

**EXECUTIVE SUMMARY OF  
DRAFT ENVIRONMENTAL IMPACT ASSESSMENT AND  
ENVIRONMENTAL MANAGEMENT PLAN  
FOR  
DONDEKALA/NARDAHA LIMESTONE QUARRY,  
TOTAL MINE LEASE AREA- 3.054 Ha.  
TOTAL CLUSTER AREA -16.612 Ha.  
TOTAL PRODUCTION OF MINE LEASE AREA – 74005 Tons/Year**

S. No.	Project Proponent	Khasra No.	Area	Production/ Year
1	Shri Naresh Sen	129/1, 129/2, 130	2.004 Ha.	35250 Tons/ Year
3	Shri Sandeep Varma	Part of 765	1.05 Ha	38755 Tons/Year

**AT**

**Village Dondokal & Nardaha, Tehsil- Raipur & Arang, District Raipur, Chhattisgarh**

**Project Activity - Mining of Minerals 1(a) (i)**

**Project Category – B1**

**MONITORING PERIOD- 15<sup>st</sup> OCTOBER 2022 to 14<sup>th</sup> JANUARY 2023**

1. Shri Naresh Sen ToR Letter No. 2266/S.E.A.C.C.G./Mine/2107 Nawa Raipur Atal Nagar dated 13/02/2023 & ToR Amendment 2492/S.E.A.C.C.G./Mine Nawa Raipur Atal Nagar dated 08/01/2024
2. Shri Sandeep Varma ToR Letter No.540/S.E.A.C.C.G./Mine/2060 Nawa Raipur Atal Nagar dated 06/06/2023

**ENVIRONMENT CONSULTANT  
Technogreen Solutions Limited  
202, Hem opal, Plot No. 26, Ekta park Society,  
Wakadewadi, Pune, Maharashtra-411003**

## EXECUTIVE SUMMARY

### **Project Proposal**

**“Limestone Quarry”** Mine comes under located at village-Dondekala/ Nardaha, Tehsil-Raipur & Arang, District-Raipur, State-Chhattisgarh

### **Proponent**

Shri Naresh Sen and Shri Sandeep Varma

S. No.	Particular	Details
<b>Environmental Sensitivity</b>		
	Nearest Village	Dondekala Village, Approx.0.56 Km in SW direction from Naresh Sen, Nardaha Village approx. 2.5 Km. in NE from Sandeep Varma project site
	Nearest Town	Raipur, approx.18 Km in SW direction
	Nearest National / State Highway	SH-9 is approx. 0.7 km in W and 0.75 km in W from Naresh Sen and 2.0 km W from Sandeep Varma project site respectively.
	Nearest Railway Station	Mandhar railway station which is approx. 7.5 km in W direction
	Nearest Airport	Raipur Airport, Raipur-Approx. 27km in S.
	Ecological Sensitive Areas (National Park, Wild Life Sanctuaries, Biosphere Reserve etc.) within 15 km radius.	None
	Reserved / Protected Forest within 15 km radius	No any Reserved / Protected Forest within 15 km radius.
	Water bodies within 15 km radius of the mine site.	Kolhan Nala- Approx. 810m in East Direction
	Archaeological Important Place	None
	Seismic Zone	III

### **1.0 Introduction**

The proposed **“Limestone Quarry”** Mine comes under located at Village Dondekala and Nardaha, Tehsil- Raipur& Arang, District- Raipur, Chhattisgarh. The proposed production capacity of Limestone Quarry belongs to Shri Naresh Sen is 35,250 Tons/Annum and Shri Sandeep Varma is 38,755 Tons/Annum. The lease area is private land.As per the EIA notification of Ministry of Environment Forests and Climate Change, Government of India (MoEF&CC), dated 14<sup>th</sup>September, 2006, as amended from time to time. this project falls under category ‘B’ project, activity 1(a) of EIA Notification (due to cluster of mine lease area is more than 5ha.), an Environmental Impact Assessment (EIA) and Environmental Management Plan (EMP) is required for obtaining Environmental clearance based on TOR as approved by the statutory authority, the TOR was granted by State Environment Impact Assessment Authority .

This EIA has been prepared as per the Terms of Reference granted and the EIA Notification. Further to assess the impact on environment, it is necessary to ascertain present status of environment prevailing at the project site and proposed operation including identification and Assessment of impact on the environment.

Keeping these points and statutory requirement in view, this Environment Impact Assessment Report and Environmental Management Plan (EMP) (here in after described as the EIA/EMP Report) has been prepared. Environmental Study has been carried out within 10 km radius of the mine area over a period of **15<sup>th</sup> October, 2022 to 14<sup>th</sup> January, 2023.**

### **1.1 Need for the Project**

Limestone is an essential mineral commodity of national importance. The region surrounds the project area is economically backward mostly dependent on seasonal farming. The per capita income of villages is much below the national average. The proposed project will have positive impact in terms of the socio-economic status of the people, increase opportunities for employment, and earn revenue in terms of royalty, sales tax and district mineral fund to the state government. In India Limestone is used in the manufacturing of cement which fulfills the requirement of Industrial, infrastructure, and residential construction activities. It is also used in the manufacturing of Poly fibre. The proposed limestone production will be used as building material and overburden will be utilized for backfilling.

