

**DRAFT ENVIRONMENTAL IMPACT ASSESSMENT
AND
ENVIRONMENTAL MANAGEMENT PLAN
OF
EXTRACTION/COLLECTION OF SAND, STONE
AND BAJRI
FOR PUBLIC HEARING**

TOR PROPOSAL No.	SIA/HP/MIN/422986/2023
FILE NO.	HPSEIAA/2023/1061-1390-97
AREA	35-06 Bighas or 2.9755 Hectare (Private Land, River Bed)
PRODUCTION LOCATION	66949 MTPA (Max) Khasra No. 46/1, 47/1, 48/1, 49/1, 50, 51, 52/1, 55, 56, & 71, falling in Mauza/Mohal Bhatrog, Tehsil Paonta Sahib, District Sirmour, Himachal Pradesh

APPLICANT

M/s Shirgul Mines & Mineral, Part II, Partners (Sh. Rishi Kumar Aggarwal, Sh. Naveen Kumar, Sh. Sher Singh Negi, & Sh. Manish Kumar,) R/o House No. 133/E, Ward No. 6, Tehsil Paonta Sahib, District Sirmour, H.P



CONSULTANT
P&M Solution
C-88, Sector 65, Noida -201301 – U.P
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DRAFT EIA/EMP Report

1.0 Preamble

Environmental Impact Assessment (EIA) is a process that is used to identify the environmental, social, and economic impacts of a project prior to decision-making. It serves as a decision-making tool that guides decision-makers in making appropriate decisions for proposed projects. The objective of EIA is to predict environmental impacts at an early stage of project planning and design, find ways and means to reduce adverse impacts, shape projects to suit the local environment, and present the predictions and options to decision-makers. By utilizing EIA, both environmental and economic benefits can be achieved. By considering predictions and mitigating environmental effects early on in the project planning process, benefits can be obtained, such as the protection of the environment, optimum utilization of resources, and overall cost and time savings.

EIA systematically examines both beneficial and adverse impacts of the proposed project, above and beyond the prevailing conditions of environmental parameters. It ensures that these impacts are taken into account during the project designing stage itself, and that the values of the combined impacts remain within statutory norms. The Ministry of Environment and Forests has envisioned and set this process in motion for sustainable development. The final decision is arrived at only after those who matter have been made aware of the salient features of the project being envisaged close to them, and their opinions have been sought in a widely advertised Public Hearing Event under the chairmanship of the district authorities. This way, the public can express their opinions freely, without favor or fear.

1.0.1 Description of lease area

The proposed project is river bed mining project for the mining/extraction of Sand, Stone and Bajri located at Khasra No. 46/1, 47/1, 48/1, 49/1, 50, 51, 52/1, 55, 56, and 71, measuring an area 35-06 Bighas or 2.9755 Hectare (Private Land, River Bed) falling in Mauza Mohal Bhatrog, Tehsil Paonta Sahib, District Sirmour, Himachal Pradesh. The extracted sand, stone, and bajri will be utilized in an already established stone crusher unit, M/s Shirgul Mines & Mineral. The mining lease has been granted to M/s Shirgul Mines & Mineral, Part II, with Sh. Rishi Kumar Aggarwal, Sh. Naveen Kumar, Sh. Sher Singh Negi, and Sh. Manish Kumar, who are partners residing at House No. 133/E, Ward No. 6, Tehsil Paonta Sahib, District Sirmour, H.P. The Department of Industries issued the Letter of Intent

(LOI) for the grant of the mining lease vide letter no. Udyog-Bhu(Khani-4)Laghu-761/2019-2203 dated 30-05-2022. The LOI was extended for a further period of two years and six months, w.e.f. 29.05.2023 to 29.11.2025, vide letter no. Udyog-Bhu(Khani-4)Laghu-761/2019-2832, issued on 09-06-2025 is attached as **Annexure-II**. Approved Mining plan has been approved vide letter no. Udyog-Bhu (Khani-4) Laghu –761/2019-5898 dated 13.0.2022 is attached as **Annexure-V**. The estimated project cost is Rs 50 Lakh. The proposed production is 66949 MTPA.

The proposed project has a lease area of 35-06 Bighas or 2.9755 Hectare (Pvt. Land, River Bed) under Category "B1" as per the EIA Notification 2006, as amended by the O.M. F. No. L-11011/175/2018/-IA-II (M) dated 12/12/2018, issued by the Ministry of Environment and Forests, New Delhi. As per Distance Certificate from Geologist vide letter no. Udyog-Bhu (Khani-4) Laghu-761/2019-1315 dated 30.04.2025 regarding details of other mines located within 500 m of the lease area is attached as **Annexure-III**. As per Mining officers letter stating that there are three other mine leases exist within the 500-m periphery of the lease area, total area is 9.84 Hectare (total cluster of 3 Mine) details is given in **Table 1.1**

Table 1.1: Cluster Details

S.no	Name of Mining lease	Khasra No.	Area in hectare/ Bighas	Mauza/ Mohal	Validity	Status of EC Mining lease/ weather operating or not operating
1.	Shirgul Mines & Mineral	24,25,29,23 1,271, & 30/2	4-00 (Hect)	Bhatrog	26.02.2033	Operational
2	Prem Chand Aggarwal	58,59,69 70	2.75(Hect)	Bhatrog	25.02.2033	Operational
3	Bala Sunadri and mineral	137/22/75/1	3.09 (Hect)	Bhatrog	25.11.2028	Operational

The Environmental Impact Assessment (EIA) study report is prepared for obtaining Environmental Clearance (EC) from SEIAA Himachal Pradesh for the proposed Extraction of Sand, Stone & Bajri Project.

1.1 Identification of Project& Project Proponent

Name of the project-Extraction of Sand, Stone & Bajri from Khasra No. 46/1, 47/1, 48/1, 49/1, 50, 51, 52/1, 55, 56, and 71 (private Land & River Bed), measuring an area 35-06 Bighas or 2.9755 Hectare falling in Mauza Mohal Bhatrog, Tehsil Paonta Sahib, District Sirmour, Himachal Pradesh, Proposed by M/s Shirgul Mines & Mineral, Part II, Partner Sh. Rishi Kumar Aggarwal, Sh Naveen Kumar, Sh Sher Singh Negi & Sh Manish Kumar

Location of the project- Mauza Mohal Bhatrog, Tehsil Paonta Sahib, District Sirmour, Himachal Pradesh

Identification of Project proponent

M/s Shirgul Mines & Mineral, Part II, Partner, Sh. Rishi Kumar Aggarwal, Sh Naveen Kumar, Sh Sher Singh Negi & Sh Manish Kumar) R/o House No. 133/E, Ward No. 6, Tehsil Paonta Sahib, District Sirmour, H.P.

