EXECUTIVE SUMMARY

"Karuli Soapstone Mining Project"

At

Village- Karuli,

Tehsil & District-Bageshwar, State- Uttarakhand

(Area- 4.116 Ha)

Submitted by

M/s Khetwal Mines Karuli

R/o - Village- Karuli, Tehsil & District- Bageshwar, and Uttarakhand

Prepared by

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1.0 INTRODUCTION OF PROJECT & PROPONENT

Environmental Impact Assessment (EIA) is a decision-making tool, identifies the extent of the environmental, social and economic impacts of a project prior to decision-making. EIA systematically examines both beneficial and adverse impacts of the proposed project over and above the prevailing conditions of environmental parameters and ensure that these impacts are taken into account during the project designing stage itself and the values of the combined impacts are never allowed to exceed and remain within the statutory norms.

The proposed project of Karuli Soapstone Mining Project by M/s Khetwal Mines Karuli is for soapstone mineral mining which covers an area of 4.116 Ha at Village- Karuli, Tehsil & District-Bageshwar, and Uttarakhand. LOI has been granted in favour of M/s Khetwal Mines Karuli, vide letter no. 2222/VII-A-1/2021-01(46)/2021 dated 06.01.2022, for a period of 25 years attached as Annexure II**.** The EIA-EMP report has been prepared as per the TOR granted under the EIA Notification of September 14th 2006. In order to assess the impact on environment due to proposed mining, it is necessary to ascertain the present status of environment prevailing at the project site and identification and assessment of impacts on the environment of the proposed operations.

As per NGT Order Dated 13-09-2018 and MOEF & CC OM No L-11011/175/2018-IA-II (M) Dated 12-12-2018 the project comes under B1 Category as the area is more than 5 Ha. Environmental Impact Assessment report is prepared to comply with the Terms of Reference (TOR) received from SEIAA, Uttarakhand, under EIA Notification of the MoEF, Ref. No. 283/SEIAA dated 09-03-2023.

1.1 LOCATION

Village	Tehsil	District	State	Area in Ha.
Karuli	Bageshwar	Bageshwar	Uttarakhand	4.116

Table1.1- Detail of site & surrounding around Lease Area

Nearest Settlements	Hirmoli Village, 0.22 km, in SSE direction. Karuli Village, 0.02 km, in E direction.
Nearest Road	National Highway (NH-309A) 2.88 km* towards S direction.

	MDR-Almora Bageshwar Munsari Road 3.9 Km towards WNW direction Dofad-Dharamghar Road 0.01 Km towards SSE direction
Nearest Airport	Pant Nagar Airport, towards SSW direction (98.75 km*)
Nearest Railway Station	Kathgodam Railway Station, towards SSW direction (approx. 71.90 Km*)
Water body	Pungar River 220 km in S direction Saryu River 4.76 km in N direction Gomti River 7.53 km in WSW direction
Nearest School/ college	Government Primary school, Simtola–approx. 0.24 Km, E direction. Junior High school, Karuli, 0.45 km in WSW.
Reserve/ Protected Forest	Gairar Reserve Forest, 1.71 km in S direction Bilkhet Reserve Forest, 3.71 km in S direction Phalyanti Reserve Forest, 3.65 km in W direction Bamdhar Reserve Forest, 6.45 km in SE direction Paisiya Reserve Forest, 6.99 km in SE direction Manjgaon Reserve Forest, 9.85 km in E direction Pungar Reserve Forest, 4.41 km in N direction Anarsa Reserve Forest, 5.51 km in N direction Parkot Reserve Forest, 8.18 km in NW direction Khabdoli south Reserve Forest, 9.66 km in W direction Chhatena Reserve Forest, 5.95 km in SW direction Gurna Reserve Forest, 6.97 km in SE direction Dhungidhar Reserve Forest, 9.32 km in S direction Pokhdanda Reserve Forest, 8.77 km in NE direction
Nearest Hospital	Community Health Center, Kanda -approx. 6.70 km in SE direction. District Hospital Bageshwar 5.96 Km towards WSW direction.
Temple	Aijandi Babu Temple is about 0.12 km in E direction. Saim Devta Temple, is about 0.97 km in S direction.

