DRAFT ENVIRONMENTAL IMPACT ASSESSMENT
AND
DRAFT ENVIRONMENTAL MANAGEMENT PLAN
FOR

PROPOSED MINING OF SOAPSTONE

AT

VILLAGE: KABHATA, TEHSIL – KANDA, DISTRICT: BAGESHWAR, UTTARAKHAND

AREA: 15.304 HA, PROPOSED CAPACITY: 30,000 TPA (MAXIMUM)

PROJECT PROPONENT

M/S DEVBHOOMI MINES

SHRI. RAMESH CHANDRA PANDEY

Village – Kabhata, Tehsil – Kanda

DIST- Bageshwar (UTTRAKHAND)

PREPARED BY

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CHAPTER 1: INTRODUCTION

1.1 PURPOSE OF THE EIA REPORT

Environmental Impact Assessment (EIA) is one of the proven management tools for integrating environmental concerns in development process and for improved decision making as there is need to harmonize the developmental activities with the environmental concerns into the larger interest of the society. The growing awareness, over the years, on environmental protection and sustainable development, has given further emphasis to the implementation of sound environmental management practices for mitigating adverse impacts from developmental activities. EIA plays a vital role in sustainable development of a country. Recognizing its importance, the Ministry of Environment, Forest and Climate Change (MoEF&CC), Government of India has formulated policies and procedures governing the industrial and other developmental activities to prevent indiscriminate exploitation of natural resources and to promote integration of environmental concern in project development.

Draft Environmental Impact Assessment report has been prepared to comply with the proposed Terms of Reference (ToR), under EIA notification of the MoEF&CC dated 14th September, 2006 and amended thereof, for seeking environmental clearance for mining of soapstone in the applied mining lease area.

1.2 IDENTIFICATION OF PROJECT & PROJECT PROPONENT

The project is being proposed by M/s Devbhoomi mines. The address of the proponent is given below:

M/s Devbhoomi Mines

Shri Ramesh Chandra Pandey (Partner),

Village –Mandalsera,

Tehsil & District - Bageshwar (Uttarakhand)

The proponent has applied for environmental clearance for mining lease in the name of Soapstone (Agricultural Land) Mining Project over an area of 15.304 ha at Village- Kabhata, Tehsil – Kanda, District- Bageshwar, Uttarakhand.

1.3 BRIEF DESCRIPTION OF PROJECT

1.3.1 NATURE

The proposed mining will be done semi-mechanized way in open cast method in quite a systematic manner and The mining shall be carried out in four pits and will be done open semi cast semi mechanized mine in quite a systematic manner by forming 9.0m height benches which will be sliced in three stages each of 3.0m height with 1.5m height sub benches.

1.3.2 SIZE

The mine lease area is 15.304 Ha. private Agricultural land on hill terrain and the project is contemplated to extracted the mineral (Soapstone) by manual open pit/cast method of mining without blasting.

1.3.3 LOCATION

The proposed lease of Soapstone Mine is situated at Village- Kabhata, Tehsil – Kanda, District - Bageshwar in the Uttarakhand State. The location and Salient feature of mining Lease area has been shown in **Table 1.1**. The location map of the mine lease area has been shown in **Figure 1.1**.

Table 1.1: Location and Salient feature of Mining Lease Area

Sr. No	Particular	Details
A.	**Nature of the Project**	**Soapstone Mining Project.**
B.	Size of the Project	
1.	ML Area	15.304 Hectare (Private Agricultural Land).
2.	Proposed Production Capacity	Total Recoverable Quantity of Soapstone:
		30,000 Tonnes/Annum (maximum) (As per approved mining plan)
3.	Lease Period of Mine	Lease was granted for a period of 50 Years.
C.	Method of Mining	
1.	Method	Open-Cast Manual Mining
2.	Blasting / Drilling	Not proposed
D.	Project Location	
1.	Village	Kabhata
2.	Tehsil	Kanda
3.	District	Bageshwar
4.	State	Uttarakhand
5.	Toposheet No.	53 O/13
6.	Lease Area Coordinates	Latitude 29° 49' 07.95" to 29° 49' 23.26"
		Longitude 79° 55' 25.16" to 79° 55' 59.99”
E.	Cost Details	
1.	Project Cost	Rs. 40 Lakhs
F.	Water Demand	
1.	Requirement	10 KLD
2.	Source of water	Natural Springs (nalah)
G.	Man Power Requirement	71
H.	Environmental Setting	
1.	Nearest Village	Kabhata
2.	Nearest Town	Bageshwar, 15 Km.
3.	Nearest National / State Highway	Kanda Mithunkot Saniudiyar Road, 200m

4.	Nearest Railway Station	Kathgodam, 71 Km
5.	Nearest Airport	Pithoragarh, 40 Km
6.	Ecological Sensitive Areas (National Park, Wild Life Sanctuaries, Biosphere Reserve etc.) within 10 km radius	None
7.	Reserved / Protected Forest within 10 km radius	Kabhata RF – 200 m
8.	Water bodies within 10 km radius of the mine site.	Saryu River, 11km
9.	Archaeological Important Place	None
10.	Seismic Zone	V

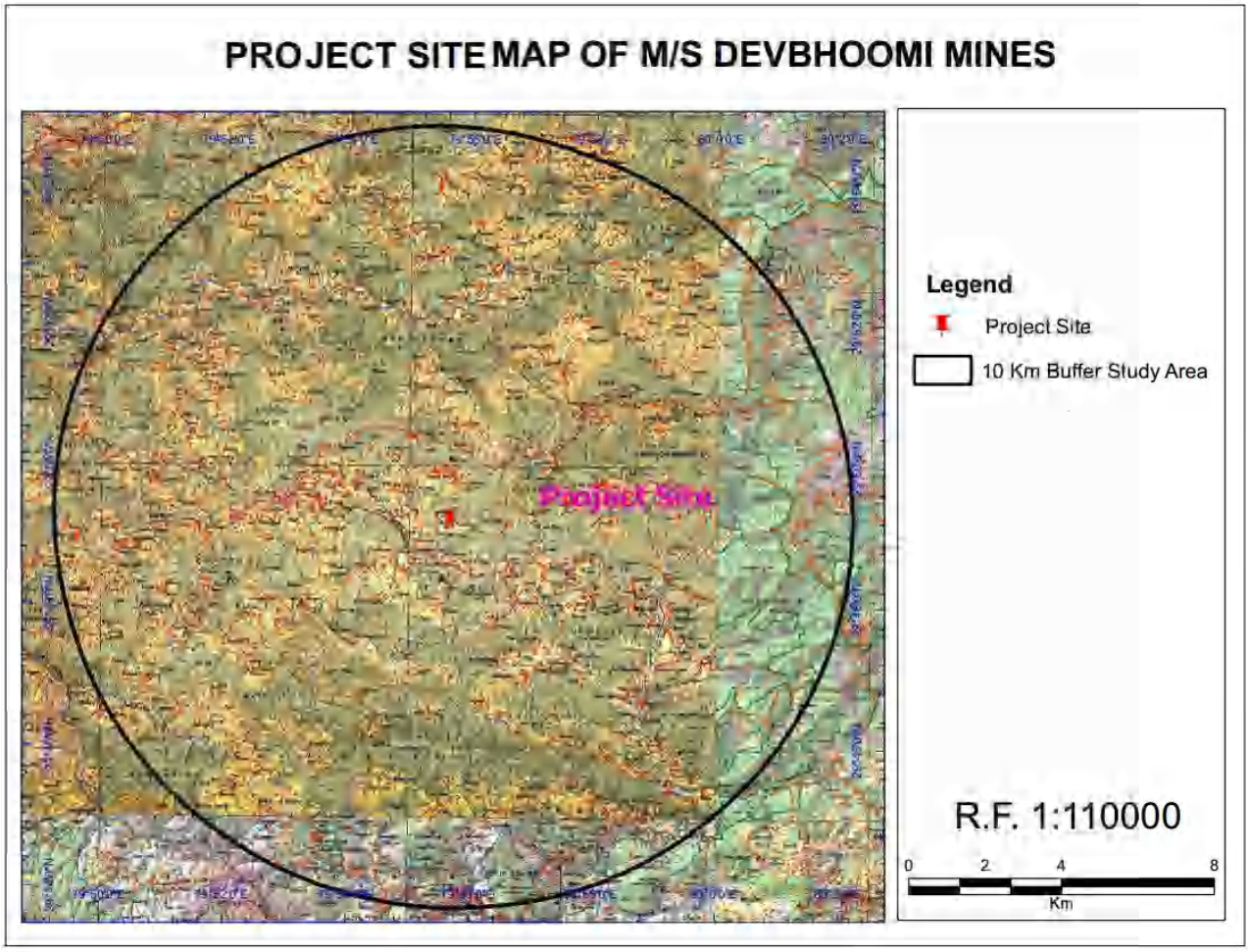


Figure 1.1: Location Map of the mine lease area

1.4 PROJECT'S IMPORTANCE TO THE COUNTRY AND THE REGION

Soapstone finds its use in many of the industries that include detergent & Paper industries etc. The natural available material in the quarry site has been found suitable from techno economic consideration. The mining project shall provide direct employment to about 71 persons. Additional jobs are created by way of transportation.

No subgrade mineral is produced from the mine. The soapstone is being dressed manually and transport to Haldwani. The final material will be utilized paper & cosmetic industries.

1.5 SCOPE OF THE STUDY

The SEAC in its meeting dated 03rd June, 2021 examined the proposal. After through discussion and deliberation, it has been conveyed by SEAC that draft EIA/EMP report shall be prepared as per approved ToR and after public consultation through Uttarakhand Environment Protection and Pollution Control Board the final EIA/EMP report shall be submitted after incorporating Public Hearing details to SEIAA, Uttarakhand for Environmental Clearance.

1.6 POINT WISE COMPLIANCE

The present draft EIA/EMP report of the proposed project is prepared as per proposed TOR and in compliance with the ToR No.224/SEAC dated 15 June 2021 by State Level Expert Appraisal Committee, Dehradun. The copy of the ToR has been attached as **Annexure I**. The point wise compliance of ToR has been shown in **Table 1.2:**

Table 1.2: Point Wise Compliance for TOR

Sr No.	ToR Points	Reference of Compliance
1.	Year-wise production details since 1994 should be given, clearly stating the highest production achieved in any one year prior to 1994. It may also be categorically informed whether there had been any increase in production after the EIA Notification 1994 came into force, w.r.t. the highest production achieved prior to 1994	The proposed soapstone mine is a new mine. Therefore the year wise production data since 1994 is not applicable.
2.	A copy of the document in support of the fact that the Proponent is the rightful lessee of the mine should be given	The copy of LOI is attached as Annexure II.
3.	All documents including approved mine plan, EIA and Public Hearing should be compatible with one another in terms of the mine lease area, production levels, waste generation and its management, mining technology etc. and should be in the name of the lessee. The above reports should also match with the latest District Survey Report (DSR) notification no- 2827 dated 25th July, 2018. **Data obtained from this DSR should be incorporated in the EIA Report for Impact Identification, Interpretation, Interpretation, Prediction, Carrying Capacity and Mitigation.**	Complied.
4.	All corner coordinates of the mine lease area, superimposed on a High Resolution Imagery/ toposheet, topographic sheet, geomorphology and geology of the area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).	The study area map has been shown in Figure 1.1 of Chapter 1.
5.	Information should be provided in Survey of India Toposheet in 1:50,000 scale indicating geological map of the area, geomorphology of land forms of	The land use map of the proposed project has been shown in Figure 3.7 of Chapter

	the area, existing minerals and mining history of the area, important water bodies, streams and rivers and soil characteristics.	3.
6.	Details about the land proposed for mining activities should be given with information as to whether mining conforms to the land use policy of the State; land diversion for mining should have approval from State land use board or the concerned authority.	The details have been have been described in Section 4.3 of Chapter 4.
7.	It should be clearly stated whether the proponent Company has a well laid down Environment Policy approved by its Board of Directors? If so, it may be spelt out in the EIA Report with description of the prescribed operating process/procedures 'infringement/deviation/violation to bring into focus any of the environmental or forest norms/ conditions. The hierarchical system or administrative order of the Company to deal with the environmental issues and for ensuring compliance with the EC conditions may also be given. The system of reporting of non-compliances/violations of environmental norms to the Board of Directors of the company and, /or shareholders or stakeholders at large, may also be detailed in the EIA Report.	Yes the details have been shown in Figure 6.1 of Chapter 6.
8.	Issues relating to Mine Safety, including subsidence study in case of underground mining and slope study in case of open cast mining, blasting study etc. should be detailed. The proposed safeguard measures in each case should also be provided.	Complied.
9.	The study area will comprise of 10 km zone around the mine lease from lease periphery and the data contained in the EIA such as waste generation etc. should be for the life of the mine / lease period.	Complied.
10.	Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.	The land use map of the proposed project has been shown in Figure 3.7 of Chapter 3.
11.	Details of the land for any Over Burden Dumps outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be given.	Provided in draft EIA/EMP Report.
12.	A Certificate from the Competent Authority in the State Forest Department should be provided, confirming the involvement of forest land, if any, in the project area. In the event of any contrary claim by the Project Proponent regarding the status of forests, the site may be inspected by the State Forest Department along with the Regional Office of the Ministry to ascertain the status of forests, based	No forest land is involved in the proposed soapstone mine. The letter from the forest department is in process.

	on which, the Certificate in this regard as mentioned above be issued. In all such cases, it would be desirable for representative of the State Forest Department to assist the Expert Appraisal Committees.	
13.	Status of forestry clearance for the broken up area and virgin forestland involved in the Project including deposition of net present value (NPV) and compensatory afforestation (CA) should be indicated. A copy of the forestry clearance should also be furnished.	No forest land is involved in the proposed soapstone mine
14.	Implementation status of recognition of forest rights under the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 should be indicated. The vegetation in the RF / PF areas in the study area, with necessary details, should be given.	Not Applicable
15.	The Vegetation in the RF/PF areas in the study, with necessary details should be given.	
16.	A study shall be got done to ascertain the impact of the Mining Project on wildlife of the study area and details furnished. Impact of the project on the wildlife in the surrounding and any other protected area and accordingly, detailed mitigative measures required, should be worked out with cost implications and submitted.	No wildlife Sanctuary/National Park is situated within 10 km radius from the proposed soapstone mine.
17.	Location of National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Ramsar site Tiger/Elephant Reserves/(existing as well as proposed), if any, within 10 km of the mine lease should be clearly indicated, supported by a location map duly authenticated by Chief Wildlife Warden. Necessary clearance, as may be applicable to such projects due to proximity of the ecologically sensitive areas as mentioned above, should be obtained from the Standing Committee of National Board of Wildlife and copy furnished.	No wildlife Sanctuary/National Park is situated within 10 km radius from the proposed soapstone mine.
18.	A detailed biological study of the study area [core zone and buffer zone (10 km radius of the periphery of the mine lease)] shall be carried out. Details of flora and fauna, endangered, endemic and RET Species duly authenticated, separately for core and buffer zone should be furnished based on such primary field survey, clearly indicating the Schedule of the fauna present. In case of any scheduled- I fauna found in the study area, the necessary plan along with budgetary provisions for their conservation should be prepared in consultation with State Forest and Wildlife Department and details furnished. Necessary allocation of funds for implementing the same should be made as part of the project cost.	The detailed biological study of the study area [core zone and buffer zone (10 km radius of the periphery of the mine lease)] has been described in section 3.11 of Chapter 3.
19.	Proximity to Areas declared as 'Critically Polluted' or the Project areas likely to come under the 'Aravali	Not Applicable

	Range', (attracting court restrictions for mining operations), should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the SPCB or State Mining Department should be secured and furnished to the effect that the proposed mining activities could be considered.	
20.	R&R Plan/compensation details for the Project Affected People (PAP) should be furnished. While preparing the R&R Plan, the relevant State/National Rehabilitation & Resettlement Policy should be kept in view. In respect of SCs /STs and other weaker sections of the society in the study area, a need based sample survey, family-wise, should be undertaken to assess their requirements, and action programmes prepared and submitted accordingly, integrating the sectoral programmes of line departments of the State Government. It may be clearly brought out whether the village(s) located in the mine lease area will be shifted or not. The issues relating to shifting of village(s) including their R&R and socio-economic aspects should be discussed in the Report.	Not Required.
21.	One season (non-monsoon) [i.e. March-May (Summer Season); October-December (post monsoon season) ; December-February (winter season)]primary baseline data on ambient air quality as per CPCB Notification of 2009, water quality, noise level, soil and flora and fauna shall be collected and the AAQ and other data so compiled presented date-wise in the EIA and EMP Report. Site-specific meteorological data should also be collected. The location of the monitoring stations should be such as to represent whole of the study area and justified keeping in view the pre-dominant downwind direction and location of sensitive receptors. There should be at least one monitoring station within 500 m of the mine lease in the pre-dominant downwind direction. The mineralogical composition of PM10, particularly for free silica, should be given.	The details of Ambient Air Quality have been described in section 3.5 of Chapter 3.
22.	Air quality modeling should be carried out for prediction of impact of the project on the air quality of the area. It should also take into account the impact of movement of vehicles for transportation of mineral. The details of the model used and input parameters used for modeling should be provided. The air quality contours may be shown on a location map clearly indicating the location of the site, location of sensitive receptors, if any, and the habitation. The wind roses showing pre-dominant wind direction may also be indicated on the map.	The Air quality modeling has been described in section 4.4 of Chapter 4.
23.	The water requirement for the Project, its availability and source should be furnished. A detailed water	The details of Water requirement for the Project have been

	balance should also be provided. Fresh water requirement for the Project should be indicated.	described in section 2.9 of Chapter 2.
24.	Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project should be provided.	Not required.
25.	Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.	Not Applicable.
26.	Impact of the Project on the water quality, both surface and groundwater, should be assessed and necessary safeguard measures, if any required, should be provided.	The details have been described in section 4.2 of Chapter 4.
27.	Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided. In case the working will intersect groundwater table, a detailed Hydro Geological Study should be undertaken and Report furnished. The Report inter-alia, shall include details of the aquifers present and impact of mining activities on these aquifers. Necessary permission from Central Ground Water Authority for working below ground water and for pumping of ground water should also be obtained and copy furnished.	Not Required.
28.	Details of any stream, seasonal or otherwise, passing through the lease area and modification/diversion proposed, if any, and the impact of the same on the hydrology should be brought out.	No streams, seasonal nallahs or river is passing through the proposed the soapstone mine.
29.	Information on site elevation, working depth, groundwater table etc. Should be provided both in AMSL and bgl. A schematic diagram may also be provided for the same.	The details have been described in table 4.1 of Chapter 4
30.	A time bound Progressive Greenbelt Development Plan shall be prepared in a tabular form (indicating the linear and quantitative coverage, plant species and time frame) and submitted, keeping in mind, the same will have to be executed up front on commencement of the Project. Phase-wise plan of plantation and compensatory afforestation should be charted clearly indicating the area to be covered under plantation and the species to be planted. The details of plantation already done should be given. The plant species selected for green belt should have greater ecological value and should be of good utility value to the local population with emphasis on local and native species and the species which are tolerant to pollution.	The Greenbelt Development Plan have been described in section 9.9 of Chapter 9. The Greenbelt and Plantation have been described in section 4.7 of Chapter 4.
31.	Impact on local transport infrastructure due to the Project should be indicated. Projected increase in truck traffic as a result of the Project in the present road network (including those outside the Project area) should be worked out, indicating whether it is	The impact on Traffic has been mentioned in section 4.13 of chapter 4.

	capable of handling the incremental load. Arrangement for improving the infrastructure, if contemplated (including action to be taken by other agencies such as State Government) should be covered. Project Proponent shall conduct Impact of Transportation study as per Indian Road Congress Guidelines.	
32.	Details of the onsite shelter and facilities to be provided to the mine workers should be included in the EIA Report.	The temporary rest shelters and mobile toilets will be provided to the mine workers.
33.	Conceptual post mining land use and Reclamation and Restoration of mined out areas (with plans and with adequate number of sections) should be given in the EIA report.	The details have been described in section 4.1 of Chapter 4.
34.	Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.	The details have been described in section 4.10 of Chapter 4.
35.	Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.	Complied and Provided in EIA/EMP report
36.	Measures of socio economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.	The details have been described in section 4.9 of Chapter 4.
37.	Detailed environmental management plan (EMP) to mitigate the environmental impacts which, should inter-alia include the impacts of change of land use, loss of agricultural and grazing land, if any, occupational health impacts besides other impacts specific to the proposed Project.	The detailed Environmental Management Plan (EMP) has been described in Chapter 9.
38.	Public Hearing points raised and commitment of the Project Proponent on the same along with time bound Action Plan with budgetary provisions to implement the same should be provided and also incorporated in the final EIA/EMP Report of the Project.	Complied.
39.	Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.	No court case is pending in any court against the proposed project.
40.	The cost of the Project (capital cost and recurring cost) as well as the cost towards implementation of EMP should be clearly spelt out.	The budget of Environmental Management Plan has been presented in Table 9.3 of Chapter 9. The budget of CSR has been

		presented in Table 4.13 of Chapter 4. The budget of CER has been presented in Table 9.4 of Chapter 9.
41.	A Disaster management Plan shall be prepared and included in the EIA/EMP Report.	The detailed Disaster management Plan has been described in section 7.3 of Chapter 7.
42.	Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.	The detailed project benefits have been described in Chapter 8.
43.	**Besides the above, the below mentioned general points are also to be followed:-**	
(a)	Executive Summary of the EIA/EMP Report	Complied
(b)	All documents to be properly referenced with index and continuous page numbering.	Complied
(c)	Where data are presented in the Report especially in Tables, the period in which the data were collected and the sources should be indicated.	Complied
(d)	Project Proponent shall enclose all the analysis/testing reports of water, air, soil, noise etc. using the MoEF&CC/NABL accredited laboratories. All the original analysis/testing reports should be available during appraisal of the Project.	Complied
(e)	Where the documents provided are in a language other than English, an English translation should be provided.	Complied
(f)	The Questionnaire for environmental appraisal of mining projects as devised earlier by the Ministry shall also be filled and submitted.	Complied
(g)	While preparing the EIA report, the instructions for the Proponents and instructions for the Consultants issued by MoEF&CC vide O.M. No. J-11013/41/2006-IA.II(I) dated 4th August, 2009, which are available on the website of this Ministry, should be followed.	Complied
(h)	Changes, if any made in the basic scope and project parameters (as submitted in Form-I and the PFR for securing the TOR) should be brought to the attention of MoEF&CC with reasons for such changes and permission should be sought, as the TOR may also have to be altered. Post Public Hearing changes in structure and content of the draft EIA/EMP (other than modifications arising out of the P.H. process) will entail conducting the PH again with the revised documentation.	Complied
(i)	As per the circular no. J-11011/618/2010-IA.II(I) dated 30.5.2012, certified report of the status of compliance of the conditions stipulated in the environment clearance for the existing operations of the project, should be obtained from the Regional Office of Ministry of Environment, Forest and	Complied

	Climate Change, as may be applicable.	
	The EIA report should also include (i) surface plan of the area indicating contours of main topographic features, drainage and mining area, (ii) geological maps and sections and (iii) sections of the mine pit and external dumps, if any, clearly showing the land features of the adjoining area.	Complied
(j) **Note:**		
1)	The study area shall comprise of radial distance of 10 KM from the project site and the study period is three months. The impact on each of the above parameter as a result of mining shall be assessed through appropriate modeling and prediction methods considering base line data.	Complied
2)	District Survey Report should be submitted as per the latest notification no- 2827 dated- 25-7-2018	Complied

CHAPTER 2: PROJECT DESCRIPTION

2.1 TYPE OF PROJECT

The project is proposed for the excavation of soapstone from the Hill slope (Agricultural land). It is an opencast mining project where the entire activity will be done in a semi-mechanized way.

2.2 NEED FOR THE PROJECT

The project site lies on hill slope which is agricultural land. With the rapidly increasing demand of Soapstone raw materials, The Industry's demand for fine powder is continuously prompting technological advancements to meet this purpose. The pulverize /hammer mills developed and manufactured in India are capable of producing up to 700 mesh powder. The world market prefers fine powder which can be produced by adopting new processing techniques like micronizing and sterilization of the product. Talc, in pulverized form, is mostly used as filler in paper, textile, rubber, insecticides and fertilizer industries. Pure talc after calcining, called 'Lava' is used in the manufacture of low-loss ceramic materials essential for radio, radar television, etc. In roofing products, such as, tar paper, asphalt shingles and roll roofing, talc acts as a fire retardant and increases weather resistance. Body and face powders (talcum powder) are prepared from the finest quality talc after adding deodorant and perfumes.

Talc is used mostly in pulverized form as a filler and extender in various industries. The non-pulverized talc is used in refractory, etc. Total reported consumption of talc/steatite/ soapstone in the organized sector was at 368 thousand tones in 2012-13. About 56% consumption in 2012-13, was in Paper Industry, followed by Paint (20%), Pesticide (11%), Ceramic (8%) and Cosmetic (4%) industries. Nominal consumption was shared by Fertilizer, Rubber, Textile, Chemicals and other industries.

The demand in the domestic market is high for Soapstone. The Industry's demand for fine powder is continuously prompting technological advancements to meet this purpose. Mineral is available in abundant quantity in area and can be extracted indigenously. The proposed mining activity is for indigenous consumption only for Pharmaceutical Industry, Cosmetic Industry, Textile, Ceramic, Paint, Rubber, Plastic, Detergent etc.

2.3 LOCATION DETAILS

The proposed lease of Soapstone Mine is situated at Village- Kabhata, Tehsil — Kanda, District - Bageshwar in the Uttarakhand State. The lease co-ordinates and connectivity details are listed below:

Latitude	29° 49' 07.95" N to 29° 49' 23.26" N
Longitude	79° 55' 25.16" E to 79° 55' 59.99" E

The lease is well connected to metaled road Kanda Mithunkot Saniudiyar Road which is at a distance of approx. 200 m from the mine lease area.

The index map of the project site has been shown in **Figure 2.1.**

2.3.1 Lease Hold Area

The lease hold area of 15.304 ha lies on the hill slope. The lease has been intended to allot vide Letter of intent (LoI) no. 1087/VII-1/2018/9 Soapstone/17 dated 16/05/2018 . The copy of Letter of Intent (LOI) has been attached as **Annexure II**.

2.3.2 Details of the Lease Hold Area

Forest	Area (ha)	Non Forest Land	Area(ha)
Forest (specify)	None	1. Jotdar land	13.745
		2. Land under Category 7 (a)	0.022
		3. State Govt./Civil land	1.334
		4. Land for public use	0.203
Total	**Nil**	**Total**	**15.304**

Fig 2.1: Index map of the project site

2.4 TOPOGRAPHY & GEOLOGY

Topography

Bageshwar district comprises two broad physiographic divisions from north to south viz. Central Himalayan Zone (north of the Main Central Thrust) and Lesser Himalayan Zone (south of the Main Central Thrust). The area shows an extremely rugged topography characterized by precipitous hills and deep gorges with sharp variation of high magnitude in surface relief. The general slope is towards south. In the northern parts the elevation of the land surface ranges from about 3000 m to 6861 m above mean sea level whereas in the valleys of southern part, the altitude is as low as 795 m. The soils of Bageshwar district can be broadly classified into two types, viz. Soils of Lesser Himalaya and Soils of Greater or Central Himalaya. Majority of the area is covered by the first type. The soils in this area are exposed in massive mountainous tracts and tangled mass of series of ridges divided from each other by deep, narrow valleys. The soils of Lesser Himalaya are further subdivided into a) Soils of Summits and Ridge tops, b) Soils of Side Slopes, c) Soils of Glacio-Fluvial Valleys, d) Soils of Fluvial Valleys and e) Soils of Cliffs. The soils of Greater Himalaya have been broadly classified under a) Soils of Summits, Ridge Tops and Mountain Glaciers, b) Soils of Side Slopes, c) Soils of Upper Glacio-Fluvial Valleys and d) Soils of Cliffs.

The topography of the proposed project area lies on northeastern, northern & northwestern slope of a hill in a mountainous terrain of rough and rugged topography. The adjacent area is drained by few seasonal nalas. The applied forms a transverse ridge of Kabhata village ending Northwards and northeastern wards in the valley. The area has sloppy undulating surface and at places flat gentle sloping terraces also. The highest RL is about 1670.2m on the southern side of the applied area, while the lowest RL recorded on the northwestern side of the applied area is about 1483.1m. Topographical survey was provided by the client. General slope of the lease area is 20° - 30° in western direction.

Geology

District Bageshwar is mainly represented by the rocks of Lesser Himalaya and Central Himalaya. The geological set up is very complex due to the repeated tectonic disturbances caused by different orogenic cycles. Valdiya (1980) carried out extensive geological and structural mapping in the area. The salient features of geology are depicted in the geological map of Bageshwar district. The map is based on Geological Survey of India, 2002.

The rock units exposed in various parts of Bageshwar district comprise current-bedded quartzite with associated volcanics, mica-talc schist, limestone, conglomerate, slate, quartzite, granodiorite, augen gneiss, migmatite and granite gneiss. Many areas in the northern part of the district are yet to be mapped by conventional field methods due to inaccessibility and permanent snow cover. However, a group of regionally metamorphosed rocks known as the Central Crystallines are exposed in this area. The Central Crystallines of the Central Himalayan Zone occur as thrust sheets over the metasedimentary and sedimentary rocks of Lesser Himalayan Zone in varied tectonic settings. Major rock types of Central Crystallines are migmatites, psammitic and mica gneiss, calc gneiss, quartzite, marble, mica schist and amphibolite. Granites of different ages ranging from Paleoproterozoic to Mesozoic-Tertiary intrude the Central Crystallines. Major parts of Bageshwar district falls under the geotectonic zone known as the Lesser Himalaya. Rock types in the Lesser Himalayan Zone include sedimentaries, metasedimentaries and plutonic

igneous rocks. The various rock units have suffered multiple phases of deformation and metamorphism in major parts of the district.

The area forms the part of Cale zone of Tejam and Pithoragarh. According to Prof. K.S. Valdiya (Geology of Lesser Himalaya, 1980) and D. K. Banerjee et. al. 1975) the lithostratigraphic sequence of this area is as follow:

Group/ Formation	Lithology
Berinag Formation	Quartzite, Meta quartzite, Conglomerate,Phyllite
----------Unconformity ----------	
Gangolihat magnesite	Magnasite, dolomitic soapstone with algal Structures. Magnesite with talcose phyllite intercalations
----------Unconformity ----------	
Sor Slate	Slate, Phyllite, subgrawake

In this region, rocks of Pithoragarh Formation occur. The development of algal stromatolite in carbonates occurrence or magnesite is a common associate of the carbonates. The Calc-Zone rock units are well known for their structural dispositions (windows, half windows in Lesser Kumaon Himalaya) for stromatolites and minerals (magnesite, dolomite, soapstone and minor metallic occurrences).

Local Geology:

Alluvial Cover:

A thin layer of brownish colour of soil exists in the whole area. The thickness of soil varies from 0.40 m. to 0.60 m. having an average thickness of 0.50m.

Overburden:

Almost whole block of the applied area is covered with overburden material. This overburden comprises grey to brown to dark brown, fine to medium grained silty-clayey soil. Small fragments of soapstone and magnesite are also present in this soil. Thickness of this overburden varies from 0.9 to 1.5 m.

Soapstone bearing with Magnesite:

Intermixing of soapstone [$Mg_3Si_4O_{10}(OH)_2$] with magnesite occur below the soil cover. Mostly this soapstone or talc is highly prone to easy weathering and erosion due to its softness and thus its outcrops are rare. In shallow depth soapstone is massive to highly bedding and shows brightness/whiteness characteristic which generally varies from medium to high. At places talc pockets are crushed and crumbled due to association with shear zones present in the area. In the applied area soapstone is fine grained, off-white to white, foliated and sometimes powdery due to crushing. In specimens or fragments it shows flexibility in edges due to thinness and trimming. Overburden comprises magnesite boulders intermixed with soapstone. This intermixed magnesite boulders in soapstone are about 60%.

Source: Approved Mining plan

2.5 CLIMATE

The climate in Bageshwar district is temperate to sub-humid. The northern part of the district experiences sub-zero temperature almost throughout the year whereas the central and southern parts are comparatively warm and humid. Severe winter is the chief climatic feature in the district. In general, the district experiences a tropical to subtropical and sub-humid climate except for the northern part where a cold temperate climate prevails.

2.5.1 Temperature, Relative Humidity and Wind

January is the coldest month with mean maximum temperature of 10°C, the mean minimum temperature being about 2°C. Temperature drops down to –6°C during January and February in the northern part of the district. June is the warmest month with the mean maximum and the mean minimum temperatures of 25°C and 15°C respectively. The maximum temperature recorded in the district was 43ºC (May 2020) whereas the minimum temperature recorded was 4ºC (January 2020).

The Relative Humidity increases rapidly with the onset of monsoon and reaches at about 80% during July to September. The driest part of the year is the pre-monsoon period, when the humidity is as low as 30% in the afternoons. Skies are heavily clouded during the monsoon months and for short spells when the district is affected by Western Disturbances. Two broad wind patterns are observed in the district viz. north easterly to easterly (May to September) and south easterly to westerly (October to March).

2.5.2 Rainfall

Most of the rainfall, about 75% of the annual value, occurs during monsoon months of June to September. July is the rainiest month followed by August. In September, depressions from Bay of Bengal occasionally reach Uttarakhand and affect the weather of Bageshwar district also. This phenomenon may cause heavy rains. With the withdrawal of monsoon in September, the intensity of rainfall rapidly decreases. The decrease continues till November, which is a practically rainless month. Winter precipitation is associated with the passage of the Western Disturbances and is in the form of snowfall over higher elevations. The monthly and annual normal rainfall data of Kausani Rain Gauge Station for the period 1997-2002 shows that the annual rainfall ranges from 1051 to 1705 mm and the Annual Average Rainfall is 1331.4 mm. The monthly rainfall data from the rain gauge station also reveals that the maximum rainfall (460.4 mm) was received in July 2001 whereas the minimum rainfall (355.8 mm) was observed in June 2000.

2.6 SURFACE DRAINAGE PATTERN

Drainage of the area is mainly controlled by Saryu, Gomti and Pindar Rivers and their tributaries (locally called Nadi, Gad or Gadhera) viz. Pungar Nadi, Khir Ganga Nadi, Bhadrapati Nadi, Revti Ganga, Kanal Gad, Lahor Nadi, Jagtana Gad, Kulur Gad, Sukunda Gad etc. Sub-trellis, sub-rectangular and sub-dendritic are the most common drainage patterns in the area. The Central and North-Central parts of the district are drained by Saryu River. Gomti River drains the western and south eastern parts whereas Pindar River drains the northern part. These rivers are primarily fed by snowmelt with relatively smaller contribution from ground water. However, during the lean period, the rivers are fed by ground water occurring as base flow. The surface drainage pattern map is shown in **Figure 2.2.**

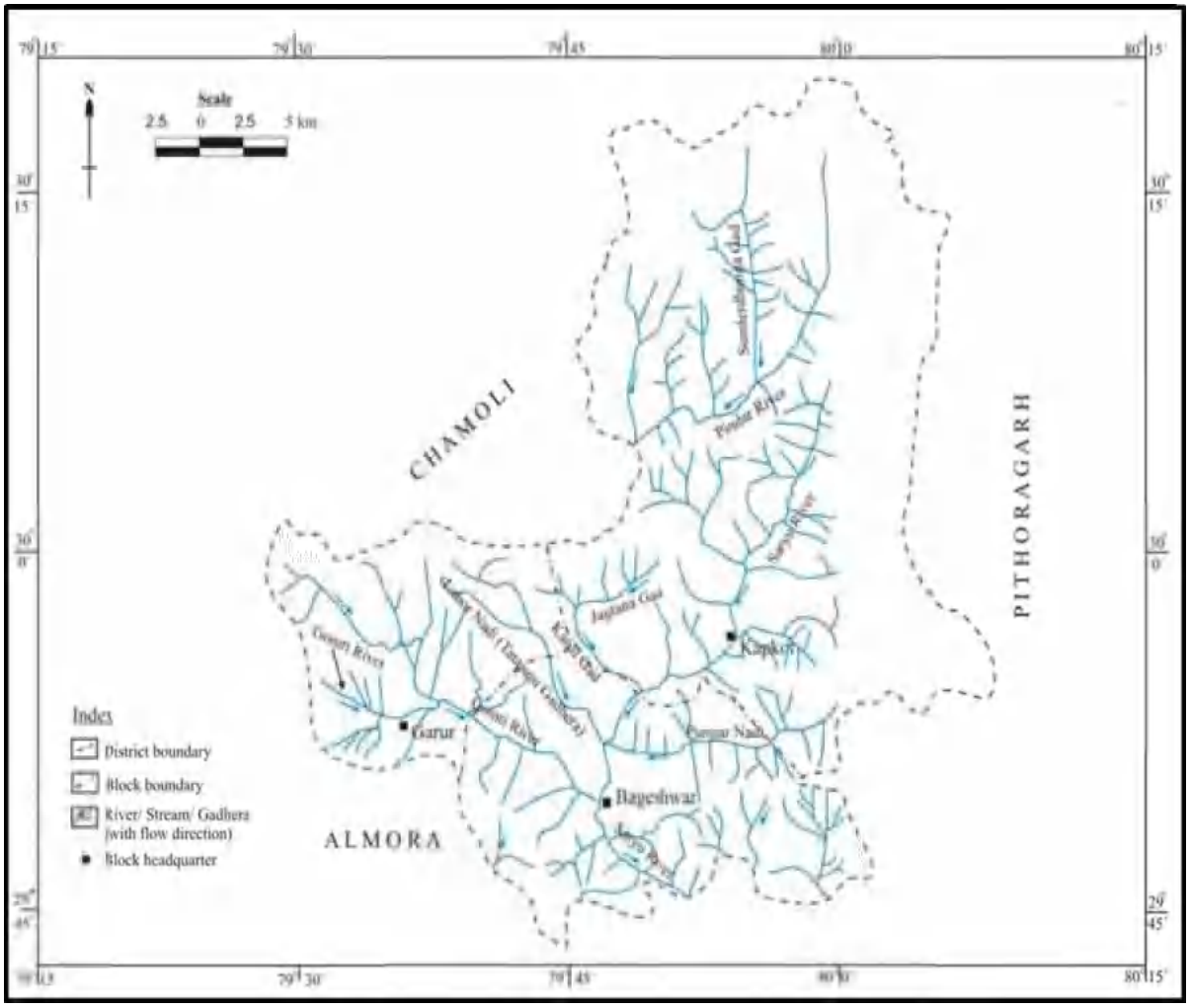


Figure 2.2: Surface Drainage Map

2.7 PROPOSED METHOD OF MINING

- The mining will be done semi-mechanized way in open cast method in quite a systematic manner by forming 9 m high benches with1.5m sub-benches. However, there may be minor variation in the width and height which the lessee will keep on mending.
- The top soil and interburden to be scrapped with the help of JCB machine, dozer, shovels, pickaxe, spade & crowbar and will be stacked separately in dump yard located near the working pit.
- The extracted mineral is properly sorted out at the mine site. Crow bars are sometimes used to dislodge the mineral.
- The excavation for soapstone will be made through JCB Machine, dozer, shovels, pickaxe, spade & crowbar.
- The benches will be developed from middle to top at present in *nap* land only.
- It is proposed to make 9.0m height benches which will be sliced in three stages each of 3.0m hight with 1.5m height sub benches.
- The slope of the faces will be kept 60^0-70^0 and the ultimate slope of the pit will remain 45^0.

- Developmental work will be done by construction of road/track to different working benches, removal of top soil and interburden.
- The soil will be filled into the bags, loaded on mules and unload into stockyard.
- The interburden generated during mining will be separately stacked and places shown within the applied area which will be backfilled.
- Sorting of high grade soapstone will be done on the benches by the labourers and it will be graded.
- The local people will be used for removal of mineral to the nearest road point from where the minerals will be transported by trucks to Haldwani.
- The mineral will be loaded over the trucks by the manual labour. The pit will be connected by track/foot path to the main road.
- The slope of track may vary from 1:8 to 1:20.
- Each mining face will be connected by track/road having width 3.0m.
- Exploitation of soapstone is small scale of mining and does not require any drilling & blasting.
- The average rate of production of soapstone is estimated in between 28000 to 30000 tonnes from I year to V year.
- Proper precautionary measures shall be taken to prevent soil erosion.
- The recovery of the soapstone will be 40% of the total excavation.
- Office, store, first aid centre, drinking water shed, rest shelter etc. will be constructed temporarily within the applied area.

The mining is confined in the applied area and mining benches of the pit will be backfilled to retain its original topography therefore the efforts for afforestation would be done inside the applied area in between lease boundary and UPL, about 0.310 area will be covered by 1397 saplings in this five year in UPL area. Total 125910 saplings will be done incoming five years and upto lease period 688635 saplings will be done in *Van Panchayat* and forest land after taking due permission from concerning authority.

- The top soil and interburden are stacked separately in dump yard within the applied area and will be used for reclamation of the pit after exploitation of the mineral.
- Mining operations shall be carried out scientifically by following the provisions of Mining and Minerals (Development & Regulation) Act, 2015, MCDR Notification 2017, Uttarakhand, Metalliferrous Mines Regulations (MMR) 1961, UKMMCR 2001 and time to time directions/amendment given by Geology & Mining Unit & State Government will not be over looked at any stage.
- 7.5 m un-mined barrier will be maintained all along the lease boundary and vegetation growth generated on such boundary to isolate mining from rest of the area.
- Exploitation of the soapstone will not be done in land for public use.

Excavator shall be deployed for the removal of overburden & interburden. The soapstone will be extracted manually with the help of crow bar, chisels, pickaxe, hammers, spade etc scattered habitation exists towards western. North & eastern side of the area. Soapstone is soft mineral therefore no drilling & blasting shall be required. No further beneficiation will be required except breaking & sorting. From road side the soapstone bags will be loaded into trucks through manually and transported to Haldwani The salient points of proposed method of mining are given below:-

It will be open cast mechanized mine. Due to the scarcity of workers it is not possible to carry out mining operation systematically & scientifically through the formation of benches. Therefore lessee has left no option but to deploy an excavator for systematic & scientific mining, conservation of mineral & protection of environment. During first three years, mining is proposed in already degraded land in two pits therefore generation of top soil shall nil. During the year 2021-2 & 2023-24 few fresh area shall be broken by mining pits & 182cum soil shall be generated & all quantities shall be spread over the backfilled are to put it use for agriculture purpose.

Hard strata is exposed with in lease hold. It has been revealed from past mining experience that average recovery of waste rock / boulders is around 60% of total ROM. The rock formation is too hard & rock breaker is being deployed for the removal of hard strata. Lessee intends to set up small crusher unit so that waste rock/ boulders shall be utilized for making aggregates. If waste material is used for making aggregates, the problem is disposal of waste shall be solved & govt. will earn revenue. Chemical analysis of waste material was carried out from Laboratory of Directorate of Geology & Mining Bhopalpani, Dehradun test report reveal that it has no industrial use except for building & construction purpose.

Extraction & management of minerals has to be guided by long- term national goals & perspective & integrated into the overall strategy of the country's economic development. Mining technology will be upgraded to ensure extraction & utilization of entire Run of Mines (ROM). There shall be an adequate & effective legal& institutional framework promoting zero waste mining as the ultimate goal & commitment to prevent sub-optimal & unscientific mining.

Mining shall be carried out from lower level & subsequently advance to upper levels. As soon as mining pits reach its maximum economical depth backfilling shall be commenced from lower level to restore the maximum original topography of the area. This is common practice of soapstone mining in Kumaon Himalayas. Backfilling in both the pits shall commence from second year onwards to restore the mined out pit to its maximum original topography. The average depression will be 2.0m with respect to its original topography.

2.8 RESERVE (AVAILABLE QUANTUM) AND PRODUCTION (EXTRACTABLE QUANTUM)

Economic Axis (El):

(i) Due to mining surrounding area & past exploration within area, it has been revealed that the mineral is good grade & having no problem in selling in the market. Mineral shall be transported manually as well as mules up to road side & loaded in to truck. NOC from individual land owners have been obtained. On this basis economic viability of the deposit has been established & mineral is economically viable. Hence economic axis under UNFC for the deposit is E=1.

(ii) Specific end use grade of reserve established. The reserves of soapstone with applied area are cosmetic, paper & detergent grade.

(iii) Specific knowledge of own forest & other land use data is available. The applied area is totally agricultural land & after mining it shall be backfilled, leveled it & put use for agriculture.

Feasibility axis: As this is small opencast semi-mechanized mine. The feasibility study carried out for this area and is considered to be pre-feasibility status. Hence pre-feasibility axis under UNFC for the deposit is F=I.

Geology: Due to past exploration within area, local geology, mineralogy & geometry of soapstone deposit has been established. The identification of ore body carried out & only soapstone was formed to be occurred within applied area.

Geological Axis:

(G-I) Actual exploration in vicinity of applied area has been established by way of mining pits. Therefore geological axis has been considered under G 1.

(i) Geological Survey: Mapping in the scale of 1:1000 will triangulation point & bench marks carried out & shown in surface geological plan. Extensive pitting in surrounding area has been done & nature of deposition of soapstone has been established.

ii) Linking of map with topo grid carried & latitude & longitude of corner pillar token,

iii) Assessment of lithology carried out based on the exposures in the pit of soapstone, structure & surface mineralization studied & mapped.

2. Geo chemical survey: Detailed sampling of pit.
3. Geophysical survey: Geophysical survey was carried was carried out on the basis of exposure & outcrops. Based on the exploration & exposure in the pit, the mineralization zone delineated,
4. Technological: Extensive pitting at the time of prospecting period was carried out within the applied area. The depth of pit varies 3m to 6m. The deposit is regular with low dip. Surface & subsurface lithology & co-relation of mineralization zones carried out by pitting & sampling carried out from pit faces.

Parameters for Estimation:

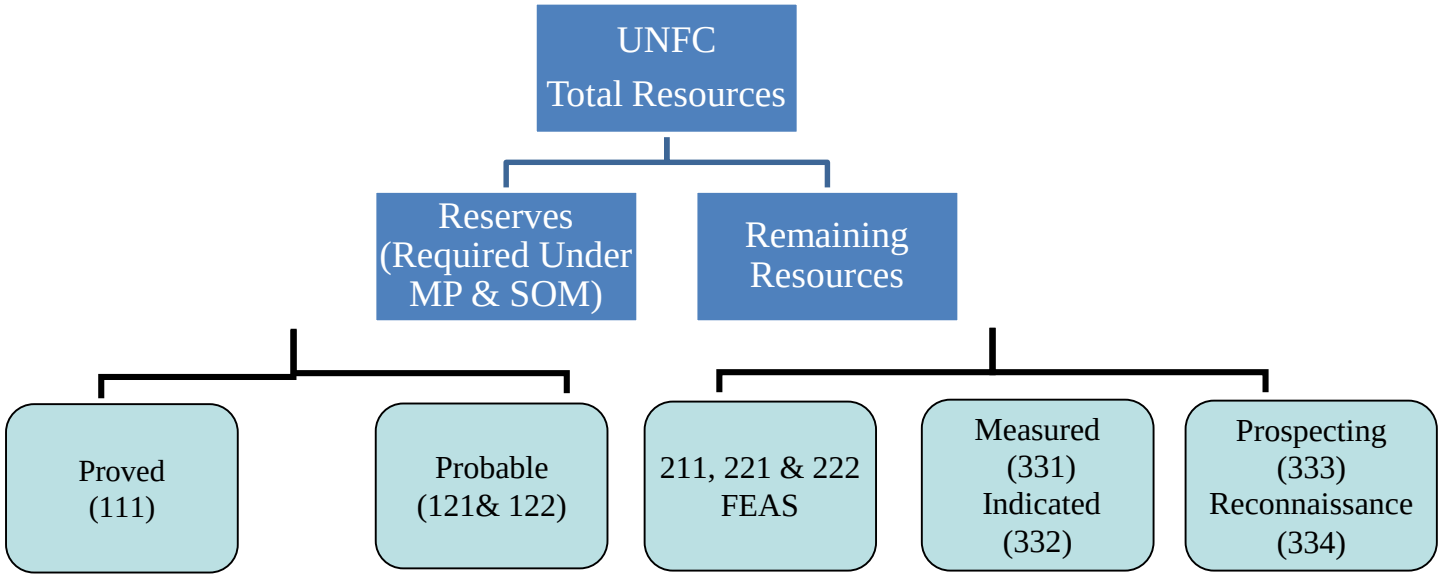
1. The cross section area of each section line has been calculated for each category of reserves. The cross sectional area is multiplied by the strike influence to get the volume. The volume is multiplied by the bulk density to get the tonnage in each section line.
2. Bulk density of soapstone has been assumed 2.6 III view of our past experience in and around the area.
3. Bulk density of interburden (Magnesite) has been assumed 2.5 in view of our past experience in the area.
4. Recovery of interburden (Magnesite) has been taken as 70% of the total excavation as per the past experience with in the area & on the basis of prospecting carried out within applied area.
5. Due to past mining surrounding of applied area, it has been revealed that incidence of soapstone in different pits varies 20% to 40%, therefore on an average incidence of soapstone has been considered 30% of total excavation.

2.9 Mineral Reserves/Resources As per UNFC classification:

i) Details of UNFC Classification:

UNFC is three digit code based system, the economical viability axis representing the first digit, the feasibility axis the second digit & geological axis the third digit.

Codes 1, 2 & 3 in decreasing order. The heights category of resources under UNFC system has code (111) & for the lowest category the code is (334).



Code (111): This code is provided for the economically mineable part of the measured mineral resources (Proved category reserves).

Code (121, 122): This code is provided for the economically mineable past of the indicated mineral resources (Probable category reserves).

Code (211): This part of the measured mineral resources (Proved Category), which as per feasibility study has not found economically mineable. The reserves blocked in 7.5m buffer zone of the distances restriction from permanent structure.

Code (222): The part of indicated mineral resources (probable category) which has pre-feasibility study has not found economically mineable. The reserves blocked 7.5m buffer zone & distances restricted from permanent structure.

Code (333): Tonnage, grade & mineral contents can be estimated with low level of confidence & resources are also inferred from geological part.

The mineral reserves/resources calculated within lease area are as below:-

Table 2.2: Details calculation of reserve & resources

Category	UNFC Code	Quantity in tonnes	Grade
A. Total Mineral Reserve			
Proved Mineral Reserve	111	1189165	Paper & Detergent
Probable mineral Resource	121 & 122	723173	Paper & Detergent
B. Total Remaining Resources		0	
Feasibility mineral Resource	211	212706	Paper & Detergent
Prefeasibility mineral resource	221 & 222	214443	Paper & Detergent

Measured mineral resource	331	Nil	Nil
Indicated mineral resource	332	Nil	Nil
Inferred mineral resource	333	340378	Paper & Detergent
Reconnaissance mineral resource	334	Nil	Nil
Total Reserves + Resources		**2679865**	

Proved Geological Reserves

Section	Area (m^2)	Strike Influence (m)	Volume (Cum)	Mineable Reserves (in Tonnes)	Blocked Reserves (in Tonnes)
LB to A-A'	973.79	29	28239.91	29369.51	6899.70
A-A' to B-B'	853.38	36	30721.68	31950.55	8449.87
B-B' to C-C'	1089.41	40	43576.56	45319.62	10716.28
C-C'To D-D''	1814.14	69	125175.66	130182.69	18832.84
D-D' to E-E'	1786.24	47	83953.37	87311.51	15328.28
E-E' to F-F'	1802.13	45	81095.99	84339.82	10311.72
F-F'To G-G'	791.00	48	37967.81	39486.52	14737.28
G-G' to LB	1569.62	61	95746.82	99576.69	23189.86
H-H' to LB	4037.21	60	242232.30	251921.59	23321.25
I-I' to J-J'	2552.92	60	153174.90	159301.90	18087.95
J-J' to K-K'	1049.14	67	70292.38	73104.08	22071.63
K-K' to L-L'	872.30	44	38381.20	39916.45	10649.82
L-L' to M-M'	1057.83	78	82510.51	85810.93	22011.34
M-M' to LB	740.48	41	30359.63	31574.02	8099.05
	20989.58		**1143428.72**	**1189165.87**	**212706.88**

Probable Geological Reserves

Section	Area (m^2)	Strike Influence (m)	Volume (Cum)	Mineable Reserves (in Tonnes)	Blocked Reserves (in Tonnes)
LB to A-A'	549.93	29	15947.97	16585.89	7593.68
A-A' to B-B'	532.37	36	19165.18	19931.78	9303.39
B-B' to C-C'	615.21	40	24608.52	25592.86	11764.94
C-C'To D-D''	1100.59	69	75940.85	78978.48	20361.76
D-D' to E-E'	1091.58	47	51304.40	53356.58	15096.88
E-E' to F-F'	1102.08	45	49593.47	51577.20	11523.80
F-F'To G-G'	436.08	48	20931.94	21769.21	14379.56
G-G' to LB	951.65	61	58050.89	60372.93	21471.59
H-H' to LB	2598.72	60	155923.14	162160.07	21314.65
I-I' to J-J'	1611.07	60	96664.38	100530.96	17727.53
J-J' to K-K'	598.17	67	40834.89	42468.29	21646.30
K-K' to L-L'	485.52	44	21362.70	22217.21	11562.96
L-L' to M-M'	609.48	78	47539.13	49440.69	22439.66
M-M' to LB	426.63	41	17491.96	18191.64	8256.64
	12709.08		**695359.42**	**723173.79**	**214443.33**

Inferred reserved

Section	Area 333 (m^2)	Strike Influence (m)	Volume (Cum)	Reserves (in Tonnes)
LB to A-A'	244.04	29	7077.02	7360.10
A-A' to B-B'	250.59	36	9021.13	9381.98
B-B' to C-C'	274.72	40	10988.76	11428.31
C-C' To D-D''	515.26	69	35553.08	36975.20
D-D' to E-E'	517.10	47	24303.51	25275.65
E-E' to F-F'	520.59	45	23426.73	24363.80
F-F' To G-G'	188.33	48	9039.84	9401.43
G-G' to H-H'	448.14	61	27336.72	28430.19
H-H' to I-I'	1270.83	60	76249.86	79299.85
I-I' to J-J'	779.15	60	46748.70	48618.65
J-J' to K-K'	268.51	67	18564.16	19306.73
K-K' to L-L'	213.93	44	9413.10	9789.62
L-L' to M-M'	277.08	78	21612.01	22476.49
M-M' to LB	193.95	41	7952.11	8270.19
	5962.22		**327286.72**	**340378.19**

Blocked Reserves of Soapstone

Feasibility mineral Resource (211)

Section Line	Section Area (m^2)		Strike Influence (m)	Volume (Cum)		Blocked Reserves (Tonnes)	
	Blocked in (UPL)	Blocked Under 45º		Blocked in (UPL)	Blocked Under 45º	Blocked in (UPL)	Blocked Under 45º
LB to A-A'	135.27	93.50	29	3922.83	2711.50	4079.74	2819.96
A-A' to B-B'	135.40	90.29	36	4874.40	3250.48	5069.38	3380.50
B-B' to C-C'	156.09	101.51	40	6243.60	4060.52	6493.34	4222.94
C-C' to D-D''	143.99	118.45	69	9935.38	8173.12	10332.79	8500.04
D-D' to E-E'	221.40	92.19	47	10405.75	4332.98	10821.98	4506.30
E-E' to F-F'	136.00	84.33	45	6120.09	3795.03	6364.89	3946.83
F-F' to G-G'	211.49	83.73	48	10151.57	4018.90	10557.63	4179.65
G-G' to LB	280.29	85.25	61	17097.45	5200.49	17781.34	5408.51
H-H' to LB	282.65	91.09	60	16958.70	5465.58	17637.05	5684.20
I-I' to J-J'	190.08	99.79	60	11404.80	5987.46	11860.99	6226.96
J-J' to K-K'	225.57	91.19	67	15113.26	6109.46	15717.79	6353.84
K-K' to L-L'	146.54	86.19	44	6447.80	3792.40	6705.72	3944.10
L-L' to M-M'	184.70	86.64	78	14406.52	6758.23	14982.78	7028.56
M-M' to LB	129.29	60.65	41	5300.86	2486.68	5512.90	2586.15
Total	**2578.75**	**1264.82**		**138383.01**	**66142.83**	**143918.33**	**68788.55**

Pre-Feasibility mineral Resource (222)

Section Line	Section Area		Strike Influence	Volume (Cum)		Blocked Reserves (Tonnes)	
	Blocked in (UPL)	Blocked Under 45º		Blocked in (UPL)	Blocked Under 45º	Blocked in (UPL)	Blocked Under 45º
LB to A-A'	90.18	161.60	29	2615.22	4686.40	2719.83	4873.86
A-A' to B-B'	90.27	158.22	36	3249.61	5695.96	3379.60	5923.79
B-B' to C-C'	104.06	178.75	40	4162.40	7150.04	4328.90	7436.04
C-C' to D-D''	95.99	187.75	69	6623.59	12955.03	6888.53	13473.23
D-D' to E-E'	147.60	161.26	47	6937.15	7579.08	7214.64	7882.24
E-E' to F-F'	90.67	155.57	45	4080.06	7000.52	4243.26	7280.54
F-F' to G-G'	140.99	147.06	48	6767.71	7058.78	7038.42	7341.14
G-G' to LB	186.86	151.60	61	11398.28	9247.48	11854.21	9617.38
H-H' to LB	188.44	153.15	60	11306.16	9188.70	11758.41	9556.25
I-I' to J-J'	126.72	157.38	60	7603.14	9442.56	7907.27	9820.26
J-J' to K-K'	150.38	160.27	67	10075.46	10738.29	10478.48	11167.82
K-K' to L-L'	97.69	154.99	44	4298.49	6819.74	4470.43	7092.53
L-L' to M-M'	123.13	153.49	78	9604.22	11972.38	9988.39	12451.27
M-M' to LB	86.19	107.44	41	3533.86	4405.22	3675.21	4581.43
Total	**1719.17**	**2188.53**		**92255.35**	**113940.16**	**95945.56**	**118497.77**

Production

The year wise production schedule, quantities of waste to be generated from different benches in each pit is shown in **Table 2.2.**

Table 2.2: Details of the production (Year wise)

I Year (2020 –2021): Pit -1

Pit - I										
Bench		Face Length	Face Advancement	Bench Width	Bench Height	Volume	ROM Soapstone (Tonne)	Production	Soil (CUM)	Interburden (CUM)
1533	1527	182.00	10.08	3.00	6.00	10006.69	9610.75	9610.75	1342.90	10201.62
1530	1524	180.00	7.99	3.00	6.00	7844.73	7534.33	7534.33	1052.76	7997.54
1527	1521	172.00	7.53	3.00	6.00	7064.51	6784.98	6784.98	948.06	7202.13
1524	1521	162.00	13.03	3.00	3.00	5756.89	5529.10	4069.90	772.57	4320.12
						30672.82	29459.16	28000.0	**4116.29**	**29721.41**

II Year (2021 –2022): Pit -1

Bench		Face Length	Face Advancement	Bench Width	Bench Height	Volume	ROM Soapstone (Tonne)	Production	Soil (CUM)	Interburden (CUM)
1524	1521	162.00	13.03	3.00	3.00	5756.89	1459.20	1459.20	772.57	1548.91
1521	1515	154.00	10.01	3.00	6.00	8408.40	8075.70	8075.70	1128.41	8572.20
1518	1512	142.00	8.31	3.00	6.00	6436.47	6181.79	6181.79	863.77	6561.86
1515	1508	133.00	9.26	3.00	7.00	7837.33	7527.22	7527.22	1051.77	7990.00
1512	1504	130.00	7.05	3.00	8.00	6665.45	6401.72	5756.09	894.50	6109.98
						35104.55	29645.63	29000.00	4711.03	30782.94

III Year (2022 –2023): Pit -1 & 2

Pit - I										
Bench		Face Length	Face Advancement	Bench Width	Bench Height	Volume	ROM Soapstone (Tonne)	Production	Soil (CUM)	Interburden (CUM)
1512	1504	130.00	7.05	3.00	8.00	6665.45	645.63	645.63	894.50	2073.09
1509	1504	136.00	8.41	3.00	5.00	5198.91	4993.20	4993.20	697.69	5300.18
Pit-II										
1518	1513	154.00	12.67	3.00	5.00	8869.00	8518.07	8518.07	1190.22	9041.77
1515	1512	172.00	16.90	3.00	3.00	7927.64	7613.96	7613.96	1063.89	8082.07
1512	1509	185.00	12.57	3.00	3.00	6342.14	6091.19	6091.19	851.11	6465.68
1509	1506	187.00	8.20	3.00	3.00	4182.00	4016.53	2137.95	561.22	2269.39
Total						**39185.14**	**31878.57**	**30000.00**	**5258.65**	**31844.41**

IV Year (2023 –2024): Pit -3 & 4

Pit - III										
Bench		Face Length	Face Advancement	Bench Width	Bench Height	Volume	ROM Soapstone (Tonne)	Production	Soil (CUM)	Interburden (CUM)
1566	1560	63.00	6.76	3.00	6.00	2322.98	1878.58	1878.58	311.74	1994.07
1563	1557	53.00	9.93	3.00	6.00	2870.67	2757.09	2757.09	385.24	2926.59
1560	1554	55.00	7.59	3.00	6.00	2277.00	2186.90	2186.90	305.57	2321.36
1557	1551	54.00	8.53	3.00	6.00	2512.47	2413.06	2413.06	337.17	2561.42
1554	1548	52.00	9.00	3.00	6.00	2552.73	2451.72	2451.72	342.58	2602.45
1551	1545	50.00	6.41	3.00	6.00	1748.18	1679.01	1679.01	234.61	1782.24
1548	1542	41.00	9.94	3.00	6.00	2222.95	2134.99	2134.99	298.32	2266.25
1545	1539	37.00	7.67	3.00	6.00	1547.95	1486.70	1486.70	207.73	1578.10
Pit-IV										
1593	1587	89.00	13.72	3.00	6.00	6660.44	6396.90	6396.90	893.83	6790.18
1590	1585	111.00	11.78	3.00	5.00	5943.55	5708.37	5615.06	797.62	5960.28
						30658.91	**29093.31**	**29000.00**	**4114.43**	**30782.93**

V Year (2023 – Dec. 2024): Pit -4

Pit IV										
Bench		Face Length	Face Advancement	Bench Width	Bench Height	Volume	ROM Soapstone (Tonne)	Production	Soil (CUM)	Interburden (CUM)
1590	1585	111.00	11.78	3.00	5.00	5943.55	93.31	93.31	797.62	99.05
1587	1580	145.00	15.53	3.00	7.00	14329.95	13762.95	13762.95	1923.08	14609.10
1584	1577	182.00	12.74	3.00	7.00	14755.24	14171.40	14143.74	1980.15	15013.31
						35028.74	**28027.66**	**28000.00**	**4700.86**	**29721.46**

Man Power Requirement:

Owing to the topography of the area, which is a rough terrain, Soap Stone mining activity is needed as the primary source of income for the locals. The mine will provide employment to about 71 workers. It will provide employment to the people residing in vicinity and also indirectly by the development of supporting infrastructure and allied activities. The manpower requirement for the proposed project is shown in **Table 2.3** along with the breakup, who will be utilized for excavation & loading of minerals into trucks.

Table 2.3: Details of Manpower requirement

S. No.	Category	Numbers
Skilled		
1.	Mine Manager/DGMS	1
2.	Supervisor	3
3.	Time Keeper	1
4.	Office Assistant/Dispatch Supervisor	3
Unskilled		
5.	Daily wages workers	63
Total		**71**

*****Additional workers include workers for dust suppression purpose, providing water for drinking & domestic purpose, for maintenance of roads, etc.

Solid Waste Generation & its Disposal

The top soil will be removed with the help of JCB machine, dozer, shovels, pickaxe, spade & crowbar and stacked separately. The soil intermixed with fragments and interburden rejects are low grade magnesite. Part of these rejects will be utilized in construction and maintenance of retaining walls, parapet walls, check dams and other construction works. About 21380 cum of rejects will be used for this task, and in dump yard remaining rejects about 53452 cum will be backfilled.

The quantity of top soil, interburden and Mineral rejects to be generated in each year is shown in **Table 2.4**.

Table 2.4: Details of Top soil, interburden and Mineral rejects generated

Year	Top Soil (cum)	Interburden (cum)	Mineral Rejects (cum)
I	4116	29721	33838
II	4711	30783	35494
III	5259	31844	37103
IV	4114	30783	34897
V	4701	29721	34422
Total	**22901**	**152853**	**175754**

Storage and preservation of top soil:

The soil will be removed with the help of JCB machine, dozer, shovels, pickaxe, spade & crowbar and loaded manually to stack on the dump yard. Stacking will commence at RL 1518 to RL 1521m in first year, RL 1509 to RL 1518m in second year, RL 1515 to RL 1521 in third year, RL 1542 to 1545m in fourth year & RL 1587 to 1590m in fifth year. The spread of stacks will be undertaken through mechanically and manually both & average dump height kept 1.5m. In first year 143 m^2 areas was earmarked for stacking of soil with 1.5m height. In second year it is 150 m^2 areas. Similarly in third, fourth & in fifth year 143 m^2, 150

m^2 and 143 m^2 area have been respectively earmarked for stacking of soil with 1.5m average height. The year wise spread of stack is given below:

Soil stack	I year	II year	III year	IV year	V year
Length	19m	20m	19m	20m	19m
Width	7.5m	7.5m	7.5m	7.5m	7.5m
Average height	1.5m	1.5m	1.5m	1.5m	1.5m
Angle of repose	36^0	36^0	36^0	36^0	36^0

Restriction on mining:

- As per the Uttarakhand mining policy no mining operation shall be carried out within 100 m of railway line & bridge.
- The mining will not intercept the ground water table.
- The contractors will abide by Uttarakhand Minor Mineral Concession Rules, 2001 and guidelines contained in the River/Stream Bed Mining Policy and Land forms studies were taken into consideration.
- The contractors will abide at the time of mining with the term and condition as laid down under Mines Act, 1952 and Mines & Minerals (Regulation and Development) Act, 1957, Forest (Conservation) Act, 1980 and the stipulations of the EIA/EMP.
- The contractor will abide by provision of Mines Act, 1952, Interstate Migrant Work Man Act, the contractor with the satisfaction of competent authority will provide drinking water, rest shelter, first aid box, welfare facilities as Central and State Govt. labor laws.

2.10 SITE FACILITIES AND UTILITIES

Water Supply

Water requirement for the proposed project will be provided for the workers for drinking & domestic purpose. Water will also be provided for dust suppression. Fresh water will be only used for drinking purpose. The break up for water requirement is shown in **Figure 2.3.**

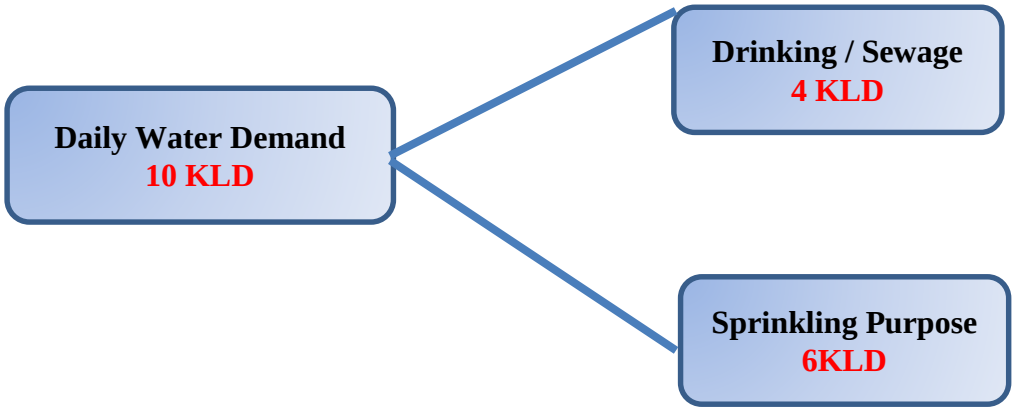


Figure 2.3: Details of water requirement

Temporary Rest Shelter:

A temporary rest shelter will be provided for the workers near to the site for rest.

- Provisions will also be made for following in the rest shelter
- First aid box along with anti-venoms to counteract poison produced by certain species of small insects, if any.
- Sanitation facility i.e. septic tank or community toilet facility will be provided for the workers.

2.11 STATUTORY REQUIREMENTS

It is accepted that effective resource management cannot be done in isolation. The proponent therefore vigorously pursues approaches towards coordination and integration where possible, so as to lead to coordinated regulatory systems.
Various acts dealing with matters relating to the conservation and protection of the environment and which a holder of a mining authorization must also take cognizance of include inter alia, the following:

- Uttarakhand Mineral Policy, 2011
- Uttarakhand Minor Mineral Concession Rules, 2001
- The Mines Act, 1952
- The Mines and Mineral (Development and Regulation) Act, 1957
- Mines Rules, 1955
- Mineral Concession Rules, 1960
- Mineral Conservation and Development Rules, 1988
- The Water (Prevention and Control of Pollution) Act, 1974
- The Air (Prevention and Control of Pollution) Act, 1981
- The Environment (Protection) Act, 1986
- The Forest (Conservation) Act, 1980

2.12 OTHER MINE LEASE PRESENT WITHIN THE STUDY AREA

The other soapstone mine sites which are present within 500 m from the proposed mine and in the study area (10 km) has been presented in **Table 2.5**. The mine lease sites present in the core zone (100 m) and the study area marked in Google earth and SOI toposheet has been shown in **figure 2.4** and **2.5** respectively

Table 2.5: Details of other soapstone mines present in the study area (10 km radius) from the proposed soapstone mine

Sr. No.	Mine No. Marked on SOI Topo Sheet & Google Earth Map	Details Of Mine	Area (ha)
1.	M2	Shri Ummed Singh, Kalakoti, Village Gadva, Kanda, Bageshwar (Kalakoti Mine)	4.795
2.	M4	Shri Harish Chandra Bhatt, Kanda, Bageshwar (Bakhet Shopstone mine)	9.50
3.	M7	Shri Prem Dhami, Kanda, Bageshwar (Dhpti Shopstone mine)	4.843
4.	M11	Shri Umesh Chandra Pandey, Kanda, Bageshwar (Chilet pali Chak titoli Shopstone mine)	4.822
5.	M18	Shri Mangal Singh Dhami, Kanda, Bageshwar (Jay Dholinaag Enterprises)	4.27
6.	M23	Shri Mahesh Chandra Pant, Kanda, Bageshwar (Sirmoli Mines)	4.588
7.	M24	Shri Ganga Prasad Pandey, Banstoli, Kanda, Bageshwar	1.95 (acre)
8.	M30	Shri Fateh Singh Parihar, Kanda, Bageshwar (Fateh Singh Parihar mines)	4.491
9.	M33	Shri Ram Bharat mines, Village – Ghapoli, Kanda, Bageshwar	30.075
10.	M34	Shri Govind Singh Rotela, Village – Pali Chak Titoli, Kanda, Bageshwar	4.620
11.	M36	M/S Shriram Bharat Mines	5.674
12.	M37	Smt Nadita Tewari	23.0
13.	M40	Shri Girish Chandra Petshali S/O Shri Jugal Kishor Petshali	1.925
14.	M44	Shri Sher Singh, Ghapola	3.60 area
15.	M50	Shri Harish Chandra Lohni S/O Nandaballabh Lohni	4.640
16.	M52	Shri Subodh Lal Sah S/O Shri Girdhari Lal Sah	4.049
17.	M63	Shri Ramesh Singh Majila S/O Shri Nain Singh Majila	4.056
18.	M65	Shri Kuldeep Singh Bisth S/O Shri Deewan Singh	3.70
19.	M71	Shrimati Geeta Boriyal	4.698
20.	M72	Shri Rahul Varshney, Ghapoli	30.07 acre
21.	M75	Shri Govind Singh Rotela	4.620
22.	M76	Shri Ramesh Singh	9.810

Figure 2.4: Other Mine sites present in the core and study area from the proposed project marked in Google earth

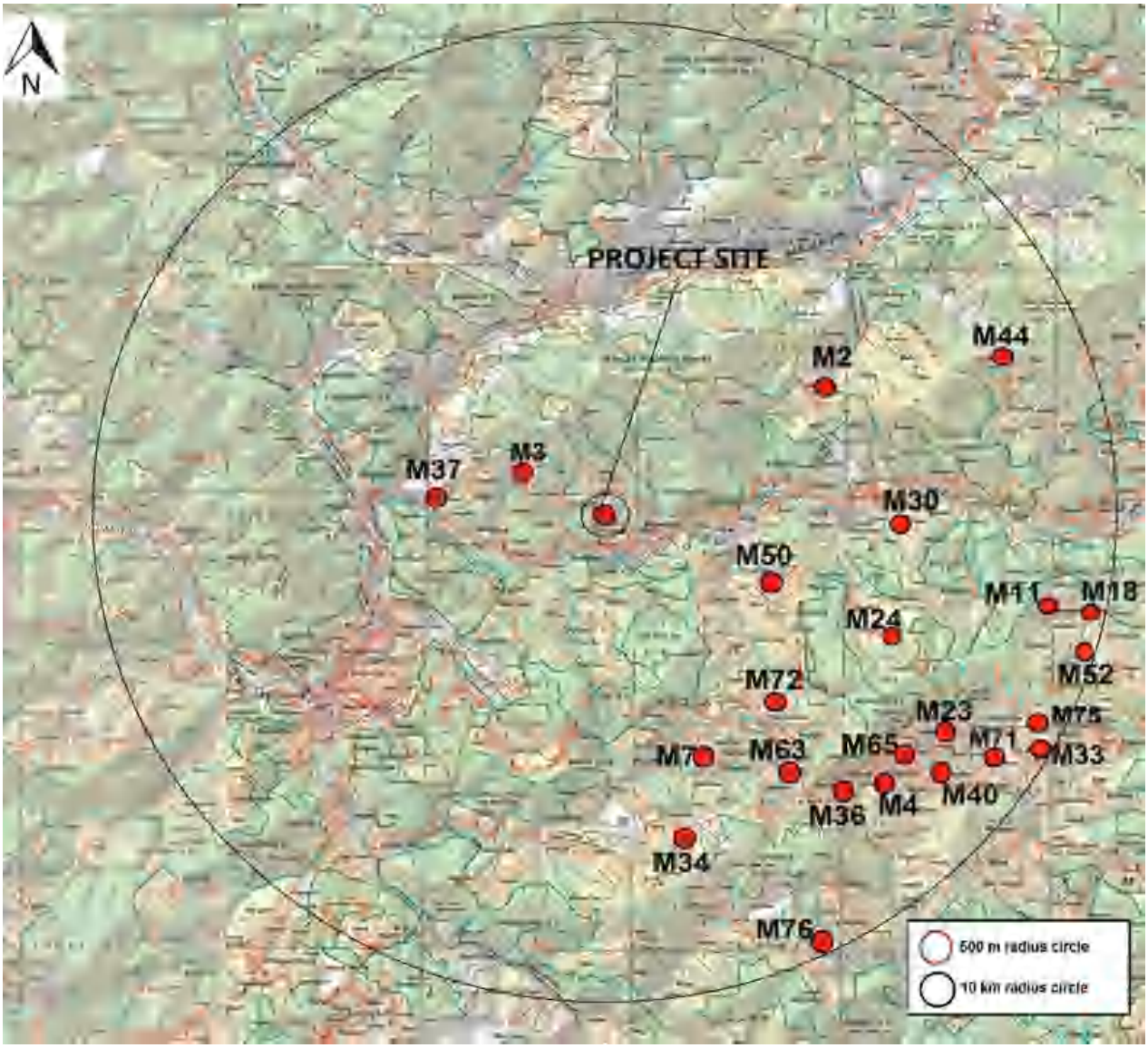


Figure 2.5: Other Mine site present in the core and study area from the proposed project marked in SOI Toposheet

CHAPTER 3: DESCRIPTION OF THE ENVIRONMENT

3.1 PREAMBLE

Baseline environmental studies were conducted to monitor micro-meteorology, Ambient Air Quality, Ground and Surface water quality, Noise Levels, present land use pattern, soil quality, biological environment, socio-economic status, health status etc. within a study area of 10 Km. radius around the project site. To establish the existing physical, natural, socio-economic and cultural environment condition of the study area, data has been collected through primary sources (consultation with the key persons) in addition to information gathered from various secondary sources.

All project relevant secondary data has been collected on regional environmental and social features from various reports pertaining to Government Agencies / Institutions and through literature reviews. Relevant data has been compiled from the census data of 2011, for obtaining details regarding the demographic and socio-economic features in the study area.

The main aim of the impact assessment study depends mainly on two factors. One of the estimation of impact from proposed project on the environment and second one is the assessment of the environmental condition. Both are key factors to arrive at the post project scenario. The estimated impact due to the mine lease area can be superimposed over the existing conditions to arrive at the post project scenario. The scope of the baseline studies includes detailed characterization of following environmental components, which are most likely to be influenced by the setting up of a mine lease area.

- Metrological conditions
- Ambient Air Quality
- Noise levels
- Water Quality (Surface and Ground water)
- Soil Quality
- Socio economic status

3.2 STUDY AREA AND PERIOD

The base-line data has been collected at the project site and 10 km buffer zone for prominent environmental attributes like Ambient Air Quality, Ambient Noise Level, Water quality and Soil profile. Primary and Secondary data has also been collected for other environmental attributes for the preparation of EIA/EMP report. The baseline study for the project was conducted during Dec 2020 to Feb 2021 (winter). The baseline data monitoring procedures conforms to the requirement of EIA Notification, 2006 (as amended on 14.09.2006). The monitoring and analysis was done through Noida Testing Laboratory which is NABL and MoEF&CC accredited.

