

**EXECUTIVE SUMMARY OF  
DRAFT ENVIRONMENTAL IMPACT ASSESSMENT AND  
ENVIRONMENTAL MANAGEMENT PLAN  
FOR  
NISDA FLAGSTONE/LIMESTONE QUARRY,  
TOTAL MINE LEASE AREA- 11.64 Ha.  
TOTAL AREA OF NISDA MINE CLUSTER IS 12.33 Ha.  
TOTAL PRODUCTION OF MINE LEASE AREA - 35929.6 m<sup>3</sup> (89824 Tons/Year)**

S. No.	Project Proponent	Khasra No.	Area	Production/ Year
1	Shri Santosh Yadav	Part of 1344	2.60 Acre (1.052 Ha)	5136 m <sup>3</sup> (12,840 Tons)
2	Dhanesh Kumar Sahu	Part of 1340,1344	1.40 Acre (0.57 Ha)	2099 Tons
3	Lalchand Agrawal	Part of 1342	0.882 Ha	3228 m <sup>3</sup> (8070 Tons)
4	Bhulau Ram Sahu	Part of 1350	4.00 Ace (1.62 Ha)	6934.8 m <sup>3</sup> (17337 Tons)
5	Devanand Sahu	Part of 1344	2.0 Acre (0.809 Ha)	1302 m <sup>3</sup> (3255 Tons)
6	Dushyant Kumar Sahu	Part of 1338	2.10 Acre (0.85 Ha)	1080 m <sup>3</sup> (2700 Tons)
7	Jai Bajrang Audyogik Khadan Kamgar Sahkari Samiti	Part of 1344 & 1345	1.40 Acre (0.566 Ha)	1123.2 m <sup>3</sup> (2808 Tons)
8	Krishna Dev Singh	1350	0.90 Acre (0.364 Ha)	1635.5 m <sup>3</sup> (4087.5 Tons)
9	Lalchand Agrawal	1340	0.90 Acre (0.364 Ha)	1086 m <sup>3</sup> (2715 Tons)
10	Pawan Chandrakar	Part of 1344	2.70 Acre (1.092 Ha)	1200 m <sup>3</sup> (3000 Tons)
11	Rohit Sahu	Part of 1334	1.10 Acre (0.47 Ha)	525 m <sup>3</sup> (1312.5 Tons)
12	Sanjay Yadav	1345	2.30 Acre (0.93 Ha)	1320 m <sup>3</sup> (3300 Tons)
13	Shyam Sundar Yadav	1345	2.50 Acre (1.011 Ha)	6120 m <sup>3</sup> (15300 Tons)
14	Tekram Sahu	1344	2.60 Acre (1.052 Ha)	4400 m <sup>3</sup> (11,000 Tons)

**AT**

**Village Nisda, Tehsil- Arang, District Raipur, Chhattisgarh**

**Project Activity - Mining of Minerals 1(a) (i)  
Project Category – B1**

**MONITORING PERIOD- 15<sup>th</sup> OCTOBER 2021 to 14<sup>th</sup> JANUARY 2022**

**ENVIRONMENT CONSULTANT**

**P and M Solution**

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**A NABET ACCREDITED CONSULTANT**

**“Flagstone Quarry” and “Lime Stone (Flaggy Limestone)” at Nisda, Tehsil- Arang, District Raipur, Chhattisgarh by M/s Shri Santosh Yadav, Dhanesh Kumar Sahu, Lalchand Agrawal (0.90 Acre (0.364 Ha.)), Bhulau Ram Sahu, Devanand Sahu, Dushyant Kumar Sahu, Jai Bajrang Audyogik Khadan Kamgar Sahkari Samiti, Krishna Dev Singh, Lalchand Agrawal (0.882 Ha.), Pawan Chandrakar, Rohit Sahu, Sanjay Yadav, Shyam Sunder Yadav, Tekram Sahu**

## **EXECUTIVE SUMMARY**

### **Project Proposal**

**“Flagstone/Limestone (Flaggy Limestone) Quarry”** Mine comes under located at village-Nisda, Tehsil-Arang, District-Raipur, State-Chhattisgarh