Table 1.1(a): Brief Description of the project

S. No.	Particulars	Details
A.	Nature & Size of the Project	Sand, Stone and Bajri (Minor Mineral) (ML Area–35-06 Bighas or 2.9755 Hectare) Max. 66949 MTPA (Max)
B.	Location	
	Mauza & Mohal	Mauza Mohal Bhatrog,
	Khasra no-	Khasra No. 46/1, 47/1, 48/1, 49/1, 50, 51, 52/1, 55, 56, and 71
	Tehsil	Paonta Sahib,
	District	Kangra
	State	Himachal Pradesh

Coordinates		Pillar	Latitude	Longitude
		A	30° 32.591'N	77° 39.789'E
		B	30° 32.542'N	77° 39.774'E
		C	30° 32.548'N	77° 39.736'E
		D	30° 32.569'N	77° 39.716'E
		E	30° 32.602'N	77° 39.699'E
		F	30° 32.550'N	77° 39.699'E
		G	30° 32.558'N	77° 39.628'E
		H	30° 32.573'N	77° 39.595'E
		I	30° 32.626'N	77° 39.635'E
		J	30° 32.617'N	77° 39.651'E
		K	30° 32.631'N	77° 39.665'E
		M	30° 32.619'N	77° 39.691'E
		N	30° 32.617'N	77° 39.722'E
		O	30° 32.603'N	77° 39.755'E
		P	30° 32.596'N	77° 39.752'E
Toposheet No.		H43E9		
C.	Mine Lease Area Details			
	Lease Area	Area-35-06 Bighas or 2.9755 Hectare		
	Type of Land	Private Land, River Bed		
	Topography	River bed (Giri River)		
	Elevation	Highest-472 mRL, Lowest -469 mRL		
D.	Cost Details			
	Cost of the project	Rs 50 Lacs		
	Cost for EMP	Capital Cost: 7.9 lakhs, Recurring Cost: 10.7 lakhs For 5 years		
	Cost of CSR	12 Lakhs		
E.	Details of Environmental Setting			
	Ecological Sensitive Areas (National Park, Wild Life Sanctuary, Biosphere Reserve, Reserve/ Protected Forest etc.) within 10 km distance	There are no national parks, wildlife sanctuary and other notified eco sensitive areas within 10 km from the periphery of the project site.		
	Water Bodies Protected	The Project lies on Giri River		

	Forest/ Reserve Forest	Shilla RF - About 8.90 km in N direction Pobhar RF- About 9.0 km in NE direction Nigali RF - About 6.35km in NE direction Danda Amboya RF- About 7.5 km in SE direction Garibnath RF- About 7.0 km in S direction Khara RF- About 6.5 km in SW direction Gabhar RF- About 7.5km in NW direction Giri River- Mine site falls on the river bed of Giri River
	Nearest Town	Nearest Town Paonta Sahib \approx 12.15 Km in SW direction (Aerial distance).
	Nearest Railway Station	Salogra Railway Station is approx. 67.26 km towards NW direction (Aerial distance)
	Nearest National & State Highway	NH-72 (Poanta Hatkoti Road)-About 0.60 Km in SW direction. SH-1, About 4.71 km in E direction
	Nearest Airport	Shimla Airport is approx. 83 km towards NW direction (Aerial distance)
	State National	NA
	Seismic Zone	Seismic Zone IV. (Severe Intensity Zone).