### **2.0 Topography and Drainage Pattern**

#### ***Topography:1. Naresh Sen***

The area is about 0.56 km from the village Dondekala in the North East direction and 2.5 km from the village Nardaha. Most part of the lease area is flat terrain (some part having soil removed) with devoid of vegetation. The general surface level is 276 m from M.S.L. The lease area has been surveyed on a scale of 1:1,000 with contour interval of one meter. Kolhan nala is present about 810 m east of the lease area. The drainage pattern is dendritic to sub dendritic.

#### ***2. Sandeep Varma***

The Area is almost flat terrain and devoid of vegetation. It is about 2.50km south of the village Nardaha. The maximum elevation is about 272m from MSL. The lease area has been surveyed of 1:1000 with contour interval of one meter.

Source- Approved Mine Plan

#### ***Drainage***

The drainage pattern is dendritic to sub dendritic.

***Source- Approved Mine Plan***

### **2.1 Geology**

#### **The area showing a nature and extent of the mineral body.**

The area around Dondekala village comes under Chandi Formation of Raipur Group of Chhattisgarh Supergroup. Chandi Formation Purple and bedded limestone Purple argillaceous dolomite.

#### **The area showing a nature and extent of the mineral body**

**“Limestone Quarry” at Village- Dondakala/Nardaha, Tehsil-Raipur and Arang, District Raipur,  
Chhattisgarh by Shri Naresh Sen and Shri Sandeep Varma**

The area around Dondakala which is situated in Tehsil Raipur is covered by Limestone of Charmuria formation of Raipur Group of Chhattisgarh Supergroup. This mineral body is homogeneous in nature. On the basis of detailed geological mapping nearby pits etc of the area and lithology of the area following sequence:

**Soil**

**Lime stone**

(Source- Approved Mining Scheme)

## 2.2 Reserves

### Geological Reserve:

#### Reserves Calculation

Reserves	Shri Naresh Sen	Shri Sandeep Varma
1) Geological Reserve (in m <sup>3</sup> )	13,52,700 Tons	5,25,000 Tons
2) Mineable Reserve	5,01,274 Tons	1,93,195 Tons
3) Recoverable Reserve	4,76,210 Tons	-

### 2.3 A tentative Plan of quarrying, annual program and plan for excavation from year to year for five year.

**Shri Naresh Sen** - Most part of the area is flat terrain (some part of 1600 sqm having soil removed). Development work of rest part (12600 sqm) by means of removal of top soil will be taken up from the area and will be dumped in southern side proposed temporary dump area, along the lease area and also reclaimed on 7.5 safety zone soil removed area (950 Sqm), simultaneously quarrying will be started from this area on which development work already completed and rock is exposed prominently during this plan period and will continue in the presiding years. The proposed method of quarry will be open cast

**Shri Sandeep Varma**- During this plan period, development work by way of removing top soil over an area of 5148 m<sup>2</sup> in 1<sup>st</sup> year and 1102 m<sup>2</sup> in 2<sup>nd</sup> year will be taken up. The total generation of top soil will be about 6250 Cum which will be stacked along lease boundary. The proposed method of quarry will be open cast.

### PROPOSED PRODUCTION PLAN OF FIRST FIVE YEAR

**Table Error! No text of specified style in document.-1: Year-wise Production of Mineral**

Year	Shri Naresh Sen	Shri Sandeep Varma
1 <sup>st</sup> Year	35,250	38,610
2 <sup>nd</sup> Year	35,250	38,610
3 <sup>rd</sup> Year	35,250	38,610
4 <sup>th</sup> Year	35,250	38,610
5 <sup>th</sup> Year	35,250	38,610
<b>Total</b>	<b>1,76,250</b>	<b>1,93,195</b>

## **2.4 Conceptual Quarry Plan**

**Shri Naresh Sen** - The estimated mineable reserve of this area is of the order of 501274 tons (200510 m<sup>3</sup>) up to 27 m from surface. The Conceptual quarry plan is prepared for the lease period of 5 years and anticipated life of mine is about 14 years. Drilling not required.

Quarrying method is a type of manual Open-cast quarrying by a system of benches. The height of the each bench will be developed 1.5m.

**Shri Sandeep Varma** - The estimated mineable reserve of this area is of the order of 193152 tons up to 20 m from surface. The Conceptual quarry plan is prepared for the lease period of 5 years and anticipated life of mine is about 5 years. The lower Limit of Mine beyond 200m depth will not be blocked and can be further extended.

Ultimate pit limit is fixed keeping final pit slope at the angle of 45°. This will cover about 0.630 Ha area in ten years.

Exploration is not required as the lease area is less than 5 ha. Drilling will not be done for exploration work though it will be used only for blasting purpose to break rock in this quarrying plan period.