Table 1.2 Project Salient features

On-line proposal No.	SIA/UK/MIN/425941/2023
File No. allotted by SEIAA, UK	EC-01/(35)/2023
Name of Proponent	Prop: M/s Khetwal Mines Karuli

Full correspondence address of Proponent	R/o, Village- Karuli, Tehsil & District- Bageshwar, State- Uttarakhand
Name of Project	Karuli Soapstone Mining Project
Name of Village	Karuli
Tehsil	Bageshwar
District	Bageshwar
Name of Minor Mineral	Soapstone
Sanctioned Lease Area (in Ha.)	4.116 Ha
Category of the project	"B1"
Max & Min mRL within lease area	Max- 1131.10 mRL & 1099.50 mRL
Pillar Coordinates (Verified by DMO)	

Pillar No.	Latitude	Longitude
1	29°52'3.41"N	79°49'36.23"E
2	29°52'1.38"N	79°49'39.18"E
3	29°52'1.83"N	79°49'41.65"E
4	29°52'0.85"N	79°49'41.44"E
5	29°52'0.86"N	79°49'42.19"E
6	29°52'2.06"N	79°49'42.98"E
7	29°52'2.66"N	79°49'46.20"E
8	29°52'0.87"N	79°49'47.73"E
9	29°52'0.79"N	79°49'52.92"E
10	29°52'2.29"N	79°49'53.07"E
11	29°52'2.37"N	79°49'50.77"E
12	29°52'2.70"N	79°49'50.71"E
13	29°52'2.97"N	79°49'51.22"E
14	29°52'4.66"N	79°49'50.66"E
15	29°52'5.04"N	79°49'49.93"E
16	29°52'6.89"N	79°49'50.24"E
17	29°52'8.02"N	79°49'47.94"E
18	29°52'5.10"N	79°49'45.91"E
19	29°52'3.49"N	79°49'39.38"E

Maximum Proposed Production	18860 TPA (in Vth year)
Sanctioned Period of Mine lease	Maximum 25 years
Method of Mining	Open Cast Mechanized Method
No. of working days	240days
Working hours/day	8hrs
No. of workers	35
Type of Land	Agriculture land
Ultimate Depth of Mining	18 m

Nearest metalled road from site	100 m	
Water Requirement	**Purpose**	**Requirement (KLD)**
	Drinking	0.35
	Suppression of dust	3.00
	Plantation	4.00
	Mobile Toilet	0.35
	Total	**7.70**
Any litigation pending against the project or land in any court	No	
Details of Lease Area in approved DSR	Yes, given in the DSR At Page No. 38 Serial No. 32	
Proposed Project cost	Rs 26, 00,000 /-	
Proposed EMP budget including the CER Cost as per OM dated 30 Sep 2020	Recurring Cost- 4.5 Lakh Capital Cost (Including CER) – 6.3 Lakh CER Cost – 1.30 Lakh	
Length and breadth of Haul Road	Length: 300 m, width: 6 m	
No. of Trees to be planted	2000 plants	

1.2 MINING PROCESS

Briefly describe the existing/proposed method for developing/working the deposit with all design parameters:

(I) Existing Method of mining:

It is fresh grant case of mining lease & mining operations yet to be commenced.