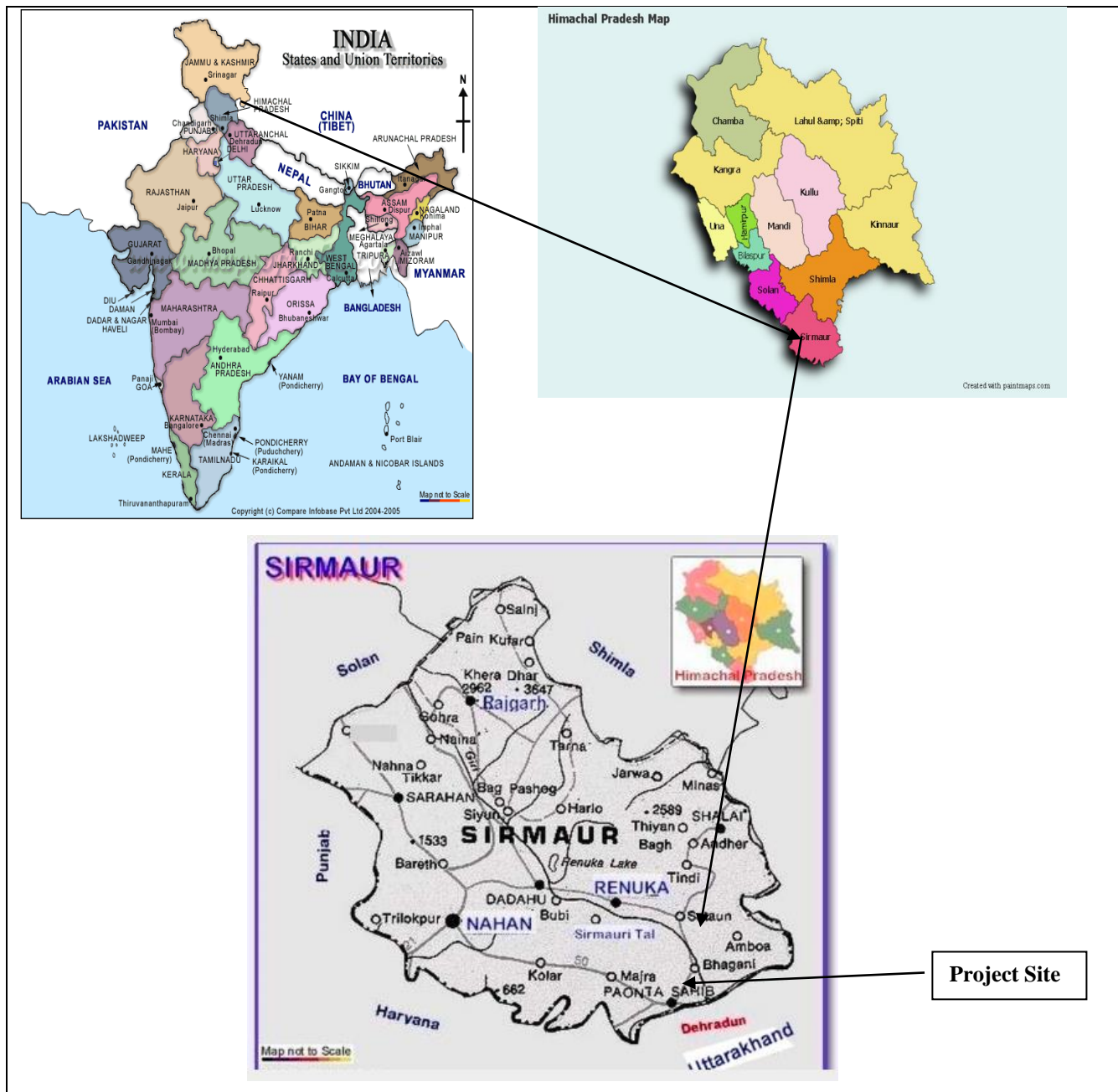


Figure-1.1: Location of the Project

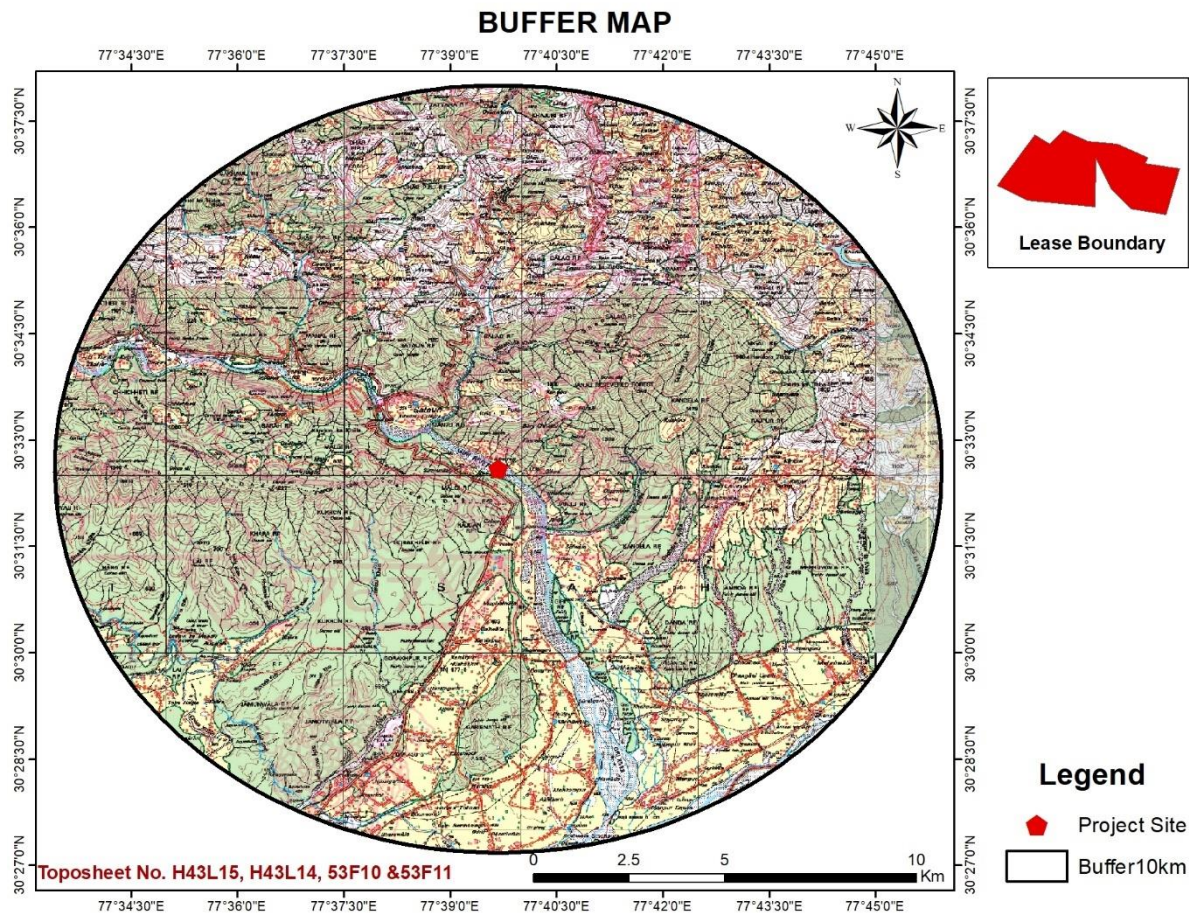


Figure 1.2: Buffer Map of the area

1.2 Scope of the Study

In line with the Terms of Reference (TOR) prescribed by SEIAA, Himachal Pradesh, the area comprising 10 km radius around the proposed mine lease boundary is considered as the study area. The detailed studies have been conducted as per prescribed TOR. The study area map is shown in Figure-1.2.

The scope of study broadly covered:

- Literature review and collection of data relevant to the study area;
- Establish the baseline environmental aspects in and around the proposed project;
- Identify various existing pollution loads due to various mining activities;
- Predict incremental levels of pollutants in the study area due to the proposed operations.

- Evaluate the predicted impacts on various environmental attributes in the study area by using scientifically developed and widely accepted environmental impact assessment methodologies;
- Prepare an Environment Management Plan (EMP) outlining the measures for improving the environmental quality; and
- Identify critical environmental attributes that are required to be monitored in the post-project scenario.

Compliance of TOR

Term of Reference for Conducting Environment Impact Assessment Study has been granted by SEIAA, Himachal Pradesh vide letter no. HPSEIAA/2023/1061-1390-97 dated 16/05/2023 is attached as **Annexure-I**

Table 1.2: Standard TOR points:

S. No	TOR	Compliance	Reference in the 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.	This is fresh LOI, Mine is yet to be opened. It will open only after getting environmental clearance.	--
2	A copy of the document in support of the fact that the Proponent is the rightful lessee of the mine should be given.	State Govt. has given consent for mining vide letter No. Udyog-Bhu(Khani-4)Laghu-761/2019-2203 dated 30-05-2022, The LOI was extended for a further period of two years and six months, w.e.f.	Annexure II, LOI