The quarrying operation will be small scale and the average production per year will be 38,755 tons. The production in the subsequent plan period will also be the same. In view of this small scale quarrying activity the blasting parameters will be simple and use of explosive will also be less. Blasting will be done by licensed contractor.

Quarrying method is a type of Semi-mechanized open cast quarrying by a system of benches. The depth of each bench will be maintained at 3.0m.

**Dumping and Waste Material:** There will no waste material generated during the plan period, only 2190 m<sup>3</sup> of top soil will be generated on first five year from 2022-2023 to 2026-27 and it will be kept in 7.5m of non-quarrying zone for subsequent plantation. Only 10% of the quarrying losses by excavation and sizing, the waste material generated during plan period and it is temporary stack near crusher side and this materials will be used in the maintenance of quarry road, village kachcha road and some part blend with saleable material and utilized.

### **In the case of Quarry by machinery than the detail of machinery to be deployed**

**(The extent of manual quarrying or quarrying by the use of machinery and mechanical devices):** The proposed method of opencast quarrying using JH drilling and blasting. The drilling and blasting work will be done on contractual basis. The sizing of limestone (Minor Mineral) will be done by crushing and screening. The following calculation of the drilling, blasting, transportation and machineries are used on the basis of highest production rate 60,000 Tons during the proposed plan period.

**“Limestone Quarry” at Village- Dondakala/Nardaha, Tehsil-Raipur and Arang, District Raipur,  
Chhattisgarh by Shri Naresh Sen and Shri Sandeep Varma**

**Salient features of Quarrying:**

1.	Type of ore to be quarrying out	Limestone (Minor Mineral)
2.	Method of Quarrying	Opencast
3.	Machineries used	JCB, Jackhammer, Air compressor and Highway
4.	Maximum production (ROM in a year)	60,000 T
5.	Average working days in a year	300 days
6.	Per day production	200 Tons

**Drilling:** the holes will be drilled by jack hammer in either single-row/multi-rows pattern by compressed air operated jack hammers and spacing between two holes will be 1.0 m the depth of each hole will be 1.5m, and the burden will be 1.0m and diameter of hole will be 32mm.

Output per blast hole will be (Spacing x Depth of hole x B.D)	1.0 X 1.5 X 1.0 X 2.5	3.75 Tons
Per day production	60,000/300	200 Tons
No. of holes to be drilled per day	200/3.75	53.33 or 53 nos.
Meterage to be drilled per day	53x1.5	79.5m
One jack hammer can drills per day	-	30m
No. of JH required $79.5/30=2.65$ or 3	Say	3 nos.
No. of JH required will be (One JH required as standby)	-	3 nos.

**Machineries required is as under:**

S.No.	Name	Nos.	Capacity	Purpose	Motive Power
1	Jack Hammer	3	32mm	For drilling	-
2	Compressor	3	625 cfm	For running jack hammer	Diesel Engine
3	JCB	1	2 cum	For loading and excavation	Diesel Engine
4	Dozer with ripper	1	-	For soil remover	Diesel Engine
5	Dumper/Hiawa	5	20 tons	For transportation of ROM	Diesel Engine
6	Water Tanker	1	1,000 litres	For sprinkling of on quarry road	Diesel Engine
7	Jeep	1		For transport of operators	Diesel Engine
8	First Aid	1		Fir First Aid	

**“Limestone Quarry” at Village- Dondakala/Nardaha, Tehsil-Raipur and Arang, District Raipur,  
Chhattisgarh by Shri Naresh Sen and Shri Sandeep Varma**

### Water Balance

The water required is mainly for dust suppression, green belt development, drinking and other domestic purpose during mining operations. Water requirement will meet from hired Tanker supply.

Particulars	Shri Naresh Sen	Shri Sandeep Varma
Domestic	1.0	1.0
Green Development	3.0	1.0
Dust Suppression	2.0	2.0
<b>Total</b>	<b>6.0</b>	<b>4.0</b>

### Manpower

Particulars	Shri Naresh Sen	Shri Sandeep Varma
Qualified	-	-
Skilled	1	01
Semi-skilled	-	-
Un-skilled	10	20
<b>Total</b>	<b>11</b>	<b>21</b>

### 3.0 Baseline Data, Impact Assessment and Management Plan

The EIA report incorporates one season data generated for a period from **15<sup>th</sup> October 2022 to 14<sup>th</sup> January 2023**. A summary of the same is presented below:

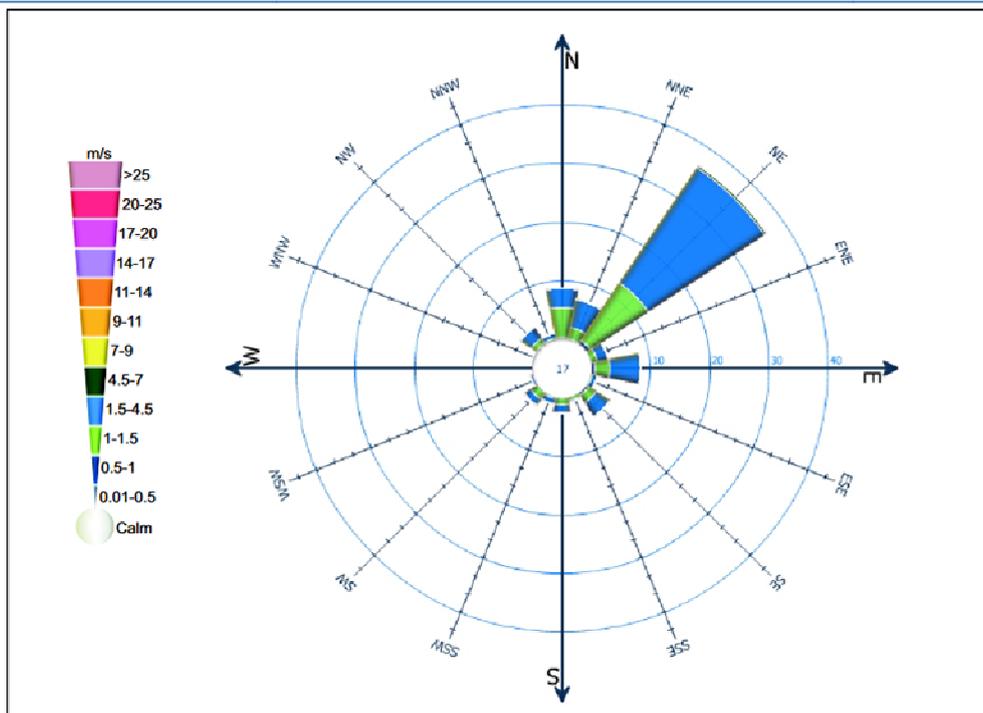
#### 3.1 Meteorology

Site Specific meteorological data is given in **Table4** and wind rose is given in **Figure 1**.

**Table 4: Site Specific Meteorological Data**

Month	Temperature °C		Relative Humidity (%)		Rainfall monthly total (mm)	Wind Speed (m/s) Avg.
	Min	Max	Min	Avg.		
October,2022	15.6	32.0	53	2.9	0	2.9
November, 2022	10.5	30.1	43	3.6	0	3.6
December, 2022	8.4	17.5	17	4.7	0	4.7

**Source: Meteorological at station site**



**Figure 1: Wind Rose Diagram at Site**

### 3.2 Ambient Air Quality Status

The status of ambient air quality within the study area was monitored for the period of during **15<sup>th</sup>October 2022 to 14<sup>th</sup>January 2023** at 8 locations including the Plant area and in nearby villages. Total 8 sampling locations were selected based on the meteorological conditions considering upwind and downwind directions. The levels of Respirable Particulate Matter (PM<sub>10</sub>), Fine Particulates (PM<sub>2.5</sub>), Sulphur Dioxide (SO<sub>2</sub>) and Oxides of Nitrogen (NO<sub>x</sub>) were monitored. The minimum and maximum values of monitoring results are summarized in **Table 5**.

**Table5: Summary of Ambient Air Quality Results**

Parameters	PM <sub>10</sub> (µg/m <sup>3</sup> )	PM <sub>2.5</sub> (µg/m <sup>3</sup> )	SO <sub>2</sub> (µg/m <sup>3</sup> )	NO <sub>2</sub> (µg/m <sup>3</sup> )
<b>AAQM Norms</b>	<b>100</b>	<b>60</b>	<b>80</b>	<b>80</b>
<b>AAQ-1</b>				
<b>MIN</b>	68.2	30.6	10.2	13.8
<b>MAX</b>	75.9	40.6	12.6	20.3
<b>AVERAGE</b>	72.1	35.6	11.4	17.2
<b>98 %TILE</b>	75.6	40.4	12.6	19.9
<b>AAQ-2</b>				
<b>MIN</b>	64.8	30.6	9.8	14.2
<b>MAX</b>	72.9	41.5	13.6	21.2
<b>AVERAGE</b>	69.1	36.1	11.5	17.6
<b>98 %TILE</b>	72.6	41.4	13.2	20.8
<b>AAQ-3</b>				
<b>MIN</b>	50.8	25.4	9.8	12.8

**“Limestone Quarry” at Village- Dondekala/Nardaha, Tehsil-Raipur and Arang, District Raipur, Chhattisgarh by Shri Naresh Sen and Shri Sandeep Varma**

