricted up to 10 km radius from the project site. The study area is divided into two parts as core zone and buffer zone. Mining project at Bhakhuridih (Limestone Mining) in Mungeli District The data was generated with reference to topography, land use, vegetation pattern, animals etc. Core zone has been considered within the cluster area and buffer zone has been considered outside the cluster area up to 10 km from cluster boundary. All observations were generated in April 2023.

3.7 Socio Economics

The project location is situated in Bhakhuridih village. Tehsil/Taluka is Pathariya, District is Mungeli & State Chhattisgarh. The place is situated nearby to 1.00 km (Maniyari River towards northeast). The area of the study area is 10 km. Mineral resources are a vital component of any country's economy, and Chhattisgarh is one of the richest states in the country with vast mineral wealth. The proposed project will provide additional revenue to the local body and create direct and indirect employment opportunities. This will catalyse overall growth of the state, improve the quality of life of the people living in the region, and transform the region's economy from predominantly agricultural to significantly industrial sector. It will also accelerate the pace of regional development.

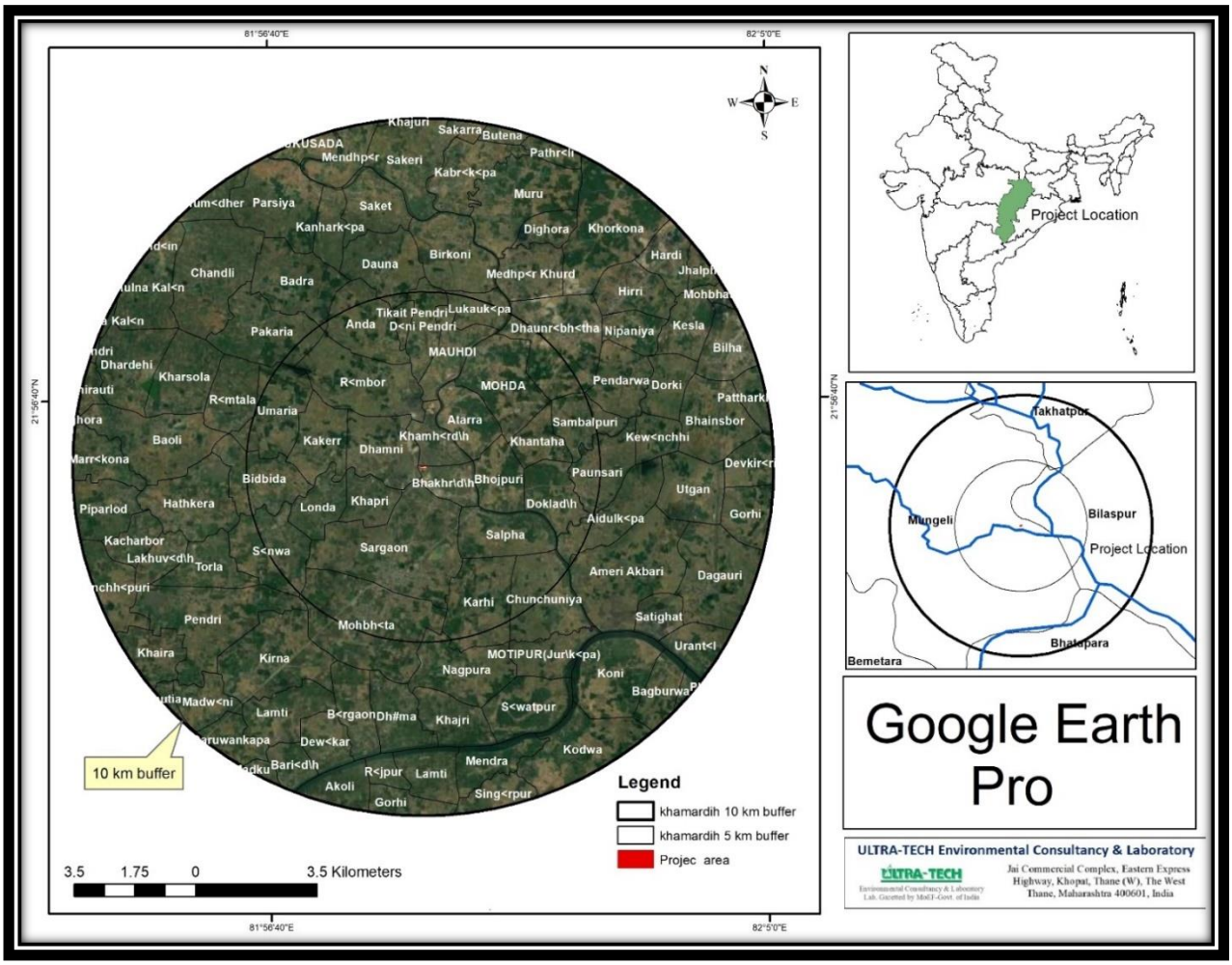

Figure.E.3: ***Villages within 10 Km. Radius Area from Project Site***

4.0 Anticipated Environment Impacts and Environment Management Plan

Land/Soil Environment Impact Mitigation

The mitigation measure of the land environment includes:-

- Before the mining activity the top soil will be scrapped and stored in the lease area and will be utilized for plantation purpose. Balance top soil if any preserved separately will be used to spread over partially reclaimed land.
- The limestone excavated from the lease area will be completely selleable resulting no dump within the lease area.
- At the end of conceptual period the excavated quarry will converted into water reservoir to supply water for local use like irrigation and pisciculture.
- Due to manual mining operation emission from the Limestone mines are veryless, there will be no impact on the surrounding soil quality and cropping pattern of the area.
- The propose project falls under the seismic zone –II (Low Hazard Risk Zone). Since this project will not have physical infrastructure to be constructed, no impact of seismicity is envisaged in this project. Further, this project will not change/alter the seismic behavior of the area.

Air Impact Mitigation

The mitigation measures undertaken in the mine for control of air pollution are:

- Checking of vehicles and machinery to ensure compliance to Indian Emission Standards Transportation vehicles and machinery to be properly and timely maintained and serviced regularly to control the emission of air pollutants in order to maintain the emissions of NO_x and SO_x within the limits established by CPCB.
- 6KLD water required towards dust suppression purpose for which 2 no. of water tanker with 2000 liter capacity will be hired and used for water sprinkling twice in a day in haul roads, dumping site, loading and unloading site of each lease within the cluster and this will be regularly monitored by the cluster management.Water sprinkling on transport road side, stock yard (if any) etc. will be done by tractor mounted water sprinkler.
- Regular ompaction and grading of haul roads will be done to clear the accumulaion of loose material.
- All the mines workers will be provided with the dust masks.
- Trees can act as efficient biological filters. As this is a small lease, the area available for plantation is very less. However a well-planned plantation programme has been proposed for the mining area to arrest the dust pollution within the lease boundary. There is the proposal for continuous plantation along the cluster boundary and both sides of the road connecting the cluster.
