

**EXECUTIVE SUMMARY OF  
DRAFT ENVIRONMENTAL IMPACT ASSESSMENT AND  
ENVIRONMENTAL MANAGEMENT PLAN**

**FOR**

**GOJI LIMESTONE QUARRY,  
LEASE AREA: 4.98 Ha**

**PROPOSED PRODUCTION CAPACITY -58871.66 Tons/Annum**

**AT**

**KHASRA No- Part of 1033/1, 1035, 1043, 1053 /7, 1054/1, 2, 1055, 10256/ 1,2, 1057,  
1058, 1091, 1092/1,2,3, 1093, 1094, 1095, 1070, 1076, 1077, 1078, 1087, Village Goji,  
Tehsil- Kurud, District- Dhamtari, Chhattisgarh**

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

**ToR Letter No. 1371/Mine/Dhamtari/1711/Nawa Raipur Atal Nagar dated 28/09/2021**

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

**PROJECT PROPONENT**

**Mr. Revendra Chandrakar (Proprietor)**

**Address-S/o Bajrang Chandrakar, Village-Donar, Tehsil & District – Dhamtari  
Pin Code- 493773**

**ENVIRONMENT CONSULTANT**

**AMPLEnviron Pvt. Ltd.**

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**A NABET ACCREDITED CONSULTANT**

**Executive Summary for "Lime Stone Quarry" at Village Goji, Tehsil- Kurud, District- Dhamtari,  
Chhattisgarh of M/s Revendra Chandrakar**

**EXECUTIVE SUMMARY**

**Project Proposal**

"Goji Limestone Quarry" Mine comes under located at Khasra no. Part of 1033/1, 1035,1043, 1053 /7, 1054/1,2, 1055, 10256/ 1,2, 1057, 1058, 1091, 1092/1,2,3, 1093, 1094, 1095, 1070, 1076, 1077, 1078, 1087, Village Goji, Tehsil- Kurud, District- Dhamtari, Chhattisgarh

**Proponent**

Mr. Revendra Chandrakar(Proprietor)  
Address- S/o Bajrang Chandrakar, Village-Donar, Tehsil & District – Dhamtari  
Pin Code- 493773

**Location of the applied area**

Village &Tehsil	Village-Goji, Tehsil-Kurud		
District &State	District- Dhamtari, Chhattisgarh		
Extent of the ML area	4.98 Hectares Private land		
Survey of India Map No.	64 H/13		
Latitudes	<b>Pillar No</b>	<b>Latitude</b>	<b>Longitude</b>
Longitudes	1.	20°54'59.46"N	81°47'11.52"E
	2.	20°55'2.70"N	81°47'12.01"E
	3.	20°55'1.84"N	81°47'14.30"E
	4.	20°55'1.48"N	81°47'13.94"E

**Transport Network**

Nearest City/ Town	Kurud, Approx.12.6 km in SW direction
Nearest Railway station	Kurud railway station which is approx. 17 km in SW direction
Nearest Airport	Swami Vivekananda International Airport, Raipur- Approx. 45 km in NW
Archeological Place	No Archeological place in the study area.
National Park, Wild Life Sanctuary, Wild Life Corridors, Biosphere Reserves, Protected Forest , Migratory routes for Birds etc. within 10 Km radius study area	None
Reserve Forest and Protected Forest within 10 Km radius	No any Reserved / Protected Forest within 15 km radius.
Water bodies within 10km radius	Yes Mahanadi- Approx. 2.1 Km in East Direction

**Mining Details**

Geological Reserves	2241000 tons
Production Capacity, cum/annum	58,871.66 Tons/annum
Method of Mining	open cast semi-mechanized method with control drilling and blasting mining method
Total Project Cost	Rs.1.20 Crores

**Executive Summary for “Lime Stone Quarry” at Village Goji, Tehsil- Kurud, District- Dhamtari, Chhattisgarh of M/s Revendra Chandrakar**

Cost for Environmental Protection Measures	Capital Cost-Rs. 8,74,000/- Recurring Cost-Rs. 6,40,000/-
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**1.0 Introduction**

