EXECUTIVE SUMMARY

10.1 PURPOSE OF THEREPORT- Environmental Impact Assessment (EIA) is a decision making tool, in the hands of the Authorities which brings forth the factual position about a project that enables them in arriving at an appropriate conclusion for the proposed projects, to retain them if environmentally sound, and reject if found having deleterious overall impact. EIA 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. This process has been envisioned and set in motion by the Ministry of Environment and Forests for sustainable development and the final decision is arrived at only, when those to whom it matters are made known of the salient features of the project being envisaged close to them and their opinion has been sought in a widely advertised Public Hearing Event under the chairmanship of the district authorities so that public could also express their opinion free, without favour and fear. Draft Environmental Impact Assessment report is being prepared and submitted to pollution control board to comply with the Terms of Reference (TOR) received from SEIAA, vide Letter No. 159/SEAC, Uttarakhand, dated 7 March 2020 under EIA Notification of the MoEF&CC dated 19-8-2006, and its subsequent amendments and EIA Guidance Manual for Mining of Minerals of MoEF&CC, Govt. of India, for seeking environmental clearance for Extraction of Sand/Bajri/Boulder in the applied mining lease area measuring 13.161 Ha. The proposed project falls under Category "B1" as per EIA Notification 2006 and its subsequent amendment of the MoEF&CC.

10.2 IDENTIFICATION OF PROJECT & PROJECTPROPONENT

The proposed project of M/s to Sh. Sudhir Kumar Windlash S/o Late Sh. VaidPrakashWindlash, is for extraction of Sand/Bajri/Boulder from the dry surface of Sukhro River which covers an area of 13.161 Ha near Khasara No. 657/3 Village- Banjarewala Grant, Tehsil- Bhagawanpur& District- Haridwar, Uttarakhand. LOI has been granted in favour of M/s Sh. Sudhir Kumar Windlash vide Letter No. 549/VII-1/2018/4 kha/2018, dated 27 March 2018. RBM i.e. Sand, Bajri and Boulder are available everywhere and is being used from the time immemorial for wide applications in our daily life like infrastructure, building construction, highways, roads, townships, multiplexes, foundations of buildings and industrial units etc. and is an integral part of development.

Highest production of Sand, Bajri and Boulder will be 2,89,542 Tonnes/ Annum.

YEAR	PRODUCTION OF RBM (TONNES)
FIRST YEAR	2,89,542
SECOND YEAR	2,89,542
THIRD YEAR	2,89,542
FOURTH YEAR	2,89,542
FIFTH YEAR	2,89,542
Total	**1,44,7710 Tonnes**

The proposed mining project has been categorized as Category B1 project.

Proponent & Address

Sh. Sudhir Kumar Windlass S/o Late Shri Vaid Prakash Windlass Resident of R-53, Rajpur Road, Dehradun, Uttarakhand.

10.2.1 Brief description of nature, size and location of the project:

Brief details of the project are described in the Table No. 1.1 given below:

Table No.1:- Details of the Project

S. No.	Particulars	Description
A	**Mining Lease & Location Details**	
1.	Name of the Project	Proposed Extraction of Sand/Bajri/Boulder at Khasra No- 657/3, Village - Banjarewala Grant, Tehsil- Bhagwanpur, District- Haridwar (Area- 13.161 Ha)
2.	**Location**	
a.	Village	Banjarewala Grant
b.	Tehsil	Bhagwanpur
c.	District	Haridwar
d.	State	Uttarakhand
3.	Lease Area Coordinate	Latitude- 30°07'14.20"N Longitude- 77° 53'12.60"E
		Latitude- 30°07'11.50"N Longitude- 77° 53'15.30"E
		Latitude- 30°07'6.40"N Longitude- 77° 53'10.00"E
		Latitude- 30°06'59.40"N Longitude- 77° 53'2.80"E
		Latitude- 30°06'57.50"N Longitude- 77° 53'0.60"E
		Latitude- 30°06'56.30"N Longitude- 77° 53'59.70"E
		Latitude- 30°06'56.10"N Longitude- 77° 53'0.10"E
		Latitude- 30°06'49.30"N Longitude- 77° 52'55.00"E
		Latitude- 30°06'47.00"N Longitude- 77° 52'52.00"E
		Latitude- 30°06'38.50"N Longitude- 77° 52'47.20"E
		Latitude- 30°06'36.10"N Longitude- 77° 52'45.40"E