Study area map comprising direct impact area is shown in **Figure 3.1**

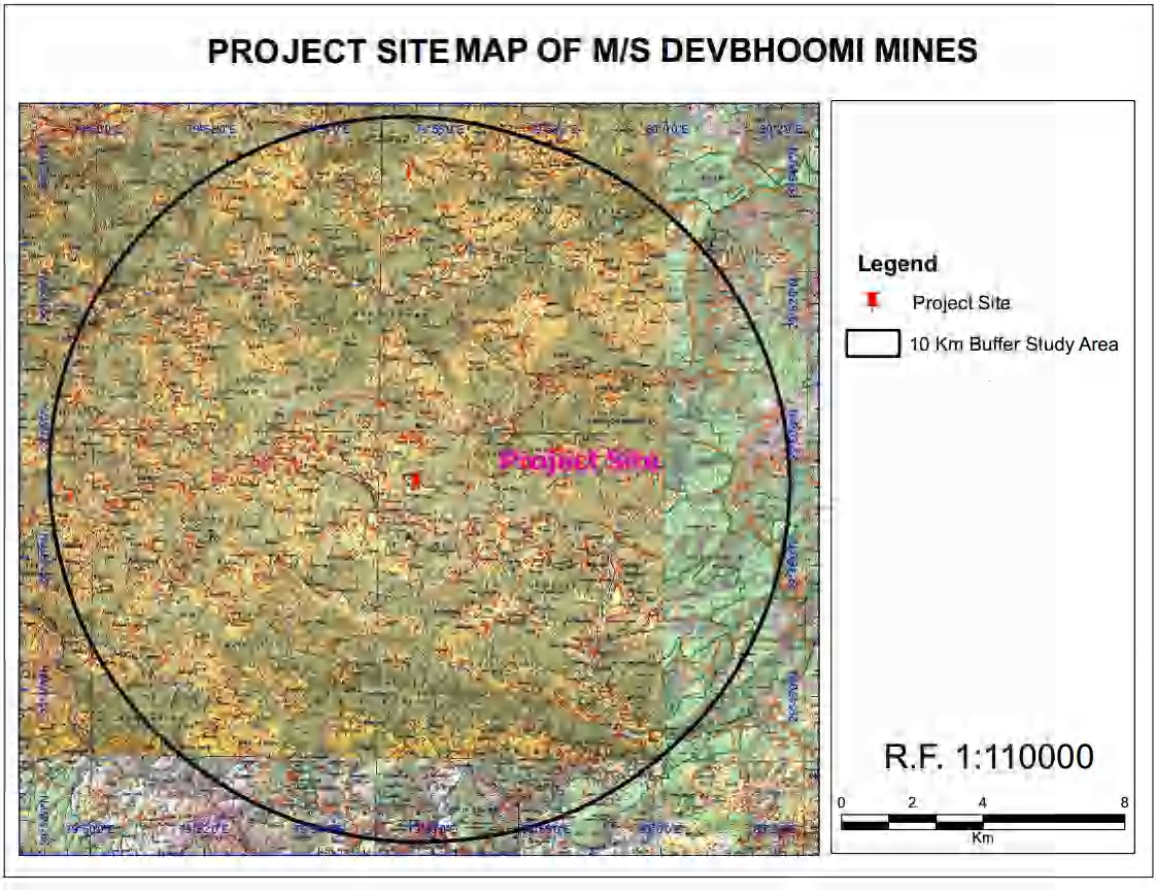


Figure 3.1: Study Area Map (10 km radius)

3.3 METHODOLOGY / APPROACH

3.3.1 Methodology of EIA

Environmental Impact Assessment study has been conducted within an area of 10 km radius around the ML area. The various steps involved in the study for this project are divided into three following phases.

- Identification of significant environmental parameters and assessing the baseline status within the study area and assessment of pollutants envisaged due to proposed activities and the polluting activities in the study area on various environmental parameters.
- Evaluation of impacts after superimposing the predicted pollution load over the baseline condition.
- Prepare Environmental Management Plan for mitigation of impacts on environment arising out of the proposed activity.

3.3.2 Approach

Environmental monitoring in order to establish the baseline environmental status of the study area for Ambient air, Water, Soil, Land use, ecology, etc.

- Collection of site specific meteorological data at the mine site.
- Carrying out a detailed biological study for the Core and Buffer Zone.
- Literature review that includes identification of relevant data and articles from various publications, various government agencies and other sources for socio-economy, meteorology, land use, ecology, etc.
- Identify various existing pollution loads due to mining and domestic activities in the buffer zone.
- Evaluate the predicted impacts on the various environmental attributes in the study area by using scientifically developed and widely accepted Environmental Impact Assessment (EIA) Methodologies.
- Preparation of an Environmental Management Plan (EMP) outlining the measures for improving the environmental quality.

Accordingly, field studies were carried out during the study period (**winter season Dec 2020 to Feb 2021**) to establish the existing baseline conditions.

3.4 METEOROLOGICAL CONDITIONS

Meteorology is the key to understand the air quality. The essential relationship between meteorology and atmospheric dispersion involves the wind in the broadest sense. Wind fluctuations over a very wide range of time, accomplish dispersion and strongly influence other processes associated with them.
A meteorological station was set up at the proposed mine premises. Meteorological data was generated during the pre-monsoon monitoring period.

The following parameters were recorded at hourly intervals continuously during monitoring period, except rainfall which was recorded on daily basis.

- Wind speed
- Wind Direction
- Air Temperature
- Rainfall

3.4.1 Climate of the project district

The average temperature for the year in Bageshwar is 20.4 °C (68.8 °F). The warmest month, on average, is June with an average temperature of 27.3 °C (81.2 °F). The highest temperature ever recorded was 38 °C, recorded on 5 June 2017. The coolest month on average is January, with an average temperature of 11 °C (51.8 °F). The average amount of precipitation for the year in Bageshwar is 48.1" (1221.7 mm). The month with the most precipitation on average is July with 13.0" (330.2 mm) of precipitation. The month with the least precipitation on average is November with an average of 0.2" (5.1 mm). There is an average of 63.6 days of precipitation, with the most precipitation occurring in August with 15.3 days and the least precipitation occurring in November with 0.8 days.

3.4.2 Wind speed/Direction

Generally, light to moderate winds prevail throughout the year with speed ranging from 1 to 19 kmph. Winds were light and moderate particularly during the morning hours, while during the afternoon hours the winds were stronger. The wind rose diagram developed during the study period is shown in **Figure 3.2** reveals that pre-dominant wind direction occurs mostly blowing from west direction in project site and the average wind speed is 6.91 kmph.

Table 3.1(a) shows the Meteorological Data Parameters at the project site whereas **Table 3.1 (b)** shows the Meteorological Data Parameters of Mukteshwar district (Nearest IMD from the proposed project) for the months of **Dec 2020 to Feb 2021**.

Table-3.1 (a): Meteorological Data Parameters at Project site for the months of Dec 2020 to Feb 2021

Date	Temperature, deg C			Humidity, %			Pressure, hPa			Wind Speed, km/Hr	Predominant Wind Direction	Rainfall mm
	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg	Avg		
December	2	26	16	44	63	58	774.2	776.8	775.2	1.4	W	21
January	3	24	17	50	62	56	773.6	776.9	775.9	1.8	NE	45.6
February	4	30	18	51	60	57	771.8	776.1	771.2	2.4	W	61.5

Source: Weather station

Table-3.1 (b): Meteorological Data Parameters at Mukteshwar district (Nearest IMD from the proposed project) for the months of Dec 2020 to Feb 2021

Date	Temperature, deg C			Humidity, %			Pressure, hPa			Wind Speed, km/Hr	Predominant Wind Direction From	Rainfall mm
	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg	Avg		
December	-1.3	19.2	14.3	46	62	58	775.9	777.2	776.4	1.8	W	22
January	-2.7	18.5	12.7	53	63	57	774.0	775.0	774.5	2.1	NE	46.7
February	-2.0	19.5	13.4	55	63	58	773.5	774.4	773.9	2.5	W	65.2

Source: IMD

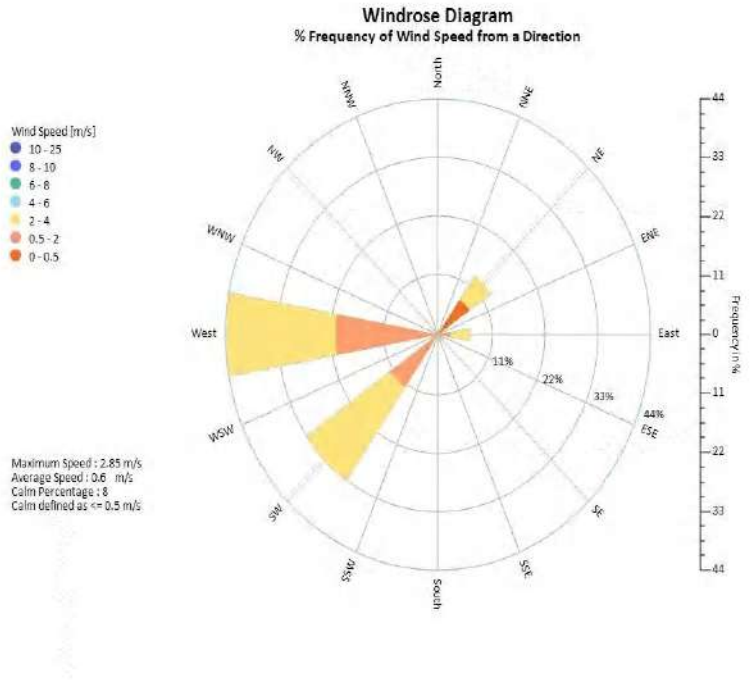


Figure 3.2: Wind-rose of the project site (Dec to Feb 2021)

3.5 AIR ENVIRONMENT

3.5.1 Ambient Air Quality

The Ambient Air Quality was monitored in the impact area as per MoEF&CC guidelines and as per approved ToR by SEAC, Uttarakhand. The study area represents mostly rural environment. The prime objective of the baseline air quality study was to assess the ambient air quality of the mining lease area.

3.5.2 Methodology Adopted for the Study

The baseline status of the ambient air quality has been assessed through a scientifically designed ambient air quality network. The design of monitoring network in the air quality surveillance programme has been based on the following consideration.

- Meteorological parameters covering upwind, downwind and cross wind direction
- Topography of the study area
- Representative of regional background air quality for obtaining baseline status
- Representative of likely impact areas.

Ambient Air Quality Monitoring (AAQM) stations were set up at 5 locations, one in core zone and the other four in the study area of 10 km with due consideration to the above mentioned points. AAQM locations were selected in downwind and upwind direction of the proposed mining lease area covering core and buffer zones. The details of the monitoring stations are given in **Figure 3.3** and shown in **Table-3.2**.

Ambient air quality monitoring was carried out twice a week with a frequency of 24 hours for 12 weeks during the study period. The common air pollutant namely Particulate Matter-10 (PM_{10}), Particulate Matter-2.5 ($PM_{2.5}$), Sulphur-dioxide (SO_2) and Nitrogen dioxide (NO_2) has been measured through a planned field monitoring. The baseline values of the air pollutants of concern are presented in **Tables 3.3 (a) to Tables 3.3 (d)** below statistical parameters like minimum, maximum, average and 98th percentiles have been computed from the observed field data for all sampling stations**.** These are compared with the standards prescribed by National Ambient Air Quality Standards 2009.

Table 3.2: Location of Ambient Air Quality Monitoring Stations

S. No.	Location Name	Direction	Distance from the project site (in km)
AAQ1	Bansikhet	7.1	South
AAQ2	Project Site	00	NA
AAQ3	Parol	6.34	N
AAQ4	Seri	4.56	NE
AAQ5	Simkhet	8.46	West

Table-3.3 (a): Ambient Air Quality in Bansikhet, PM2.5, PM_{10}, SO_2, NOx

Ambient Air Quality Data December 2020 to February 2021				Location: AQ 1 (Bansikhet)	
S.No	Date	PM2.5,µg/m^3	PM10,µg/m^3	SO_2 µg/m^3,	Nox ,µg/m^3
		Gravimetric	IS:5182:Pt-23	IS:5182:Pt-2	IS:5182:Pt-6
1	01.12.20	27.5	59.6	8.5	15.7
2	03.12.20	26.7	58.2	7.8	15.0
3	11.12.20	28.1	55.0	7.8	14.8
4	13.12.20	27.5	62.3	7.8	14.6
5	17.12.20	27.2	65.2	7.8	14.7
6	19.12.20	28.1	55.2	7.8	15.0
7	27.12.20	25.4	62.3	7.8	15.0
8	29.12.20	27.5	64.5	7.8	14.8
9	02.01.21	27.0	62.8	7.8	14.8
10	04.01.21	28.2	55.8	7.9	14.8
11	12.01.21	27.5	63.9	7.8	14.7
12	14.01.21	28.1	58.2	7.9	14.9
13	18.01.21	28.2	63.9	7.9	15.2
14	20.01.21	28.2	59.5	7.9	14.9
15	28.01.21	27.0	63.9	7.9	14.6
16	30.01.21	26.2	58.2	7.8	14.6
17	01.02.21	27.0	55.6	7.9	14.9
18	03.02.21	27.3	52.1	7.9	14.6
19	11.02.21	28.2	58.8	7.8	14.9
20	13.02.21	25.8	59.8	7.8	14.9
21	17.02.21	25.1	59.7	7.9	14.6
22	19.02.21	27.0	55.8	7.9	14.8
23	26.02.21	27.5	55.5	7.9	14.9

24	28.02.21	28.3	55.8	7.9	15.0
Minimum		**25.1**	**52.1**	**7.8**	**14.6**
Maximum		**28.3**	**65.2**	**8.5**	**15.7**
Average		**27.3**	**59.2**	**7.9**	**14.9**
98 Percentile		**28.3**	**64.9**	**8.2**	**15.5**
NAAQS, For 24 hourly monitoring		**60**	**100**	**80**	**80**

Table-3.3 (b): Ambient Air Quality in Project Site, PM2.5, PM_{10}, SO_2, NOx

Ambient Air Quality Data December 2020 to February 2021				**Location: AQ 2 (Project Site)**	
S.No	**Date**	**PM2.5,µg/m³**	**PM10,µg/m³**	**SO_2 µg/m³**	**Nox ,µg/m³**
		Gravimetric	**IS:5182:Pt-23**	**IS:5182:Pt-2**	**IS:5182:Pt-6**
1	01.12.20	30.2	59.6	8.2	14.2
2	03.12.20	27.3	52.4	8.3	13.8
3	11.12.20	27.0	66.3	8.3	12.4
4	13.12.20	27.5	62.3	7.8	15.1
5	17.12.20	30.7	68.2	7.3	13.6
6	19.12.20	30.3	63.7	7.8	14.5
7	27.12.20	30.2	62.8	7.8	14.5
8	29.12.20	29.4	64.5	8.3	13.8
9	02.01.21	27.3	60.4	7.8	14.5
10	04.01.21	27.0	66.3	7.0	13.5
11	12.01.21	30.1	63.9	8.3	14.5
12	14.01.21	28.2	60.5	7.8	14.5
13	18.01.21	29.4	53.4	7.9	14.5
14	20.01.21	27.0	68.2	8.9	13.6
15	28.01.21	29.0	57.0	7.9	13.2
16	30.01.21	28.2	68.2	7.9	14.0
17	01.02.21	30.2	55.6	7.9	14.5
18	03.02.21	28.2	68.2	8.5	14.5
19	11.02.21	27.4	58.2	7.8	14.5
20	13.02.21	29.5	68.5	7.8	13.5
21	17.02.21	27.3	53.2	8.0	14.5
22	19.02.21	29.5	66.3	8.0	13.5
23	26.02.21	26.6	52.8	8.5	14.5
24	28.02.21	26.9	55.8	8.0	14.6
Minimum		**26.6**	**52.4**	**7.0**	**12.4**
Maximum		**30.7**	**68.5**	**8.9**	**15.1**
Average		**28.5**	**61.5**	**8.0**	**14.1**
98 Percentile		**30.5**	**68.4**	**8.7**	**14.9**
NAAQS, For 24 hourly monitoring		**60**	**100**	**80**	**80**

Table-3.3 (c): Ambient Air Quality in Parol, PM2.5, PM_{10}, SO_2, NOx

Ambient Air Quality Data December 2020 to February 2021				Location: AQ 3 (Parol)	
S.No	Date	PM2.5,µg/m³	PM10,µg/m³	SO_2 µg/m³,	Nox ,µg/m³
		Gravimetric	IS:5182:Pt-23	IS:5182:Pt-2	IS:5182:Pt-6
1	01.12.20	22,5	45.5	5.5	11.8
2	03.12.20	21.8	50.2	5.4	12.2
3	11.12.20	20.6	52.5	5.2	13.2
4	13.12.20	22.5	43.1	5.7	9.8
5	17.12.20	23.3	50.6	5.5	10.2
6	19.12.20	21.8	52.5	5.0	11.2
7	27.12.20	19.8	36.2	5.2	12.6
8	29.12.20	20.6	47.5	5.6	10.6
9	02.01.21	13.2	49.2	5.5	9.8
10	04.01.21	12.4	50.2	5.2	11.6
11	12.01.21	21.5	47.8	5.3	10.2
12	14.01.21	22.5	46.2	5.5	9.8
13	18.01.21	23.0	44.5	5.4	10.2
14	20.01.21	20.8	50.5	5.6	11.6
15	28.01.21	17.6	51.2	5.2	12.4
16	30.01.21	16.8	50.6	5.7	13.2
17	01.02.21	17.0	52.5	5.2	10.8
18	03.02.21	16.5	48.2	5.0	9.6
19	11.02.21	19.0	47.5	5.5	7.3
20	13.02.21	18.2	49.2	5.4	10.8
21	17.02.21	20.6	50.2	5.2	11.3
22	19.02.21	21.5	47.8	5.5	12.5
23	26.02.21	22.3	46.2	5.6	10.4
24	28.02.21	23.0	44.5	5.0	9.6
Minimum		**12.4**	**36.2**	**5.0**	**7.3**
Maximum		**23.3**	**52.5**	**5.7**	**13.2**
Average		**19.8**	**48.1**	**5.4**	**10.9**
98 Percentile		**23.2**	**52.5**	**5.7**	**13.2**
NAAQS, For 24 hourly monitoring		**60**	**100**	**80**	**80**

Table-3.3 (d): Ambient Air Quality in the Seri, PM2.5, PM_{10}, SO_2, NOx

Ambient Air Quality Data December 2020 to February 2021				Location: AQ 4 (Seri)	
S.No	Date	PM2.5,µg/m³	PM10,µg/m³	SO_2 µg/m³,	NOx ,µg/m³
		Gravimetric	IS:5182:Pt-23	IS:5182:Pt-2	IS:5182:Pt-6
1	01.12.20	27.5	59.6	8.5	15.7
2	03.12.20	26.7	58.2	7.8	15.0

3	11.12.20	28.1	55.0	7.8	14.8
4	13.12.20	27.5	62.3	7.8	14.6
5	17.12.20	27.2	65.2	7.8	14.7
6	19.12.20	28.1	55.2	7.8	15.0
7	27.12.20	25.4	62.3	7.8	15.0
8	29.12.20	27.5	64.5	7.8	14.8
9	02.01.21	27.0	62.8	7.8	14.8
10	04.01.21	28.2	55.8	7.9	14.8
11	12.01.21	27.5	63.9	7.8	14.7
12	14.01.21	28.1	58.2	7.9	14.9
13	18.01.21	28.2	63.9	7.9	15.2
14	20.01.21	28.2	59.5	7.9	14.9
15	28.01.21	27.0	63.9	7.9	14.6
16	30.01.21	26.2	58.2	7.8	14.6
17	01.02.21	27.0	55.6	7.9	14.9
18	03.02.21	27.3	52.1	7.9	14.6
19	11.02.21	28.2	58.8	7.8	14.9
20	13.02.21	25.8	59.8	7.8	14.9
21	17.02.21	25.1	59.7	7.9	14.6
22	19.02.21	27.0	55.8	7.9	14.8
23	26.02.21	27.5	55.5	7.9	14.9
24	28.02.21	28.3	55.8	7.9	15.0
Minimum		**25.1**	**52.1**	**7.8**	**14.6**
Maximum		**28.3**	**65.2**	**8.5**	**15.7**
Average		**27.3**	**59.2**	**7.9**	**14.9**
98 Percentile		**28.3**	**64.9**	**8.2**	**15.5**
NAAQS, For 24 hourly monitoring		**60**	**100**	**80**	**80**

Table-3.3 (e): Ambient Air Quality in the Seri, PM2.5, PM_{10}, SO_2, NOx

Ambient Air Quality Data December 2020 to February 2021				Location: AQ 5 (Simkhet)	
S.No	Date	PM2.5,µg/m³	PM10,µg/m³	SO_2 µg/m³ ,	NOx ,µg/m³
		Gravimetric	IS:5182:Pt-23	IS:5182:Pt-2	IS:5182:Pt-6
1	01.12.20	27.5	59.6	8.5	15.7
2	03.12.20	26.7	58.2	7.8	15.0
3	11.12.20	28.1	55.0	7.8	14.8
4	13.12.20	27.5	62.3	7.8	14.6
5	17.12.20	27.2	65.2	7.8	14.7
6	19.12.20	28.1	55.2	7.8	15.0
7	27.12.20	25.4	62.3	7.8	15.0
8	29.12.20	27.5	64.5	7.8	14.8
9	02.01.21	27.0	62.8	7.8	14.8

10	04.01.21	28.2	55.8	7.9	14.8
11	12.01.21	27.5	63.9	7.8	14.7
12	14.01.21	28.1	58.2	7.9	14.9
13	18.01.21	28.2	63.9	7.9	15.2
14	20.01.21	28.2	59.5	7.9	14.9
15	28.01.21	27.0	63.9	7.9	14.6
16	30.01.21	26.2	58.2	7.8	14.6
17	01.02.21	27.0	55.6	7.9	14.9
18	03.02.21	27.3	52.1	7.9	14.6
19	11.02.21	28.2	58.8	7.8	14.9
20	13.02.21	25.8	59.8	7.8	14.9
21	17.02.21	25.1	59.7	7.9	14.6
22	19.02.21	27.0	55.8	7.9	14.8
23	26.02.21	27.5	55.5	7.9	14.9
24	28.02.21	28.3	55.8	7.9	15.0
Minimum		**25.1**	**52.1**	**7.8**	**14.6**
Maximum		**28.3**	**65.2**	**8.5**	**15.7**
Average		**27.3**	**59.2**	**7.9**	**14.9**
98 Percentile		**28.3**	**64.9**	**8.2**	**15.5**
NAAQS, For 24 hourly monitoring		**60**	**100**	**80**	**80**

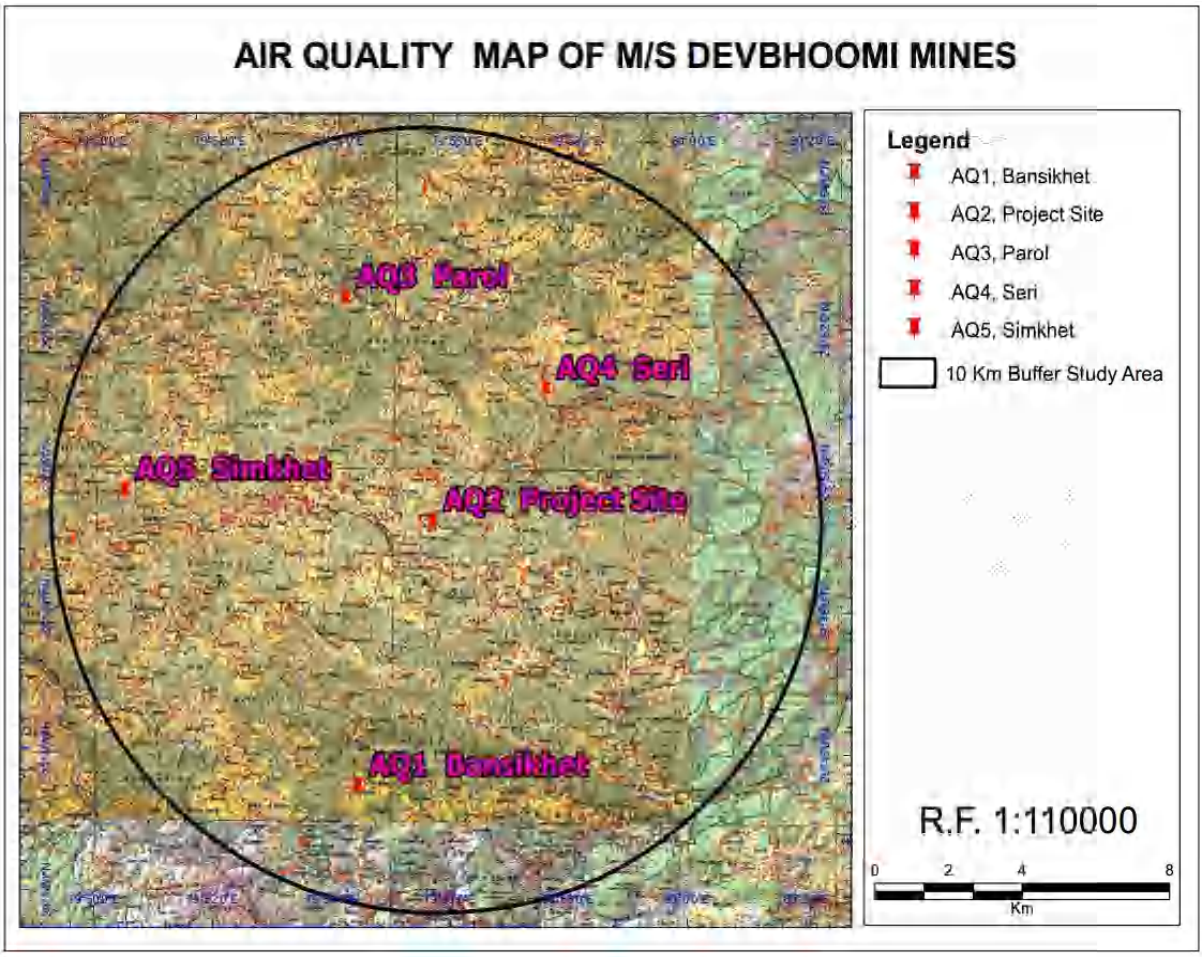


Figure 3.3 Ambient Air Quality Monitoring Locations

Some of the photographs of Air Monitoring

Near Project Site

Simkhet Location

3.5.3 Baseline Scenario

a) Suspended Particulate Matter (PM_{10})

Suspended particulate matter in general terms is the particulate matter in suspension in ambient air. It includes dust and smoke particles etc. In general some of the important sources of suspended particulate matter are mines. The following sources of suspended particulate matter in the study area are identified:

- Emission due to vehicular movement
- Dust generation from mining operations

The minimum and maximum level of PM_{10} recorded within the study area was in the range of 36.2 µg/m^3 to 68.5 µg/m^3 with the 98th percentile ranging between 52.5 µg/m^3 to 68.4 µg/m^3.

The 24 hourly average values of PM_{10} were compared with the National Ambient Air Quality Standards (NAAQS) and found that all sampling stations recorded in the study area are within the applicable limits i.e., 100 µg/m^3 for PM_{10} in Industrial, Residential, Rural and other areas.

b) Particulate Matter ($PM_{2.5}$)

Fine particulate matter in general terms is the particulate matter in suspension in ambient air. It includes dust, smoke etc. In general some of the important sources of suspended particulate matter are mines. The following sources of suspended particulate matter in the study area are identified:

- Emission due to vehicular movement
- Dust generation from mining operations

The minimum and maximum level of $PM_{2.5}$ recorded within the study area was in the range of 12.4 µg/m^3 to 30.7 µg/m^3 with the 98th percentile ranging between 23.2 µg/m^3 to 30.5 µg/m^3.

The 24 hourly average values of $PM_{2.5}$ were compared with the National Ambient Air Quality Standards (NAAQS) and found that all sampling stations recorded in the study area are within the applicable limits i.e., 60 µg/m^3 for $PM_{2.5}$ in Industrial, Residential, Rural and other areas.

c) Sulphur Dioxide (SO_2)

Sulphur dioxide gas is an inorganic gaseous pollutant. Sulphur dioxide emissions are expected to be emitted wherever combustion of any fuel containing Sulphur takes place. The Sulphur in the fuel will combine with oxygen to form Sulphur dioxide. The following sources of Sulphur dioxide in the study area are identified:

- Emissions from domestic/consumption of fuel (coal, diesel, etc)

Sulphur dioxide in atmosphere is significant because of its toxicity; Sulphur dioxide is capable of producing illness and lung injury. Further it can combine with water in the air to form toxic acid aerosols that can corrode metal surfaces, fabrics and the leaves of plants. Sulphur dioxide is an irritant to the eyes and respiratory system. Excessive exposure to Sulphur dioxide causes bronchial asthma and other breathing related diseases as it affects the lungs.

The minimum and maximum concentration of SO2 recorded within the study area was 5.0 to 8.9 µg/m^3 with the 98th percentile ranging between 5.7 µg/m^3 to 8.7 µg/m^3.

The 24 hourly average values of SO2 were compared with the National Ambient Air Quality Standards (NAAQS) and it was found that all sampling stations recorded values are below the applicable limits 80 µg/m^3 for Industrial, Residential, Rural and other areas.

d) Nitrogen Dioxide (NO_2)

The important sources of oxides of Nitrogen are from utilities and auto exhaust due to vehicular movement in mine lease area. The following sources of oxides of nitrogen in the study area are identified.

- Emissions from field burning of coal.
- Emissions from vehicular movements in the study area.

Oxides of Nitrogen in the presence of sunlight will undergo reactions with a number of organic compounds to produce all the effects associated with photochemical smog. The minimum and maximum level of NO2 recorded within the study area was in the range of was 7.3 µg/m^3 to 16.3 µg/m^3 with the 98th percentile ranging between 13.2 µg/m^3 to 15.7 µg/m^3.

The 24 hourly average values of NO2 were compared with the National Ambient Air Quality Standards (NAAQS) and it was found that all sampling stations recorded values are below the applicable limits 80 µg/m^3 for Industrial, Residential, Rural and other areas.

3.6 NOISE ENVIRONMENT

Noise is one of the most undesirable and unwanted by-products of our modern life style. It may not seem as insidious or harmful as air and water pollutants but it affects human health and well-being and can contribute to deterioration of human well-being in general and can cause neurological disturbances and physiological damage to the hearing mechanism in particular. It is therefore, necessary to measure both the quality as well as the quantity of noise in and around the proposed site.

3.6.1 Source of Noise

The main sources of noise in the study area are domestic activities, industrial activities and vehicular traffic. The main occupation of the villagers in the study area is agriculture and business.

3.6.2 Noise Level in the Study Area

The baseline noise levels have been monitored at 5 locations, one in core zone and four within the study zone twice a week during winter period, using a sound level meter and noise level measurement locations were identified for assessment of existing noise level status, keeping in view the land use pattern, industrial area, Silence Zone, residential areas in villages etc., if available within 10 km radius of the study area. The day levels have been monitored during 6.00 AM to 10.00 PM and night noise levels, during 10.00 PM to 6.00 AM. The noise monitoring stations are shown in **Figure 3.4** and represented in **Table 3.4**. The results are presented in **Table 3.5 (a) Table 3.5**.

Table 3.4: Noise Level Monitoring Stations in the Study Area

S. No.	Location Name	Direction	Distance from the project site (in km)
NQ1	Bansikhet	7.1	South
NQ2	Project Site	00	NA
NQ3	Parol	6.34	North
NQ4	Seri	4.56	North East
NQ5	Simkhet	8.46	West

Table 3.5: Leq Noise Level in the Study Area (during day and Night) (Dec 2020)

Location Code	Noise levels dB(A), Day (Leq)	Noise levels dB(A) Night, (Leq)	Noise Limits in dB(A), Leq Day Time	Noise Limits in dB(A), Leq Night Time	Area
NQ1	48.6	37.9	**75**	**70**	Mine Site (Industrial)
NQ2	60.1	52.7	**65**	**55**	Commercial
NQ3	51.8	39.6	**55**	**45**	Residential
NQ4	48.2	41.6	**55**	**45**	Residential
NQ5	51.7	39.8	**50**	**40**	Silence Zone (Near School)

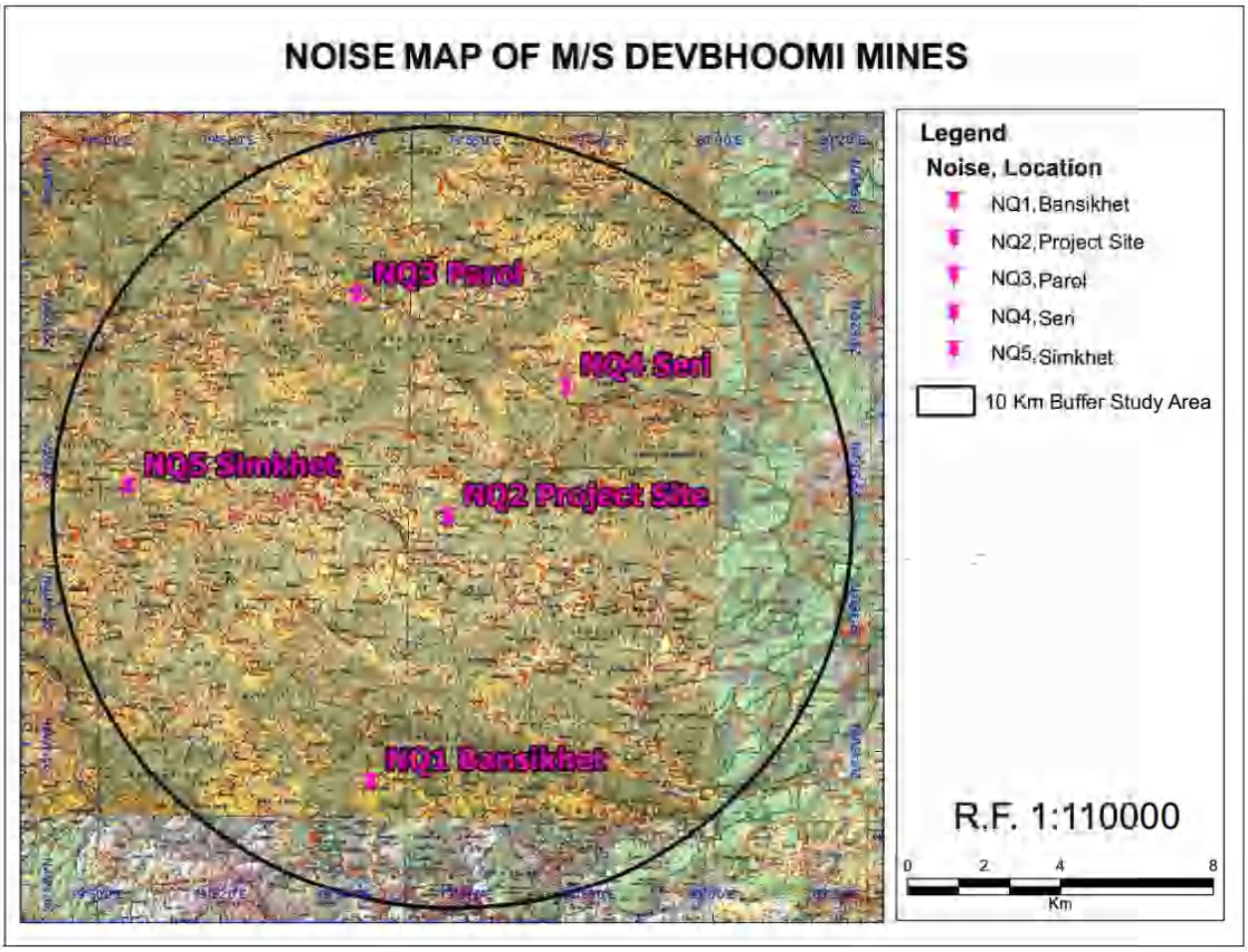


Figure 3.4: Ambient Noise Level Monitoring Locations

3.6.3 Ambient Noise Standards

Ministry of Environment, Forest and Climate Change (MoEF&CC) has notified the noise standards vide gazette notification dated February 14, 2000 for different zones under the Environment Protection Act (1986). These standards are given in **Table-3.6**

Table 3.6: Ambient Quality Standards in respect of Noise

Area Code	Category of Area	Noise dB (A) Leq	
		Daytime*	Night time*
A	Industrial Area	75	70
B	Commercial Area	65	55
C	Residential Area	55	45
D	Silence Zone	50	40

Note:

1. Daytime is from 6.00am to 10.00 pm and Nighttime is from 10.00 pm to 6.00 am.
2. Silence zone is defined as area up to 100 meters around premises of hospitals, educational institutions and courts. Use of vehicle hours, loud speakers and bursting of crackers are banned in these zones.

3.6.4 Baseline Scenario

The values of noise observed in some of the areas are primarily owing to vehicular traffic and other anthropogenic activities. Assessment of average logarithm night time Leq (Ln) varies from 37.9 to 52.7 dB (A) and the average logarithm daytime Leq (Ld) varies from 48.2 to 60.1 dB (A) within the study area.

The status of noise quality within the 10 km zone of the study area is, therefore, within the MoEF&CC standards.

Some of the photographs of Noise Monitoring

Project Site

Bansikhet Location

3.7 WATER ENVIRONMENT

3.7.1 Water Quality

Water quality assessment is one of the essential components of EIA study. Such assessment helps in evaluating the existing health of water body and suggesting appropriate mitigation measures to minimize the potential impact from development projects. Water quality of ground water has been studied in order to assess proposed water-uses in dust suppression, drinking and green belt watering purpose.

The water quality within the study area was monitored during the study period. The water samples were collected once in month. The water sampling locations marked within the study are presented in **Table 3.7** and the result of the monitoring and analysis are presented in the **Table 3.8 and Figure 3.5A, 3.5B shows** the Water Quality Monitoring Locations marked within the Study Area.

Table 3.7: Location of Water Sampling Sites

S. No.	Location Name	Direction	Distance from the project site (in km)
GWQ1	Bansikhet	7.1	South
GWQ2	Project Site	00	NA
GWQ3	Parol	6.34	North
GWQ4	Seri	4.56	North East
GWQ5	Simkhet	8.46	West
SWQ1	Upstream (Saryu River)	8.92	North East
SWQ2	Downstream (Saryu River)	9.1	North West

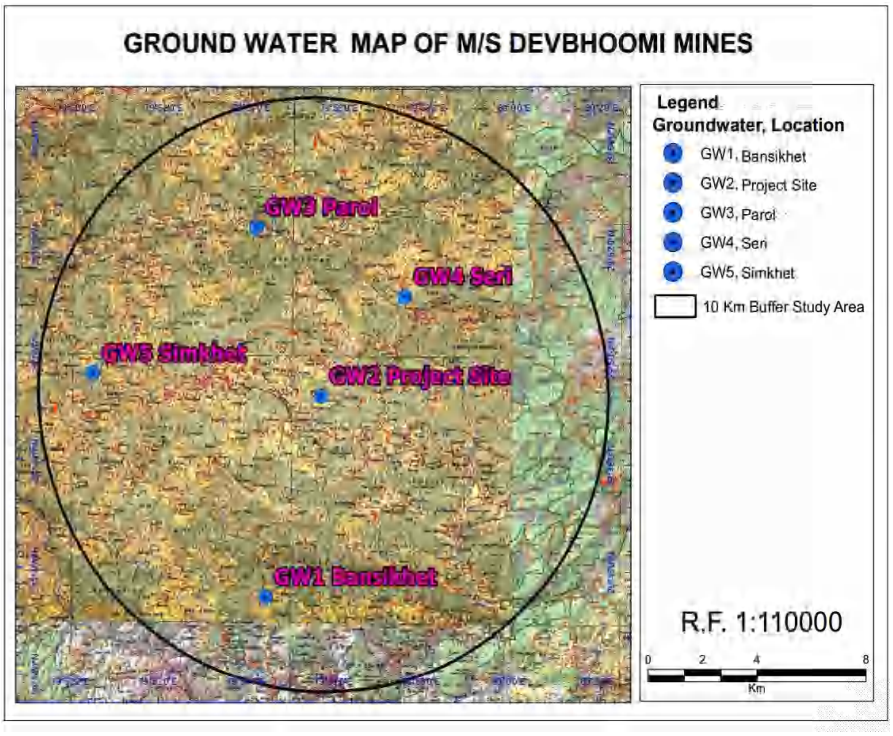


Figure 3.5 A: Location Map of Ground Water Sampling Sites

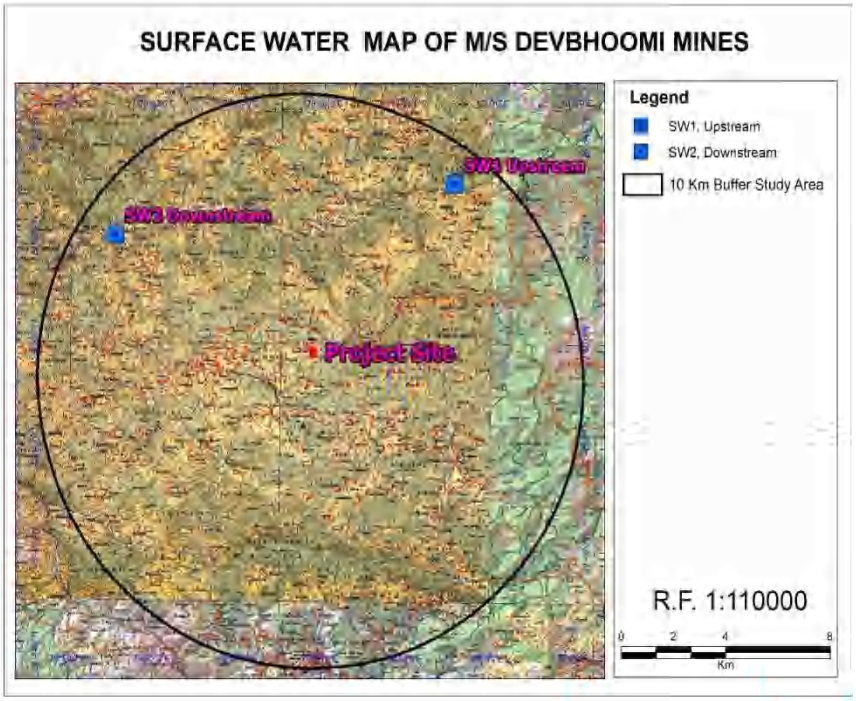


Figure 3.5 B: Location Map of Surface Water Sampling Sites

Table 3.8 (a): Water Quality during the month of Jan 2021

S.No	Parameter	Limit (as per IS:10500:2012)		Unit	GW1	GW2	GW3	GW4	GW5	SW 1	SW2
		Desirable Limit	Permissible Limit		Bansikhet	Project Site	Parol	Seri	Simkhet	Upstream	Downstream
1	Temperature (^{0}C)	(^{0}C)	-	-	9	10	11	10	9	11	12
2	pH	-	6.5-8.5	No Relaxation	7.37	7.48	7.36	7.45	7.44	7.22	7.42
3	Electrical Conductivity	Microm/ho	-	-	368.12	768.2	412.36	392.6	425.22	366.16	370.24
4	TDS	mg/l	500	2000	190.16	390.6	205.16	196.4	210.22	185.36	188.24
5	TSS	Mg/l	-	-	BDL	BDL	0.41	BDL	BDL	BDL	BDL
6	Dissolved Oxygen	mg/l			3.8	3.8	5.6	3.8	4.2	3.5	4
7	Alkalinity as ($CaCO_3$)	mg/l	200	600	206.5	386.7	216.16	204.3	208.14	203.1	210.2
8	Total Hardness (as $CaCO_3$)	mg/l	200	600	189.12	248.6	182.44	192.5	205.32	186.12	188.22
9	BOD (at 27^{0}C 3-Days)	mg/l	-	-	7	BDL	BDL	BDL	BDL	6.4	BDL
10	COD	mg/l	-	-	14	BDL	5.5	BDL	BDL	11	12
11	Nitrate (as NO_3)	mg/l	45	No Relaxation	0.4	0.15	0.66	22.6	0.12	0.36	0.38
12	Chloride (as Cl)	mg/l	250	1000	17.9	47	12.6	17.5	20.5	16.7	18.2
13	Phosphates	mg/l	-	-	0.12	0.03	0.03	0.08	0.06	0.12	0.14
14	Sulphate (as SO_4)	mg/l	200	400	42.6	40.8	42.3	46.2	38.6	40.4	41.2
15	Sodium (as Na)	mg/l	-	-	35.2	58.2	42.5	36.4	40.2	32.2	34.5
16	Potassium (as K)	mg/l	-	-	2.6	3.9	2.7	2.8	3	2.8	2.5
17	Calcium (as $CaCO_3$)	mg/l	75	200	45.5	50.4	55.4	46.5	48.2	45.3	56.8
18	Magnesium (as $CaCO_3$)	mg/l	30	100	26.8	38.2	32.6	30.7	38.6	24	25.7
19	Silica	mg/l	-	-	50.6	27.6	32.5	35.8	30.5	40.5	42.2
20	Oil & Grease	mg/l	-	-	<1.03	<1.00	<1.00	<1.01	<1.00	<1.02	<1.0
21	Residual Sodium Carbonate	mg/l	-	-	52	70.8	72	62.4	78	50	55

22	Lead (as Pb)	mg/l	0.01	No Relaxation	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
23	Arsenic (as As)	mg/l	0.01	0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
24	Mercury (as Hg)	mg/l	0.001	No Relaxation	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
25	Cadmium (as Cd)	mg/l	0.003	No Relaxation	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
26	Chromium (as Cr6+)	mg/l	0.05	No Relaxation	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.001
27	Total Chromium (as Cr6+)	mg/l	0.05	No Relaxation	<0.05	<0.04	<0.05	<0.05	<0.05	<0.05	<0.01
28	Copper (as Cu)	mg/l	0.05	1.5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
29	Zinc (as Zn)	mg/l	5	15	0.24	0.16	0.003	0.18	0.12	0.21	0.22
30	Iron (as Fe)	mg/l	0.3	1	0.75	0.7	0.03	0.74	0.78	0.73	0.78
Bacteriological Parameter											
1	Faecal Coliform	Shall not be detectable		MPN/ 100ml	Absent	Absent	Absent	Absent	Absent	110	120
2	Total Coliform	Shall not be detectable		MPN/ 100ml	Absent	Absent	Absent	Absent	Absent	290	315

3.7.2 Sampling Frequency and Sampling Techniques

Parameters for analysis of water quality were selected based on the utility of the particular source of water as per MoEF&CC guidance. Hence quality of ground water was compared with IS: 10500: 2012 for drinking purposes. Surface water quality was monitored for parameters as per Methods of Monitoring & Analysis published by CPCB and it was rated according to the CPCB Water Quality Criteria against A, B, C, D & E class of water. Water samples were collected as Grab water sample from sampling location. The samples were analyzed as per standard procedure / method given in IS: 3025 (Revised Part) and standard method for examination of water and wastewater Ed.21st, published jointly APHA, AWWA and WPCF.
The surface water quality is compared with CPCB water quality criteria mentioned in **Table 3.9** below:

Table 3.9: Water Quality Criteria as per Central Pollution Control Board

Designated-Best-Use	Class of water	Criteria
Drinking Water Source without conventional treatment but after disinfection	A	Total Coliforms Organism MPN/100ml shall be 50 or less pH between 6.5 and 8.5 Dissolved Oxygen 6mg/l or more Biochemical Oxygen Demand 5 days 20°C 2mg/l or less
Outdoor bathing (Organized)	B	Total Coliforms Organism MPN/100ml shall be 500 or less; pH between 6.5 and 8.5; Dissolved Oxygen 5mg/l or more Biochemical Oxygen Demand 5 days 20°C 3mg/l or less
Drinking water source afterconventional treatment disinfection	C	Total Coliforms Organism MPN/100ml shall be 5000 or less; pH between 6 to 9; Dissolved Oxygen 4mg/l or more Biochemical Oxygen Demand 5 days 20°C 3mg/l or less
Propagation of Wild life and Fisheries	D	pH between 6.5 to 8.5 Dissolved Oxygen 4mg/l or more Free Ammonia (as N) 1.2 mg/l or less
Irrigation, Industrial Cooling, Controlled Waste disposal	E	pH between 6.0 to 8.5 Electrical Conductivity at 25°C micro mhos/cm Max.2250 Sodium absorption Ratio Max. 26 Boron Max. 2mg/l
	Below-E	Not Meeting A, B, C, D & E Criteria

Some of the photographs of Water Sampling

Village - Parol Location

Saryu river Upstream

3.7.3 Result & Conclusion:

- The pH limit fixed for drinking water samples as per IS-10500 Standards is 6.5 to 8.5 beyond this range the water will affect the mucus membrane or water supply system. During the study period, the pH was varying for ground water from 7.36 to 7.48 and the surface water is 7.22 to 7.42. The pH values for all the samples collected in the study area during study period were found to be within the limits.
- The desirable limit for total dissolved solids as per IS-10500 Standards is 500 mg/l whereas the permissible limits in absence of alternate source is 2000 mg/l, beyond this palatability decreases and may cause gastro intestinal irritation. In ground water samples collected from the study area, the total dissolved solids in ground water are varying from 190.16 mg/l to 390.60 mg/l whereas in surface water varying from 185.36 mg/l to 188.24 mg/l. The TDS of the samples were within the desirable limit and within the permissible limit of 2000 mg/l.
- The desirable limit for chlorides is 250 mg/l as per IS-10500 Standards whereas, permissible limit of the same is 1000 mg/l beyond this limit taste, corrosion and palatability are affected. The chloride level in the ground water samples collected in the study area were ranging from 12.6 mg/l to a maximum of 47 mg/l, in surface water samples 16.7 mg/l to 18.2 mg/l. The chloride samples are within the desirable limits.
- The desirable limit as per IS-10500 Standards for hardness is 200 mg/l whereas the permissible limit for the same is 600 mg/l beyond this limit encrustation in water supply structure and adverse effects on domestic use will be observed. In

the ground water samples collected from the study area, the hardness is varying from 182.44 mg/l to 248.6 mg/l, in surface water samples 186.12 mg/l to 188.22 mg/l.

Overall all the samples collected from the study area were found to be fit for consumption, Most of ground water samples are well within the permissible limits, as per IS-10500. Most of the heavy metals in all samples are below detectable limits.

Comparing the values of pH, DO, BOD and total coliforms with 'Use based classification of surface waters' published by Central Pollution Control Board; it can be seen that all the analyzed surface waters can be compared with class 'B' and can be used as Outdoor bathing (Organized).

3.8 SOIL CHARACTERISTICS

The composite soil samples were collected from site and the study area and were analyzed for characterization. The locations of the monitoring sites are depicted in **Figure 3.6** and given in **Table 3.10** Showing Soil Sample Collection Points marked within the Study Area.

3.8.1 Methodology

The soil samples were collected in the month of **January 2021.** Soil samples were collected from 8 locations. The samples were filled in polythene bags, labeled in the field with number and site name and sent to laboratory for analysis. The test results are given in **Table-3.11**.

Particulars	Details
Frequency	One grab sample from each station once during the Study Period
Methodology	Composite grab samples of the topsoil were collected from 3m depth, and mixed to provide a representative sample for analysis. They were stored in airtight Polythene Bags and analyzed at the laboratory

Table 3.10: Soil Sample Collection Points

S. No.	Location Name	Direction	Distance from the project site (in km)
SQ1	Bansikhet	South	7.1
SQ2	Project Site	NA	00
SQ3	Parol	North	6.34
SQ4	Seri	North East	4.56
SQ5	Simkhet	West	8.46

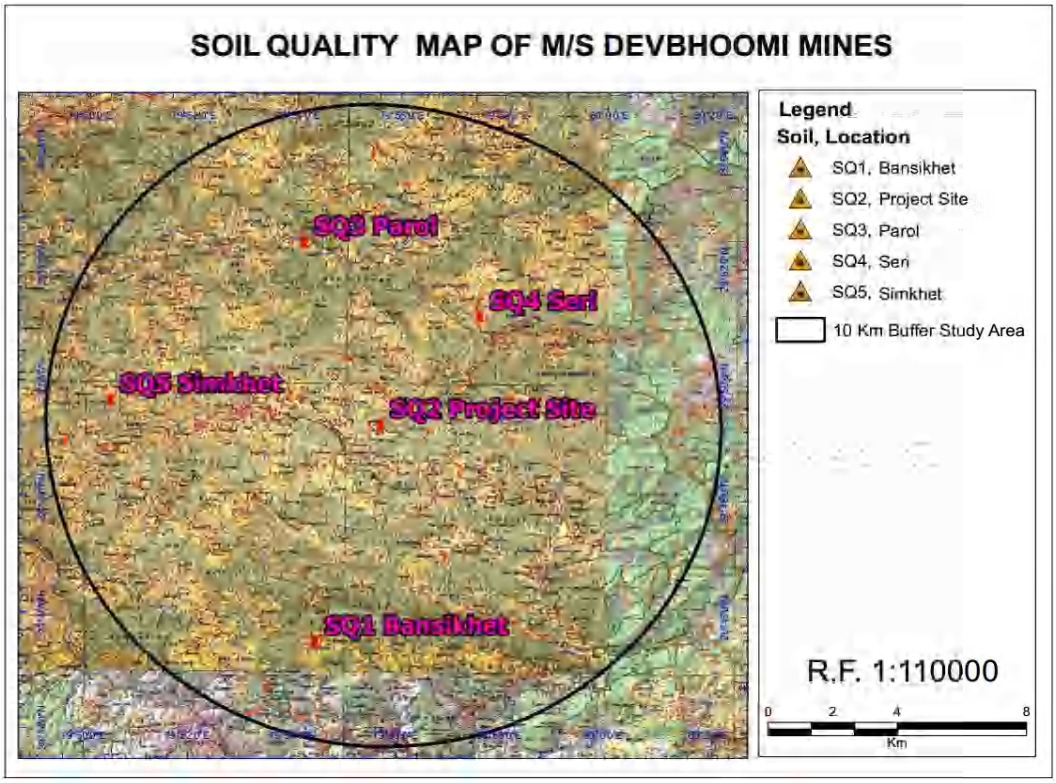
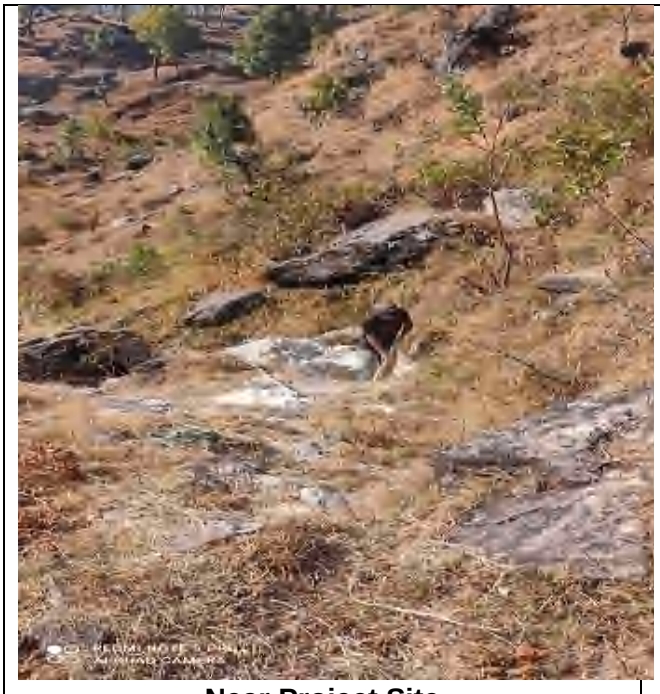


Figure 3.6: Location Map of Soil Sampling Sites

Some of the photographs of Soil Sampling



Near Project Site

Bansikhet Location

Table 3.11: Physiochemical Properties of Soil (January 2021)

S.No.	Parameter	Unit	SQ-1	SQ-2	SQ-3	SQ-4	SQ-5
	Location Name						
1.	pH (1:2)	-	7.65	7.32	7.48	7.55	7.49
2.	Electrical Conductivity (1:2)	µmhos/cm	280.25	290.17	240.23	270.15	250.65
3.	Texture	-	Silty Clay Loam	Silty Clay Loam	Silty Clay Loam	Silty Clay Loam	Silty Clay Loam
4.	Sand	%	56.4	53.3	58.6	52.5	60.8
5.	Silt	%	20.2	21.3	19	23.3	12
6.	Clay	%	23.4	25.4	22.4	24.2	27.2
7	Exchangeable Potassium	mg/kg	86.6	82.3	90.12	87.5	82.8
8.	Exchangeable Sodium	mg/kg	182.2	210.5	190.2	205.6	195.4
9.	Exchangeable Calcium	mg/kg	480.1	421.2	390.26	410.12	395.22
10.	Exchangeable Magnesium	mg/kg	30.2	32.5	34.14	30.2	31.6
11.	Sodium Absorption Ratio	-	1.34	1.16	1.24	1.34	1.44
12.	Porosity	%	38.4	32.6	35.5	37.2	34.2
13.	Organic Matter	% by	0.46	0.55	0.42	0.36	0.48
14.	Water holding Capacity	% by	24.3	20.4	22.4	21.2	25.7
15.	Nitrogen	mg/100g	0.06	0.07	0.09	0.06	0.07
16.	Phosphorus	mg/kg	0.65	0.55	0.53	0.67	0.7
17.	Bulk Density	grm/cc	1.36	1.41	1.56	1.22	1.52
18.	Infiltration Rate	mm/hr	10	11	12	10	12
19.	Moisture	%	14.6	16.2	21.8	18.5	17.5
20.	Sulphates	mg/1000g	52.5	58.4	46.7	50.5	52.5
21.	Available Sulphur(as S)	mg/kg	22.4	21.8	26.6	28.2	26.2
22.	Available Manganese (as	mg/100g	2.22	1.62	1.78	1.45	2.34
23.	Available Iron (as Fe)	mg/kg	41.8	38.4	34.4	37.6	38.2
24.	Sodium as Na	mg/kg	51.23	54.32	62.12	55.32	60.8

3.8.2 Results of Analysis of the Soil

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 7.32 to 7.65. Electrical conductivity (EC) is a measure of the soluble salts and ionic activity in the soil. In the collected soil samples the conductivity ranged from 250.65 – 290.17 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.

3.9 LAND USE/LAND COVER MAPPING

➢ **Coordinates of the mine lease area**

Map with all corner coordinates of the mine lease area are super imposed on toposheet is shown in **Figure-3.7**.

To assess the land use pattern surrounding the 10 km radius of the site, a detailed study was carried out. The land use pattern study reveals that the 10 km environs is predominantly forest and agriculture area. The land use details are given in **Table-3.12.**

Table 3.12: Land use of the study area

Sr. No.	Particulars	Area (ha)	Percentage
1	Settlements	1350	4.30
2	Water bodies	1084	3.45
3	Barren land	1220	3.89
4	Crop land	3162	10.07
5	forest area	24584	78.29
	Total	**31400**	**100.00**

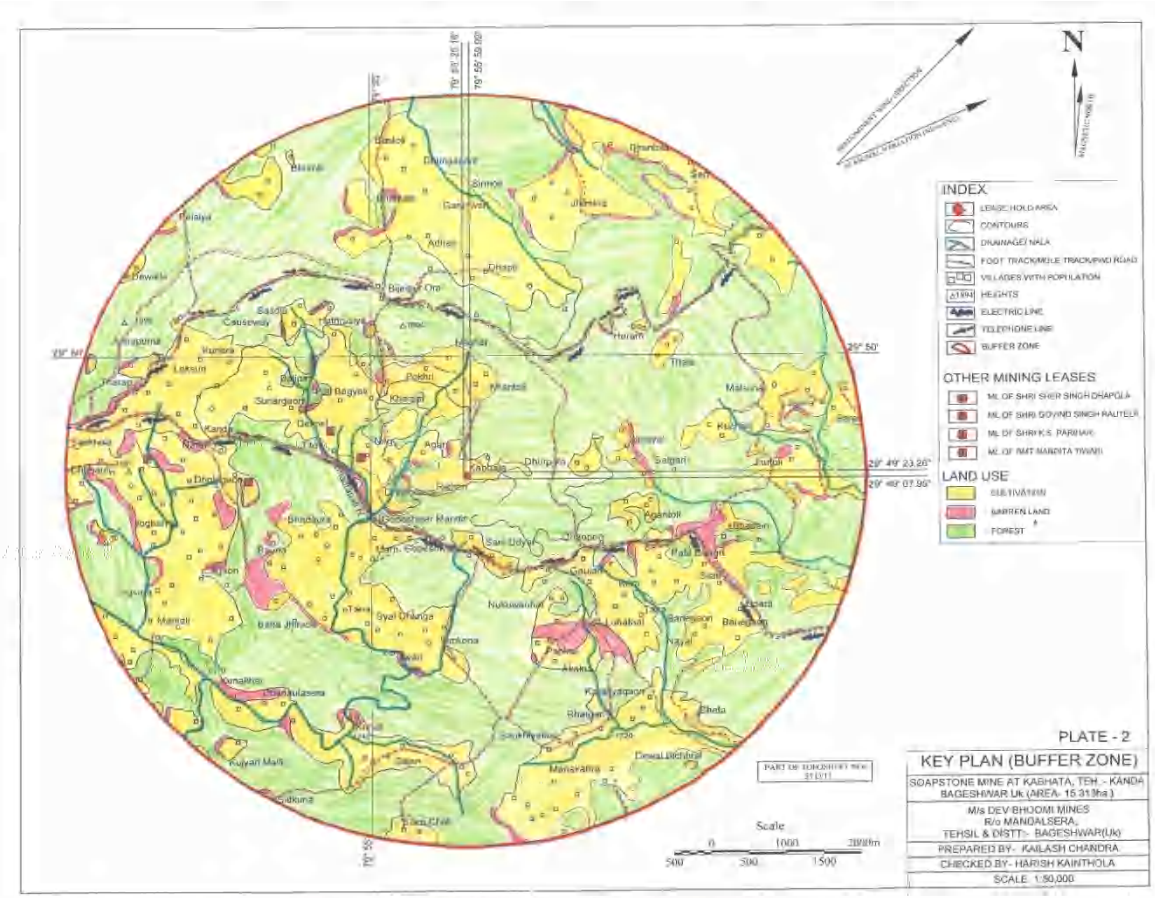


Figure 3.7 Land use delineation of 10 km radius area

3.10 TRAFFIC STUDY

Traffic study is carried out by understanding the existing carrying capacity of the road in the vicinity of site and flow towards State highway in the area. Then depending on the capacity of the mine, the number of trucks that will be added to the present scenario will be compared to the carrying capacity as recommended by Indian Road Congress (IRC). The existing volume of traffic and, the Level of Service are given in **Table-3.13 (i)** and shown in traffic density map as **Figure 3.8**.

Table 3.13 (i): Existing Traffic Scenario & LOS

Road	V (PCU/day)	C (PCU/day)	Existing V/C Ratio	LOS
Kanda Mithunkot Saniudiyar Road	600	1100	0.54	B

V= Volume in PCU's/day & C= Capacity in PCU's/ day

During Mine operation

Total Capacity of mine : 30,000 TPA

No. of working days : 240 days

Total Capacity of mine/day : 30,000 /240 = 125 tonnes/day

Truck Capacity : 9 tonnes

No. of trucks deployed per day : 125/9 = 14 trucks per day

No. of trucks deployed/day to & fro : 14*2=28 trucks

Increase in PCU/day : 62

The addition to traffic by the proposed project during its operation is given table below**:**

Table 3.13 (ii): Additional Traffic Scenario & LOS due to proposed project

Road	V	C	Modified V/C Ratio	LOS
Kanda Mithunkot Saniudiyar Road	662	1100	0.60	B

From the above analysis it can be seen that the V/C ratio is likely to be changed to 0.60 on Kanda Mithunkot Saniudiyar Road with LOS remains "B" which is "Very Good" as per the classification. So the additional load on the carrying capacity of the concerned roads is not likely to have much significant adverse effect.

Figure 3.8: Transportation Route Map

3.11 BIOLOGICAL ENVIRONMENT

Biological diversity comprises the variability of species, genus and ecosystems and is very crucial for maintaining the basic processes on which the life depends. Broadly it can be divided in to two types i.e. the floral diversity and faunal diversity. Conservation of the biodiversity is essential for the sustainable development as it not only provides the food, fodder and medicine but also contribute in improvement of essential environmental attributes like air, water, soil, etc.

Before starting any Environmental Impact Assessment study, it is necessary to identify the baseline of relevant environmental parameters which are likely to be affected as a result of operation of the proposed project. A similar approach has been adopted for conducting the study on Biological Environment for this Project. Both terrestrial and aquatic ecosystems have been studied to understand the biological environment.

3.11.1 Methodology for the study

Detailed survey was conducted to evaluate floral and faunal composition of the study area. Primary data on floral and faunal composition was recorded during site visit and secondary data

was collected from the Forest department and published relevant literature. Inventory of flora and fauna has been prepared on the basis of collected data.

Field study period: The ecological survey has been conducted for one season. All data were collected in winter season. The map showing the details of reserve forest within 10 km radius has been shown in **Figure 3.9.** The details are given as below:

Table 3.14: Mode of data collection & parameters considered during the survey

Aspect	Data	Mode of data collection	Parameters monitored
Terrestrial Ecology	Primary data collection	By conducting field survey	Floral and Faunal diversity
	Secondary data collection	From authentic sources like Range office and Forest Department of Uttarakhand and available published literatures	Floral and Faunal diversity and study of vegetation, forest type, importance etc.
Aquatic Ecology	Primary data collection	By conducting field survey	Floral and Faunal diversity
	Secondary data collection	From authentic sources like Range office and Forest Department of Uttarakhand and available published literatures	Floral and Faunal diversity and study of vegetation, forest type, importance etc.

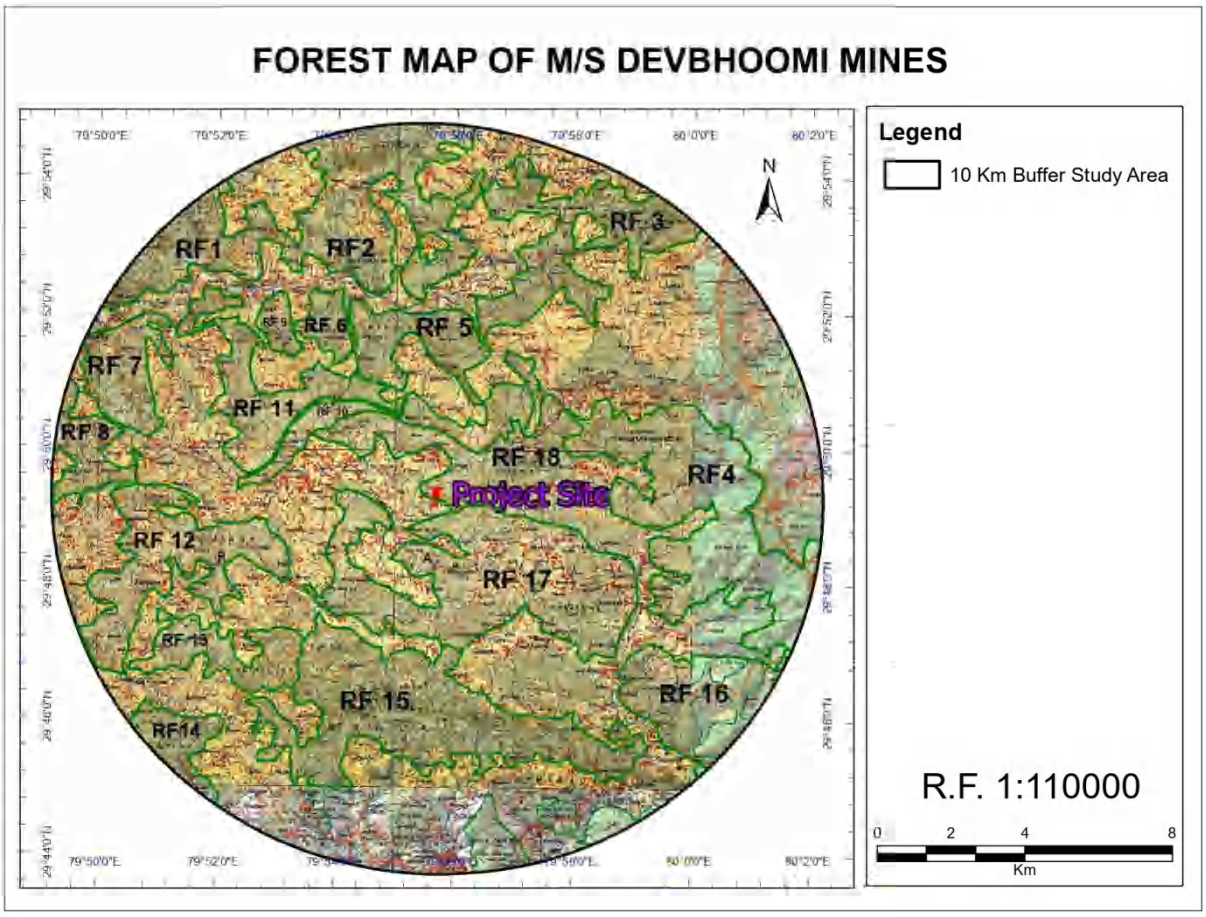


Figure 3.9: Details of reserve forest within 10 km radius

3.11.2 Physical Environment of the study area:

Bageshwar is one of the mountainous districts of Uttarakhand State. Prior to its formation as a separate district, Bageshwar constituted a part of Almora district. The district was included in Uttarakhand State after the state was carved out of Uttar Pradesh on 9th November 2000. The district lies between latitudes 29º40' and 30º20' N and longitudes 79º25' and 80º10' E (Survey of India Degree Sheet Nos. 53N and 53O). The district is bounded by Almora district in the south, Chamoli district in the north and northwest and Pithoragarh district in the east. The geographical area of the district is 1687.8 km^2 (Census, 2001).

3.11.2.1 Drainage:

Drainage of the area is mainly controlled by Saryu, Gomti and Pindar Rivers and their tributaries (locally called Nadi, Gad or Gadhera) *viz*. Pungar Nadi, Khir Ganga Nadi, Bhadrapati Nadi, Revti Ganga, Kanal Gad, Lahor Nadi, Jagtana Gad, Kulur Gad, Sukunda Gad etc. Sub-trellis, sub-rectangular and sub-dendritic are the most common drainage patterns in the area. The Central and North-Central parts of the district are drained by Saryu River. Gomti River drains the western and south eastern parts whereas Pindar River drains the northern part. These rivers are primarily fed by snowmelt with relatively smaller contribution from ground water. However, during the lean period, the rivers are fed by ground water occurring as base flow.

3.11.2.2 Climate:

January is the coldest month with mean maximum temperature of 10°C, the mean minimum temperature being about 2°C. Temperature drops down to – 6°C during January and February in the northern part of the district. June is the warmest month with the mean maximum and the mean minimum temperatures of 25°C and 15°C respectively. The Relative Humidity increases rapidly with the onset of monsoon and reaches at about 80% during July to September. The driest part of the year is the pre-monsoon period, when the humidity is as low as 30% in the afternoons. Skies are heavily clouded during the monsoon months and for short spells when the district is affected by Western Disturbances. Two broad wind patterns are observed in the district *viz.* north easterly to easterly (May to September) and south easterly to westerly (October to March).

3.11.2.3 Agriculture:

Agriculture is the main occupation of the people. However, intensive cultivation is not possible as major part of the district is mountainous. Agricultural activities are common on gentle hill slopes and in relatively plain, broad river valleys of Gomti and Saryu Rivers. Rice, wheat, mandua, barley, maize and sawan are the principal cops grown in the district. Garur valley has the maximum cultivated area. Due to high production of rice, the area is known as "Rice Bowl of Kumaun".

3.11.3 Forests cover and Forest Type:

The forest of the district includes the vast range found in the Himalayas, varying from the sub-tropical species which grow in the outer ranges of low hills to the rich Alpine vegetation in the north. Uttarakhand covers an area of 53, 483 sq km which is 1.63 % of the

geographical area of the country as mentioned in the India State of Forest Report 2017 and 45.80% of the state's geographical area. In terms of forest canopy density classes, the state has 4762 km^2 area under very dense forest, 14167 km^2 area under moderately dense forest and 5567 km^2 area under open forest. Out of 2246 km^2 total area of Bageshwar district, 194 km^2 area is under very dense forest, 883 km^2 fall under moderately dense forest and 304 km^2 area is open forest (61.49% area of district encompasses forest cover).

As per Champion and Seth (1968), the project site included following types of forests.

- Very dense forest
- Moderate dense forest
- Open forest
- Scrub

Winter : Dec 2020 to Feb 2021
Survey sites : Around the project site in 10 km radius
Core zone : At the project site (100m)
Buffer zone : Around the project site in 10 km radius.

3.11.4 Taxonomic Diversity: Floristic of Terrestrial Ecosystem

The magnificent Himalaya is well recognized for its bio-physical diversity and socio-cultural Heritage, unique physical and ethnic diversity, traditional systems and an ample quantity of Indigenous knowledge. It forms one of the Global Biodiversity Hotspots-the Himalayan Biodiversity Hotspot.

Table 3.15: Tree species recorded in the study area during winter season 2020-2021

S. No.	Botanical Name	Family	Local Name / English	Availability
1.	*Phoenix humlis*	Arecaceae	Khajoor	Occasional
2.	*Acacia catechu*	Mimosaceae	Khair	Occasional
3.	*Prunus armenica*	Rosaceae	Chulu	Common
4.	*Adina cordifolia*	Rubiaceae	Haldu	Common
5.	*Terminalia chebula*	Combretaceae	Harad	Common
6.	*Bombax ceiba*	Bombacaceae	Semal	Common
7.	*Ficus religiosa*	Moraceae	Pipal	Common
8.	*Syzygium cumuni*	Myrtaceae	Jamun	Common
9.	*Populus ciliata*	Salicaceae	Pahadi Pipal	Common
10.	*Pyrus pyr ifolia*	Rosaceae	Nashpati	Common
11.	*Erythrina suberosa*	Fabaceae	Dhak	Common
12.	*Cedrus deodara*	Pinaceae	Devdar	Common
13.	*Ficus nemoralis*	Moraceae	Dudhla	Common
14.	*Shorea robusta*	Dipterocarpaceae	Saal	Common
15.	*Dalbergia Sissoo*	Fabaceae	Shisham	Common
16.	*Litsea chinensis*	Lauraceae	Lauraceae	Common
17.	*Pyrus pashia*	Rosaceae	Mehal	Common
18.	*Ficus glomerata*	Moraceae	Gular	Common
19.	*Lagerstroemia indica*	Lythraceae	Gulbahar	Common
20.	*Quercus semecarpifolia*	Fabaceae	Khairu	Rare
21.	*Quercus leucotrichophora*	Fabaceae	Banj	Common

22.	*Sapindus mukurossi*	Sapinadaceae	Reetha	Common
23.	*Cassia fistula*	Caesalpiniaceae	Amaltash	Common
24.	*Mangifera indica*	Anarcardiaceae	Aam	Common
25.	*Emblica officinalis*	Euphorbiaceae	Amla	Common
26.	*Castanopsis tribuloides*	Fagaceae	Katauni	Common
27.	*Machilus duthiei*	Lauraceae	Kaula	Rare
28.	*Salix wallichiana*	Salicaceae	Bains	Occasional
29.	*Dendrocalamaus strictus*	Poaceae	Bans	Common
30.	*Aegle marmelos*	Rutaceae	Bel	Common
31.	*Betula* utilis	Betulaceae	Bhuj	Occasional
32.	*Grewia optiva*	Tiliaceae	Bhimal	Common
33.	*Salix babylonica*	Salicaceae	Salicaceae	Common

Source: Field survey & Bageshwar forest department.

Table 3.16: Tree, shrub & herb species recorded in the study area during winter season 2020-2021

S. No	Botanical Name	Family	Local Name / English	Local Availability
1.	*Lespedeza eriocarpa*	Fabaceae	Khunju	Common
2.	*Schefflera venulosa*	Araliaceae	Khadsemal	Common
3.	*Viburnum erubescens*	Caprifoliaceae	Gani	Common
4.	*Viburnum mullaha*	Caprifoliaceae	Ricchoi	Occasional
5.	*Viburnum nervosum*	Caprifoliaceae	Gadbiya	Occasional
6.	*Carissa opaca*	Apocynaceae	Karaunda	Occasional
7.	*Rubus niveus*	Rosaceae	Kala Hinsalu	Occasional
8.	*Dioscorea deltoidea*	Dioscoreaceae	Taroi	Occasional
9.	*Murraya exotica*	Rutaceae	Kamini	Common
10.	*Berberis asiatica*	Berberidaceae	Kilmoda	Common
11.	*Lantana camara*	Verbenaceae	Kuri	Common
12.	*Nyctanthes arbor-tristis*	Oleaceae	Harsingar	Common
13.	*Artemisia vulgaris*	Asteraceae	Kurinja	Common
14.	*Plectranthes rugosus*	Lamiaceae	Kurkha	Common
15.	*Smilex aspera*	Liliaceae	Kukurdada	Common
16.	*Skimmia anquetilia*	Rutaceae	Kedarpati	Occasional
17.	*Rubus biflorus*	Rosaceae	Achhai	Common
18.	*Asparagaus racemosus*	Liliaceae	Satavar	Common
19.	*Viburnum cotinifolium*	Caprifoliaceae	Ghinna	Common
20.	*Randia tetrasperma*	Rutaceae	Ghighari	Common
21.	*Rhus continus*	Anacardiaceae	Tung	Common
22.	*Cassia tora*	Caesalpiniaceae	Chakunda	Common
23.	*Pleurospermum densiflorum*	Apiaceae	Gugal	Rare
24.	*Mimosa pudica*	Mimosaceae	Chuimui	Common
25.	*Strobilanthes wallichii*	Acanthaceae	Jaanu	Common
26.	*Rubus duthieamus*	Rosaceae	Jogi	Common
27.	*Phoenix acaulis*	Arecaceae	Thakal	Rare
28.	*Taraxacum officinale*	Asteraceae	Dudhiya	Common
29.	*Datura stramonium*	Solanaceae	Dhatura	Common
30.	*Mentha sylvestris*	Lamiaceae	Pudina	Common
31.	*Adhatoda vasica*	Acanthaceae	Basinga	Common
32.	*Centella asiatica*	Apiaceae	Brahmi	Common

33.	*Salix elegans*	Salicaceae	Kadvi	Common
34.	*Zizyphus mauritiana*	Rhamnaceae	Ber	Common
35.	*Cannabis sativa*	Cannabinaceae	Bhang	Common
36.	*Ficus scandes*	Moraceae	Chachri	Common
37.	*Lawsonia inermis*	Lythraceae	Mehndi	Common
38.	*Euphorbia royleana*	Euphorbiaceae	Suru	Common

Source: Field survey & Bageshwar forest department.