The proposed “Goji Limestone Quarry” Mine comes under located at Khasra no.Part of1033/1, 1035,1043, 1053 /7, 1054/1,2, 1055, 10256/ 1,2, 1057, 1058, 1091, 1092/1,2,3, 1093, 1094, 1095, 1070, 1076, 1077, 1078, 1087, Village Goji, Tehsil- Kurud, District- Dhamtari, Chhattisgarh, Area- 4.98 Ha, The proposed Limestone (low grade) production capacity from the mine lease is 58,871.66 Tons/Annum belongs to Mr. Revendra Chandrakar (Proprietor). The leasefor mining of Limestone (low grade)over an area of 4.98 Ha was granted by the Government of Chhatisgarh. The LOIwas granted vide Order No. 560/khanij/patthar/Uttakha.patta/2020-21Dhamtaridated 25/05/2021, valid for a period of 01 years (25/05/2021 to 24/05/2022) in favour of Mr. Revendra Chandrakar R/o Villlage Donar, Tehsil & district Dhamtari, Chhattisgarh.

The Mine Plan for the 1<sup>st</sup> Five year was approved by Mining Department, Collectrate Office, District Dhamteri of Chhattisgarh vides letter No. 162/khanij/Utakha.Yo.Anu./U.P./2021-22 dated 10<sup>th</sup> June, 2021.. 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 vide Order 1371/Mine/Dhamtari/1711/Nawa Raipur Atal Nagar dated 28/09/2021.

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**

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 interm of the socio-economic status of the people, increase opportunities for employment, and earn revenue in term 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

**Executive Summary for "Lime Stone Quarry" at Village Goji, Tehsil- Kurud, District- Dhamtari, Chhattisgarh of M/s Revendra Chandrakar**

**Anticipated Life of mine:**

The estimated mineable reserve of this area is of the order of 1334109.22 tons (533643.68 m<sup>3</sup>) The Conceptual quarry plan is prepared for the lease period of 10 years and anticipated life of mine will be more than 20 years.

*(Source- Approved mine plan)*

**2.3 Method of Mining:**

Quarrying will be carried out by semi mechanized open-cast method adopting a system of benches. Hydraulic excavators will be deployed for progressing benches and for handling ore/waste material' Manual labors are also deployed for quarrying and handling quarrying waste' Truck/tipper will be used for loading and dumping of limestone mineral stones will be blasted, handled and loaded by excavators into truck/tipper.

Quarry development work by means of removal of top soil will be taken up firstly from south-eastern part of the area and quarrying will be started from this area when the rock is properly exposed' Development work and production will continue further in the remaining part during the presiding years of plan period. The proposed method of quarry will be open cast, semi mechanized.

**Table 1 Year wise productions**

Year	Depth of Pit (mRL)	Area in m2 (a)	Depth in (meter) (b)	ROM In (m3) (c=a x b)	ROM/Year (d)	ROM/Year In Tons (d x 2.5)	Mine Waste (5%)	Volume of Salable Stone(Ton/Year) (95% of ROM)
1 <sup>st</sup> Year	286.50-285.00 1 <sup>st</sup> Bench	4136.33	1.50	6204.50	16601.99	41504.96	2075.25	39429.71
	285.00-283.50 2 <sup>nd</sup> Bench	3682.75	1.50	5524.13				
	283.50-282.00 3 <sup>rd</sup> bench	3248.91	1.50	4873.37				
2 <sup>nd</sup> Year	282.00-280.50 4 <sup>th</sup> Bench	2835.46	1.50	4253.19	21098.94	52747.35	2637.37	50109.98
	280.50-279.00 5 <sup>th</sup> Bench	2348.46	1.50	3522.69				
	279.00-277.50 6 <sup>th</sup> Bench	2035.26	1.50	3052.89				
	277.50-276.00 7 <sup>th</sup> Bench	1741.00	1.50	2611.50				
	276.00-274.50 8 <sup>th</sup> Bench	1471.43	1.50	2207.15				
	274.50-273.00 9 <sup>th</sup> Bench	1224.82	1.50	1837.23				
	273.00-271.50 10 <sup>th</sup> Bench	998.92	1.50	1498.38				
	271.50-270.00	795.57	1.50	1193.36				