		29.05.2023 to 29.11.2025, vide letter no. Udyog-Bhu(Khani-4)Laghu 761/2019-2832, issued on 09-06-2025. Proposed project has been allotted to the proponent M/s Shirgul Mines & Mineral, Part II, with Sh. Rishi Kumar Aggarwal, Sh. Naveen Kumar, Sh. Sher Singh Negi, and Sh. Manish Kumar, who are partners residing at House No. 133/E, Ward No. 6, Tehsil Paonta Sahib, District Sirmour, H.P.	
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 and mining technology and should be in the name of the lessee.	The documents including mine plan and EIA report submitted are compatible with one another w.r.t. to following information: Mining Lease Area- 35-06 Bighas or 2.9755 Hectare, (Private Land) Lessee: M/s Shirgul Mines & Mineral, Part II, with Sh. Rishi Kumar Aggarwal, Sh. Naveen Kumar, Sh. Sher Singh Negi, and Sh. Manish Kumar, who are partners residing at House No. 133/E, Ward No. 6, Tehsil Paonta	Approved Mining Plan is attached as Annexure-V All details have been complied in chapter-2

		Sahib, District Sirmour, H.P. Proposed Production Capacity- 66949 MTPA.	
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).	All Corner Coordinates of mining lease area superimposed on toposheet Map has been incorporated in EIA/EMP Report	Refer Chapter 2
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.	The land use map showing salient features of the area is given in the report. The geological map of the mine lease area is also given in the report showing geomorphology	Land-use of the study area Figure 3.1.
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 Lease area is dry part of River bed. As per revenue record the land is classified as Gair Mumkin Khad (Private Land Riverbed). The mining process will be done by land use policy of the State & no land diversion has been proposed.	Refer Chapter 2 & 3

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 processes /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 insuring compliances 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 proponent Company has a well laid down Environment Policy. The hierarchical system or administrative order of the company has been given in the Chapter-6.	Refer Chapter 6 Section 6.1 Corporate Environment Policy Annexure- VIII
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 proposal safeguard measures in each case should also be provided.	No underground mining is proposed.	
9	The study area will comprise of 10	The 10 km zone from	Refer Chapter I

	km zone around the mine lease from lease periphery and the data contained in the EIA.	periphery of the lease has been considered as the study area. The Buffer map of the study area is attached with report. All the details in the EIA report are for the life of the mine period. The details of mining & production have been given in the report.	Figure 1.1
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.	Land use pattern of 10 km from the periphery of the lease area has been prepared and incorporated with the report. There is no wildlife sanctuary or national park within the study area.	Refer Land-use of the study area Figure 3.1, Table 3.1 Shown in 10 km buffer map enclosed in Chapter I of EIA Report.
11	Details of the land for any Over Burden Dumps outside the mine lease, such as extent of land area, distance from the mine lease, its land use, R&R issues, if any, should be given.	Detail has been given in chapter 2. Only 16735 MT/yr of mine waste i.e. silt/clay will be generated during mining activity; The waste material in the form of silt/clay present	Section 2.5.3 of chapter 2.

		in the mining lease area is inseparable and will be sold in the open market as per demand.	
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.	There is no forest land within the lease area.	
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 lease area; therefore, deposition of net present value (NPV) and compensated Afforestation is not indicated.	
14	Implementation status of	There is no forest land	

	reorganization of forest rights under the schedule tribes and other traditional forest Dwellers (Recognition of Forest Rights) Act, 2006 should be indicated"	involved in the leased-out area. Hence, this act is not applicable for this project.	
15	The vegetation in the RF / PF areas in the study area, with necessary details, should be given	There are RF/PF present within the 10 km radius of the lease area. Detail has been given in table 1.1 of chapter 1. The vegetation details of the study area are incorporated with the report.	Refer Chapter 3 Section 3.6 Biological Environment
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.	The details Impacts & their mitigation measures are given in chapter 4 of EIA/EMP Report.	Refer Chapter 4
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	There are no national parks, wildlife sanctuary and other notified eco sensitive areas within 10 km from the periphery of the project site.	

	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 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.	Detailed biological study of core zone and buffer zone within 10 km radius of the periphery of the mine lease has been carried out for the project. The same has been incorporated in the Chapter-3	Refer Chapter 3 Section 3.1.6 Biological Environment
19	Proximity to Areas declared as 'Critically Polluted' or the Project areas attracting court restrictions for	Proposed project does not come under critically polluted area.	--

	mining operations, should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the SPCB or State Mining Dept. Should be secured and furnished to the effect that the proposed mining activities could be considered.		
20	Similarly, for coastal projects, A CRZ map duly authenticated by one of the authorized agencies demarcating LTL, HTL, CRZ area, location of the mine lease w.r.t CRZ, coastal features such as mangroves, if any, should be furnished. (Note: The Mining Projects falling under CRZ would also need to obtain approval of the concerned Coastal Zone Management Authority).	Proposed Projects does not falling under CRZ.	--
21	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	There is no R & R involved in this project.	

	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.		
22	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	Base line study was carried out for Post Monsoon season Oct 2024 to Dec 2024 details area given in Chapter-3 The locations of the monitoring stations were decided on the basis of prevailing meteorological conditions (Wind direction & wind speed) of the study area. The wind rose has been given in chapter III of EIA/EMP Report. The location of the monitoring sites has been shown in map.	Refer Chapter 3

	500 m of the mine lease in the pre-dominant downwind direction. The mineralogical composition of PM10, particularly for free silica, should be given.		
23	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.	Fresh air, water, soil, ground water quality analysis has been done in the month of Oct to Dec, 2024. Air quality modelling (PM10, PM2.5, NO2 & SOX) has been given in Chapter 4 .	Refer – Chapter -4
24	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.	The water requirement for the project is 6.425 KLD for drinking, dust suppression and green belt development. A detailed water balance is being provided in the report.	Refer Chapter –2 Section 2.6.4.1 Table-2.8, Water Requirement
25	Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project should be provided.	The water will be sourced from Giri River through tanker supply. Permission will be obtained from	Permission will be obtained from concerned IPH Department

		concerned IPH Department.	Refer Chapter 2
26	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.	The project does not consume any process water except for drinking, dust suppression, and plantation. A plantation is proposed, which will increase water holding capacity and help in recharging groundwater. Although no artificial rainwater harvesting is proposed for the present project in the lease area, if any such project is proposed by the state government, PP will provide assistance	
27	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"	Mining activities will be conducted on the dry bed of the river to avoid any impact on surface water. The mining will be limited to a depth of 1 meter below ground level or above the groundwater table, whichever is shallower, to ensure that there is no interference with the groundwater table. Mining will be done as per Approved mining plan.	Refer Chapter 2
28	Based on actual monitored data, it may clearly be shown whether	Mining activities will be conducted on the dry bed of	

	working will intersect groundwater Necessary data and documentation in this regard may be provided. In case the working will intersect ground water 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 belowground water and for pumping of ground water should also be obtained and copy furnished.	the river to avoid any impact on surface water. The mining will be limited to a depth of 1 meter below ground level or above the groundwater table, whichever is shallower, to ensure that there is no interference with the groundwater table. Mining will be done as per Approved mining plan.	
29	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.	The project site lies on Giri River, No diversion is proposed.	
30	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 elevation of the applied area for the block is 472 m AMSL to 469 m AMSL in the stretch. Mining will be up to 1 m below ground level or above the ground water table whichever comes first.	
31	A time bound Progressive Greenbelt Development Plan shall be prepared in a tabular form (indicating the	Plantation/afforestation will be done as per program i.e., along the road sides and near	Refer Chapter 9 Section 9.4.