- Vehicles with valid PUC shall be used for transporting the minerals to avoid the exhaust emission.
- A greenbelt development plan is prepared with local species. The greenbelt on the periphery will reduce the dust levelsits

- Sharp drill bits will be used for drilling and regrinding willbbe done periodically to reduce generation of dust.

Noise Impact Mitigation

- Water sprinkling for suppression of dust on road and loading and unloading points
- Adequately maintained vehicles with PUC should be used for transportation, if required trucks should be covered with tarpaulin.
- Provision of PPEs such as ear plugs and muffs for the workers
- Green belt plantation and other tree plantation will help in reducing the air quality, noise, traffic related pollution and heat island effects.
- No noise polluting work shall be carried out in the night hours.
- Provision of PPE's for the workers.
- Vehicles to be serviced regularly and maintained properly to avoid any unwanted generation of air pollution, noise or vibration from vehicles.
- Proper lubrication, muffling and modernization of equipment shall be used to reduce the noise during operation phase.
- Regular monitoring of the air quality and noise levels as per the monitoring plan detailed in this EIA report shall be adopted during the operation phase, to ensure that, the noise levels are within the limits prescribed by CPCB.

Water Impact Mitigation

- Provision of temporary toilets for laborers
- Domestic waste water will be treated into septic tank followed by soak pit outside of the proposed cluster project with a safe distance and no wastewater will be allowed to be get discharged into the water body
- All stacking and loading areas should be provided with proper garland drains
- Check dams should be provided to prevent solids from wash off.
- Construction of garland drains around freshly excavated and dumped areas so that flow of water with loose material is prevented.
- The mine water should be passed through specially constructed catch pits to arrest any loose material being carried away with water.
- Any areas with loose debris within the leasehold should be planted.
- Garland drains should be constructed surrounding the waste dumps and should be connected to the surface water reservoir to avoid the run-off mixing directly to natural water channels before settling.
- Ground water table will not be intersected during the mining activity

Biological Impact Mittigation

The impact of the limestone mining activity on the biological environment is as follows:

- The mining core zone does not include any forest land. There will be no cutting of trees during the mining activity so no deforestation activity will be under taken.

- The existing vegetation within the core area includes very less vegetation which are sparsely scattered as it is a mining project of limestone activities will be confined to core zone only. The project area is surrounded by agricultural land. They will not be disturbed due to the mining activity.so, the impact on the vegetation is very less.
- The transportation of limestone stone and waste may create dust pollution which may create loss of biodiversity of the area.
- Dust in atmosphere, contributed by mining and associated activities, when deposited on theleaves of the plants in the surrounding areas may retard their growth.

The cluster area and its buffer zone are devoid of any Eco sensitive area. So the impact on the biodiversity and wild life is minimal.

Socio-Economic Environment Impact Mitigation

The setting up of any kind project would undoubtedly include significant impact on socio-economic and cultural life of the people in the project area.
The Bhakhuridih Limestone Quarry, like any industrial operation, has both positive and negative impacts on its surroundings and stakeholders. Here, an attempt is made to visualize and discuss such tentative impacts likely to be induced by the project.