**Executive Summary for "Lime Stone Quarry" at Village Goji, Tehsil- Kurud, District- Dhamtari,  
Chhattisgarh of M/s Revendra Chandrakar**

	11th Bench							
	270.00-268.50	615.04	1.50	922.56				
	12th Bench							
2 <sup>nd</sup> Pit	286.50-285.00	14602.0	1.50	21903.12	21903.12	54757.80	2737.89	52019.91
3 <sup>rd</sup> Year	1st Bench	8						
4 <sup>th</sup> Year	285.00-283.50	13733.6	1.50	20600.48				
Year	2nd Bench	5			22174.11	55435.28	2771.76	52663.51
	283.50-282.00	1049.09	1.50	1573.64				
5 <sup>th</sup> Year	283.50-282.00	11833.2	1.50	17749.80	22399.80	55999.50	2799.98	53199.53
	3 <sup>rd</sup> Bench	0						
	282.00-280.50	3100.00	1.50	4650.00				
	4th Bench							
<b>TOTAL</b>					<b>104177.96</b>	<b>260444.89</b>	<b>13022.25</b>	<b>247422.64</b>

**Drilling and Blasting**

Drilling will not be required for exploration work but jack hammer drilling may be used for blasting purpose to break the hard rock in this quarry plan period.

**Blasting: (Broad Parameters)**

The quarry operation will be in small scale and the average production per year will be 52088.97 (20835.58 m<sup>3</sup>) in first five year and 54501.81 tons (21800.72m<sup>3</sup>) in after five years plan period. 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.

**Storage of Explosives:**

As blasting will be done by licensed contractor, hence magazine is not required in quarry area.

**Table- 3 List of Proposed Machine**

TYPE	Nos.	Size /Capacity	Make	Motive power	HP	Man power
JCB Excavator	1	-	-	Diesel		1
Dumper	10	20 Ton	Leyland	Diesel	150	2
Air Compressor	1	7.5 hp.	Manglam Techno	Tractor	7.5 HP	1
Drilling machine/ jack hammer	1	34 mm	Atlas – copco	Diesel	110	1
Water tanker	1	5KL	TATA	Diesel	20	1
Water Pump	1	0.5 inch	Kirlosakar	Diesel	05	
Jeep	1	--		Diesel		1
<b>Total</b>						<b>07</b>



**Executive Summary for "Lime Stone Quarry" at Village Goji, Tehsil- Kurud, District- Dhamtari, Chhattisgarh of M/s Revendra Chandrakar**