<b>MAX</b>	65.4	33.6	12.9	20.6
<b>AVERAGE</b>	58.9	30.5	11.4	16.2
<b>98 %TILE</b>	65.1	33.5	12.9	20.2
<b>AAQ-4</b>				
<b>MIN</b>	50.8	27.2	10.8	12.4
<b>MAX</b>	64.8	35.4	12.6	18.2
<b>AVERAGE</b>	59.2	30.9	11.5	14.5
<b>98 %TILE</b>	64.6	35.0	12.6	17.5
<b>AAQ-5</b>				
<b>MIN</b>	65.4	30.6	9.8	12.8
<b>MAX</b>	73.4	35.6	12.6	18.6
<b>AVERAGE</b>	69.4	33.4	11.1	15.8
<b>98 %TILE</b>	72.9	35.6	12.5	18.4
<b>AAQ-6</b>				
<b>MIN</b>	48.7	23.9	9.8	12.5
<b>MAX</b>	62.4	33.4	12.4	20.2
<b>AVERAGE</b>	58.3	29.3	10.9	15.5
<b>98 %TILE</b>	62.4	33.3	12.3	19.4
<b>AAQ-7</b>				
<b>MIN</b>	50.4	24.9	9.8	11.6
<b>MAX</b>	63.8	34.2	12.8	18.4
<b>AVERAGE</b>	58.3	30.0	11.1	14.4
<b>98 %TILE</b>	63.4	33.9	12.5	18.0
<b>AAQ-8</b>				
<b>MIN</b>	66.7	32.2	9.8	14.5
<b>MAX</b>	73.8	37.6	13.2	20.6
<b>AVERAGE</b>	70.4	34.3	11.5	16.7
<b>98 %TILE</b>	73.7	37.4	12.9	19.6

From the above results, it is observed that the ambient air quality with respect to PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub> and NO<sub>x</sub> at all the monitoring locations was within the permissible limits specified by CPCB.

### 3.3 Ambient Noise Levels

Ambient noise level monitoring was carried out at the 8 monitoring locations; those were selected for ambient air quality monitoring. The monitoring results are summarized in **Table 6**.

**Table 6: Summary of Ambient Noise Level Monitoring Results [Leq in dB(A)]**

12		Dondekala	Dondekhurd	TOR	Chapora	Mungi	Nilja	Adsena	Barauda
<b>Day Time</b>	600	48.3	46.8	43.4	40.2	46.8	44.2	42.6	46.3
	700	51.2	49.6	45.1	41.9	49.6	45.5	48.0	51.6

**“Limestone Quarry” at Village- Dondakala/Nardaha, Tehsil-Raipur and Arang, District Raipur,  
Chhattisgarh by Shri Naresh Sen and Shri Sandeep Varma**

	800	52.6	51.2	42.6	39.4	51.2	45.8	50.8	52.6
	900	54.6	52.6	47.0	43.8	52.6	50.5	53.6	53.4
	1000	57.6	55.4	52.4	49.2	55.4	54.4	53.6	55.7
	1100	56.8	52.6	45.4	42.2	52.6	50.6	52.8	58.3
	1200	55.6	50.2	49.9	46.7	50.2	45.2	53.2	57.4
	1300	55.2	48.6	46.9	43.7	48.6	50.8	53.8	52.6
	1400	51.6	50.2	49.4	46.2	50.2	46.0	51.6	55.6
	1500	53.7	51.4	51.7	48.5	51.4	49.5	50.9	52.6
	1600	53.9	50.8	46.7	43.5	50.8	52.4	52.3	54.1
	1700	52.6	53.4	44.1	40.9	53.4	44.5	51.2	50.9
	1800	52.8	52.7	45.9	42.7	52.7	49.2	53.0	54.6
	1900	51.6	49.6	45.1	41.9	49.6	46.7	51.6	53.7
	2000	55.6	51.6	49.0	45.8	51.6	47.6	49.7	54.9
	2100	50.3	49.8	46.1	42.9	49.8	45.7	48.5	52
	2200	51.2	48.2	48.6	45.4	48.2	42.2	47.3	49.7
<b>Night Time</b>	2300	48.6	46.3	41.8	41.3	46.3	40.8	42.6	48.6
	2400	44.6	44.5	40.8	41.7	44.5	40.1	42.2	47.2
	100	43.1	40.5	40.0	39.0	40.5	41.0	41.1	42.5
	200	41.8	38.6	40.8	38.0	38.6	40.0	41.2	40.6
	300	40.2	37.2	39.1	40.4	37.2	41.1	41.0	39.5
	400	41.2	40.2	38.4	40.4	40.2	40.5	40.5	38.6
	500	44.5	41.6	39.7	39.5	41.6	41.1	39.8	40.8
<b>Range</b>	40.2-57.6	37.2-55.4	38.4-52.4	38.0-49.2	37.2-55.4	40.0-54.4	39.8-53.8	38.6-58.3	
<b>Ld</b>	53.9	51.4	48.0	44.7	51.4	48.9	51.6	54.1	
<b>Ln</b>	44.3	42.3	40.3	40.2	42.3	40.7	41.3	44.2	
<b>Ldn</b>	54.0	51.7	48.8	47.1	51.7	49.5	51.5	54.1	

### 3.4 Ground and Surface Water Resources & Quality

#### **Ground Water**

Sampling was carried out at 8 locations during the study period. Sampling and analysis was carried out, as per standard methods and frequency of the sampling was thrice/stations. the summary of the results is presented below:

Analysis results of **Ground Water** reveal the following:

- **pH** varies from to 6.9 to 7.66
- **Total Hardness** varies from 142 to 420mg/L.
- **Total Dissolved Solids**varies from 118.0 to 584.0 mg/L.