### **Proponent**

M/s Santosh Yadav, Dhanesh Kumar Sahu, Lalchand Agrawal, Bhulau Ram Sahu, Devanand Sahu, Dushyant Kumar Sahu, Jai Bajrang Audyogik Khadan Kamgar Sahkari Samiti, Krishna Dev Singh, Lalchand Agrawal, Pawan Chandrakar, Rohit Sahu, Sanjay Yadav, Shyam Sunder Yadav, Tekram Sahu

S. No.	Particular	Details
<b>Environmental Sensitivity</b>		
	Nearest Village	Nisda Village, Approx. 1.0 Km in West direction
	Nearest Town	Arang approx.6.0 Km in NW direction
	Nearest National / State Highway	NH- 53 is approx. 0.5 km in North direction & NH-353 is approx. 4.98 km in E
	Nearest Railway Station	Belsonda railway station which is approx. 2.7 km in Edirection
	Nearest Airport	Swami Vivekanand International Airport, Raipur-Approx. 27.8 km in West.
	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.	Mahanadi- Approx. 500m in East Direction
	Archaeological Important Place	None
	Seismic Zone	III

### **1.0 Introduction**

The proposed **“Flagstone & Flaggy Limestone Quarry”** Mine comes under located at Village Nisda, Tehsil- Arang, District- Raipur, Chhattisgarh. The proposed production capacity of Limestone (Flaggy Limestone) belongs to Shri Santosh Yadav, Dhanesh Kumar Sahu, Lalchand Agrawal, Bhulau Ram Sahu, Devanand Sahu, Dushyant Kumar Sahu, Jai Bajrang Audyogik Khadan Sahkari Samiti, Krishna Dev Singh, Lalchand Agrawal, Pawan Chandrakar, Rohit Sahu, Sanjay Yadav, Shyam Sunder Yadav, Tekram Sahu(Proprietor). The lease area is non-forest Govt. 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, 2021 to 14<sup>th</sup> January, 2022.**

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

Minerals are the chief source of present phase of industrialization and play an important role in the present phase of the national economy and overall development of the nation. The Flag Stone slabs produced from the quarry will be supplied for the purpose of slab cuttings, and then it will be sold to end user for construction purpose, at present due to growing fashion of ceramic tiles in rural area also, the demand of the flag stone is reduces, therefore the quarry management is focused on the by product as khanda and kattal which is being generated during the flag stone cutting.

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

**Topography:** The area is almost a flat terrain with devoid of vegetation. It is about 0.9 km from the village Nisda which is situated in the west direction. The maximum elevation is about 268 m from M.S.L.

**Drainage Pattern:** Mahanadi River is present at about 170 m in west direction from the lease area. The drainage pattern is dendretic to sub dendretic.

### **2.1 Geology**

The area around village Nisda comes under Charmuria Formation of Raipur Group of Chhattisgarh Super Group. Charmuria Formation comprises of Phosphatic Limestone with shale inter-beds, cherty limestone and phosphatic dolomite, chert-shale inter-beds.

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

The area around Nisda which is situated in Tehsil Arang is covered by Limestone (flaggy Limestone) of Charmuria formation of Raipur Group of Chhattisgarh Super Group. The mineral body is homogenous in nature. On the basis of detailed geological mapping nearby pits etc of the area and Lithology of the area following sequence can be established:

**Soil**

**Lime stone (flaggy limestone)**

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## 2.2 Reserves

### Geological Reserve:

The thickness of soil is about 3.0 m in this area below which Flagstone is observed. For computing the reserve of Flagstone in quarry area with volumetric method is adopted by taking depth 9m and Bulk Density is considered as 2.5 tones/cum:

#### Reserves Calculation

Reserves	Shri Santosh Yadav	Shri Dhanesh Kumar Sahu	Shri Lalchand Agrawal	Shri Bhulau Ram Sahu	Shri Devanand Sahu	Shri Dushyant Kumar Sahu	Shri Jai Bajrang Audyogik Khadan
1) Geological Reserve (in Tons)	51,495	100120	103950	304250	111645	100455	96097.5
2) Mineable Reserve	1,48,355	51574	66645	201522	35715	44452.5	36453.75
3) Recoverable Reserve	1,11,267.5	38680.31	49983.75	151141	26786.25	33339.38	27430.31