**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:

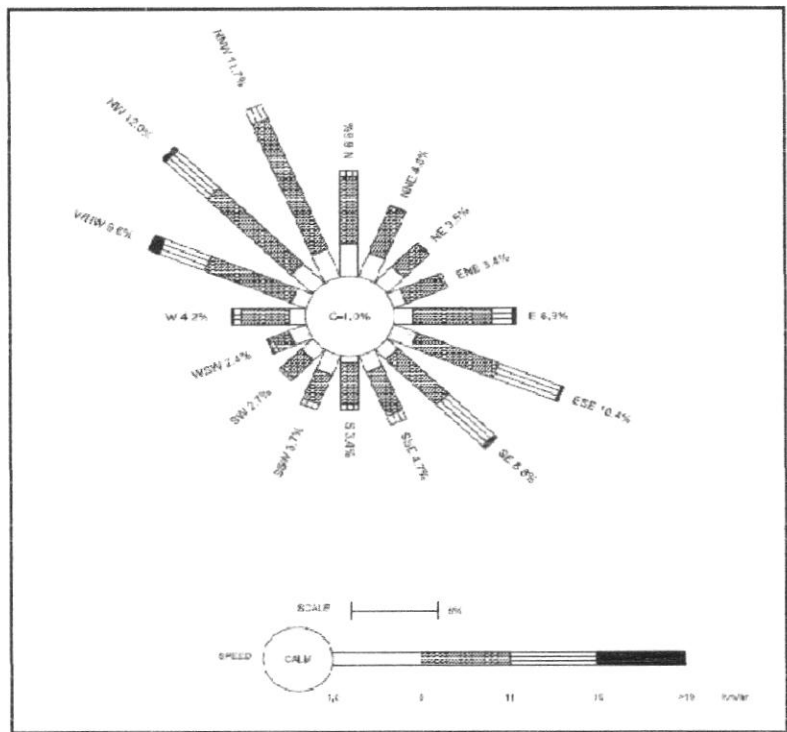
**3.1 Meteorology**

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. 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> )
AAQM Norms	100	60	80	80

**Executive Summary for "Lime Stone Quarry" at Village Goji, Tehsil- Kurud, District- Dhamtari,  
Chhattisgarh of M/s Revendra Chandrakar**

<b>AAQ-1 Goji</b>				
<b>MIN</b>	51.0	24.7	8.8	12.6
<b>MAX</b>	62.4	33.3	14.2	18.5
<b>AVERAGE</b>	56.3	29.6	11.7	15.7
<b>98 %TILE</b>	62.2	33.3	14.1	18.4
<b>AAQ-2 Maurikala</b>				
<b>MIN</b>	47.4	23.3	7.8	9.9
<b>MAX</b>	58.3	29.3	11.4	14.0
<b>AVERAGE</b>	53.6	26.8	9.6	12.1
<b>98 %TILE</b>	58.0	29.2	11.1	13.9
<b>AAQ-3 Khathauli</b>				
<b>MIN</b>	47.2	24.4	8.1	10.6
<b>MAX</b>	58.1	30.4	11.7	16.8
<b>AVERAGE</b>	53.5	27.9	10.0	13.8
<b>98 %TILE</b>	57.8	30.3	11.6	16.7
<b>AAQ-4 Sakri</b>				
<b>MIN</b>	45.9	20.0	7.9	10.7
<b>MAX</b>	52.0	26.3	11.7	18.7
<b>AVERAGE</b>	48.6	23.2	9.6	15.0
<b>98 %TILE</b>	52.0	25.6	11.4	18.1
<b>AAQ-5 Nari</b>				
<b>MIN</b>	47.1	22.7	10.1	18.4
<b>MAX</b>	59.6	28.5	13.5	22.3
<b>AVERAGE</b>	53.5	25.6	12.1	20.4
<b>98 %TILE</b>	59.2	28.2	13.3	22.2
<b>AAQ-6 Dahdaha</b>				
<b>MIN</b>	43.9	24.5	9.5	14.5
<b>MAX</b>	54.6	31.8	15.6	21.7
<b>AVERAGE</b>	48.9	27.3	11.9	19.6
<b>98 %TILE</b>	53.8	31.5	14.9	21.7
<b>AAQ-7 Budhani</b>				
<b>MIN</b>	47.4	22.2	10.3	16.4
<b>MAX</b>	59.8	31.9	14.7	21.0
<b>AVERAGE</b>	53.9	26.9	12.3	18.8
<b>98 %TILE</b>	59.3	31.5	14.6	20.8
<b>AAQ-8 Dhaur</b>				
<b>MIN</b>	43.6	18.4	10.1	12.8

**Executive Summary for "Lime Stone Quarry" at Village Goji, Tehsil- Kurud, District- Dhamtari, Chhattisgarh of M/s Revendra Chandrakar**

<b>MAX</b>	59.3	28.2	14.6	21.0
<b>AVERAGE</b>	51.0	24.7	11.9	17.5
<b>98 %TILE</b>	58.8	28.2	14.6	21.0