5.0 Environmental Monitoring Program

The environmental monitoring is important in terms of evaluating the performance of pollution control equipments installed in the project. The sampling and analysis of the environmental attributes will be as per the guidelines of Central Pollution Control Board/Chattisgarh Environment Conservation Board (CECB). The frequency of sampling and location of sampling will be as per the directives of CPCB/CECB.

Environmental monitoring will be conducted on regular basis by the lessees included on the cluster to assess the pollution level in the surrounding area. Usually, as in the case of the study, an impact assessment study is carried over short period of time and the data cannot bring out all variations induced by the natural or human activities. Therefore, regular monitoring programme of the environmental parameters is essential to take into account the changes in the environment.

Objective of environmental monitoring:

To verify the result of the impact assessment study in particular with regard to new developments;

To follow the trend of parameters which have been identified as critical;

To check or assess the efficacy of the controlling measures

To ensure that new parameters, other than those identified in the impact assessment study, do not become critical through the commissioning of new installations or through the modification in the operation of existing facilities;

To check assumptions made with regard to the development and to detect deviations in order to initiate necessary measures; and

To establish a database for future Impact Assessment Studies for new projects.

6.0 Risk Assessment

The hazards and its risk assessed during the operation phase of the proposed limestone mining project are low, medium & high. The project proponents are proposed to implement all the mitigation measures to prevent the impact or consequences of the risk expected to be happened in both the project sites. The level of impact after implementing the mitigation measures will be low/medium in all the hazards identified.

7.0 Emergency Response and Disaster Management Plan

Impact of disaster can be significantly reduced through attempts at preparedness, mitigation, and post-event rehabilitation work. Based on hazard identification in the proposed project, an emergency plan has been prepared and the same plan will be implemented by the project implementing agency with the coordination of District Authorities to minimize the damage. The risk assessment and disaster management plan is detailed in Chapter 7 of the EIA report.

8.0 Capital Investment and Project Schedule

The proposed Limestone mining project is estimated to cost Rs 62.56 Lacs.

Once the statutory clearance being obtained, the mine will start operating.

9.0 Project Benefits

Mining is back bone of infra-structure development of country. Proposed project has following benefits as given below:

- Employment for local people
- Revenue for the State Government in form of excise duties, GST, taxes, levies etc.
- Generate business opportunity for the people
- Need based funds will be used for welfare of people in villages
- EMP funds will improve environmental quality.

The operation of the Limestone mining would help to improve socio-economic condition of people in villages through separate fund allocated for Need Based Activity.

10.0 Need Based Activity

The proposed mining project is aware of the obligations towards the society and to fulfill the social obligations unit will employ semi-skilled and unskilled labor from the nearby villages for the proposed project as far as possible. Unit will also try to generate maximum indirect employment in the nearby villages by appointing local contractors during construction phase as well as during operation phase. The Project Proponents will contribute reasonably as part

of social development as a part of EMP and will carry out various activities in nearby villages.

The total estimated cost of the project is 62.56 lacs. The Proposed Cluster EMP/CER Budget Will be allocated for Need based activity for causes of poor people of nearby villages for drinking water, sanitation, education, health.

11.0 Environment Management Plan (EMP)

The detailed Environment Management Plan has been prepared based on the mining activities and the impacts imparting on land/soil, air, noise, water by the activities. The EMP and the cost for the environment protection measures are detailed in Chapter 10 of EIA report.

Table E .6 Expenditure Proposed for Environmental Protection Activities:

S.No.	Particulars	Pawan Kumar Agrawal - 1.356 Ha.		Pawan Kumar Agrawal - 0.66 Ha.		Shri Salasar Balaji Infrastructure (Area - 1.21 hect.)	
		Capital Cost in Rs	Recurring Cost in Rs	Capital Cost	Recurring Cost in Rs	Capital Cost	Recurring Cost in Rs
1	Air Pollution Control	-	90,000	-	90,000	-	90000
2	Green Belt Development	2,60,505	1,55,650	1,79,215	1,65,925	2,91,075	1,81,925
3	Maintenance of Road	-	40,000		40,000	-	40,000
4	Facilities for Mine workers	50,000	72,000	50,000	31,500	50000	1,12,500
	Total ::	**3,10,505**	**3,57,650**	**2,29,215**	**3,27,425**	**3,41,075**	**4,24,425**
Total Capital Cost in Rs		**8,80,795**					
Total Recurring Cost in Rs		**11,09,500**					
Total Cost of EMP in Rs		**19,90,295**					

12.0 Conclusions

As discussed, it is safe to say that the collection of minor minerals from the proposed lease area is not likely to cause any significant impact on the ecology of the area as the mineral is and waste generated is non-toxic and does not harm the surrounding environment.

Adequate measures will be taken to control the fugitive emissions to be generating during mining operation. Socio-economic condition of the surrounding villages will improve in long run due to involvement of local population and improvement of infrastructure facilities. Green belt development in the statutory boundary, approach roads, schools are proposed with the participation of local people. This proposed plantation in the area will improve the aesthetic look along with betterment of ecology and environment of the locality.