Reserves	Shri Krishna Dev Singh	Shri Lalchand Agrawal	Shri Pawan Chandrakar	Shri Rohit Sahu	Shri Sanjay Yadav	Shri Shyam Sundar Yadav	Shri Tekram Sahu
4) Geological Reserve (in Tons)	65467.5	57836.25	300390	123375	203445	182520	236700
5) Mineable Reserve	20306.25	19665	130290	18277	62070	76515	113587.5
6) Recoverable Reserve	15229.6	14748.75	97717.5	13707	46552.5	57386	85190.6

### Mineral Beneficiation:

No mineral beneficiation is needed as the mineral produced from this mine is to be displaced in crude form. No activity for up gradation of mineral at the mine site shall be carried out.

*(Source- Approved mine plan)*

### Resources optimization / Recycling and reuse envisaged in the project

- All the machinery & equipment used in the present will be put to use in other similar project once the project is completed.
- Waste water generated will be sent to septic tank/soak pit.
- Rainwater harvesting will be carried out during the operational phase and harvested water will be stored in ponds in the slope areas. This water will be used for sprinkling plantation and sanitary use.

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- d. Safety zone will be created around the mining lease area to avoid any eventualities and barrier will impose through plantation.
- e. Proper restoration of the mine lease area will be carried out at the end of the mining through scientific way. Mine restoration plan will be suggested.

#### Year wise Production of Mineral

Year	Production in Tonnes						
	Shri Santosh Yadav	Shri Dhanesh Kumar Sahu	Shri Lalchand Agrawal	Shri Bhulau Ram Sahu	Shri Devanand Sahu	Shri Dushyant Kumar Sahu	Jai Bajrang AudyogikKhadan
1 <sup>st</sup> Year	12840	1931	5505	17337	3075.00	2606.25	2775.00
2 <sup>nd</sup> Year	12840	1950	6945	17337	3187.50	2643.75	2100.00
3 <sup>rd</sup> Year	12840	2040	7391.25	17337	3626.50	2662.50	1473.75
4 <sup>th</sup> Year	12840	2212.5	7567.5	17337	3337.50	2812.50	2647.5
5 <sup>th</sup> Year	12840	2362.5	8077.5	17337	3412.50	2850.00	1248.75
<b>Total</b>	<b>64200</b>	<b>10496</b>	<b>35486.3</b>	<b>86685</b>	<b>16275.00</b>	<b>13575.00</b>	<b>10245</b>

Year	Production in Tonnes						
	Shri Krishna Dev Singh	Shri Lalchand Agrawal	Shri Pawan Chandrakar	Shri Rohit Sahu	Shri Sanjay Yadav	Shri Shyam Sundar Yadav	Shri Tekram Sahu
1 <sup>st</sup> Year	3888.75	2325.0	2021.25	1001.3	3300	15300	11000
2 <sup>nd</sup> Year	3937.50	2400.0	2126.25	1022.6	3300	15300	11000
3 <sup>rd</sup> Year	3956.25	2512.0	2227.5	1050	3300	15300	11000
4 <sup>th</sup> Year	4087.50	2625.0	2422.5	1108.1	3300	15300	11000
5 <sup>th</sup> Year	3491.25	2715.0	2527.5	1159.9	3300	15300	11000
<b>Total</b>	<b>19361.25</b>	<b>12577.50</b>	<b>11325</b>	<b>5342</b>	<b>16500</b>	<b>76500</b>	<b>55000</b>

#### Quarrying Method

Quarrying will be carried out by open-cast method adopting a system of benches. Mode of working will be manual. Only development work will be carried out by excavator and cutting of stone on mine surface will be carried out by stone cutter. Manual labors are deployed for quarrying and loading of seized stone on Truck/tractor. Truck/tractor will be used for transporting of Flaggy stone.