Table 3.17: Climber species recorded in the study area during winter season 2020-2021

S. No	Botanical Name	Family	Local Name / English	Local Availability
1.	*Rubus paniculatus*	Rosaceae	Kathula	Common
2.	*Milletia auriculata*	Fabaceae	Gauj	Occasional
3.	*Clematis montana*	Ranunculaceae	Kenia	Common
4.	*Tinospora cordifolia*	Menispermaceae	Giloy	Rare
5.	*Cryptolepis buchanani*	Asclepiadaceae	Dudhibel	Common
6.	*Holboellia angustifolia*	Berberidaceae	Jangali sharifa	Occasional

Source: Field survey & Bageshwar forest department

Table 3.18: Parasite species (angiosperm) recorded in the study area during winter season 2020-2021

S. No.	Botanical Name	Family	Local / English Name	Local Availability
1.	*Cuscuta reflexa*	Cuscutaceae	Amarbel	Common
2.	*Taxillus vestitus*	Loranthaceae	Pand	Common
3.	*Viscum nepalense*	Loranthaceae	Budu	Common
4.	*Dendrophthoe falcata*	Loranthaceae	Banda	Common

Source: Field survey & Bageshwar forest department.

Table 3.19: Bamboo species recorded in the study area during winter season 2020-2021

S. No.	Botanical Name	Family	Local / English Name	Local availability
1.	*Arundinaria alcate*	Poaceae	Gol Ringal	Common
2.	*Dendrocalamus hamiltonii*	Poaceae	Kako Bans	Common
3.	*Dendrocalamus somdevii*	Poaceae	Bans	Common
4.	*Dendrocalamus strictus*	Poaceae	Bans	Common

Source: Field survey & Bageshwar forest department.

Table 3.20: Grass species recorded in the study area during winter season 2020-2021

S. No.	Botanical Name	Family	Local/ English Name	Local availability
1.	*Saccharum munja*	Poaceae	Munj	Common
2.	*Eragrostis curvula*	Poaceae	Love grass	Common
3.	*Seatria sphacelata*	Poaceae	Setaria grass	Common
4.	*Dactylis glomerata*	Poaceae	Auchard grass	Common
5.	*Saccharum spontaneum*	Poaceae	Kans	Common
6.	*Crysopogon gryllus*	Poaceae	Kush	Common
7.	*Cynodon dactylon*	Poaceae	Dub	Common

8.	*Sorghum halepense*	Poaceae	Bajra	Common
9.	*Cymbopogon maritinii*	Poaceae	Babla	Common
10.	*Themeda anathera*	Poaceae	Piriya	Common

Source: Field survey & Bageshwar forest department.

Table 3.21: Non- flowering plant species in the study area during winter season Dec 2020 to Feb 2021

S. No.	Botanical Name	Family	Local / English name	Local availability
Fern				
1.	*Angiopteris evecta*	Angiopteridaceae		Common
2.	*Osmunda hilsenbergii*	Osmundaceae		Rare
3.	*Drynaria propinqua*	Polypodiaceae		Common
4.	*Microsorum membranaceum*	Polypodiaceae		Common
5.	*Phymatopteris oxyloba*	Polypodiaceae		Common
6.	*Lygodium japonicum*	Lygodiaceae		Common
7.	*Pteris biaurita*	Pteridaceae		Common
8.	*Pteris vittata*	Pteridaceae		Common
9.	*Adiantum philippenese*	Adiantaceae		Common
10.	*Vittaria flexuosa*	Pteridaceae		Common
11.	*Sphenomeris chinesis*	Lindsaceae		Common
12.	*Christella parasitica*	Thelypteridaceae		Common
13.	*Tectaria coadunata*	Tectariaceae		Common
Bryophyte				
14.	*Anthoceros sp.*	Anthoceroceae		Common
15.	*Funaria hygrometrica*	Funariaceae		Occasional
16.	*Riccia sp.*	Ricciaceae		Common
Algae				
17.	*Spirogyra sp.*	Zygnemataceae		Occasional
18.	*Chara sp.*	Characeae		Occasional
19.	*Nostoc sp.*	Nostocaceae		Common

Source: Field survey & Bageshwar forest department.

During winter season , a total of 113 species were recorded inhabiting land. The floral angiosperm diversity (94 species) was dominated by tree species (32); the other species recorded are shrub, herb (42), climber (06), parasitic angiosperm (04) and grass (10) species. The graph showing the Taxonomic diversity of terrestrial flora in the project area during winter season 2020-2021has been shown in **Figure 3.10**.

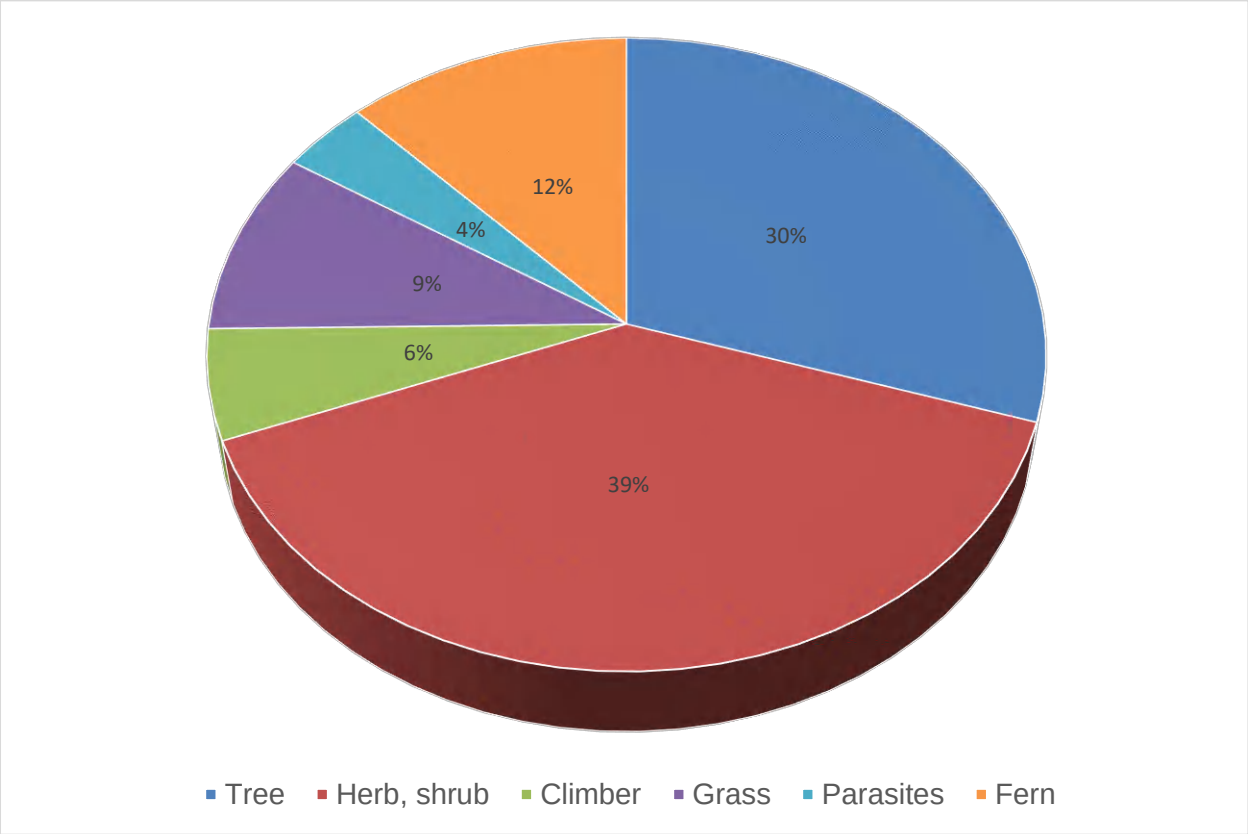


Figure 3.10: Taxonomic diversity of terrestrial flora in the project area during winter season Dec 2020 to Feb 2021

3.11.5 Economically Important Species

The terrestrial peculiarities make the Himalayan region a very diverse system subtending a wide range of flora types. The biodiversity of this region is severely vulnerable by natural and anthropogenic disturbances. During the field survey, numbers of plant species which are medicinally and economically importance in the area were recorded. These plants are used by local people for various purposes and also used as food and other devotions. A total of 19 Species of sparingly significant plants were recorded in the project area.

Table 3.22: Economically & medicinally important plant species recorded in the project area

S. No.	Botanical Name	Family	Local / English Name	Life form
1.	*Asparagus adscendens*	Liliaceae	Shatavar	Herb
2.	*Quercus leucotrichophora*	Fagaceae	Banj	Tree
3.	*Juglans regia*	Juglandaceae	Akhrot	Tree
4.	*Ficus religiosa*	Moraceae	Pipal	Tree
5.	*Ficus palmata*	Moraceae	Bedu	Tree
6.	*Ricinus communis*	Euphorbiaceae	Arandi	Shrub
7.	*Jatropha curcas*	Euphorbiaceae	Safed Arand	Shrub
8.	*Litsea umbrosa*	Lauraceae	Chirar	Tree

9.	*Symplocos crataegoides*	Symplocaceae	Lodh	Tree
10.	*Rhododendron arboreum*	Ericaceae	Burans	Tree
11.	*Prunus cerasoides*	Rosaceae	Padam	Tree
12.	*Bauhinia variegata*	Caesalpinaceae	Kanchnar	Tree
13.	*Bombax ceiba*	Bombacaceae	Semal	Tree
14.	*Cedrus deodara*	Pinaceae	Deodar	Tree
15.	*Hedychium spicatum*	Zingiberaceae	Haldi	Herb
16.	*Malaxis acuminata*	Orchidaceae	Jivak	Herb
17.	*Myrica esculenta*	Myricaceae	Kaphal	Tree

Source: Field survey & Bageshwar forest department.

3.11.6 Fauna Diversity: Terrestrial Ecosystem

The list of fauna according are based on primary survey and multiples sources of data together with the operating plans of Bageshwar forest divisions, printed articles in scientific journals, publications of multiple sources of data like the Zoological Survey of India. During field surveys resulted in to updated information of the 48 species belonging to both vertebrate as well as invertebrate animal diversity. The faunal species recorded in the project area include; butterfly 06 species, avifauna 24 species and vertebrates 18 species. The percentage contribution of different species is dominated by birds and mammal. Two Schedule – 1 species have also been recorded in the study area and their conservation plan has been attached as **Annexure V.**

The graph showing the Taxonomic diversity of terrestrial fauna in the project area during **winter season Dec 2020 to Feb 2021** has been shown in **Figure 3.11.**

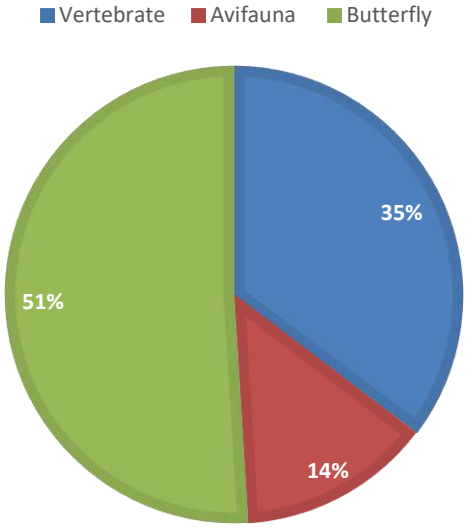


Figure 3.11. Taxonomic diversity of terrestrial fauna in the project area during winter season Dec 2020 to Feb 2021

Table 3.23: Vertebrate's species recorded in the study area during winter season Dec 2020 to Feb 2021

S. No.	Scientific Name	Common Name	Local Availability	WPA, 1972	IUCN category
1.	*Presbytis entellus*	Common Langur	Common	II	NA
2	*Macaca mulata*	Rhesus Macaque	Common	II	NA
3.	*Susscrofa cristatus*	Indian wild Boar	Frequently	III	NA
4.	*Felis chaus*	Jungle cat	Frequently	II	LC
5.	*Herpestes edwardsi*	Common mongoose	Common	II	LC
6.	*Vulpes bengalensis*	Indian fox	Common	II	LC
7.	*Vulpes vulpes*	Red fox	Common	II	NA
8.	*Hyaena hyaena*	Strited hayena	Occasional	III	NT
9.	*Lutra lutra*	Common otter	Rare	II	NT
10.	*Rousettus leschenaultia*	Fulvous fruit bat	Common	-	NA
11.	*Petaurista petaurista*	Red flying squirrel	Common	II	LC
12.	*Lepus nigricollis nigricollis*	Indian hare	Common	IV	NA
13.	*Axis exis*	Spotted dear	Frequently	III	NA
14.	*Cervus unicolor*	Sambhar	Common	III	VU
15.	*Muntinacus muntjak*	Barking deer	Common	III	NA
16.	*Panthera pardus*	Leopard	Rare	I	NT
17.	*Ursus thibetanus*	Asiatic Black Bear	Rare	I	VU
18.	*Canis aureus*	Jackal	Common	II	LC

Source: Field survey & Bageshwar forest department.

Note: NA- Not assessed yet for IUCN category, LC- Least Concern, NT- Near threatened, VU- Vulnerable.

Table: 3.24: Avifauna (Bird) species recorded in the project area during winter season Dec 2020 to Feb 2021

S. No.	Scientific Name	Common name	Local availability
1.	*Motacilla alba*	White wagtail	Frequent
2.	*Certhia himalayana*	Bar-tailed creeper	Common
3.	*Garrulax albogularis*	White throated laghing trush	Common
4.	*Neophron percnopterus*	Egyptian vulture	Common
5.	*Gyps himalayensis*	Himalayan griffon	Frequently
6.	*Falco tinnunculus*	Common kestrel	Common
7.	*Francolinus francolinus*	Black francolinus	Common
8.	*Gallus gallus*	Red jungle fowl	Frequently
9.	*Vanellus indicus*	Red wattled lapwing	Rare
10.	*Columbia livia*	Rock pigeon	Frequently
11.	*Psittacula cyanocephala*	Plum headed parakeet	Common
12.	*Psittacula himalayana*	Stay- headed parakeet	Frequently
13.	*Eudynamys scolopacea*	Asian Koel	Common
14.	*Heirococyx sparverioides*	Large Hawk Cuckoo	Common
15.	*Heirococcyx varius*	Common Hawk Cuck	Common
16.	*Glaucidium radiatum*	Jungle Owlet	Common
17.	*Glaucidium brodiei*	Collared Owlet	Common

18.	*Coracias benghalensis*	Indian roller	Common
19.	*Dendrocopos auriceps*	Brown-fronted woodpecker	Common
20.	*Acridotheres fuscus*	Jungle myna	Common
21.	*Acridothes tristis*	Common myna	Common
22.	*Corvus splendens*	House crow	Common
23.	*Corvus macrocrhynchos*	Large-billed crow	Common
24.	*Sitta castanea*	Chestnut-bellied Nut hatch	Common
25.	*Pycnonotus cafer*	Red vented bulbul	Common
26.	*Dinopium benghalense*	Black rumped flameback	Frequently

Sources: Field survey & Bageshwar forest department.

Table 3.25: Butterfly species recorded in the project area during winter season Dec 2020 to Feb 2021

S. No.	Scientific Name	Local availability	IUCN Status
1.	*Pieris brassicae*	Common	NA
2.	*Pieris caniaidia*	Frequently	NA
3.	*Gonepteryx rhamni*	Common	NA
4.	*Colias fieldi*	Common	NA
5.	*Colias erate*	Common	NA
6.	*Lampides* sp.	Common	NA
7.	*Dilipa morgiana*	Frequently	NA

Source: Field survey & Bageshwar forest department.

3.12 SOCIO-ECONOMIC ENVIRONMENT

Socio-Economic status of the population is an indicator for the development of the region. Any development project of any magnitude will have a bearing on the living conditions and on the economic base of population in particular and the region as a whole. Similarly, the proposed activities will have its share of socio-economic influence in the study area. The section delineates the overall appraisal of society relevant attributes. The baseline data collection of project on socioeconomic aspects in the study area has been done through the analysis of secondary data (Census 2011) available for the study area of 10 km radius around the project site. The information in the context was gathered on the following socio-economic parameters viz.

- Demographic profile
- Education levels
- Occupational Profile
- Cropping Pattern
- Other Socio-Economic Parameters.

3.12.1 Socio-Economic Impact Assessment

Socio-Economic Impact Assessment (SEIA) refers to the systematic analysis of various social and economic characteristics of the human beings living in the geographical / study area around the proposed project location. SEIA is carried out separately but concurrently with Environment Impact Assessment (EIA) study. The SEIA focuses on the likely effects of the project on social and economic well-being of the community. The impact(s) may be direct or indirect, positive or negative. In this Chapter of the EIA Report an attempt has been made to assess the composite Socio-Economic Impact of the project.

3.12.1.1 Steps taken to prepare the SEIA Report

Various steps taken to prepare the SEIA report were as follows

- Literature review
- Identification of habitations in the study area with the help of google earth and topo sheet
- Visit to project site
- Collection of secondary data
- Planning and designing of the field survey for collection of primary data
- Formulation of Data collection tools (Schedule/Questionnaire)
- Field testing of Schedule/Questionnaire through a pilot survey
- Briefing of field staff
- Scrutiny of filled-in-schedules
- Data processing and tabulation
- Data analysis and preparation of report.

3.12.1.2 Approach

Research approach plays an important role to decide suitable methodology. It helps to develop research design and increase the effectiveness of research study. In the present study inductive approach has been adopted, which is a bottom top approach. Under this approach first data is collected both from primary and secondary sources. After scrutiny, tables are generated in pre-designed formats. Subsequently, draft report is prepared after detail analysis of data. The final report is prepared after incorporating the comments and suggestions of the client.

3.12.1.3 Objectives of SEIA

The prime objective of the current study is to assess the likely impact of the project on socio-economic characteristics of people living in the study area. Further, it is to be gauged whether the impact would be direct or indirect and whether the said impact would be positive or negative. Lastly, it is to be comprehended if the impact is negative and how the same could be mitigated.

3.12.1.4 Scope

The Scope of the study is as follows:

a) Collection of baseline data of the study area.

b) Collation of data, analyses and generation of tables.

c) Comprehension of socio-economic status of the people living in the study area.

d) Identification and inventory of probable impacts of the project on social and economic aspects in the study area.

e) Assessment of the probable impacts of the project on the people living in the study area.

f) Facilitation of sustainability of positive impact by recommending community development initiatives in the study area.

g) Suggestion of mitigation measures in case of adverse impact.

3.12.2 Methodology

For composite Socio-Economic Impact Assessment of projects, the consultant carries out systematic analysis of the various socio-economic characteristics, both in terms of quality and quantity. Accordingly, both qualitative and quantitative data was collected from secondary sources. The secondary data was collected from the published data / information of the Census Authority. Records of the state and district administration were also referred. For collection of primary data, a sample survey was conducted in the study area which spans a radius of 10 km from the periphery of the boundary of the project site. In each selected habitation, a specified number of representative households were selected for collection of information through face to face interviews with head of the household or any responsible member of the family.

3.12.2.1 Census Survey

To assess the likely impacts of the project, Census data (viz. Population Census Abstract and Amenities- 2011) of all the habitations identified were taken into consideration to prepare the data base. It is treated as a census survey because all habitations located in the area were considered for the collection of information. Sample Survey was conducted for substantiating of socio-economic data got through the Census. Further, in selected habitation a household survey was conducted by drawing representative sample of households. Since, collection of information from all the households in a habitation is time consuming and expensive, the sample survey approach was adopted for collection of information from the selection of villages and households in the village(s) / town(s).

3.12.3 Bageshwar District (Project District)

Bageshwar is a town and a municipal board in Bageshwar district in the state of Uttarakhand, India. It is located at a distance of 470 km from the National Capital New Delhi and 332 km from the State Capital Dehradun. Bageshwar is known for its scenic beauty, Glaciers, Rivers and Temples. It is also the administrative headquarters of Bageshwar district. Situated on the confluence of Sarju and Gomati rivers, Bageshwar is surrounded by the mountains of Bhileshwar and Nileshwar to its east and west and by the Suraj Kund in the north and Agni Kund in the south. Bageshwar was a major trade mart between Tibet and Kumaun, and was frequented by the Bhotia traders, who bartered Tibetan wares, wool, salt and Borax in exchange for Carpets and other local produces in Bageshwar.

3.12.4 Population Profile

The description of the project district is presented in **Table 3.26**. According to the 2011 census of India, Bageshwar has a population of 2, 59,898.

Table 3.26: Demographic details of Project District and Tehsil

S.No.	District/Tehsil	Households	Population					
			Total	Male	%	Female	%	Sex ratio
1.	Bageshwar	57,941	2,59,898	1,24,326	47.84	1,35,572	52.16	1090

Source: Census of India, 2011

3.12.5 Caste Wise Distribution of Population

Table 3.27 provides detailed information about the SC, ST population in Bageshwar district as well as on the Project area. The total SC population in Bageshwar district is 72,061 which is 27.72% of the total population, while ST population is 1982, which is 0.76% of the total population.

Table 3.27: Caste wise distribution of population

Sl. No.	District/Project Area	Schedule Caste (SC)		Schedule Tribes (ST)	
		Total	% of SC	Total	% of ST
1	Bageshwar	72,061	27.72	1,982	0.76

Source: Census of India, 2011

3.12.6 Literacy Rate

District Bageshwar: The literate population in Bageshwar district is 1,79,483, out of which male & female are 97,546 and 81,937 respectively. The male literates represent 54.35% while female represent 45.65% of the total population.

The details of literacy rate and literate people in Bageshwar tehsil and district are provided in **Table 3.28.**

Table 3.28: Literacy Rate of Project District and Project Area

S. No	District/Project Area	Number of Literate			Literacy Rate %	
		Total	Male	Female	Male	Female
1	Bageshwar	1,79,483	97,546	81,937	54.35	45.65

Source: Census of India, 2011

3.12.7 Ethnographic Profile of Project State and Project District

The various Scheduled Castes and the Scheduled Tribes in Project district area are Agariya, Dom, Dhobi, Dhangar and Bhotiya, Jaunsari, Tharu etc.

The list containing the names of the Scheduled Castes and the Scheduled Tribes applicable for the Census of India 2011 in the Project State are given below **Table 3.29 (a & b):**

Table 3.29 (a): List of Schedule Caste in the Project District

S.NO	Name of SC	S.NO	Name of SC
1.	Agariya	34.	Patari
2.	Badhik	35.	Saharya
3.	Badi	36.	Dhangar
4.	Baheliya	37.	Dhanuk
5.	Baiga	38.	Dharkar
6.	Baiswar	39.	Dhobi
7.	Bajaniya	40.	Dom
8.	Bajgi	41.	Domar
9.	Balahar	42.	Dusadh
10.	Balai	43.	Gharami
11.	Balmiki	44.	Ghasiya
12.	Bangali	45.	Gond
13.	Banmanus	46.	Gual
14.	Bansphor	47.	Habura
15.	Barwar	48.	Hari
16.	Basor	49.	Hela
17.	Bawariya	50.	Kalabaz
18.	Beldar	51.	Kanjar
19.	Beriya	52.	Kapariya
20.	Bhantu	53.	Karwal
21.	Bhuiya	54.	Khairaha
22.	Bhuyiar	55.	Kharwar (excluding banbasi)
23.	Boria	56.	Khatik
24.	Chamar, Dhusia, Jhusia, Jatawa	57.	Khorot
25.	Chero	58.	Kol
26.	Dabgar	59.	Kori
27.	Majhwar	60.	Korwa
28.	Mazhabi	61.	Lalbegi
29.	Musahar	62.	Sanaurhiya
30.	Nat	63.	Sansiya
31.	Pankha	64.	Shilpkar
32.	Parahiya	65.	Turaiha
33.	Pasi, Tarmali		

Source: Census of India, 2011

Table 3.29 (b): List of Schedule Tribe in the Project District

S.NO	Name of ST
1.	Bhotia
2.	Buksa
3.	Jaunsari
4.	Raji
5.	Tharu

Source: Census of India, 2011

3.12.8 Religion and Culture

Bageshwar is Hindu majority city with approximately 99.1% of district population following Hinduism as their religion. Muslim is second most popular religion in district with

approximately 0.6 % following it. In Bageshwar district, Christianity is followed by 0.2 %. **Table 3.30** shows the Religious wise distribution of Population of Bageshwar District.

Table 3.30: Religion wise distribution of Population of Bageshwar District

Description	Total	Percentage
Hindu	257509	99.1
Muslims	1440	0.6
Christian	397	0.2
Sikh	46	0.0
Buddhist	102	0.0
Jain	7	0.0
Others	16	0.0
Not Stated	381	0.2

Source: Census of India, 2011

3.12.9 Economic Structure

The economy of the district is predominantly based on agriculture, as maximum per cent of the population resides in rural areas and their main occupation is agriculture. Kharif and Rabi are the two principal harvests grown in the district.
The **Table 3.31** given below describes two sections of workers main and marginal with a third category which is non-worker; the total number of workers at district level is 1,23,638 which is 47.57 percent of total population out of which main workers are 63.16 percent and marginal workers have a share of 36.84 percent while rest nearly 52.43 percent workers are non-workers.

Table 3.31: Main Workers, Marginal Workers and Non-workers of Project District and Project Area

Sl. No.	District/ Project Area	Total workers	Total worker %	Main workers	Main workers %	Marginal workers	Marginal workers %	Non-workers	Non-workers %
1.	Bageshwar	1,23,638	47.57	78,085	63.16	45,553	36.84	1,36,260	52.43

Source: Census of India, 2011

3.12.10 List of Villages falling in the study area

The list of villages falling in the study area has been shown in **Table 3.32**.

Table 3.32: List of villages falling in the study Area

S. No.	Villages	Direction	Aerial Distance from the proposed mine site
1)	Bhatni Kot	W	0.58
2)	Bang Dungariya	SW	0.88
3)	*Sukyari*	S	1.44
4)	Bilkhet	S	1.80
5)	Kwairali	SW	2.26
6)	Burghuna	S	2.82

7)	Mankot	S	3.74
8)	Gargaon	SW	3.10
9)	Kunara	SW	4.29
10)	Basai	S	5.14
11)	Baset	SE	4.94
12)	Suneri	SE	4.95
13)	Bantoli	SE	5.59
14)	Nayal	SE	5.57
15)	Tunera	SW	5.97
16)	Chata	S	6.60
17)	Dhunga	SW	6.92
18)	Kunkhet	SE	7.46
19)	Bhiri	S	8.13
20)	Arara	SW	8.15
21)	Matyoli	S	9.84
22)	Pagana	S	9.56
23)	Bhatgar	SW	9.39
24)	Bihargaon	SW	9.25
25)	Ghiroli	W	4.35
26)	Joshi Gaon	SW	4.23
27)	Falthiya	SW	4.54
28)	Chhati	SW	5.06
29)	Bageshwar	SW	6.40
30)	Village Tyunara	SW	7.50
31)	Bilona Sera	SW	7.94
32)	Pauri	SW	8.38
33)	Pauri Band	SW	9.40
34)	Kafoli	SW	9.17
35)	Borgaon	SW	9.48
36)	Bijori	SW	9.19
37)	Belta	SE	9.45
38)	Khali	SW	8.38
39)	Kohli Village	SW	8.42
40)	Matiyoli	SW	5.43
41)	Namtichetabagar	SW	5.73
42)	Bari Khalsa	SW	6.47
43)	Kaphalket	SW	6.75
44)	Adoli	SW	5.75
45)	Chirang	NW	1.35
46)	Gajali	N	0.91
47)	Kaulag	NW	1.79
48)	Khuldori	NW	2.55
49)	Kukrauli	NW	3.72
50)	Manikhet	NW	4.65
51)	Kukragar	NW	6.29
52)	Chamerta	NW	8.40
53)	Tulyari	NW	9.49
54)	Harwar	NW	8.26
55)	Syaldoba	NW	5.51
56)	Gwar	NW	4.90
57)	Anarsa	NW	4.64
58)	Sima	N	4.22

59)	Harsila	NW	4.64
60)	Chalkana	N	5.96
61)	Kapholi	NW	6.75
62)	Nankanyalikot	NW	8.10
63)	Pundra Pali	NW	7.65
64)	Purkot	NW	6.91
65)	Falnate	NW	6.32
66)	Chachai	NW	7.64
67)	Jakh	NW	9.36
68)	Devalchaura	NW	3.96
69)	Dungari	E	2.07
70)	Chaura	NE	2.94
71)	Chhatikhet	E	4.52
72)	Rithayat	E	5.98
73)	Naughar	E	7.54
74)	Moudiyar	E	8.88
75)	Gurgucha Upadhya	NE	4.55
76)	Papu	NE	5.06
77)	Gapani	NE	3.27
78)	Kamketpani	NE	4.29
79)	Palen	NE	5.93
80)	Batal Gaon	NE	5.39
81)	Pakar	NE	7.10
82)	Fusera	NE	7.52
83)	Gwatoli	NE	6.66
84)	Nari	NE	7.72
85)	Sundil	NE	9.07
86)	Kande Thapliya	NE	8.28
87)	Baskunda	NE	9.32
88)	Ukhal Dhar	NE	6.23
89)	Rainthal	NE	6.43
90)	Khadgera	NE	7.37
91)	Ason	NE	8.89
92)	Utaraura	NE	8.53
93)	Poling	NE	7.76
94)	Jankuri	NE	7.60
95)	Chhuriya Panaura	NE	8.78
96)	Gainar	NE	9.41
97)	Reetha Bagar	NE	7.26
98)	Lili	NE	8.55
99)	Karuli	SE	0.54
100)	Simtola	SE	1.30
101)	Gairar	SE	1.65
102)	Khuna	SE	1.86
103)	Maswari	SE	2.15
104)	Sela	SE	2.43
105)	Era Gunth	SE	3.05
106)	Ujera	SE	3.48
107)	Jol Gaon	SE	3.92
108)	Dewali Gunth	SE	4.37
109)	Dhigartola	SE	5.03
110)	Jaltha Kot	SE	6.25

111)	Dhapoli	SE	7.17
112)	Kwairali	SE	8.17
113)	Jethai	SE	9.50
114)	Alkanaya	SE	8.14
115)	Lohar Khet	SE	7.91
116)	Menhara Gaon	SE	8.68
117)	Pang Chora	SE	9.11
118)	Bhandar	SE	9.39
119)	Jogswar	SE	8.25
120)	Bijet	Se	8.36
121)	Musoti Chakjosh	SE	7.12
122)	Kande Kanyal	SE	7.93
123)	Dharari	SE	8.36
124)	Naghar Majila	SE	9.13
125)	Jagthali Gunth	SE	9.61
126)	Delmel	SE	8.90
127)	Mithun Kot	SE	9.04
128)	Pokheri	SE	9.76
129)	Hathraiya	SE	8.74
130)	Bijepur	SE	9.15
131)	Kunera	SE	7.32
132)	Bhanker Pant	SE	7.05
133)	Majbe	SE	6.33
134)	Bakhet	SE	6.81
135)	Dofar Laggakakrt	SE	6.16
136)	Rajoli	SE	8.06
137)	Dhunga Pant	SE	9.30
138)	Banstoli	SE	8.49
139)	Dyorakh	SE	7.73
140)	Bhatgar	SE	7.14
141)	Rankanda	SE	6.37
142)	Painsiya	SE	6.10
143)	Choni	SE	5.63
144)	Thaklan	SE	4.49
145)	Bheru	SE	4.08
146)	Bhatora	SE	3.59
147)	Khunoli	SE	4.17
148)	Girari	SE	2.80
149)	Methara	SE	2.44
150)	Jal Gaon	SE	3.91
151)	Nagha Sahu	SE	5.07
152)	Bahliya Mafi	SE	5.79

3.13 SOCIO-ECONOMIC IMPACT ASSESSMENT

3.13.1 Impact on Population Composition

No impact is envisaged on the population composition of the study area as there will be no in-migration or out-migration of villagers. Those who will be engaged in Soapstone mining will be recruited locally.

3.13.2 Impact on Employment

For extraction of Soapstone the project proponent has ensured that only local people will be recruited for the operation of the upcoming mine at village Kabhata. The exact number of people to be recruited will depend upon quantity of the minerals to be extracted over a period of time. In the initial period the number of such people will be less but gradually it will go up when the production will increase in a phased manner. The project proponent has planned to recruit locals for the operation of the upcoming mine. Though marginally, the dependency rate in the study area will decline by one percent with the commencement of the above soapstone mine. This is a positive impact of the project.

3.13.3 Increased Supply of Soapstone

Soapstone Powder is an important industrial mineral. The soapstone powder should be milky white, free from impurities and soapy feel. It is widely used as basic material in Cosmetic and Paper industry. It is an important raw material in the manufacture of talc in the cosmetic industry. It is also used in rubber, paper plastic and other allied industries. There is always a good demand for soapstone for industrial uses. With the commencement of the proposed mining project at village Kabhata, the supply of soapstone powder in the domestic market will increase by about 30,000 per annum (maximum). This is a direct and positive impact of the upcoming mining project.

3.13.4 Impact on Approach Roads

Movement of trucks and other vehicles to and fro the quarry site is expected to increase substantially, when the operation of the mine will commence. The existing roads connecting the quarry with the national and state highways are mud roads and they are narrow. There will be mud slide and traffic bottle neck if these roads are not widened and their conditions are not improved by making them paved roads. Hence, there is a wide scope for road development in the area. This is a positive impact of the upcoming mining project. The proposed mining will lead to 62 nos of PCUs in the approach road; hence there shall be negligible impact on the approach road due to the proposed mining.

3.13.5 Impact on Law & Order

Since the workers will attend to their duties from their residence and return to their homes after the day's work is over there will be no law & order problem as such. On the other hand, if the workers are migrants and live in shanties closed to the mining area it may create law & order problem and ethnic issues. To meet any untoward incident one police post may be set up close to the project area.

3.13.6 Impact on Vulnerable Groups of People

No impact is envisaged on vulnerable groups of people that include hospital patients, children, pregnant women and elderly persons. There will be no re-habilitation and resettlement issues that may adversely affect the people living adjoining the mine lease area. The social welfare activities to be taken up by the mine owner will definitely make positive impact on the living conditions of people including those who fall under vulnerable groups.

3.13.7 Income to Government

The proposed soapstone mining at village Kabhata will bring income for the state government in the form of royalty, dead rent and taxes. This is a positive impact of the project.

Extraction of soapstone may pose serious health risks if it is not handled carefully. It can affect the body adversely if it is inhaled or if it comes in contract with eyes or skin. Exposure to soapstone may damage the lungs. Shortness of breath, cough, enlargement of the ends of the fingers and heart failure may occur due to continuous exposure to soapstone dust. There are reports of cancer cases among the workers engaged in mining of soapstone. Hence, preventive measures should be taken to protect oneself from the exposure of soapstone, while working in a soapstone mine. This is a negative impact of soapstone mining. The project proponent will undertake the following preventive measures, in order to protect the workers from the exposure of soapstone:

1) Consult to Physician

A physician will be consulted if anyone develops any sign or symptom caused due to exposure to soapstone.

2) Regular medical surveillances

Regular medical surveillances of the workers will be made. In case anyone get adversely affected due to soapstone mining the miner will be medically examined and provided medical assistances regularly. They will also be medically checked annually.

3) Provision of First Aid at mining site

Extraction of soap stones, from the mining site may pose serious health risks due to dust. To meet any emergency during extraction of the minerals from the mining site and subsequent loading in the transport vehicles, provision for First Aid will be made by the project proponent. Before the affected person is removed to a doctor or health institution for necessary medical aid, the miner will be provided with First Aid.

4) Tie up with the nearest PHC for medical help

At present there are no adequate health facilities available in the mining village. To meet the medical needs of the mine workers, tie-ups with nearest hospital or Primary Health Center (PHC) will be made. Few beds will exclusively be reserved for the mine workers in the above health institutions. This will ensure timely medical aid to the affected persons.

5) Supply of Masks and Gloves

The mine workers are subject to respiratory diseases, muscular-skeletal and gastro-intestinal disorders and skin diseases. For protection from dust it will be made compulsory for all mine workers to wear masks and gloves while working in the mines.

6) Health Camps

Health Camps will be organized at regular intervals preferably in every quarter. Further, free medical facilities will be made available to the workers and their family members.

7) Administration of Anti-venom injections

Provision of Anti-venom therapy will be made available at the nearest health institution. Anti-venom injections will be administrated to the mine workers in case of snake, spider and insect bites, while working in the mines.

8) Special telephone number

A special telephone number will be available to the mine workers. In case of emergency the miners can dial the above number for medical assistances. Vehicle will be provided to the patients in short duration for shifting to the health institution.

9) Special Group Insurance Scheme

All the mine workers will be covered under a Group Insurance Scheme of LIC or any other Insurance company.

3.14 CONCLUSION

The implementation of the soapstone mining project at village Kabhata, Tehsil – Kanda, District Bageshwar, and Uttarakhand will generate both direct and indirect employment. It will also promote legally valid mining in the area and bring income to the state exchequer. It is expected that intending entrepreneurs will venture to set up soapstone based industrial units in the near future making the area a mixed society, dependent on industry, trade and business. At present agriculture is the main occupation of the people as eighty percent of the total working population depends on it. With the implementation of the proposed mining project the occupational pattern of the people in the area may change making more people engaged in industrial and business activities rather in agriculture. Thus there will be a gradual shifting of population from agricultural sector to mining and industry. Due to industrialization of the area, employment opportunities will further increase.

The study area is still lacking in infrastructure. It is expected that the same will improve to a great extent due to proposed mining project and associated industrial and business activities. It is therefore suggested that the commencement of the mining operation at village Kabhata may be taken up on priority basis as employment opportunists are intended for the local aspirant.

CHAPTER 4: ANTICIPATED ENVIRONMENTAL IMPACTS & MITIGATION MEASURES

4.1 DETAILS OF THE INVESTIGATED ENVIRONMENTAL IMPACTS

This chapter provides a brief overview of the potential impacts on various environmental components due to the proposed opencast mining activities. The opencast mining operations in general cause environmental degradation and if adequate control measures are not taken to prevent/mitigate the adverse environmental impacts, these operations may cause irreversible damage to the eco-system. The environmental parameters most commonly affected by mining activities are:

- Topography and drainage;
- Air quality including Climate
- Noise levels and ground vibrations;
- Water resources and quality;
- Land use Pattern;
- Soil quality;
- Flora and Fauna;
- Socio-Economic conditions; and
- Occupational Health.

Various environmental impacts, which have been identified due to the mining activities, are discussed in the following Chapters and mitigation measures are suggested.

4.1.1 Impact on Drainage

Water table in this area is very deep ranging from 75 to 90m. No water problem is envisaged in the working pits since the rain water will be coursed through the garland drain to be provided on the upper side of the mine lease area and drainage on the benches provided on the hillside by slight slopping the benches. The only source of the water shall be the rainwater which shall flow along the natural slopes. The lesse have provided five check dams to course the water and control the flow of the scree material into the nala. The check dams have been proposed to restrict scree material from going to Nala to check further water pollution. There are no water bodies within the lease area. However there are seasonal tributaries or stream inside the leasehold areas; however, rain water flows down to southern slopes towards the valley causing no problem to the habitat. Thus there is no impact on drainage pattern of the area.

4.2 WATER ENVIRONMENT

4.2.1 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

The water table in hills is usually very deep and does not have any relevance with mining activities. However, concurrent restoration to original topography will not disturb the percolating water. The details of the site elevation and working depth are shown in **Table 4.1**.

Table-4.1 Site Elevation and Working Depth Details

Particulars	Details
Elevation	1107 m to 1208 AMSL
Ground Water Table	1250 mRL
Ultimate working depth	12m

4.2.2 Impact on Water Quality

Mining activities cause adverse impacts due to mine drainage, siltation due to storm water and contaminated water from workshops and domestic sewage water. Various components have been identified for study of impact of the mine operations.

- ***Impact on Surface Water Quality***

The impact on water quality will be confined to increased suspended solids during rain. There are no water bodies within the lease area. There are no water bodies within the lease area. However there are seasonal tributaries or stream inside the leasehold areas; however, rain water flows down to southern slopes towards the valley causing no problem to the habitat. Before the commencement of rainy season, all the mined out pit shall be prematurely backfilled so chances of accumulation of rainy water in the mining pit shall be nil during first five years. Pungar river is approximately 500 m away from the mine lease area and there will be no impact on the river due to the proposed project.

The interburden to be generated will be temporary on nature & used for the purpose of backfilling each year before commencement of monsoon so that rain water will not accumulated in the mined out pit. It is however water sprinkling on the foot track shall be carried out during summer month to suppress the dust. Retaining wall shall be proposed along the slope of dump for its stabilization. The course of drainage shall not be disturbed due to mining & allied activities.

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 fleshly disturbed material with the rain water. To take care of such happenings, retaining walls have been provided along the backfilled pits and toe walls along the existing interburden dumps. Analysis results of surface water samples collected from rivers in the buffer zone indicate that the pH, total dissolved solids (TDS) are well below the prescribed limits.

No adverse impact was noticed. The mine water from sump will be used for water sprinkling and plantation purpose posing positive impact in buffer zone.

- **Impact on Ground Water Quality**

Mine working will not go beyond 1515 m RL & depth of pit during next five years shall be 3-8m & water table will not be intersected by mining operations.

4.2.3 Wastewater Generation, Treatment & Disposal

The total water consumption in the Proposed Soapstone Mine shall be about 10 KLD. The water is used in the following purposes.

- For dust suppression
- For domestic consumption
- For greenbelt development

It is proposed to obtain water for drinking and operations from water sources under Gram *Panchayat* of Kabhata. There will no settlement near the site as the workers will be hired from nearby villages so no significant liquid effluent will be generated.

4.2.3.1 Measures for Minimizing Adverse Impacts

Seasonal drainage exists near to the project site. The mining is being carried in hilly region. The problem of ground water pumping will not arise. Rain water will not accumulate in the mining pit & it will be channelized along the slopes. The mining work will usually be confined within gullet driven from north-south & a ledge of about one meter height will be kept on the outer edge so that in discrete water flow will be avoided. The interburden and top soil will be used in backfilling. Further no significant impact on water quality is anticipated as material exposed will be low grade magnesite & is very feebly react with water that too when water becomes acidic. Even of reaction takes place it gives arise to increased temporary hardness of water. Water is being supplied from the spring. No hydrological studies have been carried out in the area.

- ***Surface Water***
  - 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.
  - Monitoring of water will be carried out periodically. Water analysis will be carried out seasonally.

- ***Ground Water Pollution***
  - The domestic sewage from the canteen and toilets will be routed to septic tanks.
  - Regular monitoring of water levels and quality in the existing open wells and bore wells in the vicinity will be carried out. If found necessary, additional observation wells will be sunk for monitoring the water levels and quality around the mine representing both upstream and downstream conditions.

4.3 IMPACT ON LAND USE

- **Land use Pattern in Core Zone**

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.

Various components of land environment have been identified for study of impact of the mining operations. Details of the same are given below:

Impact on land use & reclamation of mined out areas

Opencast mining activities may alter the landscape of the lease area and also cause some disturbance to the surface features of the surrounding areas. Mining will be done after leaving 7.5 m safety barrier.

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

The Existing land use pattern is agricultural land. The Existing land use pattern indicating the area already degraded due to quarrying/pitting dumping, roads, processing plants, workshop, township etc. in a tabular form is shown in **Table 4.2.**

Table 4.2: Existing land use pattern

Name of land use	Forest land (ha)	Crop land (ha)	Grazing land (ha)	Waste land (ha)	Revenue land (ha)	Total (ha)
a) Pit & Quarries	-	2.798	-	-	-	2.798
b) Dumps of ore waste & Overburden	-	0.146	-	-	-	0.146
c) Mineral stack	-	0.005	-	-	-	0.005
d) Infrastructure including of office, workshop, plants & road	-	0.165	-	-	-	0.165
e) Township	-	-	-	-	-	-
f) Others (i) Barren land (ii) Crop land	-	 12.199	-	-	-	 12.199
Total area	**-**	15.313	**-**	**-**	**-**	15.313
(g) Area backfilled by mine owners	-	2.798	-	-	-	2.798
(h) Area afforested by mine owners	-	-	-	-	Nil	Nil

Source: Mine plan

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 next five years mining, 2.798 ha land will be degraded due to mining & allied activities. The breakup of the land to be affected during the five years and end of conceptual period of due to mining operation is shown in **Table 4.3:**

Table 4.3: Breakup of the land to be affected during the five years and end of conceptual period of due to mining operation

S.No.	Description	Area	Reclaimed & Rehabilitated till end of last MP/MS period	To be Reclaimed & Rehabilitated till end of present plan/scheme period	Remarks Area to be reclaimed by the end of lease
1.	Mining (Quarry)	2.798	2.798	2.798	9.642
2.	Waste Dump	0.146	0.146	0.146	0.146
3.	Office Infrastructure	0.009	0.009	0.009	0.009
4.	Processing plant	-	-	-	-
5.	Mineral Stack/Processing yard	0.005	0.005	0.005	0.005
6.	Sub grade mineral stacks	0.006	0.006	0.006	0.006
7.	Roads	0.156	0.156	0.156	0.538
8.	Water course/pond/ reservoir	-	-	-	-
9.	Unutilized area	12.193	12.193	12.193	4.971
	Total	**15.313**	**15.313**	**15.313**	**15.313**

Note: All the quantities of top soil & interburden material to be generated by the end of plan/conceptual period shall be used for the purpose of reclamation over the mined unit land. Therefore no proposal for separate stacking of top soil and interburden dump has been proposed.

(A) Mining:

Mines out land	Crop/Nap land (ha)
(a) (i) Area already broken up	-
(ii) Area already backfilled	-
(iii) Area already reclaimed	-
(b) (i) Additional area proposed to be broken up during first 5 year	2.798
(ii) Additional area proposed to be backfilled	2.449
iii) Additional area proposed to be reclaimed	2.798

(B) Dump:

Dump-Soil & Interburden (IB)	Crop/Nap land (ha)
(i) Area occupied by dump	Soil- 0.026 IB- 0.025
(ii) Additional area to be covered by dump	-
(iii) Dump area to be covered by protective measures	-

(C) Plantation:

C. Plantation	Revenue/Benap land (ha.)	Crop/Nap land (ha)
(i) Area already occupied	-	-
(ii) Area proposed to be covered under plantation in next five years	-	0.310

Solid waste generation and management

Disposal of Waste:

The top soil will be removed with the help of JCB machine, dozer, shovels, pickaxe, spade & crowbar and stacked separately. The soil intermixed with fragments and interburden rejects are low grade magnesite. Part of these rejects will be utilized in construction and maintenance of retaining walls, parapet walls, check dams and other construction works. About 15257 cum of rejects will be used for this task, and in dump yard remaining rejects about 61027 cum will be backfilled.

The quantity of top soil, interburden & mineral rejects to be generated in each year is shown in **Table 4.4:**

Table 4.4: Details of top soil, interburden & mineral rejects

Year	Top Soil (cum)	Interburden (cum)	Mineral Rejects (cum)
I	4116	29721	33838
II	4711	30783	35494
III	5259	31844	37103
IV	4114	30783	34897
V	4701	29721	34422
Total	22901	152853	175754

Mitigation measures

- Access roads from public roads will be aligned in such a way that it would cause least damage.
- The banks cut for ramp will also be restored at the closing of mine during monsoon.
- Vegetation development is proposed along the lease area as restoration work.
- Plantation is proposed along the road sides, civic amenities in consultation with local/ govt. authorities. While selecting the plant species, preference will be given for planting native species of the area.

Storage and preservation of top soil:

The soil will be removed with the help of JCB machine, dozer, shovels, pickaxe, spade & crowbar and loaded manually to stack on the dump yard. Stacking will commence at RL 1518m to RL 1521m in first year, RL 1509m to RL 1518m in second year, RL 1515m to RL 1521m in third year & RL1542 m to RL 1545 m in fourth year & RL 1587 to 1590m in fifth year. The spread of stacks will be undertaken through mechanically and manually both & average dump height kept 1.5m. In first year 143 m^2 areas was earmarked for stacking of soil with 1.5m height. In second area it is 150 m^2 areas. Similarly in third, fourth & in fifth year 143 m^2, 150 m^2 and 143 m^2 area have been respectively earmarked for stacking of soil with 1.5m average height. The year wise spread of stack is shown in **Table 4.5.**

Table 4.5: Details of Soil stack (year wise)

Soil Stack	I year	II year	III year	IV year	V year
Length (m)	19m	20m	19m	20m	19m
Width (m)	7.5m	7.5m	7.5m	7.5m	7.5m
Average height (m)	1.5m	1.5m	1.5m	1.5m	1.5m
Angle of repose (deg)	36^0	36^0	36^0	36^0	36^0

Proposal for reclamation of land affected by mining activities:

The mining will commence from the higher levels and will advance towards lower levels. Intermittent backfilling will commence from the higher levels and subsequently advance towards the lower elevation so that terraced agriculture fields would undertake in such a manner that original land use will be restored i.e. before the onset of monsoon will be handed over to cultivators for cultivation. The final backfilling will be started once the ultimate benches are formed and pit reaches the optimum economic depth. All recovery of the mineral will be of the saleable grade. The quantum of development and mineral to overburden soil and interburden in the pit is shown in **Table 4.6.**

Table 4.6:

Year	Overburden Soil (cum)	ROM (Tonnes)	Interburden (cum)	Stripping ratio
I	35387	28000	29721	1:0.43
II	12022	29000	30783	1:0.68
III	39097	30000	31844	1:0.42
IV	8245	29000	30783	1:0.74
V	34452	28000	29721	1:0.44
Total	129202	**144000**	152853	

4.4 IMPACT ON AIR ENVIRONMENT

4.4.1 Change in Ambient air and GLC

The air pollution impact of excavation in ordinary earth and boulders and rock is directly dependent upon construction methodology, annual rate of excavation, mode of transport within the construction site, mode of screening and method of crushing. The air pollution sources at the proposed project site can be broadly classified into three categories, viz. area source, line source and instantaneous point source.

Excavation by various activities in project area is construed as an area source which includes excavation pit(s) and activities happening in the excavation area like digging, dozing, hauling and loading/unloading. The dust emission from these areas will be fugitive in nature. The excavator operations, loading/unloading operations will also cause dust emission though it will be confined to the area of operation of the machinery. The gaseous emission from their operation shall be minimal and limited within the project.

Transportation of excavated material from the project site to dumping sites area categorized as line source. Since the dumper movement on haul road will be within the project area, no adverse impact shall be felt in the settlement area.

4.4.1.1 Dust Dispersion Modeling for Excavation Operation

In the present study, United States Environmental Protection Agency (USEPA–42 series) approved mathematical equations have been used to predict concentrations for different operations in project including the material transportation. To predict the particulate emissions, Envitrans AERMOD Cloud. (Air Dispersion Modeling Software) an interface based on ISCST3 – was used to predict changes in air quality i.e., maximum ground level concentration (GLC's) of Particulate Matter. Short term model options were opted for uniform emissions rates. The concentration of other gaseous pollutants i.e. SO2 and Nox was found to be much lower than the threshold limit (80 µg/m3), the air modeling was restricted to determination of PM10 and PM2.5 in the present case. The emission factors adopted for various project operations are mentioned below:

Emission Factor for Excavation and Material Loading/unloading

For excavation and material handling the emission factor for PM_{10} has been adopted as per USEPA – 42 series.

For Dozing Operation:

$EFPM_{10}$ (kg/hr) = 0.34 X s1.5(%) / M1.4(%)

Where,

$EFPM_{10}$ (kg/hr) = emission factor in kg/hr

S = silt contents in percentage by weight

M = moisture content in percentage by weight

For Material Loading/unloading:

$EFPM_{10}$ (kg/hr) = 0.34 [0.119 / M0.9]

Where,

$EFPM_{10}$ (kg/hr) = emission factor in kg/ton

M = moisture content in percentage by weight.

Emission Factor for Material Haulage within Project:

The emission rate is dependent on several factors which include soil properties, climatic conditions, vehicular traffic, wind forces and machinery operation. The Empirical equation for calculation of emission rate is as under.

E= k*(1.7) *(s/12) *(S/48) *(W/2.7)0.7*(W/2.7)0.7 (w/4)0.5 * (365-p/365) g/VKT

Where,

E=Emission Rate

K = Particle size multiplier

s=Silt Content of the Road surface material

S= Mean Vehicle Speed (km/hr)

W=Mean Vehicle Weight (tons)

w=Mean number of wheels

p= Number of days with at least 0.254mm of precipitation per year

Note: The emission factor for $PM_{2.5}$ has been considered 60% of PM_{10}.

The Isopleths developed are shown in **Figure 4.1 (a)** and **Figure 4.1 (b) for PM_{10}** and **$PM_{2.5}$ respectively.** The maximum GLC due to excavation, loading & unloading activities for PM_{10} and $PM_{2.5}$ was found to be 9.1 and 5.8 µg/m^3 respectively and has been shown in **Table 4.7**.

Table 4.7: Maximum Concentration at receptors

Location	Pollutants	N-Cord.	E-Cord.	GLC (µg/m^3)
Project site	PM $_{10}$	29.823125°	79.936026°	9.1
Project site	PM $_{2.5}$	29.823125°	79.936026°	5.8

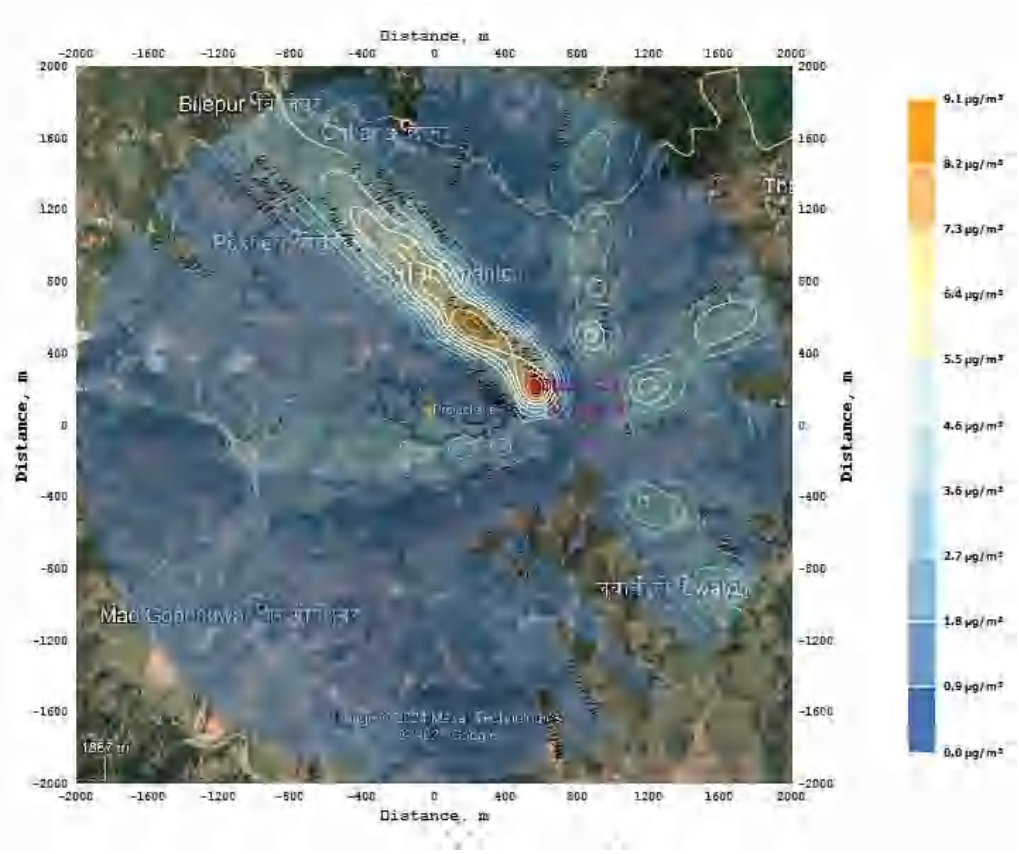


Figure 4.1 (a): Isopleth of Maximum Predicted 24 hourly Ground – Level Concentrations for PM_{10}

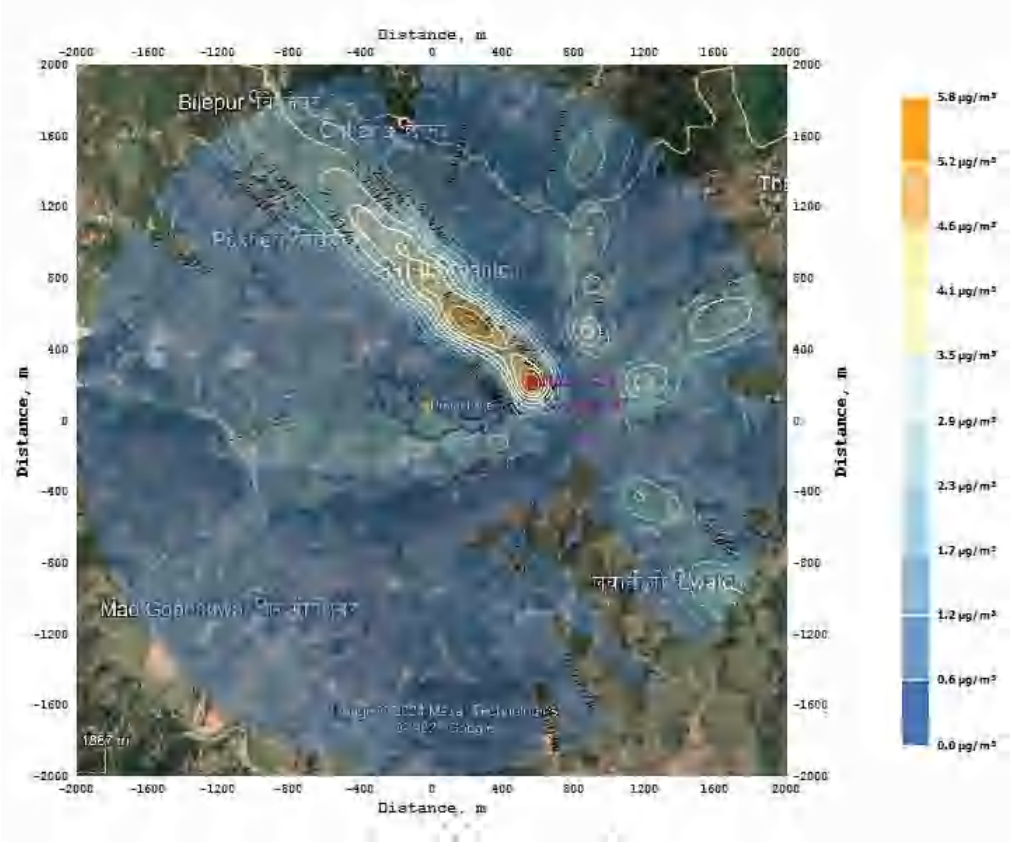


Figure 4.1 (b) : Isopleth of Maximum Predicted 24 hourly Ground – Level Concentrations for PM $_{2.5}$

4.4.1.2 Resultant Impact

The resultant impact due to construction activities (excavation and crushing) on the ambient air quality for PM_{10} and $PM_{2.5}$ at monitoring station project site respectively is presented in **Table 4.8** which shows that, the resultant concentration level is within the NAAQS.

Table 4.8: Resultant levels due to excavation

Station Name	Pollutants	Sampling Station	Max. Conc. (µg/m3)	Predicted GLC (µg/m3)	Resultant concentration (µg/m3)	NAAQS (µg/m3)
Project site	PM10	AAQ 1	68.5	9.1	77.6	100
Project site	PM2.5	AAQ 1	30.7	5.8	36.5	60

4.5 PROPOSED MITIGATION MEASURES FOR DUST SUPPRESSION

Soapstone is a talcose rock mineral composed of hydrous magnesium silicate: **3** MgO-4Si02-H20. The specific gravity is around 1. Therefore 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:

Control of Fugitive Emissions

- Use of Personal Protection Equipment's (PPE) like dust masks, ear plugs etc. by the mine workers.
- Ambient Air Quality Monitoring will be conducted on regularly basis to assess the quality of ambient air.
- Rock breaker will be used for breaking over size boulders in order to reduce dust and noise generation, which otherwise would be generated due to secondary blasting.
- Regular water sprinkling on haul roads & loading points will be carried out.
- Development of green belt/plantation around the lease boundary, roads, dumps etc.

Prevention and control of Gaseous Pollution

- Open cast manual method will be adopted in this case and there is no provision for blasting. The main source of gaseous emissions would be transportation.
- Approx 125 tonnes/day of soapstone will be produced per day and the transportation will be done with covered materials to prevent any spillage and also prevent fugitive dust emission due to wind.
- Any gaseous emission transportation will be negligible and not impact the ambient quality.
- Exhaust emission will be monitored of the trucks and to be kept below the permissible limit.
- Proper maintenance of machines 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.

The sources of pollutants from mining activities are given in **Table-4.9**.

Table 4.9: Sources of Pollutants

Sr. No.	Source	Type of Pollutant
1	Transport of Overburden or soil for dumping/ backfill	SPM
2	Dumping of waste	SPM
3	Loading of ore	SPM
4	Transportation of ore	SPM, NOx

4.6 NOISE ENVIRONMENT

4.6.1 Noise Impact on Working Environment

As mining will be done by manual cum semi-mechanized means, noise will only be generated due evacuation, transportation activities. The noise generated by the mining activity dissipates within the mine. There is no major impact of the mining activity on the nearby villages. 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 major machinery, the impact of noise levels will be minimal.

4.6.2 Prediction of Noise Impact on Noise level

A noise propagation modeling study has been conducted to find out the impact from the noise generated because of the estimated total traffic flow during operation phase as well as the significance of these impacts. The noise modeling has been done taking into account the additional flow of traffic due to the proposed project. Dhwani PRO is a computer program developed to undertake construction, industrial and traffic noise propagation studies for noise assessment.

4.6.2.1 Outcome of the Noise level Modeling:

The outcome of the noise modeling is as follows:

- The predicted noise levels during both day and night time are within the prescribed limit and there will be no significant impact on noise due to the proposed project.

The Contour map showing noise level due to total traffic outcome has been shown in **Figure 4.2.**

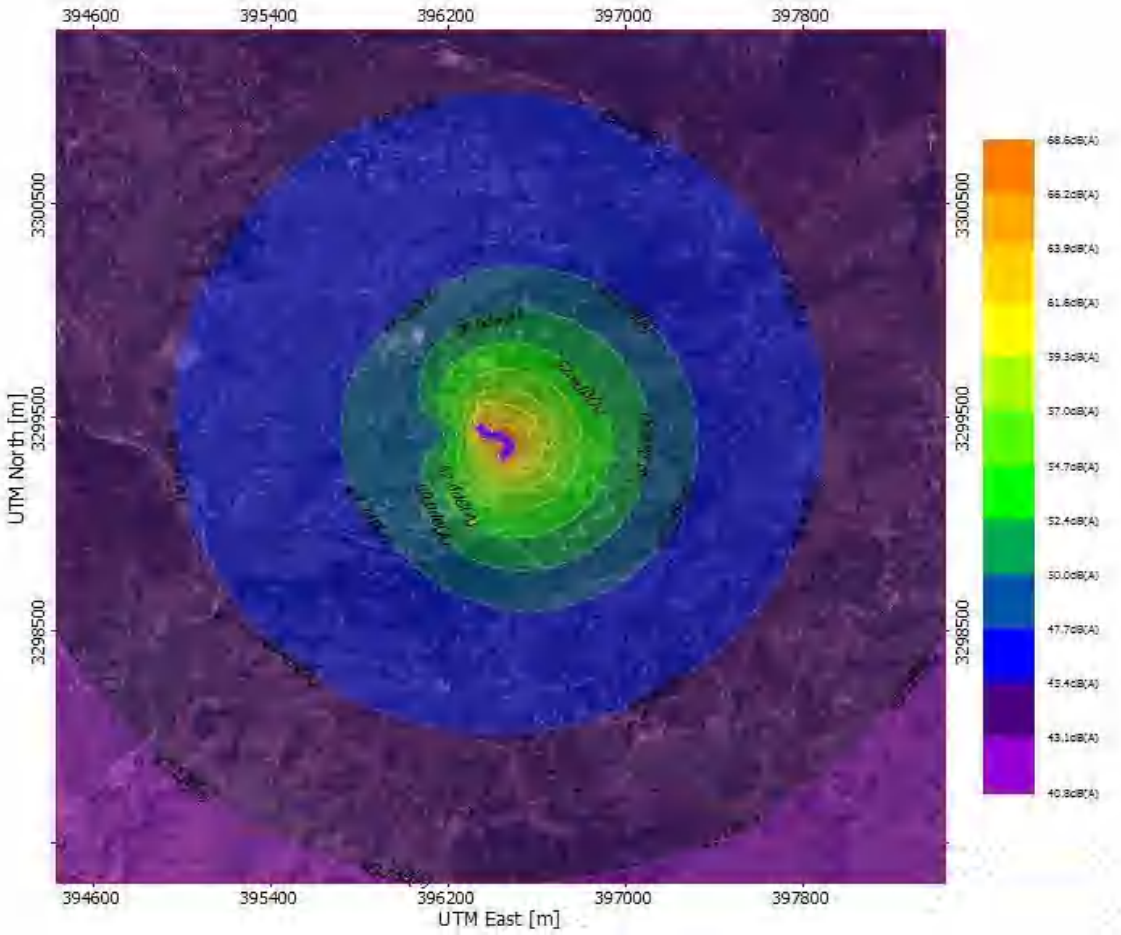


Figure 4.2:- Contour map showing noise levels due to total traffic outcome at the homogenous intersections of 2021 year

4.6.3 Noise Abatement and Control

In this mine the noise level will be upto tolerable limit (90 dbA) 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.

Frequency levels and associated mental and physical response of humans are given in **Table-4.10.**

Table 4.10: Noise Exposure Levels & Its Effects

Noise Levels dB (A)	Exposure Time	Effects
85	Continuous	Safe
85-90	Continuous	Annoyance and irritation
90-100	Short term	Temporary shift in hearing threshold, generally with complete recovery
Above 100	Continuous	Permanent loss of hearing
	Short term	Permanent hearing loss can be avoided
100-110	Several years	Permanent deafness
110-120	Few months	Permanent deafness
120	Short term	Extreme discomfort
140	Short term	Discomfort with actual pain
150 and above	Single exposure	Mechanical damage to the ear

Source: Hand Book of EIA, Rao & Wooten

4.7 GREENBELT AND PLANTATION

Proposed Plantation at the Mine Site

The main aim of plantation in the mined out areas is to stabilize the land to protect it from rain and wind erosion. The plantation scheme broadly covers the following areas:

- Greenbelt around peripheral portions of the ML; and
- Plantation will be raised along the boundaries of the mining lease by planting the native species around ML area, backfilled and reclaimed area, around water body, etc. in consultation with the local DFO/Agriculture department. The density of the trees proposed for 5 years will be 16397 plants.

Greenbelt Development in ML area

The entire plantation will be done on the periphery of the reclaimed area. Precautionary measures will be taken for care of the forestation made by regular watering in the afforested area, to protect from grazing animals and proper manuring.

Number of Saplings to be Planted and Budgetary Estimate of the Green Cover

The breakup of the proposed afforestation programme with reclamation in progressive manner for entire life of mine is given in **Table 4.11.**

Table 4.11: Year-wise Afforestation Schedule

Year	Area (ha)	No of saplings
First year	0.077	347
Second year	0.061	275
Third year	0.063	284
Fourth year	0.050	225
Fifth year	0.059	266
Total	**0.310**	**1397***

*Besides these 15000 nos. of more samplings will be done all along the periphery of the mine lease area/in the nearby van panchayat land in Kabhata and Agar villages. Total no. of trees shall be planted in the first two years and in the next three years its maintenance will take place. Local native species like Peach (Khubani), Pears (Nashpati), Apricot (Aaru), Plumk, Mehal, Kaphal, Chilmora etc. shall be planted.

The plants recommended for afforestation are as per Guidelines for Developing Greenbelts, CPCB, March 2000 and listed in **Table 4.12.**

Table 4.12: Suitable Plant Species for Green Belt Plantation

Sl.No.	Species	Family	Habit
1.	*Alternanthera paronychioides*	Amaranthaceae	Herb
2.	*Alternanthera pungens*	Amaranthaceae	Herb
3.	*Grangea maderaspatana*	Asteraceae	Herb
4.	*Cassia tora*	Fabaceae	Herb
5.	*Brachiaria ramosa*	Poaceae	Herb
6.	*Cynodon dactylon*	Poaceae	Herb
7.	*Eleusine indica*	Poaceae	Herb
8.	*Eragrostis tenella*	Poaceae	Herb
9.	*Saccharum spontaneum*	Poaceae	Herb
10.	*Physalis minima*	Solanaceae	Herb
11.	*Calotropis procera*	Asclepiadaceae	Shrub
12.	*Cassia occidentalis*	Fabaceae	Shrub
13.	*Croton bonplandianum*	Euphorbiaceae	Shrub
14.	*Abutilon indicum*	Malvaceae	Shrub
15.	*Ziziphus mauritiana*	Rhamnaceae	Shrub
16.	*Datura innoxia*	Solanaceae	Shrub
17.	*Solanum virginianum*	Solanaceae	Shrub

18.	*Berberis vulgaris*	Berberidaceae	Shrub
19.	*Mangifera indica*	Anacardiaceae	Tree
20.	*Ficus racemosa*	Moraceae	Tree
21.	*Cassia fistula*	Fabaceae	Tree
22.	*Ricinus communis*	Euphorbiaceae	Tree
23.	*Albizia lebbeck*	Fabaceae	Tree
24.	*Bauhinia acuminata*	Fabaceae	Tree
25.	*Butea monosperma*	Fabaceae	Tree
26.	*Dalbergia sissoo*	Fabaceae	Tree
27.	*Bombax ceiba*	Malvaceae	Tree
28.	*Azadirachta indica*	Meliaceae	Tree
29.	*Quercus leucotricophera*	Lauraceae	Tree
30.	*Melia azedarach*	Meliaceae	Tree
31.	*Luecena leucocephala*	Fabaceae	Tree
32.	*Bauhinia variegata*	Fabaceae	Tree
33.	*Terminalia bellerica*	Combretaceae	Tree
34.	*Terminalia chebula*	Combretaceae	Tree
35.	*Morus alba*	Moraceae	Tree
36.	*Delonix regia*	Fabaceae	Tree
37.	*Pinus roxburgii*	Pinaceae	Tree
38.	*Celtis australis*	Cannabaceae	Tree

4.8 BIOLOGICAL ENVIRONMENT

The baseline flora and fauna has been depicted in Section-3.11 of Chapter-3. There is no National Parks, Sanctuary, Breeding, roosting places or ecologically sensitive areas within the 10 km periphery of the mine lease area. However, most of the area surrounding to project site are covered with forest land. There no wildlife corridors in 10-km radius area.
No loss of forest resource is envisaged due to the project. No medicinal plants exist in the area.

4.8.1 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 objective of present project. For this, mine owner agency planted a good roadside plantation along both side of the mine road.

The mitigative measures proposed are:

- Prior to mining, short awareness program will be conducted for labors to make them aware for way of working.
- No tree cutting, chopping, lumbering, uprooting of shrubs and herbs will be allowed.
- No track or new road for movement of labors or vehicles be laid in adjoining area, this will prevent fragmentation, encroachment and human – animal encounter.

4.9 SOCIO - ECONOMIC ENVIRONMENT

The mine area does not cover any habitation. Hence the mining activity does not involve any displacement of human settlement. 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 Soapstone 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.

Probable Impact Assessment

Impact on population composition

The impact of the proposed mining project on population composition will be marginal as there will be no major immigration of people from distant areas. Only few skilled and managerial staff will be recruited from outside and the rest will be recruited locally. Similarly, there is no scope for emigration of people and there will be no displacement of people due to land acquisition. The Project Proponent will ensure that all the unskilled workers deployed for mining activities are local recruits. Further, no mining operation will be carried till it is assured that local people has been recruited and deployed for mining operation.

Impact on employment generation

The proposed mining project is expected to provide Direct and Indirect employment opportunities to local people of different skills and trades. It is a positive impact that needs to be encouraged. It has been estimated that 71 workers of various categories will be employed directly.

The employment potentiality of the project is expected to ameliorate the economic condition of the families of those persons who will get employed in the proposed mining project. Further, the project will provide indirect employment to people who will be involved in segregation of extracted mining materials, petty business and service oriented industries.

Impact on Health

Soapstone mining damages water supply as also a health hazard. Scarring of the lungs are the most frequently reported impacts of contact with polluted water and breathing problem due to Soapstone dust particles. There is a risk of death like lung cancer due chronic exposure and also a pleura disease due to inhale of Soapstone dust. These negative impacts of Soapstone mining needs to be viewed seriously.

Impact on consumption pattern

The field survey has revealed that people in the study generally poverty ridden. Increased household income may slightly change and enhance the consumption pattern of few who are burdened with poverty.

Impact on road development

Movement of trucks and other vehicles to and fro the quarry is expected to increase, when mining will start. There is mule road connectivity from the quarry to existing road. The existing roads connecting the quarry with the state highways are mostly narrow mud roads. There will be mud slide and traffic bottle neck if these roads are not widened and their conditions are not improved by making them paved roads. Hence, there is ample scope for road development in

and around the mining areas. It is suggested that concerned department in the Government of the state to undertake widening and strengthening of existing roads connecting the mining sites on priority basis. There should also be budgetary support for road development in and around the mining areas.

Impact on law & Order

As local people will be employed to run the quarry, no law & order problem is envisaged. It is expected that the workers will attend to their duties from their residence and return to their homes after the day's work is over. There would have been law & order problem if the workers were migrants and lived in shanties closed to the mining area.

4.10 OCCUPATIONAL HAZARDS AND SAFETY

Occupational safety and health is very closely related to productivity and good employer-employee relationship. The factors of occupational health in soapstone mining project are mainly dust and land degradation. Safety of employees during operation and maintenance etc. shall be as per Mines rules and regulations.
To avoid any adverse effect on the health of workers due to various pollutants, sufficient measures relating to safety and health will also be practiced:

- Provision of rest shelters for mine workers with amenities like drinking water etc.
- All safety measures like use of safety appliances, such as dust masks, helmets, shoes, safety awareness programs, awards, posters, slogans related to safety etc.
- Training of employees for use of safety appliances and first aid in vocational training center.
- Regular maintenance and testing of all equipment as per manufacturers' guidelines.
- Periodical Medical Examination (PME) of all workers by a Medical Officer
- First Aid facility is provided at the mine site.
- Close surveillance of the factors in working environment and work practices which may affect environment and worker's health.
- Working of mine as per approved mining plan and environmental plans.

4.11 PUBLIC HEATH IMPLICATIONS

With the mitigation measures in relation to air pollution, water pollution, soil contamination and noise pollution proposed to be adopted at the mine along with green belt plantation along the periphery of Mining Lease boundary, it is expected that there will be no impact of mining on the population in the impact zone. However, the following measures shall be adopted: Health check of all villagers in the immediate vicinity of the mine shall be carried out periodically. In case any person or a group of persons is found to be suffering from any ailment, directly related to bauxite mining, their medical treatment will be carried out free of cost.
Surface water management shall be adopted to ensure that run-off from the mining are does not adversely affect natural water streams or other water bodies.

All water bodies e.g. wells and surface water sources in the vicinity of the mine, shall be periodically tested for any pollution related to mining operations and remedial action taken, if warranted.

Operators of all transport vehicles shall be instructed not to honk unnecessarily while passing through villages or near schools.

4.12 CORPORATE SOCIAL RESPONSIBILITY

Corporate Social Responsibility (CSR) refers to responsibility of a company to ensure positive impact on environment, consumers, employees, communities, stakeholders and all other members of public sphere. The CSR activities are increasingly being taken up by the project proponents not only as fulfilling of mandatory provisions but also for the formation and or enhancement of brand image. Besides the above, CSR is seen more as a responsibility towards society rather than a business promotion activity. It is the need of the day for expansion of occupational welfare. The activities to be undertaken for the local people under CSR have already been identified. It is expected that this will improve the socio-economic status of the local people and at the same time the popularity of the mining project will enhance. It is proposed to spend five percent of the total cost of the project for the benefits of the local community under CSR activities. The total cost of the project is around Rs. 40 Lacs and the amount earmarked for CSR activities has been worked out to Rs. 4 Lac. It is proposed to spend the above amount during the first five years of the commissioning of the mining project. Based on 'Community Needs Survey' conducted in the study area by the Consultant appointed by the company the following activities are proposed to be taken up for the benefits of the local community. The year wise allocation of funds for the various activities proposed to be taken up under CSR programme has been shown in **Table 4.13**.

The list of activities proposed to be taken up is indicated below:

a) Health Camps

b) Drinking Water Facilities

c) Maintenance of foot track

d) Donation for Temple Construction

e) Donation for cultural activities in the surrounding areas

f) Plantation of trees.

Table 4.13: Year wise allocation of funds for the various activities proposed to be taken up under CSR programme

S. No.	Activities	Allocation of Fund (Rs.)
1	Health Camps	1,00,000
2	Drinking Water Facilities	1,00,000
3	Maintenance of foot track	75,000
4	Donation for Temple Construction	75,000
5	Donation for cultural activities in the surrounding areas	50,000
Total		**4,00,000**

For each activity the funds to be earmarked by the proponent will be decided after discussion with the local authority and the beneficiaries. It has been planned to undertake a concurrent evaluation of the activities to be taken up under the CSR programme.

4.13 IMPACT ON TRAFFIC

Traffic study is carried out by understanding the existing carrying capacity of the road in the vicinity of site and flow towards State highway in the area. Then depending on the capacity of the mine, the number of trucks that will be added to the present scenario will be compared to the carrying capacity as recommended by Indian Road Congress (IRC). The existing volume of traffic and, the Level of Service are given in table below.

Existing Traffic Scenario & LOS

Road	V (PCU/day)	C (PCU/day)	Existing V/C Ratio	LOS
Kanda Mithunkot Saniudiyar Road	600	1100	0.54	B

V= Volume in PCU's/day & C= Capacity in PCU's/ day

During Mine operation

Total Capacity of mine (maximum) : 30,000 TPA

No. of working days : 240 days

Total Capacity of mine/day : 30,000 /240 = 125 tonnes

Truck Capacity : 9 tonnes

No. of trucks deployed per day : 125/9 = 14 trucks per day

No. of trucks deployed/day to & fro : 14*2= 28 trucks

Increase in PCU/day : 62

The addition to traffic by the proposed project during its operation is given table below

Additional Traffic Scenario & LOS due to proposed project

Road	V	C	Modified V/C Ratio	LOS
Kanda Mithunkot Saniudiyar Road	662	1100	0.60	B

From the above analysis it can be seen that the V/C ratio is likely to be changed to 0.60 on Kanda Mithunkot Saniudiyar Road with LOS remains "B" which is "Good" as per the classification. So the additional load on the carrying capacity of the concerned road is not likely to have much significant adverse effect.

CHAPTER 5: ANALYSIS OF ALTERNATIVES (TECHNOLOGY & SITE)

5.1 SITE ALTERNATIVES UNDER CONSIDERATION

The Soapstone has been identified based on the result of geological investigations and exploration carried out during prospective mining.