		Latitude- 30°06'30.70"N Longitude- 77° 52'36.40"E
		Latitude- 30°06'29.20"N Longitude- 77° 52'36.70"E
		Latitude- 30°06'23.90"N Longitude- 77° 52'30.90"E
		Latitude- 30°06'31.70"N Longitude- 77° 52'34.80"E
		Latitude- 30°06'41.20"N Longitude- 77° 52'39.40"E
		Latitude- 30°06'37.50"N Longitude- 77° 52'40.40"E
		Latitude- 30°06'40.20"N Longitude- 77° 52'46.00"E
		Latitude- 30°06'38.60"N Longitude- 77° 52'47.10"E
		Latitude- 30°06'47.10"N Longitude- 77° 52'51.80"E
		Latitude- 30°06'48.20"N Longitude- 77° 52'50.50"E
		Latitude- 30°06'50.80"N Longitude- 77° 52'53.10"E
		Latitude- 30°06'57.20"N Longitude- 77° 52'58.00"E
		Latitude- 30°07'3.00"N Longitude- 77° 53'1.10"E
		Latitude- 30°07'8.10"N Longitude- 77° 53'7.70"E
		Latitude- 30°07'11.50"N Longitude- 77° 53'10.00"E
4.	Lease Period of Mine	Letter of Intent was granted for proposed mining lease upto five (5) years.
5.	Whether the area is in forest (please specify whether protected, reserved etc.)	No, area does not fall under forest area
6.	Ownership/ Occupancy	Letter of Intent/GO released, **No. 549/VII-1/2018/4-kha/2018, dated 27 March 2018** under Uttarakhand Minor Mineral Rules (Revised) 2017 for mining of minor minerals (RBM) by Department of Industrial Development Department, State Govt. (Attached as Annexure I)
7.	Cost of the project	Rs. 13 Lac
8.	Man Power Requirement	50 Nos.

9.	Water Requirement & Source	4.4KLD approx. for Drinking & Dust Suppression / Plantation & Source: Nearby villages & natural springs.
B	**Environmental Settings**	
10.	Elevation(RL)	Highest & lowest levels found in the area are of RL 356.15 to 340.84m
11.	Nearest National Highway /State Highway	NH-72A: 2.9km in the NW
12.	Nearest Railway Station	Doiwala Rly Station- 23km in the NE
13.	Nearest Airport	Jolly Grant Airport, Dehradun; 29 Km NE (Aerial)
14.	Ecological Sensitive Areas(Wildlife Sanctuaries)	Rajaji National Park; 0.118km N(Aerial)
16.	Nearest Habitation	Banjarewala- 880m in the NE
17	Nearest River	Lease Area Lies at the bank of Sukhro River
18.	Seismic Zone	Zone IV