#### 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 2021 to 14<sup>th</sup> January 2022. A summary of the same is presented below:

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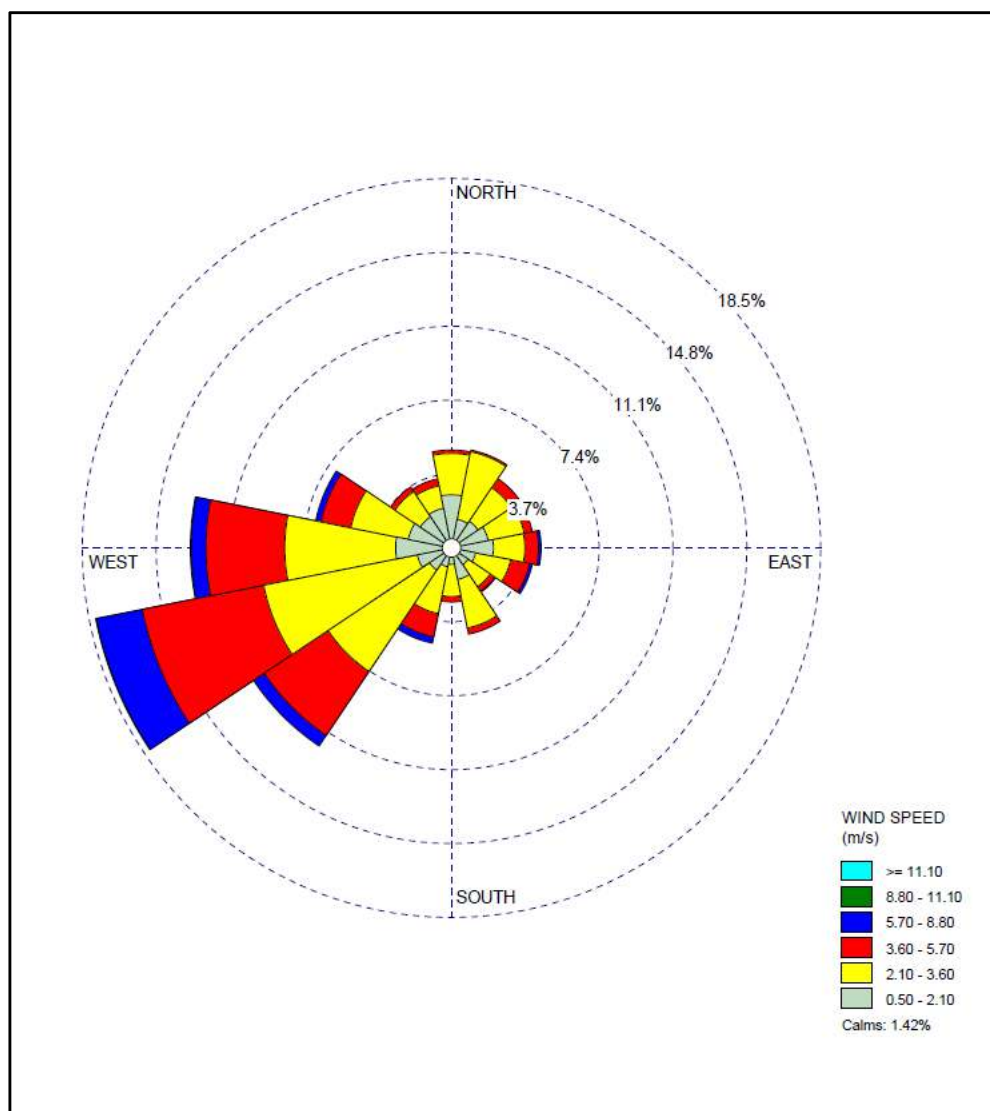
### 3.1 Meteorology

Site Specific meteorological data is given in **Table 4** and wind rose is given in **Figure 1**.

**Table 4: Site Specific Meteorological Data**

Month	Temperature °C		Wind Speed (Km/hr.)
	Min	Max	Avg.
October, 2021	20.0	36.0	2.9
November, 2021	11.0	30.0	3.6
December, 2021	8.0	25.0	4.7

Source: Meteorological at station site



**Figure 1: Wind Rose**

### 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 2021 to 14<sup>th</sup> January 2022** at 8 locations including the Plant area and in nearby villages.