The mining projects are site specific as such alternate sites were not considered.

5.2 ANALYSIS OF ALTERNATIVE TECHNOLOGY

5.2.1 Choice of Method of Mining

Factors in the choice of an actual mining method for a given deposit are deposit characteristics, percentage recovery, requirement of health and safety and environmental concerns, production, scheduling scope of mechanization and automation, workforce requirements wage rates, land reclamation, operating and capital cost estimates. The selection of the mining method (development and extraction) is a key decision to be made in the opening up of a mine.

Surface or open pit mining is used for large, near-surface mineral deposits. Mineral is excavated, loaded into trucks, and hauled to a facility where it is crushed and ground to a uniform size for further processing. Surface mining requires the removal and disposal of layers of top soil and underlying rock commonly called the overburden. Mining must be planned so that the combine of mining processing and reclaiming the land is taken up concurrently.

The open cast mining method will be adopted because of the following reasons:

- The open cast mining operations ensure higher mineral conservation.

The method used for mining is efficient for Soapstone mining, so no alternative mining method is proposed.

CHAPTER 6: ENVIRONMENTAL MONITORING PROGRAMME

6.1 INTRODUCTION

The industrial development of any area needs to be intertwined with judicious utilization of non-renewable resources of the study area and within the limits of permissible assimilative capacity. The assimilative capacity of the study area is the maximum amount of pollution load that can be discharged into the environment without affecting the designated use and is governed by dilution, dispersion and removal due to physico-chemical and biological processes.

The Environment Monitoring Programme is required to ensure sustainable development in the study area (10 km) of the project site, hence it needs to be an all-encompassing plan for which the plant authorities, Government, Regulating agencies like Pollution Control Board etc. working in the region and more importantly the affected population of the study area need to extend their co-operation and contribution.

6.2 IMPLEMENTATION SCHEDULE OF MITIGATION MEASURES

The mitigation measures suggested in Chapter-VI will be implemented so as to reduce the impact on the environment due to the operations of the proposed project. Implementation schedule of mitigation measures is given in **Table-6.1**.

Table 6.1 Implementation Schedule

Sr. No.	Recommendations	Time Requirement	Schedule
1	Air pollution control measures	Before commissioning of respective units	Immediate
2	Water pollution control measures	Before commissioning of the mine	Immediate
3	Noise control measures	Along with the commissioning of the mine	Immediate
4	Ecological preservation and upgradation	Stage-wise implementation	Immediate & Progressive

6.2.1 Administrative Aspects & Environmental Monitoring Program

Regular monitoring of environmental parameters is of immense importance to assess the status of environment during project operation. With the knowledge of baseline conditions, the monitoring programme will serve as an indicator for any deterioration in environmental conditions due to operation of the project, to enable taking up suitable mitigatory steps in time to safeguard the environment. Monitoring is as important as that of control of pollution since the efficiency of control measures can only be determined by monitoring.

Usually, as in the case of the study, an Impact Assessment study is carried over short period of time and the data cannot bring out all variations induced by the natural or human activities. Therefore, regular monitoring programme of the environmental parameters is essential to take into account the changes in the environmental quality.

6.2.2 Institutional Arrangements for Environment Protection and Conservation

The mine will be supervised and controlled by an independent Mines Manager supported by adequate team of technically and statutorily qualified personnel apart from the operating staff of skilled, semi-skilled, unskilled and other categories.

The organizational structure for Environment Cell for mining operations is shown in **Figure-6.1**. This Environment Cell is responsible for the management and implementation of the environmental control measures. Basically, this department will supervise the reclamation planning & management, air & water pollution control management, Liasoning with State & Central Statutory agency & Committee.

In case the monitored results of environmental pollution are found to exceed the allowable limits, the Environment Management Cell will suggest remedial action and get these suggestions implemented through the concerned authorities.

The Environment Management Cell will also co-ordinate all the related activities such as collection of statistics of health of workers and population of the region, afforestation and greenbelt development. The Environment Management Cell will review Corporate Environmental performance along with the reporting of non-compliances.

Figure-6.1 Organization Structure for Environment Management

6.3 ENVIRONMENT MONITORING PROGRAMME

Monitoring shall confirm that commitments are being met. This may take the form of direct measurement and recording of quantitative information, such as amounts and concentrations of discharges, emissions and wastes, for measurement against corporate or statutory standards, consent limits or targets. It may also require measurement of ambient environmental quality in the vicinity of a site using ecological/biological, physical and chemical indicators. Monitoring may include socio-economic interaction, through local liaison activities or even assessment of complaints.

The environmental monitoring will be conducted in the mine operations as follows:

- Air quality;
- Water and wastewater quality;
- Noise levels;
- Soil Quality; and
- Greenbelt Development

The details of post project monitoring are presented in **Table 6.2.**

6.4 REPORTING SCHEDULES

Post project monitoring will be carried out as per conditions stipulated in environmental clearance letter issued by MoEF&CC, consent issued by SPCB as well as according to CPCB guidelines. The project site is considered as core zone and the area lying within 10 km radius from the mine site is considered as buffer zone, where some impacts may be observed on physical and biological environment. In the buffer zone, slight impact may be observed and that too is occasional, table below showing the details of Post Project Monitoring programme.

Table-6.2 Post Project Monitoring Programme

Attributes	Sampling		Measurement Method	Test Procedure
	Network	Frequency		
A. Air Environment				
Meteorological • Wind direction • Relative humidity • Rainfall	Minimum 1 site in the project impact area	Regularly in one season by Weather Monitoring Station	Mechanical/automatic weather station	-
Pollutants PM10, PM2.5	5 locations in the project impact area (Minimum 2 locations in upwind side, 2 sites in downwind side / impact zone and 1 in core zone)	Once in a season.	Gravimetric method	-
			Gravimetric method	-
SO2			EPA Modified West & Geake method	Absorption in Potassium Tetra Chloro-mercurate followed by Colorimetric estimation using P-Rosaniline hydrochloride and Formaldehyde (IS: 5182 Part - II).
NO2			Arsenite modified Jacob & Hochheiser	Absorption in dil. NaOH and then estimated colorimetrically with sulphanilamide and N (I Nepthyle) Ethylene diamine Dihydrochloride and Hydrogen Peroxide (CPCB Method).
B. Water Environment				

pH, Turbidity, Colour, Odour, Taste, TDS, Total Hardness, Calcium hardness, Magnesium hardness, Chloride, Fluoride, Sulphate, Nitrates, Alkalinity, Iron, Copper, Manganese, Mercury, Cadmium, Selenium,	Set of grab Samples during pre and post-monsoon for ground and surface Water in the vicinity.	Diurnal and Season wise	As per IS 10500:2012	Samples for water quality should be collected and analyzed as per : IS : 2488 (Part 1-5) methods for sampling and testing of Industrial effluents Standard methods for examination of water and wastewater analysis published by American Public Health Association
Arsenic, Cyanide, Lead, Zinc, Chromium, Aluminum, Boron, Phenolic Compounds				.
C. Noise				
Noise levels at Day & Night time - Leq dB (A)	Mine Boundary, High noise generating areas within the lease.	Quarterly / Half yearly	As per CPCB norms	As per CPCB norms
D. Soil				
pH, Bulk Density, Soil texture, Nitrogen, Available Phosphorus, Potassium, Calcium, Magnesium, Sodium, Electrical Conductivity, Organic Matter, Chloride	5 locations in the project impact area	Yearly/half yearly	As per USDA Method	As per USDA Method
E. Socioeconomic				
• Demographic structure	Socio-economic survey is based on proportionate,	Minimum for two phases of the project	Primary data collection through Questionnaire	Secondary data from census records, statistical hard books, topo sheets, health
• Infrastructure resource base	sampling method			Records and relevant official records available with Govt. agencies

• Economic resource base				
• Health status:				
Morbidity pattern				
• Cultural and				
Aesthetic attributes				
• Education				

CHAPTER 7: ADDITIONAL STUDIES

7.1 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 Environment Protection & Pollution Control Board (UEPPCB) for public hearing**.**

7.2 RISK ASSESSMENT

The complete mining operation will be carried out under the management control and direction of a qualified mine manager. Moreover, mining staff will be sent to refresher courses from time to time to keep them alert. However, following natural/industrial hazards may occur during normal operation.

- Accident due to explosives;
- Accident due to mining equipment; and

In order to take care of above hazard/disasters, the following control measures will be adopted:

- All safety precautions and provisions of Mine Act 1951, Metalliferrous Mines Regulations 1961 and Mines Rules,1955 will be strictly followed during all mining operations;
- Entry of unauthorized persons will be prohibited;
- Firefighting and first-aid provisions in the mines office complex and mining area;
- Provisions of all the safety appliances such as safety boot, helmets, goggles etc. will be made available to the employees and regular check for their use;
- Training for all the employees working in hazardous premises; Under Mines rules all employees of mines shall have to undergo the training at a regular interval;
- Working of mine, as per approved plans and regularly updating the mine plans;
- Regular maintenance and testing of all mining equipment as per manufacturer's guidelines;
- Suppression of dust on the haulage roads and loading & unloading points ;
- Increasing the awareness of safety and disaster through competitions, posters and other similar drives.

7.2.1 Blasting

No drilling & blasting is proposed as mineral is very soft in nature.

7.2.2 Overburden & Interburden

The overburden (soil) and interburden dumps may cause landslides. High overburden dumps created at the quarry edge may cause sliding of the overburden and interburden dump or may

cause failure of the pit slope due to excessive loading, thereby causing loss of life and property. Siltation of surface water may also cause run-off from overburden and interburden dumps.

7.2.3 Machinery

Most of the accidents during transport by trucks, excavators and dozers and other heavy vehicles are often attributable to mechanical failures and human errors.

7.2.4 Water Logging

Water logging in the mine site can be avoided by adopting following measures:

- Due care will be taken to provide retaining wall around the pits.
- Proper drainage will be maintained to eliminate inundation of working pits during rains from run-off water.
- There is no danger of flood or inundation as the ground level.
- Mining operations are not carried below the ground water table; therefore, there will be no disturbance to ground water quality due to mining activity.

Natural resource conservation

- A green belt will be developed so that minimum soil erosion takes place.
- The excavated soil will be refilled in order to minimize the impact on environment.
- In any case the natural habitats of the existing flora and fauna will not be disturbed.
- Use of traditional knowledge in all aspects of conservation.
- Water conservation techniques will be employed.
- Time to time analysis of the soil, water resources etc will be done in order to analyze the negative impacts of mining activities on the environment.
- To prepare management plans for village landscapes. Villages to be seen as landscapes of diverse elements such as forests, scrub, grassland, streams/river, ponds etc.

7.2.5 Earthquake Management Plan

Following measures will be undertaken:

- The project site is mainly a plain area. There will be no drilling and blasting during mining.
- The ultimate pit wall will be kept to 45^{o} and the slope angle of the inner benches will not be greater than 60^{o} to 65^{o} and bench height would be 9m.
- Slope will be stabilized with the help of *Chrysopogon zizanioides* grass to stabilize the slope

Flood Management Plan

- This is a soapstone mining project and the site is not close by to a water body so water bodies in the area will not be disturbed.

Natural resource conservation

- A green belt will be developed so that minimum soil erosion takes place.
- The excavated soil will be spread over the backfilled mined out area in order to minimize the impact on environment.
- In any case the natural habitats of the existing flora and fauna will not be disturbed.
- Use of traditional knowledge in all aspects of conservation shall be utilized.
- Water conservation techniques will be employed.
- Time to time analysis of the soil, water resources etc will be done in order to analyze the negative impacts of mining activities on the environment.
- To prepare management plans for village landscapes, villages to be seen as landscapes of diverse elements such as forests, scrub, grassland, streams/river, ponds etc. The dynamics of the village as an ecosystem to be assessed, corridors to be devised between major natural landscape elements, so as to facilitate movement of species.

7.2.6 Safety Measures

Safety Measures at the proposed Open Cast Mining Project

- The opencast mines have been planned for working with shovel tipper system which requires proper benching not only for slope stability but also for movement of tippers and other machinery. The inclination of the quarry sides at the final stage i.e. at the dip most point will not exceed 45^0 to the horizontal. (This angle is measured between the line joining the toe of the bottom most bench to the crest of the top most bench and the horizontal line);
- The gradient of the haul road inside the pit, access trench and on the dumps will not be steeper than 1 in 16;
- The slope of the sides of the OB and IB dump to the horizontal will not exceed 37^0, and the height of the OB and IB dumps has been restricted to a max of 12 m;
- The quarries will be protected by garland drains around the periphery for storm water drainage;
- A minimum safe distance of 50m will be kept between the surface edge of the quarry and the nearest public building, roads etc.

Measures Suggested to Avoid Accidents due to Blasting

- No drilling & blasting is proposed as mineral is very soft in nature.

Measures to Prevent the Danger of Overburden

- To prevent the failure of overburden slopes, especially during the rainy season, proper garland drain & bund are constructed around the dump.

Measures to Prevent Accidents due to Trucks and Tippers

- All transportation within the main working area should be carried out under the direct supervision and control of the management.
- The vehicles must be maintained in good repairs and checked thoroughly at least once a week by a competent person authorized for this purpose by the management;
- Broad signs should be provided at each and every turning point specially for the guidance of the drivers at night;
- To avoid dangers while reversing the trackless vehicles, especially at the embankment and tripping points, all areas for reversing of lorries should, as far as possible, be made man free, and there should be a light and sound device to indicate reversing of trucks; and
- A statutory provision of the fence, constant education, training etc. will go a long way in reducing the incidence of such accidents.

7.3 DISASTER MANAGEMENT PLAN

7.3.1 Objectives of Disaster Management Plan

The Disaster Management Plan is aimed to ensure safety of life, protection of environment, protection of installation and restoration of production. For effective implementation of the Disaster Management Plan, it should be widely circulated and personnel training should be given.
The objective of the Disaster Management Plan is to make use of the combined resources of the mine and the outside services to achieve the following:

- Effect the rescue and medical treatment of casualties;
- Safeguard other people;
- Minimize damage to property and the environment;
- Initially contain and ultimately bring the incident under control;
- Secure the safe rehabilitation of affected area; and

In effect, it is to optimize operational efficiency to rescue rehabilitation and render medical help and to restore normalcy.

Fire Fighting Facilities

Sufficient fire extinguishers will be installed at selected locations such as mine office, garage, stores etc.

Emergency Medical Facilities

An ambulance with driver availability in all the shifts, emergency shift vehicle would be ensured and maintained to transport injured or affected persons. Number of persons would be trained in first aid so that, in every shift first aid personnel would be available.

CHAPTER 8: PROJECT BENEFITS

8.1 IMPROVEMENT IN THE PHYSICAL INFRASTRUCTURE

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.

8.2 IMPROVEMENT IN THE SOCIAL INFRASTRUCTURE

- 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.

In addition to above, due to increase in purchasing power of local habitants:

- 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.

8.3 EMPLOYMENT POTENTIAL

Future production planning does not indicate some change from present, in the employment. The number of unskilled labour may increase depending on the quantum of overburden removal and mineral excavation. The lessee has employed miners for raising ores & 71 Workers for removal of overburden, quarry cleaning & road repairing. The details of employment are given in Chapter-2.

The employment of local people in primary and secondary sectors of project will upgrade the prosperity of the region. These will in-turn improves the socio-economic conditions of the area. The total manpower required for the proposed mining project under various categories is 71 persons and persons will be mainly sourced from local as well as other community in and around mining project and few technical persons will be employed during operational phase from local and also from outside area. In addition to the above, contractual labour and indirect employment opportunities will also be getting benefited after installation of mining project.

8.4 POLICY AND ACTION PLAN ON SOCIAL RESPONSIBILITY

A detailed Community Social Responsibility plan has been prepared and the details of the report are given below.

8.4.1 CSR Project Details

Soapstone mine has proposed to provide financial assistance of Rs. 1.00 lakhs every year for the development of social infrastructure of the area.

Following measure will be taken to improve the Social infrastructure of the study area:

- Health Camps. (Rs. 1,00,000).
- Drinking Water Facilities. (Rs. 1,00,000).
- Maintenance of foot track (Rs. 75,000).
- Donation for Temple Construction. (Rs. 75,000).
- Donation for cultural activities in the surrounding areas (Rs. 50,000).

8.4.2 CER Project Details

In addition to the CSR, the provision of Rs.4.00 lakh every year (1% of the total project cost) has been proposed for the Corporate Environmental Responsibility (CER).

Following measure will be taken to improve the Social infrastructure of the study area:

- Sanitation facilities to the local villages. (Rs. 75,000).
- Skill Development for villagers. (Rs. 75,000).
- Awareness to local farmers to increase yield of crop and fodder (Rs. 1,00,000).
- Plantation in the community areas/schools and on van panchayat land of nearby villages. (Rs. 1,50,000).

CHAPTER 9: ENVIRONMENT MANAGEMENT PLAN

9.1 INTRODUCTION

An EMP is prepared including all the administrative aspects of ensuring that mitigative measures are effectively monitored, after approval of the EIA. The final EIA/EMP of the proposed project will be submitted to SEAC, Uttarakhand, for obtaining environmental clearance for the project, in accordance with Environment Impact Assessment (EIA) Notification No. 1533 dt.14.09.2006. The approved Environment Management Plan will be implemented throughout the life of the project and half-yearly monitoring report showing the compliance status of conditions stipulated in Environmental Clearance letter will be submitted to MoEF&CC in every six months. An Environmental monitoring programme has been prepared for the proposed project for periodical assessment of effectiveness of implementation of Environment Management Planned to take corrective measures in case of any degradation in the surrounding environment.

To mitigate the adverse impact which will be caused due to the mining operation and overall scientific development of local habitat, environmental management plan (EMP) has been formulated and integrated with the mine planning. The details of the anticipated impacts and mitigative measures have been discussed in Chapter 4 of this report, based on the results of present environmental conditions and environmental impact assessment. The EMP has therefore been made considering implementation and monitoring of environmental protection measures during and after mining operations.

The aims of Environment Management Plan are:

- Overall conservation of environment.
- Minimization of waste generation and pollution.
- Sustainable use of natural resources and water.
- Safety, welfare and good health of the work force and populace.
- Ensure effective operation of all control measures.
- Vigilance against probable disasters and accidents.
- Monitoring of cumulative and longtime impacts.
- Ensure effective operation of all control measures.

9.2 IMPLEMENTATION OF EMP

As the major environment attributes will continue to be around the project area alone, implementation of the proposed control measures and monitoring thereof will be undertaken

on a regional basis. The project proponent will ensure the implementation of the measures within the mine area and carryout efficient monitoring.

In order to implement the measures suggested for mitigating the adverse impacts on the environment, it is suggested to monitor the environmental parameters regularly.

9.3 ENVIRONMENTAL MONITORING

For assessing the prevailing quality of air, water, noise, soil etc., regular monitoring of parameters are necessary. The data assessed will be helpful in predicting the impact and planning suitable measures to improve/protect the environment. In the study area, the lessee will carry out monitoring studies for ambient air quality, fugitive dust, water quality, noise levels and soil quality as per the standard procedures and schedules. The monitoring system will includes:

- Monitoring stations in the buffer zone remain the same as selected in this study for Air, water, Soil, Noise etc.,
- Implementation of the planned mitigating measures.
- Monitoring the programme of implementation.

The Environmental parameters will be monitored & samples will be analyzed as per the stipulations of Indian Bureau of Mines & Uttarakhand Pollution Control Board and as per MoEF&CC Guidelines. The above monitoring proposals shall be adhered to and the results shall be intimated to the appropriate authorities for their perusal and records.

9.4 ORGANIZATIONAL SETUP FOR ENVIRONMENT MONITORING

Major attributes of environment are not confined to the mining site alone. Implementation of proposed control measures and monitoring program has an implication on the surrounding area as well as for the region. Therefore, mine management should strengthen the existing control measures as elaborated earlier in this report and monitor the efficacy of the control measures implemented within the mining area relating to the following specific areas for eco- friendly mining:

a) Collection of air and water samples at strategic locations with frequency suggested and by analyzing thereof. If the parameters exceed the permissible tolerance limits, corrective regulation measure will be taken.
b) Collection of soil samples at strategic locations once in every year and analysis thereof with regard to deleterious constituents, if any.
c) Measurement of water level fluctuations in the nearby surface resources and bore wells.
d) Measurement of noise levels at mine site, stationary and mobile sources, and adjacent villages will be done in every quarter of the year.
e) Monitoring Ground Vibrations: Ground vibrations studies or monitoring is not required as there is no proposal of drilling/blasting for scooping operations.

9.4.1 Environment Management Cell

No cell is proposed to form; the plan will be implemented through outsourcing suitable and accredited consultants and experts.
Environmental Monitoring will be directly coordinated by the Supervisor/Owner.
Competent outsourced certified organization/lab personnel will conduct the monitoring operations. A full-fledged laboratory is not essential; part of the work will be given to competent consultants to undertake these jobs.
Regular semi-skilled manpower will be required for supervision, assistance in reclamation works followed by trained unskilled laborers to carry out other necessary operations.

9.4.1.1 Functions of the Cell

- Implementation of the mitigation measures.
- Maintain Records of the operation.
- Monitoring the programme of implementation.
- To estimate the efficiency of measures taken.
- To bring out any other unforeseen effect on environment not covered under the report.
- Inspection and regular maintenance of mining equipments and transport vehicles.

9.5 AIR QUALITY MANAGEMENT

Talc is a hydrous magnesium silicate. In trade, talc often includes: (i) the mineral talc in the form of flakes and fibres; (ii) steatite, the massive compact cryptocrystalline variety of high-grade talc; and (iii) soapstone, the massive talcose rock containing variable talc (usually 50%), soft and soapy to feel. Commercial talc may contain other minerals like quartz, calcite, dolomite, magnesite, serpentine, chlorite, tremolite and anthophyllite as impurities. The properties that give talc a wide variety of uses and markets are its extreme softness and smoothness, good luster and sheen, high slip and lubricating property, low moisture content, ability to absorb oil and grease, chemical inertness, high fusion point, low electrical and heat conductivity, high dielectric strength, good retention for filler purposes, whiteness, good hiding power as pigment and high specific heat.

9.5.1 Control of Fugitive Emissions

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

9.5.2 Prevention and control of Gaseous Pollution

Open cast manual method will be adopted in this case and there is no provision for blasting. The main source of gaseous emissions would be transportation.

Only 125 tonnes of soapstone will be produced per day and the transportation will be done with covered materials to prevent any spillage and also prevent fugitive dust emission due to wind. Any gaseous emission transportation will be negligible and not impact the ambient quality. Exhaust emission will be monitored of the trucks and to be kept below the permissible limit.

Proper maintenance of machines 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.

9.6 NOISE POLLUTION CONTROL

9.6.1 Noise Abatement and Control

- Proper maintenance, oiling and greasing of machines 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 and mine area will be done to minimize the propagation of noise.
- Personal Protective Equipment's (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.

9.7 WATER QUALITY MANAGEMENT

Water for drinking and operations is required to be 10 KLD. The water shall be extracted from the nearby surface water resources or natural springs.

Measures for Minimizing Adverse Impacts

Seasonal drainage exists near to the project site. The mining is being carried out in hilly region. The problem of ground water pumping will not arise. Rain water will not accumulate in the mining pit & it will be channelized along the slopes. The mining work will usually be confined within gullet driven from north-south & a ledge of about one meter height will be kept on the outer edge so that in discrete water flow will be avoided. The interburden and top soil will be used in backfilling. Further no significant impact on water quality is anticipated as material exposed will be low grade magnesite & is very feebly react with water that too when water becomes acidic. Even of reaction takes place it gives arise to increased temporary hardness of water. Water is being supplied from the spring. No hydrological studies have been carried out in the area.

Surface Water

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. Monitoring of water will be carried out periodically. Water analysis will be carried out seasonally.

Ground Water Pollution

The domestic sewage from the canteen and toilets will be routed to septic tanks. Regular monitoring of water levels and quality in the existing open wells and bore wells in the vicinity will be carried out. If found necessary, additional observation wells will be sunk for monitoring the water levels and quality around the mine representing both upstream and downstream conditions.

Impact on land use & reclamation of mined out areas

Opencast mining activities may alter the landscape of the lease area and also cause some disturbance to the surface features of the surrounding areas. Mining will be done after leaving 7.5 m safety barrier. Plantation will be developed in consultation with district administration/ local authority, wherever feasible. The Existing land use pattern is agricultural land.

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 next five years mining, 2.301 ha land will be degraded due to mining & allied activities.

All the quantities of top soil & interburden material to be generated by the end of plan/conceptual period shall be used for the purpose of reclamation over the mined unit land. Therefore no proposal for separate stacking of top soil and interburden dump has been proposed.

9.8 WASTE MANAGEMENT

Solid waste generation and management Disposal of Waste:

The top soil will be removed with the help of JCB machine, dozer, shovels, pickaxe, spade & crowbar and stacked separately. The soil intermixed with fragments and interburden rejects are low grade magnesite. Part of these rejects will be utilized in construction and maintenance of retaining walls, parapet walls, check dams and other construction works. About 25369 cum of rejects will be used for this task, and in dump yard remaining rejects about 101475 cum will be backfilled.

Mitigation measures

Access roads from public roads will be aligned in such a way that it would cause least damage.

The banks cut for ramp will also be restored at the closing of mine during monsoon. Vegetation development is proposed along the lease area as restoration work.

Plantation is proposed along the road sides, civic amenities in consultation with local/ govt. authorities. While selecting the plant species, preference will be given for planting native species of the area.

Storage and preservation of top soil:

The soil will be removed with the help of JCB machine, dozer, shovels, pickaxe, spade & crowbar and loaded manually to stack on the dump yard. Stacking will commence at RL 1518m to RL 1521m in first year, RL 1509m to RL 1518m in second year, RL 1515m to RL 1521m in third year & RL1542 m to RL 1545 m in fourth year & RL 1587 to 1590m in fifth year. The spread of stacks will be undertaken through mechanically and manually both & average dump height kept 1.5m. In first year 143 m2 areas was earmarked for stacking of soil with 1.5m height. In second area it is 150 m2 areas. Similarly in third, fourth & in fifth year 143 m2, 150 m2 and 143 m2 area have been respectively earmarked for stacking of soil with 1.5m average height.

Proposal for reclamation of land affected by mining activities:

The mining will commence from the higher levels and will advance towards lower levels. Intermittent backfilling will commence from the higher levels and subsequently advance towards the lower elevation so that terraced agriculture fields would undertake in such a manner that original land use will be restored i.e. before the onset of monsoon will be handed over to cultivators for cultivation. The final backfilling will be started once the ultimate benches are formed and pit reaches the optimum economic depth. All recovery of the mineral will be of the saleable grade.

9.9 GREENBELT AND PLANTATION

Plantation will be raised at a spacing of 7.5m along the boundaries of the mining lease by planting the native species around ML area, backfilled and reclaimed area, around water body, roads etc. in consultation with the local DFO/Agriculture department. The year wise plantation of trees has been shown in **Table 9.1**.

Table 9.1: Year wise afforestation scheduled

Year	Area (ha)	No of saplings
First year	0.077	347
Second year	0.061	275
Third year	0.063	284
Fourth year	0.050	225
Fifth year	0.059	266
Total	**0.31**	**1397**

***Besides these 15000 nos. of more samplings will be done all along the periphery of the mine lease area/in the nearby van panchayat land in Kabhata and Agar villages. Total no. of trees shall be planted in the first two years and in the next three years its maintenance will take place. Local native species like Peach (Khubani), Pears (Nashpati), Apricot (Aaru), Plumk, Mehal, Kaphal, Chilmora etc. shall be planted.**

The following characteristics should be taken into consideration while selecting plant species for green belt development and tree plantation.

- They should be fast growing and tall trees.
- They should be perennial and evergreen.
- They should have thick canopy cover.
- Plantation should be done in appropriate alternate rows around the proposed site to prevent lateral pollution dispersion.
- The trees should maintain regional ecological balance and conform to soil and hydrological conditions. Indigenous species should be preferred.

9.10 BIOLOGICAL MANAGEMENT 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 beauty of the core and the buffer zone. To achieve this, it is planned to increase plantation activities. The basic objectives of plantation are as follows:-

- Improvement of Soil quality.
- Quick vegetative cover to check soil erosion.
- Improvement in mining site stability.
- Conservation of biological diversity.
- As dust receptor which likely to produce during mining.

9.10.1 Greenbelt Development Plan

Green belt is plantation of trees for reducing the pollution as they absorb both gaseous and particulate pollutant, thus removing them from atmosphere. Green plants form a surface capable of absorbing air pollutants and forming sinks for pollutants. It improves the aesthetic value of local environment. Under present project, green belts have been planned with emphasis on creating biodiversity; enhance natural surroundings and mitigating pollution. The greenbelt development plan aims to overall improvement in the environmental conditions of the region. The plan with a five-fold objective addresses issues such as providing sink for air pollutants likely to emitted from the project; enhancing the forest cover for increasing the biodiversity of the region; providing aesthetic value to the project area enhancing the ecological equilibrium of the area; and to a large proportion in combating soil erosion.

- Afforestation on degraded forest area, forest protection / conservation will be carried out every year by the mine owner.
- This activity will promote the emergence of the primary succession species; hence it will be a silvicultural operation, extremely important for maintaining ecology and environmental health of the area.
- This helps in regeneration & establishment of pioneer plant species saving expose land & land cutting.

These plantations will be carried out around mining zone and both sides of the mine road. About twice the area recommended for mining will be used for afforestation/greenbelt as per the "Forest (Conservation) Amendment Rule, 2004".

The scheme of plantation around the project site is given as follows:
Afforestation will be put under a protective regulatory framework to ensure that it is not degraded or disturbed. No ecologically disruptive activity will be allowed in this zone.

The suggestive measures under EMP are given in **Table 9.2.**

Table 9.2: Key suggestive measures under EMP

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/importance of forest life. • No tract or new road for movement of labours or vehicles be laid in reserve forest area, this will prevent forest fragmentation, encroachment and human – animal encounter. • Care will be taken that noise produced during vehicles 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, noise level 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.

9.11 OCCUPATIONAL HAZARDS AND SAFETY

Occupational safety and health is very closely related to productivity and good employer-employee relationship. The factors of occupational health in proposed Soapstone Mining Project are mainly dust and land degradation. Safety of employees during operation and maintenance etc. shall be as per Mines rules and regulations.

To avoid any adverse effect on the health of workers due to various pollutants, sufficient measures relating to safety and health will also be practiced:

- Provision of rest shelters for mine workers with amenities like drinking water etc.
- All safety measures like use of safety appliances, such as dust masks, helmets, shoes, safety awareness programs, awards, posters, slogans related to safety etc.
- Training of employees for use of safety appliances and first aid in vocational training center.
- Regular maintenance and testing of all equipment as per manufacturers' guidelines.
- Periodical Medical Examination (PME) of all workers by a medical Officer
- First Aid facility is provided at the mine site.
- Close surveillance of the factors in working environment and work practices which may affect environment and worker's health.
- Working of mine as per approved mining plan and environmental plans.

9.12 ENVIRONMENTAL POLICY

The Owner of proposed Soapstone Mine believes that responsible environmental stewardship comprises diligent application of well-established natural resource management, controls and practices for the protection, reclamation of the mined out land, preservation of biodiversity and proper disposal of waste following the best environmental practices during the process of mining of soapstone.

Environmental policy prescribed for standard operating process to bring into focus any violation/deviation of the environment and forest norms/conditions that the company operations will implement operational and risk management practices that provide for maximum protection of people and the environment. To this end, the owner resolves that company will follow the below mentioned practices:

Operate in accordance with prescribed industry standards while complying with all applicable environmental, health and safety laws and regulations.

- Establish and maintain a well-defined environmental, health and safety management system to guide its operations.
- Ensure that all employees, officers and directors understand and adhere to its environmental, health and safety management program.
- Provide operations with the necessary resources, expertise and training to effectively carry out its EHS management programs.
- Engage employees at all levels in programs directed towards minimizing adverse effects on the environment resulting from mining activity.
- Work proactively with governments and the public in the development of cost effective and realistic regulations that promote enhanced environmental, health and safety protection.
- Promote environmental awareness among its employees, their families and the communities in which it operates.
- Require those who provide services and products to practice good environmental stewardship.
- Mitigate its environmental impacts through efficient use of resources, and the reduction of input materials and waste.
- Maintain a high degree of emergency preparedness.

9.13 BUDGET ALLOCATION FOR EMP IMPLEMENTATION

It is necessary to include the environmental cost as a part of the budgetary cost component. The project authorities propose to undertake the following environmental works to achieve the environmental quality as desired. The budget for EMP implementation has been shown in **Table 9.3.**

Table 9.3: Budget for Environmental Management Plan

S. No.	Measures	Cost (In Rs.)
1.	Water Sprinkling for dust suppression	1,50,000
2.	Environmental Monitoring : (i) Ambient Air Quality Monitoring (ii) Ambient Noise Monitoring (iii) Water Quality Sampling & Analysis (iv) Soil Quality Sampling & Analysis	1,00,000
3.	Plantation of 16397 trees along with their maintenance for green belt	16,39,700
4.	Cost for Retaining wall/Toe wall	1,00,000
Total		**19,89,700**

9.14 CORPORATE ENVIRONMENTAL RESPONSIBILITY (CER)

The cost towards Corporate Environmental Responsibility (CER) has been shown in **Table 9.4.**

Table 9.4: Budget for Corporate Environmental Responsibility (CER) (per year)

S. No.	Measures	Cost (In Rs.) (per year)
1.	Sanitation facilities	75,000
2.	Skill Development for villagers	75,000
3.	Awareness to local farmers to increase yield of crop and fodder	1,00,000
4.	Plantation in the community areas/schools and on van panchayat land of nearby villages	1,50,000
Total		**4,00,000**

9.15 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 proposed Soapstone Mine.

CHAPTER 10: SUMMARY AND CONCLUSIONS

10.0 INTRODUCTION

10.1 PURPOSE OF THE REPORT

M/s Devbhoomi mine proposes the Soapstone Mine extending over an area of 15.304 ha [30,000 TPA (maximum) of Soapstone] in Village- Kabhata, Tehsil – Kanda, District-Bageshwar, Uttarakhand. The proposal for TOR was considered in its meeting dated 03 June 2021 and since the project is greater than 5 ha and it comes under category B1 therefore comprehensive EIA report shall be prepared. The draft Environmental Impact Assessment report has been prepared to comply with the standard Terms of Reference (ToR), under EIA notification of the MoEF&CC dated 14th September, 2006 and amended thereof, for seeking environmental clearance for mining of soapstone in the applied mining lease area.

10.2 IDENTIFICATION OF PROJECT & PROJECT PROPONENT

10.2.1 Identification of Project

The Proposed Soapstone mine is executed over an area of 15.304 ha in Village-Kabhata, Tehsil – Kanda, District-Bageshwar, Uttarakhand. The maximum production rate is of 30,000 TPA of soapstone production.

The cost of the project is Rs.40 lakhs.

10.2.2 Project Proponent

M/s Devbhoomi mine is a private company. The proposed Soapstone Mine extends over an area of 15.304 Ha (30,000 TPA (maximum) of Soapstone) in Village- , Tehsil & District - Bageshwar, Uttarakhand. The LOI of proposed Soapstone Mine was granted in favour of M/s Devibhoomi Mine for period of 50 years by the Govt. of Uttarakhand. The proposed rate of production is 30,000 TPA (maximum) of soapstone. The estimated project cost is Rs 40 lakhs. The expected life of mine is 50 years.

Address of the applicant

M/s Ramesh Kumar Pandey (Partner)
Village Kabhata, Tehsil - Kanda
District Bageshwar, Uttarakhand-263642

10.3 BRIEF DESCRIPTION OF PROJECT

10.3.1 Nature of the Project

The proposed Soapstone Mine, project will adopt opencast manual cum semi mechanized method. The mine is executed over a lease area of about 15.304 ha, for the production of 30,000 TPA of soapstone.

Therefore as per the EIA Notification dated 15th January, 2016 and 1st July, 2016, the project comes under “B1” Category since the area is greater than 5 ha.

10.3.2 Size of the Project

The proposed Soapstone mining project extends over an area of 15.304 ha with the target maximum production capacity of mine is about 30,000 TPA (maximum) of Soapstone.

10.3.3 Anticipated Life of Project and Cost of the Project

The projected life of the mine is 50 years. The cost of the project is about Rs. 40 lakhs.

10.3.4 Location of the Project

The proposed Soapstone Mine lease comes under Village-Kabhata Tehsil- Kanda, District-Bageshwar, Uttarakhand. Geo-graphically the ML area extends from North Latitude 29° 49' 07.95" N to 29° 49' 23.26"N and East Longitude 79° 55' 25.16" E to 79° 55' 59.99" E with an elevation of about 1187 m reduced level (RL). The area falls in Survey of India topo sheet No. 53 O/13.

10.4 PROJECT DESCRIPTION

10.4.1 Salient Features of Mine Lease

The salient features of mine lease are given in **Table 10.1** below:

Table 10.1: Salient Features of mine lease area

Sr. No.	Parameter	Description
1	Name of the Mine	Proposed Soapstone Mining Project at Village-Kabhata, Tehsil – Kanda, District-Bageshwar,
2	Mining Capacity	30,000 (maximum) TPA of Soapstone
3	Longitude Latitude	29°52’2.62" N to 29°52’17.80" N and 79°49’25.71" E to 79° 49’ 39.22" E
4	Method of mining	Opencast semi mechanized method
5	Total ML area	15.304
6	Extent of mechanization	Excavator shall be deployed for extraction of top soil, interburden and mineral. No drilling and blasting will be done.
7	Bench height & width	3m
8	Bench Slope	60^{o} to 65^{o}
9	Slope of track	1:8 to 1:20
10	Transportation of Material	The mineral will be supplied in the local market by trucks/tippers.
11	Manpower	71 persons
12	Water Requirement	10 KLD
13	Source of Water	Village Panchayat
14	Greenbelt development / Plantation (Mine life end)	0.310 ha
15.	No. of saplings proposed in the next 5 years	16397

10.4.2 Mine Development and Production

The mining will be done semi-mechanized way in open cast method in quite a systematic manner by forming 6m high benches. However, there may be minor variation in the width and-height which the lessee will keep on mending. The top soil and interburden to be scrapped with the help of JCB machine, dozer, shovels, pickaxe, spade & crowbar and will be stacked separately in dump yard located near the working pit. The developmental working will be done by construction of road/track to different working benches, removal of top soil and interburden. The soil will be filled into the bags, loaded on mules and unload into stockyard.

Year wise Production details are given in **Table 10.2** below.

Table 10.2: Year wise Production of Soapstone Mine

Years	Saleable soapstone (Tonnes)
1st	28000
2nd	29000
3rd	30000
4th	28000
5th	29000
Total	**144000**

The quantity of soil, interburden from pit to be generated during next five years is given in **Table 10.3** below:

Table 10.3: Quantity of Top Soil and interburden of Soapstone Mine

Years	Top Soil (cum)	Interburden (cum)
1st	5107	18444
2nd	3916	19585
3rd	3841	17312
4th	4318	16162
5th	6191	31968
Total	**23373**	**103471**

10.4.3 Method of Mining

The mining will be done semi-mechanized way in open cast method in quite a systematic manner by forming 9 m high benches with1.5m sub-benches. The face slope of benches shall be 60^o – 65^o with 45^o overall pit slope. Average thickness of soil has been considered as 0.50m & it shall be stacked separately. All operations of mining will be carried by using JCB as well as conventional manual means using crowbars, spades and chisel etc as well as by using excavator. The production has been proposed in quarry of the ML area. No deep hole drilling and blasting is proposed.

10.5 IMPACT ON LAND USE, RECLAMATION OF MINED OUT AREAS AND AFFORESTATION PROGRAMME

Impact on land use & reclamation of mined out areas

Opencast mining activities may alter the landscape of the lease area and also cause some disturbance to the surface features of the surrounding areas. Mining will be done after leaving 7.5 m safety barrier.

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

The Existing land use pattern is agricultural land. 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 next five years mining, 2.798 ha land will be backfilled by the mine owners.

Proposal for reclamation of land affected by mining activities:

The mining will commence from the higher levels and will advance towards lower levels. Intermittent backfilling will commence from the higher levels and subsequently advance towards the lower elevation so that terraced agriculture fields would undertake in such a manner that original land use will be restored i.e. before the onset of monsoon will be handed over to cultivators for cultivation. The final backfilling will be started once the ultimate benches are formed and pit reaches the optimum economic depth. All recovery of the mineral will be of the saleable grade.

Plantation will be raised in 7.5m barrier zone along the boundaries of the mining lease area by planting the native species around ML area, backfilled and reclaimed area, around water body, roads etc. in consultation with the local DFO/Agriculture department. The details of the year wise plantation have been shown in **Table 10.4**.

Table 10.4: Year wise Afforestation scheduled

Year	Area (ha)	No of saplings
First year	0.077	347
Second year	0.061	275
Third year	0.063	284
Fourth year	0.050	225
Fifth year	0.059	266
Total	**0.31**	**1397***

***Besides these 15000 nos. of more samplings will be done all along the periphery of the mine lease area/in the nearby van panchayat land in Kabhata and Agar villages. Total no. of trees shall be planted in the first two years and in the next three years its maintenance will take place. Local native species like Peach (Khubani), Pears (Nashpati), Apricot (Aaru), Plumk, Mehal, Kaphal, Chilmora etc. shall be planted**

10.6 LAND USE PATTERN

Presently (pre-mining), the land covered under the mine lease area is non-forest agricultural land.

10.7 BASELINE ENVIRONMENTAL STATUS

10.7.1 Soil Quality

05 soil samples were collected in and around the mine lease area to assess the present soil quality of the region. In the study area, variations in the pH of the soil were found to be slightly basic (7.32 to 7.65). Electrical conductivity (EC) is a measure of the soluble salts and ionic activity in the soil. In the collected soil samples the conductivity ranged from 250.65 – 290.17µmhos/cm.
Based on the results, it is evident that the soils are not contaminated by any polluting sources.

10.7.2 Meteorology

Meteorological data at the site was monitored during December 2020 to February 2021 representing winter season.

10.7.3 Ambient Air Quality

Ambient Air Quality Monitoring (AAQM) has been carried out at five locations during pre-monsoon season from December 2020 to February 2021 The minimum and maximum level of PM10 recorded within the study area was in the range of 36.2 µg/m^3 to 68.5 µg/m^3 µg/m3 with the 98th percentile ranging between 52.5 µg/m^3 to 68.4 µg/m^3. The minimum and maximum level of PM2.5 recorded within the study area was in the range of 12.4 µg/m^3 to 30.7µg/m3 with the 98th percentile ranging between 23.2 µg/m^3 to 30.5 µg/m3. The minimum and maximum concentration of SO2 recorded within the study area was 5.0 to 8.9 µg/m3 with the 98th percentile ranging between 5.7 µg/m^3 to 8.7 µg/m3. The minimum and maximum level of NO2 recorded within the study area was in the range of was 7.3 µg/m^3 to 16.3 µg/m3 with the 98th percentile ranging between 13.2 µg/m^3 to 15.7 µg/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.

10.7.4 Water Quality

To assess the physical and chemical properties of water in the region, water samples from 8 locations were collected from various water sources around the mine lease area.

The pH was varying for ground water from 7.50 to 7.78 and the surface water are 7.58 to 7.68. The total dissolved solids in ground water are varying from 190.16 mg/l to 390.60 mg/l whereas in surface water varying from 185.36 mg/l to 188.24 mg/l. The chloride level in the ground water samples collected in the study area were ranging from 12.6 mg/l to a maximum of 47 mg/l, in surface water samples 16.7 mg/l to 18.2 mg/l. The hardness is varying from the hardness is varying from 182.44 mg/l to 248.6 mg/l, in surface water samples 186.12 mg/l to 188.22 mg/l.

The results indicate groundwater is generally in conformity with the drinking water standards (IS: 10500:2012) and surface water is in conformity with IS-2296 standards.

10.7.5 Noise Levels

Ambient noise levels were measured at Five locations around the proposed mine site. Assessment of average logarithm night time Leq (Ln) varies from 37.9 to 52.7 dB (A) and the average logarithm daytime Leq (Ld) varies from 48.2 to 60.1 dB (A) within the study area.

10.7.6 Ecological Environment

Based on the field studies and review of published literature, it is observed that there are two Schedule-I species present in the study area of the mine lease area i.e. Indian Leopard and Asiatic Black Bear. There are no wildlife sanctuaries and National Parks within the study area of 10-km radius. However, the nearest RF from the mine lease is Kabhata Reserve Forest at a distance of 1 km.

10.7.7 Social Environment

According to the 2011 census of India, Bageshwar has a population of 2,59,898. The total SC population in Bageshwar district is 72,061 which is 27.72% of the total population, while ST population is 1982, which is 0.76% of the total population. The literate population in Bageshwar district is 1,79,483, out of which male & female are 97,546 and 81,937 respectively. The male literates represent 54.35% while female represent 45.65% of the total population.

10.8 ANTICIPATED ENVIRONMENTAL IMPACTS

10.8.1 Impact on Air Quality

Soapstone mine where PM_{10} and $PM_{2.5}$ will be the main pollutants generated in mining activities. The emissions of Sulphur dioxide (SO_2), Nitrogen Oxide (NO_2) 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 PM_{10} and $PM_{2.5}$ 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

10.8.2 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

The water table in hills is usually very deep and does not have any relevance with mining activities. However, concurrent restoration to original topography will not be disturbing the percolating water.

10.8.3 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.

10.8.4 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 soapstone and men, it is imperative that noise levels would increase. Assessment of average logarithm night time Leq (Ln) varies from 35.4 to 46.2 dB (A) and the average logarithm daytime Leq (Ld) varies from 41.7 to 51.3 dB (A) within the study area. It is also observed that these incremental noise levels will not significantly affect the existing ambient noise levels.

10.8.5 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 soil erosion from overburden and interburden dumps is not envisaged in the present project, as sufficient measures as detailed in the EMP would be undertaken.

10.8.6 Impact on Flora and Fauna

There is no forest area in the core zone area of the lease. As the mining activity is restricted to core zone, no significant impact on the flora of the buffer zone due to the proposed mining of Soapstone is anticipated.

It is proposed to include *Alternanthera paronychioides, Cassia tora* and *Holoptelea integrifolia* in the plantation program as they serve as sinks for gaseous emissions. Extensive plantation comprising of pollutant resistant trees will be undertaken, which will serve not only as pollution sink but also as a noise barrier.

The incremental dust generations due to the mining operations, at the boundary of the mine lease are insignificant and it is also expected that with the adoption of mitigatory measures as suggested in EMP, the impact due to operation of the mine will be minimal on the terrestrial ecosystem and also on the adjacent forest area.

The impact on the fauna of the buffer zone due to the mining activity will be marginal. The proposed progressive plantation over a period of time will reduce the impact, if any, on the fauna.

10.8.7 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.

10.8.8 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 Soapstone 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.

10.9 ENVIRONMENTAL MANAGEMENT PLAN

The summary of environmental mitigation measures are given in **Table-10.5**.

Table-10.5: 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/importance of forest life. • No tract or new road for movement of labours or vehicles be laid in reserve forest area, this will prevent forest fragmentation, encroachment and human – animal encounter. • Care will be taken that noise produced during vehicles 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, noise level 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.

10.10 ANALYSIS OF ALTERNATIVES

The Soapstone has been identified based on the result of geological investigations and exploration carried out by the Geological Survey of India (GSI). The mining projects are site specific as such alternate sites were not considered.

The mine is operated by opencast cum semi-mechanized 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.

10.11 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 **Table 10.6**, **Table 10.7** and **Table 10.8** respectively**.**

Table-10.6: Budget for Environmental Management Plan

S. No.	Measures	Cost (In Rs.)
1.	Water Sprinkling for dust suppression	1,50,000
2.	Environmental Monitoring : (i) Ambient Air Quality Monitoring (ii) Ambient Noise Monitoring (iii) Water Quality Sampling & Analysis (iv) Soil Quality Sampling & Analysis	1,00,000
3.	Plantation of 16397 trees along with their maintenance for green belt	16,39,700
4.	Cost for Retaining wall/Toe wall	1,00,000
Total		**19,89,700**

Table 10.7: Budget for Corporate Environmental Responsibility (CER) (per year)

S. No.	Measures	Cost (In Rs.) (per year)
1.	Sanitation facilities	75,000
2.	Skill Development for villagers	75,000
3.	Awareness to local farmers to increase yield of crop and fodder	1,00,000
4.	Plantation in the community areas/schools and on van panchayat land of nearby villages	1,50,000
Total		**4,00,000**

Table 10.8: Year wise allocation of funds for the various activities proposed to be taken up under CSR programme

S. No.	Activities	Allocation of Fund (Rs.)
1	Health Camps	1,00,000
2	Drinking Water Facilities	1,00,000
3	Maintenance of foot track	75,000
4	Donation for Temple Construction	75,000
5	Donation for cultural activities in the surrounding areas	50,000
Total		**4,00,000**

10.12 ADDITIONAL STUDIES

10.12.1 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.

10.12.2 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.

10.13 PUBLIC CONSULTATION

10.13.1 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 Environment Protection & Pollution Control Board (UEPPCB) for public hearing

10.14 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.

10.15 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.

Chapter 11: DISCLOSURE OF CONSULTANT ENGAGED

Declaration by Experts contributing to the EIA: Mining of Soapstone from Lease Area (15.304 Ha.) at Village- Kabhata, Tehsil - Kanda, District - Bageshwar, Uttarakhand. I, Vijay Sharma hereby certify that I was a part of the EIA team in the following capacity that developed the above EIA.

EIA coordinator

Name: Vijay Sharma

Signature and Date:

02-07-2021

Period of Involvement: December, 2020 to Till date

Contact Information: vijaysharmav07@gmail.com

Functional area experts:

S. No.	Functional Areas	Name of the experts	Signature
1.	EIA Coordinator and FAE in AQ, NV and SHW	Sanjeev Sharma	
2.	WP and RH	Anoop Kishore Misra	
3.	SC	ML Sharma	
4.	SE	Ashok Suyal	
5.	EB	Kashmir Singh Pal	
6.	HG	Mr. RK Mishra	
7.	GEO	B. M. Sinha	
8.	AP	Vijay Sharma	
9.	LU	Yasir Ahmed	
10.	Noise and Team Member	Rishabh Sehgal	

Declaration of association in the EIA

Declaration by the Head of the accredited consultant organization/ authorized person

I, ML Sharma hereby, confirm that the above-mentioned experts prepared the EIA of Mining of Soapstone from Lease Area (15.304 Ha.) at Village- Kabhata, Tehsil: Kanda & District - Bageshwar, Uttarakhand. for M/s Devbhoomi Mines. I also confirm that the consultant organization shall be fully accountable for any mis-leading information mentioned in this statement.

Signature:

Name: ML Sharma

Designation: Director

Name of the EIA consultant organization: Enviro Infra Solutions Pvt. Ltd.

NABET Certificate No. & Issue Date: NABET/EIA/1619/IA 0018 dated January 05 2017

ANNEXURE I: COPY OF APPROVED TERMS OF REFERENCE (TOR)

कार्यालय राज्य स्तर पर्यावरण समाघात निर्धारण प्राधिकरण (SEIAA) व
राज्य विशेषज्ञ अंकन समिति (SEAC), उत्तराखण्ड।
653, इन्दिरा नगर कालोनी, सीमाद्वार रोड, देहरादून–248006 ।

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पत्र संख्या–224 /SEAC दिनांक– 15 जून, 2021

To,

M/s Devbhoomi Mines by Shri Ramesh Chandra Pandey (Partner),
Village Mandalsera, Tehsil & District Bageshwar.

Sub- Regarding Environmental Clearance for Extraction of Soapstone at Village Kabhata, Tehsil Kanda & District Bageshwar. (Area- 15.304 Ha.).

Dear Sir/Madam,

Kindly take reference of your submitted vide proposal no SIA/UK/MIN/63084/2021 on dated 5th May, 2021 regarding above proposal. The SEAC in its meeting dated 3rd June, 2021 examined the proposal submitted by you. After through discussion and deliberation, it has been conveyed that SEAC desires Rapid EIA report of this proposal after due public consultation conducted by Uttarakhand Environment Protection and Pollution Control Board. The terms of reference (TOR) for the EIA report is being out lined below:-

1(a): STANDARD TERMS OF REFERENCE FOR CONDUCTING ENVIRONMENT IMPACT ASSESSMENT STUDY FOR NON-COAL MINING PROJECTS AND INFORMATION TO BE INCLUDED IN EIA/EMP REPORT

1) Year-wise production details since 1994 should be given, clearly stating the highest production achieved in any one year prior to 1994. It may also be categorically informed whether there had been any increase in production after the EIA Notification 1994 came into force, w.r.t. the highest production achieved prior to 1994.
2) A copy of the document in support of the fact that the Proponent is the rightful lessee of the mine should be given.
3) All documents including approved mine plan, EIA and Public Hearing should be compatible with one another in terms of the mine lease area, production levels, waste generation and its management, mining technology etc. and should be in the name of the lessee. The above reports should also match with the latest District Survey Report (DSR) notification no- 2827 dated 25th July, 2018. **Data obtained from this DSR should be incorporated in the EIA Report for Impact Identification, Interpretation, Prediction, Carrying Capacity and Mitigation.**
4) All corner coordinates of the mine lease area, superimposed on a High Resolution Imagery/ toposheet, topographic sheet, geomorphology and geology of the area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).
5) Information should be provided in Survey of India Toposheet in 1:50,000 scale indicating geological map of the area, geomorphology of land forms of the area, existing minerals and mining history of the area, important water bodies, streams and rivers and soil characteristics.
6) Details about the land proposed for mining activities should be given with information as to whether mining conforms to the land use policy of the State; land diversion for mining should have approval from State land use board or the concerned authority.
7) It should be clearly stated whether the proponent Company has a well laid down Environment. Policy approved by its Board of Directors? If so, it may be spelt out in the EIA Report with description of the prescribed operating process/procedures to bring into focus any infringement/deviation/violation of the environmental or forest norms/ conditions? The hierarchical system or administrative order of the Company to deal with the environmental issues and for ensuring compliance with the EC conditions may also be given. The system of reporting of non-compliances / violations of environmental norms to the Board of Directors of the Company and/or shareholders or stakeholders at large, may also be detailed in the EIA Report.
8) Issues relating to Mine Safety, including subsidence study in case of underground mining and slope study in case of open cast mining, blasting study etc. should be detailed. The proposed safeguard measures in each case should also be provided.
9) The study area will comprise of 10 km zone around the mine lease from lease periphery and the data contained in the EIA such as waste generation etc. should be for the life of the mine / lease period.
10) Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features

should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.

11) Details of the land for any Over Burden Dumps outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be given.
12) A Certificate from the Competent Authority in the State Forest Department should be provided, confirming the involvement of forest land, if any, in the project area. In the event of any contrary claim by the Project Proponent regarding the status of forests, the site may be inspected by the State Forest Department along with the Regional Office of the Ministry to ascertain the status of forests, based on which, the Certificate in this regard as mentioned above be issued. In all such cases, it would be desirable for representative of the State Forest Department to assist the Expert Appraisal Committees.
13) Status of forestry clearance for the broken up area and virgin forestland involved in the Project including deposition of net present value (NPV) and compensatory afforestation (CA) should be indicated. A copy of the forestry clearance should also be furnished.
14) Implementation status of recognition of forest rights under the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 should be indicated.
15) The vegetation in the RF / PF areas in the study area, with necessary details, should be given.
16) A study shall be got done to ascertain the impact of the Mining Project on wildlife of the study area and details furnished. Impact of the project on the wildlife in the surrounding and any other protected area and accordingly, detailed mitigative measures required, should be worked out with cost implications and submitted.
17) Location of National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Ramsar site Tiger/Elephant Reserves/(existing as well as proposed), if any, within 10 km of the mine lease should be clearly indicated, supported by a location map duly authenticated by Chief Wildlife Warden. Necessary clearance, as may be applicable to such projects due to proximity of the ecologically sensitive areas as mentioned above, should be obtained from the Standing Committee of National Board of Wildlife and copy furnished.
18) A detailed biological study of the study area [core zone and buffer zone (10 km radius of the periphery of the mine lease)] shall be carried out. Details of flora and fauna, endangered, endemic and RET Species duly authenticated, separately for core and buffer zone should be furnished based on such primary field survey, clearly indicating the Schedule of the fauna present. In case of any scheduled- I fauna found in the study area, the necessary plan alongwith budgetary provisions for their conservation should be prepared in consultation with State Forest and Wildlife Department and details furnished. Necessary allocation of funds for implementing the same should be made as part of the project cost.
19) Proximity to Areas declared as 'Critically Polluted' or the Project areas likely to come under the 'Aravali Range', (attracting court restrictions for mining operations), should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the SPCB or State Mining Department should be secured and furnished to the effect that the proposed mining activities could be considered.
20) R&R Plan/compensation details for the Project Affected People (PAP) should be furnished. While preparing the R&R Plan, the relevant State/National Rehabilitation & Resettlement Policy should be kept in view. In respect of SCs /STs and other weaker sections of the society in the study area, a need based sample survey, family-wise, should be undertaken to assess their requirements, and action programmes prepared and submitted accordingly, integrating the sectoral programmes of line departments of the State Government. It may be clearly brought out whether the village(s) located in the mine lease area will be shifted or not. The issues relating to shifting of village(s) including their R&R and socio-economic aspects should be discussed in the Report.
21) One season (non-monsoon) [i.e. March-May (Summer Season); October-December (post monsoon season) ; December-February (winter season)]primary baseline data on ambient air quality as per CPCB Notification of 2009, water quality, noise level, soil and flora and fauna shall be collected and the AAQ and other data so compiled presented date-wise in the EIA and EMP Report. Site-specific meteorological data should also be collected. The location of the monitoring stations should be such as to represent whole of the study area and justified keeping in view the pre-dominant downwind direction and location of sensitive receptors. There should be at least one monitoring station within 500 m of the mine lease in the pre-dominant downwind direction. The mineralogical composition of PM10, particularly for free silica, should be given.
22) Air quality modeling should be carried out for prediction of impact of the project on the air quality of the area. It should also take into account the impact of movement of vehicles for transportation of mineral. The details of the model used and input parameters used for modeling should be provided. The air quality contours may be shown on a location map clearly indicating the location of the site, location of sensitive receptors, if any, and the habitation. The wind roses showing pre-dominant wind direction may also be indicated on the map.
23) The water requirement for the Project, its availability and source should be furnished. A detailed water balance should also be provided. Fresh water requirement for the Project should be indicated.
24) Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project should be provided.

25) Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.
26) Impact of the Project on the water quality, both surface and groundwater, should be assessed and necessary safeguard measures, if any required, should be provided.
27) Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided. In case the working will intersect groundwater table, a detailed Hydro Geological Study should be undertaken and Report furnished. The Report inter-alia, shall include details of the aquifers present and impact of mining activities on these aquifers. Necessary permission from Central Ground Water Authority for working below ground water and for pumping of ground water should also be obtained and copy furnished.
28) Details of any stream, seasonal or otherwise, passing through the lease area and modification/diversion proposed, if any, and the impact of the same on the hydrology should be brought out.
29) Information on site elevation, working depth, groundwater table etc. Should be provided both in AMSL and bgl. A schematic diagram may also be provided for the same.
30) A time bound Progressive Greenbelt Development Plan shall be prepared in a tabular form (indicating the linear and quantitative coverage, plant species and time frame) and submitted, keeping in mind, the same will have to be executed up front on commencement of the Project. Phase-wise plan of plantation and compensatory afforestation should be charted clearly indicating the area to be covered under plantation and the species to be planted. The details of plantation already done should be given. The plant species selected for green belt should have greater ecological value and should be of good utility value to the local population with emphasis on local and native species and the species which are tolerant to pollution.
31) Impact on local transport infrastructure due to the Project should be indicated. Projected increase in truck traffic as a result of the Project in the present road network (including those outside the Project area) should be worked out, indicating whether it is capable of handling the incremental load. Arrangement for improving the infrastructure, if contemplated (including action to be taken by other agencies such as State Government) should be covered. Project Proponent shall conduct Impact of Transportation study as per Indian Road Congress Guidelines.
32) Details of the onsite shelter and facilities to be provided to the mine workers should be included in the EIA Report.
33) Conceptual post mining land use and Reclamation and Restoration of mined out areas (with plans and with adequate number of sections) should be given in the EIA report.
34) Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.
35) Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.
36) Measures of socio economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.
37) Detailed environmental management plan (EMP) to mitigate the environmental impacts which, should inter-alia include the impacts of change of land use, loss of agricultural and grazing land, if any, occupational health impacts besides other impacts specific to the proposed Project.
38) Public Hearing points raised and commitment of the Project Proponent on the same along with time bound Action Plan with budgetary provisions to implement the same should be provided and also incorporated in the final EIA/EMP Report of the Project.
39) Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.
40) The cost of the Project (capital cost and recurring cost) as well as the cost towards implementation of EMP should be clearly spelt out.
41) A Disaster management Plan shall be prepared and included in the EIA/EMP Report.
42) Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.
43) **Besides the above, the below mentioned general points are also to be followed:-**
    a) Executive Summary of the EIA/EMP Report
    b) All documents to be properly referenced with index and continuous page numbering.
    c) Where data are presented in the Report especially in Tables, the period in which the data were collected and the sources should be indicated.
    d) Project Proponent shall enclose all the analysis/testing reports of water, air, soil, noise etc. using the MoEF&CC/NABL accredited laboratories. All the original analysis/testing reports should be available during appraisal of the Project.
    e) Where the documents provided are in a language other than English, an English translation should be provided.

f) The Questionnaire for environmental appraisal of mining projects as devised earlier by the Ministry shall also be filled and submitted.
g) While preparing the EIA report, the instructions for the Proponents and instructions for the Consultants issued by MoEF&CC vide O.M. No. J-11013/41/2006-IA.II(I) dated 4th August, 2009, which are available on the website of this Ministry, should be followed.
h) Changes, if any made in the basic scope and project parameters (as submitted in Form-I and the PFR for securing the TOR) should be brought to the attention of MoEF&CC with reasons for such changes and permission should be sought, as the TOR may also have to be altered. Post Public Hearing changes in structure and content of the draft EIA/EMP (other than modifications arising out of the P.H. process) will entail conducting the PH again with the revised documentation.
i) As per the circular no. J-11011/618/2010-IA.II(I) dated 30.5.2012, certified report of the status of compliance of the conditions stipulated in the environment clearance for the existing operations of the project, should be obtained from the Regional Office of Ministry of Environment, Forest and Climate Change, as may be applicable.
j) The EIA report should also include (i) surface plan of the area indicating contours of main topographic features, drainage and mining area, (ii) geological maps and sections and (iii) sections of the mine pit and external dumps, if any, clearly showing the land features of the adjoining area.

***Note**: 1) The study area shall comprise of radial distance of 10 KM from the project site and the study period is three months. The impact on each of the above parameter as a result of mining shall be assessed through appropriate modeling and prediction methods considering base line data.*

2) District Survey Report should be submitted as per the latest notification no- 2827 dated- 25-7-2018

Hence you are kindly requested to kindly submit EIA report for further necessary action.

(Rajiv Dhiman)
Member Secretary,
SEAC, Uttarakhand

Copy to:- Member Secretary, Gaura Devi Paryavaran Bhavan Environment Protection and Pollution Control Board, IT, Park Dehradun for necessary action.

(Rajiv Dhiman)
Member Secretary,
SEAC, Uttarakhand

ANNEXURE II: COPY OF LETTER OF INTENT (LOI)

Annexure-1

उत्तराखण्ड शासन
औद्योगिक विकास अनुभाग–1
संख्याः 084/VII-1/2018/9 सोपस्टोन/17
देहरादूनःदिनांकः 16 मई, 2018

कार्यालय ज्ञाप

जनपद बागेश्वर व तहसील कांण्डा के ग्राम कमाटा में 15.313 है० भूमि में उप खनिज सोपस्टोन का खनन पट्टा चाहने हेतु मै० देवभूमि माईन्स पाटनर्स 1. श्री रमेश चन्द्र पाण्डे पुत्र श्री गोपाल दत्त, ग्राम मण्डलसेरा, तहसील व जिला बागेश्वर, 2. श्री उमेश चन्द्र पाण्डे पुत्र श्री गिरीश चन्द्र पाण्डे, कुनेडा, तहसील कांण्डा, जिला बागेश्वर 3. श्री अश्वनी वार्ष्णेय, निवासी जज फार्म, आवास विकास कालोनी, हल्द्वानी जिला नैनीताल एवं 4. श्री मनोज डांगा, निवासी आवास विकास कॉलोनी, हल्द्वानी, जिला नैनीताल के आवेदन पत्र दिनांक 22.09.2016 के क्रम में इस आशय पत्र (letter of Intent) के माध्यम से राज्य सरकार मै० देवभूमि माईन्स पाटनर्स 1. श्री रमेश चन्द्र पाण्डे पुत्र श्री गोपाल दत्त, ग्राम मण्डलसेरा, तहसील व जिला बागेश्वर, 2. श्री उमेश चन्द्र पाण्डे पुत्र श्री गिरीश चन्द्र पाण्डे, कुनेडा, तहसील कांण्डा, जिला बागेश्वर 3. श्री अश्वनी वार्ष्णेय, निवासी जज फार्म, आवास विकास कालोनी, हल्द्वानी जिला नैनीताल एवं 4. श्री मनोज डागा, निवासी आवास विकास कॉलोनी, हल्द्वानी, जिला नैनीताल के पक्ष में जनपद बागेश्वर व तहसील कांण्डा के ग्राम कमाटा में 15.313 है० भूमि में उत्तराखण्ड गौण खनिज नीति, 2015 (यथासंशोधित, 2017) के प्रावधानानुसार उपखनिज सोपस्टोन का 50 वर्ष की अवधि हेतु खनन पट्टा स्वीकृत करने की मंशा रखती है। आवेदक यदि उक्त खनन पट्टा लेने हेतु सहमत हों तो निम्नलिखित शर्तों का अनुपालन पत्र प्राप्ति के छः माह में प्रस्तुत करें, जिससे खनन पट्टे की औपचारिक स्वीकृति जारी की जा सके :–

1. आवेदक द्वारा उत्तराखण्ड गौण खनिज नीति, 2015, यथासंशोधित, 2017 के नियमों/प्रतिबन्धों पर लिखित सहमति पत्र।
2. उत्तराखण्ड गौण खनिज नीति, 2015 के प्रस्तर 3(दो)(5) के अनुसार पट्टाधारक द्वारा खनन योजना संबंधित खान अधिकारी/उप निदेशक (खनन) के समक्ष ₹ 20,000/–की धनराशि निर्धारित लेखाशीर्षक में ट्रेजरी चालान के माध्यम् से जमा कराने के उपरान्त चालान की प्रति के साथ प्रस्तुत की जायेगी।
3. आवेदक द्वारा उत्तराखण्ड गौण खनिज नीति, 2015 के प्रस्तर–3(ग्यारह) में शासनादेश संख्या–1589/VII-1/2015/68–ख/2015, दिनांक 7 अक्टूबर 2015 के द्वारा किये गये संशोधन के अनुसार, बैंक गारन्टी ₹ 1.00 लाख मैनुअल माईनिंग एवं ₹ 2.00 लाख मशीनीकृत माईनिंग हेतु निदेशक के पक्ष में प्रस्तुत करनी होगी ।
4. उत्तराखण्ड गौण खनिज नीति, 2015 के प्रस्तर–7 के अनुसार पट्टाधारक को खनन पट्टे में पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय भारत सरकार की अधिसूचना का0आ0 2601 (अ) दिनांक 07 अक्टूबर 2014 के क्रम में जारी शासनादेश संख्या–1621/VII-1/212–ख /2014, दिनांक 17 दिसम्बर 2014 के अनुसार पर्यावरणीय अनुमति प्राप्त किया जाना आवश्यक होगा।
5. उत्तराखण्ड गौण खनिज नीति, 2015 के प्रस्तर–6 के अनुसार आवेदक को प्रतिभूति धनराशि ₹ 10,000/– निदेशक, भूतत्व एवं खनिकर्म के पक्ष में बन्धक करना होगा।
6. आवेदक को खनन पट्टे का टिन/जी०एस०टी नम्बर देना अनिवार्य होगा।
7. राजस्व विभाग द्वारा निजी भूमि धारकों की सूची खसरा विवरण सहित साफ्ट कापी एवं हार्ड कापी ए–4 साईज में निदेशालय एवं शासन को उपलब्ध करायी जाएगी, जिसको खनन पट्टा विलेख में सम्मिलित किया जाना होगा।
8. खनन पट्टा क्षेत्रान्तर्गत सार्वजनिक उपयोग की भूमि 0.324 है० भूमि में खनन कार्य निषिद्ध रहेगा।
9. प्रभागीय वनाधिकारी, बागेश्वर, वन प्रभाग, बागेश्वर के पत्र संख्या–137/9–2, दिनांक 7.12.2016 अनुसार प्रश्नगत भूमि में उपलब्ध विभिन्न प्रजाति/व्यास के 54 वृक्षों की सुरक्षा का दायित्व आवेदक का होगा। वृक्षों की सुरक्षा वन विभाग द्वारा निहित प्राविधानों के अनुसार किया जाना अनिवार्य होगा।
10. प्रस्तावित क्षेत्र का सीमाबन्धन भूतत्व एवं खनिकर्म इकाई के अधिकारियों द्वारा राजस्व विभाग तथा प्रभागीय वनाधिकारी, बागेश्वर वन प्रभाग के प्रतिनिधि के द्वारा संयुक्त रूप से किया जायेगा। सीमाबन्धन के समय यदि कोई क्षेत्र का कोई भाग आपत्तिजनक पाया जाता है, तो उसे पृथक कर दिया जायेगा, जिसके फलस्वरूप क्षेत्र अथवा क्षेत्रफल में कोई परिवर्तन किया जाता है, तो वह आवेदक को मान्य होगा।

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11. जिलाधिकारी, बागेश्वर द्वारा सीमाबन्धन रिपोर्ट में इस आशय का प्रमाण पत्र दिया जाये कि खनन पट्टा हेतु प्रस्तावित सीमाबन्धित क्षेत्र में ऐसी कोई भूमि सम्मिलित नहीं है, जो वन संरक्षण अधिनियम, 1980 के प्रावधानों से प्रभावित हो तथा वन भूमि सीमाबन्धित क्षेत्र की परिधि से कम से कम 100 मीटर की दूरी पर है तथा सीमाबन्धित क्षेत्र के अर्न्तगत आने वाले खसरों का विवरण राजस्व विभाग द्वारा भूमिधारकों की सूची,खसरा विवरण सहित साफ्ट एवं हार्ड कापी–ए–4 साईज के पेपर पर अंकित एवं सत्यापित कर भूतत्व एवं खनिकर्म निदेशालय एवं शासन को उपलब्ध कराई जायेगी।
12. शासन के कार्यालय ज्ञाप संख्या–1457/VII-1/2017/68–ख/15, दिनांक 17 नवम्बर, 2017 के बिन्दु सं0 6(तीन)(क)(2) के अनुसार आशय पत्र की समस्त शर्तों को पूर्ण किये जाने के पश्चात् निदेशक, भूतत्व एवं खनिकर्म इकाई की स्पष्ट संस्तुति पर शासन द्वारा खनन पट्टा स्वीकृत किया जायेगा, परन्तु पट्टाधारक द्वारा स्वीकृत क्षेत्र में खनन कार्य का प्रारम्भ संबंधित भू–स्वामियों की सहमति/अनापत्ति के उपरान्त ही किया जायेगा।
13. आवेदक को खनन एवं राजकीय बकाया न होने के संबंध में जिलाधिकारी द्वारा निर्धारित प्रपत्र में अद्यतन अदेयता प्रमाण–पत्र तथा चरित्र प्रमाण–पत्र प्रस्तुत करना होगा।
14. आवेदक को आयकर/आयकर विवरणी जमा करा दिये जाने के संबंध में आयकर अधिकारी का अद्यतन प्रमाण–पत्र प्रस्तुत करना होगा। यदि आयकर देय नहीं हो तो इस आशय का शपथ–पत्र प्रस्तुत करना होगा।
15. आवेदक द्वारा सक्षम अधिकारी द्वारा प्रदत्त निवास प्रमाण पत्र प्रस्तुत करना होगा।

आनन्द बर्द्धन
प्रमुख सचिव

संख्याः 1087 (1)/VII-1/2018 तद्दिनांकित।

प्रतिलिपि निम्नलिखित को सूचनार्थ एवं आवश्यक कार्यवाही हेतु प्रेषित :–

1. निदेशक, भूतत्व एवं खनिकर्म इकाई, उद्योग निदेशालय, उत्तराखण्ड, देहरादून को उनके पत्र संख्या–1384/मु०ख०/84/भू०खनि०ई०/बागे०/2016–07, दिनांक 5 दिसम्बर, 2017 के सन्दर्भ में सूचनार्थ एवं निम्न निर्देशों के साथ कि उत्तराखण्ड गौण खनिज नीति, 2015 यथासंशोधित, 2017 के प्रावधानानुसार खनन पट्टा हेतु प्रस्ताव शासन को उपलब्ध कराने का कष्ट करें :–
   (क) इस आदेश द्वारा स्वीकृत क्षेत्र का सीमाबन्धन प्रत्येक दशा में इस आदेश की दिनांक से 60 दिवस में करा लिया जाय ताकि समयान्तर्गत पट्टाधारक द्वारा पट्टाविलेख का निष्पादन कराया जा सके।
   (ख) खनन पट्टा क्षेत्र के सीमाबन्धन की सूचना मय सीमाबन्धन रिपोर्ट, मानचित्र आदि के सीमाबन्धन पूर्ण किये जाने की दिनांक से 10 दिवस में शासन को प्रेषित कर दी जाये।
   (ग) सीमाबन्धन रिपोर्ट में यह प्रमाण पत्र अवश्य दिया जाये कि खनन पट्टे पर स्वीकृत क्षेत्र में सम्मिलित वन भूमि के अलावा कोई अन्य वन भूमि खनन पट्टा हेतु सीमाबन्धित क्षेत्र में सम्मिलित नहीं की गई है तथा सीमाबन्धित क्षेत्र की परिधि से कम से कम 100 मीटर की दूरी पर है।
2. जिलाधिकारी, बागेश्वर।
3. मै० देवभूमि माईन्स पाटनर्स 1. श्री रमेश चन्द्र पाण्डे पुत्र श्री गोपाल दत्त, ग्राम मण्डलसेरा, तहसील व जिला बागेश्वर, 2. श्री उमेश चन्द्र पाण्डे पुत्र श्री गिरीश चन्द्र पाण्डे, कुनेडा, तहसील काण्डा, जिला बागेश्वर 3. श्री अश्वनी वार्ष्णेय, निवासी जज फार्म, आवास विकास कालोनी, हल्द्वानी जिला नैनीताल एवं 4. श्री मनोज डांगा, निवासी आवास विकास कॉलोनी, हल्द्वानी, जिला नैनीताल।
4. गार्ड फाईल।

आज्ञा से,

(दीपेन्द्र कुमार चौधरी)
अपर सचिव

ANNEXURE III: COPY OF APPROVED MINING PLAN

कार्यालय उपनिदेशक/भूतैज्ञानिक

भूतत्व एवं खनिकर्म इकाई, उद्योग निदेशालय उत्तराखण्ड,
जनपद बागेश्वर।

संख्या 18 /जि0टी0फो0/खनन/मा0स्कीम/बागे0/2019–20, दिनांक 7.4.2021

सेवा में,

निदेशक,
भूतत्व एवं खनिकर्म इकाई,
उद्योग निदशालय, उत्तराखण्ड,
देहरादून।

विषय : **आवेदकगण मै0 देवभूमि माइंस, पार्टनर श्री रमेश चन्द्र पाण्डे आदि के पक्ष में जनपद बागेश्वर की तहसील काण्डा के ग्राम कमाटा में आशय पत्र पर स्वीकृत 15.313 है0 क्षेत्रफल पर गौणखनिज सोपस्टोन खनन पट्टे के खनन योजना के अनुमोदन के सम्बन्ध में।**

महोदय,

कृपया उपरोक्त विषयक के सम्बन्ध में अवगत कराना है कि मै0 देवभूमि माइंस, पार्टनर श्री रमेश चन्द्र पाण्डे पुत्र श्री गोपाल दत्त निवासी मण्डलसोरा बागेश्वर, तहसील व जिला बागेश्वर आदि का पत्र दिनांक 15.03.2021 के साथ संलग्न खनन योजना की एक प्रति जिसे श्री हरीश कैन्थोला, आर0क्यू0पी0/यू0के0जी0एम0यू0/एन0ओ0–012/2019 द्वारा तैयार किया गया है, इस कार्यालय में प्रस्तुत किया गया है। आवेदक द्वारा खनन योजना के अनुमोदन हेतु निर्धारित आवेदन शुल्क रू0 20,000/– ट्रे0चा0 सं0 33 दिनांक 27.09.2019 को भारतीय स्टेट बैंक, बागेश्वर में जमा किया गया है, जो कि मूल में संलग्न है। उक्त खनन पट्टा हेतु आवेदित क्षेत्र का भौगोलिक सर्वेक्षण विभागीय सर्वेक्षक द्वारा आवेदकगण श्री रमेश चन्द्र पाण्डे की उपस्थिति में किया गया। सर्वेक्षक के सर्वेक्षण के अनुसार उक्त खनन पट्टा क्षेत्र में खनन कार्य नहीं हो रहा था तथा किसी भी प्रकार की कोई गतिविधि उक्त खनन क्षेत्र में देखने को नहीं मिली। उत्तराखण्ड शासन, औद्योगिक विकास अनुभाग –1, के कार्यालय ज्ञाप सं0 1081/VII-1/2018/9 सोपस्टोन /17 दिनांक 16.05.2018 के द्वारा ग्राम कमाटा, तहसील काण्डा जिला बागेश्वर में 15.313 है0 क्षेत्रफल में 50 वर्ष की अवधि हेतु सोपस्टोन खनन पट्टा स्वीकृति के सम्बन्ध में आशय पत्र जारी किया गया है। प्रस्तावित खनन योजना में उक्त आवेदित खनन पट्टा में ओपन कास्ट सेमी मैकनाइज्ड तरीके से खनन कार्य करने का उल्लेख किया गया है जिसमें एक्सकेवेटर का उपयोग किया जायेगा जिसकी अनुमति पृथक से निदेशक, खान सुरक्षा निदेशालय, गाजियाबाद से ली जानी आवश्यक होगी।

उक्त खनन पट्टा आवेदित क्षेत्र में किसी भी प्रकार की ड्रिलिंग एवं ब्लास्टिंग का उपयोग निषिद्ध रहेगा। आवेदक को मोटरमार्ग से खनन पिट तक जाने के लिए पक्के फुटपाथ का निर्माण करना अनिवार्य होगा। खनन योजना के प्रथम वर्ष में 28000 टन, द्वितीय वर्ष में 29000 टन, तृतीय वर्ष में 30000 टन चतुर्थ वर्ष में 29000 टन, पंचम वर्ष में 28000 टन उत्पादन लक्ष्य निर्धारित किया गया है। आवेदक को खनिज विकास एवं संरक्षण, खनन कार्य, निर्धारित स्थान पर मलवा का निस्तारण रिटेनिंग वाल्स, प्रोगेसिंग माइनिंग क्लोजर प्लान, बैक फिल, वृक्षारोपण एवं ड्रेनेज सिस्टम आदि का कार्य खनन योजना के अनुसार करना अनिवार्य होगा। आवेदक को गधेरे, गूल, रास्ता एवं सार्वजनिक भूमि को संरक्षित करते हुए खनन कार्य करना होगा तथा उक्त भूमि में खनन कार्य तथा मलवा डालना निषेध रहेगा। यदि उक्त प्रकार की भूमि में किसी प्रकार का खनन कार्य या मलवा डाला जाता है तो अवैध माना जायेगा तथा नियमानुसार कार्यवाही की जायेगी। आवेदक द्वारा शासनादेश सं0 1589/ VII/2015/88–ख/2015 दिनांक 07 अक्टूबर, 2015 के अनुसार निदेशक के पक्ष में रू0 2,00000.00 की बैंक गारण्टी अनुमोदन से पूर्व प्रस्तुत करनी अनिवार्य होगी।

आवेदक को अनुमोदित खनन योजना के अनुसार ही खनन कार्य करना होगा तथा ओवर बर्डन/मलवा तथा टॉप सॉयल को पृथक–पृथक रूप से अलग कर डम्पिंग करके खनन योजना के अनुसार ही पूर्व में पृथक की गई टॉप सॉयल को डालकर सीढ़ीनुमा कृषि योग्य खेत तैयार कर भूस्वामियों के सुपुर्द करना

होगा। राजस्व उपनिरीक्षक, सानिउडियार, तहसील कांण्डा, जिला बागेश्वर द्वारा अपने प्रमाण पत्र दिनांक 20.11.2019 जो कि मूल में संलग्न है, के द्वारा अवगत् कराया गया है कि ग्राम कमाटा में 15.313 है0 भूमि में भूमिधरों द्वारा अपनी अनापत्ति दी गयी है। वर्तमान में आवेदकगणों के विपरीत कोई भी आपत्ति प्राप्त नहीं है। अतः उक्तानुसार आख्या महोदय की सेवा में सादर प्रेषित है।

संलग्नक : खनन योजना की एक प्रति।
आवेदन शुल्क का चालान मूल में।
राजस्व उपनिरीक्षक का प्रमाण पत्र मूल में।

भवदीय,

(लेख राज)
उपनिदेशक / भूवैज्ञानिक

Category-B(OTFM)

MINING PLAN

WITH

PROGRESSIVE MINE CLOSURE PLAN (submitted under Uttarakhand Minor Mineral Concession Rules, 2001, of 34(4)

VILLAGE – KABHATA
TEHSIL – KANDA
DISTRICT – BAGESHWAR (UTTARAKHAND)

Lease Area: - 15.313 Hectares

Period of Mining Plan-Five Years from the Date of Opening of Mine

LESSEE

M/S DEVBHOOMI MINES, (PARTNER SHRI RAMESH CHANDRA PANDEY, SHRI UMESH CHANDRA PANDEY, SHRI ASWANI VARSHNEY & SHRI MANOJ DANGA)
Mobile No- 9927422586, Email Address - rameshpandey2586@gmail.com

PREPARED BY

HARISH KAINTHOLA
मु0ख0/05/खनन/RQP/2015-16
RQP/DDN/141/2002-A

CONTENT

Chapter –I: Introduction and General Information

Part-A Introduction

The history of lease area grant, transfer ownership etc. is given below:

Sr. No.	Particular	Details
1	GO	LOI No. 1087/VII-1/2018/-सोपस्टोन/17 Dehradun, was obtained on dated 16.05.2018 for a period of 50 years in favour of M/s Devbhoomi Mines, (Partner Shri Ramesh Chandra Pandey, Shri Umesh Chandra Pandey, Shri Aswani Varshney & Shri Manoj Danga. District Bageshwar, Phone- None, Fax- None, Mobile No- 9927422586, Email Address – rameshpandey2586@gmail.com Copy of GO is enclosed as Annexure No.1. Inspection report from different government authorities has been enclosed as Annexure -2. Chalan for approval for Scheme of mining is enclosed as Annexure-8.
2.	Date of first opening	Fresh lease area.
3.	Letter No. date of first mining plan approval with its proposal & lapse period.	Fresh Grant.
4.	Letter no. & date of approval of scheme of mining with its proposal & lapse period.	Fresh Area.
5	Validity period of present scheme of mining with lapse period.	Not applicable
6.	Transfer details & date of transfer	Not applicable
7	Status of Environmental clearance	To be obtained after approval of mining plan.