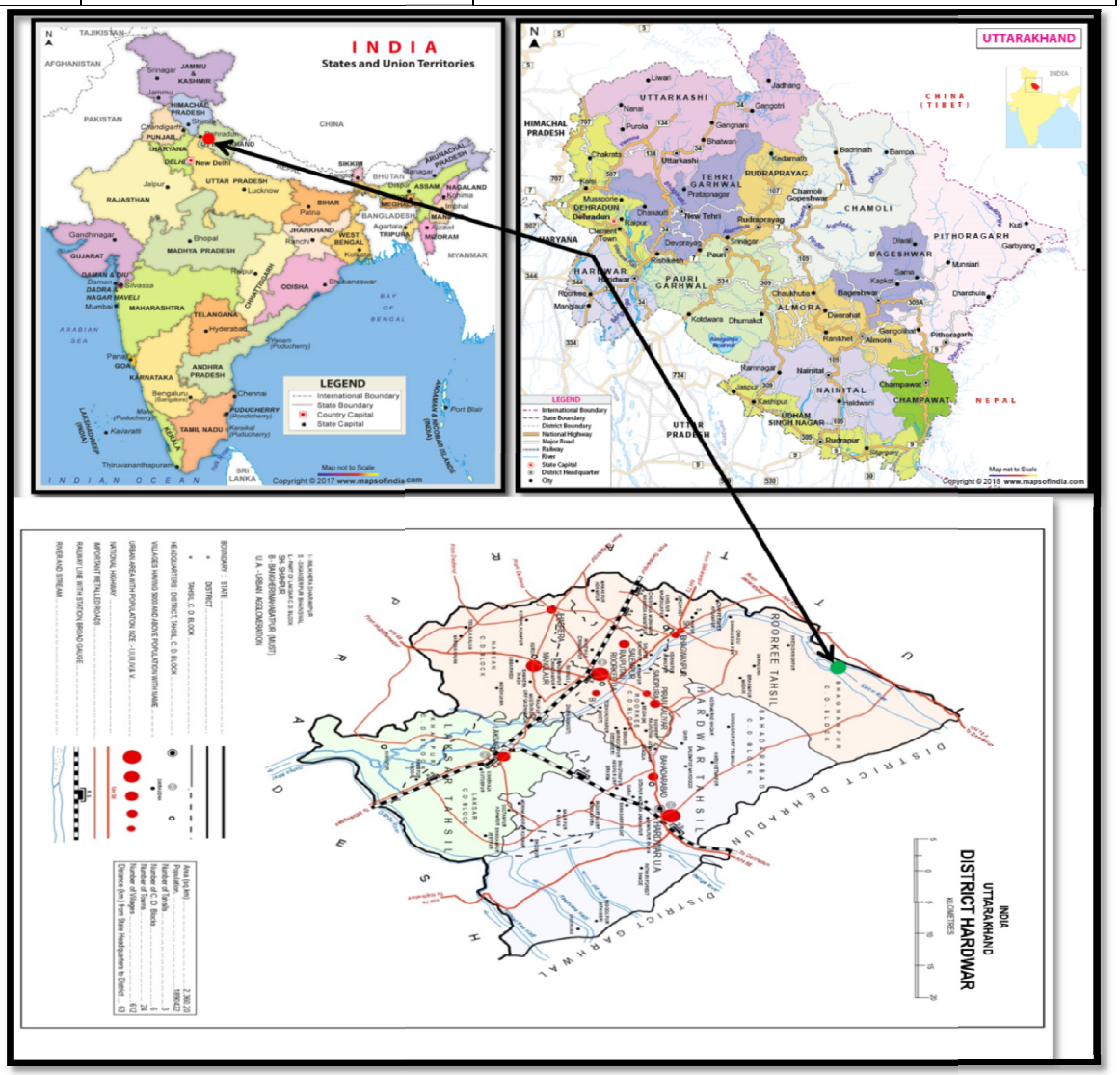

Figure-10.1 –Project Location

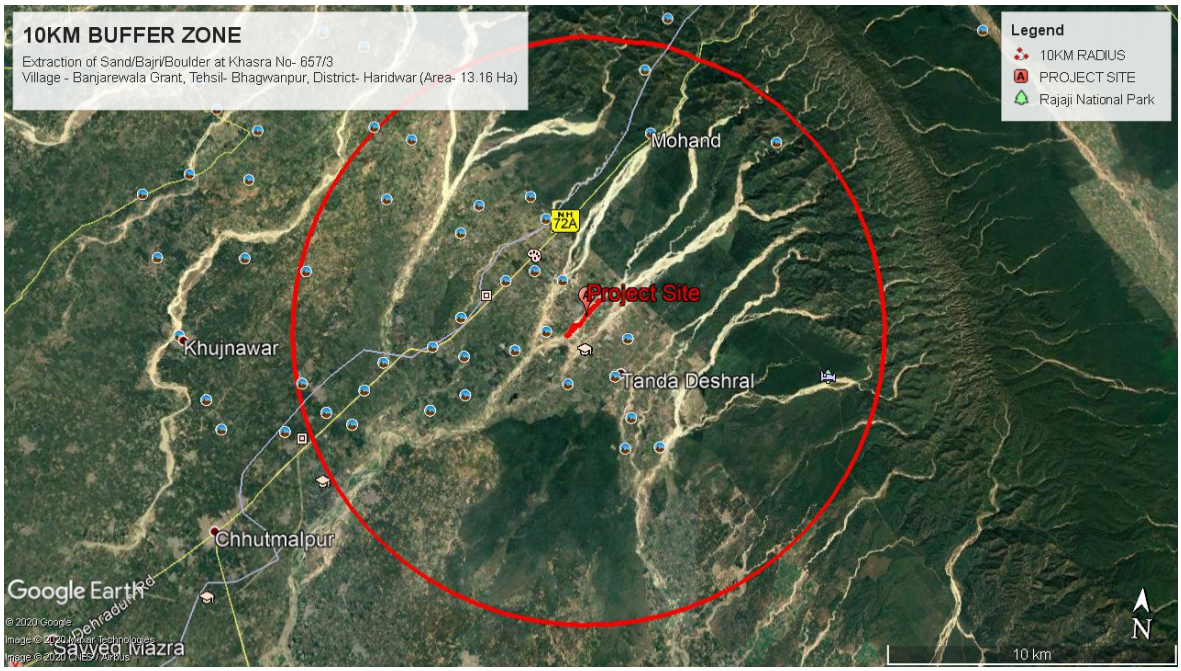

Figure-10.2 10 KM Study area

10.3 STATUS OF REGULATORY CLEARANCES OF THEPROJECT- The Mining plan has been approved by DGMOU vide Letter No. 2715/उ०ख०/मा०प्लान/हरी०/2018-19 dated 8March 2019

The Rajaji National Park lies at a distance of 1.1km of Proposed Mining. The Wildlife clearance is under process.

There is no legal issue against the project in the court of law.

MINING -The proposed mining method is conventional opencast river bed mining with hand tools, shovels and pan without drilling & blasting. Proposed mining will be started from higher levels to lower levels, after leaving safety zone, through phase wise/ block wise, going to the maximum depth of 1.5m below ground levels (bgl) or above ground water level whichever is less. Length of the block may be decided on the spot convenience. Total lease area is workable and replenishable yearly. After each workable year, a longitudinal wall of about 1m shall be raised and repaired thereafter, as required, on the river bank side to check toe erosion, an environment hazardous phenomenon, may be induced by the heavy floods during monsoon season. Mineral extraction will be done for a period of 240 days in a year; during monsoon period mining activity will be strictly banned.

Following guidelines will be followed while carrying out mining:

1. Uttarakhand State Minor Mineral Mining Policy and amendments.
2. The Uttarakhand Minor Mineral (Sand, Bajri, Boulder etc.) Policy 2017
3. All other guidelines & Circulars, related to RBM mining/ Gazettes of the Ministry of Environment & Forests.

2.11 MODE OF WORKING

For the optimum utilization of the mineral available in the lease area, mine working has been planned and scientific layout has been designed considering the following parameters:

- Mining operation proposed by opencast manual method.
- Maximum (proposed) Height/depth of benches shall be kept 1.5m.
- About 15% Safety barriers/left from the river bank/ has been proposed to stop the toe erosion phenomena.
- The quarry planning is done in simple rotational manner, since deposit is very simple, shallow and beds are horizontal.
- Simultaneous plantation work will also be done along the lease boundary/provided land for plantation
- The approach road will be repaired from time to time.
- The proposed minor mineral extraction area is jointly visited by various district level department officers and boundary pillars been demarcated and informed to the applicant.
- No mechanization is required as the operation will be manual method without drilling or blasting.