(II) Proposed method of mining:

It will be open cast mechanized mine. Excavator shall be deployed for the removal of overburden & Interburden. The overburden consists of weathered boulders of low-grade magnesite & dolomitic intermixed with yellowish soil cover & average thickness has been considered as 2.0m. Below overburden, soapstone, intermixed with magnesite & dolomitic boulders occurs. The overburden/Interburden will be dumped separately towards slope of working pit secured with Gravity retaining walls. Mining shall be carried out in two pits viz. pit I & pit II. The width of benches shall be kept 8m, height of benches shall be kept 6m with face slope 70^{o}. The soapstone will be extracted manually with the help of crow bar, chisels, pickaxe, hammers, spade etc. Soapstone is soft mineral therefore no drilling & blasting shall be required. No further beneficiation will be required except breaking & sorting. The different grade of soapstone will be

filled into 50 kg plastic bags & transported up to road side by manually. From road side the soapstone bags will be loaded into trucks through manually and transported to Haldwani. Lessee shall obtain requisite permission from DGMS for deployment of HEMM.

Table 1.3- Proposed productions in mining plan period – 05 years

Year	Quantities of soapstone (tonnes)		Total Quantities of soapstone (tonnes)	Waste (Cum)		Total Waste (Cum)	Stripping ratio (T/Cum)
	Pit-I	Pit-II		Pit-I	Pit-II		
Ist	4077	4867	8944	2979	3557	6536	1:0.73
IInd	7228	3931	11159	4418	2873	7291	1:0.65
IIIrd	10312	4368	14680	4560	2128	6688	1:0.46
IVth	8892	7176	16068	4781	4380	9161	1:0.57
Vth	7046	11814	18860	3070	6042	9112	1:0.48
Total	**37555**	**32156**	**69711**	**19808**	**18980**	**38788**	**1:0.56**

Total Proposed Production:

Maximum Production: 18,860 TPA (end of 5th Year)

1.3 WATER DEMAND

The water requirement will be around **7.70 KLD**. About 0.35 KLD for domestic and 3.0 KLD will be required for dust suppression. Water for drinking purpose will be supplied from the tube well and naulla's from nearby villages. This water will be supplied by private tankers. For dust suppression and Plantation, the water supplied from nearby naulla's and treated water.

Table 1.4- Water Demand

S.NO.	Purpose	Manpower/Area	Water Demand (KLD)	Source
1.	Drinking	Manpower (35) 35*10L =350 lpcd	0.35	Nearby village Tubewell
2.	Toilet	Manpower (35) 35*10L =350 lpcd	0.35	Private tanker

3.	Plantation	2000 trees 21L = 4000L	4.0	Private tanker
4.	Dust Suppression	Length= 300m Width= 5m Area= 300x5 =1500m^2 1500*2L =3000lpcd	3.0	Private Tanker
Total			**7.70**	

1.4 BASELINE DATA

This section contains the description of baseline studies of the 10 km radius of the area surrounding Village- Karuli, Tehsil and District- Bageshwar, Uttarakhand. The data collected has been used to understand the existing environment scenario around the proposed mining project against which the potential impacts of the project can be assessed.

Table 1.5: BASELINE ENVIRONMENTAL STATUS

Attribute	Baseline status
Ambient Air Quality	Ambient Air Quality Monitoring (AAQM) has been carried out at eight locations during pre-monsoon season from March to May 2023. The minimum and maximum level of PM2.5 recorded within the study area was in the range of 24.32µg/m3 to 55.5µg/m3 with the 98th percentile 39.01µg/m3 to 54.26µg/m3 at. The minimum and maximum level of PM10 recorded within the study area was in the range of 40.4µg/m3 to 89.64µg/m3 with the 98th percentile 71.51µg/m3 to 88.53µg/m3. The minimum and maximum concentration of SO2 recorded within the study area was in the range of was 2.8 µg/m3 to 15.6µg/m3 with the 98th percentile 9.28µg/m3 to 14.31µg/m3. The minimum and maximum level of NO2 recorded within the study area was in the range of was 5.9µg/m3 to 21.2µg/m3 with the 98th percentile 13.59µg/m3 to 20.69µg/m3. The results thus obtained indicate that the concentrations of PM10, PM2.5, SO2 and NO2 in the Ambient Air are well within the National Ambient Air Quality (NAAQ) standards for Industrial, Residential, Rural and other areas.
Noise Levels	Noise monitoring was carried out at 4 locations. The results of the monitoring program indicated that both the daytime and night time levels of noise were well within the prescribed limits of NAAQS, at all the four locations monitored.