Harish Kathayat
मुखख / 05 / खनन / RQP / 2015–16

KAILASH CHANDRA
RQP/UKGMU/No.012/YEAR2019

1.0 GENERAL

(a) **Name & Address of the Applicant**
M/s Devbhoomi Mines, (Partner Shri Ramesh Chandra Pandey, Shri Umesh Chandra Pandey, Shri Aswani Varshney & Shri Manoj Danga) Phone- None, Fax- None, Mobile No- 9927422586, Email Address – rameshpandey2586@gmail.com

(b) **Status of the Applicant/Lessee**
Private Individual Owner- Yes,

(c) **Mineral (s) which is /are including in the prospecting license (Scheme of mining)**
Soapstone. Fresh mine.

(d) **Mineral (s) which is /are including in the letter of Intent/lease deed**
Soapstone

(e) **Mineral (s) which is the applicant/lessee intends to mine**
Soapstone

(f) **Name of recognised person , who prepared the mining plan/scheme of mine/ Mine closer plan**

Shri Harish Kainthola,
KainGeotech
Lane No. 8, Indraprastha,
Mussoorie by pass road, Upper Nathanpur,
Dehra Dun- 248008 (Uttarakhand)
E-mail- Kain_geotech2147@rediffmail.com, hkainthola@gmail.com
Mobile No. - 09412028745, 09412058990 (Office)
Registration No. – मु0ख0/05/खनन/RQP/2015-16
RQP/DDN/141/2002-A

Kailash Chandra,
3/1 Ekta Enclave Way to Seemadwar- ITBP,
Opposite Hotel Sun Park Inn.
GMS Raod, Dehradun - 248001 (Uttarakhand)
Telephone (Cell): 08755182584.
E-mail – ksati84@gmail.com
Registration No. - RQP/UKGMU/NO 012/Year 2019

(g) GST No. 05AAMFD6106E1ZS PAN No.- AAMFD6106E Copy of GST NO. is enclosed as **Annexure No. 6** & Copy of PAN NO AEURP3130E. is enclosed as **Annexure No. 7**

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2.0

I) LIST OF ANNEXURE

LOI for ML	1
Inspection Report from mining department	2(A)
Inspection Report from forest department	2(B)
Demarcation Report from mining department	2(C)
Khasra Detail	3
Demarcated Khasra map	4
NOC from land owner	5
GST	6
PAN	7
Chalan for approval of scheme of mining	8

II) LIST OF PLATES

Location plan	1
Key plan	2
Surface plan	3
Geological plan	4
Geological sections	5 (A) & 5(B)
Pit layout plan at the end of I year	6
Pit layout plan at the end of II year	7
Pit layout plan at the end of III year	8
Pit layout plan at the end of IVyear	9
Pit layout plan at the end of Vyear	10
Pit sections	11
PMCP/ Reclamation plan	12
Financial area assurance plan	13
Environment management plan	14

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3.0 LOCATION AND ACCESIBILITY

a) Lease Detail (Fresh Mine)

Name of Mine :- M/s Devbhoomi Mines, (Partner Shri Ramesh Chandra Pandey, Shri Umesh Chandra Pandey, Shri Aswani Varshney & Shri Manoj Danga) Phone- None, , Mobile No- 9927422586, Email Address - rameshpandey2586@gmail.com

Lat./Long. of any boundary point- Between the boundary point 9 and 12, the latitude and longitude of Pillar 9 is 29°49'12.50"& 79°55'54.36" and latitude & longitude of Pillar 12 is 29°49'12.19" & 79°55'59.99" respectively.

Date of grant of lease - State Govt. has given its consent to grant mining lease for a period of 50 years vide LOI No. 1087/VII-1/2018/-सोपस्टोन / 17 Dehradun, was obtained on 16/05/2018
Copy of LOI is enclosed **Annexure No. 1**
Lease was executed on – Yet to be executed.

Period/Expiry date - For 50 years / 15 May, 2068.
Name of lease holder- M/s Devbhoomi Mines.

Address- Village- Kabhata, Tehsil - Kanda & Distt. - Bageshwar, State –Uttarakhand, Mobile No- 9927422586.

Office Address- Village- Mandalsera, Tehsil & District- Bageshwar, Uttarakhand Mobile No- 9927422586,
Email Address – rameshpandey2586@gmail.com

b) Details of applied area with location map (fresh area): After demarcation 15.304ha area has been taken out 15 313ha. Details of applied area are tabulated below. Location map of the area is enclosed as Plate- 1. The copy of Khasara map is enclosed **Annexure No. 2**. The khasara details of the area is enclosed **Annexure No.3**.

Forest		Non- Forest	
			Area (ha)
Forest (specify)	None	Category 1(d) Jotdar land	13.745
		Land under Category 7(d) State Govt/ Civil. land	0.022
		Land for public use	1.334
			0.203
		Total	**15.304**

Total lease area/applied area—15.304ha out of 15.313 ha.
District- Bageshwar, Uttarakhand
Tehsil- Kanda, Village- Kabhata.

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Whether the area falls under Coastal Regulation Zone (CRZ)? If yes, details existence of public road/ railway line, if any nearby and approximate distance_____No_____

CTE/CTO: It is a fresh lease therefore consent to operate (CTO) has to be obtained from the department of Uttarakhand Environment Protection & Pollution Control board after approval of mining plan.

Toposheet No. with latitude & longitude of all corner boundary point/pillar

The area is located on Survey of India Toposheet No. – 53 O/13 in latitude 29° 49' 07.95" to 29° 49' 23.26" and longitude 79° 55' 25.16" to 79° 55' 59.99". The applied area is occupied by single block and is bounded by 1, 2, 3, 4 to 44, 45, 46, 47 and 48 boundaries pillars. Coordinates of pillars are shown in Surface plan **(Plate No. – 3)** and also tabulated below.

Pillar No.	Northing	Easting	Pillar No.	Northing	Easting
1	29°49'14.99"N	79°55'41.26"E	25	29°49'10.48"N	79°55'38.21"E
2	29°49'13.92"N	79°55'45.29"E	26	29°49'08.95"N	79°55'37.89"E
3	29°49'16.45"N	79°55'48.54"E	27	29°49'09.45"N	79°55'35.06"E
4	29°49'16.18"N	79°55'51.90"E	28	29°49'12.16"N	79°55'36.44"E
5	29°49'14.61"N	79°55'49.94"E	29	29°49'12.29"N	79°55'32.57"E
6	29°49'12.85"N	79°55'49.55"E	30	29°49'13.79"N	79°55'33.71"E
7	29°49'12.51"N	79°55'51.53"E	31	29°49'14.07"N	79°55'31.91"E
8	29°49'12.81"N	79°55'52.57"E	32	29°49'13.33"N	79°55'28.35"E
9	29°49'12.50"N	79°55'54.36"E	33	29°49'14.81"N	79°55'27.62"E
10	29°49'14.10" N	79°55'55.79"E	34	29°49'16.44"N	79°55'28.09"E
11	29°49'14.13" N	79°55'59.07"E	35	29°49'18.57"N	79°55'26.31"E
12	29°49'12.19" N	79°55'59.99"E	36	29°49'21.94"N	79°55'25.16"E
13	29°49'11.25" N	79°55'56.76"E	37	29°49'22.16"N	79°55'27.58"E
14	29°49'10.48" N	79°55'57.40"E	38	29°49'23.26"N	79°55'27.31"E
15	29°49'08.87" N	79°55'55.18"E	39	29°49'22.70"N	79°55'30.18"E
16	29°49'11.40" N	79°55'55.00"E	40	29°49'20.62"N	79°55'30.65"E
17	29°49'09.83"N	79°55'53.57"E	41	29°49'19.73"N	79°55'32.34"E
18	29°49'09.42"N	79°55'50.96"E	42	29°49'21.27"N	79°55'34.00"E
19	29°49'11.09"N	79°55'49.60"E	43	29°49'21.25"N	79°55'35.79"E
20	29°49'09.81" N	79°55'47.57"E	44	29°49'19.79"N	79°55'35.62"E
21	29°49'10.09" N	79°55'45.41"E	45	29°49'18.95"N	79°55'36.67"E
22	29°49'07.95" N	79°55'42.86"E	46	29°49'17.41"N	79°55'35.23"E
23	29°49'08.86" N	79°55'38.41"E	47	29°49'15.86"N	79°55'36.48"E
24	29°49'10.39" N	79°55'38.96"E	48	29°49'14.35"N	79°55'38.84"E

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4.0 DETAILS OF APPROVED MINING PLAN (if any)

4.1 Date and reference of earlier approved MP/SOM:

Fresh mining lease.

4.2 Details of last modifications if any (for the previous approved period) of approved MP/SOM, indicating date of approval, reason for modification:

Fresh mining lease.

4.3 Give review of earlier approved proposal (if any) in respect of exploration, excavation, reclamation etc.

Fresh mining lease.

4.4 Give status of compliance of violations pointed out by mining officer /District Magistrate/Dept. Geology and Mining office or other specified person appointed by Government or Director Geology & Mining.

Fresh mining lease.

4.5 Indicate and give details of any suspension /closure/ prohibitory order issued by any Government agency under any Rule or Court of law:

Not applicable.

4.6 In case the MP/SOM are submitted for approval of modification specify reason and justification for modification under these rules:

No modified MP/SOM has been submitted for approval.

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PART – B

5.0 GEOLOGY AND RESERVES

5.1 Physiography:

Topography

This area lies on south-western slope of a hill in a mountainous terrain of rough and rugged topography. The adjacent area is drained by few seasonal *Roilis/Nalas*. The applied area forms a transverse ridge of ending south-western slope in the valley. The area has sloppy undulating surface and at places flat gentle sloping terraces and cultivated land also. The highest RL is about 1670.2m on the northeastern side of the applied area, while the lowest RL recorded on the western side of the applied area is about 1483.1m. Topographical survey was provided by the client. General slope of the lease area is 20° - 30° in western direction.

Drainage pattern

An area is drained by five nalas within & two outside the lease flowing almost south-western directions in the applied area.

Vegetation

Mostly about 80% of the applied area is being used for agricultural purposes. Remaining area is either occupied by grassy land or fruit trees. Some fruit trees like Peach, Banana etc. are available within buffer zone.

Climatic condition

The area falls within Lesser Himalayan part. During winter the minimum temperature is 0.5°C and during summer maximum temperature is 33°C. The average rainfall in the area is recorded 979mm per year.

5.2 Geology:

Geology: Surface Geological map with contour interval maximum of 10 meter on a scale of 1:2000/1:1000 may be examined for features detailed below:

(i) Disposition of all lithological units with clear nomenclature and their descriptions.

Regional geology

The area forms the part of Calc zone of Tejam and Pithoragarh. According to Prof. K.S. Valdiya (Geology of Lesser Himalaya, 1980) and D. K. Banerjee et. al. (Him. Geol., Vol. 5, 1975) the lithostratigraphic sequence of this area is as follow:

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Pithoragarh Formation

Group/ Formation	Lithology
Berinag Formation	Quartzite, Meta quartzite, Conglomerate, Phyllite
----------Unconformity ----------	
Gangolihat magnesite	Magnesite, dolomitic soapstone with algal structures. Magnesite with talcose phyllite intercalations
----------Unconformity----------	
Sor Slate	Slate, Phyllite, subgrawake

In this region, rocks of Pithoragarh Formation occur. The development of algal stromatolite in carbonates occurrence or magnesite is a common associate of the carbonates. The Calc-Zone rock units are well known for their structural dispositions (windows, half windows in Lesser Kumaon Himalaya) for stromatolites and minerals (magnesite, soapstone and minor metallic occurrences).

(II) Contacts of lithounits/rock type traced or inferred.

Geology of the applied and surrounding areas

The applied area and its surroundings are constituted in part, by Gangolihat Magnesite sequence. The local lithological sequence is as follows:

- Upper Carbonates
- Middle Talcose Phyllite
- Lower Carbonates

In the applied area and its surrounding consists of Gangolihat magnesite. This rock unit contains magnesite, talcose phyllite and tale lenses etc.

The Upper Carbonates Zone contains magnesite and sporadic magnesite, the Middle Talcose Phyllite Zone contains the talc in pockets and lenses, whereas the Lower Carbonate Zone contains magnesite intercalated with phyllite/ talcose phyllite. Pockets/ lenses or veins of soapstone also occur within carbonates of Gangolihat Magnesite.

The applied area lies in the village Kabhata which is located almost on south-western sloping part of small hill. Both overburden and outcrops of soapstone are present in exploratory opening, magnesite boulders occur on the surface as well as intermixed with soapstone in the applied area. The lithounits found in the project area are:

Overburden: Almost whole block of the applied area is covered with overburden material. This overburden comprises grey to brown to dark brown, fine to medium grained silty-clayey soil. Small fragments of soapstone and magnesite are also present in this soil. Thickness of this overburden varies from 0.9 to 1.5 m.

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Soapstone and magnesite: Intermixing of soapstone [$Mg_3Si_4O_{10}(OH)_2$] with magnesite occur below the soil cover. Mostly this soapstone or talc is highly prone to easy weathering and erosion due to its softness and thus its outcrops are rare. In shallow depth soapstone is massive to highly bedding and shows brightness/whiteness characteristic which generally varies from medium to high. At places talc pockets are crushed and crumbled due to association with shear zones present in the area. In the applied area soapstone is fine grained, off-white to white, foliated and sometimes powdery due to crushing. In specimens or fragments it shows flexibility in edges due to thinness and trimming. Overburden comprises magnesite boulders intermixed with soapstone. This intermixed magnesite boulders in soapstone are about 60%.

Structural features

The regional and local structural features as could be deciphered in the applied block are as follows:

(a) The algal stromatolites are absent in this area. Regionally they have been reported to be significant in interpreting reversal of Upper and Lower Carbonate dispositions.

(b) It is evident that the Himalaya structural features and consequent impact on all lithounits is post mineralization (magnesite/ soapstone etc.) is evident. Even some magnesite may be contemporary to depositional/ diagenetic phases and it has also been affected by Himalayan Orogenic Upheavals.

(c) The Pre-Tertiary hydrothermal activity and mineralization has also been probably affected by Pre-Tertiary structural disturbances. It has been superposed by Tertiary (Paleocene to Pleistocene) Himalayan tectonic effects (crushing, lenticular shape etc. changes in thickness of soapstone etc.) and low grade metamorphism (phyllite to low grade schistose effects).

Attitude like strike and dip available in adequate numbers.
Structural feature such as joints, folds, faults and their attitudes.

(i) The typical bedding dip/ strike are not seen within the applied area, not even clear cut carbonate bands are exposed presently.

(ii) The cleavage/ foliation/ banding attitudes of soapstone/ talcose phyllite units vary as follows:

General Strike	Dip Amount	Dip Direction	Attitudes
N325^0 to N 350^0	35^0 - 40^0	N 055^0 - N 080^0	Bedding
N300^0 to N 325^0	40^0 - 55^0	N 040^0 - N 055^0	Bedding
N 065^0 to N 350^0	55^0 - 80^0	N 335^0 to N 080^0	Joint
N 120^0 to N 160^0	45^0 - 70^0	S 210^0 to S 190^0	Joint
N 040^0 to N 060^0	60^0 - 75^0	S 130^0 to S 150^0	Joint

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The rocks found in the area in general seems to have undergone the more than one phases of tectonic activity. The upper and lower carbonates zones of Gangolihat Magnesite seem to be inverted. Rocks/ minerals in the area are crushed and sheared. Local trend of magnesite outcrops and talc pockets show the dip towards valley side i.e. towards northeastern side. The bedding plane dips towards NE direction with amount of 35^0 to 55^0. General strike direction varies towards N300^0 to N350^0.

Delineation of mineralization/ore zones with definite demarcation of observed and inferred.

During the exploration it is observed that mineral soapstone occurs in veins and lenses having 0.5m to 4.0m thickness, closely spaced extending surrounding area. i.e., in adjoining lease area. Soapstone/talc is metasomatic/hydrothermal product because of the emplacement of basic rock or intermediate igneous rock in subsurface condition which could have given rise to hydrothermal alters the basic rock.

i) Physiographic control: In general the soapstone lenticular/ tabular bodies follow the topography of the area having gentler slopes. The soapstone being soft mineral, it is found always along the slopes or below the comparatively gentle slope planes of terraced agricultural fields while in the steep cuts slopes and ridges either magnesite outcrops occur.

ii) Lithological controls: The presence of soapstone within the carbonate sequence suggests that the soapstone mineralization in this area & in the surroundings is confined to carbonate horizons only, showing lithological controls of mineralization. Soapstone/ talc being derived by hydrothermal activity from magnesium rich rocks, the rock like magnesite, and basic / ultrabasic rocks are likely to be found in close proximity of soapstone. The soapstone pockets into magnesite fragments within soapstone bodies occurring in main magnesite rock indicate a replacement origin. Locally discordant relationship between soapstone and magnesite strike may be due to structural/ flowage characters. Soapstone is grey to greyish, milky white, fine grained, present in irregular shapes formed by the replacement of magnesite. The lenses of soapstone form as pinch and swale structure with variable depth and thickness.

iii) Structural control: The soapstone mineralisation within the area lies in the anticlinal axis of Pungar valley. The one limb of the anticline is exposed the upper reaches of village Bijaipur which shows the quartzite outcrops while the other limb is exposed towards Dhopar to Banlekh on Bageshwar-Rema motor road which also shows the quartzite outcrops.

5.3.1 Details of Exploration already carried out.

Exploration has been done in past time. Excavation of the pits is proposed from I to V year & rest of the leas period.

5.3.2 Details of Exploration already carried out.

It is a fresh lease area and exploration is to be carried out.

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5.3.1.1 Exploration proposed to be carried out (in case adequate total reserves is not established for the tenure of lease)

During five years, the unexplored area shall be explored with five trial pits having the dimension 3m x 3m x 6m & five bore holes upto 30m depth shall be dug besides pitting to ascertain the continuity & grade of soapstone. The proposed exploration shall be carried out under the supervision of geologist. The core shall be stored in core box serially with suitable indexing & shall ensure submission of cores as per the manual issued by GSI from time to time. No cores shall be destroyed with prior permission. The year wise exploration programme is given below:

Exploration programme: For five year.

Year	Name of Pit	Location	Expenditure to be incurred
2020-21	DPT-1	In between the coordinates N 3299450 to N 3299455 & E 396203 to E 326209	Rs. 2000
2021-22	DPT-2	In between the coordinates N 3299476 to N 3299480 & E 396149 to E 396155	Rs.2000
2022-23	DPT-3	In between the coordinates N 3299567 to N 3299572 & E 396086 to E 396092	Rs.2000
2023-24	DPT-4	In between the coordinates N 3299339 to N 3299344 & E 396330 to E 396336	Rs.2000
2024-25	DPT-5	In between the coordinates N 3299302 to N 3299307 & E 396424 to E 396431	Rs.2000

Year	Drill Holes	Depth	Angle	Location	Expenditure to be incurred
2020-21	DDH-1	30m	Vertical	At the coordinate N 3299422 & E 396228	Rs. 12000
2021-22	DDH-2	30m	Vertical	At the coordinate N 3299413 & E 396178	Rs.12000
2022-23	DDH-3	30m	Vertical	At the coordinate N 3299513 & E 396124	Rs.12000
2023-24	DDH-4	30m	Vertical	At the coordinate N 3299366 & E 396333	Rs.12000
2024-25	DDH-5	30m	Vertical	At the coordinate N 3299343 & E 396409	Rs.12000

The location of proposal bore holes is shown in geological plan (Plate - 4)

5.4 Details of Reserve & Calculation:

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i) Measured Mineral Resources (331): A 'Measured Mineral Resources' is that part of mineral Resource for which tonnage, densities, shape, physical characteristics, grade & mineable content can be estimated with a high level of confidence. It is based on detailed & reliable information gathered from exposed mining pits. The locations of mining pit 1, 2, 3 & Pit 4 are spaced closely & provide confirm geological setup &grade continuity.

ii) Indicated Mineral Resources (332): An Indicated Mineral Resources is that part of a mineral Resource for which tonnage, densities, shape, physical characteristics, grade & mineral content can be estimated with a reasonable level of confidence. It is based on exploration, sampling & testing information gathered from outcrops, trenches, working pits etc.

iii) Blocked Measured Mineral (211): The "Blocked Measured Mineral" is that part of measured mineral which is not economically mineable this material is identified as being possibly economical viable subject to changes in technological, economic, environment & other relevant conditions.

iv) Block indicated Mineral Reserve in Safety Barrier & Ultimate pit limit (221, 222): This category of mineral reserve is not economically mineable. This material is identified as being possibly economically viable subject to change in technological, economic, environment & other relevant conditions. This type of mineral resource has a lower level of confidence than Blocked Measured Resource.

v) Ultimate Pit Level: The depth of pit has reached 3m & proved & probable reserves have been estimated upto depth 15m from ground profile. Therefore ultimate depth of pit shall be 15 m from ground surface. In future exploration to be carried out by bore holes & depth of mineralization is further increased hence depth of ultimate pit limit will modified.

5.5 Reserves/ Resource Estimation:

The mining lease has been applied only in agriculture/nap land. Geological reserves have been estimated through geological cross sections. The strike influence of sections varies from 29m to 78m. The area of each section line is calculated and sectional area is multiplied by the strike influence in between two section line to give the volume of each section line. The volume is multiplied by the bulk density to give the tonnage. Bulk density of soapstone has been assumed 2.6 and it has been taken as per the past experience in and around in mines located in the adjacent area and with observations of nature &behaviour of the soapstone. The incidence of soapstone has been taken as 40% of the total volume in view of information collected from the nearby mines and also acquiring observation during development of exploratory pits and trial pits in the nap land areas. The general depth of excavated pits are 3m. Ultimate recovery of the soapstone has been estimated as 95% of the in-situ reserves (40%). Incidence of interburden (Low grade magnesite) has been taken as 60% of the total volume as per observation of working mines in nearby area. On the basis of past mining

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being carried out in the surrounding areas the depth of working pits have gone more than 9m and soapstone persists in depth.

Proved Geological Reserves

Section	Area (m^2)	Strike Influence (m)	Volume (Cum)	Mineable Reserves (in Tonnes)	Blocked Reserves (in Tonnes)
LB to A-A'	973.79	29	28239.91	29369.51	6899.70
A-A' to B-B'	853.38	36	30721.68	31950.55	8449.87
B-B' to C-C'	1089.41	40	43576.56	45319.62	10716.28
C-C'To D-D"	1814.14	69	125175.66	130182.69	18832.84
D-D' to E-E'	1786.24	47	83953.37	87311.51	15328.28
E-E' to F-F'	1802.13	45	81095.99	84339.82	10311.72
F-F'To G-G'	791.00	48	37967.81	39486.52	14737.28
G-G' to LB	1569.62	61	95746.82	99576.69	23189.86
H-H' to LB	4037.21	60	242232.30	251921.59	23321.25
I-I' to J-J'	2552.92	60	153174.90	159301.90	18087.95
J-J' to K-K'	1049.14	67	70292.38	73104.08	22071.63
K-K' to L-L'	872.30	44	38381.20	39916.45	10649.82
L-L' to M-M'	1057.83	78	82510.51	85810.93	22011.34
M-M' to LB	740.48	41	30359.63	31574.02	8099.05
	20989.58		**1143428.72**	**1189165.87**	**212706.88**

Probable Geological Reserves

Section	Area (m^2)	Strike Influence (m)	Volume (Cum)	Mineable Reserves (in Tonnes)	Blocked Reserves (in Tonnes)
LB to A-A'	549.93	29	15947.97	16585.89	7593.68
A-A' to B-B'	532.37	36	19165.18	19931.78	9303.39
B-B' to C-C'	615.21	40	24608.52	25592.86	11764.94
C-C'To D-D"	1100.59	69	75940.85	78978.48	20361.76
D-D' to E-E'	1091.58	47	51304.40	53356.58	15096.88
E-E' to F-F'	1102.08	45	49593.47	51577.20	11523.80
F-F'To G-G'	436.08	48	20931.94	21769.21	14379.56
G-G' to LB	951.65	61	58050.89	60372.93	21471.59
H-H' to LB	2598.72	60	155923.14	162160.07	21314.65
I-I' to J-J'	1611.07	60	96664.38	100530.96	17727.53
J-J' to K-K'	598.17	67	40834.89	42468.29	21646.30
K-K' to L-L'	485.52	44	21362.70	22217.21	11562.96
L-L' to M-M'	609.48	78	47539.13	49440.69	22439.66
M-M' to LB	426.63	41	17491.96	18191.64	8256.64
	12709.08		**695359.42**	**723173.79**	**214443.33**

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Blocked Reserves of Soapstone

Feasibility mineral Resource (211)

Section Line	Section Area (m^2)		Strike Influence (m)	Volume (Cum)		Blocked Reserves (Tonnes)	
	Blocked in (UPL)	Blocked Under 45°		Blocked in (UPL)	Blocked Under 45°	Blocked in (UPL)	Blocked Under 45°
LB to A-A'	135.27	93.50	29	3922.83	2711.50	4079.74	2819.96
A-A' to B-B'	135.40	90.29	36	4874.40	3250.48	5069.38	3380.50
B-B' to C-C'	156.09	101.51	40	6243.60	4060.52	6493.34	4222.94
C-C' to D-D"	143.99	118.45	69	9935.38	8173.12	10332.79	8500.04
D-D' to E-E'	221.40	92.19	47	10405.75	4332.98	10821.98	4506.30
E-E' to F-F'	136.00	84.33	45	6120.09	3795.03	6364.89	3946.83
F-F' to G-G'	211.49	83.73	48	10151.57	4018.90	10557.63	4179.65
G-G' to LB	280.29	85.25	61	17097.45	5200.49	17781.34	5408.51
H-H' to LB	282.65	91.09	60	16958.70	5465.58	17637.05	5684.20
I-I' to J-J'	190.08	99.79	60	11404.80	5987.46	11860.99	6226.96
J-J' to K-K'	225.57	91.19	67	15113.26	6109.46	15717.79	6353.84
K-K' to L-L'	146.54	86.19	44	6447.80	3792.40	6705.72	3944.10
L-L' to M-M'	184.70	86.64	78	14406.52	6758.23	14982.78	7028.56
M-M' to LB	129.29	60.65	41	5300.86	2486.68	5512.90	2586.15
Total	**2578.75**	**1264.82**		**138383.01**	**66142.83**	**143918.33**	**68788.55**

Pre-Fessibility mineral Resource (222)							
Section Line	Section Area		Strike Influence	Volume (Cum)		Blocked Reserves (Tonnes)	
	Blocked in (UPL)	Blocked Under 45°		Blocked in (UPL)	Blocked Under 45°	Blocked in (UPL)	Blocked Under 45°
LB to A-A'	90.18	161.60	29	2615.22	4686.40	2719.83	4873.86
A-A' to B-B'	90.27	158.22	36	3249.61	5695.96	3379.60	5923.79
B-B' to C-C'	104.06	178.75	40	4162.40	7150.04	4328.90	7436.04
C-C' to D-D"	95.99	187.75	69	6623.59	12955.03	6888.53	13473.23
D-D' to E-E'	147.60	161.26	47	6937.15	7579.08	7214.64	7882.24
E-E' to F-F'	90.67	155.57	45	4080.06	7000.52	4243.26	7280.54
F-F' to G-G'	140.99	147.06	48	6767.71	7058.78	7038.42	7341.14
G-G' to LB	186.86	151.60	61	11398.28	9247.48	11854.21	9617.38
H-H' to LB	188.44	153.15	60	11306.16	9188.70	11758.41	9556.25
I-I' to J-J'	126.72	157.38	60	7603.14	9442.56	7907.27	9820.26
J-J' to K-K'	150.38	160.27	67	10075.46	10738.29	10478.48	11167.82
K-K' to L-L'	97.69	154.99	44	4298.49	6819.74	4470.43	7092.53
L-L' to M-M'	123.13	153.49	78	9604.22	11972.38	9988.39	12451.27
M-M' to LB	86.19	107.44	41	3533.86	4405.22	3675.21	4581.43
Total	**1719.17**	**2188.53**		**92255.35**	**113940.16**	**95945.56**	**118497.77**

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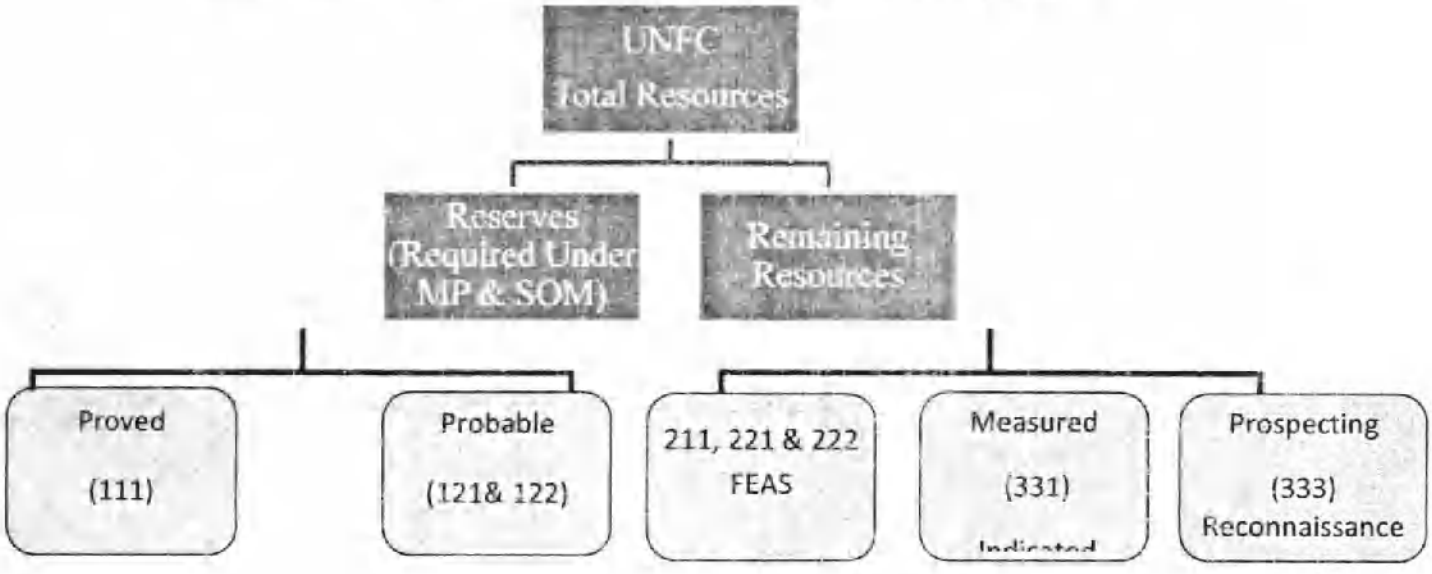
5.6 Mineral Reserves/Resources As per UNFC classification:

i) Details of UNFC Classification:

UNFC is three digit code based system, the economical viability axis representing the first digit, the feasibility axis the second digit & geological axis the third digit.

Codes 1, 2 & 3 in decreasing order. The heights category of resources under UNFC system has code (111) & for the lowest category the code is (334).



Code (111): This code is provided for the economically mineable part of the measured mineral resources (Proved category reserves).

Code (121, 122): This code is provided for the economically mineable past of the indicated mineral resources (Probable category reserves).

Code (211): This part of the measured mineral resources (Proved Category), which as per feasibility study has not found economically mineable. The reserves blocked in 7.5m buffer zone of the distances restriction from permanent structure.

Code (222): The part of indicated mineral resources (probable category) which has pre feasibility study has not found economically mineable. The reserves blocked 7.5m buffer zone & distances restricted from permanent structure.

Code (333): Tonnage, grade & mineral contents can be estimated with low level of confidence & resources are also inferred from geological part.

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The mineral reserves/resources calculated within lease area are as below:-

Category	UNFC Code	Quantity in tonnes	Grade
A. Total Mineral Reserve			
Proved Mineral Reserve	111	1189165	Paper & Detergent
Probable mineral Resource	121 & 122	723173	Paper & Detergent
B. Total Remaining Resources		0	
Feasibility mineral Resource	211	212706	Paper & Detergent
Prefeasibility mineral resource	221 & 222	214443	Paper & Detergent
Measured mineral resource	331	Nil	Nil
Indicated mineral resource	332	Nil	Nil
Inferred mineral resource	333	340378	Paper & Detergent
Reconnaissance mineral resource	334	Nil	Nil
Total Reserves + Resources		**2679865**	

Table No. 2

CATEGORISATION OF GEOLOGICAL RESERVE

Proved & Probable Mineral Reserves (111) & (122)							
Section Line	Area (111) m^2	Area (122) m^2	Strike Influence (m)	Volume (cum)		ROM of Soapstone 40% (tonnes)	
				111	122	111	122
LB to A-A'	973.79	549.93	29	28239.91	15947.97	29369.51	16585.89
A-A' to B-B'	853.38	532.37	36	30721.68	19165.18	31950.55	19931.78
B-B' to C-C'	1089.41	615.21	40	43576.56	24608.52	45319.62	25592.86
C-C' to D-D'	1814.14	1100.59	69	125175.66	75940.85	130182.69	78978.48
D-D' to E-E'	1786.24	1091.58	47	83953.37	51304.40	87311.51	53356.58
E-E' to F-F'	1802.13	1102.08	45	81095.99	49593.47	84339.82	51577.20
F-F' to G-G'	791.00	436.08	48	37967.81	20931.94	39486.52	21769.21
G-G' to LB	1569.62	951.65	61	95746.82	58050.89	99576.69	60372.93
H-H' to LB	4037.21	2598.72	60	242232.30	155923.14	251921.59	162160.07
I-I' to J-J'	2552.92	1611.07	60	153174.90	96664.38	159301.90	100530.96
J-J' to K-K'	1049.14	598.17	67	70292.38	40077.26	73104.08	41680.35
K-K' to L-L'	872.30	485.52	44	38381.20	21362.70	39916.45	22217.21
L-L' to M-M'	1057.83	609.48	78	82510.51	47539.13	85810.93	49440.69
M-M' to LB	740.48	426.63	41	30359.63	17491.96	31574.02	18191.64
Total	**20989.58**	**12709.08**		**1143428.72**	**694601.78**	**1189165.87**	**722385.85**

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INFERRED MINERAL RESOURCES (333)

Section	Area 333 (m^2)	Strike Influence (m)	Volume (Cum)	Reserves (in Tonnes)
LB to A-A'	244.04	29	7077.02	7360.10
A-A' to B-B'	250.59	36	9021.13	9381.98
B-B' to C-C'	274.72	40	10988.76	11428.31
C-C' To D-D"	515.26	69	35553.08	36975.20
D-D' to E-E'	517.10	47	24303.51	25275.65
E-E' to F-F'	520.59	45	23426.73	24363.80
F-F' To G-G'	188.33	48	9039.84	9401.43
G-G' to H-H'	448.14	61	27336.72	28430.19
H-H' to I-I'	1270.83	60	76249.86	79299.85
I-I' to J-J'	779.15	60	46748.70	48618.65
J-J' to K-K'	268.51	67	18564.16	19306.73
K-K' to L-L'	213.93	44	9413.10	9789.62
L-L' to M-M'	277.08	78	21612.01	22476.49
M-M' to LB	193.95	41	7952.11	8270.19
	5962.22		**327286.72**	**340378.19**

5.7 Availability of Mineral: The soapstone of area is weakly foliated & whiteness of soapstone is 78% to 85% is being used in soapstone, detergent & paper industries.

5.8 Anticipated Life of Mine: As per present data the total proved & probable reserves upto depth 15m comes out 1912338 tonnes & same has been considered as mineable reserves also within envisaged rate of production of soapstone 28000 to 30000 tonnes/annum (at the end of 5th year). The anticipated life of mine comes out 66 year. With the proposed exploration in future, the mineable reserves may be enhanced & accordingly life of mine may be increased.

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6.0 Mining:-

6.1 Opencast mining:

(i) Existing method of mining:

It is an existing mining lease and mining was proposed open cast manual mining. Mining is being carried out without formation of benches. The soil is scrapped manually and is mixed with interburden material and dumped near the working pits. Below the soil, soapstone is found which is intermixed with Magnesite boulder and magnesite has been considered as interburden. The soapstone is exploited with the help of pickaxe, crowbar, chisels & spade. Sorting and sizing is being carried out manually at the pit head. Different grade of soapstone is filled into 50 Kg plastic bags and transported up to the PWD road by mules.

Mining is progress in four pits & depth of pit is 6.0m to 9.0m. Mineral soapstone &interburden encountered at the pit bottom & persists in depth. The other pits have been backfilled/reclaimed.

The length of pit varies 35m to 180m, width of pit varies 45m to 87m, depth of pit is 6.0m to 9m & slope of pit is subvertical. Top soil & interburden is mixed together & dump near slope of working pits & heap of dumps are lying in scattered manner.

No drilling and blasting is being carried out for the exploitation of soapstone. Except sorting & dressing no other means of beneficiation is being carried out within the lease hold.

The details of mining pit & dump lying in various *khasra* number & its ownership/occupancy is given below:

Mining pits	RL	Coordinates	Khasra No	Name of Owner/ Owners
I year Pit-1	1533 -1524	N 396172 to N 396211 & E 3299533 to E 3299390	419,418,417,870,858,859,872,873,861, 416,856, 888, 885, 887, 886, 874, 863, 860, 861, 850, 862, 863, 864, 883, 882, 825, 884, 883, 803, 804, 841, 842, 843, 865, 877, 879, 893, 892, 866, 865, 844, 867, 876, 881, 882, 895, 868, 861	Kishore Chandra,Haridutt
II year Pit-1	1524-1512	N 396131 to N 396179 & E 3299510 to E 3299395	419,418,417,870,858,859,872,873,861, 416,856,888,885,887,886,874,863,860, 861,850,862,863,864,883,882,825,884, 883,803,804,841,842,843,865,877,879, 893,892,866,865,844,867,876,881,882, 895,868,861,803,804,841,76,798,779,8 08,796,797,844,840,805,843,839,807,7 94,795,792,839,820,838,837,836,852,8 61,851,836,826, 828, 820, 821, 833, 852, 853, 854, 855,826,858, 856, 860, 861, 859, 834, 835, 831	Kishore Chandra,Haridutt
		N 396172 to N 396211 & E 3299533 to E 3299390	420, 827	Govt. Land
III year Pit- 1 and 2	1512-1509	N 396122 to N 396179 & E 3299510 to E 3299395	419,418,417,870,858,859,872,873,861, 416,856,888,885,887,886,874,863,860, 861,850,862,863,864,883,882, 825, 884, 883, 803, 804, 841, 842, 843, 865,	Kishore Chandra,Haridutt,S uresh Chandra

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			877, 879, 893, 892, 866, 865, 844, 867, 876, 881, 882, 895, 868, 861, 803, 804, 841, 76, 798, 779, 808, 796, 797, 844, 840, 805, 843, 839, 807, 794, 795, 792, 839, 820, 838, 837, 836, 852, 861, 851, 836, 826, 828, 820, 821, 833, 852, 853, 854, 855, 826, 858, 856, 860, 861, 859, 834, 835, 831, 84, 86, 65, 464, 188, 195, 19, 466, 463, 462, 460, 57, 56, 459, 56, 477, 469, 68, 55, 551, 552, 553, 554, 63, 64, 566, 562, 557, 561, 558, 559, 560, 544, 540, 542, 544, 597, 546, 585, 588, 549, 542, 523, 547, 600, 548, 543, 503, 602, 607, 603, 604, 608, 600, 602, 601, 542, 546, 544, 557, 554, 552, 527, 558, 557, 566, 568, 556, 561, 562, 540, 547, 506, 818, 821, 822, 817, 816, 812, 814, 28, 24, 20, 23, 24, 13, 84, 864,786,741,784,786,63,722,764,65,787,788	
	1518-1509	N 396171 to N 396131 & E 3299393 to E 3299510	420, 827	Govt. Land
IV year Pit- 3 and 4	1566-1590	N 396280 to N 396282 & E 3299370 to E 3299337	1330,1331,1328,1329,1326,1325,1350, 1351,1352,1364,1368,1365,1370,1364, 1371,1382,1378, 1115, 1114, 1117, 1108, 1104, 1105, 1103, 1100, 1101, 1144, 98, 97, 46, 1145, 43, 42, 1141, 1184, 1140, 1088, 1086, 1087, 1084, 85, 81, 1086, 1085, 1089, 1080	Kishore Chandra, Kaushalya Devi
		N 396348 to N 396358 & E 3299388 to E 3299328	1113, 1116, 1109	Govt. Land
V year Pit- 4	1590-1584	N 396398 to N 396473 & E 3299340 to E 3299207	1330,1331,1328,1329,1326,1325,1350, 1351,1352,1364,1368,1365,1370,1364, 1371,1382,1378,1115, 1114, 1117, 1106, 1108, 1104, 1105, 1103, 1100, 1101, 1144, 98, 97, 46,1145,43,42,1141,1184,1140,1088, 1086, 1087, 1084, 85, 81, 1086, 1085, 1089, 1080, 1328, 1326, 24, 1329, 1360, 62, 1373, 1369, 1367, 1323, 1306, 1310, 1304, 1308, 1307, 1244, 1248, 1249, 1247, 1233, 1240, 1332, 1328, 1324, 1351, 64, 1363, 1369, 1366, 367, 1352, 1323, 1373	Kishore Chandra, Kaushalya Devi
		N 396427 to N 396490 & E 3299334 to E 3299223	1113, 1116, 1109,	Govt. Land

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Soil Dump	Coordinates	Khasra	Name of Lease Holder/Holders
I Year	N 3962200 to N 396220 & E 3299384 to E 32993817	803,798.799.880	Kishore Chandra
	N 396202 to N 396221 & E 3299391 to E 3299387	775,801	Govt. Land
II year	N 396181062 to N 396200 & E 3299388 to E 3299384	776,777,779,778,770,740	Kishore Chandra
	N 396183 to N 396202 & E 3299395 to E 3299391	775, 773	Govt. Land
III year	N 396089 to N 396108 & E 3299658 to E 3299653	188,195,196,199,198,	Kishore Chandra, Hari Dutt
	N 396090 to N 396109 & E 3299665 to E 3299661	200	Govt. Land
IV year	N 396282 to N 396302 & E 3299329 to E 3299328	1107,1115,1129,1170,1670,1122, 1125,1106	Kaushalya Devi, Kishore Chandra
	N 396283 to N 396302 & E 3299337 to E 3299336	1112	Govt. Land
V year	N 396499 to N 396514 & E 3299221 to E 3299235	1330,1331,1334	Kishore Chandra
	N 396494 to N 396508 & E 3299227 to E 3299240	Nil	Govt. Land

Interburden Dump	Coordinates	Khasra	Name of Lease Holder/Holders
I year	N 396162 to N 396181 & E 3299383 to E 3299388	709.748,754,753,779,772,750,749, 40, 771, 755, 750, 749,745,708	Kishore Chandra
	N 396160 to N 396183 & E 3299391 to E 3299395	780	Govt. Land
II year	N 396143 to N 396162 & E 3299379 to E 3299388	709,708,707	Kishore Chandra
	N 396141to N 396160 & E 3299386 to E 3299391	710	Govt. Land
III year	N 396070 to N 396089 & E 3299662 to E 3299658	184,186,188,190,182	Kishore Chandra, Hari Dutt
	N 396071 to N 396090 & E 3299670 to E 3299665	Nil	Govt. Land
IV year	N 396263 to N 396282 & E 3299330 to E 3299329	1129,1125,1122,1124,1126,1135	Kaushalya Devi, Kishore Chandra
	N 396263 to N 396283 & E 3299338to E 3299337	1130	Govt. Land
V year	N 396485 to N 396499 & E 3299208 to E 3299221	1294,1293	Kishore Chandra
	N 396480 to N 396494 & E 3299213 to E 3299227	Nil	Govt. Land

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Proposed Plantation	Coordinates	Khasra	Name of Lease Holder/Holders
I year	N 396062 to N 396143 & E 3299417 to E 3299379	707,605,706,705,703,702,711,677,674,672,603,669,677,668,603,671,667,668,680,666	Kishore Chandra, Premvallabh
	N 396074 to N 396141 & E 3299412 to E 3299386	710	Govt. Land
II year	N 396065 to N 396065 & E 3299486 to E 3299413	653,629,649,655,658,659,686,688,687,684,682,680	Kishore Chandra, Premvallabh
	N 396069 to N 396074 & E 3299489 to E 3299412	Nil	Govt. Land
III year	N 396005 to N 396028 & E 3299624 to E 3299543	598,597,503,507,508,502,509,510,511,516,517,512,519, 630,631,632,543	Kishore Chandra, Haridutt,
	N 396012 to N 396035 & E 3299626 to E 3299545	599, 633, 529	Govt. Land
IV year	N 396274 to N 396320 & E 3299469 to E 3299420	899,41,840,400,401,942,936,932,943, 948,942,830	Kishore Chandra, Jagdish Ram
	N 396282 to N 396325 & E 3299474 to E 3299426	940	Govt. Land
V year	N 396408 to N 396485 & E 3299213 to E 3299208	1293,1286,84,1285,1283,1282,1280,1279, 1289,1282	Kishore Chandra
	N 396410 to N 396480& E 3299220 to E 3299213	Nil	Govt. Land

(ii) Proposed method of mining:

- The mining will be done semi-mechanized way in open cast method in quite a systematic manner by forming 9 m high benches with1.5m sub-benches. However, there may be minor variation in the width and height which the lessee will keep on mending.
- The top soil and interburden to be scrapped with the help of JCB machine, dozer, shovels, pickaxe, spade & crowbar and will be stacked separately in dump yard located near the working pit.
- The extracted mineral is properly sorted out at the mine site. Crow bars are sometimes used to dislodge the mineral.
- The excavation for soapstone will be made through JCB Machine, dozer, shovels, pickaxe, spade & crowbar.
- The benches will be developed from middle to top at present in *nap* land only.
- It is proposed to make 9.0m height benches which will be sliced in three stages each of 3.0m hight with 1.5m height sub benches.
- The slope of the faces will be kept 60^0-70^0 and the ultimate slope of the pit will remain 45^0.
- Developmental work will be done by construction of road/track to different working benches, removal of top soil and interburden.
- The soil will be filled into the bags, loaded on mules and unload into stockyard.

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- The interburden generated during mining will be separately stacked and places shown within the applied area which will be backfilled.
- Sorting of high grade soapstone will be done on the benches by the labourers and it will be graded.
- The local people will be used for removal of mineral to the nearest road point from where the minerals will be transported by trucks to Haldwani
- The mineral will be loaded over the trucks by the manual labour. The pit will be connected by track/foot path to the main road.
- The slope of track may vary from 1:8 to 1:20.
- Each mining face will be connected by track/road having width 3.0m.
- Exploitation of soapstone is small scale of mining and does not require any drilling & blasting
- The average rate of production of soapstone is estimated in between 28000 to 30000 tonnes from I year to V year.
- Proper precautionary measures shall be taken to prevent soil erosion.
- The recovery of the soapstone will be 40% of the total excavation.
- Office, store, first aid centre, drinking water shed, rest shelter etc. will be constructed temporarily within the applied area.

The mining is confined in the applied area and mining benches of the pit will be backfilled to retain its original topography therefore the efforts for afforestation would be done inside the applied area in between lease boundary and UPL, about 0.310 area will be covered by 1397 saplings in this five year in UPL area. . Total 125910 saplings will be done incoming five years and upto lease period 688635 saplings will be done in *Van Panchayat* and forest land after taking due permission from concerning authority.

- The top soil and interburden are stacked separately in dump yard within the applied area and will be used for reclamation of the pit after exploitation of the mineral.
- Mining operations shall be carried out scientifically by following the provisions of Mining and Minerals (Development & Regulation) Act, 2015, MCDR Notification 2017, Uttarakhand, Metalliferrous Mines Regulations (MMR) 1961, UKMMCR 2001 and time to time directions/amendment given by Geology & Mining Unit & State Government will not be over looked at any stage.
- 7.5 m un-mined barrier will be maintained all along the lease boundary and vegetation growth generated on such boundary to isolate mining from rest of the area.
- Exploitation of the soapstone will not be done in land for public use.

Excavator shall be deployed for the removal of overburden & interburden. The soapstone will be extracted manually with the help of crow bar, chisels, pickaxe, hammers, spade etc scattered habitation exists towards western. North & eastern side of the area. Soapstone is soft mineral therefore no drilling & blasting shall be required. No further beneficiation will be required except breaking & sorting. From road side the soapstone bags will be loaded into trucks through manually and

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transported to Haldwani The salient points of proposed method of mining are given below:-

It will be open cast mechanized mine. Due to the scarcity of workers it is not possible to carry out mining operation systematically & scientifically through the formation of benches. Therefore lessee has left no option but to deploy an excavator for systematic & scientific mining, conservation of mineral & protection of environment. During first three years, mining is proposed in already degraded land in two pits therefore generation of top soil shall nil. During the year 2021-2 & 2023-24 few fresh area shall be broken by mining pits & 182cum soil shall be generated & all quantities shall be spread over the backfilled are to put it use for agriculture purpose

Hard strata is exposed with in lease hold. It has been revealed from past mining experience that average recovery of waste rock / boulders is around 60% of total ROM. The rock formation is too hard & rock breaker is being deployed for the removal of hard strata. Lessee intends to set up small crusher unit so that waste rock/ boulders shall be utilised for making aggregates. If waste material is used for making aggregates, the problem is disposal of waste shall be solved & govt. will earn revenue. Chemical analysis of waste material was carried out from Laboratory of Directorate of Geology & Mining Bhopalpani, Dehradun test report reveal that it has no industrial use except for building & construction purpose.

Extraction & management of minerals has to be guided by long- term national goals & perspective & integrated into the overall strategy of the country's economic development. Mining technology will be upgraded to ensure extraction & utilisation of entire Run of Mines (ROM). There shall be an adequate & effective legal& institutional framework promoting zero waste mining as the ultimate goal & commitment to prevent sub-optimal & unscientific mining.

Mining shall be carried out from lower level & subsequently advance to upper levels. As soon as mining pits reach its maximum economical depth backfilling shall be commenced from lower level to restore the maximum original topography of the area. This is common practice of soapstone mining in Kumaon Himalayas. Backfilling in both the pits shall commenced from second year onwards to restore the mined out pit to its maximum original topography. The average depression will be 2.0m with respect to its original topography.

The development activities along with khasra details are shown in year wise development plan.

All quantities of waste material to be generated each year shall be dumped with in lease area secured with retaining wall.

The broad parameters of working benches:

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Item	Details
i) Method of Mining	Mining operation has been proposed by mechanized open cast method.
ii) Benches parameters	The broad parameters of working benches:
Bench Height	3.0m to 8.0m
Width	8.0m
Haul road width	6.0m
Bench slope	68^0
Over all Pit slope	32^0
Overall depth of mine during plan period	In pit I, 3m to 8m (from 1533mRL to 1524mRL) while in pit II, 3m to 8m (From 1515mRL to 1509mRL).
Gradient of Haul Road	1:16
Grid reference of proposed working location	Pit I will be in between coordinates N 396172 to N 396211 & E 3299533 to E & while Pit II in between coordinates N 396131 to N 396179 & E 3299510 to E 3299395.
Water table	No water table will be encountered due to proposed mining activities.
Pumping of water	No water will accumulate in the mining pit therefore no such proposal has given for pumping water.
Surface water management	Seasonal drainage exists within area & flow north to south direction. Mining activities are proposed for away from drainage & mining operations shall be temporarily closed during monsoon period. During monsoon period all mining pits shall be backfilled, therefore there shall be no adverse impact on water on water regime. Few check damps are proposed across the drainage to settle down suspended solids if any.

Retaining wall having width & height 1.0m shall also be erected at the base of backfilled pit and at the base & side of dump. Check dam having dimension of 5m x 2mx 1.0m shall be erected across the drainage to control the siltation during rainy season. Periodically cleaning of check dam & shall be undertaken for smooth flow of water.

The year wise completion of activities of check dams & retaining walls during plan period is as below:

Activities	Year				
	2020-21	2021-22	2022-23	2023-24	2024-25
Retaining wall at the edge of backfilled pit (1 to 4)	172 m	133m	185m	89m	141m
Retaining wall at the base & side of dump	55m	54m	56m	55m	54m
Check dam	1 nos.	1 nos.	1 nos.	1 nos.	1 nos.

Geotechnical Studies: Geotechnical studies like slope failure, slip failure, rock failure etc. shall be carried out yearly. The retaining wall having proper shape & size shall be erected considering all technical parameters.

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The width of benches shall kept 3m and height of benches shall be kept 3.0m to 9.0m & slope of faces shall be kept 68^0. Approach road having width 3.0m gradient 1:16 shall be provided to connect each mining faces. In Pit 1 & Pit 2 mining faces shall advance towards south to southwestern direction & alignment of faces by & large in south direction. During first year to fifth year interburden to be generated from pit 1 & pit 2 shall be dumped separately towards slope of working pits & 70% quantities shall be used for backfilling. Initially interburden will be filled in the mined out pit & lateral on soil shall be spread over it, levelled it & restore to its maximum original topography. After backfilling the area shall be used for agriculture purpose.

Excavator shall be deployed to remove the interburden & dump on dumping ground. For the breaking of hard rock/boulders, rock breaker shall be used.

The make & model of excavator is as below:

Make & Model	Bucket Capacity	Boom length
Hundai-210	1cum	3mm
Rock Breaker	1mtr length	Dia 6"

Mining activities shall be carried out in owl shift only & excavator/rock breaker shall be deployed from 8.0am to 5.0pm.

Future proposal of mining is given in two pits and area of proposal of mining is given in already degraded land. In pit 1, 1.154 ha. area shall be broken and in pit2, 0.682 ha. area shall be broken due to mining pit during next five years. Out of 54465 Cum overburden 33643 Cum from pit 1 and 54465 Cum from pit 2 waste quantities shall be backfilled/reclaimed, levelled it & put it use for agriculture purpose.

(iii) Last five year production target & achievement:

It is a fresh lease and no mining activity has been done so far.

(iv) Proposed five year production target:

Mining plan is being prepared for five years. Mining will be done by using semi-mechanised method to achieve the target within stipulated period and increasing the production as per demand in the market. A strip of 7.5m wide has been marked all along the lease boundary for plantation growth and other mining related allied activities like dump yard etc. One JCB having the capacity of 1/2cum will be utilised to achieve the proposed production. Year wise production target for proposed three year are given below.

Year	I	II	III	IV	V	Total
Proposed Production (Tonne)	28000	29000	30000	29000	28000	**144000**

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I Year (2020 –2021): Pit -1

About 1307m long road/ track having width of 3.0m and gradient of 1:20 will be made for the transportation of mineral and interburden. About 29721 cum of interburden and about 4116 cum of soil will be produced due to advancement of mining faces. About 300m long retaining wall having width 1.0m and height 1.5m will be made along the periphery of waste dump & soil dump. About 172m long retaining wall will be made at the edge of the back filled pit. The back filling will be undertaken after winning full depth of the mineral & back filling will not be undertaken over the benches in which mineral exist. In this year net production of soapstone will be 28000 tonnes.

Working will be undertaken from higher level to lower level. The slope of the benches will be kept 45^0. The road/ track having width of 3m and gradient of 1:20m will be connected to mine faces. The benches will have slope towards western side. In this year the soil and interburden will be dumped towards the eastern flank of the area. The mining faces will advance towards western direction. The benches upto RL 1527 m will be backfilled by end of the year. The position of benches in this year is shown in Plate -6.

The bench wise recoverable reserves, total excavation of soapstone, saleable quantities and balance recoverable reserves at the end of the year is as below.

Pit -1

Bench		Face Length	Face Advancement	Bench Width	Bench Height	Volume	ROM Soapstone (Tonne)	Production	Soil (CUM)	Interburden (CUM)
1533	1527	182.00	10.08	3.00	6.00	10006.69	9610.75	9610.75	1342.90	10201.62
1530	1524	180.00	7.99	3.00	6.00	7844.73	7534.33	7534.33	1052.76	7997.54
1527	1521	172.00	7.53	3.00	6.00	7064.51	6784.98	6784.98	948.06	7202.13
1524	1521	162.00	13.03	3.00	3.00	5756.89	5529.10	4069.90	772.57	4320.12
						30672.82	29459.16	28000.0	**4116.29**	**29721.41**

evelopment activities	Coordinates	Khasra No	Name of Owner/ Owners
Mining pit	N 396172 to N 396211 & E 3299533 to E 3299399	419,418,417,870,858,859,872,873,861,416,856, 888, 885, 887, 886, 874, 863, 860, 861, 850, 862, 863, 864, 883, 882, 825, 884, 883, 803, 804, 841, 842, 843, 865, 877, 879, 893, 892, 866, 865, 844, 867, 876, 881, 882, 895, 868, 861	Kishore Chandra,Haridutt
Soil Dump	N 3962200 to N 396220 & E 3299384 to E 32993817	803,798,799,880	Kishore Chandra
	N 396202 to N 396221 & E 3299391 to E 3299387	775,801	Govt. Land
Interburden Dump	N 396162 to N 396181 & E 3299383 to E 3299388	709,748,754,753,779,772,750,749, 40, 771, 755, 750. 749,745,708	Kishore Chandra
	N 396160 to N 396183 & E 3299391 to E 3299395	780	Govt. Land
Proposed Plantation	N 396062 to N 396143 & E 3299417 to E 3299379	707,605,706,705,703,702,711,677,674,672,603,669,677,668,603,671,667,668,680,666	Kishore Chandra, Premvallabh
	N 396074 to N 396141 & E 3299412 to E 3299386	710	Govt. Land

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II Year (2021 –2022): Pit -1

About 623m long road/ track having width of 3.0m and gradient of 1:20 will be made for the transportation of mineral and interburden. About 30783 cum of interburden and about 4711 cum of soil will be produced due to advancement of mining faces. About 293m long retaining wall having width 1.0m and height 1.5m will be made along the periphery of waste dump & soil dump. About 133m long retaining wall will be made at the edge of the back filled pit. The back filling will be undertaken after winning full depth of the mineral & back filling will not be undertaken over the benches in which mineral exist. In this year net production of soapstone will be 29000 tonnes.

Working will be undertaken from higher level to lower level. The slope of the benches will be kept 45^0. The road/ track having width of 3m and gradient of 1:20m will be connected to mine faces. The benches will have slope towards western side. In this year the soil and interburden will be dumped towards the eastern flank of the area. The mining faces will advance towards western direction. The benches upto RL 1515m will be backfilled by end of the year. The position of benches in this year is shown in Plate -7.

The bench wise recoverable reserves, total excavation of soapstone, saleable quantities and balance recoverable reserves at the end of the year is as below.

Pit -1

Bench		Face Length	Face Advancement	Bench Width	Bench Height	Volume	ROM Soapstone (Tonne)	Production	Soil (CUM)	Interburden (CUM)
1524	1521	162.00	13.03	3.00	3.00	5756.89	1459.20	1459.20	772.57	1548.91
1521	1515	154.00	10.01	3.00	6.00	8408.40	8075.70	8075.70	1128.41	8572.20
1518	1512	142.00	8.31	3.00	6.00	6436.47	6181.79	6181.79	863.77	6561.86
1515	1508	133.00	9.26	3.00	7.00	7837.33	7527.22	7527.22	1051.77	7990.00
1512	1504	130.00	7.05	3.00	8.00	6665.45	6401.72	5756.09	894.50	6109.98
						35104.55	29645.63	29000.00	4711.03	30782.94

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Developme nt activities	Coordinates	Khasra No	Name of Owner/ Owners
Mining Pit	N 396131 to N 396179 & E 3299510 to E 3299395	419,418,417,870,858,859,872,873,861,416,856,88 8,885,887,886,874,863,860,861,850,862,863,864,8 83,882,825,884,883,803,804,841,842,843,865,877, 879,893,892,866,865,844,867,876,881,882,895,86 8,861,803,804,841,76,798,779,808,796,797,844,84 0,805,843,839,807,794,795,792,839,820,838,837 8 36,852,861,851,836,826, 828, 820, 821, 833, 852, 853, 854, 855,826,858, 856, 860, 861, 859, 834, 835, 831	Kishore Chandra,Harid utt
	N 396172 to N 396211 & E 3299533 to E 3299390	420, 827	Govt. Land
Soil Dump	N 396181062 to N 396200 & E 3299388 to E 3299384	776,777.779,778,770,740	Kishore Chandra
	N 396183 to N 396202 & E 3299395 to E 3299391	775, 773	Govt. Land
Interburde n Dump	N 396143 to N 396162 & E 3299379 to E 3299388	709,708.707	Kishore Chandra
	N 396141to N 396160 & E 3299386 to E 3299391	710	Govt. Land
Proposed Plantation	N 396062 to N 396143 & E 3299417 to E 3299379	707,605,706,705,703,702.711,677,674,672,603,66 9,677,668.603,671,667,668,680,666	Kishore Chandra, Premvallabh
	N 396074 to N 396141 & E 3299412 to E 3299386	710	Govt. Land

III Year (2022 –2023): Pit -1 & 2

Existing road/ track having width of 3.0m and gradient of 1:20 will be used for the transportation of mineral and interburden. About 31844 cum of interburden and about 5258 cum of soil will be produced due to advancement of mining faces. About 286m long retaining wall having width 1.0m and height 1.5m will be made along the periphery of waste dump & soil dump. About 315m long retaining wall will be made at the edge of the back filled pit. The back filling will be undertaken after winning full depth of the mineral & back filling will not be undertaken over the benches in which mineral exist. In this year net production of soapstone will be 30000 tonnes.

Working will be undertaken from higher level to lower level. The slope of the benches will be kept 45^{0}. The road/ track having width of 3m and gradient of 1:20m will be connected to mine faces. The benches will have slope towards western side. In this year the soil and interburden will be dumped towards the eastern flank of the area. The mining faces will advance towards western direction. The benches upto RL 1512m will be backfilled by end of the year. The position of benches in this year is shown in Plate -8.

The bench wise recoverable reserves, total excavation of soapstone, saleable quantities and balance recoverable reserves at the end of the year is as below.

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Pit- 1

Bench		Face Length	Face Advancement	Bench Width	Bench Height	Volume	ROM Soapstone (Tonne)	Production	Soil (CUM)	Interburden (CUM)
1512	1504	130.00	7.05	3.00	8.00	6665.45	645.63	645.63	894.50	2073.09
1509	1504	136.00	8.41	3.00	5.00	5198.91	4993.20	4993.20	697.69	5300.18
Pit-2										
1518	1513	154.00	12.67	3.00	5.00	8869.00	8518.07	8518.07	1190.22	9041.77
1515	1512	172.00	16.90	3.00	3.00	7927.64	7613.96	7613.96	1063.89	8082.07
1512	1509	185.00	12.57	3.00	3.00	6342.14	6091.19	6091.19	851.11	6465.68
1509	1506	187.00	8.20	3.00	3.00	4182.00	4016.53	2137.95	561.22	2269.39
Total						**39185.14**	**31878.57**	**30000.00**	**5258.65**	**31844.41**

Development activities	Coordinates	Khasra No	Name of Owner/ Owners
Mining Pit	N 396122 to N 396179 & E 3299510 to E 3299395	419,418,417,870,858,859,872,873,861,416,856,888,885,887,886,874,863,860,861,850,862,863,864,883,882, 825, 884, 883, 803, 804, 841, 842, 843, 865, 877, 879, 893, 892, 866, 865, 844, 867, 876, 881, 882, 895, 868, 861, 803, 804, 841, 76, 798, 779, 808, 796, 797, 844, 840, 805, 843, 839, 807, 794, 795, 792, 839, 820, 838, 837, 836, 852, 861, 851, 836, 826, 828, 820, 821, 833, 852, 853, 854, 855, 826, 858, 856, 860, 861, 859, 834, 835, 831, 84, 86, 65, 464, 188, 195, 19, 466, 463, 462, 460, 57, 56, 459, 56, 477, 469, 68, 55, 551, 552, 553, 554, 63, 64, 566, 562, 557, 561, 558, 559, 560, 544, 540, 542, 544, 597, 546, 585, 588, 549, 542, 523, 547, 600, 548, 543, 503, 602, 607, 603, 604, 608, 600, 602, 601, 542, 546, 544, 557, 554, 552, 527, 558, 557, 566, 568, 556, 561, 562, 540, 547, 506, 818, 821, 822, 817, 816, 812, 814, 28, 24, 20, 23, 24,13,84, 864, 786, 741, 784, 786, 63, 722, 764, 65, 787, 788	Kishore Chandra,Haridutt,Suresh Chandra
	N 396171 to N 396131 & E 3299393 to E 3299510	420, 827	Govt. Land
Soil Dump	N 396089 to N 396108 & E 3299658 to E 3299653	188,195,196,199,198,	Kishore Chandra, Hari Dutt
	N 396090 to N 396109 & E 3299665 to E 3299661	200	Govt. Land
Interburden Dump	N 396070 to N 396089 & E 3299662 to E 3299658	184,186,188,190,182	Kishore Chandra, Hari Dutt
	N 396071 to N 396090 & E 3299670 to E 3299665	Nil	Govt. Land
Proposed Plantation	N 396005 to N 396028 & E 3299624 to E 3299543	598,597,503,507,508,502,509,510,511,516,517,512,519, 630,631,632,543	Kishore Chandra, Haridutt,
	N 396012 to N 396035 & E 3299626 to E 3299545	599, 633, 529	Govt. Land

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IV Year (2023 –2024): Pit -3 & 4

Existing road/ track having width of 3.0m and gradiem of 1:20 will be used for the transportation of mineral and interburden. About 30782 cum of interburden and about 4114 cum of soil will be produced due to advancement of mining faces. About 300m long retaining wall having width 1.0m and height 1.5m will be made along the periphery of waste dump & soil dump. About 130m long retaining wall will be made at the edge of the back filled pit. The back filling will be undertaken after winning full depth of the mineral & back filling will not be undertaken over the benches in which mineral exist. In this year net production of soapstone will be 29000 tonnes.

Working will be undertaken from higher level to lower level. The slope of the benches will be kept 45^0. The road/ track having width of 3m and gradient of 1:20m will be connected to mine faces. The benches will have slope towards western side. The mining faces will advance towards western direction. The benches upto RL 1593m will be backfilled by end of the year. The position of benches in this year is shown in Plate -9.

The bench wise recoverable reserves, total excavation of soapstone, saleable quantities and balance recoverable reserves at the end of the year is as below.

Pit -3

Bench		Face Length	Face Advancement	Bench Width	Bench Height	Volume	ROM Soapstone (Tonne)	Production	Soil (CUM)	Interburden (CUM)
1566	1560	63.00	6.76	3.00	6.00	2322.98	1878.58	1878.58	311.74	1994.07
1563	1557	53.00	9.93	3.00	6.00	2870.67	2757.09	2757.09	385.24	2926.59
1560	1554	55.00	7.59	3.00	6.00	2277.00	2186.90	2186.90	305.57	2321.36
1557	1551	54.00	8.53	3.00	6.00	2512.47	2413.06	2413.06	337.17	2561.42
1554	1548	52.00	9.00	3.00	6.00	2552.73	2451.72	2451.72	342.58	2602.45
1551	1545	50.00	6.41	3.00	6.00	1748.18	1679.01	1679.01	234.61	1782.24
1548	1542	41.00	9.94	3.00	6.00	2222.95	2134.99	2134.99	298.32	2266.25
1545	1539	37.00	7.67	3.00	6.00	1547.95	1486.70	1486.70	207.73	1578.10
Pit-4										
1593	1587	89.00	13.72	3.00	6.00	6660.44	6396.90	6396.90	893.83	6790.18
1590	1585	111.00	11.78	3.00	5.00	5943.55	5708.37	5615.06	797.62	5960.28
						30658.91	**29093.31**	**29000.00**	**4114.43**	**30782.93**

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Developme nt activities	Coordinates	Khasra No	Name of Owner/ Owners
Mining pits	N 396280 to N 396282 & E 3299370 to E 3299337	1330,1331,1328,1329,1326,1325,1350,1351,1352,1364 ,1368,1365,1370,1364,1371,1382,1378, 1115, 1114, 1117, 1108, 1104, 1105, 1103, 1100, 1101, 1144, 98, 97, 46, 1145, 43, 42, 1141, 1184, 1140, 1088, 1086, 1087, 1084, 85, 81, 1086, 1085, 1089, 1080	Kishore Chandra, Kaushalya Devi
	N 396348 to N 396358 & E 3299388 to E 3299328	1113, 1116, 1109	Govt. Land
Soil Dump	N 396282 to N 396302 & E 3299329 to E 3299328	1107,1115,1129,1170,1670,1122, 1125,1106	Kaushalya Devi, Kishore Chandra
	N 396283 to N 396302 & E 3299337 to E 3299336	1112	Govt. Land
Interburde n Dump	N 396263 to N 396282 & E 3299330 to E 3299329	1129,1125,1122,1124 1126,1135	Kaushalya Devi, Kishore Chandra
	N 396263 to N 396283 & E 3299338to E 3299337	1130	Govt. Land
posed Plantation	N 396274 to N 396320 & E 3299469 to E 3299420	899,41,840,400,401,942,936,932,943, 948,942,830	Kishore Chandra, Jagdish Ram
	N 396282 to N 396325 & E 3299474 to E 3299426	940	Govt. Land

V Year (2023 – Dec. 2024): Pit -4

About 73m long road/ track having width of 3.0m and gradient of 1:20 will be made for the transportation of mineral and interburden. About 29721 cum of interburden and about 4700 cum of soil will be produced due to advancement of mining faces. About 286m long retaining wall having width 1.0m and height 1.5m will be made along the peripiery of waste dump & soil dump. About 141m long retaining wall will be made at the edge of the back filled pit. The back filling will be undertaken after winning full depth of the mineral & back filling will not be undertaken over the benches in which mineral exist. In this year net production of soapstone will be 28000 tonnes.

Working will be undertaken from higher level to lower level. The slope of the benches will be kept 45°. The road/ track having width of 3m and gradient of 1:20m will be connected to mine faces. The benches will have slope towards western sides. The soil and interburden will be dumped towards SE and western side of the pit. The mining faces will advance towards west to southwestern direction. The benches upto RL 1587m in Pit -4 will be backfilled by end of the year. The position of benches in this year is shown in Plate -10.

The bench wise recoverable reserves, total excavation of soapstone, saleable quantities and balance recoverable reserves at the end of the year is as below.

Pit -4

Bench		Face Length	Face Advancem ent	Bench Width	Bench Height	Volume	ROM Soapstone (Tonne)	Productio n	Soil (CUM)	Interburde n (CUM)
1590	1585	111.00	11.78	3.00	5.00	5943.55	93.31	93.31	797.62	99.05
1587	1580	145.00	15.53	3.00	7.00	14329.95	13762.95	13762.95	1923.08	14609.10
1584	1577	182.00	12.74	3.00	7.00	14755.24	14171.40	14143.74	1980.15	15013.31
						35028.74	**28027.66**	**28000.00**	**4700.86**	**29721.46**

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Development activities	Coordinates	Khasra No	Name of Owner/ Owners
Mining pits	N 396398 to N 396473 & E 3299340 to E 3299207	1330,1331,1328,1329,1326,1325,1350,1351,1352,1364,1368,1365,1370,1364,1371,1382,1378,1115, 1114, 1117, 1106, 1108, 1104, 1105, 1103, 1100, 1101, 1144, 98, 97, 46, 1145, 43, 42, 1141, 1184, 1140, 1088, 1086, 1087, 1084, 85, 81, 1086, 1085, 1089, 1080, 1328, 1326, 24, 1329, 1360, 62, 1373, 1369, 1367, 1323, 1306, 1310, 1304, 1308, 1307, 1244, 1248, 1249, 1247, 1233, 1240, 1352, 1328, 1324, 1351, 64, 1363, 1369, 1366, 367, 1352, 1323, 1373	Kishore Chandra, Kaushalya Devi
	N 396427 to N 396490 & E 3299334 to E 3299223	1113, 1116, 1109,	Govt. Land
Soil Dump	N 396499 to N 396514 & E 3299221 to E 3299235	1330,1331,1334	Kishore Chandra
	N 396494 to N 396508 & E 3299227 to E 3299240	Nil	Govt. Land
Overburden Dump	N 396485 to N 396499 & E 3299208 to E 3299221	1294,1293	Kishore Chandra
	N 396480 to N 396494 & E 3299213 to E 3299227	Nil	Govt. Land
Proposed Plantation	N 396408 to N 396485 & E 3299213 to E 3299208	1293, 1286, 84, 1285, 1283, 1282, 1280, 1279, 1289, 1282	Kishore Chandra
	N 396410 to N 396480& E 3299220 to E 3299213	Nil	Govt. Land

6.2 Plans and Sections:

All plan and sections of working pist from I to V year are shown in Plates -6 to 11. Retaining wall will be made around the periphery of the non mining area to protect the slopes. About 2363 m long retaining wall will be made along nala, dumping area, along benches and unstable slopes around non mining if any.

6.3 Blasting:

In the leasehold area since the soapstone is bedded, jointed and fractured in nature, soft minerals, its hardness has been considered as 1 on moh's hardness scale. It can be easily mined. Mostly nature of the overburden is silty clayey soil embedded with dolomite & magnesite boulders upto 1m size generally. Therefore blasting may not be needed both in soapstone as well as in overburden.

6.4 Mine Drainage:

The deposit is situated in the lesser Himalayan region and has a moderate rainfall. The highest is about RL 1670.2m on the north-eastern flank of the area, while the lowest RL recorded on the western flank of the area is about 1483.1m and a general slope of 30^0 is from south-west direction. Water table in this area is very deep ranging from 75 to 90m. No water problem is envisaged in the working pits since the rain water will be coursed through the garland drain to be provided on the upper side of the lease area and drainage on the benches provided on the hillside by slight slopping the benches. The only source of the water shall be

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the rain water which shall flow along the natural slopes. The lessee has provided five check dams to course the water and control the flow of the scree material into the Nala. The check dams have been proposed to restrict scree material from going to Nala to check further water pollution. There are no water bodies within the lease area.