	linear and Quantities 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.	civic amenities, as per mine plan. Post plantation, the area will be regularly monitored in every season for evaluation of success rate. List of Plant species selected for green belt is detailed in the EIA report. The plant species selected for green belt have a greater ecological value and are of good utility value to the local population. The plant species are selected by giving emphasis on local and native species and the species which are tolerant to pollution	
32	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	There will be about 28 trucks carrying the minerals per day. The projection has been done based on the mineral transportation. The details of traffic analysis are discussed in the report.	Refer Chapter 2 Section 2.6.1 Traffic Analysis Fig 2.3, Table 2.7(i), 2.7(ii) & 2.7(iii).

	agencies such as State Government) should be covered. Project Proponent shall conduct Impact of Transportation study as per Indian Road Congress Guidelines.		
33	Details of the onsite shelter and facilities to be provided to the mine workers should be included in the EIA Report	A temporary rest shelter will be provided for the workers near to the site with provisions of water, first aid facility, protective equipment's, etc. Details are given in the EIA/EMP Report.	Refer Chapter 2 Section 2.6.4.4
34	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.	It is a deposit in the riverbed, and the mined-out area will be replenished each year during the monsoon period. Additionally, the depth of the quarry will be filled back with river sand and gravel each year.	
35	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	Occupational health impact mainly is expected due air pollution due to fugitive dust emission because of movement of vehicles. However appropriate mitigation measures for air pollution control have been given in the report, discussed in Chapter-4.	Refer Chapter 8 Section 8.5 Table- 8.3, Budget for Occupational Health Safety

	proposed in the mining area may be detailed.	Each labour will undergo pre-placement medical examination. There after periodical health checkup will be arranged as stated in the report. About 1.5 lakh has been earmarked for occupational health.	
36	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.	The proposed project being a small-scale manual/ semi-mechanized mining project, there will be hardly any process related health implication on the population of the nearby villages except fugitive dust emissions due to transportation. Budgetary allocation is given in Chapter-8	Refer Chapter 8
37	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 to time for implementation.	Socio-economic significance provided to the local community i.e., to the nearby villagers is given in the EIA/EMP Report.	Refer Chapter 8 Section 8.5
38	Detailed environmental management plan (EMP) to mitigate the environmental impacts which, should inter-alia include the impacts of	The detailed environmental management plan to mitigate the environmental impacts has been mentioned in of the	Refer chapter 9

	change of land use, loss of agricultural and grazing land, if any, occupational health impacts besides other impacts specific to the proposed Project	EIA/EMP Report.	
39	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.	This is a draft EIA/EMP report. Public hearing is yet to be conducted. Details will be incorporated in final EIA/EMP report	-
40	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 litigation is pending against the project.	
41	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 capital cost of 7.9 lakh 10.7 lakh as recurring cost has been earmarked for EMP. Chapter IX table no. 9.3	Refer Chapter 9 Table 9.3, Budget allotted for the Environmental Management Plan
42	A Disaster management Plan shall be prepared and included in the EIA/EMP Report".	A Disaster management Plan has been given in EIA/EMP report.	Refer Chapter 7
43	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.	About 12 lakhs as Capital cost has been earmarked towards the Enterprise Social Commitment which will be used for the development of village.	Table no 8.2 of chapter 8.

1.44.	Besides the above, the below mentioned general points are also to be followed: -		
a.)	All documents to be properly referenced with index and continuous page numbering.	Complied.	-
b)	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.	
c)	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	
d)	Where the documents provided are in a language other than English, an English translation should be provided.	Agreed. Will be Complied.	
e)	The Questionnaire for environmental appraisal of mining projects as devised earlier by the Ministry shall also be filled and submitted.	Questionnaire is attached with the EIA/EMP Report.	
f)	While preparing the EIA report, the instructions for the Proponents and instructions for the Consultants issued by MoEF vide O.M. No. J-11013/41/2006-IA. II(I) dated 4th August, 2009, which are available on	Complied.	

	the website of this Ministry, should be followed.		
g)	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.	Agreed.	
h)	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.	This is new case for Mining.	
i)	The EIA report should also include (i) surface plan of the area indicating contours of main topographic features, drainage and mining area,	The Surface plan of the area indicating contours of main topographic features, drainage and mining area, &	Details are provided in Chapter-2

	(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.	geological maps is given in Chapter-2	
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ADDITIONAL CONDITION OF TOR

S.No	TOR	Compliance	Reference in the Report
1.	The project proponent shall also assess the air quality of the area using Air Quality Models.	Fresh air, water, soil, ground water quality analysis has been done in the month of October to December, 2024. Air quality modelling (PM10, PM2.5, NO2 & SOX) has been given in Chapter 4.	Refer: S.no.4.3 in Chapter-4
2.	The project proponent shall assess and provide comprehensive details of muck disposal in the final EIA/EMP report	Only 16735 MT/yr of mine waste i.e. silt/clay will be generated during mining activity; The waste material in the form of silt/clay present in the mining lease area is inseparable and will be sold in the open market as per demand	Refer: S.no. 2.5.3 Chapter-2
3.	The project proponent shall provide details of labour, its management	65 persons will be employed directly during mining operations. A temporary rest shelter will be provided for the workers near to the site with provisions of drinking	Details of labor has been given in Section 2.6.4.3, Refer Table 2.9, Chapter 2

		water, first aid facility, Bio toilets, Septic tank & protective equipment's, etc. Details are given in the Chapter-2	
4.	The traffic/ vehicle flux assessment shall be included in the EIA/ EMP.	There will be about 28 trucks carrying the minerals per day. The projection has been done based on the mineral transportation. The details of traffic/ vehicle flux assessment analysis are discussed in the Chapter-2	Refer Chapter -2 Section 2.6.1 Traffic Analysis Fig 2.3, Table 2.7(i), 2.7(ii) & 2.7(iii).
5.	The project proponent may use baseline data for EIA/ EMP reports from already formulated EIA/ EMP as per the provision of EIA notification 2006 with prior consent of the respective proponent and his undertaking to be submitted to the SEAC.	The fresh Base line study was carried out for Post monsoon season October to December, 2024. Details are given in Chapter-3	Refer- Chapter-3

2.0 General

The proposed project is located at Mauza Mohal Bhatrog, Tehsil Paonta Sahib, District Sirmour, Himachal Pradesh. The proposed production capacity is 66949 TPA of Sand, Stone and Bajri.