Water Quality	3 Groundwater samples and 2 surface water samples were analyzed and concluded that: The ground water from all sources remains suitable for drinking purposes as all the constituents are within the limits prescribed by drinking water standards promulgated by Indian Standards IS: 10500-2012. From the surface water analysis it is evident that most of the parameters of the samples comply with 'Category C' standards of CPCB Drinking water source with conventional treatment followed by disinfection.
Soil Quality	Samples collected from identified locations indicate the soil is sandy type and the pH value ranging from 6.54 to 7.54, which shows that the soil is alkaline in nature.
Ecology and Biodiversity	There are no Ecologically Sensitive Areas present in the study area
Traffic analysis	From the analysis it can be seen that the LOS is not likely to change near village

1.5 BIOLOGICAL ENVIRONMENT

FLORA - Flora of the Core Zone

The core zone comprises of barren stony waste land, where mining operation is proposed. The flora on the mining site is naturally occurring but is very few in number. Most among them are weeds. No ecologically sensitive plant species has been reported from this area. The faunal variety is rather poor.

Flora of the Buffer Zone

Buffer zone of the proposed project is mainly agricultural land. The flora of buffer zone comprises of plants growing on the edges of agricultural land, village woodlots and trees planted along the roads. Many important species such as Neem (*Azadirachta indica*), Sisam (*Dalbergia sissoo*), *Terminalia tomentosa (T. elliptica)*, and Khair (*Acacia catechu*)with other associated tree species like Dhak, Palash (*Butea monosperma*), *Bombax ceiba, Aeglemarmelos, Adina cordifolia, Syzigium cumini, Azadirachta indica,* etc.

Agricultural Crops

Vegetation pattern in villages and surrounding areas are slightly different and lesser from the rest

of the regions of Bageshwar district. The common species grown near villages are mostly edible or useful plants such as *Mangiferaindica, Azadirachtaindica, Albizialebbeck, Delonixregia, Ficusreligiosa*, etc.

Fauna

Fauna Reported in Core zone:

During the faunal survey in the area no wildlife corridor or movement of animals was recorded from proposed project area. As far as the reptile community was concerned, Indian cobra, garden gecko and house lizard are recorded from the study area. No established habitats of any mammals or birds are noticed along the banks. No bird's habitats like nesting, breeding and forging patterns are noticed in the core zone.

Fauna reported in Buffer zone:

Many domesticated mammal species are reported from buffer zone during the field survey. Common domestic animals like Buffalo, cow, goat etc. can be noticed in open grass fields while grazing. Small mammals like Indian palm squirrel (*Funambuluspalmarum*) and field mouse (*Apodemussylvaticus*) are noticed in vicinity of the village. Inquiry from village people regarding wild animals reveals that monkey (*Macacamulata*), Indian hare (*Lepusnigricollis*), fruits bat (*Pteropusconspicillatus*), mongoose (*Herpestesedwardsii*), jackal (*Canisaureus*), etc. are often seen in the area. The bird population consists of Common teal (*Anascrecca*), White throated kingfisher (*Halcyon smyrnensis*), Pied kingfisher (*Cerylerudis*), Red wattled lapwing, House crow (*Corvussplendens*), House sparrow (*Passer domesticus*), Common hill Myna (*Gracularegiosa*), Red-rumped Swallow (*Cecropisdaurica*), Hoopoe (*Upupaepopsceylonensis*) etc are noticed.

The reptilian's species commonly reported are Garden lizard (*Calotes versicolor*), *Eutropismacularia,* rat snakes (*Ptyasmucosus*), Cobra (*Naja naja*) and Banded krait (*Bungaru smulticinctus*) etc.