Analysis results of **Surface Water** reveal the following:

- pH varies from to 7.18 to 7.34
- **Total Dissolved Solids** varies from 170to 176 mg/L.
- **BOD** varies from 1.8to 2.0 mg/L.
- **COD** varies from 12.4to 16.8 mg/L.

The heavy metal contents are found to be negligible. Water quality is excellent but it is not potable due to presence of coliform. It can be used for drinking purpose after installing bacteriological.

### 3.5 Soil Quality

Sampling was carried out at 8 locations during the study period. The summary of the results are presented below:

- pH in soil sample was observed in the range **5.78 to 6.91**
- Organic Matter was observed in the range of **0.06 % to 1.38%**.

### 3.6 Biological Environment

#### Rare and Endangered Flora in the Study Area

The IUCN Red List is the world's most comprehensive inventory of the global conservation status of plant and animal species. It uses a set of criteria to evaluate the extinction risk of thousands of species and subspecies. These criteria are relevant to all species and all regions of the world. With its strong scientific base, the IUCN Red List is recognized as the most authoritative guide to the status of biological diversity. **Among the enumerated flora in the study area, none of them were assigned any threat category, by RED data book of Indian Plants.**

## 4.0 IMPACT ASSESSMENT AND MITIGATION MEASURES

### 4.1 AIR Pollution

The air quality modeling has been done and the details are given below:

Sr. No.	Activity in the Quarry	Maximum Baseline Concentration ( $\mu\text{g}/\text{m}^3$ )	Incremental GLCs ( $\mu\text{g}/\text{m}^3$ )	Resultant Concentration ( $\mu\text{g}/\text{m}^3$ )	Limit (Industrial, Residential, Rural and other area) ( $\mu\text{g}/\text{m}^3$ )
1.	Excavation+Loading+Transportation	64.2	0.60	64.80	100

#### Prevention and Control of Air Pollution

- The dust generated during the process will be minimized by water spray at the working faces before and after the activity.
- Plantation will be carried out on approach roads and in Lease boundary.
- Planning transportation routes of mined material so as to reach the nearest paved roads by shortest route. (minimize transportation over unpaved road;
- Personal Protection Equipment’s (PPE) like dust masks, ear plugs etc. will be provided to mine workers.
- Speed limit will be enforced to reduce airborne fugitive dust from vehicular traffic.

- Deploying PUC certified vehicles to reduce their noise emission.
- Spillage from the trucks will be prevented by covering tarpaulin over the trucks.

#### **4.2 Water Quality Management**

The impact of mining project on groundwater hydrology and surface water regime are site specific and depends upon the characteristics of the mineral, hydrogeology and requirement of groundwater for other uses.

#### **ANTICIPATED IMPACTS**

- No natural course of water stream is interrupted or diverted due to mining activity; hence no impact on natural drain is anticipated.
- Surface run off distribution during rainy season may get affected due to excavated pits and overburden stack.
- Runoff from the mining benches or from overburden during the rainy season may get contaminated.
- Ground water pollution can take place only if the mining rejects contain toxic substances, which get leached by the precipitation water and percolate to the ground water table thus polluting it. Any nearby wells or other sources of water can be rendered unfit for drinking and even for industrial use.
- Domestic sewage will be generated which can create contamination.

#### **MITIGATION MEASURES**

- Overall drainage planning has been done in such a manner that the existing pre-mining drainage conditions will be maintained to the extent possible so that run off distribution is not affected.
- The waste dump will be protected by retaining walls around the dump., moreover the excavated mineral itself is non-toxic and hence no effect due to water flow during rains following the contours of the area is expected.
- The excavated pit will be converted into the water reservoir at the end of mine life. This will help in recharging ground water table by acting as a water harvesting structure.
- Garland drain will be constructed on all sides of quarry along with settling pond in the lowermost part to remove the suspended solids from storm water. The collected water shall be used in plantation and spraying on haul roads. Settling ponds will be designed on the basis of silt loading, slope of the lease, detention time required etc.
- Septic tanks and soak pits will be provided for the disposal of domestic effluent generated from mine site.

#### **4.3 Noise Pollution Control**

The area generally represents calm surroundings. There is no heavy traffic, industry or noisy habitation in the area except the existing mine. As the project is proposed for open cast manual method mining.

Noise pollution is mainly due to occasional plying of trucks. These activities will not cause any problem to the inhabitants of this area because there is no human settlement in close proximity to the lease area.

**“Limestone Quarry” at Village- Dondakala/Nardaha, Tehsil-Raipur and Arang, District Raipur,  
Chhattisgarh by Shri Naresh Sen and Shri Sandeep Varma**

**ANTICIPATED IMPACT**

- The source of Noise pollution will be the vehicular movements.
- Noise will be generated by the digging of mine area using shovels, crowbars etc.