10.4IMPACT ON LAND USE & RECLAMATION OF MINED OUT AREAS

The proposed opencast mine will result in change of land use pattern of the ML 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. Mining will be done after leaving 7.5 m safety barrier.

Plantation will be developed in consultation with district administration/ local authority, wherever feasible.

10.5LAND USE PATTERN-Presently (pre-mining), the land covered under the mine lease area is non-forest land.

10.6 BASELINE ENVIRONMENTAL STATUS

Soil Quality- Five soil samples were collected in and around the mine lease area to assess the present soil quality of the region. Physical characteristics of soil were characterized through specific parameters viz bulk density, porosity, water holding capacity, pH, electrical conductivity and texture. Soil pH plays an important role in the availability of nutrients. Soil microbial activity as well as solubility of metal ions is also dependent on pH. In the study area, variations in the pH of the soil were

found to be slightly basic (7.15 to 7.50). Electrical conductivity (EC) is a measure of thesoluble salts and ionic activity in the soil. In the collected soil samples the conductivity ranged from 124-140 µmhos/cm.

The soils with low bulk density have favorable physical condition where as those with high bulk density exhibit poor physical conditions for agriculture crops.
Based on the results, it is evident that the soils are not contaminated by any polluting sources.

Meteorology- Meteorological data at the site was monitored during 1st March 2020 to 31th May 2020 representing pre-monsoon season.

Ambient Air Quality- Ambient Air Quality Monitoring reveals that the maximum & minimum concentrations of PM_{10} for all the 5 AQ monitoring stations were found to be 87.20 µg/m^3 at AAQ-4 and 65.00 µg/m^3 at AAQ-4 AQ5, respectively, Whereas the maximum & minimum concentrations of $PM_{2.5}$ for all the 5 AQ monitoring stations were found to be 55.10 µg/m^3 at AAQ-1 and 35.30 µg/m^3 at AAQ-4 and, respectively. As far as the gaseous pollutants SO_2 and NO_2 are concerned, the prescribed NAAQS limit of 80 µg/m^3 for residential and rural areas has never surpassed at any station. The maximum & minimum concentrations of SO_2 were found to be 13.00 µg/m^3 at AAQ-4 & 7.00 µg/m^3 at AAQ-3 respectively. The maximum & minimum concentrations of NO_2 were found to be 25.20 µg/m^3 at AAQ-5 & 13.30 µg/m^3 at AAQ-3 respectively.

Water Quality- The water quality in the impact zone was assessed through physico-chemical and Microbiological analysis of ground water samples. The results have been compared with the drinking water quality standards specified in IS: 10500. It was observed that all the physico- chemical parameters and heavy metals from ground water samples are below stipulated limits for drinking water standards.

Analysis results of ground water reveal the following: -

- pH varies from 7.20 at GW-1 in the month of MARCH, 2020 to 7.45 at GW-2 in the month of MAY, 2020.
- Total hardness varies from 142 mg/l GW1 in the month of march, 2020 to 164 mg/l at GW-2 in the month of May, 2020.
- Total dissolved solids vary from 252 mg/l at GW-1 in the month of March, 2020 to 272 mg/l at GW-2 in the month of May 2020.

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.

Noise Levels

Noise monitoring reveals that the maximum & minimum noise levels at day time were recorded as 55.0 dB(A) at NQ-5 & 44 dB(A) at NQ-1 respectively. The maximum & minimum noise levels at night time were found to be 43.0 dB (A) at NQ-5 & 35.0 dB(A) at NQ-3 respectively. There are

several other sources in the 10 km radius of study area, which contributes to the local noise level of the area. Traffic activities as well as activities in nearby villages and agricultural fields add to the ambient noise level of the area.

Ecological Environment

After a potential search, neither any direct sighting nor the indirect evidences were found in whole study area. A list of wild fauna of the study area has been prepared on the basis of local inquiry from the village people and from the available published literatures. The conservation value at regional level of identified fauna was gathered from the Wildlife protection Act, 1972 moreover, global conservation status of species was estimated from Red data book of IUCN was used. No established habitats of any mammals or birds are noticed in river bed and along the banks. The Rajaji National Parks is falling 0.118km within the study area of 10-km radius.