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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 Nisda</b>				
<b>MIN</b>	47.8	21.7	9.6	11.7
<b>MAX</b>	58.4	27.1	12.4	17.8
<b>AVERAGE</b>	54.2	24.8	10.8	14.5
<b>98 %TILE</b>	58.1	27.0	12.3	17.2
<b>AAQ-2 Mudhena</b>				
<b>MIN</b>	53.5	23.5	9.9	11.9
<b>MAX</b>	64.2	28.4	17.7	24.3
<b>AVERAGE</b>	60.4	26.6	12.9	17.4
<b>98 %TILE</b>	63.9	28.3	17.7	24.3
<b>AAQ-3 Nandgaon</b>				
<b>MIN</b>	43.5	20.5	8.7	10.7
<b>MAX</b>	48.4	24.5	11.9	16.4
<b>AVERAGE</b>	45.6	22.1	10.1	12.9
<b>98 %TILE</b>	48.4	24.4	11.8	15.8
<b>AAQ-4 Bamhani</b>				
<b>MIN</b>	44.3	20.1	9.1	11.0
<b>MAX</b>	50.7	24.2	10.7	13.6
<b>AVERAGE</b>	47.4	22.4	9.9	11.7
<b>98 %TILE</b>	50.4	24.0	10.7	13.3
<b>AAQ-5 Belsonda</b>				
<b>MIN</b>	44.5	24.9	9.0	12.2
<b>MAX</b>	50.8	29.7	12.0	16.3
<b>AVERAGE</b>	47.3	26.6	10.4	14.4
<b>98 %TILE</b>	50.8	29.3	11.9	16.1
<b>AAQ-6 Kanpa</b>				
<b>MIN</b>	39.5	17.2	7.6	9.9
<b>MAX</b>	46.9	22.1	9.9	12.7
<b>AVERAGE</b>	44.1	19.2	8.6	11.3
<b>98 %TILE</b>	46.7	21.5	9.8	12.6
<b>AAQ-7 Godari</b>				
<b>MIN</b>	44.2	24.1	8.6	12.7
<b>MAX</b>	53.0	29.9	11.8	17.5
<b>AVERAGE</b>	49.4	27.5	10.8	15.1
<b>98 %TILE</b>	52.7	29.7	11.8	17.3
<b>AAQ-8 Bhilai</b>				
<b>MIN</b>	45.2	20.7	8.3	10.3

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<b>MAX</b>	52.7	25.1	11.4	14.5
<b>AVERAGE</b>	48.0	23.2	10.1	12.3
<b>98 %TILE</b>	52.6	25.1	11.3	14.1