Impact on Biodiversity

Present data have been collected through direct inventory as well as various Government Departments such as forests, agriculture, fisheries, animal husbandry and various offices to

establish the pre-project biological environmental conditions. There are no endangered species, wildlife sanctuary, wildlife corridors, faunal migratory routes or eco-sensitive area near the whole study area. Save the flora/fauna around the project area, is one of the basic objectives of present project. For this, mine owner agency will plant a good roadside plantation along both side of the mine road.

Plantation shall be carried out side the lease area over van panchayat land & shall be undertaken all along prominent wind direction to arrest the airborne dust particulate matter. The

Tree species to be planted is as below:

Peach (Aadu) - *Prunus persica***, Walnut (Akhrot) -** *Juglans spp.*, **Apricot (Khumani)-** *Prunus armeniaca***, Oak Tree-** *Quercus leucotrichophora***, Bayberry (Kaaphal) -** *Myrica esculenta Buch,* **Amla-** *Emblica officinalis***, Lemon (Jamini Nimbu)-** *Citrus medica Linn***,** etc.

The mine area and the surrounding is all agricultural land. Total 2.881 Ha of area comes under Agricultural area. The mining shall be carried out from lower levels to upper levels through the Formation of benches. During plan period as the mining pit shall reach its maximum economical depth backfilling shall be commenced to restore maximum original topography of one area. The Backfilled shall again utilize for agriculture purpose.

Impacts on aquatic ecology

Mining activities may result in affecting the riverine ecology by polluting the river water. But in this case, Rivers lies almost 0.5 km or more away from mine site and also nothing is being discharged into the River. Thus, it is recommended that adequate surveillance measures are implemented during project operation phase to ameliorate such impacts.

Mitigation Measures

There is a requirement to establish a stable ecosystem with both ecological and economic returns. Minimization of soil erosion and dust pollution enhances the aesthetic value of the core and the buffer zone. To achieve this, it is planned to increase the area of green cover of plantation and green belts activities. The basic objectives of plantations are as follows:

- Improvement of Soil quality,

- Quick vegetative cover to check soil erosion,
- Improvement in mining site stability,
- Conservation of biological diversity of plants, birds and animals,
- As dust receptor and dust filter, this is likely to be produced during mining.
- If birds are noticed crossing the core zone, they will not be disturbed at all;
- Labors will not be allowed to discards food, plastic etc., which can attract animals/birds near the core site;
- Only low polluting vehicles having PUC will be allowed for carrying mining materials.
- Noise level will be maintained within permissible limit (silent zone-50dB (A) during day time or residential zone 55dB (A)) as per noise Pollution (regulation and control), rules, 2000, CPCB norms.

1.6 LAND ENVIRONMENT

The proposed opencast mine will result in change of land use pattern of the mining lease area. The proposed opencast mine will result in change of land use pattern of the mining lease area. The land degradation is expected during mining activities like excavation, overburden dumping, soil extraction etc. Land requirement for the project has been assessed considering functional needs. The potential adverse impact of opencast mining is the change in land use pattern. So reclamation of mined out land will be given due importance as a step for land resource management.

Impact on land use & reclamation of mined out areas

The impact on land form or physiography will be land use on the hilly terrain will undergo radical changes due to the open cast mining. During the first five years mining, 1.235 ha land will be degraded due to mining & allied activities. The breakup of the land to be affected during first five years and end of conceptual period of due to mining operation is given below:

S .No.	Activities	End of 5 Years (Ha)	Area Occupied (Ha) End of Conceptual Plan
1	Mining pits Quarry	0.706	2.849
2	Interburden dumps	0.348	Nil
3	Soil stack	Nil	Nil

4	Foot track/PWD road	0.024	0.024
5	Habitation	0.028	0.028
6	Drainage/Nalla	0.087	0.087
7	Retaining Wall	0.042	Nil
8	Backfilled pit	0.521	2.40
9	Balance undisturbed Agricultural Land	2.881	1.128
	Total	**4.116**	**4.116**

At the end of conceptual period, there shall be no mining pits & all the mined-out pit shall be Backfilled/reclaimed to retain its maximum original topography of the area. The mining shall be Carried out from lower levels to upper levels through the formation of benches. During plan period as the mining pit shall reach its maximum economical depth backfilling shall be commenced to restore maximum original topography of one area. The backfilled shall be leveled &put it use for agriculture.