**MITIGATION MEASURES**

- **Maintenance of Machinery:** - The vehicles operating will be maintained and provided with good silencers. All machines will be used at optimum capacity.
- **Vegetation:** Plantation of trees around haul roads will be done to reduce the noise.
- **Hearing Protection:** Equipment like ear-muffs, ear-plugs, etc. are commonly used devices for hearing protection.

**4.4 Greenbelt Development and Plantation**

A green belt will be developed along the roads, barren area, surrounding office, rest shelter and other social forestry program. Green belt is erected not from biodiversity conservation point of view but is basically developed as a screen to check the spread of dust pollution. It is proposed to total number of plants 2152 numbers sapling during Istfive years. Afforestation will be taken up in the statutory restricted zone of 7.5 m along the lease boundary.

**Table- 8 Details of Greenbelt sapling during 1<sup>st</sup> three years**

PLANTATION EXPENDITURE ALONG WITH FENCING IN THE 7.5 M SAFETY ZONE								
S. No.	ITEM	RATE (inRs.)	QUANTITY (kg/days)	AMOUNT (in Rs.)				
				1 <sup>st</sup> Year	2nd year (90% survival)	3rd year (90% trees)	4th Year (90% trees)	5 <sup>th</sup> Year (90% trees)
1	Plants of local species ie. Neem, Aam, Bel, Kadam, Jamun, Aamla, Bargad,Peepal, etc.	2152 Plants (Rs 30per sapling)	2152 Plants	64560	6460	6460	6460	6460
2	Fencing around with chain link wire including cement pillar	Number of Pillar (Rs 100 per Pillar)	380 Pillars	38000	-	-	-	-
		Rs. 200/ Mtr	1870 m	374000				
3	Labour charge	-	-	50000	-	-	-	-
4	Plantation dig (45cm x 45cm x 45cm) size	Rs 20 per dig	2152 Plants	43040	4300	4300	4300	4300
5	Manure (cow dung / vermicompost ) 250gm/plant	Rs 20 /kg	538 kg	10760	1080	1080	1080	1080
6	Water Tank For Water sprinkling	Rs 1000 /day	240 days	240000	240000	240000	240000	240000
7	Gardner (Maintenance)	Rs 5000/month @ 12 month		60,000	60,000	60,000	60,000	60,000
8	Insecticide Powder	-		40,000	4000	4000	4000	4000
9	Miscellaneous for Board	-		10,000	-	-	-	-
	<b>Total</b>			<b>9,30,360</b>	<b>3,15,840</b>	<b>3,15,840</b>	<b>3,15,840</b>	<b>3,15,840</b>

**“Limestone Quarry” at Village- Dondakala/Nardaha, Tehsil-Raipur and Arang, District Raipur, Chhattisgarh by Shri Naresh Sen and Shri Sandeep Varma**

**4.5 OTHER BENEFIT**

It is proposed to undertake the need specific proposed CER activities in the surrounding areas of the mine. The project proponent has proposed to incur budget of Rs. 2,82,500/-for CER activities for Plantation of 300 No’s of Tree under Pavitra Van Area Yojna. Detail of CER activities proposed by project proponent are given here. The detailed CER activities will be decided after public Hearing and same will be incorporated in Final EIA.

PLANTATION EXPENDITURE ALONG WITH FENCING IN THE PAVITRA VAN AREA IN AS PER RECOMMENDED BY GRAM PANCHAYAT								
S. No.	ITEM	RATE (inRs.)	QUANTITY (kg/days)	AMOUNT (in Rs.)				
				1 <sup>st</sup> Year	2 <sup>nd</sup> year (90% survival)	3 <sup>rd</sup> year (90% trees)	4 <sup>th</sup> Year (90% trees)	5 <sup>th</sup> Year (90% trees)
1	Plants of local species ie. Neem, Aam, Bel, Kadam, Jamun, Aamla, Bargad,Peepal, etc.	300 Plants (Rs 30per sapling)	300 Plants	9000	900	900	900	900
2	Fencing around with chain link wire including cement pillar	Number of Pillar (Rs 100 per Pillar)	50 Pillars	5000	-	-	-	-
		Rs. 200/ Mtr	150m	30000				
3	Labour charge	-	-	50000	-	-	-	-
4	Plantation dig (45cm x 45cm x 45cm) size	Rs 20 per dig	300 Plants	6000	600	600	600	600
5	Manure (cow dung / vermicompost ) 250gm/plant	Rs 20 /kg	75 kg	1500	150	150	150	150
6	Water Tank For Water sprinkling	Rs 500 /day	240 days	120000	120000	120000	120000	120000
7	Gardner (Maintenance)	Rs 3000/month @ 12 month		36,000	36,000	36,000	36,000	36,000
8	Insecticide Powder	-		20,000	2000	2000	2000	2000
9	Miscellaneous for Board	-		5,000	-	-	-	-
	<b>Total</b>			<b>2,82,500</b>	<b>1,59,650</b>	<b>1,59,650</b>	<b>1,59,650</b>	<b>1,59,650</b>

**4.6 Solid and Hazardous Waste Generation and Management**

No solid waste will be generated.