Identification of Project proponent

M/s Shirgul Mines & Mineral, Part II, with Sh. Rishi Kumar Aggarwal, Sh. Naveen Kumar, Sh. Sher Singh Negi, and Sh. Manish Kumar, who are partners residing at House No. 133/E, Ward No. 6, Tehsil Paonta Sahib, District Sirmour, H.P.

2.1 Description of project

The proposed project involves the extraction of sand, stone, and bajri from Khasra No. 46/1, 47/1, 48/1, 49/1, 50, 51, 52/1, 55, 56, and, 71, measuring an area 35-06 Bighas or 2.9755 Hectare (Private Land, River Bed) falling in Mauza Mohal Bhatrog, Tehsil Paonta Sahib, District Sirmour, Himachal Pradesh. The mining lease has been granted to M/s Shirgul Mines & Mineral, Part II, with Sh. Rishi Kumar Aggarwal, Sh. Naveen Kumar, Sh. Sher Singh Negi, and Sh. Manish Kumar, who are partners residing at House No. 133/E, Ward No. 6, Tehsil Paonta Sahib, District Sirmour, H.P. The Department of Industries issued the Letter of Intent (LOI) for the grant of the mining lease vide letter no. Udyog-Bhu(Khani-4)Laghu-761/2019-2203 dated 30-05-2022. The LOI was extended for a further period of two years and six months, w.e.f. 29.05.2023 to 29.11.2025, vide letter no. Udyog-Bhu(Khani-4)Laghu-761/2019-2832, issued on 09-06-2025 which is attached as **Annexure-II**

The Giri River is one of the major tributaries of the Yamuna River system, The river Giri originates near Kharapathar in Jubbal Tehsil of the district Shimla at an elevation of about 3270 meters. Its catchment is stretched between 30°04'30' to 31°15'40" N latitude and 77° 00'00' to 77 °43'45"E longitude covering the catchment area of 2600 Sq. Km. (As per district survey document). The highest point of the mining lease area is 471 meters above MSL and the lowest point is 470 meters above MSL and the average width is 100 to 150 meters. However; the total width of river Giri in this part is approximately 270-340 meters. At the mining site, It flows in the eastern direction and then it swings towards N-E to S-W direction after confluence with the river Yamuna.

The stream is perianal in nature and water flows in it thought the year. The riverbed of stream is occupied with recent deposits comprising predominantly of boulders, Sand, and river borne

bajri and during monsoon season the stream carries heavy sediment load and deposit it over the riverbed annually.

2.1.1 Location of the project

The proposed project is situated at Khasra No. 46/1, 47/1,48/1, 49/1, 50, 51, 52/1, 55, 56 & 7, in Mauza/Mohal Bhatrog, Tehsil Paonta Sahib, District Sirmour, Himachal Pradesh. The area falls in Survey of India Toposheet No. H43L10, the surface plan of the project is shown in **Figure-2.1**.

The mining site is located in the river bed of River Giri besides the village Bhatrog. The site is approachable through the Salwala - Stauan road near Bhatrog village about 7-50 kilometres from Salwala. The proposed mining site is located within the riverbed of river Giri. The highest point of mining lease area is 471 meters above MSL and lowest point is 470 meters above MSL and average width is 100 to 150 mtrs. However; the total width of river Giri in this part is approximately 270-340 meters.

The nearest railway station is Salogra Railway Station, located approximately 67.26 km northwest (aerial distance). The nearest airport is Shimla Airport, approximately 83 km northwest (aerial distance). The leased area is well-connected to NH-72 (Poanta Hatkoti Road), which is about 0.60 km southwest, and SH-1, which is about 4.71 km east (aerial distance).

Table-2.1: Pillar coordinate

Pillar	Latitude	Longitude
A	30° 32.591'N	77° 39.789'E
B	30° 32.542'N	77° 39.774'E
C	30° 32.548'N	77° 39.736'E
D	30° 32.569'N	77° 39.716'E
E	30° 32.602'N	77° 39.699'E
F	30° 32.550'N	77° 39.699'E
G	30° 32.558'N	77° 39.628'E
H	30° 32.573'N	77° 39.595'E
I	30° 32.626'N	77° 39.635'E
J	30° 32.617'N	77° 39.651'E
K	30° 32.631'N	77° 39.665'E
M	30° 32.619'N	77° 39.691'E
N	30° 32.617'N	77° 39.722'E
O	30° 32.603'N	77° 39.755'E
P	30° 32.596'N	77° 39.752'E



Figure 2.1 Pillar Co-ordinate Map

2.1.2 Need of the Project

The river carries a huge quantity of sediment consisting of stones and sand during every monsoon. This sediment takes the form of river bed material (RBM) which has been deposited over many years and has changed the shape of the river bed from a valley to raised land. As a result, heavy and devastating floods damage large tracts of land on both banks of the river every year during the monsoon season. Therefore, it is necessary to remove this material in order to channelize the river.

2.1.3 Size/Magnitude of Operation

Proposed Extraction/Collection of Sand, Stone & Bajri lease is presently spanning over an area of 15-03-30 ha Hectares. The proposed rate of production is 66949 MTPA.

2.2 Lease hold area

The description of the lease hold area is as following.