During first five years, the mine working will be confined in crop/ nap land of the leasehold area. Water table will not be interfered by the mining operations. Therefore no proposal has been given for disposal of mine water finally discharged

a) **Minimum and maximum depth of water table based on observations from nearby wells and water bodies**

One perennial spring exists outside the lease area in village Kabhalta which is about 300m away towards SE direction of proposed mining area. Practically there is no fluctuation in water table throughout the year.

b) **Indicate maximum and minimum depth of Workings.**

The proposed bottom level of working pit is expected in pit 1 up to 1521m RL in I year and 1504m RL in II & III year, in pit 2 up to 1506m RL in III year, in pit 3 up to 1539m RL in III year while in Pit 4 upto 1585m RL in IV year and RL 1577m in 5th year & water table will not be intersected by mining operations as spring about 900m away from the proposed working area. The seasonal drainage exists at center at outside the area. Proposed mining area is for away from existing drainage, therefore chances to encounter the water within the working pit shall be nil during next five years.

c) **Quantity and quality of water likely to be encountered, the pumping arrangements and places where the mine water is finally proposed to be discharged|**

Mine working will not go beyond pit 1 up to 1504mRL depth, in pit 2 upto 1506mRL depth, in pit 3 upto 1506mRL depth and in pit 4 upto 1577mRL depth during next five years shall be 9m, thus there is no chance to encounter the water table.

d) **Describe regional and local drainage pattern. Also indicate annual rain fall, catchments area, and likely quantity of rain water to flow through the lease area, arrangement for arresting solid wash off etc.**

Five seasonal drainage flow with in the area & the proposed side of mine workings are far away from the drainage, therefore there will be no chances to encounter the water within the working pits during next five years. Before the commencement of rainy season, all the mined out pit shall be prematurely backfilled so chances of accumulation of rainy water in the mining pit shall be nil during next five years.

6.5 Disposal of waste:

The top soil will be removed with the help of JCB machine, dozer, shovels, pickaxe, spade & crowbar and stacked separately. The soil intermixed with fragments and interburden

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rejects are low grade magnesite. Part of these rejects will be utilized in construction and maintenance of retaining walls, parapet walls, check dams and other construction works. About 45856 cum of rejects will be used for this task, and remaining rejects about 129898 cum will be backfilled.

The quantity of top soil & overburden (Rejects/Waste) to be generated in each year is given below: -

Year	Top Soil (cum)	Interburden (cum)	Mineral Rejects (cum)
I	4116	29721	33838
II	4711	30783	35494
III	5259	31844	37103
IV	4114	30783	34897
V	4701	29721	34422
Total	22901	152853	175754

The site for dumping the waste have been selected keeping in mind the ultimate pit limit, proximity to roads and lead from working benches. The proposed dump yards have adequate capacity to accommodate the waste production without rehandling except backfilling. Drainage from the dumps remain natural i.e., water shall be passed under the solid dumps. The built up of waste has been shown on the yearly mining plan and section. The top soil and interburden dump are temporary in nature & when pit will reach the economical depth; all the quantities will be used in backfilling to restore the maximum topography of the area. The location of top soil stack and interburden dump are shown in Plate –6 to 9 and also given below:

Interburden dump location	Soil stack location
N 396070 – N 396499 & E 3299208 – E 3299670	N 396089 – N 396514 & E 3299221 – E 3299658

6.6 Storage and prevention of top soil:

The soil will be removed with the help of JCB machine, dozer, shovels, pickaxe, spade & crowbar and loaded manually to stack on the dump yard. Stacking will commence at RL 1518 to RL 1521m in first year, RL 1509 to RL 1518m in second year, RL 1515 to RL 1521 in third year, RL 1542 to 1545m in fourth year & RL 1587 to 1590m in fifth year. The spread of stacks will be undertaken through mechanically and manually both & average dump height kept 1.5m. In first year 143 m^2 areas was earmarked for stacking of soil with 1.5m height. In second year it is 150 m^2 areas. Similarly in third, fourth & in fifth year 143 m^2, 150 m^2 and 143 m^2 area have been respectively earmarked for stacking of soil with 1.5m average height. The year wise spread of stack is given below:

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Soil stack	I year	II year	III year	IV year	V year
Length	19m	20m	19m	20m	19m
Width	7.5m	7.5m	7.5m	7.5m	7.5m
Average height	1.5m	1.5m	1.5m	1.5m	1.5m
Angle of repose	36^0	36^0	36^0	36^0	36^0

6.7 Proposal for reclamation of land affected by mining activities:

The mining will commence from the higher levels and will advance towards lower levels. Intermittent backfilling will commence from the higher levels and subsequently advance towards the lower elevations so that terraced agricultural fields would undertaken in such a manner that original land use will be restored i.e. before the onset of monsoon will be handed over to cultivators for cultivation. The final backfilling will be started once the ultimate benches are formed and pit reaches the optimum economic depth. The year wise proposal for reclamation is shown in Plate – 6 to 10 enclosed in the Mining Plan.

All recovery of the mineral will be of the saleable grade. The quantum of development and mineral to overburden soil and interburden in the pit is given below:

Year	Overburden soil (cum)	ROM (Tonnes)	Interburden (cum)	Stripping ratio
I	35387	28000	29721	1:0.43
II	12022	29000	30783	1:0.68
III	39097	30000	31844	1:0.42
IV	8245	29000	30783	1:0.74
V	34452	28000	29721	1:0.44
Total	129202	144000	152853	

The closure proposals implemented during the first five year period are given below:

A. Mines out land	Crop/*Nap* land (ha)
a) (i) Area already broken up	-
(ii) Area already backfilled	-
(iii) Area already reclaimed	-
b) (i) Additional area proposed to be broken up during first 5 year	2.798
(ii) Additional area proposed to be backfilled	2.449
(iii) Additional area proposed to be reclaimed	2.798

B. Dump- Soil & Interburden (IB)	Crop/*Nap* land (ha)
(i) Area occupied by dump	Soil- 0.026 IB- 0.025
(ii) Additional area to be covered by dump	-
(iii) Dump area to be covered by protective measures	-

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C. Plantation	Revenue/*Benap* land (ha.)	Crop/*Nap* land (ha)
(i) Area already covered	-	-
(ii) Area proposed to be covered under plantation in next five years	-	0.310

Proposed land use (till end of life in ha.)

S. No.	Description	Area	Reclaimed & Rehabilitated till end of last MP/MS period	To be Reclaimed & Rehabilitated till the end of present plan/ scheme period	To be Reclaimed & Rehabil-itated till the end of life of mine	*To be Reclaimed & Rehabil-itated after end of life of mine	Remarks Area to be reclaimed by the end of lease
1	Mining (Quarry)	2.798	2.798	2.798			9.642
2	Waste dump	0.146	0.146	0.146			0.146
3	Office infrastructure	0.009	0.009	0.009			0.009
4	Processing plant	-	-	-			
5	Mineral Stack/Processing yard	0.005	0.005	0.005			0.005
6	Sub grade mineral stacks	0.006	0.006	0.006			0.006
7	Roads	0.156	0.156	0.156			0.538
8	Water course/pond/ reservoir	-	-	-			-
9	Unutilized area	12.193	12.193	12.193			4.971
	Total	**15.313**	**15.313**	**15.313**			**15.313**

6.8 Measures for dust suppression:

Soapstone is a talcose rock mineral composed of hydrous magnesium silicate. The specific gravity is around 1. Therefore 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 gaseousemission 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. Some measures are as follows:

- 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.

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- Vehicles carrying mineral will be covered with tarpaulin sheet. This will prevent dust emission

The existing kachha foot track shall be converted into cemented foot track. Apart from this water sprinkling on haul roads shall be undertaken during dry spell of months to suppress dust. The soil and interburden to be generated a temporarily in nature and all quantities shall be used in premature backfilling before commencement of monsoon as direction by district administration. After over the monsoon the backfilled material shall be rehandled by means of an excavator and dump over existing dump yard secure with toe walls.

6.9 Measures to minimize vibration due to blast and check noise pollution:

Vibration Level (Due to Blasting):

As proposed mining method is opencast and semi mechanised, since mining operations are proposed on a very small scale and excavation activity will be small. without drilling and blasting, hence, there will be no impact on vibration level due to blasting.

Noise Level:

Long term exposure to high noise levels can cause damage to hearing, headache, fatigue and disorders to blood pressure etc. No such disorders have been reported from district Pithoragarh mining leases because the exposure to cause of noise is comparatively short and volume of noise is quite low.

The sources of noise are excavation operations and mineral transportation which is limited because of small size of mining operations. To keep the noise level to the minimum, Green Belts shall be provided around the mining area. Opencast mining has been proposed with semi mechanization means But mining does not include drilling and blasting. Transportation of mineral from mine site to road head will be done manually or with dumper. Hence, noise level due to transportation is negligible.

6.10 Mineral Processing:

Only dressing & breaking is being carried out at pit head to remove waste material. Different grade of mineral & packed in 50kg plastic bags & transported to Haldwani. No Mineral processing to upgrade the mineral shall be carried out.

6.11 Tailing Dam:

No tailing dam is proposed in the soapstone mine.

6.12 Guidelines for scrutiny with respect to mineral beneficiation:

No beneficiation of mineral processing will required for Soapstone mineral. There for no such investigations have been conducted.

Except dressing & breaking no beneficiation of mineral processing is required for soapstone mining. The soil coating within soapstone shall be dressed with brush and stacked separately. If any kind of impurities observed within soapstone dumps it shall be broken with hammer, dress manually & stack separately.

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6.13 How many time penalties imposed upon lessee against illegal mining:

None

6.14 Employment potential/mine management plan:

Employment Potential

The mine manager cum mining engineer should be a graduate mining engineer holding at least second class manager's certificate. The mate-cum-blaster should hold mining mate certificate of competency.

The category-wise employments are given as below:

Manager certificate from DGMS	:	1
Skilled		
Supervisor	:	3
Time Keeper	:	1
Office Assistant/Dispatch Supervisor	:	3
Un-skilled		
Daily wages workers	:	63
Total :		**71**

The services of following persons/agencies may be retained on part/full time basis.

(i) Geologist
(ii) Mining Engineer
(iii) Environment consultancy agency
(iv) Surveyor

The production envisaged is 144000 tonnes which shall be achieved during fifth years which implies that 120 tonnes of production per day considering 240 working days in a calendar year.

Due to past mining experience with in lease area, the OMS varies from 1.5 tonnes to 2.0 tonnes. Considering average OMS 1.8 tonnes, which implies that 66 workers shall be employed to achieve the required production.

6.15 Environment management plan:

Land degradation and ecological disturbances generally occurs in open cast mining. In preparation of mining plan for Kabhata soapstone mine of M/s Devbhoomi Mines, emphasis on environmental protection has been given to minimize the adverse impact on the present environmental status. Opencast method of mining causes some land degradation and disturbs

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the ecology of the area. While preparing the Environment Management Plan emphasis has been laid on restoring the ecology of the area as much as is possible. This has been made possible by planning the mine workings in the most systematic, safe and scientific manner with due regard to conservation of mineral.

Land use

The collection of baseline data has been carried out from buffer zone and core zone, which includes an area of about 5 km in surrounding the lease area and an area of 500 m surrounding the lease area respectively (Plate No. 14). Normally in hills the geographical distances become meaningless as one side of the hill has hardly any connection with another side, although separated by a small plan distance. In fact the Core Zone area could be confined to the lease area which may be affected by mining and may have close relationship with reference to socio-economic impact of the area. An electric line with electric pole is passing within the lease area hence due care & mining activity should be restricted around the periphery of electric pole should be taken during the exploitation of the mineral.

Existing land use pattern indicating the area already degraded due to quarrying/pitting, dumping, roads, processing plant, workshop, township etc. in a tabular form is given below:

Name of Land use	Forest Land (ha)	Crop Land (ha)	Grazing Land (ha)	Waste Land (ha)	Revenue Land (ha)	Total (ha)	Indicate land required outside applied area (ha)
(a) Pit & Quarries	-	2.798	-	-	-	2.798	
(b) Dumps of ore waste & Overburden	-	0.146	-	-	-	0.146	-
(c) Mineral stack	-	0.005	-	-	-	0.005	-
(d) Infrastructure including of office, workshop, plants & road	-	0.165	-	-		0.165	-
(e) Township	-	-	-	-	-	-	-
(f) others (i) Barren land (ii) Crop land	-	12.199				12.199	
Total area	-	15.313	-	-	-	15.313	-
(g) Area backfilled by mine owners	-	2.798	-	-	-	2.798	-
(h) Area afforested by mine owners	-	-	-	-	Nil	Nil	-

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Water regime:

The ground water table in this hilly region is very deep and hence ground water is not interfered in opencast mining. There are seasonal tributaries or stream outside the leasehold area; however, rain water flows down to western slopes towards the valley causing no problem to the habitat.

No old-pits show any confined water body. The general surface drainage is controlled by the slope in the area and there is no drainage exists in the leasehold area. Water pollution can result from natural runoff, dissolved chemicals in water that percolates through the soil and human sources, such as agriculture, mining industry, construction, homes and industry.

The applied area is basically agriculture/ *nap land*. There are no specific trees grows within the said area. Very sparsely occurring trees are seen here and there. These are like Tun and Pine, etc. Scattered patches of grass generally Kumaria, Dub etc. are also occupied in the area.

Flora: The area is basically used for agricultural regime. It is therefore devoid of trees concentration zone. Some trees are generally present on shrub or grazing Land. All the mining activities, in future will be mainly concentrated on cultivated fields having sparsely scattered trees. The mining will be performed with semi mechanisation without drilling and blasting, so the existing tree will not be disturbed.

Shrubs: Ghingaru with a few Jhitalu, Kilmora and Hisalu etc. occurs in the depressions.

Grasses: Kumaria, Doob, Shishoona, Gria and Bhawaria.

Fauna: The types of fauna consist of snakes, rabbits, wild cats, fowls and jackals etc found in and around area. Ghoral (A goat like stocky animal), Kakar (barking deer), hares, Stag & Bhalu, black hill partridges, chakor and wild fowls are sometimes sighted in the buffer zone. There is no trace of any major wild life in the area. Domestic animal like cows, buffaloes, goats, ponies etc. are seen in areas close to the villages.

Quality of air, ambient noise level and water

Ambient air

Anthropogenic sources of air pollution due to mining are divided into two categories:

(i) Mobile sources which include automobiles, transport trucks etc.; strictly speaking there will no mobile sources (e.g. trucks etc) of pollution with applied area.

(ii) Stationary sources which include open cast semi-mechanised mining, loading and unloading points, blasting sites, crushing and grinding units of ore, beneficiation plants and power generation plants attached to mines. Here, stationary sources of pollutant include mineral mining, loading/unloading of minerals from pits to dumps etc, and road/ tracks. Dust particles will be the main aberrant sources of pollution of any atmosphere

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because it is a semi mechanised mining operation. Once the pollutant enters the atmosphere, many interactions occur. Winds then act to transport the pollutants or promote additional mixing. Most of the pollutants in the ambient air are the fines suspended particles and gases that cannot be seen.

Since the applied area is in remote hilly Lesser Himalayan region without any industry/mechanized operations around and the nearest existing mining block is more than 500m away from nearest road head, the SPM value in the air quality will not exceeded the permissible threshold value. Infect it may much below presently. The small proposed manual mining operation will not cause any significant pollution factor.

Quality of air, ambient noise level and water:

One sample collected to ascertain the air quality of the area. Sample was collected during month February 2020 & found that all parameter are with in permissible limit Similarly ambient noise is practically nil excepting the natural background noise level of nature, as even the nearest habitation is about 50 m. away from the working zone.

The water for drinking purpose comes from springs or naula. Water quality of nala will not deteriorate as mine working is proposed to be restricted in one pit only. The backfilling and retaining wall at the edge the of reclaim pits will also remote the chances of fine particles to be mix with the nala water.

Climatic Condition:

i) Temperature :

Climatically the area falls in temperate zones with pleasant summer and extremely cold in winters. The area receives moderate snowfalls during winters between Decembers to February. The maximum temperature goes upto $35^0$to 36^0C while the average minimum temperature goes above upto 2^0 C to 4^0 C in the months of January & February.

ii) Relative Humidity:

The relative humidity shows rise from June to February with highest values in the month of January and decreases it reaches lowest during April and May.

On the basis of past experience reveals that the maximum average humidity in the month of January is about 92.30% while the minimum average humidity is about 36.30% during month of April.

iii) Rainfall:

The area receives 70% on an average rainfall in between June end to mid September. Average rainfall from June to September comes about 140mm. The maximum rainfall was received 1120mm. during the month of July & August while the minimum rainfall was recorded will during the months of January & February & it varies 10mm to 15mm.

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Human settlements:

Distribution of human settlements is shown on flanks of buffer zone of lease hold area in Key Plan. The people are Kumauni's in surrounding area and their general occupation is seasonal agriculture growing crops of wheat, rice, soyabean, urad, bhang etc. They also make baskets, chatai, rope etc from the fibres of bhang. There is no industry in and around the area. People are dependent on local agriculture product and import other needs from outside which is brought through mules. Any venture such as soapstone mine will provide the local people considerable relief through employment, better transport facilities for material on returning mules after unloading soapstone and help them to improve the lifestyle. The detail of population within 5km buffer zone is shown in Plate No. – 2.

public buildings, places of worship and monuments

No public building, places of workshop & any bind of Historical monuments exists within the lease area.

- **Indicate any sanctuary is located in the vicinity of leasehold**

The lease area does not fall under notified area under water (Prevention & control of Pollution), Act 1974. Further there is not any National park/ Sanctuary with in 10km radius of lease area.

Impact Assessment: Attach an Environmental Impact Assessment Statement describing the impact of mining and beneficiation on environment on the following:

i) **Land area indicating the area likely to be degraded due to quarrying, dumping, roads, workshop, processing plant, tailing pond/dam, township etc.**

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 five years mining, 2.798ha land will be degraded due to mining & allied activities.

The breakup of the land to be affected during the five years and end of conceptual period of due to mining operation is given below:

Activities	End of 5years(ha.)	Area occupied (Ha) End of conceptual period
Mining Pits	2.798	12.433
Interburden dumps	0.076	Nil
Interburden dumps	0.076	Nil
Soil stack	0.075	Nil
Foot track/ Haul road	0.156	Nil
Workshop	Nil	Nil
Retaining wall/Check dams	0.151	Nil
Foot track/ Haul road	0.156	Nil
Total	**15.304**	**15.304**

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ii)

that mining shall be carried out opencast semi-mechanized. Mineral
to 50 kg plastic bags & manually transported to road side. Excavator
d as & when required & its deployment shall be 4-5 hours 3-4 days in
limited movement of an excavator, small quantities of air borne dust
ed & it shall be suppressed due to water sprinkling on haul roads.
sprinkling on the foot track shall be carried out during summer month
dust. However in future air monitoring shall be carried out as per
3/92. No air quality shall be deteriorated due to mining activities.

nage system in the area is almost seasonal. The flow in the natural
mediately after the rainfall and then these nala become entirely dry.
will not deteriorate by mining and allied activities. However the
ped suitably upstream of the mine area and brought by pipes for use.
mine area and near the habitation will thus be solved.

part of rainfall which does not infiltrate the soil cover completely
rface to natural drains existing in the area. Some water of rain easily
d the get stored in pores of the soil, rest remaining the runoff. The
will be confined to increased suspended solids during rain. The
toward southern flank of the area from flows north to south
aving dimension of 2m x 2.0m x 1.0m shall be erected across the
n during rainy seasons.

a vide fluctuation in their numbers. However, the literacy is less

ain occupation in this area. Study reveals that within 5km radius
population is engaged in the agriculture. Percentage of females
gher than that of males.

ural land holding is less. Yield of agriculture produce is very poor
eads. Consequently problem of unemployment and frustration
oticed in the area.

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Cropping pattern:

Maize is grown at higher altitudes along northern slope of hills, whereas paddy cultivation is practiced in the low lying areas, where water is available in abundance. Wheat is also grown in the area and yield of wheat is rather sufficient.

The year wise schedule of completion of retaining wall & check dam is as below:

Activities	Year				
	2020-21	2021-22	2022-23	2023-24	2024-25
Retaining wall at the edge of backfilled pit (1 to 4)	172 m	133m	185m	89m	141m
Retaining wall at the base & side of dump	55m	54m	56m	55m	54m
Check dam	1 nos.	1 nos.	1 nos.	1 nos.	1 nos.

Noise levels:

The mining does not include even drilling and blasting. Transportation from mine site to road head will be done by manually or by mules. The road is about 2.5Km from the proposed working site. Hence, noise level due to transportation is negligible.

Vibration levels (due to blasting):

As proposed mining method is opencast mechanized without drilling and blasting, hence, impact on this aspect will be insignificant.

Water regime:

Surface Water:

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 toe walls along the soil and interburden dumps.

Ground Water:

The water table in hills is usually very deep and does not have any relevance with mining activities. However, concurrent restoration to original topography & it will not be disturbing the ground water.

Programme of Afforestation:

During next five years plantation shall be carried out over with in 7.5m barrier zone of the lease area.

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i) **Conservation**

Stabilising and re-vegetating the de-vegetated areas viz. debris, dumps and slopes which get degraded due to rolling stones, etc. are important for conservation of soil, regulation of surface and underground water and for rehabilitation of wild -life habitat. These generally are extracting operations and need planting in various phases by select species. Protective engineering measures, in conjunction, become necessary.

ii) **Aesthetics**

Mining operations open ugly sights of dug-out slopes and rolled debris, which in the hills are visible from long distances. It is desirable to screen away such sights so that inevitable unpleasantness of the mining operations is not exposed to public eyes. Well planned plantation of ornamental or fruit trees improved the aesthetic value of the land.

iii) **Production**

Trees and shrubs produce timber, fodder, fuel, fruits, fibres, etc. for direct use of village community. In the area several useful varieties of fruit trees and shrubs can be grown. Examples are: peach (Khubani), Peas (Nashpati), Apricot (Aaru), Plum, Kaphal, etc. among trees and Hisalu and Kilmora amongst shrubs. Initially, few colonisers such as Chilmora (Rumexhastatus) and few local grasses will be planted to initiate biological activities in the land. Ultimately, the reclaimed land will be again used for agriculture.

Based on the above consideration and Mining plans, the following afforestation programme has been worked out:

a) **Mining Benches:**

The mining is confined to the agricultural land. The mining benches will be back-filled so that mined out area shall be retained to its maximum original topography. Therefore, no efforts for afforestation on the mining benches would be done as the land will be used for agriculture, purpose. Besides this individual land owner will not allow plantation in their respective lands are it causes hindrance in agriculture.

b) **Dump Areas:**

The dumps are temporary structures. They would ultimately be used for back-filling and, therefore, will gradually be removed in due course of time; hence, no afforestation would be undertaken over dumps.

c) **With in the area:** 7.5m barrier zone is available for plantation therefore plantation shall be carried out over it. The lessee planted native species for plantation.

Technique of Plantation:

a) As quick closing of canopy is necessary, the spacing adopted should be 3 m x 3 m.

b) **Soil working:** 75 cm x 75 cm pits should be dug in March April. Overburden soil and well rotten farmyard manure (5Kg per pit) should be mixed well with the dug out soil and refilled by the third week of June. The level of refilled soil should be about 15 cm above the general ground level. Care should be taken to ensure that the rock at the

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bottom of the pit should be thoroughly cracked to ensure easy penetration of roots of the seedlings.

c) **Planting:**

Only strong healthy nursery raised plants should be used to ensure success. The saplings should be dug out from the nursery with sufficient earth around the roots. The earth should be filed with grass. Plants raised in the polythene container are best. Transport to the site should be done in baskets to avoid damage of the roots. Damaged plants should be sorted out.

d) **Fertilizer and Insecticides:**

Chemical fertilizer at a rate of 15 gm per plant should be added at the time of planting NPK mixture is sufficient to promote growth.

Plantation during next five years shall be undertaken over the 7.5m barrier zone.

About 10 gm of insecticide, B.H.C. 10 percent, should be sprinkled on the sides and base of the pit to prevent damage by insect larvae. Another 10 gm of insecticide should be mixed with the soil before refilling.

Trees: Peach (Khumani), Pears (Nashpati), Apricot (Aaru), Faliyat, Surai etc.

Shrubs: Kilmora, Hisalu, etc.

The year wise plantation is given below:

Year	Plantation within7.5m of the area		Total no. of sapling
	Area (ha.)	No. of saplings	
2020-21	0.077	347	347
2021-22	0.061	275	275
2022-23	0.063	284	284
2023-24	0.050	225	225
2024-25	0.059	266	266
Total	**0.31**	**1397**	**1397**

The year wise plantation schedule is shown in **Plate No. 6 to 11.** Total 125910 sapling will be done incoming five years and 688635 sapling uoto lease period in Van Panchayat and forest land after taking due permission from concerning authority.

Post Plantation Care:

This will include the following measures:

- Protection from grazing and fire.
- Watering at least once a week during dry spells.
- Manuring
- Weeding six times in the first year and twice a year, during the subsequent two years and soil working.
- Replacement of causalities.

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- Protectin from pests.
- This post plantation care will be undertaken at least for five years after the plantation.

Treatment and disposal of water from mine:

Mining activities will not touch the water table. However due to intermittent rainy shower, some quantities of water will accumulate in the pit & it will be pumped out and channelise through the slopes.

No toxic elements will be preserved in the water hence treatment of water is not required.

Measures for mining adverse effects on water regime:

The mining has been proposed in such a way that there will be no adverse effect on water regime. Toe walls will be provided along the backfilled pits. This will prevent escaping of fine material along with the rain.

Protective measures for ground vibration/air blast caused by blasting:

As the proposed method of mining is open cast mechanized without drilling and blasting, the impact on this aspect is negligible.

Measure for protecting historical Monuments and for rehabilitation of human settlement likely to be disturbed due to mining activity:

No such feature exists within the mining would be confined to the agricultural land which is far away from the villages. Due to non mechanisation, drilling and blasting there is no adverse effect on this account.

Socioeconomic beneficiate out of mining:

The scale of operation is limited with 90% local employment. Hence some benefit to the local community will occur on this aspect. Besides the direct and indirect employment, better communication will also added to the positive contribution.

Proposed mine working is in agricultural land and residential area is far away, therefore, no impact of mining on human settlement shall be arising.

7.0 (i) NOC from land over should be provided along with Khasra map for the area where mining proposed for five years.

NOC has already been taken from landowner(Annexure-5)

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DEVBHUMI SOAPSTONE MINE

village - Kabhata, Tehsil- Kanda & District- Bageshwar, (Uttarakhand)

Partner Shri Ramesh Chandra Pandey, Shri Umesh Chandra Pandey, Shri Aswani Varshney & Shri Manoj Danga.

Ref No. ..... **Date**.....

CONCENT LETTER/UNDERTAKING/CERTIFICATE FROM THE LESSEE

01. Scheme of mining in respect of Devbhumi **Soapstone Mine** over an area of 15.304ha out of **15.313ha** in village Kabhata, Tehsil- Kanda & District- Bageshwar, (Uttarakhand) for LOI No. 1087/VII-1/2018/-सोपस्टोन / 17 Dehradun was obtained on dated 16.05.2018 for a period of 50 years has been prepared by RQP (Shri Harish Kainthola & Shri Kailash Chandra).

This is to request the **Director, Geology and Mining Department, Uttarakhand Dehradun** to make any further correspondence regarding any correction of the Scheme of mining with the said recognized person as his address below:

Address of RQP : 3/1, Ekta Enclave, Near Hotel Sun Park, GMS Road, Dehradun (U.K).

Phone No : 09412028745

E mail : Kaingeotech2147@rediffmail.com.

We, hereby undertake that all modifications/updating as made in said Scheme of mining by the said recognized person be deemed to have been with all our knowledge and consent and shall be acceptable on us and binding in all respects.

02. It is certified that Scheme of mining with Progressive Mine Closure Plan **Devbhumi Soapstone Mine)** of Partner Shri Ramesh Chandra Pandey, Shri Umesh Chandra Pandey, Shri Aswani Varshney & Shri Manoj Danga over an area of 15.313ha complies with all statuory rules, regulations, orders made by Central or State Govt., statutory organization, Court etc. which have been taken into consideration & wherever any specific permission is required the lessee will approach the concern authorities.

The information furnished in the mining plan with Progressive Mine Closure Plan is true & correct to the best of my knowledge and records.

03. "The Provision of **Mines, Act, Rules and Regulations** made there under have been observed in the Scheme of mining over an area of 15.313 hectares in Bageshwar district in Uttrakhand state belonging **to Devbhumi Soapstone Mine**, and where specific permissions are required, the lessee will approach the **D.G.M.S**. Further standards prescribed by **D.G.M.S.** in respect of miners' health will be strictly implemented".

04. I authorize RQP Shri Harish Kainthola & Shri Kailash Chandra to submit mining plan for approval and collect the approved copy of mining plan on my behalf

Place : Bageshwar

Sign of Lessee:

Date :

(Devbhumi Soapstone Mines)

CERTIFICATE FROM RQP

The provisions of the **Uttarakhand Minor Mineral Concession Rule, 2001** have been observed in the preparation of the Scheme of mining for **Devbhumi Soapstone Mine** over an area of 15.304ha out of **15.313ha** of M/s Devbhoomi Mines, (Partner Shri Ramesh Chandra Pandey, Shri Umesh Chandra Pandey, Shri Aswani Varshney & Shri Manoj Danga) has got LOI No. 1087/VII-1/2018/-सोपस्टोन / 17 dated 16-05-2018 in village - Kabhata, Tehsil- Kanda & District- Bageshwar, (Uttarakhand) and whenever specific permission are required, the lessee will approach the concerned authorities of **Director, Geology and Mining Department, Dehradun.**

The information furnished in the Mining plan is true and correct the best of our knowledge.

(Kailash Chandra) RQP
RQP/UKGMU/NO 012/Year 2019

(Harish Kainthola) RQP
मु0ख0/05/खनन/RQP/2015-16
RQP/DDN/141/2002-A

Date:

Place: Dehradun

PROGRESSIVE MINE CLOSURE PLAN (PMCP)

1. INTRODUCTION

Name of Lessee & Address: M/s Devbhoomi Mines, (Partner Shri Ramesh Chandra Pandey, Shri Umesh Chandra Pandey, Shri Aswani Varshney & Shri Manoj Danga, District Bageshwar, Phone- None, Fax- None, Mobile No- 9927422586,

Location: The area is located on Survey of India Toposheet No. – 53 O/13 in latitude 29° 49' 07.95" to 29° 49' 23.26" and longitude 79° 55' 25.16" to 79° 55' 59.99". The applied area is occupied by single block and is bounded by 1, 2, 3, 4 to 44, 45, 46, 47 and 48 boundaries pillars. Coordinates of pillars are shown in Surface plan **(Plate No. – 3)**

Extent of Lease area: 15.304ha out of 15.313 ha.

Type of lease area: The total applied area is 15.304ha out of 15.313 ha. falls in *nap/* /agricultural.

Present land use pattern: The existing land use is agricultural land and is given below:

Forest		**Non- Forest**	
			Area (ha)
Forest (specify)	None	Category 1(d) Jotdar land	13.745
		Land under Category 7(d)	0.022
		State Govt/ Civil. land	1.334
		Land for public use	0.203
		Total	**15.304**

1.1 Reasons for closer: Preparation of progressive mine closure plan has become mandatory and is being submitted under Rule 34(4) of Uttarakhand Minor Mineral Concession Rule, 2001.

1.2 Statutory obligation: As per rule for every fresh grant of mining lease, a progressive mine closure plan is required to be submitted and the progressive mine closure plan is being submitted in accordance with the guide lines issued by Office Order no. 1762 /खनन/गौण खनिज–माईनिंग प्लान/26/मु0खनि0ई0/2015–16 dated 31 October 2015.

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1.3 Closer plan preparation

(a)	**Name and Address of the applican**	M/s Devbhoomi Mines, (Partner Shri Ramesh Chandra Pandey, Shri Umesh Chandra Pandey, Shri Aswani Varshney & Shri Manoj Danga) Phone- None, , Mobile No- 9927422586, Email Address - rameshpandey2586@gmail.com
(b)	**Name, address and :**	Shri Harish Kainthola, KainGeotech Lane No. 8, Indraprastha, Mussoorie by pass road, Upper Nathanpur, Dehra Dun- 248008 (Uttarakhand) E-mail- Kain_geotech2147@rediffmail.com, hkainthola@gmail.com Mobile No. - 09412028745, 09412058990
	Registration No. -	मु0ख0/05/खनन/RQP/2015-16 RQP/DDN/141/2002-A
	Validity up to	( )
(c)	**Name of the executing agency**	: M/s Devbhoomi Mines.

2. Mine description:

2.1 Geology:

The applied area and its surroundings are constituted in part, by Gangolihat Magnesite sequence. The local lithological sequence is as follows:

- Upper Carbonates
- Middle Talcose Phyllite
- Lower Carbonates

In the applied area and its surrounding consists of Gangolihat magnesite. This rock unit contains magnesite, talcose phyllite and talc lenses etc.

The Upper Carbonates Zone contains magnesite and sporadic magnesite, the Middle Talcose Phyllite Zone contains the talc in pockets and lenses, whereas the Lower Carbonate Zone contains magnesite intercalated with phyllite/ talcose phyllite. Pockets/ lenses or veins of soapstone also occur within carbonates of Gangolihat Magnesite.

The applied area lies in the village Kabhata which is located almost on south-western sloping part of small hill. Both overburden and outcrops of soapstone are present in explosatory

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opening, magnesite boulders occur on the surface as well as intermixed with soapstone in the applied area. The lithounits found in the project area are:

Overburden: Almost whole block of the applied area is covered with overburden material. This overburden comprises grey to brown to dark brown, fine to medium grained silty-clayey soil. Small fragments of soapstone and magnesite are also present in this soil. Thickness of this overburden varies from 0.9 to 1.5 m.

Soapstone and magnesite: Intermixing of soapstone [$Mg_3Si_4O_{10}(OH)_2$] with magnesite occur below the soil cover. Mostly this soapstone or talc is highly prone to easy weathering and erosion due to its softness and thus its outcrops are rare. In shallow depth soapstone is massive to highly bedding and shows brightness/whiteness characteristic which generally varies from medium to high. At places talc pockets are crushed and crumbled due to association with shear zones present in the area. In the applied area soapstone is fine grained, off-white to white, foliated and sometimes powdery due to crushing. In specimens or fragments it shows flexibility in edges due to thinness and trimming. Overburden comprises magnesite boulders intermixed with soapstone. This intermixed magnesite boulders in soapstone are about 60%.

Structural features

The regional and local structural features as could be deciphered in the applied block are as follows:

The algal stromatolites are absent in this area. Regionally they have been reported to be significant in interpreting reversal of Upper and Lower Carbonate dispositions.

(i) The typical bedding dip/ strike are not seen within the applied area, not even clear cut carbonate bands are exposed presently.
(ii) The cleavage/ foliation/ banding attitudes of soapstone/ talcosephyllite units vary as follows:

General Strike	Dip Amount	Dip Direction	Attitudes
$N325^0$ to $N\ 350^0$	35^0 - 40^0	$N\ 055^0$ - $N\ 080^0$	Bedding
$N300^0$ to $N\ 325^0$	40^0 - 55^0	$N\ 040^0$ - $N\ 055^0$	Bedding
$N\ 065^0$ to $N\ 350^0$	55^0 - 80^0	$N\ 335^0$ to $N\ 080^0$	Joint
$N\ 120^0$ to $N\ 160^0$	45^0 - 70^0	$S\ 210^0$ to $S\ 190^0$	Joint
$N\ 040^0$ to $N\ 060^0$	60^0 - 75^0	$S\ 130^0$ to $S\ 150^0$	Joint

The rocks found in the area in general seems to have undergone the more than one phases of tectonic activity. The upper and lower carbonates zones of Gangolihat Magnesite seem to be inverted. Rocks/ minerals in the area are crushed and sheared. Local trend of magnesite outcrops and talc pockets show the dip towards valley side i.e. towards northeastern side. The bedding plane dips towards NE direction with amount of 35^0 to 55^0. General strike direction varies towards $N300^0$ to $N350^0$.

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Topography:

This area lies on south-western slope of a hill in a mountainous terrain of rough and rugged topography. The adjacent area is drained by few seasonal *Rollis/Nalas*. The applied area forms a transverse ridge of ending south-western slope in the valley. The area has sloppy undulating surface and at places flat gentle sloping terraces and cultivated land also. The highest RL is about 1670.2m on the northeastern side of the applied area, while the lowest RL recorded on the western side of the applied area is about 1483.1m. Topographical survey was provided by the client. General slope of the lease area is 20° - 30° in western direction.

The surface plan showing topographical features is given in **Plate No. 3.**

ii) Regional Geology

The area forms the part of Calc zone of Tejam and Pithoragarh. According to Prof. K.S. Valdiya (Geology of Lesser Himalaya, 1980) and D. K. Banerjee et. al. (Him. Geol., Vol. 5, 1975) the lithostratigraphic sequence of this area is as follow:

Pithoragarh Formation

Group/ Formation	Lithology
Berinag Formation	Quartzite, Meta quartzite, Conglomerate, Phyllite
----------Unconformity ----------	
Gangolihat magnesite	Magnesite, dolomitic soapstone with algal structures. Magnesite with talcose phyllite intercalations
----------Unconformity----------	
Sor Slate	Slate, Phyllite, subgrawake

In this region, rocks of Pithoragarh Formation occur. The development of algal stromatolite in carbonates occurrence or magnesite is a common associate of the carbonates. The Calc-Zone rock units are well known for their structural dispositions (windows, half windows in Lesser Kumaon Himalaya) for stromatolites and minerals (magnesite, soapstone and minor metallic occurrences).

The above sequence as observed in this region is considered to be an inverted one. Soapstone pocket occur within carbonates of Gangolihat Dolomite.

Local Geology:

Alluvial Cover:

A thin layer of brownish colour of soil exists in the whole area. The thickness of soil varies from 0.40 m. to 0.60 m. having an average thickness of 0.50m.

Soapstone bearing with low grade Magnesite:

The soapstone mineral in Kumaon Himalaya is an alteration products of Soapstone occurs as pockets and some times confined to the upper part of the calcareous zones with. The

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mineral body occurs in irregular shape & size. The foliation in the soapstone trending 305^0 to 310^0, amount of dip varies 40 deg. to 45 deg. and dip direction varies 35 deg. to 40deg.

Scattered habitation exists towards north east of lease area & it is out side lease area. 50m barrier zone from habitation has been considered as G3 axis & all quantities of soapstone 3m below ground surface has been considered under inferred mineral resources & . The area was explored with the help of two mining pits in scattered manners. Due to past mining the pits were exposed up to depth of 3.0 m. to 8.0 m. and soapstone persists in depth. The pits were dug at different levels in the agricultural field & most of the pits have temporarily backfilled/reclaimed. On this assumptions, 12m. depth has been considered as proved category, 6 m. depth below proved category as probable. The soapstone occurring in these area is weakly foliated, fairly compact, fine grained white to off white in colour with its characteristic soapy feel.

Low Grade Dolomitic Rock: Low grade dolomitic rock is exposed towards foot wall side of pit E-3. It is fine to medium grained, compact & massive well jointed & light grey to dark grey in colour. The veinlets of quartz are also seen across the bolding plane.

The Geological Plan in the scale of 1:1000 is shown in **Plate No. 4.** Geological section is deposited in **plate no.5.**

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2.2 Reserves:

The summary of geological reserves is given below:

CATEGORIZATION OF GEOLOGICAL RESERVES
UNFC CATEGORY: 111

Proved Geological Reserves

Section	Area (m^2)	Strike Influence (m)	Volume (Cum)	Reserves (in Tonnes)	Mineable Reserves (in Tonnes)	Blocked Reserves (in Tonnes)
LB to A-A'	973.79	29	28239.91	29369.51	22469.80	6899.70
A-A' to B-B'	853.38	36	30721.68	31950.55	23500.68	8449.87
B-B' to C-C'	1089.41	40	43576.56	45319.62	34603.34	10716.28
C-C' to D-D'	1814.14	69	125175.66	130182.69	111349.85	18832.84
D-D' to E-E'	1786.24	47	83953.37	87311.51	71983.23	15328.28
E-E' to F-F'	1802.13	45	81095.99	84339.82	74028.10	10311.72
F-F' to G-G'	791.00	48	37967.81	39486.52	24749.24	14737.28
G-G' to LB	1569.62	61	95746.82	99576.69	76386.84	23189.86
H-H' to LB	4037.21	60	242232.30	251921.59	228600.34	23321.25
I-I' to J-J'	2552.92	60	153174.90	159301.90	141213.95	18087.95
J-J' to K-K'	1049.14	67	70292.38	73104.08	51032.45	22071.63
K-K' to L-L'	872.30	44	38381.20	39916.45	29266.63	10649.82
L-L' to M-M'	1057.83	78	82510.51	85810.93	63799.58	22011.34
M-M' to LB	740.48	41	30359.63	31574.02	23474.97	8099.05
	20989.58		**1143428.72**	**1189165.87**	**976458.99**	**212706.88**

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Probable Geological Reserves

Section	Area (m^2)	Strike Influence (m)	Volume (Cum)	Reserves (in Tonnes)	Mineable Reserves (in Tonnes)	Blocked Reserves (in Tonnes)
LB to A-A'	549.93	29	15947.97	16585.89	8992.20	7593.68
A-A to B-B'	532.37	36	19165.18	19931.78	10628.39	9303.39
B-B' to C-C'	615.21	40	24608.52	25592.86	13827.92	11764.94
C-C' to D-D'	1100.59	69	75940.85	78978.48	58616.73	20361.76
D-D' to E-E'	1091.58	47	51304.40	53356.58	38259.70	15096.88
E-E' to F-F'	1102.08	45	49593.47	51577.20	40053.41	11523.80
F-F' to G-G'	436.08	48	20931.94	21769.21	7389.66	14379.56
G-G' to LB	951.65	61	58050.89	60372.93	38901.34	21471.59
H-H' to LB	2598.72	60	155923.14	162160.07	140845.41	21314.65
I-I' to J-J'	1611.07	60	96664.38	100530.96	82803.43	17727.53
J-J' to K-K'	598.17	67	40834.89	42468.29	20821.99	21646.30
K-K' to L-L'	485.52	44	21362.70	22217.21	10654.26	11562.96
L-L' to M-M'	609.48	78	47539.13	49440.69	27001.04	22439.66
M-M' to LB	426.63	41	17491.96	18191.64	9935.00	8256.64
	12709.08		**695359.42**	**723173.79**	**508730.46**	**214443.33**

Blocked Reserves of Soapstone

Feasibility mineral Resource (211)

Section Line	Section Area (m^2)		Strike Influence (m)	Volume (Cum)		Blocked Reserves (Tonnes)	
	Blocked in (UPL)	Blocked Under 45°		Blocked in (UPL)	Blocked Under 45°	Blocked in (UPL)	Blocked Under 45°
LB to A-A'	135.27	93.50	29	3922.83	2711.50	4079.74	2819.96
A-A' to B-B'	135.40	90.29	36	4874.40	3250.48	5069.38	3380.50
B-B' to C-C'	156.09	101.51	40	6243.60	4060.52	6493.34	4222.94
C-C' to D-D'	143.99	118.45	69	9935.38	8173.12	10332.79	8500.04
D-D' to E-E'	221.40	92.19	47	10405.75	4332.98	10821.98	4506.30
E-E' to F-F'	136.00	84.33	45	6120.09	3795.03	6364.89	3946.83
F-F' to G-G'	211.49	83.73	48	10151.57	4018.90	10557.63	4179.65
G-G' to LB	280.29	85.25	61	17097.45	5200.49	17781.34	5408.51
H-H' to LB	282.65	91.09	60	16958.70	5465.58	17637.05	5684.20
I-I' to J-J'	190.08	99.79	60	11404.80	5987.46	11860.99	6226.96
J-J' to K-K'	225.57	91.19	67	15113.26	6109.46	15717.79	6353.84
K-K' to L-L'	146.54	86.19	44	6447.80	3792.40	6705.72	3944.10
L-L' to M-M'	184.70	86.64	78	14406.52	6758.23	14982.78	7028.56
M-M' to LB	129.29	60.65	41	5300.86	2486.68	5512.90	2586.15
Total	**2578.75**	**1264.82**		**138383.01**	**66142.83**	**143918.33**	**68788.55**

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Pre-Feasibility mineral Resource (222)							
	Section Area			Volume (Cum)		Blocked Reserves (Tonnes)	
section Line	Blocked in (UPL)	blocked Under 45°	Strike Influence	Blocked in (UPL)	blocked Under 45°	Blocked in (UPL)	blocked Under 45°
LB to A-A'	90.18	161.60	29	2615.22	4686.40	2719.83	4873.86
A-A' to B-B'	90.27	158.22	36	3249.61	5695.96	3379.60	5923.79
B-B' to C-C'	104.06	178.75	40	4162.40	7150.04	4328.90	7436.04
C-C' to D-D'	95.99	187.75	69	6623.59	12955.03	6888.53	13473.23
D-D' to E-E'	147.60	161.26	47	6937.15	7579.08	7214.64	7882.24
E-E' to F-F'	90.67	155.57	45	4080.06	7000.52	4243.26	7280.54
F-F' to G-G'	140.99	147.06	48	6767.71	7058.78	7038.42	7341.14
G-G' to LB	186.86	151.60	61	11398.28	9247.48	11854.21	9617.38
H-H' to LB	188.44	153.15	60	11306.16	9188.70	11758.41	9556.25
I-I' to J-J'	126.72	157.38	60	7603.14	9442.56	7907.27	9820.26
J-J' to K-K'	150.38	160.27	67	10075.46	10738.29	10478.48	11167.82
K-K' to L-L'	97.69	154.99	44	4298.49	6819.74	4470.43	7092.53
L-L' to M-M'	123.13	153.49	78	9604.22	11972.38	9988.39	12451.27
M-M' to LB	86.19	107.44	41	3533.86	4405.22	3675.21	4581.43
Total	**1719.17**	**2188.53**		**92255.35**	**113940.16**	**95945.56**	**118497.77**

Mining method:

The mining will be done semi-mechanized way in open cast method in quite a systematic manner by forming 3m high benches. However, there may be minor variation in the width and height which the lessee will keep on mending. The top soil and interburden to be scrapped with the help of JCB Machine, dozer, shovels, pickaxe, spade & crowbar and will be stacked separately in dump yard located near the working pit. The extracted mineral is properly sorted out at the mine site. Mining work is going on at 10 benches. While crow bars are sometimes used to dislodge the mineral. The pit will be developed during first five year and mining work will take place in crop/ *nap* land only. The slope of the faces will be kept 60^0-65^0 and the ultimate slope of the pit will remain 45^0.

Developmental work will be done by construction of road/track to different working benches, removal of top soil and interburden. The interburden generated during mining will be separately stacked and places shown within the applied area which will be backfilled. The local people will be used for removal of mineral to the nearest road point i.e. 'BerinagMotor road' from where the minerals will be transported by trucks to Haldwani. The slope of track may vary from 1:8 to 1:20. Each mining face will be connected by track/road having width 3.0m.

The mining is confined in the applied area and mining benches of the pit will be backfilled to retain its original topography therefore the efforts for afforestation would be

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done inside the applied area in between lease boundary and UPL, about 0.094ha area will be covered by 94saplings in three year and by the end of the lease period 608 saplings will be planted. 7.5 m un-mined barrier will be maintained all along the lease boundary and vegetation growth generated on such boundary to isolate mining from rest of the area Plate - 11.

2.3 Mining Method:

(i) Existing Method of Mining:

It is an existing mining lease and mining was proposed open cast manual mining. Mining is being carried out without formation of benches. The soil is scrapped manually and is mixed with interburden material and dumped near the working pits. Below the soil, soapstone is found which is intermixed with Magnesite boulder and magnesite has been considered as interburden. The soapstone is exploited with the help of pickaxe, crowbar, chisels & spade. Sorting and sizing is being carried out manually at the pit head. Different grade of soapstone is filled into 50 Kg plastic bags and transported up to the PWD road by mules.

Mining is progress in four pits & depth of pit is 6.0m to 9.0m. Mineral soapstone &interburden encountered at the pit bottom & persists in depth. The other pits have been backfilled/reclaimed.

The length of pit varies 35m to 180m, width of pit varies 45m to 87m. depth of pit is 6.0m & slope of pit is subvertical. Top soil & interburden is mixed together & dump near slope of working pits & heap of dumps are lying in scattered manner.

No drilling and blasting is being carried out for the exploitation of soapstone. Except sorting & dressing no other means of beneficiation is being carried out within the lease hold.

The details of mining pit & dump lying in various *khasra* number & its ownership/occupancy is given below:

Mining pits	RL	Coordinates	Khasra No	Name of Owner/ Owners
I year Pit-1	1533 -1524	N 396172 to N 396211 & E 3299533 to E 3299390	419,418,417,870,858,859.872,873.861, 416,856, 888, 885, 887, 886, 874, 863, 860, 861, 850, 862, 863, 864, 883, 882, 825, 884, 883, 803, 804, 841, 842, 843, 865, 877, 879, 893, 892, 866, 865, 844, 867, 876, 881, 882, 895, 868, 861	Kishore Chandra,Haridutt
II year Pit-1	1524-1512	N 396131 to N 396179 & E 3299510 to E 3299395	419,418,417,870,858,859.872,873,861, 416,856,888,885,887,886,874,863,860, 861,850,862,863,864,883,882,825,884, 883,803,804,841,842,843,865,877,879, 893,892,866,865,844,867,876,881,882, 895,868,861,803,804,841,76,798,779,8	Kishore Chandra,Haridutt

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			08,796,797,844,840,805,843,839,807,794,795,792,839,820,838,837,836,852,861,851,836,826, 828, 820, 821, 833, 852, 853, 854, 855,826,858, 856, 860, 861, 859, 834, 835, 831	
	-	N 396172 to N 396211 & E 3299533 to E 3299390	420, 827	Govt. Land
III year Pit- 1 and 2	1512-1509	N 396122 to N 396179 & E 3299510 to E 3299395	419,418,417,870,858,859,872,873,861, 416,856,888,885,887,886,874,863,860, 861,850,862,863,864,883,882, 825, 884, 883, 803, 804, 841, 842, 843, 865, 877, 879 893, 892, 866, 865, 844, 867, 876, 881, 882, 895, 868, 861, 803, 804, 841, 76, 798, 779, 808, 796, 797, 844, 840, 805, 843, 839, 807, 794, 795, 792, 839, 820, 838, 837, 836, 852, 861, 851, 836, 826, 828, 820, 821, 833, 852, 853, 854, 855, 826, 858, 856, 860, 861, 859, 834, 835, 831, 84, 86, 65, 464, 188, 195, 19, 466, 463, 462, 460, 57, 56, 459, 56, 477, 469, 68, 55, 551, 552, 553, 554, 63, 64, 566, 562, 557, 561, 558, 559, 560, 544, 540, 542, 544, 597, 546, 585, 588, 549, 542, 523, 547, 600, 548, 543, 503, 602, 607, 603, 604, 608, 600, 602, 601, 542, 546, 544, 557, 554, 552, 527, 558, 557, 566, 568, 556, 561, 562, 540, 547, 506, 818, 821, 822, 817, 816, 812, 814, 28, 24, 20, 23, 24, 13, 84, 864,786,741,784,786,63,722,764,65,787,788	Kishore Chandra,Haridutt,Suresh Chandra
	1518-1509	N 396171 to N 396131 & E 3299393 to E 3299510	420, 827	Govt. Land
IV year Pit- 3 and 4	1566-1590	N 396280 to N 396282 & E 3299370 to E 3299337	1330,1331,1328,1329,1326,1325,1350, 1351,1352,1364,1368,1365,1370,1364, 1371,1382,1378, 1115, 1114, 1117, 1108, 1104, 1105, 1103, 1100, 1101, 1144, 98, 97, 46, 1145, 43, 42, 1141, 1134, 1140, 1088, 1086, 1087, 1084, 85, 81, 1086, 1085, 1089, 1080	Kishore Chandra, Kaushalya Devi
		N 396348 to N 396358 & E 3299388 to E 3299328	1113, 1116, 1109	Govt. Land

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V year Pg- 4	1590-1584	N 396398 to N 396473 & E 3299340 to E 3299207	1330,1331,1328,1329,1326,1325,1350, 1351,1352,1364,1368,1365,1370,1364, 1371,1382,1378,1115, 1114, 1117, 1106, 1108, 1104, 1105, 1103, 1100, 1101, 1144, 98, 97, 46,1145,43,42,1141,1184,1140,1088, 1086, 1087, 1084, 85, 81, 1086, 1085, 1089, 1080, 1328, 1326, 24, 1329, 1360, 62, 1373, 1369, 1367, 1323, 1306, 1310, 1304, 1308, 1307, 1244, 1248, 1249, 1247, 1233, 1240, 1332, 1328, 1324, 1351, 64, 1363, 1369, 1366, 367, 1352, 1323, 1373	Kishore Chandra, Kaushalya Devi
		N 396427 to N 396490 & E 3299334 to E 3299223	1113, 1116, 1109,	Govt. Land

Soil Dump	Coordinates	Khasra	Name of Lease Holder/Holders
I Year	N 3962200 to N 396220 & E 3299384 to E 32993817	803,798,799,880	Kishore Chandra
	N 396202 to N 396221 & E 3299391 to E 3299387	775,801	Govt. Land
II year	N 396181062 to N 396200 & E 3299388 to E 3299384	776,777,779,778,770,740	Kishore Chandra
	N 396183 to N 396202 & E 3299395 to E 3299391	775, 773	Govt. Land
III year	N 396089 to N 396108 & E 3299658 to E 3299653	188,195,196,199,198,	Kishore Chandra, Hari Dutt
	N 396090 to N 396109 & E 3299665 to E 3299661	200	Govt. Land
IV year	N 396282 to N 396302 & E 3299329 to E 3299328	1107,1115,1129,1170,1670,1122, 1125,1106	Kaushalya Devi, Kishore Chandra
	N 396283 to N 396302 & E 3299337 to E 3299336	1112	Govt. Land
V year	N 396499 to N 396514 & E 3299221 to E 3299235	1330,1331,1334	Kishore Chandra
	N 396494 to N 396508 & E 3299227 to E 3299240	Nil	Govt. Land

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Interburden Dump	Coordinates	Khasra	Name of Lease Holder/Holders
I year	N 396162 to N 396181 & E 3299383 to E 3299388	709,748,754,753,779,772,750,749, 40, 771, 755, 750, 749,745,708	Kishore Chandra
	N 396160 to N 396183 & E 3299391 to E 3299395	780	Govt. Land
II year	N 396143 to N 396162 & E 3299379 to E 3299388	709,708,707	Kishore Chandra
	N 396141to N 396160 & E 3299386 to E 3299391	710	Govt. Land
III year	N 396070 to N 396089 & E 3299662 to E 3299658	184,186,188,190,182	Kishore Chandra, Hari Dutt
	N 396071 to N 396090 & E 3299670 to E 3299665	Nil	Govt. Land
IV year	N 396263 to N 396282 & E 3299330 to E 3299329	1129,1125,1122,1124,1126,1135	Kaushalya Devi, Kishore Chandra
	N 396263 to N 396283 & E 3299338to E 3299337	1130	Govt. Land
V year	N 396485 to N 396499 & E 3299208 to E 3299221	1294,1293	Kishore Chandra
	N 396480 to N 396494 & E 3299213 to E 3299227	Nil	Govt. Land

Proposed Plantation	Coordinates	Khasra	Name of Lease Holder/Holders
I year	N 396062 to N 396143 & E 3299417 to E 3299379	707,605,706,705,703,702,711,677,674,672,603,669,677,668,603,671,667,668,680,666	Kishore Chandra, Premvallabh
	N 396074 to N 396141 & E 3299412 to E 3299386	710	Govt. Land
II year	N 396065 to N 396065 & E 3299486 to E 3299413	653,629,649,655,658,659,686,688,687,684,682,680	Kishore Chandra, Premvallabh
	N 396069 to N 396074 & E 3299489 to E 3299412	Nil	Govt. Land
III year	N 396005 to N 396028 & E 3299624 to E 3299543	598,597,503,507,508,502,509,510,511,516,517,512,519, 630,631,632,543	Kishore Chandra, Haridutt,
	N 396012 to N 396035 & E 3299626 to E 3299545	599, 633, 529	Govt. Land
IV year	N 396274 to N 396320 & E 3299469 to E 3299420	899,41,840,400,401,942,936,932,943, 948,942,830	Kishore Chandra, Jagdish Ram
	N 396282 to N 396325 & E 3299474 to E 3299426	940	Govt. Land
V year	N 396408 to N 396485 & E 3299213 to E 3299208	1293,1286,84,1285,1283,1282,1280,1279, 1289,1282	Kishore Chandra
	N 396410 to N 396480& E 3299220 to E 3299213	Nil	Govt. Land

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(ii) Proposed method of mining:

- The mining will be done semi-mechanized way in open cast method in quite a systematic manner by forming 9 m high benches with1.5m sub-benches. However, there may be minor variation in the width and height which the lessee will keep on mending.
- The top soil and interburden to be scrapped with the help of JCB machine, dozer, shovels, pickaxe, spade & crowbar and will be stacked separately in dump yard located near the working pit.
- The extracted mineral is properly sorted out at the mine site. Crow bars are sometimes used to dislodge the mineral.
- The excavation for soapstone will be made through JCB Machine, dozer, shovels, pickaxe, spade & crowbar.
- The benches will be developed from middle to top at present in *nap* land only.
- It is proposed to make 9.0m height benches which will be sliced in three stages each of 3.0m hight with 1.5m height sub benches.
- The slope of the faces will be kept 60^0-70^0 and the ultimate slope of the pit will remain 45^0.
- Developmental work will be done by construction of road/track to different working benches, removal of top soil and interburden.
- The soil will be filled into the bags, loaded on mules and unload into stockyard.
- The interburden generated during mining will be separately stacked and places shown within the applied area which will be backfilled.
- Sorting of high grade soapstone will be done on the benches by the labourers and it will be graded,
- The local people will be used for removal of mineral to the nearest road point from where the minerals will be transported by trucks to Haldwani.
- The mineral will be loaded over the trucks by the manual labour. The pit will be connected by track/foot path to the main road.
- The slope of track may vary from 1:8 to 1:20.
- Each mining face will be connected by track/road having width 3.0m.
- Exploitation of soapstone is small scale of mining and does not require any drilling & blasting.
- The average rate of production of soapstone is estimated in between 28000 to 30000 tonnes from I year to V year.
- Proper precautionary measures shall be taken to prevent soil erosion.
- The recovery of the soapstone will be 40% of the total excavation.
- Office, store, first aid centre, drinking water shed, rest shelter etc. will be constructed temporarily within the applied area.

The mining is confined in the applied area and mining benches of the pit will be backfilled to retain its original topography therefore the efforts for afforestation would be done inside the applied area in between lease boundary and UPL, about 0.310 area will be covered by 1397 saplings in this five year in UPL area. . Total 125910 saplings will be done incoming five years and upto lease period 688635 saplings will

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be done in *Van Panchayat* and forest land after taking due permission from concerning authority.

- The top soil and interburden are stacked separately in dump yard within the applied area and will be used for reclamation of the pit after exploitation of the mineral.
- Mining operations shall be carried out scientifically by following the provisions of Mining and Minerals (Development & Regulation) Act, 2015, MCDR Notification 2017, Uttarakhand, Metalliferrous Mines Regulations (MMR) 1961, UKMMCR 2001 and time to time directions/amendment given by Geology & Mining Unit & State Government will not be over looked at any stage.
- 7.5 m un-mined barrier will be maintained all along the lease boundary and vegetation growth generated on such boundary to isolate mining from rest of the area.
- Exploitation of the soapstone will not be done in land for public use.

Excavator shall be deployed for the removal of overburden & interburden. The soapstone will be extracted manually with the help of crow bar, chisels, pickaxe, hammers, spade etc scattered habitation exists towards western. North & eastern side of the area. Soapstone is soft mineral therefore no drilling & blasting shall be required. No further beneficiation will be required except breaking & sorting. From road side the soapstone bags will be loaded into trucks through manually and transported to Haldwani The salient points of proposed method of mining are given below:-

It will be open cast mechanized mine. Due to the scarcity of workers it is not possible to carry out mining operation systematically & scientifically through the formation of benches. Therefore lessee has left no option but to deploy an excavator for systematic & scientific mining, conservation of mineral & protection of environment. During first three years, mining is proposed in already degraded land in two pits therefore generation of top soil shall nil. During the year 2021-2 & 2023-24 few fresh area shall be broken by mining pits & 182cum soil shall be generated & all quantities shall be spread over the backfilled are to put it use for agriculture purpose.

Hard strata is exposed with in lease hold. It has been revealed from past mining experience that average recovery of waste rock / boulders is around 60% of total ROM. The rock formation is too hard & rock breaker is being deployed for the removal of hard strata Lessee intends to set up small crusher unit so that waste rock/ boulders shall be utilised for making aggregates. If waste material is used for making aggregates, the problem is disposal of waste shall be solved & govt. will earn revenue. Chemical analysis of waste material was carried out from Laboratory of Directorate of Geology & Mining Bhopalpani, Dehradun test report reveal that it has no industrial use except for building & construction purpose.

Extraction & management of minerals has to be guided by long- term national goals & perspective & integrated into the overall strategy of the country's economic development. Mining technology will be upgraded to ensure extraction & utilisation of entire Run of Mines (ROM). There shall be an adequate & effective legal&

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institutional framework promoting zero waste mining as the ultimate goal & commitment to prevent sub-optimal & unscientific mining.

Mining shall be carried out from lower level & subsequently advance to upper levels. As soon as mining pits reach its maximum economical depth backfilling shall be commenced from lower level to restore the maximum original topography of the area. This is common practice of soapstone mining in Kumaon Himalayas. Backfilling in both the pits shall commenced from second year onwards to restore the mined out pit to its maximum original topography. The average depression will be 2.0m with respect to its original topography.

The development activities along with khasra details are shown in year wise development plan.

All quantities of waste material to be generated each year shall be dumped with in lease area secured with retaining wall.

The broad parameters of working benches:

2.4 Mineral Beneficiation:

No mineral beneficiation will be under taken for five years. The soapstone will be dressed manually and different grade of soapstone stacked separately, which will be dispatched to various parties.

3 Review of Implementation of Mining Plan/Scheme of Mining including five years Progressive Closure Plan upto final closure of mine:

Mining plan of the area under reference is yet to be approved. It is therefore premature to make any comments about its review.

4 Closure plan

4.1 Mined Out Land: The mining will commence from the higher levels and will advance towards lower levels. Intermittent backfilling will commence from the higher levels and subsequently advance towards the lower elevations so that terraced agricultural fields would undertaken in such a manner that original land use will be restored i.e. before the onset of monsoon will be handed over to cultivators for cultivation. The final backfilling will be started once the ultimate benches are formed and pit reaches the optimum economic depth. The year wise proposal for reclamation is shown in Plate – 6 to 11 enclosed in the Mining Plan.

All recovery of the mineral will be of the saleable grade. The quantum of development and mineral to overburden soil and interburden in the pit is given below:

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Year	Overburden soil (cum)	ROM (Tonnes)	Interburden (cum)	Stripping ratio
I	35387	28000	29721	1:0.43
II	12022	29000	30783	1:0.68
III	39097	30000	31844	1:0.42
IV	8245	29000	30783	1:0.74
V	34452	28000	29721	1:0.44
Total	129202	144000	152853	

The closure proposals implemented during the first five year period are given below:

A. Mines out land	Crop/*Nap* land (ha)
a) (i) Area already broken up	-
(ii) Area already backfilled	-
(iii) Area already reclaimed	-
b) (i) Additional area proposed to be broken up during first 5 year	2.798
(ii) Additional area proposed to be backfilled	2.449
(iii) Additional area proposed to be reclaimed	2.798

B. Dump- Soil & Interburden (IB)	Crop/*Nap* land (ha)
(i) Area occupied by dump	Soil- 0.026 IB- 0.025
(ii) Additional area to be covered by dump	-
(iii) Dump area to be covered by protective measures	-

C. Plantation	Revenue/*Benap* land (ha.)	Crop/*Nap* land (ha)
(i) Area already covered	-	-
(ii) Area proposed to be covered under plantation in next five years	-	0.310

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Proposed land use (till end of life in ha.)

S. No.	Description	Area	Reclaimed & Rehabilitated till end of last MP/MS period	To be Reclaimed & Rehabilitated till the end of present plan/ scheme period	To be Reclaimed & Rehabil-itated till the end of life of mine	*To be Reclaimed & Rehabil-itated after end of life of mine	Remarks Area to be reclaimed by the end of lease
1	Mining (Quarry)	2.798	2.798	2.798			9.642
2	Waste dump	0.146	0.146	0.146			0.146
3	Office infrastructure	0.009	0.009	0.009			0.009
4	Processing plant	-	-	-			
5	Mineral Stack/Processing yard	0.005	0.005	0.005			0.005
6	Sub grade mineral stacks	0.006	0.006	0.006			0.006
7	Roads	0.156	0.156	0.156			0.538
8	Water course/pond/ reservoir	-	-	-			-
9	Unutilized area	12.193	12.193	12.193			4.971
	Total	**15.313**	**15.313**	**15.313**			**15.313**

4.1 **Water Quality Management:** No perennial surface or ground water bodies exist within the lease area. The mineral as well as soil and interburden are non-toxic and mining is also proposed at very small scale. Hence no proposal has been provided for the surface and ground water bodies. The impact on water with the kind of mining activity proposed may be as given below.The water may carry suspended solids from mine waste to nearby streams. Deterioration of water quality with interaction of loose material and other and changing hydrologic cycle by affecting the infiltration run off relationship as a result of removal of top soil/vegetative cover. However, during the course of mining of soapstone waste like top soil, etc. is inert to the water. As such there is no danger to deterioration in the quality ofwater. Further pit excavation will indirectly help in recharging ground water aquifer. The drinking water is being supplied from the spring fed nala and from pipe line. The expected depth of water table in applied area likely to be more than the exploitation depth.

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4.3 Air Quality Management: The lease area is situated in a hilly terrain.The semi-mechanised way mining without drilling and blasting has been proposed. There is no polluting agent within 5 km area of mining lease and the mining is also proposed at very small scale. Therefore the impact on air environment will be negligible. During the course of mining of soapstone no toxic substances are released into the atmosphere as such there seems to be no potential threat to health of human beings. Semi-mechanised way mining, loading and transport operations shall be limited in the instant case.Mining and allied activities are going on a comparatively small scale; the existing air is absolutely clean.

4.4 Waste Management: The top soil will be removed with the help of JCB machine, dozer, shovels, pickaxe, spade & crowbar and stacked separately. The soil intermixed with fragments and interburden rejects are low grade magnesite. Part of these rejects will be utilized in construction and maintenance of retaining walls, parapet walls, check dams and other construction works. About 21380cum of rejects will be used for this task, and remaining rejects about 53452cum will be backfilled.

The quantity of top soil & overburden (Rejects/Waste) to be generated in each year is given below:

Year	Top Soil (cum)	Interburden (cum)	Mineral Rejects (cum)
I	4116	29721	33838
II	4711	30783	35494
III	5259	31844	37103
IV	4114	30783	34897
V	4701	29721	34422
Total	22901	152853	175754

The site for dumping the waste have been selected keeping in mind the ultimate pit limit, proximity to roads and lead from working benches. The proposed dump yards have adequate capacity to accommodate the waste production without rehandling except backfilling. Drainage from the dumps remain natural i.e., water shall be passed under the solid dumps. The built up of waste has been shown on the yearly mining plan and section. The top soil and interburden dump are temporary in nature & when pit will reach the economical depth; all the quantities will be used in backfilling to restore the maximum topography of the area. The location of top soil stack and interburden dump are shown in Plate –6 to 9 and also given below:

Interburden dump location	Soil stack location
N 396070 – N 396499 & E 3299208– E 3299670	N 396089 – N 396514 & E 3299221 – E 3299658

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4.5 **Top Soil Management:** No toxic and hazardous elements are present in the waste material. During three years about 13461cum of soil will be generated. About 10769 cum of soil will be spread over the backfilled area and balance quantity will be kept on the earmarked stack area. About 115m long retaining wall having width of 1.5m and height 1.0m will be made at the periphery of the soil stack to avoid the wash off the material during intermittent rains. It is proposed that part quantities of soil to be produced will be spread on the backfilled pits so that mined out area will be converted into terraced agricultural field.

4.6 **Tailing Dam Management**: No tailing dam is proposed in the soapstone mine.

4.7 **Infrastructure**: Soapstone mining is semi-mechanised way open cast. The tracks having width of 3.0m and gradient 1:8 to 1:20 will be made for the advancement of mining faces and for the transportation of soapstone and overburden. There will not be any changed in existing infrastructure, however with the mining there will be improvement in the infrastructure in due course of time.

4.8 **Disposal of Mining Machinery**: The soapstone mine is open cast with semi-mechanised way. Machineries having the capacity upto 500 horse power will be used for excavation of the overburdened as well as mineral.

4.9 **Safety and Security**: Each worker employed in the mine will be provided helmets and shoes. Safety belts will be used for working in the top of the benches. The track will be provided to open the mining faces. The maintenance of track will be under taken periodically. Interburden and soil will be dumped near the working pits after providing retaining/toe wall. As proposed earlier that when the pit reaches the optimum economical depth, final backfilling will be started so that mined out area will be restored in its original topography Therefore by adopting these measures the working will be safe and secure. An experienced Permit Manager/Mines Foreman will be employed for the supervision of mining operations. There will not be any impact due to mining, dumping and other activities to local people.

At the time of closure of mining operations it is necessary to take adequate measures to ensure that persons and animals do not stray into the working pits/excavations and other surface openings and to prevent any type of accidents. Therefore protective works like fences, parapet walls, garland drains shall be provided before the mine/pit is abandoned.

4.10 **Disaster management and risk assessment**:

At present the mining is proposed in a moderate slopping crop/*nap* land only. When the mining will reach up to the optimum economical depth then final backfilling will commence to restore the topography of the area. The mining faces shall be dressed properly because any hanging boulders/loose material may create fatal accidents to the labourers while working in the pit. The mine shall be critically examined for its proneness to any natural hazard and assessment regarding danger of hazard and precautions to be taken should be

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reviewed and updated yearly preferably before the onset of monsoon so that water will not affect the benches & chances of slope failures will be minimized. Effective communication may be established within the mines for safe withdrawal of persons. Necessary standing orders in this regard need to be framed and enforced. Through sustained and meaningful R&D activities mining companies and research institutions shall help in creating a better understanding of the complex geo-mining situations leading to the occurrence of fire which in turn will help in formulating guidelines to combat the problem of fire in effective manner. There is risk of accidents like landslides, seismic activities, check dam failures, fires and inundation etc. Although such accidents are unlikely to happen yet provision for meeting such eventualities is required to be made in the event of mine closure. An important element of mitigating disaster is recognizing that accidents are possible and assessing the consequences of such accidents and deciding on emergency procedure. In case of any accidents or to meet any type of risk, the affected person can contact in following address M/s Devbhoomi Mines, (Partner Shri Ramesh Chandra Pandey, Shri Umesh Chandra Pandey, Shri Aswani Varshney & Shri Manoj Danga, District Bageshwar, Phone- None, Fax- None, Mobile No- 9927422586,

4.11 Care and maintenance during temporary discontinuance – During temporary discontinuity of the mine care and maintenance of each worker will be taken care by contractor.

During monsoon period (i.e. from June to September) every year mining operations shall be temporarily discontinued and all the quantities soil &interburden shall be temporarily backfilled into mining pits levelled it & make it use for agriculture purpose. The backfilled mining pits shall properly fenced to avoid any accident. Local person shall be employed to supervise the area & broken walls, check dams, linear drain, wire fencing shall be repaired immediately.

5 Economic Repercussions of Closure of manpower retrenchments and mine

All the workers to be employed will be contractor labours.

Local residents of nearby villages will be employed in the mine. The family occupation is mostly farming. A few of them have occupation of carpentry & masonry.

All the legal dues as applicable under labour laws will be payable to the workers.

About 30% of the workers employed in mine may be independent but they are controlled and depended by their family members.

The local residents will be employed in the mining operations and allied activities related to mining operations.

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The industry will provide direct and indirect employment to local residents. They will earn a good amount of money due to mining activities. It will change their life style. Due to closure of mine, it will create very bad impact on the economy of the workers for their survival. Those earning good money will reach some occupation for survival of their families. The literate workers will move here and there for the search of job. In the overall view the closure of mine will cause adverse impact on the society and surrounding areas.

Individual lands owners in which respective field mining operations are in progress becomes the contractor for raising the soapstone mineral in his respective field and engage the local residents.

All the workers being employed are contractor labours.

Any industry will provide direct and indirect employment. The local residents will earn tremendous amount of money due to mining activities. It will change their life style. Due to closure of mine, it will create very negative impact on the economy of the workers for their survival. Those earning good money will get some occupation for survival of their families. The literate workers will move here and there for the search of job. In the overall view the closure of mine will give very bad impact on the society and surrounding areas.

5.1 Mining shall be carried out through contractor in the proposed area & likely to be continued in the same manner. So no retrenchment of manpower is envisaged. Status of joining the family business back on the event of closure of mine & will depend on the circumstances prevailing at that time. However, chances of joining the family business back will not be so bright.

5.2 The compensation to given will depend on the labour laws prevalent at that time. Since 80% employees will be contract. They will not be compensated. Other will get benefit of compensation as per labor laws, while the staff will get only notice pay.

5.3 There are some satellite occupations connected to mining operations at present with in a distance of 5km. e.g. workshop/truck repair shops, tyre shops, general stores, small restaurants, fruit shops, tea shops etc. Such business at the time of closure is likely to get closed down, however the effect of single mine closure may not be fell at all.

5.4 Since the lessee will hand over the lease area to State Govt., there are no chances of continued engagement in the backfilled/reclaimed status. Once the lease is determined then all the remnant activities will come to an end barring the period of reclamation period.

5.5 The closure of mine will have grave repercussion on the expectations of society since the obvious advantages received will cease & the closure will directly affect their livelihood. Land owners will cease to get compensation in lieu of surface rights. The local habitant in general will feel insecure as their education, health standards & life expectancy will be badly affected.

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6 Time scheduling for abandonment:

The operations required to be carried out at the time of closure/abandonment of mines, shall be reclamation and rehabilitation by back filling the worked out area involving provision and maintenance of protective work like drains, parapet walls, retaining walls, Management of Air & water quality, Waste, top soil. Infrastructure and mining operation related equipments disposal, safety and security. The resources required for management of these operations shall be supervision, raw materials (mainly stone available at mines), cement, gates, fencing, transport & communications.It is proposed in the mining plan that mining will open from higher elevations and subsequently advance towards lower levels so that con- current reclamation will be undertaken to restore the topography of area. The backfilling will be commencing from third year onwards. Duringthree years about 2.798ha area will be backfilled.

The backfilled area will be again used for agricultural purposes. During three year about 115m long toe wall having width 1.5m and height 1.0m will be made along the slope and side of the top soil stack. About 300m long toe wall having width and height 1.0m each will be made along the side and slope of interburden dump. About 130m long retaining wall having width and height 1.5m each will be made along the base of backfilled pit.

7 Abandonment cost:

Retaining wall/Toe wall: The requirement of funds for protective and rehabilitation measures will depend on the extent to which these measures have been taken during the normal working of the mines.

Backfilling: During three years about 2.798 ha area will be backfilled and restored to its topography.

8 Financial assurance:

The area put to use for mining and allied activities during mining plan period for calculation of financial assurance is given in Plate - 13

Area to be considered for financial assurance @ Rs. 25,000 per ha for 2.798 ha Area is Rs. 69950/-.

The lessee will submit the financial assurance of 2 Lac to Director Geology and Mining, Dehradun before the execution of lease deed.

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Note* The area covered under plantation is excluded from financial assurance.

Area to be considered for financial assurance 13.304ha.

Financialassurance @ Rs.25, 000/- per ha.

13.304ha X 25,000 = **Rs. 3,32,600/-**

(Rupees Three Lac Thirty Two Thousand Six Hundred Only)

However, the provisions of the **Uttarakhand Minor Mineral Concession Rule, 2001**, the minimum amount as a financial assurance will be Rs. Two Lac. Lessee submitted bank guarantee of Rs 2.0 lac to Director, Geology & Mining Bhopalpani, Dehradun& Copy of same is enclosed.