**Budgets for Common Environmental Management Plan for Cluster**

Particulars	1 <sup>st</sup> Year	2 <sup>nd</sup> Year	3 <sup>rd</sup> Year	4 <sup>th</sup> Year	5 <sup>th</sup> Year
Pollution control generate due to dust generation during movement of vehicles from mine site to nearest SH 9 (approx.2.0 km)	2,00,000	2,00,000	2,00,000	2,00,000	2,00,000

**“Limestone Quarry” at Village- Dondakala/Nardaha, Tehsil-Raipur and Arang, District Raipur,  
Chhattisgarh by Shri Naresh Sen and Shri Sandeep Varma**

both side plantation on access road (3000 No's)	Amount for plantation (90% survival rate)	2,40,000	24,000	24,000	24,000	24,000
	Amount for Fencing	7,50,000	-	-	-	-
	Fertilizers, seeds & maintenance of plant	3,00,000	3,00,000	3,00,000	3,00,000	3,00,000
Environment Monitoring (Quarterly)		1,50,000	1,50,000	1,50,000	1,50,000	1,50,000
Maintenance of Road/Approach Road		2,00,000	2,00,000	2,00,000	2,00,000	2,00,000
Plantation of trees at Village Road (upto 2 K.M.)		2,00,000	50,000	50,000	50,000	50,000
<b>Total</b>		<b>20,40,000</b>	<b>9,24,000</b>	<b>9,24,000</b>	<b>9,24,000</b>	<b>9,24,000</b>

**Participation of Project proponent in Common EMP**

**Participation of Project proponent in Common EMP(Shri Naresh Sen)**

Particulars		1 <sup>st</sup> Year	2 <sup>nd</sup> Year	3 <sup>rd</sup> Year	4 <sup>th</sup> Year	5 <sup>th</sup> Year
Pollution control generate due to dust generation during movement of vehicles from mine site to nearest SH		75,000	75,000	75,000	75,000	75,000
both side plantation on access road 500M (1000 No's)	Amount for plantation (90% survival rate)	1,60,000	16000	16000	16000	16000
	Amount for Fencing	5,00,000	-	-	-	-
	Fertilizers, seeds & maintenance of plant	2,00,000	2,00,000	2,00,000	2,00,000	2,00,000
Environment Monitoring (Quarterly)		1,25,000	1,25,000	1,25,000	1,25,000	1,25,000
Maintenance of Road/Approach Road		1,25,000	1,25,000	1,25,000	1,25,000	1,25,000
Plantation of trees at Village Road (upto 2 K.M.)		75,000	20,000	20,000	20,000	20,000
<b>Total</b>		<b>7,30,000</b>	<b>3,53,000</b>	<b>3,53,000</b>	<b>3,53,000</b>	<b>3,53,000</b>

**Participation of Project proponent in Common EMP (Shri Sandeep Verma)**

Particulars		1 <sup>st</sup> Year	2 <sup>nd</sup> Year	3 <sup>rd</sup> Year	4 <sup>th</sup> Year	5 <sup>th</sup> Year
Pollution control generate due to dust generation during movement of vehicles from mine site to nearest SH		1,25,000	1,25,000	1,25,000	1,25,000	1,25,000
both side plantation on access road 2 Km	Amount for plantation (90% survival rate)	80,000	8000	8000	8000	8000
	Amount for Fencing	2,50,000	-	-	-	-

**“Limestone Quarry” at Village- Dondekala/Nardaha, Tehsil-Raipur and Arang, District Raipur,  
Chhattisgarh by Shri Naresh Sen and Shri Sandeep Varma**

(2000 No's)	Fertilizers, seeds & maintenance of plant	1,00,000	1,00,000	1,00,000	1,00,000	1,00,000
	Environment Monitoring (Quarterly)	75,000	75,000	75,000	75,000	75,000
	Maintenance of Road/Approach Road	75,000	75,000	75,000	75,000	75,000
	Plantation of trees at Village Road (upto 2 K.M.)	1,25,000	30,000	30,000	30,000	30,000
	<b>Total</b>	<b>13,10,000</b>	<b>5,71,000</b>	<b>5,71,000</b>	<b>5,71,000</b>	<b>5,71,000</b>

It is proposed to undertake the need specific proposed CER activities in the surrounding areas of the mine. The all project proponent has proposed to beincurred budget of **2% of Project cost** for CER activities.

The detailed CER activities will be decided after public Hearing and same will be incorporated in Final EIA.

## **5.0 CONCLUSION**

As discussed, it is safe to say that the project is not likely to cause any significant impact on the ecology of the area, as adequate preventive measures will be adopted to contain the various pollutants within permissible limits. Green belt development around the area will also be taken up as an effective pollution mitigative technique, as well as to control the pollutants released from the premises of the project.