Table-2.2: Description of the lease holds area

Khasra No	Area in Ha.	Name of the Owner	Kism	Mauza & Mohal	Name of the Panchayat
46/1, 47/1,48/1, 49/1, 50, 51,	35-06 Bighas or 2.9755	Private Land	Gair Mumkin Burd	Bhatrog	Poka

Draft EIA/EMP for the Riverbed Mining Project on the Giri River for the Extraction of Sand, Stone, and Bajri on Private Land at Khasra Nos. 46/1, 47/1, 48/1, 49/1, 50, 51, 52/1, 55, 56 & 7, Measuring an Area of 35-06 Bighas or 2.9755 Hectare, Located in Mauza/Mohal Bhatrog, Tehsil Paonta Sahib, District Sirmour, Himachal Pradesh, Proposed by M/s Shirgul Mines & Mineral, Part II, Partner Sh. Rishi Kumar Aggarwal, Sh Naveen Kumar, Sh Sher Singh Negi & Sh Manish Kumar

Chapter-2 Project Description

52/1, 55, 56 & 71	Hectare				
Total	35-06 Bighas or 2.9755 Hectare				

Table-2.3: Detail of lease hold area

Project Name	Extraction of Stone, Sand and Bajri falling in, Mauza Mohal Bhatrog, Tehsil Paonta Sahib, District Sirmour, Himachal Pradesh by M/s Shirgul Mines & Mineral, Part II, Partner Sh. Rishi Kumar Aggarwal, Sh Naveen Kumar, Sh Sher Singh Negi & Sh Manish Kumar		
Mining Lease area	35-06 Bighas or 2.9755 Hectare (Private Land, River Bed)		
Location of mine	Mauza & Mohal	Bhatrog	
	Tehsil	Paonta Sahib	
	District	Sirmour	
	State	Himachal Pradesh	
Coordinates	Pillar	Latitude	Longitude
	A	30° 32.591'N	77° 39.789'E
	B	30° 32.542'N	77° 39.774'E
	C	30° 32.548'N	77° 39.736'E
	D	30° 32.569'N	77° 39.716'E
	E	30° 32.602'N	77° 39.699'E
	F	30° 32.550'N	77° 39.699'E
	G	30° 32.558'N	77° 39.628'E
	H	30° 32.573'N	77° 39.595'E
	I	30° 32.626'N	77° 39.635'E
	J	30° 32.617'N	77° 39.651'E
	K	30° 32.631'N	77° 39.665'E
	M	30° 32.619'N	77° 39.691'E
	N	30° 32.617'N	77° 39.722'E
	O	30° 32.603'N	77° 39.755'E
	P	30° 32.596'N	77° 39.752'E
Toposheet No.	H43E10 & H43E11		
Minerals of Mine	Minor Mineral: Stone, Sand and Bajri		
Proposed Production	66949 MT/year (Including mine waste)		
Method of mining	Open Cast, Manual Mining		
No. of working days	270 days		
Project cost	50 Lacs		
Elevation	Highest-472 mRL, Lowest -469 mRL		
Average Width of River	270m-340 m		
Ultimate Depth of Mining	3 feet/1 meter from Surface level		
End use of Mineral	For Manufacturing of Grit		
Water demand	2.925 KLD (Domestic) + 3.0 KLD (Dust Suppression) + 1.0 KLD (Plantation) = 6.425 KLD		
Man Power	65		

Nearest Railway Station	Salogra Railway Station is approx 67.26 km towards NW direction (Aerial distance)
Nearest State/ National Highway	NH-72 (Poanta Hatkoti Road)-About 0.60 Km in SW direction. SH-1, About 4.71 km in E direction
Nearest Airport	Shimla Airport is approx. 83 km towards NW direction (Aerial distance)

Environment Sensitivity Map of 10 Km Buffer for Extraction of Minor Mineral (Stone, Sand & Bajri), Measuring 2.9755 Hectare (Private land, River Bed) Falling in Mauza/Mohal Bhatrog, Tehsil Paonta Sahib, District Sirmour, HP : M/s Shirgul Mines & Mineral, Part II, Partner Sh. Rishi Kumar Aggarwal, Sh Naveen Kumar, Sh Sher Singh Negi & Sh Manish Kumar

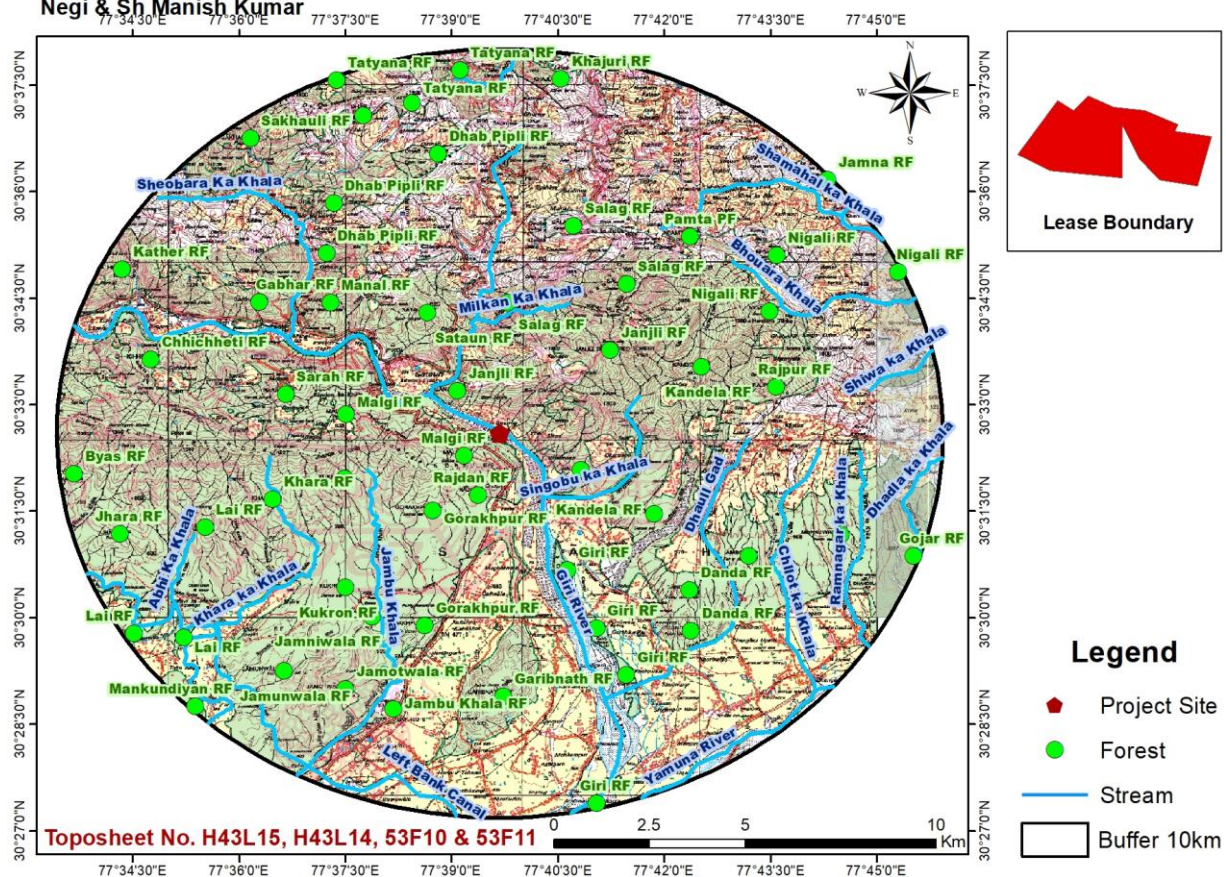


Figure 2.2: Environment Sensitivity Map

2.3 Geology

Regional Geology

District Sirmour forms part of the Shiwalik and Lesser Himalaya ranges and it exhibits a rugged mountainous terrain with moderate relief. The rocks found in the area comprise sandstone, shale, limestone and schist deposited during the past 600 million years.