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	49.2	48.2	45.6	40.7	47.8	43.3	44.3	43.6
	700	51.9	48.7	47.3	42.4	48.2	45.0	45.6	45.5
	800	52.2	49.9	50.3	39.9	52.3	42.5	45.9	46.4
	900	54.3	50.5	52.6	44.3	51.7	46.9	50.6	49.0
	1000	53.4	51.7	54.0	49.7	52.6	52.3	54.5	53.4
	1100	52.5	51.3	53.6	42.7	51.8	45.3	50.7	52.3
	1200	48.2	50.8	52.5	47.2	50.6	49.8	45.3	50.8
	1300	48.9	48.7	50.1	44.2	49.3	46.8	50.9	50.0
	1400	49.7	49.6	51.2	46.7	48.8	49.3	46.1	47.9
	1500	47.8	47.7	52.3	49.0	49.1	51.6	49.6	49.9
	1600	45.9	48.4	51.0	44.0	51.8	46.6	52.5	48.0
	1700	47.5	50.2	50.0	41.4	51.6	44.0	44.6	47.0
	1800	49.7	49.8	48.9	43.2	48.9	45.8	49.3	48.9
	1900	48.9	49.6	48.6	42.4	48.2	45.0	46.8	47.9
	2000	49.5	48.5	47.5	46.3	46.8	48.9	47.7	50.3
	2100	48.8	47.7	50.7	43.4	47.3	46.0	45.8	45.8
2200	47.8	47.3	49.6	45.9	49.5	48.5	42.3	47.4	
<b>Night Time</b>	2300	44.4	44.4	41.9	41.0	46.0	41.7	40.9	44.0
	2400	41.9	43.9	43.9	44.1	43.1	40.7	40.2	41.7
	100	39.3	43.5	40.8	41.4	43.4	39.9	41.1	42.7
	200	40.4	43.0	39.0	40.4	41.5	40.7	40.1	39.1
	300	41.5	43.6	39.6	38.9	43.2	39.0	41.2	40.8
	400	40.6	43.2	42.3	38.5	44.1	38.3	40.6	39.7
	500	42.4	45.1	41.5	39.3	46.0	39.6	41.2	38.7
<b>Range</b>	<b>39.3-54.3</b>	<b>43.0-51.7</b>	<b>39.0-54.0</b>	<b>38.5-49.7</b>	<b>41.5-52.6</b>	<b>38.3-52.3</b>	<b>40.1-54.5</b>	<b>38.7-53.4</b>	
<b>Ld</b>	<b>50.4</b>	<b>49.5</b>	<b>50.9</b>	<b>45.2</b>	<b>50.2</b>	<b>47.8</b>	<b>49.0</b>	<b>49.2</b>	
<b>Ln</b>	<b>41.8</b>	<b>43.9</b>	<b>41.6</b>	<b>40.9</b>	<b>44.2</b>	<b>40.1</b>	<b>40.8</b>	<b>41.3</b>	
<b>Ldn</b>	<b>50.8</b>	<b>51.3</b>	<b>51.1</b>	<b>47.7</b>	<b>51.8</b>	<b>48.6</b>	<b>49.6</b>	<b>49.9</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 6.72 to 8.81
- **Total Hardness** varies from 146 to 420 mg/L.
- **Total Dissolved Solids** varies from 249 to 708 mg/L.

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

- **pH** varies from to 7.86 to 7.92
- **Total Dissolved Solids** varies from 192 to 309 mg/L.
- **BOD** varies from 2.0 to 2.2 mg/L.
- **COD** varies from 14.7 to 18.4 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 **7.08 to 7.82**
- Organic Matter was observed in the range of **0.96 % to 1.52 %**.

### **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:

**Executive Summary for "Lime Stone Quarry" at Village Goji, Tehsil- Kurud, District- Dhamtari,  
Chhattisgarh of M/s Revendra Chandrakar**

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	62.4	1.60	64.00	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.
- The water table will not be intersected during mining

**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 semi-mechanized mining method, there will be activities like drilling and blasting.

Noise pollution is mainly due to operation of blast-hole drilling, blasting and 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.
- Momentary noise will be generated by drilling and blasting.