10.7 ANTICIPATED ENVIRONMENTAL IMPACTS

Impact on Air Quality

RBM mine where PM10 and PM2.5 will be the main pollutants generated in mining activities. The emissions of Sulphur dioxide (SO2), Nitrogen Oxide (NO2) contributed by diesel operated equipment and vehicles movement were considered marginal as branded make and vehicles with PUC certificate will be operated only. Fugitive dust and particulates are major pollutants occurred 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 and net increase in PM10 and PM2.5 emissions at the proposed site and at the 10 km radius of study area due to mining activities.

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

i. Loading and unloading of mineral and OB, IB

ii. Transportation on the haul road

Impact on Water Resources Surface Water Resources

The topography of the area will not be largely changed in view of the proposed concurrent reclamation. During the mining activity period, there is a possibility of mixing of freshly disturbed material with the rain water. To take care of such happenings, retaining walls have been provided along the backfilled pits and along the soil and interburden dumps.

Groundwater Resources

As per the proposed mining the working shall be confined upto 1.5m bgl or above the ground water table, whichever is less. Hence no water clogging is likely to be encountered. Therefore, there is no need of any such arrangements.

Impact on Water Quality

The impact on water quality will be confined to increased suspended solids during rain. The dumps will be secured with toe walls and rainy water will not carry significant suspended material.

Impact on Noise Levels and Ground Vibrations

With the mining operations, due to the deployment of machinery, operation for mine development, excavation and transportation of RBM, it is imperative that noise levels would increase. It is also observed that these incremental noise levels will not significantly affect the existing ambient noise levels.

Impact on Soil

The environmental impacts of the mining activities on topsoil are based on the quantity of removal of topsoil and its dumping. In the present project as it is proposed to temporarily store the topsoil and use it for plantation schemes, no impact of dozing of topsoil is envisaged.

The quantum of soil removed during the mining will be very less. Soil will lose its compactness. Present, End of the fifth years & Conceptual land use pattern land use pattern is given in mine plan attached as **Annexure-2**.

Impact on Flora and Fauna

Fauna

The baseline flora and fauna has been depicted in Chapter-3. The proposed mining area is located 1.1km away from the Rajaji National Parks. The most of the area surrounding to project site are covered with Forest land. There are no trees in the project area. The project shall also not lead to any change in landuse and will be replenished every year after successive rains. The proposed mining activity, which although is an economically gainful activity, also constitutes river training work. It allows for necessary dredging activity which may otherwise lead to flooding of the valley.

There shall be negligible air emissions or effluents from the project site during loading of the truck. This shall be a temporary effect and not anticipated to affect the surrounding vegetation significantly.

Mitigation Measures

Flora

Although, the project will not lead to any tree cutting, plantation activities shall be undertaken to improve the vegetation cover of the area. To avoid dust emissions, the mined materials will be covered with tarpaulin during transportation.

Fauna

The workers shall be directed to not venture out of the leased area for collecting fuel wood, or hunting.

They shall also be trained not to harm any wildlife. No work shall be carried out after sunset.

Impact on Land Use Pattern

The proposed opencast mine will result in change the land use pattern of the ML 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.

Impact on Socio - Economic Aspects

The mine area does not cover any habitation. Hence the mining activity does not involve any displacement of human settlement. No public buildings, places, monuments etc exist within the lease area or in the vicinity. The mining operation will not disturb/ relocate any village or need resettlement. Thus no adverse impact is anticipated.