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)]**

Time (Hrs)	N-1	N-2	N-3	N-4	N-5	N-6	N-7	N-8	
<b>Day Time</b>	600	44.0	41.6	40.6	46.8	45.2	42.5	40.2	39.1
	700	45.9	43.1	41.9	49.6	47.3	44.4	41.5	40.8
	800	46.8	46.8	43.7	51.4	48.2	45.3	42.9	38.3
	900	49.4	48.5	45.3	53.9	50.8	47.9	45.5	42.7
	1000	53.8	48.2	47.0	55.7	55.2	52.3	47.5	48.1
	1100	52.7	49.2	46.2	59.7	54.1	51.2	46.0	41.1
	1200	51.2	46.6	46.9	61.5	52.6	49.7	45.6	45.6
	1300	50.4	46.2	45.2	62.6	51.8	48.9	46.0	42.6
	1400	48.3	47.8	44.1	61.8	49.7	46.8	42.6	45.1
	1500	50.3	49.1	44.5	62.8	51.7	48.8	44.5	47.4
	1600	48.4	47.5	41.6	60.7	49.8	46.9	47.3	42.4
	1700	47.4	47.1	45.6	60.3	48.8	45.9	43.9	39.8
	1800	49.3	46.4	45.3	58.2	50.7	47.8	45.5	41.6
	1900	48.3	46.1	43.8	59.4	49.7	46.8	42.9	40.8
	2000	50.7	43.8	44.2	56.2	52.1	49.2	42.3	44.7
	2100	46.2	42.2	46.7	55.9	47.6	44.7	40.7	41.8
2200	47.8	41.1	42.5	54.7	49.2	46.3	39.8	44.3	
<b>Night Time</b>	2300	45.9	40.5	40.8	49.2	47.8	44.4	38.4	40.2
	2400	46.1	39.8	40.0	45.8	46.5	43.8	38.2	40.6
	100	45.2	39.0	39.8	43.2	45.6	42.6	37.6	37.9
	200	44.7	39.5	41.1	40.2	43.2	43.2	37.8	36.9
	300	44.4	38.4	39.8	39.4	42.8	39.6	38.4	39.3
	400	42.9	38.7	39.0	38.8	41.2	40.2	39.8	39.3
	500	43.9	39.9	39.3	40.2	42.6	41.5	38.8	38.4
<b>Range</b>	<b>42.9-53.8</b>	<b>38.4-49.2</b>	<b>39.0-47.0</b>	<b>38.8-62.8</b>	<b>41.2-55.2</b>	<b>39.6-52.3</b>	<b>37.6-47.5</b>	<b>36.9-48.1</b>	
<b>Ld</b>	<b>49.6</b>	<b>46.6</b>	<b>44.7</b>	<b>58.9</b>	<b>51.0</b>	<b>48.1</b>	<b>44.4</b>	<b>43.6</b>	
<b>Ln</b>	<b>44.9</b>	<b>39.5</b>	<b>40.0</b>	<b>44.1</b>	<b>44.8</b>	<b>42.5</b>	<b>38.4</b>	<b>39.1</b>	
<b>Ldn</b>	<b>51.9</b>	<b>47.7</b>	<b>47.0</b>	<b>58.0</b>	<b>52.5</b>	<b>49.9</b>	<b>46.0</b>	<b>46.0</b>	

### 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 7.14 to 7.57
- **Total Hardness** varies from 185 to 695 mg/L.
- **Total Dissolved Solids** varies from 251 to 579 mg/L.

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

- **pH** varies from to 7.41 to 7.62
- **Total Dissolved Solids** varies from 182 to 251 mg/L.
- **BOD** varies from 1.8 to 2.2 mg/L.
- **COD** varies from 8.6 to 12.4 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 **7.19to 7.63**
- Organic Matter was observed in the range of **1.01 % to 1.47%**.

### 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) ( $\mu\text{g}/\text{m}^3$ )

“Flagstone Quarry” and “Lime Stone (Flaggy Limestone)” at Nisda, Tehsil- Arang, District Raipur, Chhattisgarh by M/s Shri Santosh Yadav, Dhanesh Kumar Sahu, Lalchand Agrawal (0.90 Acre (0.364 Ha.)), Bhulau Ram Sahu, Devanand Sahu, Dushyant Kumar Sahu, Jai Bajrang Audyogik Khadan Kamgar Sahkari Samiti, Krishna Dev Singh, Lalchand Agrawal (0.882 Ha.), Pawan Chandrakar, Rohit Sahu, Sanjay Yadav, Shyam Sunder Yadav, Tekram Sahu

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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.

#### 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 200 No's of plants will be planted along with fencing in the pavitra van area by each project proponent. Afforestation will be taken up in the statutory restricted zone of 7.5 m along the lease boundary by each project proponent. The details of plants of the local species will be planted by each project proponent in the proposed area will be provided in final EIA Report.

### 4.5 Solid and Hazardous Waste Generation and Management

No solid waste will be generated.

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### 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 NH53 (approx.0.5 km)		3,00,000	3,00,000	3,00,000	3,00,000	3,00,000
both side plantation on access road (8000 No's)	Amount for plantation (90% survival rate)	5,50,000	50,000	50,000	50,000	50,000
	Amount for Fencing	19,90,000	-	-	-	-
	Fertilizers, seeds & maintenance of plant	7,50,000	7,00,000	7,00,000	7,00,000	7,00,000
Environment Monitoring (Quarterly)		2,00,000	2,00,000	2,00,000	2,00,000	2,00,000
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.)		1,00,000	30,000	30,000	30,000	30,000
<b>Total</b>		<b>40,90,000</b>	<b>14,80,000</b>	<b>14,80,000</b>	<b>14,80,000</b>	<b>14,80,000</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 be incurred 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.