#### **MITIGATION MEASURES**

- **Maintenance of Machinery:** - Good and regular maintenance of machinery will be ensured to keep the noise generated at minimum. The vehicles operating will be maintained and provided with good silencers. All machines will be used at optimum capacity.
- **Trained Operators:** - Only trained operators will be allowed to operate machines.
- **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. Workers and operators working at drilling sites will be provided with earmuffs.
- **Blasting:** -Blasting will be avoided in the morning and evening hours, on foggy days, at night time and at times of high wind velocity and low cloud cover.
- **Drilling:** - Drilling will be carried out with the help of sharp drill bits.

**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 **3300 numbers sapling during 1<sup>st</sup> five years.**

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

<b>Total no. of sapling:-3300 numbers</b>			
<b>Phase</b>	<b>Name of Tree</b>	<b>No. of Plants to be Planted</b>	<b>Location</b>
1 <sup>st</sup> year	Neem, Pipal, Dalbargia, sissoo, Bargad, Amaltas, Khirni, Taad, Mahua, Imli	660	Mine lease boundary –400nos Approach Road& other in village- 260 nos
2 <sup>nd</sup> year	Neem, Pipal, Dalbargia, sissoo, Bargad, Amaltas, Khirni, Taad, Mahua, Imli	660	Mine lease boundary –400 nos Approach Road & other in village- 260 nos
3 <sup>rd</sup> year	Neem, Pipal, Dalbargia, sissoo, Bargad, Amaltas, Khirni, Taad, Mahua, Imli	660	Mine lease boundary –400 nos Approach Road & other in village- 260 nos
4 <sup>th</sup> Year	Neem, Pipal, Dalbargia, sissoo, Bargad, Amaltas, Khirni, Taad, Mahua, Imli	660	Mine lease boundary –400 nos Approach Road & other in village- 260 nos
5 <sup>th</sup> Year	Neem, Pipal, Dalbargia, sissoo, Bargad, Amaltas, Khirni, Taad, Mahua, Imli	660	Mine lease boundary –400 nos Approach Road & other in village- 260 nos

**4.5 Solid and Hazardous Waste Generation and Management**

No solid waste will be generated.

**4.6 EMP and CER Details**

Details of environment management plan are given in **Table 9.**

**Table 9: EMP Budget**

<b>S. NO.</b>	<b>Particulars</b>	<b>Budget Provisions (Rs)</b>	
		<b>Capital</b>	<b>Recurring</b>
1	A. water sprinkle facility with solar pump for outgoing and incoming transportation vechiles for haul and transportation  B. Cost of Water- Capacity 3KL i.e. Rs. 0.14 per litre (10000 litre/ day X .14 X 240)	2,50,000	3,36,000
2	Maintenance of W.B.M. Road& Village Road	2,50,000	20,000

**Executive Summary for "Lime Stone Quarry" at Village Goji, Tehsil- Kurud, District- Dhamtari,  
Chhattisgarh of M/s Revendra Chandrakar**

3	Monitoring twice a year AAQM @20000/yr, Water@10000/yr, Noise@10000/yr	NIL	40,000
4	Plantation (3300 saplings), in safety Zone & village road (660@250 Rs./tree in one year )	1,65,000	1,65,000
5	PUC certification of vehicles and maintenance (8 Vehicles @ Rs 2500)	-	20000
<b>Labor Welfare</b>			
6	Drinking Water Facility and rest shelter (10X15m) with solar light	1,00,000	10,000
7	Toilets 2 nos (Rs13000 x 2)	26,000	3,000
8	Occupational health checkup in a year for 33workers (@twice/year)@ 500 x 2 x 40	Nil	40,000
9	Provision of PPEs (helmets, safety shoes, safety glasses, gloves etc. (40 x 2000)	80,000	5,000
10	Vocational training on mining methods and safe work practices (@twice/year)@ 500 x 2 x 40	Nil	40,000
<b>Solid Waste Management</b>			
11	Bins 2 Nos @ Rs 1500 each	3000	1,000
<b>Total</b>		<b>8,74,000</b>	<b>6,80,000</b>

### 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.