(b) Solid waste generation and management

Solid waste is generated at the project site. Below soil cover boulders of weathered magnesite & Dolomitic occurs having average thickness 2.0 m & same is treated as overburden/waste Material. All quantities of waste material to be generated each year shall be dumped with in lease Area secured with Gravity retaining wall (Gravity retaining wall having width & height 2.0m & 1.0m shall also be erected at the base of backfilled pit at the base & side of dump). All quantities of waste generated during plan period shall be used for backfilling the mined-out pits. The dumps are temporary in nature & all quantities shall be used in premature back filling over mined out pit before commencement of monsoon. After over the monsoon, the waste material shall be rehandled from mining pits & dump on the earmarked dump area. From third year onwards all quantities of waste material shall be used in backfilling.

Waste generation from Working Mules at the Mining lease Area

There are sloppy terrains in hilly regions and so metalled roads cannot be constructed anywhere. Soapstone is a kind of mineral found in various hilly regions and areas where roads are connected to haul paths which are poorly maintained and also “Kuccha” in nature. To load the

mineral in trucks for market, it needed to be transported by mules (khachhars) from the haul paths to the main metalled road.

Mules are needed to be deployed by the proponent for mineral transportation and so waste is being excreted by mules. The waste is being collected simultaneously by the labors on their way back and collected by mule operators in a separate bag tied on the mule, and dumped or collected at a specific location of the mining lease area which is not under operation at that time. Of this large amount of waste, portions of this can be taken away by the local people for vermicomposting or composting or as manure to their fields. Rest of the Waste will be transported at the end of the day to the nearby biogas facility. Biogas plant will be constructed after due discussion and consultation with the Gram Panchayat.

1.7 AIR ENVIRONMENT

Proposed Soapstone mine where emissions of Sulphur dioxide (SO_2), Oxides of Nitrogen (NOx) contributed by vehicles movement were considered marginal as branded make and vehicles with PUC certificate will be operated only. Fugitive dust and particulates are major pollutants which will occur in the mining activities. Fugitive emissions will be settled by 70- 80% by use of multiple water sprinklers. Prediction of impacts on air environment will be made with proposed production at the 10 km radius of study area due to mining activities.

Air pollution sources in the operating mine was classified into two categories

- Impact due to wind erosion & road maintenance
- Loading and unloading of mineral and OB, IB
- Transportation on the haul road

Water tankers with spraying arrangement of sprinklers with high efficiency will be used for regular water sprinkling on the haul roads to ensure effective dust suppression. The trucks and tippers are well maintained so that exhaust smoke does not contribute abnormal values of noxious gases and un-burnt hydrocarbons.

Control of Fugitive Emissions

- Use of Personal Protection Equipments (PPE) like dust masks, ear plugs etc. by the mine workers.

- No Blasting will be done.
- Regular water sprinkling on haul roads & loading points will be carried out.
- Development of green belt/plantation around the lease boundary, roads, dumps etc.
- Ambient Air Quality Monitoring will be conducted on regularly basis to assess the quality of ambient air.

Emissions due to mineral handling during mining operation are not much and restricted to the lease area only. Air pollution is caused mainly due to dust generation added with gaseous emission from transportation activities along with mining operation like evacuation, loading, haulage etc. Proper mitigation measures will be practiced during mining activities to control air pollution load below the prescribed limits. The same are as follows:

Prevention and control of Gaseous Pollution

- In mining activities, the sources of gaseous emissions would be through truck movements
- Proper maintenance of vehicles improves combustion process & makes reduction in the pollution. Good maintenance and monitoring of fuel and oil will not allow significant addition in the gaseous emission.
- All the vehicles used will have PUC certificate.
- Taxi mode of vehicles carrying mined out material while loading and unloading will not be allowed.
- Vehicles carrying mineral will be covered with tarpaulin sheet. This will prevent dust emission.