Financial area assurance plan is shown in **Plate No. 14.**

Date:

Place:

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Annexure-I

उत्तराखण्ड शासन
औद्योगिक विकास अनुभाग–1
संख्याः 1084/VII-1/2018/9 सोपस्टोन/17
देहरादून दिनांक 16 मई, 2018

कार्यालय ज्ञाप

जनपद बागेश्वर व तहसील कांण्डा के ग्राम कमाटा में 15.313 है० भूमि में उप खनिज सोपस्टोन का खनन पट्टा पाने हेतु मै० देवभूमि माईन्स पाटनर्स 1. श्री रमेश चन्द्र पाण्डे पुत्र श्री गोपाल दत्त, ग्राम मण्डलसेरा, तहसील व जिला बागेश्वर, 2. श्री उमेश चन्द्र पाण्डे पुत्र श्री गिरीश चन्द्र पाण्डे, कुनेड़ा, तहसील कांण्डा, जिला बागेश्वर 3. श्री अश्वनी वार्ष्णेय, निवासी जज फार्म, आवास विकास कालोनी, हल्द्वानी जिला नैनीताल एवं 4. श्री मनोज डांगा, निवासी आवास विकास कॉलोनी, हल्द्वानी, जिला नैनीताल के आवेदन पत्र दिनांक 22.09.2016 के क्रम में इस आशय पत्र (letter of Intent) के माध्यम से राज्य सरकार मै० देवभूमि माईन्स पाटनर्स 1. श्री रमेश चन्द्र पाण्डे पुत्र श्री गोपाल दत्त, ग्राम मण्डलसेरा, तहसील व जिला बागेश्वर, 2. श्री उमेश चन्द्र पाण्डे पुत्र श्री गिरीश चन्द्र पाण्डे, कुनेड़ा, तहसील कांण्डा, जिला बागेश्वर 3. श्री अश्वनी वार्ष्णेय, निवासी जज फार्म, आवास विकास कालोनी, हल्द्वानी जिला नैनीताल एवं 4. श्री मनोज डांगा, निवासी आवास विकास कॉलोनी, हल्द्वानी, जिला नैनीताल के पक्ष में जनपद बागेश्वर व तहसील कांण्डा के ग्राम कमाटा में 15.313 है० भूमि में उत्तराखण्ड गौण खनिज नीति, 2015 (यथासंशोधित, 2017) के प्रावधानानुसार उपखनिज सोपस्टोन का 50 वर्ष की अवधि हेतु खनन पट्टा स्वीकृत करने की मंशा रखती है। आवेदक यदि उक्त खनन पट्टा लेने हेतु राजमत हों तो निम्नलिखित शर्तों का अनुपालन पत्र प्राप्ति के छः माह में प्रस्तुत करें, जिससे खनन पट्टे की औपचारिक स्वीकृति जारी की जा सके :–

1. आवेदक द्वारा उत्तराखण्ड गौण खनिज नीति, 2015, यथासंशोधित, 2017 के नियमों/प्रतिबन्धों पर लिखित सहमति पत्र।
2. उत्तराखण्ड गौण खनिज नीति, 2015 के प्रस्तर 3(दो)(5) के अनुसार पट्टाधारक द्वारा खनन योजना संबंधित खान अधिकारी/उप निदेशक (खनन) के समक्ष ₹ 20,000/–की धनराशि निर्धारित लेखाशीर्षक में ट्रेजरी चालान के माध्यम से जमा कराने के उपरान्त चालान की प्रति के साथ प्रस्तुत की जायेगी।
3. आवेदक द्वारा उत्तराखण्ड गौण खनिज नीति, 2015 के प्रस्तर–3(ग्यारह) में शासनादेश संख्या–1539/VII-1/2015/68–ख/2015, दिनांक 7 अक्टूबर 2015 के द्वारा किये गये संशोधन के अनुसार, बैंक गारन्टी ₹ 1.00 लाख मैनुअल माईनिंग एवं ₹ 2.00 लाख मशीनीकृत माईनिंग हेतु निदेशक के पक्ष में प्रस्तुत करनी होगी।
4. उत्तराखण्ड गौण खनिज नीति, 2015 के प्रस्तर–7 के अनुसार पट्टाधारक को खनन पट्टे में पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय भारत सरकार की अधिसूचना का0आ0 2601 (अ) दिनांक 07 अक्टूबर 2014 के क्रम में जारी शासनादेश संख्या–1621/VII-1/212–ख /2014, दिनांक 17 दिसम्बर 2014 के अनुसार पर्यावरणीय अनुमति प्राप्त किया जाना आवश्यक होगा।
5. उत्तराखण्ड गौण खनिज नीति, 2015 के प्रस्तर–6 के अनुसार आवेदक को प्रतिभूति धनराशि ₹ 10,000/– निदेशक, भूतत्व एवं खनिकर्म के पक्ष में बन्धक करना होगा।
6. आवेदक को खनन पट्टे का टिन/जी०एस०टी नम्बर देना अनिवार्य होगा।
7. राजस्व विभाग द्वारा निजी भूमि धारकों की सूची खसरा विवरण सहित साफ्ट कापी एवं हार्ड कापी ए–4 साईज में निदेशालय एवं शासन को उपलब्ध करायी जाएगी, जिसको खनन पट्टा विलेख में सम्मिलित किया जाना होगा।
8. खनन पट्टा क्षेत्रान्तर्गत सार्वजनिक उपयोग की भूमि 0.324 है० भूमि में खनन कार्य निषिद्ध रहेगा।
9. प्रभागीय वनाधिकारी, बागेश्वर, वन प्रभाग, बागेश्वर के पत्र संख्या–137/9–2, दिनांक 7.12.2016 अनुसार प्रश्नगत भूमि में उपलब्ध विभिन्न प्रजाति/व्यास के 54 वृक्षों की सुरक्षा का दायित्व आवेदक का होगा। वृक्षों की सुरक्षा वन विभाग द्वारा निहित प्राविधानों के अनुसार किया जाना अनिवार्य होगा।
10. प्रस्तावित क्षेत्र का सीमाबन्धन भूतत्व एवं खनिकर्म इकाई के अधिकारियों द्वारा राजस्व विभाग तथा प्रभागीय वनाधिकारी, बागेश्वर वन प्रभाग के प्रतिनिधि के द्वारा संयुक्त रूप से किया जायेगा। सीमाबन्धन के समय यदि कोई क्षेत्र का कोई भाग आपत्तिजनक पाया जाता है, तो उसे पृथक कर दिया जायेगा, जिसके फलस्वरूप क्षेत्र अथवा क्षेत्रफल में कोई परिवर्तन किया जाता है, तो वह आवेदक को मान्य होगा।

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11. जिलाधिकारी, बागेश्वर द्वारा सीमाबन्धन रिपोर्ट में इस आशय का प्रमाण पत्र दिया जाये कि खनन पट्टा हेतु प्रस्तावित सीमाबन्धित क्षेत्र में ऐसी कोई भूमि सम्मिलित नहीं है, जो वन संरक्षण अधिनियम, 1980 के प्रावधानों से प्रभावित हो तथा वन भूमि सीमाबन्धित क्षेत्र की परिधि से कम से कम 100 मीटर की दूरी पर है तथा सीमाबन्धित क्षेत्र के अर्न्तगत आने वाले खसरों का विवरण राजस्व विभाग द्वारा भूमिधारकों की सूची,खसरा विवरण सहित साफ्ट एवं हार्ड कापी–ए–4 साईज के पेपर पर अंकित एवं सत्यापित कर भूतत्व एवं खनिकर्म निदेशालय एवं शासन को उपलब्ध कराई जायेगी।
12. शासन के कार्यालय ज्ञाप संख्या–1457/VII-1/2017/68–ख/15, दिनांक 17 नवम्बर, 2017 के बिन्दु सं0 8(तीन)(क)(2) के अनुसार आशय पत्र की समस्त शर्तों को पूर्ण किये जाने के पश्चात् निदेशक, भूतत्व एवं खनिकर्म इकाई की स्पष्ट संस्तुति पर शासन द्वारा खनन पट्टा स्वीकृत किया जायेगा, परन्तु पट्टाधारक द्वारा स्वीकृत क्षेत्र में खनन कार्य का प्रारम्भ संबंधित भू–स्वामियों की सहमति/अनापत्ति के उपरान्त ही किया जायेगा।
13. आवेदक को खनन एवं राजकीय बकाया न होने के संबंध में जिलाधिकारी द्वारा निर्धारित प्रपत्र में अद्यतन अदेयता प्रमाण–पत्र तथा चरित्र प्रमाण–पत्र प्रस्तुत करना होगा।
14. आवेदक को आयकर/आयकर विवरणी जमा करा दिये जाने के संबंध में आयकर अधिकारी का अद्यतन प्रमाण–पत्र प्रस्तुत करना होगा। यदि आयकर देय नहीं हो तो इस आशय का शपथ–पत्र प्रस्तुत करना होगा।
15. आवेदक द्वारा सक्षम अधिकारी द्वारा प्रदत्त निवास प्रमाण पत्र प्रस्तुत करना होगा।

आनन्द बर्द्धन
प्रमुख सचिव

संख्याः 1087 (1)/VII-1/2018 तद्दिनांकित।

प्रतिलिपि निम्नलिखित को सूचनार्थ एवं आवश्यक कार्यवाही हेतु प्रेषित :–

1. निदेशक, भूतत्व एवं खनिकर्म इकाई, उद्योग निदेशालय, उत्तराखण्ड, देहरादून को उनके पत्र संख्या–1384/मु०ख०/84/भू०खनि०ई०/बागे०/2016–07, दिनांक 5 दिसम्बर, 2017 के सन्दर्भ में सूचनार्थ एवं निम्न निर्देशों के साथ कि उत्तराखण्ड गौण खनिज नीति, 2015 यथासंशोधित, 2017 के प्रावधानानुसार खनन पट्टा हेतु प्रस्ताव शासन को उपलब्ध कराने का कष्ट करें :–
   (क) इस आदेश द्वारा स्वीकृत क्षेत्र का सीमाबन्धन प्रत्येक दशा में इस आदेश की दिनांक से 60 दिवस में करा लिया जाय ताकि समयान्तर्गत पट्टाधारक द्वारा पट्टाविलेख का निष्पादन कराया जा सके।
   (ख) खनन पट्टा क्षेत्र के सीमाबन्धन की सूचना मय सीमाबन्धन रिपोर्ट, मानचित्र आदि के सीमाबन्धन पूर्ण किये जाने की दिनांक से 10 दिवस में शासन को प्रेषित कर दी जाये।
   (ग) सीमाबन्धन रिपोर्ट में यह प्रमाण पत्र अवश्य दिया जाये कि खनन पट्टे पर स्वीकृत क्षेत्र में सम्मिलित वन भूमि के अलावा कोई अन्य वन भूमि खनन पट्टा हेतु सीमाबन्धित क्षेत्र में सम्मिलित नहीं की गई है तथा सीमाबन्धित क्षेत्र की परिधि से कम से कम 100 मीटर की दूरी पर है।
2. जिलाधिकारी, बागेश्वर।
3. मै० देवभूमि माईन्स पाटनर्स 1. श्री रमेश चन्द्र पाण्डे पुत्र श्री गोपाल दत्त, ग्राम मण्डलसेरा, तहसील व जिला बागेश्वर, 2. श्री उमेश चन्द्र पाण्डे पुत्र श्री गिरीश चन्द्र पाण्डे, कुनेडा, तहसील कपकोट, जिला बागेश्वर 3. श्री अश्वनी वार्ष्णेय, निवासी जज फार्म, आवास विकास कालोनी, हल्द्वानी जिला नैनीताल एवं 4. श्री मनोज डांगा, निवासी आवास विकास कॉलोनी, हल्द्वानी, जिला नैनीताल।
4. गार्ड फाईल।

आज्ञा से,

(दीपेन्द्र कुमार चौधरी)
अपर सचिव

Annexure-2A

कार्यालय भूवैज्ञानिक,
भूतत्व एवं खनिकर्म इकाई, उद्योग निदेशालय,उत्तराखण्ड,
जिला टास्क फोर्स कार्यालय, अल्मोड़ा ।

संख्या 152/जि0टा0फो0/गौण खनिज– /2016–17, दिनांक 14-10-2016

सेवा में,

जिलाधिकारी,
बागेश्वर ।

विषय : तहसील व जनपद बागेश्वर के ग्राम कभाटा में 15.313 है0 भूमि में सोपस्टोन का खनन पट्टा चाहने बाबत् मै0 देवभूमि माइंस पार्टनर (1– रमेश चन्द्र पाण्डे पुत्र श्री गोपाल दत्त निवासी मण्डलसेरा तहसील व जिला बागेश्वर 2– श्री उमेश चन्द्र पाण्डे पुत्र श्री गिरीश चन्द्र पाण्डे निवासी कुनेड़ा तहसील काण्डा जिला बागेश्वर 3– श्री अश्वनी वार्ष्णेय पुत्र री उमेश वार्ष्णेय निवासी जज फार्म आवास विकास कालोनी हल्द्वानी 4– श्री मनोज डांगा पुत्र श्री एन0 के डांगा निवासी आवास विकास कालोनी हल्द्वानी) जिला नैनीताल के आवेदन पत्र दिनांक 22.09.2016 के सम्बन्ध में।

महोदय,

कृपया उपरोक्त विषयक के सम्बन्ध में आपके पत्र स0 46/तीस–02/ खनन/ 2016–17 दिनांक 07.10.2016 के कम में जनपद व तहसील बागेश्वर के ग्राम कभाटा में 15.313 है0 क्षेत्रफल पर खनिज सोपस्टोन का खनन पट्टा चाहने बाबत् मै0 देवभूमि माइंस पार्टनर (1– रमेश चन्द्र पाण्डे पुत्र श्री गोपाल दत्त निवासी मण्डलसेरा तहसील व जिला बागेश्वर 2– श्री उमेश चन्द्र पाण्डे पुत्र श्री गिरीश चन्द्र पाण्डे निवासी कुनेड़ा तहसील काण्डा जिला बागेश्वर 3– श्री अश्वनी वार्ष्णेय पुत्र री उमेश वार्ष्णेय निवासी जज फार्म आवास विकास कालोनी हल्द्वानी 4– श्री मनोज डांगा पुत्र श्री एन0 के डांगा निवासी आवास विकास कालोनी हल्द्वानी) जिला नैनीताल देवभूमि माइंस रामपुर रोड गन्ना सेन्टर हल्द्वानी जिला नैनीताल का आवेदन पत्र दिनांक 22.09.2016 के सम्बन्ध में स्थल का भूवैज्ञानिक निरीक्षण अधोहस्ताक्षरी द्वारा आवेदकगण श्री उमेश चन्द्र पाण्डे की उपस्थिति में दिनांक 08.10.2016 को सम्पन्न किया गया। निरीक्षण आख्या इस पत्र के साथ संलग्न कर आपके आवश्यक कार्यवाही हेतु प्रेषित है।

संलग्नक उपरोक्तानुसार ।

भवदीय,

(दिनेश कुमार)
उपनिदेशक/भूवैज्ञानिक।

पृष्ठांक /जि0टा0फो0/गौणखनिज/2016–17, तद्दिनाक।
प्रतिलिपि : निम्नलिखित को सूचनार्थ एवं आवश्यक कार्यवाही हेतु प्रेषित।
1– निदेशक,भूतत्व एवं खनिकर्म इकाई,उद्योग निदेशालय उत्तराखण्ड,देहरादून।
2– उपजिलाधिकारी, ~~अल्मोड़ा~~ बागेश्वर।

(दिनेश कुमार)
उपनिदेशक/भूवैज्ञानिक

कार्यालय भू–वैज्ञानिक,भूतत्व एवं खनिकर्म इकाई ,जिला टास्क फोर्स अल्मोड़ा

तहसील व जनपद बागेश्वर के ग्राम कभाटा में 15.313 है0 भूमि में सोपस्टोन का खनन पट्टा चाहने बाबत् मै0 देवभूमि माइंस पार्टनर (1– रमेश चन्द्र पाण्डे पुत्र श्री गोपाल दत्त निवासी मण्डलसेरा तहसील व जिला बागेश्वर 2– श्री उमेश चन्द्र पाण्डे पुत्र श्री गिरीश चन्द्र पाण्डे निवासी कुनेड़ा तहसील काण्डा जिला बागेश्वर 3– श्री अश्वनी वार्ष्णेय पुत्र री उमेश वार्ष्णेय निवासी जज फार्म आवास विकास कालोनी हल्द्वानी 4– श्री मनोज डांगा पुत्र श्री एन0 के डांगा निवासी आवास विकास कालोनी हल्द्वानी) जिला नैनीताल के आवेदन पत्र दिनांक 22.09.2016 के सम्बन्ध में आवेदित भूमि की भूगर्भीय दृष्टिकोण से आख्या :

कृपया उपरोक्त विषयक के सम्बन्ध में आपके पत्र सं0, 46/तीस–02/ खनन/ 2016–17 दिनांक 07.10.2016 के कम में जनपद व तहसील बागेश्वर के ग्राम कभाटा में 15.313 है0 क्षेत्रफल पर खनिज सोपस्टोन का खनन पट्टा चाहने बाबत् मै0 देवभूमि माइंस, पार्टनर (1– रमेश चन्द्र पाण्डे पुत्र श्री गोपाल दत्त निवासी मण्डलसेरा तहसील व जिला बागेश्वर 2– श्री उमेश चन्द्र पाण्डे पुत्र श्री गिरीश चन्द्र पाण्डे निवासी कुनेड़ा तहसील काण्डा जिला बागेश्वर 3– श्री अश्वनी वार्ष्णेय पुत्र री उमेश वार्ष्णेय निवासी जज फार्म आवास विकास कालोनी हल्द्वानी 4– श्री मनोज डांगा पुत्र श्री एन0 के डांगा निवासी आवास विकास कालोनी हल्द्वानी) जिला नैनीताल देवभूमि माइंस रामपुर रोड गन्ना सेन्टर हल्द्वानी जिला नैनीताल का आवेदन पत्र दिनांक 22.09.2016 के सम्बन्ध में स्थल का भूवैज्ञानिक निरीक्षण अधोहस्ताक्षरी द्वारा आवेदकगण श्री उमेश चन्द्र पाण्डे की उपस्थिति में दिनांक 06.10.2016 को सम्पन्न किया गया जिसकी भूवैज्ञानिक दृष्टिकोण से आख्या निम्नवत् है :–

सोपस्टोन खनिज के खनन पट्टा हेतु आवेदित स्थल बागेश्वर–काण्डा–चौकोड़ी मोटरमार्ग पर स्थित विजयपुर से लगभग 08 कि0मी0 की दूरी पर मोटरमार्ग के दांयी ओर मुख्यालय बागेश्वर से लगभग 28 कि0मी0 की दूरी पर ग्राम कभाटा क्षेत्रान्तर्गत स्थित है। भौगोलिक दृष्टिकोण से आवेदित स्थल भारतीय सर्वेक्षण विभाग के टोपोशीट सं0 53 0/13 के अन्तर्गत निम्न अक्षांश व देशान्तर पर समुद्र तल से लगभग 1503 मीटर की ऊँचाई पर स्थित है :–

अक्षांश उत्तर 29^{0} 49' 44.68" से उत्तर 29^{0} 49' 40.37"
देशान्तर पूरब 079^{0} 55' 03.67" से पूरब 079^{0} 55' 51.46"

प्रश्नगत् स्थल की चौहद्दी निम्नवत् है :–

उत्तर दिशा में – अपहिल साईड में ग्राम कभाटा का आबादी क्षेत्र।
दक्षिण दिशा में – ग्राम आगर की सीमा।
पूर्व दिशा में – बरसाती गधेरा।
पश्चिम दिशा में – ग्राम खोला की सीमा।

भूगर्भीय स्थिति :

क्षेत्रीय भूगर्भीय संरचना :

बैरीनाग फारमेशन		क्वाटजाईट मेटा क्वार्टजाईट , कौग्लोमेरिट फिलाइट
.....	अन्कन्फरमिटी.....	
गंगोलीहाट डोलोमाइट	--	डोलोमाइट, लाईमस्टोन एल्गल संरचना के साथ डोलामीटिक सोपस्टोन जिसमें टाल्क / टाल्कोज / फिलाइट व डोलोमाइट अन्तः संस्तरीय अवस्था में मिलती है ।
.....अन्कन्फरमिटि.....		
सोर स्लेट		सेल,स्लेट ग्रेवेके एवं फिलाइट

जनपद बागेश्वर का सम्पूर्ण क्षेत्र मुख्यतः लेसर हिमालय और मध्य हिमालय में अवस्थित चट्टानों की उत्पत्ति से निर्मित है। क्षेत्र में कई उत्पत्ति चक्रों में हुई विभिन्न टैक्टोनिक मूवमैन्ट के कारण क्षेत्र की भूवैज्ञानिक संरचना अत्यधिक जटिलता लिये हुए है। जनपद बागेश्वर में विभिन्न स्थान्तर्गत current bedded quartzite,micatalc schist,limestone,conglo- merate,slate ,quartzite,granodiorite,augen-gneiss,migmatite andgranite gneiss आदि चट्टानें पायी जाती हैं । जनपद का उत्तरी भाग जो अधिकांशतः हिमाच्छादित है, कायान्तरित चट्टानों से निर्मित है जो कि मध्य हिमालय का भाग है। मध्य हिमालय जोन का सेन्ट्रल किस्टलाइन भाग थ्रस्ट शीट की तरह प्रदर्शित है जो कि विभिन्न टैक्टोनिक सैटिंग अवधियों के दौरान लेसर हिमालय जोन की metasedimentry व sedimetry चट्टानों के ऊपर अवस्थित है। सेन्ट्रल किस्टलाईन जोन में मुख्यतः मिग्मेटाइट , माइका नाइस , कैल्क नाइस , क्वार्टजाईट , मार्बल , माइका शिस्ट तथा एम्फीबोलाईट चट्टानें पायी जाती हैं । जनपद बागेश्वर का अधिकांश भाग geotectoniczone के अन्तर्गत आता है जिसे लेसर हिमालय कहा जाता है । लेसर हिमालय के अनतर्गत मुख्यतः अवसासी शैल , मैटा अवसादी शैल , मेटा अवसादी शैल , अन्तः संस्तरीय आग्नेय चट्टानों से निर्मित है।

स्थानीय भूगर्भीय संरचना :

प्रश्नगत क्षेत्र उपर्युक्त स्टेटीग्राफी में गंगोलीहाट डोलोमाइट सिक्वेंस के कार्बोनेट समूह की चट्टानों का एक हिस्सा है जिसके अनुसार क्षेत्र में पाया जाने वाला खनिजीकृत क्षेत्र अपर एवं लोअर कार्बोनेट के मध्य स्थित है।

अपर कार्बोनेट	——	मैग्नेसाइट,स्पोरोडिक डोलोमाइट
मिडिल टाल्कोज फिलाइट	——	टाल्क पाकेट्स में मिलता है
लोअर कार्बोनेट	——	डोलोमाइट / डोलोमाइट संस्तरण

सोपस्टोन/टाल्क मुख्य खनिज के खनन पट्टा हेतु आवेदित स्थल प्रस्तुत अभिलेखानुसार ग्राम देवली के क्षेत्रान्तर्गत निजी नाप एवं राजस्व भूमि है जिसका सत्यापन राजस्व विभाग द्वारा किया जाना प्रस्तावित है।

सोपस्टोन के उत्खनन हेतु आवेदित स्थल पहाडी के दक्षिणी ढलान पर पूरब से पश्चिम दिशा की ओर विस्तारित क्षेत्र है। स्थल के अपहिल साईड में पूरब से पश्चिम दिशा की ओर विस्तार लिये हुए सुरक्षित दूरी पर आवासीय क्षेत्र स्थित हैं। आवेदित स्थल का सामान्य ढाल दक्षिण तथा दक्षिण–पश्चिम दिशा की ओर लगभग 20^0 से 30^0 तक है। स्थल के सम्पूर्ण भाग में सीढ़ीनुमा कृषि भूमि तथा कहीं–कहीं झाड़ियां आदि व छोटे वृक्ष दृष्टिगोचित होते हैं। स्थल का अधिकांशतः भाग कृषि भूमि होने के कारण स्थल पर मिट्टी की लगभग 1 से 2 मीटर की मोटी परत निक्षेपित है। आवेदित क्षेत्र के अन्तर्गत सोपस्टोन खनिज डोलोमिटिक लाईमस्टोन व मैग्नेसाईट की चट्टानों के साथ मिश्रित अवस्था में दृष्टिगोचित होता है। क्षेत्र में स्वास्थाने चट्टानों का अभाव है। सोपस्टोन व डोलोमिटिक लाइमस्टोन के कोणीय आकारयुक्त टुकड़े मिट्टी के साथ मिश्रित अवस्था में दृष्टिगोचर होते हैं। क्षेत्र में मध्यम श्रेणी का सोपस्टोन खनिज की उपलब्धता मिट्टी की मोटी परत के नीचे होना प्रतीत होती है। स्थल के आस–पास वर्तमान में भूस्खलित एवं भूधंसाव प्रभावित क्षेत्र दृष्टिगोचित नहीं होता है। आवेदित स्थल में वर्तमान् भौगोलिक परिस्थितियों, सामान्य टोपोग्राफी तथा सोपस्टोन खनिज की प्रचुर उपलब्धता होने के दृष्टिगत् प्रस्तावित स्थल खनन पट्टे पर दिये जाने हेतु उपयुक्त प्रतीत होता है।

अतः मै0 देवभूमि माइंस पार्टनर (1– रमेश चन्द्र पाण्डे पुत्र श्री गोपाल दत्त निवासी मण्डलसेरा तहसील व जिला बागेश्वर 2– श्री उमेश चन्द्र पाण्डे पुत्र श्री गिरीश चन्द्र पाण्डे निवासी कुनेड़ा तहसील काण्डा जिला बागेश्वर 3– श्री अश्वनी वार्ष्णेय पुत्र री उमेश वार्ष्णेय निवासी जज फार्म आवास विकास कालोनी हल्द्वानी 4– श्री मनोज डांगा पुत्र श्री एन0 के डांगा निवासी आवास विकास कालोनी हल्द्वानी) जिला नैनीताल देवभूमि माइंस रामपुर रोड गन्ना सेन्टर हल्द्वानी जिला नैनीताल के ग्राम कभाटामें 15.313 है0 क्षेत्र पर सोपस्टोन का खनन पट्टा चाहने हेतु आवेदन पत्र दिनांक 22.09.2016 को आवेदित क्षेत्र में उपरोक्त विवरणानुसार सोपस्टोन/टाल्क की उपलब्धता दृष्टिगत् रखते हुए दैवीय आपदा को छोड़कर पर्यावरणीय संतुलन को ध्यान में रखते हुए भूवैज्ञानिक दृष्टिकोण से निम्नलिखित शर्तों/सुझावों का पालन करने की दशा में उपयुक्त प्रतीत होता है :–

<u>शर्तें/सुझाव :–</u>

1– राज्य सरकार द्वारा प्रख्यापित उत्तराखण्ड गौण खनिज नीति– 2015 एवं समय–समय पर संशोधनों में उल्लिखित प्रावधानों व शर्तों का पूर्णतः पालन किया जायेगा।

2– आवेदक द्वारा भूस्वामियों की नोटरी द्वारा सत्यापित सहमति प्राप्त की जानी आवश्यक होगी।

3– आवेदित क्षेत्रान्तर्गत वृक्ष पातन पूर्णतः प्रतिबंधित होगा।

4– आवेदक खनन कार्य के दौरान क्षेत्र में खोदे गये पिटों तथा गड्ढों से खनिज निकालने के पश्चात गड्ढों को शीघ्र भरकर समतल करेगा व भूमि को कृषि योग्य बनायेगा जिससे क्षेत्र में भूस्खलन न हो तथा क्षेत्र स्थिर रह सके।

5– आवेदक खनन कार्य के दौरान स्थल में उपलब्ध सार्वजनिक सम्पत्ति, आवासीय भवन, सार्वजनिक स्थल, भवन आदि को हानि नहीं पहुँचायेगा। हानि पहुँचाने की स्थिति में पट्टाधारक स्वयं जिम्मेदार होगा।

6– पर्यावरणीय स्थिति को संतुलित रखने के उद्देश्य से आवेदक अपनुपयोगी क्षेत्र/राजस्व क्षेत्र में वृक्षारोपण कार्य करेगा।

7– आवेदक खनन कार्य के दौरान मलवे का निस्तारण उचित स्थान पर करेगा तथा किसी भी दशा में मलवे का बहाव स्थानीय गेदेरे में नहीं करेगा। उक्त के अतिरिक्त मलवे का एकत्रिकरण आवासीय भवनों की ओर भी किया जाना प्रतिबन्धित होगा।

8– आवेदक द्वारा खनन कार्य प्रारम्भ करते समय आवेदित क्षेत्र से निकलने वाले खनिज /खनिजों की उपलब्धता एवं गुणवत्ता की जॉच हेतु भूवैज्ञानिक अल्मोड़ा को सूचित करना अनिवार्य होगा जिससे क्षेत्र से निकलने वाले खनिज का ग्रेड तथा रायल्टी का उचित निर्धारण किया जा सके ।

(दिनेश कुमार)
उपनिदेशक/ भूवैज्ञानिक।

स्थान : अल्मोड़ा ।
दिनांक 14-10-2016

Annexure-2(A)

कार्यालय प्रभागीय वनाधिकारी, बागेश्वर वन प्रभाग बागेश्वर

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दूरभाष नं०:- 05963-220249 फैक्स नं०:- 05963-220209

पत्रांक 1371 / 9-2 बागेश्वर दिनांक 07/12/2016।

सेवा में,

जिलाधिकारी,
बागेश्वर ।

विषय – तहसील कापड़ा, जनपद बागेश्वर के ग्राम कमाटा में 15.313 है0 भूमि में सोपस्टोन का खनन पट्टा चाहने बाबत् मै0 सेवनमुनि माईन्स पार्टनर (1– श्री रमेश चन्द्र पाण्डे पुत्र श्री गोपाल दत्त निवासी मण्डलसेरा तहसील व जिला बागेश्वर 2– श्री उमेश चन्द्र पाण्डे पुत्र गिरीश चन्द्र पाण्डे निवासी कुनेका तहसील कापड़ा जिला बागेश्वर 3– श्री अरुणी वार्ष्णेय पुत्र श्री उमेश वार्ष्णेय निवासी जज फॉर्म आदास विकास कालौनी हल्द्वानी 4– श्री मनोज डागॉ पुत्र श्री एन0 के डागॉ निवासी आवास विकास कालौनी हल्द्वानी) जिला नैनीताल को आवेदन पत्र संख्या दिनांक 22.09.2016 के सम्बन्ध में।

संदर्भ– आपकी पत्र संख्या–48/फॉरेस 02 खनन/2016–17 दिनांक 07.10.2016।

महोदय,

उपरोक्त संदर्भित पत्र के क्रम में खनन क्षेत्र का स्थलीय निरीक्षण वन क्षेत्र अधिकारी धरमघर के द्वारा किया गया। वन क्षेत्राधिकारी धरमघर की जॉच आख्या निम्न प्रकार है–

1. खनन क्षेत्र में उपलब्ध वृक्षों का विवरण –

क्र0 सं0	प्रजाति	व्यासवार विवरण से0मी0 में									
		0–10	10–20	20–30	30–40	40–50	50–60	60–70	70–80	70–80	योग
नाप भूमि											
1	बांज	–	06	02	01	–	–	–	–	–	09
2	मेहल	–	02	–	–	–	–	–	–	–	02
3	पदम	–	–	01	01	–	–	–	–	–	02
4	मीमल	–	06	–	–	–	–	–	–	–	06
5	चीड़	–	03	02	–	–	–	–	–	–	05
6	आंवला	–	01	01	–	–	–	–	–	–	02
राज्य सरकार की भूमि							–	–	–	–	
1	तुसार	–	02	06	–	–	–	–	–	–	08
2	खडिक	–	01	01	01	–	–	–	–	–	03
3	तिमुल	–	02	–	–	–	–	–	–	–	02
4	सिरस		01	–	–	–	–	–	–	–	01
सार्वजनिक प्रकार भूमि में											
1	उतीस	02	03	01	–	–	–	–	–	–	06
2	सेमल	-	01	01	–	–	–	–	–	–	02
3	काफल	01	03	–	–	–	–	–	–	–	04
4	कुकाट	–	02	–	–	–	–	–	–	–	02
	योग	03	33	15	03	–	–	–	–	–	54

2. क्षेत्र की जी0पी0एस0 रीडिंग – N - 29°49'265" E - 79°55'665" H-1330Mtr

4. भूमि का प्रकार नाप बेनाप भूमि एवं अन्य नाप 15.313 है0

5 आरक्षित वन क्षेत्र से दूर। पूरब में– हुड़म क0ब 0.50किमी0 । पश्चिम में– कनाटा गॉव, खन्तोली क0 प0 250 मी0 उत्तर में–कमाटा क0ब0 दक्षिण में–खन्तोली/पोखरी गॉव।

6 बेनाप/ सिविल /पंचायती/ खडिया खनन में पर्यावरण मे पडने वाले दुश्प्रभावो की जॉच पर्यावरण तकनीकी समिति से करवाया जाना उचित होगा। इस प्रतिबन्ध के साथ कि स्थित वृक्षों को कोई क्षति न पहुचे व अन्य शर्ते यथावत।

भवदीय,

(एम0बी0 सिंह)
प्रभागीय वनाधिकारी,
बागेश्वर वन प्रभाग बागेश्वर ।

पत्रांक / दिनांकित ।

प्रतिलिपि – वन क्षेत्राधिकारी धरमघर को आपकी संस्तुति के आधार पर सूचनार्थ एवं आवश्यक कार्यवाही हेतु प्रेषित।

प्रतिलिपि – उप प्रभागीय वनाधिकारी कपकोट को सूचनार्थ एवं आवश्यक कार्यवाही हेतु प्रेषित ।

(एम0बी0 सिंह)
प्रभागीय वनाधिकारी,
बागेश्वर वन प्रभाग बागेश्वर ।

Annexure-IC

भूतत्व एवं खनिकर्म इकाई, उद्योग निदेशालय उत्तराखण्ड, बागेश्वर

सेवा में,

निदेशक,
भूतत्व एवं खनिकर्म इकाई,
उद्योग निदेशालय, उत्तराखण्ड,
देहरादून।

संख्या 312 जि0टा0फो0/उपख0–सोपस्टोन/2018–19, दिनांक 15-Sep-, 2018

विषयः मै0 देव भूमि माइंस पाटनर्स 1. श्री रमेश चन्द्र पाण्डे पुत्र श्री गोपाल दत्त, निवासी मण्डलसेरा तहसील व जिला बागेश्वर, 2. श्री उमेश चन्द्र पाण्डे पुत्र श्री गिरीश चन्द्र पाण्डे निवासी कुनेड़ा तहसील काण्डा, जिला बागेश्वर, 3. श्री अश्वनी वार्ष्णेय निवासी जज फार्म, आवास विकास कालोनी, हल्द्वानी जिला नैनीताल व 4. श्री मनोज डांगा निवासी आवास विकास कालोनी, हल्द्वानी जिला नैनीताल के पक्ष में जनपद बागेश्वर की तहसील काण्डा के ग्राम कमाटा में 15.313 है0 भूमि पर उपखनिज सोपस्टोन का खनन पट्टा पाने हेतु आवेदन पत्र दिनांक 22.09.2016 के क्रम में औद्योगिक विकास विभाग, उत्तराखण्ड शासन के कार्यालय ज्ञाप संख्या 1087/VII-1/2018/9–सोपस्टोन/17, दिनांक 16 मई, 2018 के द्वारा आशय पत्र (**Letter of intent**) पर स्वीकृत खनिज सोपस्टोन खनन पट्टा क्षेत्र के सीमाबन्धन के सम्बन्ध में।

महोदय,

कृपया उपरोक्त विषयक औद्योगिक विकास अनुभाग–1 के कार्यालय ज्ञाप सं0 1087/VII-1/2018/9–सोपस्टोन/17, दिनाक 16 मई, 2018 के क्रम में संयुक्त निदेशक, भूतत्व एवं खनिकर्म इकाई, उद्योग निदेशालय, उत्तराखण्ड, देहरादून के पत्र सं0 387/मु0ख0/भू0खनि0इ0/84/सोपस्टोन/2016–17, दिनांक 17 मई, 2018 जो जिलाधिकारी बागेश्वर व अधोहस्ताक्षरी को सम्बोधित एवं आवेदकगणों को पृष्ठांकित है के द्वारा आवेदकगण मै0 देव भूमि माइंस पाटनर्स 1. श्री रमेश चन्द्र पाण्डे पुत्र श्री गोपाल दत्त, निवासी मण्डलसेरा तहसील व जिला बागेश्वर, 2. श्री उमेश चन्द्र पाण्डे पुत्र श्री गिरीश चन्द्र पाण्डे निवासी कुनेड़ा तहसील काण्डा, जिला बागेश्वर, 3. श्री अश्वनी वार्ष्णेय निवासी जज फार्म, आवास विकास कालोनी, हल्द्वानी जिला नैनीताल व 4. श्री मनोज डांगा निवासी आवास विकास कालोनी, हल्द्वानी जिला नैनीताल के पक्ष में ग्राम कमाटा, तहसील काण्डा, जिला बागेश्वर में 15.313 है0 क्षेत्रफल में 50(पचास) वर्ष की अवधि हेतु खनिज सोपस्टोन के खनन पट्टा हेतु निर्गत आशय पत्र के सम्बन्ध में आवेदित क्षेत्र का सीमाबन्धन किये जाने के आदेश दिये गये हैं।

उक्त के अनुपालन में प्रस्तावित क्षेत्र का सीमाबन्धन आवेदकगण श्री रमेश चन्द्र पाण्डे की उपस्थिति में विभागीय सर्वेक्षक द्वारा राजस्व उपनिरीक्षक व वन दरोगा की सहायता से दिनांक 23.06.2018 को सम्पन्न किया गया। सीमाबन्धित क्षेत्र के अन्तर्गत पड़ने वाली भूमि का विवरण जिलाधिकारी बागेश्वर के पत्र सं0 1484/तीस–09/खनन/2010–11 दिनांक 23.08.2018 जो अधोहस्ताक्षरी को सम्बोधित एवं आपको पृष्ठांकित है, के द्वारा प्राप्त हो गया है, जिसके अनुसार सीमाबन्धित क्षेत्र के अन्तर्गत पड़ने वाली भूमि का विवरण निम्नवत् है :–

खसरा विवरण

क्र0	ग्राम का नाम	श्रेणी 1(क) जोतदार के नाम दर्ज भूमि है0 में	श्रेणी 7 क की भूमि	सार्वजनिक उपयोग की भूमि का रकबा है0 में	राज्य सरकार के नाम दर्ज भूमि है0 में	कुल भूमि है0 में
01	कमाटा	13.745 है0	0.022है0	0.203है0	1.334 है0	15.304 है0
कुल योग		13.745 है0	0.022है0	0.203है0	1.334 है0	15.304 है0

C

सीमाबन्धन के दौरान आवेदक को सभी सीमास्तम्भों के स्थान दिखा/बता दिये गये थे। राजस्व उपनिरीक्षक की आख्या दिनांक 28.05.2018 (छायाप्रति संलग्न) में स्पष्ट किया गया है कि आवेदक द्वारा बताये गये सभी सीमास्तम्भों का निर्माण कर लिया गया है। सीमाबन्धित क्षेत्र को खसरा मानचित्र में लाल रंग से चिन्हांकित किया गया है।

आवेदक द्वारा निर्धारित सीमाबन्धन शुल्क रू0 16,000/– (रू0 सोलह हजार मात्र) के ट्रेजरी चालान की मूल प्रति इस कार्यालय में प्रस्तुत की गयी है। सीमाबन्धन प्रतिवेदन मय खसरा मानचित्र की सत्यापित प्रति, राजस्व उपनिरीक्षक की आख्या दिनांक 23.05.2018 तथा दिनांक 28.05.2018 की छायाप्रति, सीमाबन्धन शुल्क जमा करने सम्बन्धी ट्रेजरी चालान की छायाप्रति सीमाबंधित क्षेत्रान्तर्गत पड़ने वाली भूमि के सम्बन्ध में जिलाधिकारी बागेश्वर द्वारा उपलब्ध करायी गयी आख्या की प्रति मय संलग्नकों के इस पत्र के साथ संलग्न कर आपके आवश्यक कार्यवाही हेतु सादर प्रेषित है।

संलग्नक उपरोक्तानुसार

भवदीय

15-sep-2018

(रवि सिंह नेगी)
सहायक भूवैज्ञानिक/खान अधिकारी।

भूतत्व एवं खनिकर्म इकाई, उद्योग निदेशालय उत्तराखण्ड, बागेश्वर

आवेदक का नाम व पता– मै0 देव भूमि माइंस पाटनर्स 1. श्री रमेश चन्द्र पाण्डे एवं अन्य।
ग्राम का नाम – कभाटा, तहसील काण्डा, जिला – बागेश्वर।
क्षेत्रफल – 15.313 है0
सीमाबन्धित क्षेत्र की चौहद्दी निम्नानुसार है :–

क्षेत्र के उत्तर में :

पिलर – 38, खेत नं0 185, पिलर –39 खेत नं0 212, पिलर –40 खेत नं0 573, पिलर – 41 खेत नं0 412, पिलर – 42 खेत नं0 370, पिलर –43 खेत नं0 285, पिलर –44 खेत नं0 333, पिलर – 45 खेत नं0 329, पिलर – 46, खेत नं0 399, पिलर –47 खेत नं0 942, पिलर –48 खेत नं0 1070, पिलर – 01 खेत नं0 1026, पिलर – 02 खेत नं0 1506, पिलर –03 खेत नं0 1586 पिलर –04 खेत नं0 1597, पिलर – 05 खेत नं0 1621, पिलर – 06 खेत नं0 1634, पिलर –07 खेत नं0 1768, पिलर –08 खेत नं0 1778, पिलर – 09 खेत नं0 1811, पिलर –10 खेत नं0 1795, पिलर –11 खेत नं0 1988।

क्षेत्र के पूरब में :

पिलर 11 खेत नं0 1988, पिलर 12 खेत नं0 1962, पिलर 13 खेत नं0 1912, पिलर 14 खेत नं0 1887

क्षेत्र के दक्षिण में :

पिलर – 15, खेत नं0 1862, पिलर –15 खेत नं0 1836, पिलर – 17 खेत नं0 1852, पिलर – 18 खेत नं0 1713, पिलर –19, खेत नं0 1656, पिलर –20, खेत नं0 1702, पिलर –21, खेत नं0 1419,

पिलर – 22, खेत नं0 1277, पिलर –23 खेत नं0 1274, पिलर – 24 खेत नं0 1236, पिलर – 25 खेत नं0 1232, पिलर –26 खेत नं0 1227, पिलर –27, खेत नं0 1160, पिलर –28, खेत नं0 1151, पिलर – 29, खेत नं0 1149, पिलर –30 खेत नं0 804, पिलर – 31 खेत नं0 773, पिलर – 32 खेत नं0 671

क्षेत्र के पश्चिम में :

पिलर – 33, खेत नं0 666, पिलर –34, खेत नं0 651, पिलर –35, खेत नं0 515, पिलर –36, खेत नं0 497, पिलर –37 खेत नं0 476

पट्टाधारक / प्रतिनिधि सर्वेक्षक खान अधिकारी

पृष्ठकार गोश्वारा:

क्रमांक	श्रेणी 1क की भूमि	श्रेणी 1ख की भूमि	राज्य सरकार की भूमि	सार्वजनिक उपयोग की भूमि	कुल भूमि	श्रेणी 1ग की भूमि	श्रेणी 1क की भूमि	राज्य सरकार की भूमि	सार्वजनिक उपयोग की भूमि	कुल भूमि
1	2	3	4	5	6	7	8	9	10	11
1	0.219	—	0.001	—	0.220	0.289	—	0.024	—	0.313
2	0.317	—	0.002	—	0.319	0.464	—	0.011	—	0.475
3	0.291	—	—	0.012	0.303	0.281	—	0.001	0.003	0.285
4	0.239	—	0.019	—	0.258	0.301	—	0.010	—	0.311
5	0.396	—	0.005	—	0.401	0.250	—	0.026	—	0.276
6	0.148	—	0.021	—	0.169	0.203	—	—	—	0.203
7	0.236	—	0.017	—	0.253	0.207	—	0.001	0.004	0.212
8	0.194	—	0.013	—	0.207	0.289	—	0.001	—	0.290
9	0.285	—	0.005	—	0.290	0.364	—	—	—	0.364
10	0.365	—	—	—	0.365	0.420	—	0.008	—	0.428
11	0.192	—	0.010	0.001	0.203	0.377	—	—	—	0.377
12	0.281	—	0.026	0.033	0.340	0.251	—	0.143	0.030	0.424
13	0.291	—	0.027	0.001	0.319	0.325	—	0.005	0.003	0.333
14	0.333	—	0.011	0.006	0.350	0.340	—	0.010	—	0.350
कुल	3.727	—	0.157	0.053	3.997	4.361	—	0.240	0.040	4.641

Annexure-3

1	2	3	4	5	6	7	8	9	10	11
15	0.402	—	—	—	0.402	0.405	—	0.023	0.005	0.433
16	0.312	—	—	—	0.312	0.482	—	0.003	—	0.485
17	0.357	—	0.010	—	0.367	0.261	—	0.020	—	0.281
18	0.218	—	0.054	—	0.272	0.139	—	0.148	0.004	0.291
19	0.236	—	0.082	0.005	0.323	0.246	—	0.116	0.035	0.397
20	0.117	—	0.251	0.005	0.373	0.243	—	0.001	0.004	0.248
21	0.298	—	0.014	0.014	0.326	0.413	—	0.011	—	0.424
22	0.243	0.022	0.072	—	0.337	0.321	—	0.053	—	0.374
23	0.121	—	0.052	0.020	0.193	0.376	—	0.001	—	0.377
24	0.250	—	0.017	—	0.267	0.157	—	0.009	0.018	0.184
योग	2.554	0.022	0.552	0.044	3.172	3.043	—	0.385	0.066	3.494

सम्पूर्ण गोश्वारा :-

क्रमांक	श्रेणी 1 की भूमि	श्रेणी 2 की भूमि	राज्य सरकार की भूमि	सार्वजनिक उपयोग की भूमि	कुल भूमि
दफा 1.	3.787	—	0.157	0.053	3.997
2.	4.361	—	0.240	0.040	4.641
3.	2.554	0.022	0.552	0.044	3.172
4.	3.043	—	0.385	0.066	3.494
योग.	13.745	0.022	1.334	0.203	15.304

सहीयां

तैयार किया

सहा० भू० निरीक्षक
केस
तारीख जालंधर छावनी
27/7/2018

रघसरा ग्राम-कमोहा रा०उ०वि० ईसा-सानीडीह तहसील-फाफा जिला-कौशाम्बी

खेत नं०	रकबा	खा०स०	खातेदार का नाम
180मि०	0.004	2	जिशो चन्द्र के वेवादत आदि
181मि०	0.004	2	〃
182मि०	0.004	2	〃
183मि०	0.006	2	〃
184	0.004	2	〃
185मि०	0.002	2	〃
186	0.004	2	〃
187मि०	0.004	2	〃
188मि०	0.006	2	〃
190मि०	0.003	11	दरीदत्त की अज्ञानी दत्त
195मि०	0.011	11	〃
196मि०	0.006	2	जिशो चन्द्र के वेवादत आदि
197मि०	0.001	2	〃
198	0.009	2	〃
199मि०	0.006	2	〃
200मि०	0.001	22	उ०प्र० ज़मी० (4) फाफा
201	0.008	2	जिशो चन्द्र के वेवादत आदि
202मि०	0.006	2	〃
203	0.011	2	〃
204मि०	0.003	2	〃
208मि०	0.009	2	〃
209मि०	0.008	2	〃
210	0.004	2	〃
211मि०	0.005	2	〃
218मि०	0.004	2	〃
273	0.025	2	〃
274मि०	0.021	2	〃
275	0.009	2	〃
276	0.019		
277मि०	0.013	2	〃
—	—	—	—

खेत नं०	रकबा	खा०स०	खातेदार का नाम
278मि०	0.005	2	जिशो चन्द्र के वेवादत आदि
279	0.011	2	〃
280	0.020	2	〃
281मि०	0.004	2	〃
282मि०	0.026	2	〃
283मि०	0.015	2	〃
285मि०	0.015	2	〃
286	0.006	2	〃
287मि०	0.005	2	〃
329मि०	0.003	2	〃
330मि०	0.003	2	〃
331मि०	0.010	2	〃
332मि०	0.006	2	〃
333मि०	0.035	2	〃
334मि०	0.001	2	〃
337मि०	0.006	2	〃
338मि०	0.015	2	〃
339	0.006	2	〃
340	0.003	2	〃
341	0.004	2	〃
342मि०	0.019	2	〃
344मि०	0.016	11	उ०प्र० ज़मी० 9(3) फाफा मि०
345	0.020	2	जिशो चन्द्र के वेवादत आदि
346	0.008	11	उ०प्र० ज़मी० 9(3) फाफा मि०
347	0.008	2	जिशो चन्द्र के वेवादत आदि
348	0.011	2	〃
349	0.003	2	〃
350	0.004	2	〃
351	0.006	2	〃
352	0.004	2	〃
353	0.009	2	〃
354	0.006	2	〃

1 बंजर 0.219
रा० सरकार 0.001
सार्वजनिक —

1 ज जोतदार 0.289
रा० सरकार 0.024
सार्वजनिक —

09/19

उ० प्र० जिलेवार
क्षेत्र [illegible]
खतौनी [illegible] खातेदारी

(2)

खेत नं0	रकबा	खा0 सं0	खातेदार का नाम	खेत नं0	रकबा	खा0सं0	खातेदार का नाम
355	0.006	2	किशोरचन्द्र पुत्र देवादत्त भट्ट	387/2	0.001	2	किशोरचन्द्र पुत्र देवादत्त भट्ट
356	0.026	2	—	388	0.021	2	—
357	0.006	2	—	389	0.008	2	—
358	0.008	2	—	390	0.013	2	—
359/2	0.004	2	—	391	0.004	2	—
360	0.004	2	—	392	0.006	2	—
361	0.011	2	—	393	0.006	2	—
362	0.010	2	—	394	0.011	2	—
363	0.006	2	—	395	0.004	2	—
364	0.008	2	—	396	0.008	2	—
365	0.014	2	—	397	0.028	2	—
366	0.006	2	—	398	0.006	11	उ0प्र0 के0 9(3) के अन्तर्गत
367	0.021	2	—	399/2	0.014	2	किशोरचन्द्र पुत्र देवादत्त भट्ट
368/2	0.001	2	—	400/2	0.013	2	—
369/2	0.016	2	—	401	0.010	2	—
370/2	0.019	2	—	402	0.024	2	—
371	0.011	2	—	403	0.038	2	—
372	0.011	2	—	404	0.029	2	—
373/2	0.001	11	उ0प्र0 के0 9(3) के	405	0.029	2	—
374/2	0.009	2	किशोरचन्द्र पुत्र देवादत्त भट्ट	406	0.018	2	—
375	0.001	11	उ0प्र0 के0 9(3) के अन्तर्गत	407	0.038	2	—
376	0.014	2	किशोरचन्द्र पुत्र देवादत्त भट्ट	408	0.009	2	—
377	0.018	2	—	409	0.013	2	—
378	0.040	2	—	410	0.040	2	—
379	0.005	2	—	411/2	0.011	2	—
380	0.006	2	—	412/2	0.005	11	उ0प्र0 के0 9(3) के
381	0.006	2	—	413	0.015	2	किशोरचन्द्र पुत्र देवादत्त भट्ट
382	0.010	2	—	414	0.024	2	—
383	0.010	2	—	415	0.008	2	—
384	0.023	2	—	416	0.001	2	—
385/2	0.008	2	—	417	0.020	2	—

कु0 खातेदार - 0.317
रा0 सरकार - 0.002
सार्वजनिक - —

वि0 खातेदार 0.464
रा0 सरकार 0.011
सार्वजनिक —

रेखा का निरीक्षक
[illegible]
तहसील [illegible]

(3)

खत नं0	रकबा	खा0 सं0	खातेदार का नाम	खत नं0	रकबा	खा0सं0	खातेदार का नाम
418	0.008	2	किशोरचन्द्र पुत्र देवादत्त आदि	467	0.014	2	किशोरचन्द्र पुत्र देवादत्त आदि
419	0.006	2	〃	468	0.010	2	〃
420	0.004	13	उ0क्ष0 प्र0 10(1) सोसा0	469	0.026	2	〃
421 पा0	0.008	15	उ0प्र0 प्र0 10(1) सोसा0	470	0.014	2	〃
440 पा0	0.003	2	किशोरचन्द्र पुत्र देवादत्त आदि	471	0.008	2	〃
441	0.005	2	〃	472	0.015	2	〃
442 पा0	0.030	2	〃	473	0.008	2	〃
443	0.010	2	〃	474	0.001	11	उ0क्ष0 प्र0 9(3)5 के अन्तर्गत
444	0.015	2	〃	475	0.009	2	किशोरचन्द्र पुत्र देवादत्त आदि
445	0.005	2	〃	476	0.009	2	〃
446	0.015	2	〃	477 पा0	0.006	2	〃
447	0.020	2	〃	478	0.004	2	〃
448	0.010	2	〃	479	0.023	2	〃
449	0.008	2	〃	480	0.005	2	〃
450	0.005	2	〃	481 पा0	0.005	2	〃
451	0.004	2	〃	482 पा0	0.003	2	〃
452	0.008	2	〃	483	0.009	2	〃
453	0.003	2	〃	484	0.023	2	〃
454	0.003	2	〃	485	0.004	2	〃
455	0.010	2	〃	486 पा0	0.013	2	〃
456	0.015	2	〃	487 पा0	0.008	2	〃
457	0.004	2	〃	488	0.005	11	ईदगाह के अन्तर्गत
458	0.005	11	ईदगाह के अन्तर्गत	489	0.009	11	〃
459	0.016	11	〃	490 पा0	0.006	2	किशोरचन्द्र पुत्र देवादत्त आदि
460	0.013	11	〃	491 पा0	0.003	2	〃
461 पा0	0.004	11	〃	492 पा0	0.006	2	〃
462	0.014	11	〃	493 पा0	0.003	15	उ0क्ष0प्र0 10(1) सोसा0
463	0.023	2	किशोरचन्द्र पुत्र देवादत्त आदि	497 पा0	0.010	2	किशोरचन्द्र पुत्र देवादत्त आदि
464	0.008	2	〃	498 पा0	0.008	2	〃
465	0.006	2	〃	499 पा0	0.014	2	〃
466	0.010	2	〃	500 पा0	0.004	2	〃

10 जोतदार -	0.291	10 जोतदार -	0.281
Jio सरकार -	—	राज्य सरकार -	0.001
स्थानीय निकाय	0.012	स्थानीय निकाय	0.003

④

खत नं०	रकबा	खा० सं०	खातेदार का नाम	खेत नं०	रकबा	खा०सं०	खातेदार का नाम
501 प०	0.003	2	त्रिलोकचंद के वैधवादत्त आदि	532	0.004	2	त्रिलोकचंद के वैधादत्त आदि
502 प०	0.011	2	〃	533	0.003	11	हरीदत्त के अवानीदत्त
503	0.004	2	〃	534	0.005	11	उ० के० सं० 9(3)इ
504 प०	0.003	2	〃	535	0.001	2	त्रिलोकचंद के वैधादत्त आदि
505 प०	0.003	11	उ० के० सं० 9(3)इ	536	0.009	2	〃
506 प०	0.018	2	त्रिलोकचंद के वैधादत्त आदि	537	0.003	2	〃
507	0.006	11	हरीदत्त के अवानीदत्त	538	0.006	2	〃
508 प०	0.016	11	〃	539	0.004	11	उ० के० सं० 9(3)इ
509 प०	0.018	11	〃	540	0.003	2	त्रिलोकचंद के वैधादत्त आदि
510	0.009	2	त्रिलोकचंद के वैधादत्त आदि	541	0.100	2	〃
511 प०	0.006	2	〃	542	0.008	2	〃
512 प०	0.001	2	〃	543	0.015	2	〃
513 प०	0.001	2	〃	544	0.003	2	〃
514 प०	0.001	2	〃	545	0.006	2	〃
515 प०	0.008	2	〃	546	0.005	2	〃
516	0.001	2	〃	547	0.006	2	〃
517	0.020	2	〃	548	0.001	2	〃
518	0.013	2	〃	549	0.010	2	〃
519	0.006	2	〃	550	0.004	2	〃
520	0.014	2	〃	551	0.010	2	〃
521	0.019	2	〃	552	0.009	2	〃
522	0.006	11	उ० के० सं० 9(3)इ	553	0.005	2	〃
523	0.004	2	त्रिलोकचंद के वैधादत्त आदि	554	0.015	2	〃
524	0.004	11	उ० के० सं० 9(3)इ	555	0.001	22	उ० के० सं० 10(4)
525	0.020	2	त्रिलोकचंद के वैधादत्त आदि	556	0.026	2	त्रिलोकचंद के वैधादत्त आदि
526	0.004	11	हरीदत्त के अवानीदत्त	557	0.005	2	〃
527	0.015	11	〃	558	0.008	2	〃
528	0.015	11	〃	559	0.013	2	〃
529	0.003	11	उ० के० सं० 9(3)इ	560	0.005	2	〃
530	0.003	11	हरीदत्त के अवानीदत्त	561	0.015	2	〃
531	0.003	11	उ० के० सं० 9(3)इ	562	0.003	2	〃

कु० जोतदार	0.239	कु० जोतदार	0.301
रा० सुरक्षा	0.019	रा० सुरक्षा	0.010
सार्वजनिक	—	सार्वजनिक	—

(5)

खत नं०	रकबा	खा० सं०	खातेदार का नाम	खत नं०	रकबा	खा०सं०	खातेदार का नाम
563	0.005	2	किशोरचन्द के वारसान आदि	594	0.004	11	उ० के० ब० 9(3) ई
564	0.004	2	〃	595	0.003	2	किशोरचन्द के वारसान आदि
565	0.013	2	〃	596	0.003	11	उ० के० ब० 9(3) ई
566	0.029	2	〃	597	0.003	2	किशोरचन्द के वारसान आदि
567	0.001	22	उ० के० ब० 1(4)	598	0.018	2	〃
568	0.019	2	किशोरचन्द के वारसान आदि	599	0.009	11	उ० के० ब० 9(3) ई
569	0.004	2	〃	600	0.013	2	किशोरचन्द के वारसान आदि
570	0.013	2	〃	601	0.005	11	उ० के० ब० 9(3) ई
571	0.004	11	उ० के० ब० 9(3) ई	602	0.019	2	किशोरचन्द के वारसान आदि
572	0.004	2	किशोरचन्द के वारसान आदि	603	0.018	2	〃
573/574	0.015	2	〃	604	0.009	2	〃
574	0.013	2	〃	605	0.009	2	〃
575	0.020	2	〃	606	0.030	11	ईदन के मवालियान
576	0.036	2	〃	607	0.001	11	〃
577	0.005	2	〃	608	0.009	11	〃
578	0.024	2	〃	609	0.004	11	〃
579	0.025	2	〃	610	0.011	11	〃
580	0.013	2	〃	611	0.001	11	〃
581	0.010	2	〃	612	0.006	11	〃
582	0.004	2	〃	613	0.019	2	किशोरचन्द के वारसान आदि
583	0.005	2	〃	614	0.011	2	〃
584	0.003	2	〃	615	0.009	2	〃
585	0.014	2	〃	616	0.005	11	उ० के० ब० 9(3) ई
586	0.011	2	〃	617	0.013	2	किशोरचन्द के वारसान आदि
587	0.009	2	〃	618	0.006	2	〃
588	0.026	2	〃	619	0.010	2	〃
589	0.006	2	〃	620	0.015	2	〃
590	0.018	2	〃	621	0.004	2	〃
591	0.011	2	〃	622	0.008	2	〃
592	0.033	2	〃	623	0.003	2	〃
593	0.004	2	〃	624	0.006	2	〃

10 जोतदार	0.396	15 जोतदार	0.250
रा० सरकार	0.005	रा० सरकार	0.026
सार्वजनिक	—	सार्वजनिक	—

खेत नं0	रकबा	खा0 सं0	खातदार का नाम	खेत नं0	रकबा	खा0सं0	खातेदार का नाम
625	0.008	2	त्रिलोचन चंद्र के रेवादत्त	671/2	0.001	2	त्रिलोचन चंद्र के रेवादत्त आदि
626	0.005	2	〃	672/2	0.009	2	〃
627	0.004	2	〃	673	0.026	2	〃
628	0.006	2	〃	674/2	0.008	2	〃
629	0.006	2	〃	675/2	0.003	2	〃
630	0.005	2	〃	676/2	0.001	2	〃
631/2	0.008	2	〃	677	0.005	2	〃
632/2	0.006	2	〃	678	0.003	2	〃
633/2	0.016	11	30 की धा० 9(3) में	679	0.003	2	〃
639/2	0.001	2	त्रिलोचन चंद्र के रेवादत्त आदि	680/2	0.006	6	देवानन्द के तीर्थदत्त आदि
644/2	0.028	2	〃	682/2	0.001	6	〃
645/2	0.001	2	〃	683	0.009	6	〃
648/2	0.003	2	〃	684	0.004	6	〃
650/2	0.001	2	〃	685/2	0.001	6	〃
651	0.008	2	〃	686	0.004	6	〃
652	0.009	2	〃	687	0.014	6	〃
653	0.003	2	〃	688	0.009	6	〃
654	0.003	2	〃	689	0.009	6	〃
655	0.010	2	〃	690	0.009	6	〃
656	0.003	2	〃	691	0.014	6	〃
657	0.001	2	〃	692	0.005	6	〃
658	0.004	2	〃	693	0.008	6	〃
659	0.003	2	〃	694	0.008	6	〃
660	0.004	2	〃	695	0.011	6	〃
661/2	0.005	11	30 की धा० 9(3) में	696	0.003	6	〃
662/2	0.001	2	त्रिलोचन चंद्र के रेवादत्त आदि	697	0.003	6	〃
666/2	0.005	2	〃	698	0.005	6	〃
667	0.005	2	〃	699	0.005	6	〃
668/2	0.004	2	〃	700	0.004	6	〃
669/2	0.003	2	〃	701	0.006	6	〃
				702	0.006	6	〃

1 के जोतदार 0.148
राज्य सरकार — 0.021
सार्वजनिक —

1 के जोतदार 0.203
राज्य सरकार —
सार्वजनिक —

ग्राम का नक्शानवीस
जिला Ludhiana
तहसील Jagraon

(1)

खेत नं0	रकबा	खा0 सं0	खातेदार का नाम	खेत नं0	रकबा	खा0सं0	खातेदार का नाम
703	0.006	6	[illegible]	734	0.010	2	किशोरचन्द्र के देवादत्त आदि
704	0.003	2	किशोरचन्द्र के देवादत्त आदि	735	0.013	2	〃
705	0.003	2	〃	736	0.003	2	〃
706	0.005	2	〃	737	0.005	2	〃
707पा	0.008	2	〃	738	0.005	2	〃
708	0.008	2	〃	739	0.003	2	〃
709पा	0.005	2	〃	740	0.009	2	〃
710	0.017	11	उ0क0 ह0 9(3)ई	741	0.003	10	सुरेशचन्द्र के देवीदत्त आदि
711	0.013	2	किशोरचन्द्र के देवादत्त आदि	742	0.003	2	किशोरचन्द्र के देवदत्त आदि
712	0.006	2	〃	743	0.004	2	〃
713	0.009	2	〃	744	0.029	2	〃
714	0.021	2	〃	745	0.021	2	〃
715	0.026	2	〃	746	0.004	2	〃
716	0.008	2	〃	747	0.003	2	〃
717	0.004	2	〃	748	0.005	2	〃
718	0.005	2	〃	749पा	0.001	2	〃
719	0.004	2	〃	750पा	0.001	2	〃
720	0.005	10	सुरेशचन्द्र के देवीदत्त आदि	751पा	0.004	15	उ0क0 ह0 10(2) सोसायटी
721	0.026	10	〃	752पा	0.001	11	उ0क0 ह0 9(3)ई
722	0.004	10	〃	753पा	0.003	2	किशोरचन्द्र के देवदत्त आदि
723	0.005	10	〃	754	0.001	2	〃
724	0.006	10	〃	755	0.008	2	〃
725	0.016	10	〃	756	0.008	2	〃
726	0.003	10	〃	757	0.006	2	〃
727	0.005	10	〃	758	0.010	2	〃
728	0.003	10	〃	759	0.011	2	〃
729	0.004	2	किशोरचन्द्र के देवादत्त आदि	760	0.014	2	〃
730	0.005	2	〃	761	0.009	2	〃
731	0.011	2	〃	762	0.005	2	〃
732	0.006	11	उ0क0 ह0 9(3)ई	763	0.005	2	〃
733	0.005	2	किशोरचन्द्र के देवादत्त आदि	764	0.005	2	〃

कु0 जोतदार	0.236	कु0 जोतदार	0.207
रा0 सरकार	0.017	रा0 सरकार	0.001
सार्वजनिक	—	सार्वजनिक	0.004

उप निदेशक
चकबन्दी

खत नं०	रकबा	खा० सं०	खातेदार का नाम	खत नं०	रकबा	खा०सं०	खातेदार का नाम
765	0.005	2	किशो॥ चन्दु के० रेवादत्त ओझे	796	0.010	2	किशो॥ चन्दु के० रेवादत्त ओझे
766	0.001	11	उ० के० कि० 9(3)ई	797	0.011	2	〃
767	0.013	2	किशो॥ चन्दु के० रेवादत्त ओझे	798	0.019	2	〃
768	0.005	2	〃	799	0.001	2	〃
769	0.024	2	〃	800 सं०	0.001	2	〃
770	0.001	2	〃	801 सं०	0.001	11	उ० के० कि० 9(3)ई
771	0.015	2	〃	802 सं०	0.001	2	किशो॥ चन्दु के० रेवादत्त ओझे
772	0.001	2	〃	803	0.016	2	〃
773 सं०	0.004	11	उ० के० कि० 9(3)ई	804	0.015	2	〃
774 सं०	0.001	2	किशो॥ चन्दु के० रेवादत्त ओझे	805	0.015	2	〃
775 सं०	0.005	11	उ० के० कि० 9(3)ई	806	0.083	2	〃
776	0.004	2	किशो॥ चन्दु के० रेवादत्त ओझे	807	0.013	2	〃
777	0.010	2	〃	808	0.001	2	〃
778 सं०	0.003	2	〃	809	0.005	2	〃
779 सं०	0.003	2	〃	810	0.019	2	〃
780	0.003	11	उ० के० कि० 9(3)ई	811	0.006	2	〃
781	0.010	2	किशो॥ चन्दु के० रेवादत्त ओझे	812	0.006	2	〃
782	0.016	2	〃	813	0.014	2	〃
783	0.001	2	〃	814	0.004	2	〃
784	0.016	2	〃	815	0.019	2	〃
785	0.005	2	〃	816	0.020	2	〃
786	0.008	2	〃	817	0.019	2	〃
787	0.005	2	〃	818	0.019	2	〃
788	0.005	2	〃	819	0.020	2	〃
789	0.005	2	〃	820	0.006	2	〃
790	0.005	2	〃	821	0.010	2	〃
791	0.015	2	〃	822	0.005	2	〃
792	0.004	2	〃	823	0.001	2	〃
793	0.003	2	〃	824	0.004	11	हरीदत्त के० अवाडी ई॰
794	0.008	2	〃	825	0.005	11	〃
795	0.003	2	〃	826	0.001	11	〃

ह० जोतदार	0.194	ह० जोतदार	0.289
रा० सरकार	0.013	रा० सरकार	0.001
सार्वजनिक	—	सार्वजनिक	—

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खत नं०	रकबा	खा० सं०	खातेदार का नाम	खत नं०	रकबा	खा०सं०	खातेदार का नाम
827	0.005	11	पु०वे० की ग्रा[illegible]	858	0.011	2	किशो० चं० वे० रेवा० का० ओ०
828	0.008	2	किशो० चं० वे० रेवा० का० ओ०	859	0.010	2	〃
829	0.003	2	〃	860	0.025	2	〃
830	0.003	2	〃	861	0.033	2	〃
831	0.105	11	ईदि० दे० अ० का०	862	0.004	2	〃
832	0.004	11	〃	863	0.010	2	〃
833	0.006	2	किशो० चं० वे० रेवा० का० ओ०	864	0.014	2	〃
834	0.004	2	〃	865	0.020	2	〃
835	0.008	2	〃	866	0.009	2	〃
836	0.004	2	〃	867	0.010	2	〃
837	0.010	11	ईदि० दे० अ० का०	868	0.005	2	〃
838	0.010	11	〃	869	0.010	2	〃
839	0.010	2	किशो० चं० वे० रेवा० का० ओ०	870	0.006	2	〃
840	0.010	2	〃	871	0.009	2	〃
841	0.029	2	〃	872	0.001	2	〃
842	0.003	2	〃	873	0.006	2	〃
843	0.008	2	〃	874	0.023	2	〃
844	0.020	2	〃	875	0.018	2	〃
845	0.026	2	〃	876	0.001	2	〃
846	0.003	2	〃	877	0.021	2	〃
847	0.009	11	ईदि० दे० अ० का०	878	0.008	2	〃
848	0.013	11	〃	879	0.021	2	〃
849	0.015	2	किशो० चं० वे० रेवा० का० ओ०	880	0.021	2	〃
850	0.010	2	〃	881	0.003	2	〃
851	0.019	2	〃	882	0.008	2	〃
852	0.030	2	〃	883	0.013	2	〃
853	0.003	2	〃	884	0.003	2	〃
854	0.001	2	〃	885	0.010	2	〃
855	0.004	2	〃	886	0.008	2	〃
856	0.004	2	〃	887	0.014	2	〃
857	0.003	2	〃	888	0.009	2	〃

16 गोनडा - 0.285
रा० सरकार 0.005
खाई जोरके —

16 गोनडा 0.364
रा० सरकार —
खाई जोरके —

खेत नं0	रकबा	खा0 सं0	खातेदार का नाम	खेत नं0	रकबा	खा0सं0	खातेदार का नाम
889	0.003	2	किशोरचन्द्र के वारसान आदि	920	0.011	2	किशोरचन्द्र के वारसान आदि
890	0.013	2	〃	921	0.018	2	〃
891	0.023	2	〃	922	0.023	2	〃
892	0.005	2	〃	923	0.018	2	〃
893	0.014	2	〃	924	0.010	2	〃
894	0.010	2	〃	925	0.004	2	〃
895	0.024	2	〃	926	0.005	2	〃
896	0.006	2	〃	927	0.034	2	〃
897	0.014	2	〃	928	0.011	2	〃
898	0.009	2	〃	929	0.013	2	〃
899	0.001	2	〃	930	0.018	2	〃
900	0.025	2	〃	931	0.010	2	〃
901	0.006	2	〃	932	0.004	2	〃
902	0.011	2	〃	933	0.006	2	किशोरचन्द्र के वारसान आदि
903	0.010	2	〃	934	0.015	2	〃
904	0.005	2	〃	935	0.019	2	〃
905	0.008	2	〃	936	0.020	2	〃
906	0.008	2	〃	937	0.008	2	〃
907	0.020	2	〃	938	0.011	2	〃
908	0.018	2	〃	939	0.008	2	〃
909	0.003	2	〃	940	0.008	11	उ० खी० सं० 9(3) 3
910	0.003	2	〃	941	0.003	2	किशोरचन्द्र के वारसान आदि
911	0.011	2	〃	942पा०	0.015	5	जगदीशराज के रामलाल के सोलंकी आदि
912	0.019	2	〃	943	0.036	5	〃
913	0.018	2	〃	944	0.023	5	〃
914	0.018	2	〃	945	0.004	2	किशोरचन्द्र के वारसान आदि
915	0.014	2	〃	946	0.011	2	〃
916	0.003	2	〃	947	0.018	2	〃
917	0.010	2	〃	948पा०	0.010	2	〃
918	0.024	2	〃	949पा०	0.015	2	〃
919	0.009	2	〃	950पा०	0.019	2	〃

कु० जोतदार 0.365
रा० सरकार —
सार्वजनिक —

कु० जोतदार 0.420
रा० सरकार 0.008
सार्वजनिक —

15 366.