The impact of mining activity in the area is positive on the socio-economic environment of the region. The proposed RBM Mine will be providing employment to local population and it will be give preference to the local people whenever there is requirement of man power

10.8 ENVIRONMENTALMANAGEMENTPLAN

The summary of environmental mitigation measures are given in below table

Table2: Proposed Environmental Mitigation Measures

Impact Predicted	Suggestive measure
Disturbance of free movement / living of wild fauna	• Awareness camps will be conducted for labours to make them aware about sensitivity/importanceof forest life. • No tract or new road for movement of laboursor vehicles be laid in reserve forest area, this will prevent forest fragmentation, encroachment and human – animal encounter. • Care will be taken that noise produced duringvehicles movement for carrying ore materials are within the permissible noise level. Higher noise level in the forest area will lead to restless and failure in detection of calls of mates and young ones. • Care will be taken that no hunting of animals carried out by labours. • If wild animals are noticed crossing the core zone, it will not be disturbed at all. • Labours will not be allowed to discards food, plastic etc., which can attract animals near the core site. • Only low polluting vehicle will be allowed for carrying ore materials. All vehicles allowed in the project site

	area will have to provide pollution under control certificate at the end of three months. • No honk will be allowed in the forest area, noiselevel will be within permissible limit (silent zone-50dB during day time) as per noise pollution (regulation and control), rules, 2000, CPCB norms.
Harvesting of forest flora	• No tree cutting, chopping, lumbering, uprooting of shrubs and herbs should be allowed. • No pilling of ore material should in the reserve forest area. • Collections of economically important plants will be fully restricted.

10.9ANALYSIS OF ALTERNATIVES- The RBM i.e Sand, Bajri& Boulder has been identified based on the result of geological investigations and exploration carried out by the DGM Uttarakhand. The mining projects are site specific as such alternate sites were not considered. The mine is operated by opencast cum Manual method of mining. No other alternative technologies can be used because of the hard nature of the ore. Proposed mine is using eco-friendly measures to minimize the impact of mining on the surrounding environment.

10.10 COST ESTIMATES- The details of the cost to for the Environmental Management plan for 5 years, the budget for Corporate Environmental Responsibility (CER) (per year) and year wise allocation of funds for the various activities proposed to be taken up under CSR programme has been given in below Table-4.

Table-4: CSR Cost Estimates

S. No.	Activities	Allocation of Fund (Rs. Lacs)
1	Health Camps	0.05
2	Up gradation of toilets of government school in nearby villages	0.1
3	Distribution of Books and Notebooks among meritorious girl child belonging to Scheduled Caste and Scheduled Tribe population.	0.1
4	Repair and Painting of School Building in the project village	0.08
	Total	**0.33**

Table-5: Budget for Environmental Protection

S.No.	Components	Schedule and Duration of	Approximate Unit Cost (per location)	Total Cost (per

		Monitoring/Execution	Total Cost (per year	year
1	Air (5 Nos)	Twice in a Year	Rs. 3,500/-	35,000/-
2	Water (2Nos)	Twice in a Year	Rs. 3,000/-	12,000/-
3	Noise (5Nos)	Twice in a Year	Rs. 700/-	7,000/-
4	Soil (3Nos)	Twice in a Year	Rs. 3,000/-	18,000/-
5	Plantation Cost	In Fiver Year	100Rs @Sapling 1500	1,50,000
Total				**2,22,000/-**

10.11ADDITIONAL STUDIES

Risk Assessment and Disaster Management Plan

The complete mining operation will be carried out under the management control and direction of a qualified mine manager holding Mines Manager's Certificate of Competency. Moreover, mining staff will be sent to refresher courses from time to time to keep them updated.

Disaster Management Plan

Emergency preparedness is an important aspect in the planning of Disaster Management. Personnel would be trained suitably and prepared mentally and physically in emergency response through carefully planned, simulated procedures. Similarly, the key personnel and essential personnel shall be trained in the operations.

10.12 PUBLIC CONSULTATION

Public Hearing- In consonance with the EIA notification dated 14th September 2006, vide section 1 (a) related to Public Hearing, the draft EIA/EMP report shall be submitted to the Uttarakhand Pollution Control Board (UPCB) for public hearing.

10.13 PROJECT BENEFITS

The impact on the civic amenities will be substantial after the commencement of mining activities. 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.

•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.

The employment of local people in primary and secondary sectors of project will upgrade the prosperity of the region.

10.14 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; and

•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.