1.8 WATER ENVIRONMENT

Damage in the water body, depends on its assimilative capacity. To find out assimilative capacity of receiving water body, water samples were collected from different groundwater and surface water sources. The study indicates that assimilative capacity of the River water bodies still exists, but effective measures shall be taken to check water pollution. To find out the effect on ground water an extensive hydro-geological study has been conducted and from the study it can be safely concluded that there is no noticeable adverse effect on surrounding ground water resource due to mining. The mining activity does not require water. Mining of soapstone does not have any

significant impact on the water quality and parameters as the mining does not intercept with the ground water level. In this project, it is not proposed to divert or truncate any stream. No proposal is envisaged for pumping of water from the river. There will not be any adverse impact on surface hydrology and ground water regime due to this project. The water collected in the mine during monsoon season will be extracted with the help of pump & will be drained in nearby water body with the help of tankers approach road and area demarcated by gram panchayat. Thus, the project activities shall not have any adverse effect on the physical components of the environment and therefore may not have any effect on the recharge of ground waters or affect the water quality.

(a) Impact on Water Resources& Surface Water Resources:

The topography of the area will not be largely changed in view of the proposed concurrent reclamation. No surface water body exists and passes through the lease area. During the mining activity period, there is a possibility of mixing of freshly disturbed material with the rain water. To take care of such events, retaining walls have been provided along the backfilled pits and along the soil and inter-burden dumps. Before the commencement of rain all the mining pits shall be backfilled so that rain water does not accumulate in the mining pits. Rain water will be channelized along the slopes it shall not carry suspension to natural streams.

1.9 NOISE ENVIRONMENT

Anticipated impacts and evaluation

Noise generated at the mine is due to semi-mechanized mining operations, mechanized loading and truck transportation activities. The noise generated by the mining activity dissipates within the mine. However, pronounced effect of above noise levels is felt only near the active working area. The impact of noise on the villages is negligible as the villages are far located from the mine workings. Since there is no involvement of machinery, the impact of noise levels will be minimal.

(a) Noise Abatement and Control

In this mine the noise level will be up to tolerable limit (70 dB (A)) and the noise level can be reduced by:

- Proper maintenance, oiling and greasing of transport vehicles at regular intervals will be done to reduce the generation of noise.
- Adequate silencers will be provided in all the diesel engines.
- Plantation along the sides of approach roads, around office building and mine area will be done to minimize the propagation of noise.
- Personal Protective Equipments (PPE) like earmuffs/earplugs will be provided to all operators and employees working near mining machineries or at higher noise zone.
- Periodical noise level monitoring will be done.

The noise level in the working environment are compared with the standards prescribed by Occupational Safety and Health Administration (OSHA-USA) which has been adopted and enforced by the Govt. of India through model rules framed under Factories Act, 1980 and CPCB 2000 norms. The off-site receptors are not significantly affected as they are located far away from the mine site. But some disturbances due to vehicle movement cannot be avoided. Plantation will be done along the barrier zone and roadsides etc. which will more or less dampen the off-site noise level.

1.10 TRAFFIC ANALYSIS

From the above analysis it can be seen that the V/C ratio for mines w.r.t Village Road is likely to change from 0.164 to 0.188 with LOS being no Change with 'A' as per classification LOS stated above & also for NH 309/A V/C ratio changed from 0.173 to 0.1762 with LOS being same "A" which is 'Excellent' as per classification LOS stated above. The minerals excavated will be loaded directly into trucks and transported to the concerned market.