(11)

खेत नं०	रकबा	खा० सं०	खातेदार का नाम	खेत नं०	रकबा	खा०सं०	खातेदार का नाम
951	0.004	2	किशोरीचरण के देवादत्त आदि	1036	0.006	2	किशोरीचरण के देवादत्त आदि
952	0.005	11	[illegible]	1037	0.009	2	〃
953/1	0.015	2	किशोरीचरण के देवादत्त आदि	1038	0.010	2	〃
955/1	0.001	11	[illegible]	1039/1	0.028	2	〃
957/1	0.004	2	किशोरीचरण के देवादत्त आदि	1040	0.006	2	〃
958/1	0.001	2	〃	1041	0.010	2	〃
959/1	0.003	2	〃	1042	0.018	2	〃
1008	0.011	3	मोहनलाल देवी विधवा गोपालदत्त आदि	1043	0.020	2	〃
1009	0.006	3	〃	1044/1	0.005	2	〃
1011/1	0.005	3	〃	1045	0.003	2	〃
1012/1	0.005	2	किशोरीचरण के देवादत्त आदि	1046	0.008	2	〃
1013/1	0.010	2	〃	1047	0.006	2	〃
1014	0.008	2	〃	1048	0.004	2	〃
1015/1	0.001	12	[illegible]	1049	0.001	2	〃
1017/1	0.011	2	किशोरीचरण के देवादत्त आदि	1050/1	0.025	2	〃
1018/1	0.006	2	〃	1051/1	0.019	2	〃
1019/1	0.006	2	〃	1052	0.025	3	मोहनलाल देवी विधवा गोपालदत्त आदि
1020	0.005	2	〃	1053	0.024	2	किशोरीचरण के देवादत्त आदि
1021/1	0.005	2	〃	1054	0.019	3	मोहनलाल देवी आदि उपरोक्त
1022/1	0.001	2	〃	1055	0.005	2	किशोरीचरण के देवादत्त आदि
1023/1	0.009	2	〃	1056	0.019	2	〃
1025/1	0.001	3	मोहनलाल देवी विधवा गोपालदत्त आदि	1057	0.016	2	〃
1026/1	0.018	3	〃	1058	0.020	2	〃
1027	0.004	11	[illegible]	1059	0.011	3	मोहनलाल देवी आदि उपरोक्त
1028	0.003	2	किशोरीचरण के देवादत्त आदि	1060	0.003	3	
1029/1	0.014	3	मोहनलाल देवी उपरोक्त आदि	1061	0.005	3	
1030	0.004	2	किशोरीचरण के देवादत्त आदि	1062	0.008	3	
1031	0.006	2	〃	1063	0.010	3	
1032	0.006	2	〃	1064	0.018	2	किशोरीचरण के देवादत्त आदि
1033	0.015	2	〃	1065	0.010	2	〃
1035/1	0.010	2	〃	1066	0.006	2	〃

ज० मोलदा 0.192
राजस्व 0.010
सार्वजनिक 0.001

ज० मोलदा – 0.377
राजस्व –
सार्वजनिक –

(12)

खेत नं०	रकबा	खा० सं०	खातेदार का नाम	खेत नं०	रकबा	खा०सं०	खातेदार का नाम
1067/पo	0.008	11	उ० छे० ही 9(3) ई	1098	0.005	2	शिशो० चन्द्र के० रे० वादत्त आदि
1068/पo	0.005	2	शिशो० चन्द्र के० रे० वादत्त आदि	1099	0.003	11	उ० छे० ही 9(3) ई
1069	0.005	2	〃	1100	0.016	2	शिशो० चन्द्र के० रे० वादत्त आदि
1070/पo	0.008	2	〃	1101	0.006	2	〃
1071	0.010	2	〃	1102	0.005	3	कोशल्या देवी के० गोपालदत्त आदि
1072	0.018	11	उ० छे० ही 9(3) ई	1103	0.019	3	〃
1073	0.018	2	शिशो० चन्द्र के० रे० वादत्त आदि	1104	0.011	3	〃
1074	0.018	2	〃	1105	0.009	3	〃
1075	0.025	2	〃	1106	0.025	3	〃
1076	0.030	21	उ० छे० ही 10(2) रौतेला	1107	0.010	3	〃
1077	0.010	2	शिशो० चन्द्र के० रे० वादत्त आदि	1108	0.005	3	〃
1078	0.003	21	उ० छे० ही 10(2) रौतेला	1109	0.040	11	उ० छे० ही 9(3) ई
1079	0.010	2	शिशो० चन्द्र के० रे० वादत्त आदि	1110	0.019	15	उ० छे० ही 10(1) रौतेली
1080	0.006	2	〃	1111	0.075	11	उ० छे० ही 9(3) ई
1081	0.003	2	〃	1112/पo	0.011	15	उ० छे० ही 10(1) रौतेली
1082	0.004	2	〃	1113	0.016	11	उ० छे० ही 9(3) ई
1083	0.019	2	〃	1114	0.009	2	शिशो० चन्द्र के० रे० वादत्त आदि
1084	0.015	2	〃	1115/पo	0.021	2	〃
1085	0.004	3	कोशल्या देवी के० गोपालदत्त आदि	1116/पo	0.009	11	उ० छे० ही 9(3) ई
1086	0.011	2	शिशो० चन्द्र के० रे० वादत्त आदि	1117	0.008	2	शिशो० चन्द्र के० रे० वादत्त आदि
1087	0.016	3	कोशल्या देवी आदि उपरोक्त	1118	0.001	2	〃
1088	0.011	3	〃	1119	0.001	2	〃
1089	0.018	3	〃	1120	0.015	2	〃
1090	0.005	3	〃	1121/पo	0.001	2	〃
1091	0.020	2	शिशो० चन्द्र के० रे० वादत्त आदि	1122/पo	0.013	2	〃
1092	0.003	2	〃	1123	0.008	2	〃
1093	0.004	2	〃	1124	0.024	3	कोशल्या देवी के० गोपालदत्त आदि
1094	0.006	2	〃	1125/पo	0.004	3	〃
1095	0.018	2	〃	1126	0.013	3	〃
1096	0.005	2	〃	1127	0.009	3	〃
1097	0.004	2	〃	1128	0.013	3	〃

क० खातेदार - 0.281
शि० सरकार 0.026
सार्वजनिक 0.033

ज० खातेदार 0.251
शि० सरकार 0.143
सार्वजनिक 0.030

खत नं०	रकबा	खा० सं०	खातेदार का नाम	खत नं०	रकबा	खा०सं०	खातेदार का नाम
1129	0.001	3	[illegible]	1170 पा०	0.005	2	[illegible]
1130 पा०	0.021	11	उ० क्ल० कि० 9(3)ई	1171 पा०	0.005	2	〃
1131	0.006	3	[illegible]	1172 पा०	0.001	2	〃
1132	0.011	2	〃	1173	0.020	2	〃
1133	0.010	2	〃	1174	0.005	2	〃
1134	0.010	2	〃	1175	0.013	2	〃
1135 पा०	0.003	2	〃	1176	0.013	2	〃
1136 पा०	0.004	2	〃	1177 पा०	0.039	2	〃
1137	0.014	2	〃	1179 पा०	0.015	2	〃
1138 पा०	0.003	2	〃	1180	0.003	2	〃
1139 पा०	0.006	2	〃	1181	0.015	2	〃
1140	0.018	2	〃	1182	0.004	2	〃
1141	0.015	2	〃	1183	0.009	2	〃
1142 पा०	0.013	2	〃	1184	0.003	2	〃
1143 पा०	0.021	2	〃	1185	0.004	2	〃
1144 पा०	0.021	2	〃	1186	0.004	2	〃
1145 पा०	0.014	2	〃	1187	0.005	2	〃
1146 पा०	0.020	2	〃	1188	0.018	2	〃
1147 पा०	0.015	2	〃	1189	0.029	2	〃
1149 पा०	0.024	2	〃	1190	0.005	11	उ० क्ल० कि० 9(3)ई
1150 पा०	0.001	15	उ० क्ल० कि० 10(1) गौला	1191 पा०	0.024	3	[illegible]
1151 पा०	0.001	11	उ० क्ल० कि० 9(3)ई	1192 पा०	0.001	3	〃
1160 पा०	0.008	3	[illegible]	1193	0.003	3	〃
1161 पा०	0.003	3	〃	1194	0.014	3	〃
1162 पा०	0.020	3	〃	1195 पा०	0.014	3	〃
1163 पा०	0.001	11	उ० क्ल० कि० 9(3)ई	1196 पा०	0.003	2	[illegible]
1165 पा०	0.009	2	[illegible]	1197	0.013	2	〃
1166	0.004	11	उ० क्ल० कि० 9(3)ई	1198	0.005	2	〃
1167	0.015	2	[illegible]	1199	0.008	2	〃
1168	0.014	2	〃	1200	0.003	14	उ० क्ल० कि० 10(1) गौला
1169 पा०	0.013	2	〃	1201	0.030	2	[illegible]

14 जोतदार	0.291	14 जोतदार	0.325
15 सरकार	0.027	15 सरकार	0.005
सार्वजनिक	0.001	सार्वजनिक	0.003

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खेत नं0	रकबा	खा0 सं0	खातेदार का नाम
1202	0.013	2	छिद्दीलाल के देवादत्त आदि
1203	0.013	2	〃
1204	0.008	2	〃
1205	0.018	2	〃
1206	0.014	2	〃
1207	0.008	2	〃
1208 पो0	0.024	3	पौंडरीका केवीका जोधला दत्त चौ0
1209 पो0	0.003	3	〃
1210 पो0	0.001	2	छिद्दीलाल के देवादत्त आदि
1214 पो0	0.001	2	〃
1215 पो0	0.005	2	〃
1216	0.003	2	〃
1217	0.004	2	〃
1218	0.018	2	〃
1219	0.015	2	〃
1220	0.004	11	उ0 क्षे0 ह0 9(3)5
1221	0.011	2	छिद्दीलाल के देवादत्त आदि
1222	0.009	2	〃
1223	0.001	11	उ0 क्षे0 ह0 9(3)5
1224	0.006	2	छिद्दीलाल के देवादत्त आदि
1225 पो0	0.006	21	उ0 क्षे0 ह0 10(2) रास्ता
1226	0.010	2	छिद्दीलाल के देवादत्त आदि
1227 पो0	0.038	2	〃
1230 पो0	0.008	2	〃
1231 पो0	0.008	2	〃
1232 पो0	0.008	2	〃
1233	0.013	2	〃
1234	0.006	11	उ0 क्षे0 ह0 9(3)5
1235 पो0	0.036	2	छिद्दीलाल के देवादत्त आदि
1236 पो0	0.010	2	〃
1237 पो0	0.028	2	〃

खेत नं0	रकबा	खा0सं0	खातेदार का नाम
1240 पो0	0.010	2	छिद्दीलाल के देवादत्त आदि
1241	0.020	2	〃
1242	0.015	2	〃
1243	0.005	11	उ0 क्षे0 ह0 9(3)5
1244	0.008	2	छिद्दीलाल के देवादत्त आदि
1245	0.011	2	〃
1246	0.005	2	〃
1247	0.010	2	〃
1248	0.009	2	〃
1249	0.004	2	〃
1250 पो0	0.026	2	〃
1251	0.005	11	उ0 क्षे0 ह0 9(3)5
1252	0.009	2	छिद्दीलाल के देवादत्त आदि
1253	0.005	2	〃
1254	0.023	2	〃
1255	0.016	2	〃
1256	0.005	2	〃
1257	0.015	2	〃
1258	0.015	2	〃
1259	0.004	2	〃
1260	0.004	2	〃
1261	0.008	2	〃
1262	0.018	2	〃
1263	0.014	2	〃
1264	0.015	2	〃
1265	0.009	2	〃
1266	0.024	2	〃
1267	0.011	2	〃
1268 पो0	0.008	2	〃
1269	0.016	2	〃
1270 पो0	0.003	2	〃

1क0 गोलदार - 0.333
2रा0 सुरकी - 0.011
सार्वजनिक - 0.006

1क0 गोलदार - 0.360
2रा0 सुरकी - 0.010
सार्वजनिक - —

खेत — रास्ता — नाला

खेत नं०	रकबा	खा० सं०	खातेदार का नाम	खेत नं०	रकबा	खा०सं०	खातेदार का नाम
1271/1	0.011	2	विधीचन्द्र के वेवादर्त अपी	1305	0.008	2	विधीचन्द्र के वेवादर्त अपी
1272/1	0.016	2	—	1306	0.009	2	—
1273/1	0.010	2	—	1307	0.025	2	—
1274/1	0.005	2	—	1308	0.014	2	—
1278/1	0.003	2	—	1309	0.013	2	—
1279	0.008	2	—	1310	0.020	2	—
1280	0.010	2	—	1311	0.005	2	—
1281/1	0.008	2	—	1312	0.015	2	—
1282	0.005	2	—	1313	0.008	2	—
1283/1	0.023	2	—	1314	0.010	2	—
1284	0.004	2	—	1315	0.004	12	30 का० सं० 10(1) खातर
1285	0.024	2	—	1316	0.001	12	—
1286	0.029	2	—	1317	0.004	2	विधीचन्द्र के वेवादर्त अपी
1287	0.019	2	—	1318	0.034	2	—
1288	0.025	2	—	1319	0.035	2	—
1289	0.005	2	—	1320	0.009	2	—
1290	0.015	2	—	1321	0.051	2	—
1291	0.028	2	—	1322	0.019	2	—
1292	0.010	2	—	1323	0.010	2	—
1293	0.005	2	—	1324	0.013	2	—
1294	0.009	2	—	1325	0.010	2	—
1295	0.008	2	—	1326	0.009	2	—
1296	0.009	2	—	1327	0.010	2	—
1297	0.010	2	—	1328	0.010	2	—
1298	0.015	2	—	1329	0.012	2	—
1299	0.018	2	—	1330	0.010	2	—
1300	0.016	2	—	1331	0.010	2	—
1301	0.010	2	—	1332	0.115	2	—
1302	0.013	2	—	1333	0.013	2	—
1303	0.016	2	—	1334/1	0.006	2	—
1304	0.015	2	—	1335/1	0.023	11	30 का० सं० 9(3) से

1a जोनदा	0.402	1a जोनदा	0.405
1a सरकार	—	1a सरकार	0.023
सार्वजनिक	—	सार्वजनिक	0.005

खत नं०	रकबा	खा० सं०	खातेदार का नाम	खत नं०	रकबा	खा०सं०	खातेदार का नाम
1339पै०	0.001	2	शिरोमणि के० रेवादत्त आदि	1378	0.025	2	शिरोमणि के० रेवादत्त आदि
1344पै०	0.003	2	—	1379	0.003	2	—
1347पै०	0.005	2	—	1380	0.040	2	—
1350पै०	0.043	2	—	1381	0.020	2	—
1351	0.008	2	—	1382	0.035	2	—
1352	0.006	2	—	1383	0.030	2	—
1353	0.005	2	—	1384	0.013	2	—
1354	0.006	2	शिरोमणि के० रेवादत्त आदि	1385	0.010	2	—
1355	0.010	2	—	1386	0.010	2	—
1356	0.018	2	—	1387	0.008	2	—
1357	0.013	2	—	1388	0.008	2	—
1358	0.018	2	—	1389	0.003	11	जरीबे नं० 9(3)5
1359	0.004	2	—	1390	0.030	2	शिरोमणि के० रेवादत्त आदि
1360	0.006	2	—	1391	0.003	2	शिरोमणि के० रेवादत्त आदि
1361	0.009	2	—	1392	0.013	2	—
1362	0.005	2	—	1393	0.010	2	—
1363	0.005	2	—	1394	0.025	2	—
1364	0.005	2	—	1395	0.010	2	—
1365	0.005	2	—	1396	0.024	2	—
1366	0.008	2	—	1397	0.026	2	—
1367	0.008	2	—	1398	0.030	2	—
1368	0.003	2	—	1399	0.013	2	—
1369	0.015	2	—	1400	0.010	2	—
1370	0.021	2	—	1401	0.008	2	—
1371	0.026	2	—	1402पै०	0.005	2	—
1372	0.013	2	—	1415पै०	0.005	2	—
1373	0.015	2	—	1416	0.013	2	—
1374	0.010	2	—	1417पै०	0.023	2	—
1375	0.005	2	—	1418	0.003	2	—
1376	0.008	2	—	1419पै०	0.026	2	—
1377	0.104	2	—	1420	0.003	2	—

15 जोतदार - 0.312
" सरकार - —
रास्ता/नाली - —

15 जोतदार - 0.482
" सरकार - 0.003
रास्ता/नाली - —

चक चौधरी
गांव ... तहसील ... जिला ...

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खेत नं०	रकबा	खा० सं०	खातेदार का नाम	खेत नं०	रकबा	खा०सं०	खातेदार का नाम
1421	0.010	2	हिरोंट चंड के० रेवादत्त अदि	1452	0.006	2	हिरोंट चंड के० रेवादत्त अदि
1422	0.030	2	—	1453	0.023	2	—
1423	0.009	2	—	1454	0.015	2	—
1424	0.005	2	—	1455	0.011	2	—
1425	0.010	2	—	1456	0.013	2	—
1426	0.003	2	—	1457	0.008	2	—
1427	0.003	2	—	1458	0.011	11	उ० क० 9(3) ई
1428	0.005	2	—	1459	0.008	2	हिरोंट चंड के० रेवादत्त अदि
1429	0.033	2	—	1460	0.004	2	—
1430	0.005	2	—	1461	0.004	2	—
1431	0.010	2	—	1462	0.003	2	—
1432	0.011	2	—	1463	0.009	11	उ० क० 9(3) ई
1433	0.010	2	—	1464	0.005	2	हिरोंट चंड के० रेवादत्त अदि
1434	0.014	2	—	1465	0.003	2	—
1435	0.006	2	—	1466	0.004	2	—
1436	0.013	2	—	1467	0.005	2	—
1437	0.010	2	हिरोंट चंड के० रेवादत्त अदि	1468	0.011	2	—
1438	0.003	2	—	1469	0.004	2	—
1439	0.008	2	—	1470	0.008	2	—
1440	0.013	2	—	1471	0.005	2	—
1441	0.005	2	—	1472	0.010	2	—
1442	0.020	2	—	1473	0.023	2	—
1443	0.014	2	—	1474	0.011	2	—
1444	0.070	2	—	1475	0.013	2	—
1445	0.005	2	—	1476	0.018	2	—
1446	0.003	2	—	1477	0.013	2	—
1447	0.005	2	—	1478	0.005	2	—
1448	0.010	11	उ० क० 9(3) ई	1479	0.021	2	—
1449	0.005	2	हिरोंट चंड के० रेवादत्त अदि	1480	0.008	2	—
1450	0.013	2	—	1481	0.001	2	—
1451	0.006	2	—	1482	0.001	2	—

कु० जोतदार	0.357	कु० जोतदार	0.261
रा० सरकार	0.010	रा० सरकार	0.020
सार्वजनिक	—	सार्वजनिक	—

उप निरीक्षक
भू० अ० अधि०
तहसील ——— जिला ———

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खेत नं0	रकबा	खा0 सं0	खातेदार का नाम	खेत नं0	रकबा	खा0सं0	खातेदार का नाम
1483	0.005	2	त्रिशो.चन्द्रके.वेकादत्त आदि	1514	0.015	2	त्रिशो.चन्द्रके.वेकादत्त आदि
1484	0.005	11	ग0के0ति0 9(3)ई	1515पो	0.001	2	—
1485	0.008	2	त्रिशो.चन्द्रके.वेकादत्त आदि	1516पो	0.004	11	ग0के0ति0 9(3)ई
1486	0.005	2	—	1517	0.003	2	त्रिशो.चन्द्रके.वेकादत्त आदि
1487	0.005	2	—	1518पो	0.003	2	—
1488	0.020	2	—	1519पो	0.003	2	—
1489	0.020	2	—	1520पो	0.001	2	—
1490	0.005	2	—	1521पो	0.004	11	ग0के0ति0 9(3)ई
1491	0.008	2	—	1522पो	0.001	2	त्रिशो.चन्द्रके.वेकादत्त आदि
1492	0.005	2	—	1523पो	0.004	2	—
1493	0.010	11	ग0के0ति0 9(3)ई	1524	0.004	12	ग0के0ति0 10(1) खालसा
1494	0.005	2	त्रिशो.चन्द्रके.वेकादत्त आदि	1525	0.010	2	त्रिशो.चन्द्रके.वेकादत्त आदि
1495	0.005	2	—	1526	0.004	2	—
1496	0.010	11	ग0के0ति0 9(3)ई	1527	0.010	11	ग0के0ति0 9(3)ई
1497	0.009	2	त्रिशो.चन्द्रके.वेकादत्त आदि	1528	0.004	2	त्रिशो.चन्द्रके.वेकादत्त आदि
1498	0.006	2	—	1529	0.005	2	—
1499पो	0.006	2	—	1530पो	0.020	11	ग0के0ति0 9(3)ई
1500	0.005	11	ग0के0ति0 9(3)ई	1531	0.010	2	त्रिशो.चन्द्रके.वेकादत्त आदि
1501	0.003	2	त्रिशो.चन्द्रके.वेकादत्त आदि	1532	0.100	11	ग0के0ति0 9(3)ई
1502	0.004	2	—	1533	0.004	2	त्रिशो.चन्द्रके.वेकादत्त आदि
1503	0.021	2	—	1534	0.005	2	—
1504	0.005	2	—	1535पो	0.005	2	—
1505पो	0.014	2	—	1536पो	0.008	2	—
1506पो	0.008	2	—	1537पो	0.003	2	—
1507	0.013	2	—	1538पो	0.003	2	—
1508	0.005	2	—	1539पो	0.010	11	ग0के0ति0 9(3)ई
1509	0.006	2	—	1540	0.021	2	त्रिशो.चन्द्रके.वेकादत्त आदि
1510	0.015	2	—	1541	0.001	2	—
1511	0.004	2	—	1542	0.005	2	—
1512	0.008	2	—	1543	0.005	2	—
1513	0.024	11	ग0के0ति0 9(3)ई	1544	0.015	2	—

1क जोतदार - 0.218
दे० सरकार - 0.054
सार्वजनिक - —

1क जोतदार - 0.139
दे० सरकार - 0.148
सार्वजनिक - 0.004

राज्य भू-अभिलेख निदेशक

खत नं0	रकबा	खा0 सं0	खातेदार का नाम	खत नं0	रकबा	खा0सं0	खातेदार का नाम
1545	0.004	2	शिशो चमड़े के रैदास जाति	1584	0.033	2	शिशो चमड़े के रैदास जाति
1546	0.004	2	〃	1585फ०	0.003	2	〃
1547	0.025	11	उ० जे० ति० 9(3)ई	1586फ०	0.003	2	〃
1548	0.009	2	शिशो चमड़े के रैदास जा	1587फ०	0.015	2	〃
1549फ०	0.004	2	〃	1588	0.010	2	〃
1550	0.004	2	〃	1589फ०	0.023	2	〃
1551	0.015	2	〃	1590	0.019	2	〃
1552	0.006	2	〃	1591फ०	0.013	2	〃
1553	0.010	2	〃	1592फ०	0.006	2	〃
1554	0.011	2	〃	1593	0.004	2	〃
1555	0.010	2	〃	1594फ०	0.001	2	〃
1556	0.015	2	〃	1595फ०	0.035	10	उ० जे० ति० 9(3)ई बौरी
1557फ०	0.011	2	〃	1597फ०	0.004	2	शिशो चमड़े के रैदास जाति
1558	0.010	11	उ० जे० ति० 9(3)ई	1598फ०	0.001	2	〃
1559	0.025	2	शिशो चमड़े के रैदास जाति	1599फ०	0.008	2	〃
1560	0.009	2	〃	1602फ०	0.011	2	〃
1561	0.008	2	〃	1603फ०	0.006	2	〃
1562फ०	0.003	2	〃	1604फ०	0.025	2	〃
1563	0.004	11	उ० जे० ति० 9(3)ई	1605फ०	0.011	2	〃
1564	0.006	2	शिशो चमड़े के रैदास जाति	1606फ०	0.019	2	〃
1565	0.005	11	उ० जे० ति० 9(3)ई	1609फ०	0.003	2	〃
1566	0.003	2	शिशो चमड़े के रैदास जाति	1610फ०	0.004	2	〃
1567	0.015	2	〃	1611फ०	0.005	2	〃
1568फ०	0.019	11	उ० जे० ति० 9(3)ई	1612फ०	0.003	2	〃
1569	0.020	2	शिशो चमड़े के रैदास जाति	1613फ०	0.001	2	〃
1570	0.005	2	〃	1619फ०	0.003	2	〃
1571फ०	0.004	2	〃	1621फ०	0.015	11	उ० जे० ति० 9(3)ई
1572फ०	0.004	11	उ० जे० ति० 9(3)ई	1622फ०	0.004	2	शिशो चमड़े के रैदास जाति
1573फ०	0.005	15	उ० जे० ति० 10(1) बौरी	1623फ०	0.041	11	उ० जे० ति० 9(3)ई
1582फ०	0.015	11	उ० जे० ति० 9(3)ई	1624फ०	0.003	2	शिशो चमड़े के रैदास जाति
1583	0.035	2	शिशो चमड़े के रैदास जाति	1625	0.005	2	〃

14 जोतदार	0.236
रीज हल्का	0.082
सामान्यकित	0.005

18 जोतदार	0.246
रीज हल्का	0.116
सामान्यकित	0.035

ग्राम [illegible] (कानूनगो)

(20)

खत नं0	रकबा	खा0 सं0	खातेदार का नाम	खत नं0	रकबा	खा0सं0	खातेदार का नाम
1626	0.005	2	किशोरचन्द्र के देवादत्त आदि	1658भ	0.003	2	किशोरचन्द्र के देवादत्त आदि
1627	0.003	2	〃	1659	0.001	11	उ0कि0ति0 9(3) ई
1628भ	0.006	2	〃	1660	0.019	2	किशोरचन्द्र के देवादत्त आदि
1629	0.004	2	〃	1661	0.016	2	〃
1630	0.001	11	उ0कि0ति0 9(3) ई	1662	0.019	2	〃
1631	0.003	2	किशोरचन्द्र के देवादत्त आदि	1663	0.003	2	〃
1632भ	0.004	2	〃	1664	0.010	2	〃
1634भ	0.003	2	〃	1665	0.006	2	〃
1635भ	0.003	2	〃	1666	0.013	2	〃
1636	0.060	11	उ0कि0ति0 9(3) ई	1667	0.005	2	〃
1637	0.005	2	किशोरचन्द्र के देवादत्त आदि	1668	0.020	2	〃
1638	0.008	2	〃	1669	0.008	2	〃
1639	0.001	2	〃	1670	0.004	2	〃
1640	0.006	2	〃	1671भ	0.008	2	〃
1641	0.003	2	〃	1672भ	0.008	2	〃
1642	0.005	2	〃	1673	0.005	2	〃
1643	0.008	2	〃	1674	0.006	2	〃
1644	0.030	11	उ0कि0ति0 9(3) ई	1675	0.006	2	〃
1645	0.003	2	किशोरचन्द्र के देवादत्त आदि	1676	0.004	21	उ0कि0ति0 10(2) सरिता
1646	0.003	2	〃	1677	0.006	2	किशोरचन्द्र के देवादत्त आदि
1647	0.005	2	〃	1678	0.004	2	〃
1648	0.140	11	उ0कि0ति0 9(3) ई	1679	0.001	2	〃
1649	0.003	2	किशोरचन्द्र के देवादत्त आदि	1680	0.006	2	〃
1650	0.011	2	〃	1681	0.003	2	〃
1651	0.004	2	〃	1682	0.011	2	〃
1652	0.010	2	〃	1683	0.008	2	〃
1653	0.005	2	〃	1684	0.011	2	〃
1654	0.005	12	उ0कि0ति0 10(1) खाल	1685	0.009	2	〃
1655	0.005	2	किशोरचन्द्र के देवादत्त आदि	1686	0.004	2	〃
1656भ	0.020	11	उ0कि0ति0 9(3) ई	1687	0.010	2	〃
1657	0.001	2	किशोरचन्द्र के देवादत्त आदि	1688	0.011	2	〃

1क जोतदार - 0.117
रा0स0को0 - 0.251
सार्वजनिक - 0.045

1क जोतदार - 0.243
रा0स0को0 0.001
सार्वजनिक 0.004

खत नं0	रकबा	खा0 सं0	खातेदार का नाम	खत नं0	रकबा	खा0सं0	खातेदार का नाम
1689	0.006	2	किशोर चन्द्र पेरेवाड़ा	1727	0.011	2	किशोर चन्द्र पेरेवाड़ा
1690	0.010	2	〃	1728	0.011	2	〃
1691	0.010	2	〃	1729	0.021	2	〃
1692	0.004	2	〃	1730	0.005	11	उ0वि0नि0 9(3) के
1693पा0	0.013	2	〃	1731	0.009	2	किशोर चन्द्र पेरेवाड़ा
1694	0.006	2	〃	1732	0.019	2	〃
1695पा0	0.004	2	〃	1733	0.006	2	〃
1696	0.003	2	〃	1734पा0	0.006	11	उ0वि0नि0 9(3) के
1697पा0	0.003	2	〃	1735	0.004	2	किशोर चन्द्र पेरेवाड़ा
1698पा0	0.001	2	〃	1736	0.006	2	〃
1702पा0	0.001	2	〃	1737	0.010	2	〃
1703पा0	0.008	2	〃	1738	0.015	2	〃
1704पा0	0.005	2	〃	1739	0.008	2	〃
1705	0.004	2	〃	1740	0.010	2	〃
1706पा0	0.003	2	〃	1741	0.025	2	〃
1707	0.009	2	〃	1742	0.008	2	〃
1708	0.011	11	उ0वि0नि0 9(3) के	1743	0.008	2	〃
1709पा0	0.014	15	उ0वि0नि0 10(1) रौंदी	1744	0.016	2	〃
1710पा0	0.003	23	उ0वि0नि0 7a(4) नाला	1745	0.013	2	〃
1713पा0	0.001	2	किशोर चन्द्र पेरेवाड़ा	1746	0.038	2	〃
1714पा0	0.006	2	〃	1747	0.010	2	〃
1716	0.014	2	〃	1748	0.003	2	〃
1717पा0	0.004	2	〃	1749	0.008	2	〃
1719पा0	0.011	2	〃	1750	0.004	2	〃
1720	0.006	2	〃	1751	0.028	2	〃
1721	0.006	2	〃	1752	0.018	2	〃
1722पा0	0.053	2	〃	1753	0.013	2	〃
1723	0.006	2	〃	1754	0.023	2	〃
1724	0.046	2	〃	1755	0.050	2	〃
1725	0.005	2	〃	1756	0.008	2	〃
1726	0.045	2	〃	1757	0.005	2	〃

1क जोतदा - 0.298
नी0 सक्को - 0.014
सावधाड़ - 0.014

1क जोतदा - 0.413
नी0 सक्का - 0.011
सावधाड़ -

खत नं0	रकबा	खा0 सं0	खातेदार का नाम	खत नं0	रकबा	खा0सं0	खातेदार का नाम
1758	0.004	11	30 छो० ह० 9(3)ई	1810पा०	0.003	2	त्रिशो० चन्द के० वेवादत्त आदि
1759	0.041	2	त्रिशो० चन्द के० वेवादत्त आदि	1811पा०	0.008	2	〃
1760	0.011	2	〃				
1761	0.025	2	〃	1812	0.010	2	〃
1762	0.004	11	30 छो० ह० 9(3) ई	1813	0.033	11	30 छो० ह० 9(3) ई
1763	0.025	2	त्रिशो० चन्द के० वेवादत्त आदि	1814	0.005	2	त्रिशो० चन्द के० वेवादत्त आदि
1764	0.008	2	〃	1815	0.006	2	〃
1765	0.040	11	30 छो० ह० 9(3) ई	1816	0.015	2	〃
1766	0.004	2	त्रिशो० चन्द के० वेवादत्त आदि	1817	0.001	2	〃
1767	0.003	2	〃	1818	0.029	2	〃
1768पा०	0.015	2	〃	1819	0.023	2	〃
1769	0.023	2	〃	1820	0.029	2	〃
1770	0.003	2	〃	1821	0.024	2	〃
1771	0.005	2	〃	1822	0.015	2	〃
1772पा०	0.004	2	〃	1823	0.006	2	〃
1773पा०	0.003	2	〃	1824	0.010	2	〃
1775पा०	0.001	2	〃	1825	0.005	2	〃
1776पा०	0.001	2	〃	1826	0.013	2	त्रिशो० चन्द के० वेवादत्त आदि
1777	0.041	2	〃	1827	0.013	2	〃
1778पा०	0.016	2	〃	1828	0.013	2	〃
1779पा०	0.004	2	〃	1829	0.006	2	〃
1795पा०	0.004	8	रामप्रसाद आदि के० महेन्द्रपाल Ag 2A-कोणी 7ज	1830	0.003	2	〃
1796पा०	0.009	8	〃	1831	0.004	2	〃
1797पा०	0.008	11	30 छो० ह० 9(3) ई	1832	0.020	11	30 छो० ह० 9(3) ई
1798पा०	0.003	11	〃	1833	0.021	2	त्रिशो० चन्द के० वेवादत्त आदि
1799पा०	0.009	8	रामप्रसाद आदि के० महेन्द्रपाल Ag 2A-कोणी 7ज	1834	0.006	2	〃
1800पा०	0.004	11	30 छो० ह० 9(3) ई	1835	0.018	2	〃
1801पा०	0.003	2	त्रिशो० चन्द के० वेवादत्त आदि	1836	0.009	2	〃
1802पा०	0.003	2	〃	1837पा०	0.016	2	〃
1803पा०	0.001	2	〃	1838	0.001	2	〃
1808पा०	0.003	2	〃	1839पा०	0.001	2	〃
1809	0.009	11	30 छो० ह० 9(3) ई	1840पा०	0.003	2	〃

ज जोतदार — 0.243
रा सरकार — 0.072
सार्वजनिक — 0.022
योग

ज जोतदार — 0.321
रा सरकार — 0.053
सार्वजनिक —

निर्मलक [illegible] (खनेश्वर)

खत नं०	रकबा	खा० सं०	खातदार का नाम	खत नं०	रकबा	खा०सं०	खातदार का नाम
1921फ०	0.024	2	त्रिशोत्-चन्डु के०वेवादत्त आदि	1958फ०	0.013	2	त्रिशोत्-चन्डु के०वेवादत्त आदि
1922फ०	0.005	2	〃	1962फ०	0.001	2	〃
1923	0.013	2	〃	1963फ०	0.004	2	〃
1924	0.001	11	उ०छो०सं० 9(3)ञ त्रिशोत्-चन्डु के०वेवादत्त आदि	1964फ०	0.008	2	〃
1925	0.011	2	〃	1965	0.004	2	〃
1926	0.006	2	〃	1966	0.020	2	〃
1927	0.005	2	〃	1967	0.004	2	〃
1928	0.013	2	〃	1968फ०	0.008	2	〃
1929फ०	0.010	2	〃	1969फ०	0.005	2	〃
1930फ०	0.013	2	〃	1970फ०	0.014	2	〃
1931फ०	0.003	2	〃	1971फ०	0.008	2	〃
1938फ०	0.004	2	〃	1973फ०	0.003	2	〃
1939फ०	0.004	2	〃	1974फ०	0.001	2	〃
1940फ०	0.005	2	〃	1975फ०	0.009	11	उ०छो०सं० 9(3)ञ त्रिशोत्-चन्डु के०वेवादत्त आदि
1941	0.029	2	〃	1976	0.005	2	〃
1942	0.005	2	〃	1977	0.008	2	〃
1943	0.008	2	〃	1978फ०	0.011	2	〃
1944	0.008	11	उ०छो०सं० 9(3)ञ त्रिशोत्-चन्डु के०वेवादत्त आदि	1979	0.020	2	〃
1945	0.019	2	〃	1980फ०	0.015	10	उ०छो०सं० 9(3)ञ ओचा त्रिशोत्-चन्डु के०वेवादत्त आदि
1946	0.008	11	उ०छो०सं० 9(3)ञ त्रिशोत्-चन्डु के०वेवादत्त आदि	1981	0.005	2	〃
1947	0.006	2	〃	1982फ०	0.004	2	〃
1948	0.003	2	〃	1983फ०	0.003	10	उ०छो०सं० 9(3)ञ ओचा त्रिशोत्-चन्डु के०वेवादत्त आदि
1949फ०	0.003	2	〃	1984फ०	0.004	2	〃
1950फ०	0.006	2	〃	1985फ०	0.004	2	〃
1951	0.003	2	〃	1986फ०	0.001	2	〃
1952फ०	0.011	2	〃	1987फ०	0.001	2	〃
1953	0.003	2	〃	1988फ०	0.001	2	〃
1954	0.020	2	〃				
1955	0.009	2	〃				
1956	0.005	2	〃				
1957	0.004	2	〃				

18. जोतकर्ब - 0.250
रा०सरकार 0.017
सार्वजनिक —

19/9/19

16. जोतकर्ब - 0.157
रा०सरकार - 0.009
सार्वजनिक - 0.018

सहायक निदेशक
भू०अ०(सी०)
अल्मोड़ा

खेत नं०	रकबा	खा० नं०	खातेदार का नाम	खेत नं०	रकबा	खा०नं०	खातेदार का नाम
1841पै०	0.003	2	किशोरीलाल वगैरेका दत्त जोशी	1890पै०	0.004	2	किशोरीलाल वगैरेका दत्त जोशी
1842पै०	0.030	11	उ०क०पै० 9(3)ई	1891पै०	0.001	2	〃
1846पै०	0.001	2	किशोरीलाल वगैरेका दत्त जोशी	1892	0.006	2	〃
1847पै०	0.008	2	〃	1893पै०	0.011	2	〃
1848	0.003	2	〃	1894	0.006	2	〃
1849पै०	0.004	2	〃	1895	0.015	2	〃
1850पै०	0.006	2	〃	1896	0.023	2	〃
1851	0.003	11	उ०क०पै० 9(3)ई	1897	0.011	2	〃
1852पै०	0.001	2	किशोरीलाल वगैरेका दत्त जोशी	1898	0.004	2	〃
1860पै०	0.020	15	उ०क०पै० 10(1) रौतेली	1899	0.004	2	किशोरीलाल वगैरेका दत्त जोशी
1863पै०	0.003	2	किशोरीलाल वगैरेका दत्त जोशी	1900	0.020	2	〃
1864पै०	0.005	2	〃	1901	0.030	2	〃
1865पै०	0.005	2	〃	1902	0.033	2	〃
1867पै०	0.003	2	〃	1903	0.008	2	〃
1868पै०	0.008	2	〃	1904	0.026	2	〃
1869पै०	0.003	11	उ०क०पै० 9(3)ई	1905	0.008	2	〃
1870पै०	0.008	2	किशोरीलाल वगैरेका दत्त जोशी	1906	0.006	2	〃
1871पै०	0.001	2	〃	1907	0.020	2	〃
1872	0.013	2	〃	1908	0.009	2	〃
1873पै०	0.006	2	〃	1909	0.011	2	〃
1874पै०	0.003	2	〃	1910	0.020	2	〃
1879पै०	0.003	2	〃	1911	0.011	2	〃
1880	0.016	2	〃	1912पै०	0.012	2	〃
1881	0.006	2	〃	1913पै०	0.001	11	उ०क०पै० 9(3)ई
1882पै०	0.006	11	उ०क०पै० 9(3)ई	1914पै०	0.008	2	किशोरीलाल वगैरेका दत्त जोशी
1884पै०	0.001	2	किशोरीलाल वगैरेका दत्त जोशी	1915पै०	0.013	2	〃
1885पै०	0.005	2	〃	1916	0.015	2	〃
1886पै०	0.001	2	〃	1917	0.020	2	〃
1887पै०	0.003	2	〃	1918	0.010	2	〃
1888पै०	0.003	2	〃	1919	0.004	2	〃
1889	0.010	11	उ०क०पै० 9(3)ई	1920	0.004	2	〃

ज० जोतदार	0.121	ज० जोतदार	0.376
रा० सूखा	0.852	रा० सूखा	0.001
सार्वजनिक	0.020	सार्वजनिक	—

भारतीय गैर न्यायिक

एक सौ रुपये

Rs. 100

रु. 100

ONE HUNDRED RUPEES

सत्यमेव जयते

भारत INDIA

INDIA NON JUDICIAL

उत्तराखण्ड UTTARAKHAND

M 3622

iii> Remuneration

a> The remuneration shall be given to the following working partners in the ratio mentioned against each, out of the amount calculated as per clause 6 (iii) (b)

1.- Mr. Ramesh Chandra Pandey
(Party of the 1st Part)

2. Mr. Umesh Chandra Pandey
(Party of the 2nd Part)

3. Mr. Ashwani Varshney
(Party of the 3rd Part)

4. Mr. Manoj Daga
(Party of the 4th Part)

b> Remuneration Entitlement

i. Remuneration shall be given only where there are profits remaining after providing for interest to partners as referred above, with the provision of Nil remuneration in case of no profits or loss with the further stipulation that the remuneration shall not exceed the book profit in either case.

भारतीय गैर न्यायिक

एक सौ रुपये

Rs. 100

ONE HUNDRED RUPEES

रु. 100

सत्यमेव जयते

भारत INDIA

INDIA NON JUDICIAL

उत्तराखण्ड UTTARAKHAND

M 362265

3. Mr. Ashwani Varshney (Party of the 3rd Part) 25%

4. Mr. Manoj Dega (Party of the 4th Part) 25%

* Point no. 5 to be referred.

5 Interest

That in case of profit on the date of closing of accounts on 31st March each year the partners shall be entitled to interest on opening credit balances standing to the partners capital accounts @ 12 per annum or as may be prescribed u/s 40 b (iv) of the Income Tax Act, 1961, but in case where the profit are less than the interest calculated as per provisions then the interest shall be calculated for each partner and the profit would be apportioned amongst the partners in the proportion to such interest calculations. Further, in case the capital account shows debit balance, interest shall be charged on that Account.

5

भारतीय गैर न्यायिक

Rs. 100

एक सौ रुपये

ONE HUNDRED RUPEES

रु. 100

सत्यमेव जयते

भारत INDIA

INDIA NON JUDICIAL

N 362264

उत्तराखण्ड UTTARAKHAND

THAT the capital required for partnership shall be provided and arranged for by the partners in such proportion, and in such manner as they may agree upon.

HOWEVER the initial capital shall be brought in by the Party of the Third and Fourth Part. This capital shall be used for all lease related expenses till the commencement of mine.

No drawings shall be allowed to any party unless this expense is completely set off.

PROVISION FOR PARTNERS :

▷ Profit Shares

That the net profit* or loss of the firm after deducting Business Expenses, Interest on capital and remuneration to the partners shall be divided/ borne amongst the partners as under:

1.	Mr. Ramesh Chandra Pandey (Party of the 1st Part)	25%
2.	Mr. Umesh Chandra Pandey (Party of the 2nd Part)	25%

भारतीय गैर-न्यायिक

एक सौ रुपये

Rs. 100

ONE HUNDRED RUPEES

रु. 100

सत्यमेव जयते

भारत INDIA

INDIA NON JUDICIAL

M 36226

उत्तराखण्ड UTTARAKHAND

WHEREAS the Party of the First Part, Second Part, Third Part and Fourth Part have mutually decided to start the business of Mining ,Trading & Processing minerals under the name and style of M/S DEVBHOOMI MINES together in partnership evidenced by deed of partnership.

AND WHEREAS due to above arrangements it has been deemed expedient to reduce in writing the respective rights & obligations of the parties to the deed and execute this deed governing the terms & conditions on which they shall carry on the business in partnership.

NOW THIS DEED OF partnership witnesseth as follows:

1. THAT the partnership business shall be run and managed under the same name and style of M/S DEVBHOOMI MINES

2. THAT the head office of the firm where from all the activities shall be controlled be at R/o 29 , Avas Vikas Colony , Haldwani -263139 (Nainital) Other branches may be opened at such place or places as may be mutually decided by both the partners.

3. THAT the partnership arrangement shall be deemed to have commenced on 4th day of Feb 2016 and shall continue till determined by the partners.

4. THAT the principal object of the partnership shall be the business of Mining ,Trading & Processing of minerals . The firm shall pursue any other business including imports & exports of various commodities as may be mutually agreed upon by the partners from time to time.

3

भारतीय गैर-न्यायिक

एक सौ रुपये

Rs. 100

ONE HUNDRED RUPEES

रु. 100

सत्यमेव जयते

भारत INDIA

INDIA NON JUDICIAL

M 362263

उत्तराखण्ड UTTARAKHAND

WHEREAS the Party of the First Part, Second Part, Third Part and Fourth Part have mutually decided to start the business of Mining ,Trading & Processing minerals under the name and style of M/S DEVBHOOMI MINES together in partnership evidenced by deed of partnership.

AND WHEREAS due to above arrangements it has been deemed expedient to reduce in writing the respective rights & obligations of the parties to the deed and execute this deed governing the terms & conditions on which they shall carry on the business in partnership.

NOW THIS DEED OF partnership witnesseth as follows:-

1. THAT the partnership business shall be run and managed under the same name and style of M/S DEVBHOOMI MINES

2. THAT the head office of the firm where from all the activities shall be controlled be at R/o 29 , Avas Vikas Colony , Haldwani -263139 (Nainital) Other branches may be opened at such place or places as may be mutually decided by both the partners.

3. THAT the partnership arrangement shall be deemed to have commenced on 4th day of Feb 2016 and shall continue till determined by the partners.

4. THAT the principal object of the partnership shall be the business of Mining ,Trading & Processing of minerals . The firm shall pursue any other business including imports & exports of various commodities as may be mutually agreed upon by the partners from time to time.

भारतीय गैर न्यायिक

एक सौ रुपये

Rs. 100

रु. 100

ONE HUNDRED RUPEES

सत्यमेव जयते

भारत INDIA

INDIA NON JUDICIAL

उत्तराखण्ड UTTARAKHAND

M 36226

1. Mr. Ashwani Varshney, Adult
S/o Shri. Umesh Kumar Varshney
Block F, House 14/3, Judge Farm,
Near ITI, Rampur Road,
Haldwani (Nainital)

(Hereinafter referred to as the party of the Third Part)

AND

2. Mr. Manoj Daga Adult
S/o Late Shri N.K.Daga
R/o 29, Avas Vikas Colony
Haldwani Distt. Nainital
(Uttarakhand)

(Hereinafter referred to as the party of the Fourth Part)

Which expression shall include heirs, executors, administrators and representatives of the respective parties.

भारतीय गैर न्यायिक

एक सौ रुपये

Rs. 100

ONE HUNDRED RUPEES

रु. 100

सत्यमेव जयते

भारत INDIA

INDIA NON JUDICIAL

M 317378

उत्तराखण्ड UTTARAKHAND

DEED OF PARTNERSHIP

This Deed of Partnership made this 4th day of February in the year Two Thousand & ... between –

1. Mr. Ramesh Chandra Pandey, Adult
S/o Shri Gopal Dutt Pandey
Village – Mandalsera PO Mandalsera ,
Tehsil – Bageshwar,
Uttarakhand - 263642

(hereinafter referred to as the party of the First Part)

AND

2. Mr. Umesh Chandra Pandey , Adult
S/o Shri .Girish Chandra Pandey
Village – Kunera , PO Kanda ,
District – Bageshwar,
Uttarakhand - 263631

(hereinafter referred to as the party of the Second Part)

पत्रावली सं0 2402hs दिनांक 05-03-2016

फर्म निबन्धक उत्तराखण्ड के कार्यालय में

फर्म का नाम
मै0 देवभूमि माइन्स।

फर्म का पता माइन्स एण्ड मिनरल्स, गन्ना सेन्टर, रामपुर रोड, हल्द्वानी, जिला–नैनीताल, उत्तराखण्ड।

मैं चूंकि मैं उप निबन्धक इतद द्वारा यह प्रमाणित करता हूँ कि निम्नांकित लेख्य 1932 के इण्डियन पार्टनरशिप ऐक्ट संख्या 9 के उपबन्धों के अनुसरण में आज दिन रजिस्ट्रीकृत निर्दिष्ट और निबद्ध किये गये हैं ।

फर्म के ब्यौरों का विवरण पत्र फार्म न0 I)

मेरे हस्ताक्षर और मुहर से आज दिनांक 05-03-2016 को दिया गया ।

फीस 5,000.00 रू0

फर्म निबन्धक
उत्तराखण्ड हल्द्वानी

श्री रमेश चन्द्र पाण्डे

पता मण्डलसेरा, पो0–मण्डलसेरा, तह0–बागेश्वर, जिला–बागेश्वर, उत्तराखण्ड।

जो उनके पत्रांक दिनांक के सन्दर्भ में प्रेषित।

फर्म निबन्धक
उत्तराखण्ड हल्द्वानी

29AA 277170

अनापत्ति प्रमाण–पत्र

मैं भुवन राम ..... पुत्र श्री ..... ग्राम–कमाटा

तहसील काण्डा जनपद बागेश्वर का स्थायी निवासी हूँ।

आवेदक देव भूमि माइन्स द्वारा तहसील–काण्डा के ग्राम कमाटा में हमारी नाप भूमि में खनिज सोप स्टोन का खनन पट्टा स्वीकृति हेतु देव भूमि माइन्स द्वारा आवेदन किया गया है। इनके द्वारा खनन कार्य करने में हमारी ओर से कोई आपत्ति नहीं है। हम यह अनापत्ति प्रमाण पत्र लिखकर देते हैं कि हमने यह प्रमाण पत्र पहले किसी को नही दिया है, तथा भविष्य में भी किसी को नहीं देंगे। इनके इस कार्य से ग्रामवासियों को बृहद रोजगार मिलेगा।

NOTARY ... GOVT OF U...

Sworn & Signed before me

Dist. ... UK

नाम– भुवन राम

हस्ताक्षर– भुवन राम

Annexure -5

प्रमाण पत्र :

प्रमाणित किया जाता है कि उत्तराखण्ड बागेश्वर के तहसील कांडा अन्तर्गत ग्राम कमाड़ा में सोप स्टोन खनन पट्टा चाहने वाले आवेदक देवभूमि माईंस के पक्ष में 15.313 है० भूमि में भूमिधरों द्वारा अपनी अनापत्ति दी गयी है. वर्तमान में आवेदकगणों के विपरीत कोई भी आपत्ति प्राप्त नहीं है, अतः प्रमाण पत्र माईनिंग प्लान हेतु जारी किया जा रहा है।

क्षेत्र सहायक निरीक्षक
क्षेत्र ध्यानीधुरा
तहसील कांडा (बागेश्वर)
20/11/2019

भारतीय गैर-न्यायिक

एक सौ रुपये

Rs. 100

ONE HUNDRED RUPEES

रु.100

सत्यमेव जयते

भारत INDIA

INDIA NON JUDICIAL

UTTARAKHAND

M 362267

ii. The eligible remuneration to working partners will be the amount of remuneration allowable under the provisions of section 40 (b) (v) of the Income Tax Act, subject to restriction placed in preceding clause 6(iii) (b) (1).

THAT IN case of dissolution of this firm either by agreement of the parties, or by operation of law, the remaining partners shall have a right to continue the firm either by himself/themselves or by taking in any new partner/partners, and the outgoing partner shall be entitled to the net accretion in his/her capital account only on such date.

THAT DISPUTES between the partners interse, if any shall be decided by reference to a mutually acceptable Arbitrator within the meaning of Arbitration Act, 1940 or any enactment in force for the time being, and the decision of such Arbitrator shall be final and binding on the parties to the dispute.

THAT the partners hereof shall have no right to alienate their shares or interest in this firm in any manner, whatsoever, except with the express written consent of the other partners.

UTTARAKHAND

B 667160

THAT the partners hereof shall be at liberty to carry on business of their own independently and individually, Provided, however, that they shall not do anything which might prove detrimental to the best interest of this firm.

THAT the partnership shall not be responsible for any private debts of any of the partners or any liability which may be individually due against any partner nor any partner shall create any liability against partnership for his personal benefit or gain nor any partner shall use the partnership assets for his personal gain. However, the partners can raise loans from Banks or any financial institution in the name of the firm for the smooth running of the Business of the firm and can create charge on the assets of the firm for the purpose.

The Bank Account shall be opened in any bank in the name of the firm and shall be operated by any of the partners by single signatures.

Supplementary Partnership Deed

Any of the conditions of this partnership deed can be altered by writing a supplementary partnership deed and it shall have the same effect as if incorporated in the main partnership deed.

भारतीय गैर न्यायिक

दस रुपये

TEN RUPEES

INDIA

Rs.10

15 MAR 2016

INDIA NON JUDICIAL

उत्तराखण्ड UTTARAKHAND

29AA 277171

अनापत्ति प्रमाण–पत्र

मैं ..... पुत्र श्री ..... ग्राम–कमाटा

तहसील काण्डा जनपद बागेश्वर का स्थायी निवासी हूँ।

आवेदक देव भूमि माइन्स द्वारा तहसील–काण्डा के ग्राम कमाटा में हमारी नाप भूमि में खनिज सोप स्टोन का खनन पट्टा स्वीकृति हेतु देव भूमि माइन्स द्वारा आवेदन किया गया है। इनके द्वारा खनन कार्य करने में हमारी ओर से कोई आपत्ति नहीं है। हम यह अनापत्ति प्रमाण पत्र लिखकर देते हैं कि हमने यह प्रमाण पत्र पहले किसी को नहीं दिया है, तथा भविष्य में भी किसी को नहीं देंगे। इनके इस कार्य से ग्रामवासियों को बृहद रोजगार मिलेगा।

नाम–

हस्ताक्षर–

Sworn & Signed

भारतीय गैर न्यायिक

दस रुपये

रु 10

भारत

TEN RUPEES

Rs.10

15 MAR 2016

INDIA

NOTARIAL NOTARIAL

INDIA NON JUDICIAL

उत्तराखण्ड UTTARAKHAND

29AA 277172

अनापत्ति प्रमाण–पत्र

मैं ...पुत्र श्री ...ग्राम–कभाटा

तहसील काण्डा जनपद बागेश्वर का स्थायी निवासी हूँ।

आवेदक देव भूमि माइन्स द्वारा तहसील -काण्डा के ग्राम कभाटा में हमारी नाप भूमि में खनिज सोप स्टोन का खनन पट्टा स्वीकृति हेतु देव भूमि माइन्स द्वारा आवेदन किया गया है। इनके द्वारा खनन कार्य करने में हमारी ओर से कोई आपत्ति नहीं है। हम यह अनापत्ति प्रमाण पत्र लिखकर देते हैं कि हमने यह प्रमाण पत्र पहले किसी को नहीं दिया है, तथा भविष्य में भी किसी को नहीं देंगे। इनके इस कार्य से ग्रामवासियों को बृहद रोजगार मिलेगा।

नाम–

हस्ताक्षर–

NOTARY G.S. MAJILA Govt. of UK (INDIA)

Sworn & Signed before me Ganesh Singh Majila Notary 4/9/16 Distt. Bageshwar (U.K.)

Annexure-6

सत्यमेव जयते

Government of India

Form GST REG-06

[See Rule 10(1)]

Registration Certificate

Registration Number : 05AAMFD6106E1ZS

1.	**Legal Name**	DEV BHOOMI MINES			
2.	**Trade Name, if any**	DEV BHOOMI MINES			
3.	**Constitution of Business**	Partnership			
4.	**Address of Principal Place of Business**	1, CHANDNI CHOWK, RAMPUR ROAD, HALDWANI, Uttarakhand, 263139			
5.	**Date of Liability**	01/07/2017			
6.	**Period of Validity**	From	01/07/2017	To	NA
7.	**Type of Registration**	Regular			
8.	**Particulars of Approving Authority**				

Signature

Signature Not Verified
Digitally signed by GS GOODS AND SERVICES TAX NETWORK 1
Date: 2018.07.17 13:21:52 IST

Name	
Designation	
Jurisdictional Office	
9. Date of issue of Certificate	17/07/2018

Note: The registration certificate is required to be prominently displayed at all places of business in the State.

This is a system generated digitally signed Registration Certificate issued based on the deemed approval of application on 01/07/2017 .

सत्यमेव जयते

Annexure A

GSTIN	05AAMFD6106E1ZS
Legal Name	DEV BHOOMI MINES
Trade Name, if any	DEV BHOOMI MINES

Details of Additional Places of Business

Total Number of Additional Places of Business in the State	0

सत्यमेव जयते

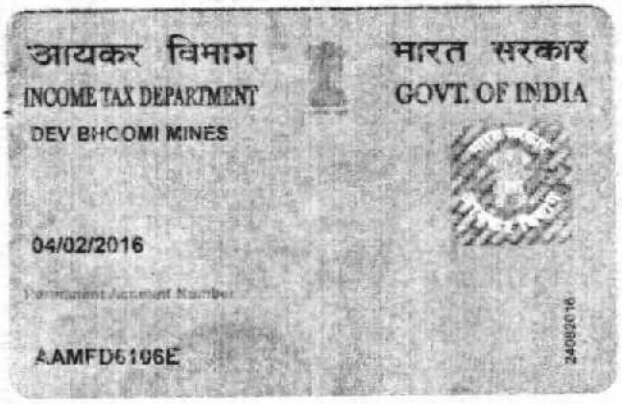
Annexure B

GSTIN	05AAMFD6106E1ZS
Legal Name	DEV BHOOMI MINES
Trade Name, if any	DEV BHOOMI MINES

Details of Managing / Authorized Partners

1		Name	MANOJ DAGA
		Designation/Status	PARTNER
		Resident of State	Uttarakhand
2		Name	ASHWANI VARSHNEY
		Designation/Status	PARTNER
		Resident of State	Uttarakhand

Annexure I


आयकर विभाग
INCOME TAX DEPARTMENT
DEV BHOOMI MINES
भारत सरकार
GOVT. OF INDIA
04/02/2016
Permanent Account Number
AAMFD6196E

Annexure-B

वित्तीय नियम संग्रह खण्ड- 5 भाग - 2
प्रपत्र संख्या - 43 ए (1)
(प्रस्तर 417 एवं 478 देखिए)

धनराशि जमा करने का चालान फार्म

उपकोषागार (नॉन बैंकिंग)/बैंक का नाम व शाखा ..... S.B.I नागेश्वर .....

1. जिस व्यक्ति (पदनाम यदि आवश्यक हो) या संस्था के नाम से धनराशि जमा की जा रही है उसका नाम ..... मै०- देव भूमि माइन्स पार्टनर -1/ रमेश चन्द्र पाण्डे S/o गोपाल दत्त पाण्डे ग्राम - मण्डलमेरा .....

2. पता ..... त०वि० - नागेश्वर .....
व अन्य - 3 पार्टनर .....

3. पंजीकरण संख्या/पक्ष का नाम वाद संख्या (यदि आवश्यक हो) ..... तहसील कार्यालय जिला नागेश्वर .....

4. जमा की जा रही धनराशि का पूर्ण विवरण (धनराशि किस हेतु जमा की जा रही है तथा किस विभाग के पक्ष में जा रही है) ..... के ग्राम - कभाटा में 15.313 है० क्षेत्रफल का माइनिंग प्लान हेतु शुल्क 20,000 =०० .....

5. चालान की सकल (Gross) राशि .....

6. चालान की निवल (Net) राशि .....

7. लेखाशीर्षक का पूर्ण विवरण/लेखाशीर्षक की मुहर .....

8. लेखाशीर्षक का 13 डिजिट कोड .....

0853-अलौह धातु खनन एवं खनन कार्य उपकर
1453-खनिजों पर रॉयल्टी मूलधन एवं ब्याज मूलधन
01-खनिज दियाकती शुल्क एवं ब्याज शुल्क

मुख्य लेखा शीर्षक	उप लेखा शीर्षक	लघु-शीर्षक	उप शीर्षक	ब्यौरेवार शीर्षक	धनराशि (अंको में)
0853	00	102	01	00	20000-
					20000~

धनराशि (शब्दों में)..... बीस हजार मात्र .....

चालान में लेखाशीर्षक की पुष्टि करने वाले विभागीय अधिकारी के हस्ताक्षर मुहर सहित

8/27/01/2021

जमाकर्ता का नाम व हस्ताक्षर

केवल उप कोषागारों (नॉन बैंकिंग)/बैंक के प्रयोगार्थ

चालान संख्या.....53.....अंको में रू0 20000/-

दिनांक.....शब्दों में रू0

प्राप्त किया

प्राप्तकर्ता के हस्ताक्षर उपकोषागार (नॉन बैंकिंग)/बैंक की मोहर

विवरण : रौकड़ (विवरण सहित) (धनराशि रूपयों में)

नोट/सिक्के	
1000 X	
500 X	
100 X	
50 X	
20 X	
10 X	
5 X	
2 X	
1 X	
चेक (पूर्ण विवरण के साथ)	
योग	

टिप्पणी :-

1. जिन विभागों में अधिक संख्या में चालानों द्वारा धनराशि जमा होती है (जैसे वाणिज्य कर, स्टाम्प एवं पंजीकरण, शिक्षा, लोक सेवा आयोग, आबकारी आदि) उन्हें बजट साहित्य के खण्ड- 1 अथवा लोक लेखा खण्ड- 2 के अनुसार लेखाशीर्षक, मुद्रित करना उचित होगा। अन्य प्रकरणों में बजट साहित्य के खण्ड - 2 (लोक सेवा) तथा खण्ड - 4 (राजस्व एवं पूंजी लेखे की प्राप्तियां) में दर्शाये गये लेखा शीर्षक के स्तरों के अनुरूप विभागीय अधिकारी द्वारा प्रमाणित किया जायेगा ।
2. जिन जमा धनराशियों के लिये विज्ञापन द्वारा सार्वजनिक रूप से प्रसारित लेखाशीर्षक विशेष में धनराशि जमा करने हेतु निर्देशित किया गया है, तो ऐसी दशा में चालान फार्म के लेखा-शीर्षक को सत्यापित करना आवश्यक नहीं होगा ।
3. यदि जमा की जाने वाली धनराशि में पैसे का कोई अंश है तो 50 पैसे कम की धनराशि को छोड़ दिया जायेगा एवं 50 पैसे और उससे अधिक की धनराशि को अगले उच्चतर रूपये पर पूर्णांकित कर धनराशि जमा की जायेगी ।


Uttarakhand
UTTARKASHI
CHAMOLI
HARDWAR
PAURI
BAGESHWAR
ALMORA
NAINITAL
Sundarbhunga Gad
Pindar River
itoli
Badiyakot
Khati
Sarju River
Kimu
Lahur
Gogina
Karmi
Song
Loharkhet
Lahur Gad
Salyani
Dangoli
Kapkot
Sama
Samalgaon
Kot Ki Mai
Baijanath
Sarju River
BAGESHWAR
Dharamghar
Garur
Gomti River
Rungar River
Bijepur
Kausani
Kanda
Bageshwar
Sani Udyar
Gananatha
Jalgan Gad
Binsar
N
0 5 10 20 30 40
Kilometers
KAILASH CHANDRA
RQP/UKGMU/No.012/YEAR2019
Harish Kainthola
मुखड/05/खनन/RQP/2015-16
Plate No - 1
Legend
Location of the Lease Area
Bageshwar to Bijepur - Approx 26.7 km
Bijepur to Kabhata - Approx 4.66 km
Location and Route Map of Devbhumi Soapstone Mine
Area - 15.313 ha
Applicant - Devbhumi Mines
Village - Kabhata,
Teh - Kanda & Dist - Bageshwar, Uk

24. THAT in all other matters not specifically provided for in this deed, the provisions of the Indian Partnership Act, 1932 shall in so far as may be applicable, apply.

HAVING CONSENTED TO THESE PRESENTS AND IN TOKEN OF THEIR AGREEMENT TO THE SAME ALL THE PARTNERS HAVE PUT IN THEIR SIGNATURE TO THIS DEED ON THE DAY ABOVE WRITTEN.

WITNESSES

Sigaram Singh
S/O Shri Gourishankar Singh
Vill+Po – Amaon, Dist – Kanpur (Rajasthan)

K Gulab Chandra
S/o Late Sri Jagat Ram
Jethi Pali
Kathpur

PARTNERS SIGNATURE

1. Ramesh Chandra Pandey
(Party of the First Part)

2. Umesh Chandra Pandey
(Party of Second Part)

3. Mr. Ashwani Varshney
(Party of Third Part)

4. Mr. Manoj Daga
(Party of Fourth Part)

अनापत्ति पत्र

उत्तराखण्ड UTTARAKHAND 30AA 382703

मैं प्रेम राम पुत्र श्री लाल निवासी ग्राम कमटा पो० इड़ियाकोट तहसील कपकोट जिला - बागेश्वर वाला यह अनापत्ति पत्र आप डेव राम माइल Exchange वालो के पक्ष में इस प्रमाण लिखि देता हूँ कि मेरे नाम भूमि कमटा में भूमि दर्ज है। इसलिये आपि मैं डेव राम माइल द्वारा खरीदा खनन आदि करने में मुझे कोई आपत्ति नहीं है। बल्कि पूर्ण सहमति है।

प्रेम राम

— द० अनापत्ति कर्ता

द० लेखकार

NOTARY
Govt. of U.K.
(INDIA)

Sworn & Signed
before me
Ganesh Singh Mahar
Notary Public
Dist Bageshwar (U.K.)

भारतीय गैर न्यायिक

दस रुपये

TEN RUPEES

Rs.10

INDIA

INDIA NON JUDICIAL

उत्तराखण्ड UTTARAKHAND

30AA 382702

मैं मोहन राम पुत्र श्री दतीराम निवासी ग्राम - कमाड़ा पो० देवलगाड़ तह० कपकोट जिला - बागेश्वर, कला इस अनापत्ति पत्र द्वारा देव भूमि मज़दूर हल्द्वानी वालो के पक्ष में इस प्रकार लिखित देता हूँ कि मेरे नाम ग्राम - कमाड़ा में भूमि दर्ज है। प्रस्तावित भूमि में देव भूमि मज़दूर हल्द्वानी द्वारा खड़िया खनन कार्य करने में मुझे कोई आपत्ति नहीं है। लिखित रूप सहमति है।

मोहन राम

दि० 19/9/16

दि० अनापत्ति कर्ता

NOTARY GOVT OF U... (INDIA)

Sworn n Signed
before me
Ganesh Singh Mahra
Notary 19/9/16
Dist Bageshwar (U.K.)

भारतीय गैर न्यायिक

भारत

दस रुपये

TEN RUPEES

10

INDIA

उपकोषागार काण्डा

Rs.10

15 MAR 2016

NOTARIAL NOTARIAL

INDIA NON JUDICIAL

29AA 277177

अनापत्ति प्रमाण–पत्र

मैं ..... पुत्र श्री ..... ग्राम–कमाटा तहसील काण्डा जनपद बागेश्वर का स्थायी निवासी हूँ।

आवेदक देव भूमि माइन्स द्वारा तहसील काण्डा के ग्राम कमाटा में हमारी नाप भूमि में खनिज सोप स्टोन का खनन पट्टा स्वीकृति हेतु देव भूमि माइन्स द्वारा आवेदन किया गया है। इनके द्वारा खनन कार्य करने में हमारी ओर से कोई आपत्ति नहीं है। हम यह अनापत्ति प्रमाण पत्र लिखकर देते हैं कि हमने यह प्रमाण पत्र पहले किसी को नहीं दिया है, तथा भविष्य में भी किसी को नहीं देंगे। इनके इस कार्य से ग्रामवासियों को बृहद रोजगार मिलेगा।

NOTARY

Sworn & Signed
before me

हस्ताक्षर

भारतीय गैर न्यायिक

भारत

दस रुपये

TEN RUPEES

10

Rs.10

15 MAR 2016

INDIA

NOTARIAL

NOTARIAL

INDIA NON JUDICIAL

UTTARAKHAND

29AA 277178

अनापत्ति प्रमाण–पत्र

मैं पूरन राम पुत्र श्री [illegible] ग्राम–कमाटा तहसील काण्डा जनपद बागेश्वर का स्थायी निवासी हूँ।

आवेदक देव भूमि माइन्स द्वारा तहसील–काण्डा के ग्राम कमाटा में हमारी नाप भूमि में खनिज सोप स्टोन का खनन पट्टा स्वीकृति हेतु देव भूमि माइन्स द्वारा आवेदन किया गया है। इनके द्वारा खनन कार्य करने में हमारी ओर से कोई आपत्ति नहीं है। हम यह अनापत्ति प्रमाण पत्र लिखकर देते हैं कि हमने यह प्रमाण पत्र पहले किसी को नहीं दिया है, तथा भविष्य में भी किसी को नहीं देंगे। इनके इस कार्य से ग्रामवासियों को बृहद रोजगार मिलेगा।

NOTARY S.S. MAJILA Bageshwar Regn. No. 21 2003 GOVT OF U.K. (INDIA)

Sworn & Signed before me

Ganesh Singh Majila

Notary 4/9/16

Distt Bageshwar (U.K.)

नाम- पूरन राम

हस्ताक्षर- पूरन राम

भारतीय गैर न्यायिक

भारत

दस रुपये

10

TEN RUPEES

INDIA

RS.10

15 MAR 2016

INDIA NON JUDICIAL

29AA 277182

अनापत्ति प्रमाण–पत्र

मैं किशोर राम पुत्र श्री किशन राम ग्राम–कभाटा तहसील काण्डा जनपद बागेश्वर का स्थायी निवासी हूँ।

आवेदक देव भूमि माइन्स द्वारा तहसील–काण्डा के ग्राम कभाटा में हमारी नाप भूमि में खनिज सोप स्टोन का खनन पट्टा स्वीकृति हेतु देव भूमि माइन्स द्वारा आवेदन किया गया है। इनके द्वारा खनन कार्य करने में हमारी ओर से कोई आपत्ति नहीं है। हम यह अनापत्ति प्रमाण पत्र लिखकर देते हैं कि हमने यह प्रमाण पत्र पहले किसी को नहीं दिया है, तथा भविष्य में भी किसी को नहीं देंगे। इनके इस कार्य से ग्रामवासियों को बृहद रोजगार मिलेगा।

NOTARY GOVT OF U.S. (INDIA)

Solemnly affirmed & Signed before me

Ganesh Singh Mehta

Dist. Bageshwar (U.K.)

नाम– किशोर राम

हस्ताक्षर–

भारतीय गैर न्यायिक

भारत

दस रुपये

TEN RUPEES

10

Rs.10

INDIA

15 MAR 2016

INDIA NON JUDICIAL

UTTARAKHAND

29AA 277179

अनापत्ति प्रमाण–पत्र

मैं जगदीश राम ..... पुत्र श्री [illegible] ..... ग्राम–कभाटा तहसील काण्डा जनपद बागेश्वर का स्थायी निवासी हूँ।

आवेदक देव भूमि माइन्स द्वारा तहसील–काण्डा के ग्राम कभाटा में हमारी नाप भूमि में खनिज सोप स्टोन का खनन पट्टा स्वीकृति हेतु देव भूमि माइन्स द्वारा आवेदन किया गया है। इनके द्वारा खनन कार्य करने में हमारी ओर से कोई आपत्ति नहीं है। हम यह अनापत्ति प्रमाण पत्र लिखकर देते हैं कि हमने यह प्रमाण पत्र पहले किसी को नहीं दिया है, तथा भविष्य में भी किसी को नहीं देंगे। इनके इस कार्य से ग्रामवासियों को बृहद रोजगार मिलेगा।

NOTARY GOVT OF UK (INDIA)

नाम– जगदीश राम

हस्ताक्षर– जगदीश राम

5/9/16

भारतीय गैर न्यायिक

दस रुपये

TEN RUPEES

.10

Rs.10

INDIA

INDIA NON JUDICIAL

29AA 277168

अनापत्ति प्रमाण–पत्र

मैं भुवन चन्द्र चरेला पुत्र श्री विरमु राम ग्राम–कमाटा तहसील काण्डा जनपद बागेश्वर का स्थायी निवासी हूँ।

आवेदक देव भूमि माइन्स द्वारा तहसील काण्डा के ग्राम कमाटा में हमारी नाप भूमि में खनिज सोप स्टोन का खनन पट्टा स्वीकृति हेतु देव भूमि माइन्स द्वारा आवेदन किया गया है। इनके द्वारा खनन कार्य करने में हमारी ओर से कोई आपत्ति नहीं है। हम यह अनापत्ति प्रमाण पत्र लिखकर देते हैं कि हमने यह प्रमाण पत्र पहले किसी को नहीं दिया है, तथा भविष्य में भी किसी को नहीं देंगे। इनके इस कार्य से ग्रामवासियों को बृहद रोजगार मिलेगा।

नाम– भुवन चन्द्र चरेला

हस्ताक्षर– भुवन चरेला

NOTARY Govt. of India

Sworn & Signed before me

Ganesh Singh Mahra

Notary 4911C

Dist Bageshwar (U.K.)

भारतीय गैर न्या यिक

भारत

दस रुपये

TEN RUPEES

10

Rs.10

15 MAR 2016

INDIA

INDIA NON JUDICIAL

उत्तराखण्ड UTTARAKHAND

29AA 277180

अनापत्ति प्रमाण–पत्र

मैं दुपाल सिंह ..... पुत्र श्री चन्दर सिंह ..... ग्राम–कमाटा तहसील काण्डा जनपद बागेश्वर का स्थायी निवासी हूँ।

आवेदक देव भूमि माइन्स द्वारा तहसील-काण्डा के ग्राम कमाटा में हमारी नाप भूमि में खनिज सोप स्टोन का खनन पट्टा स्वीकृति हेतु देव भूमि माइन्स द्वारा आवेदन किया गया है। इनके द्वारा खनन कार्य करने में हमारी ओर से कोई आपत्ति नहीं है। हम यह अनापत्ति प्रमाण पत्र लिखकर देते हैं कि हमने यह प्रमाण पत्र पहले किसी को नहीं दिया है, तथा भविष्य में भी किसी को नहीं देंगे। इनके इस कार्य से ग्रामवासियों को बृहद रोजगार मिलेगा।

Sworn & Signed
before me
Ganesh Singh Mahra
Notary Uk
Dist Bageshwar UK

नाम– दुपाल सिंह

हस्ताक्षर– दुपाल सिंह

भारतीय गैर न्यायिक

दस रुपये

भारत

TEN RUPEES

10

INDIA

Rs.10

15 MAR 2019

INDIA NON JUDICIAL

उत्तराखण्ड UTTARAKHAND

29AA 277181

अनापत्ति प्रमाण–पत्र

मैं केशर राम ..... पुत्र श्री ..... ग्राम–कमाटा तहसील काण्डा जनपद बागेश्वर का स्थायी निवासी हूँ।

आवेदक देव भूमि माइन्स द्वारा तहसील–काण्डा के ग्राम कमाटा में हमारी नाप भूमि में खनिज सोप स्टोन का खनन पट्टा स्वीकृति हेतु देव भूमि माइन्स द्वारा आवेदन किया गया है। इनके द्वारा खनन कार्य करने में हमारी ओर से कोई आपत्ति नहीं है। हम यह अनापत्ति प्रमाण पत्र लिखकर देते हैं कि हमने यह प्रमाण पत्र पहले किसी को नहीं दिया है, तथा भविष्य में भी किसी को नहीं देंगे। इनके इस कार्य से ग्रामवासियों को बृहद रोजगार मिलेगा।

नाम– केशर राम

हस्ताक्षर– केशर राम

NOTARY
S. S. MAJILA
GOVT. OF U.K. (INDIA)

Sworn & Signed
before me

भारतीय गैर न्यायिक

दस रुपये

भारत

TEN RUPEES

10

INDIA

RS.10

15 MAR 2016

NOTARIAL

NOTARIAL

INDIA NON JUDICIAL

STAMPS UTTARAKHAND

29AA 277184

अनापत्ति प्रमाण–पत्र

मैं सुन्दर सिंह पुत्र श्री दान सिंह ग्राम–कमाटा तहसील काण्डा जनपद बागेश्वर का स्थायी निवासी हूँ।

आवेदक देव भूमि माइन्स द्वारा तहसील–काण्डा के ग्राम कमाटा में हमारी नाप भूमि में खनिज सोप स्टोन का खनन पट्टा स्वीकृति हेतु देव भूमि माइन्स द्वारा आवेदन किया गया है। इनके द्वारा खनन कार्य करने में हमारी ओर से कोई आपत्ति नहीं है। हम यह अनापत्ति प्रमाण पत्र लिखकर देते हैं कि हमने यह प्रमाण पत्र पहले किसी को नहीं दिया है, तथा भविष्य में भी किसी को नहीं देंगे। इनके इस कार्य से ग्रामवासियों को बृहद रोजगार मिलेगा।

NOTARY GOVT OF U.S. (INDIA)

नाम– सुन्दर सिंह

हस्ताक्षर–

भारतीय गैर न्यायिक

भारत

दस रुपये

TEN RUPEES

₹.10

Rs.10

15 MAR 2016

INDIA

NOTARIAL NOTARIAL

INDIA NON JUDICIAL

UTTARAKHAND

29AA 277186

अनापत्ति प्रमाण-पत्र

मैं इस्त सिंह पुत्र श्री मोहन सिंह ग्राम-कभाटा तहसील काण्डा जनपद बागेश्वर का स्थायी निवासी हूँ।

आवेदक देव भूमि माइन्स द्वारा तहसील काण्डा के ग्राम कभाटा में हमारी नाप भूमि में खनिज सोप स्टोन का खनन पट्टा स्वीकृति हेतु देव भूमि माइन्स द्वारा आवेदन किया गया है। इनके द्वारा खनन कार्य करने में हमारी ओर से कोई आपत्ति नहीं है। हम यह अनापत्ति प्रमाण पत्र लिखकर देते हैं कि हमने यह प्रमाण पत्र पहले किसी को नहीं दिया है, तथा भविष्य में भी किसी को नहीं देंगे। इनके इस कार्य से ग्रामवासियों को बृहद रोजगार मिलेगा।

NOTARY

नाम- इस्त सिंह

हस्ताक्षर-

4/19/16

भारतीय गैर न्यायिक

भारत

दस रुपये

TEN RUPEES

10

INDIA

उपकोषागार काण्डा

Rs.10

15 MAR 2016

NOTARIAL NOTARIAL

INDIA NON JUDICIAL

उत्तराखण्ड UTTARAKHAND

29AA 277187

अनापत्ति प्रमाण–पत्र

मैं घनश्याम चन्दोला पुत्र श्री लीलू राम ग्राम–कभाटा

तहसील काण्डा जनपद बागेश्वर का स्थायी निवासी हूँ।

आवेदक देव भूमि माइन्स द्वारा तहसील–काण्डा के ग्राम कभाटा में हमारी नाप भूमि में खनिज सोप स्टोन का खनन पट्टा स्वीकृति हेतु देव भूमि माइन्स द्वारा आवेदन किया गया है। इनके द्वारा खनन कार्य करने में हमारी ओर से कोई आपत्ति नहीं है। हम यह अनापत्ति प्रमाण पत्र लिखकर देते हैं कि हमने यह प्रमाण पत्र पहले किसी को नहीं दिया है, तथा भविष्य में भी किसी को नहीं देंगे। इनके इस कार्य से ग्रामवासियों को बृहद रोजगार मिलेगा।

NOTARY S. MAJILA GOVT. OF U.K. (INDIA)

Sworn & Signed before me

Ganesh Singh Majila

Notary U.K.

Dist Bageshwar (U.K.)

नाम– घनश्याम चन्दोला

हस्ताक्षर– घनश्याम चन्दोला

भारतीय गैर न्यायिक

दस रुपये

TEN RUPEES

10

INDIA

Rs.10

15 MAR 201

INDIA NON JUDICIAL

UTTARAKHAND

29AA 277176

अनापत्ति प्रमाण–पत्र

मैं गोपाल सिंह ..... पुत्र श्री हरमान सिंह ..... ग्राम–कमाटा तहसील काण्डा जनपद बागेश्वर का स्थायी निवासी हूँ।

आवेदक देव भूमि माइन्स द्वारा तहसील काण्डा के ग्राम कमाटा में हमारी नाप भूमि में खनिज सोप स्टोन का खनन पट्टा स्वीकृति हेतु देव भूमि माइन्स द्वारा आवेदन किया गया है। इनके द्वारा खनन कार्य करने में हमारी ओर से कोई आपत्ति नहीं है। हम यह अनापत्ति प्रमाण पत्र लिखकर देते हैं कि हमने यह प्रमाण पत्र पहले किसी को नहीं दिया है, तथा भविष्य में भी किसी को नहीं देंगे। इनके इस कार्य से ग्रामवासियों को बृहद रोजगार मिलेगा।

नाम– गोपाल सिंह

हस्ताक्षर– गोपाल सिंह

NOTARY OF UK

Sworn & Signed
before me
Ganesh Singh Mahla
Notary U.K.
Dist. Bageshwar (U.K.)

भारतीय गैर न्यायिक

दस रुपये

TEN RUPEES

.10

Rs.10

15 MAR 2016

INDIA NON JUDICIAL

उत्तराखण्ड UTTARAKHAND

29AA 277183

अनापत्ति प्रमाण–पत्र

मैं सुन्दर सिंह पुत्र श्री जसवंत सिंह ग्राम–कमाटा तहसील काण्डा जनपद बागेश्वर का स्थायी निवासी हूँ।

आवेदक देव भूमि माइन्स द्वारा तहसील–काण्डा के ग्राम कमाटा में हमारी नाप भूमि में खनिज सोप स्टोन का खनन पट्टा स्वीकृति हेतु देव भूमि माइन्स द्वारा आवेदन किया गया है। इनके द्वारा खनन कार्य करने में हमारी ओर से कोई आपत्ति नहीं है। हम यह अनापत्ति प्रमाण पत्र लिखकर देते हैं कि हमने यह प्रमाण पत्र पहले किसी को नहीं दिया है, तथा भविष्य में भी किसी को नहीं देंगे। इनके इस कार्य से ग्रामवासियों को बृहद रोजगार मिलेगा।

NOTARY ... GOVT OF UK (INDIA)

नाम– सुन्दर सिंह

हस्ताक्षर– K.S. Ram

Identified & Signed before me

Date 01/9/16

भारतीय गैर न्यायिक

दस रुपये

TEN RUPEES

₹ 10

Rs.10

INDIA

15 MAR 2015

NOTARIAL NOTARIAL

INDIA NON JUDICIAL

UTTARAKHAND

29AA 277174

अनापत्ति प्रमाण–पत्र

मैं दीवानराम ..... पुत्र श्री बचिराम ..... ग्राम–कभाटा

तहसील कांण्डा जनपद बागेश्वर का स्थायी निवासी हूँ।

आवेदक देव भूमि माइन्स द्वारा तहसील कांण्डा के ग्राम कभाटा में हमारी नाप भूमि में खनिज सोप स्टोन का खनन पट्टा स्वीकृति हेतु देव भूमि माइन्स द्वारा आवेदन किया गया है। इनके द्वारा खनन कार्य करने में हमारी ओर से कोई आपत्ति नहीं है। हम यह अनापत्ति प्रमाण पत्र लिखकर देते हैं कि हमने यह प्रमाण पत्र पहले किसी को नहीं दिया है, तथा भविष्य में भी किसी को नहीं देंगे। इनके इस कार्य से ग्रामवासियों को वृहद रोजगार मिलेगा।

दीवान राम

ग्राम–

हस्ताक्षर–

NOTARY

भारतीय गैर न्यायिक

दस रुपये

भारत

TEN RUPEES

₹ 10

Rs.10

INDIA

15 MAR 2016

NOTARIAL

NOTARIAL

INDIA NON JUDICIAL

29AA 277173

अनापत्ति प्रमाण–पत्र

मैं जीवा राम ..... पुत्र श्री दिवान राम ..... ग्राम–कमाटा तहसील काण्डा जनपद बागेश्वर का स्थायी निवासी हूँ।

आवेदक देव भूमि माइन्स द्वारा तहसील काण्डा के ग्राम कभाटा में हमारी नाप भूमि में खनिज सोप स्टोन का खनन पट्टा स्वीकृति हेतु देव भूमि माइन्स द्वारा आवेदन किया गया है। इनके द्वारा खनन कार्य करने में हमारी ओर से कोई आपत्ति नहीं है। हम यह अनापत्ति प्रमाण पत्र लिखकर देते हैं कि हमने यह प्रमाण पत्र पहले किसी को नहीं दिया है, तथा भविष्य में भी किसी को नहीं देंगे। इनके इस कार्य से ग्रामवासियों को बृहद रोजगार मिलेगा।

नाम–

हस्ताक्षर– जीवा राम

29AA 277175

अनापत्ति प्रमाण–पत्र

मैं राजन सिंह पुत्र श्री किशन सिंह ग्राम–कभाटा तहसील काण्डा जनपद बागेश्वर का स्थायी निवासी हूँ।

आवेदक देव भूमि माइन्स द्वारा तहसील काण्डा के ग्राम कभाटा में हमारी नाप भूमि में खनिज सोप स्टोन का खनन पट्टा स्वीकृति हेतु देव भूमि माइन्स द्वारा आवेदन किया गया है। इनके द्वारा खनन कार्य करने में हमारी ओर से कोई आपत्ति नहीं है। हम यह अनापत्ति प्रमाण पत्र लिखकर देते हैं कि हमने यह प्रमाण पत्र पहले किसी को नहीं दिया है, तथा भविष्य में भी किसी को नहीं देंगे। इनके इस कार्य से ग्रामवासियों को बृहद रोजगार मिलेगा।

नाम–

हस्ताक्षर–

भारतीय गैर न्या यिक

भारत

दस रुपये

TEN RUPEES

10

Rs.10

INDIA

NOTARIAL NOTARIAL

INDIA NON JUDICIAL

उत्तराखण्ड UTTARAKHAND

29AA 277169

अनापत्ति प्रमाण–पत्र

मैं ..... पुत्र श्री ..... ग्राम–कभाटा तहसील काण्डा जनपद बागेश्वर का स्थायी निवासी हूँ।

आवेदक देव भूमि माइन्स द्वारा तहसील काण्डा के ग्राम कभाटा में हमारी नाप भूमि में खनिज सोप स्टोन का खनन पट्टा स्वीकृति हेतु देव भूमि माइन्स द्वारा आवेदन किया गया है। इनके द्वारा खनन कार्य करने में हमारी ओर से कोई आपत्ति नहीं है। हम यह अनापत्ति प्रमाण पत्र लिखकर देते हैं कि हमने यह प्रमाण पत्र पहले किसी को नहीं दिया है, तथा भविष्य में भी किसी को नहीं देंगे। इनके इस कार्य से ग्रामवासियों को बृहद रोजगार मिलेगा।

नाम–

हस्ताक्षर–

Sworn & Signed