1.11 ENVIRONMENTAL MANAGEMENT PLAN (EMP)

Table 1.6: Budget allotted for Environmental Management Plan

S. No.	Description	Capital Cost	Recurring Cost (Rs.)
Expenditure on Environment Protection & Environment Management			
1.	**Haulage Road Repair & Maintenance** Annual 300 m (L) x 5 m (W) =1500m^2		**1, 00,000**
2.	**Water Sprinkling on Haulage Path for Dust Suppression**	Assuming Rs.500/day for 240 days of working Tanker Cost: Rs. 500/Tanker Tanker Capacity: 5000 liter, No. of Tankers required: 1	**1, 50,000**
3.	**Plantation & post plantation care**	4, 00,000 Plantation @200/sapling (Sapling annually for 3 years) And post plantation	**1, 00,000**
4.	**Environmental Monitoring & Compliances.**	Half Yearly Monitoring of Environmental Parameters viz. Air, water, Noise & Soil. Half Yearly Submission of Compliances.	**1, 00,000**
5.	**Corporate Social Responsibility**	1, 30,000	
6.	**Mule Waste (Distribution of mule waste to nearby Biogas beneficiaries)**	1, 00,000/- (Waste collection, transportation, fodder for mules)	
	Total	**Rs. 6, 30, 000**	**Rs. 4, 50,000 (4.50 Lakhs)**

1.12 BENEFIT OF MINING

- **PHYSICAL BENIFITS**

The impact on the civic amenities will be substantial after the commencement of mining activities. The basic requirement of the community needs will be strengthened by extending health care, educational facilities developed in the township to the community, providing

drinking water to the villages, building/strengthening of existing roads in the area. The proponent will initiate the above amenities either by providing or by improving the facilities in the area, which will help in uplifting the living standards of local communities. Medical facilities will be provided in the form of first-aid facility at the mine. These medical facilities will also be available to local people in the surrounding in case of emergencies.

- **SOCIAL BENEFITS**

- Generation of employment and improved standard of living;
- Increased revenue to the State by way of royalty, taxes and duties; and
- Superior communication and transport facilities etc.
- There will be significant change in the socio-economic scenario of the area.
- The proposed project will enhance the prospects of employment. Recruitment for the unskilled and semiskilled workers for the proposed project will be from the nearby villages.
- The development of the basic amenities viz. roads, transportation, electricity, drinking water, proper sanitation, educational institutions, medical facilities, entertainment, etc. will be developed as far as possible.
- Overall, the proposed project will change living standards of the people and improve the socio-economic conditions of the area.

ENVIRONMENTAL BENEFITS

- **Enhancement Of Green Cover**

Plantation/afforestation will be done as per program 2000 plants will be planted over van panchayat land and Benap land or the area demarcated by Gram Panchayat/Local Administrative body with consultation & permission of forest department or concerned authority along with provision for maintenance for 5 years. Post plantation, the area will be regularly monitored in every season for evaluation of success rate. For selection of plant species local people will also be involved. The management will provide free saplings of fruit and other trees, etc. to local during rain for plantation. This will increase the consciousness in workers and near-by villagers for greenery. Fruit trees can contribute towards their financial gains.

1.13 CORPORATE SOCIAL RESPONSIBILITY

Table 1.7 Budget allotted for Corporate Environmental Responsibility per annum

S no.	Activity	Quantification	Capital cost
1	Maintenance of Religious Places	1	50,000
3	Distribution of books and stationary items	1	30,000
4	Maintenance of schools and Playgrounds	-	50,000
Total			**1, 30,000**

1.14 CONCLUSIONS

- The mining operations will meet the compliance requirements of MoEF & CC;
- Community impacts will be beneficial, as the project will generate significant economic benefits for the region;
- Adoption of Best Available Technology and Best Management Practices with more environmental friendly process
- With the effective implementation of the Environment Management Plan (EMP) during the mining activities, the proposed project can proceed without any significant negative impact on environment.