Various litho-units ranging from Proterozoic to recent era are found to occur in Sirmaur district. Among all, typical Mesozoic era formations cover most of the parts and Quaternary formations occupy the southern part of the district. Granite Gneisses of Jatogh Formation belonging to lower Proterozoic is located in the northern part of the district while Deoban Formation of upper Proterozoic is confined to the eastern part in a limited extent. Jaunsar and Simla Group of lower Proterozoic to upper Proterozoic period cover middle portion of the district which encircles Tal, Krol and Infra-Krol formation of Triassic period respectively. Among which the Krol Formation of Triassic period is known for its limestone deposits. Subathu and Dharamshala Formation of Oligocene cover a major portion of the southern area.

Main boundary fault of the Himalayas, extending from Indus to Brahmaputra, runs through the south-central portion of the district. The major tectonic break here is called Nahan thrust, and along this fault plane the older rocks rest on the younger Shiwalik rocks. A marked plane of structural discordance exists as a district linear feature between the Nahans (Lower Shiwalik) to the south and the older Tertiary (Subathu-Dagshai group of rocks) to its north.

The Pre-tertiary limestone deposits (Sataun Formation), where exposed, occurs as discontinued lensoid outcrop along the northern fringes of the Nahan thrust and sandwiched in between the Nahan and the Subathu. Generally, all the Formations trend in WNW-ESE direction with moderate to high northerly dip.

Generalized Stratigraphic Successions of the district is given in the following table:

Era	Period	Formation	Lithology
Quaternary	Recent to Pleistocene	Alluvium /valley fills/ Older alluvium	Sand with pebble and clay & multiple cyclic sequence of medium to coarse grained sand with pebble of sandstone and lenses of clay

Chapter-2 Project Description

GEOLOGICAL MAP OF SIRMOUR

Scale
0 5 10 km

LEGEND
 • SETTLEMENT
 / DISTRICT BOUNDARY
 / RIVER / STREAM

Geological Units:

1. Undifferentiated	6. Baisini
2. Kainchiwa	7. Infra Kral
3. Deppen	8. Kral
4. Jounsar	9. Tal
5. Simla	10. Sabathu
	11. Dharansala
	12. Siwaliks

Settlements: BALGARH, NOHRA, LANDAUG, SARANAH, SANGRAH, NERAN, KUPHATTA, DATAHU, SATHU, SATHU N., RABAN, PAONTA, YAMUNA R.

Source: STATE GEOLOGY DEPARTMENT, SIMLA



Topography

Sirmour district is characterized by a wide variation in topography, geology, soil, climate, flora and fauna and ethnic groups with varied socio-cultural traditions. Human activities are the prime cause of environmental degradation, which may be direct or indirect, small or big, slow or fast, predictable or unpredictable depending on the nature, intensity and frequency of the disturbance to natural ecosystem. Besides a large number of population resides along sides of small rivulets and rivers basins etc. and predominantly depend on agriculture. They are subjected to extremes of rainfall – either very high or very low, which leads to river flooding on one hand and also to food scarcity during drought on the other therefore, suffer from two major problems of floods and food insecurity. Besides the road accidents, earthquake, landslides, floods, industrial hazards, cloud bursts, building collapse and fires are also the major disasters.

Local Geology

The mining lease area lies in the Giri river which is the main tributary of Yamuna River. The river Giri originates near Kharapathar in Jubbal Tehsil of the district Shimla at an elevation of about 3270 meters. The highest point of the mining lease area is 471 meters above MSL and the lowest point is 470 meters above MSL and the average width is 100 to 150 meters. However; the total width of river Giri in this part is approximately 270-340 meters.

The following are the different ingredient of the Giri River

Number of tributaries on right bank	7
Number of tributaries on left bank	6
Stream order upto to lease area	5
The Maximum length of watershed	122.00 Km
The Maximum breadth of watershed	42.00 Km
Length breadth ratio=2.90:1, Higher the ratio, The higher is the asymmetry of the watershed	
Profile of River Bed	
Elevation at origin	3270 m
Elevation at Mining area	471 to 470 m
Total length of river	160.00 Km
Total length of river upto auctioned area	148.00 Km
Cumulative elevation loss	2798 m
Average slope	1.83 % i.e. about 1.05°
Slope angle at auctioned area	1.25 % i.e. about 0.71°

The river has sufficient capacity to replenish almost equivalent to the stress on the lease area/material excavated up to a depth of one meter from the lease area. The Giri River cut its

course all along its length through the rocks of various formations as well as through the Siwalik formation. The Siwalik Group comprises sandstone, siltstone and clay/clay-stone alterations in the lower part, whereas the upper part is represented by conglomerates, pebbly bands and sandstone lenses, ranging in age from Middle Miocene to Lower Pleistocene. The river bed is occupied with recent deposits of minor minerals comprising sand, silt, gravel and pebbles of Newer Alluvium belonging to the Quaternary age. These sediments are deposited in the shape of channel bars, piedmont bars, flood plains and alluvial fan deposits. The Alluvium consists of loose sand, silt, clay, pebble, gravel, boulder and kankar. It unconformably overlies different formations in different areas. As the banks comprised of soft rocks hence, leading to higher deposition in this area. The river is approximately 270-340 meters wide at the applied mining lease area which gives a better chance of replenishment in this area. During the monsoon season, the stream carries a heavy sediment load and deposit it annually on the river bed, therefore, mineral excavated in a year shall be replenished during the monsoon season and hence, the whole block shall be exploited on yearly basis.

Giri river is one of the major tributaries of the Yamuna River system. The river Giri originates near Kharapathar in Jubbal Tehsil of the district Shimla at height of about 3270 mtrs. Drainage pattern of the Giri river is of Dendritic type. Its catchment is stretched between 30°04'30" to 31°15'40" N latitude and 77°00'00" to 77°43'45" E longitude covering an area catchment area of 2600 Sq.Km. which is further divided into 36 Sub-catchments. Its water has been diverted by putting a barrage at Dadahu to generate power at Girinagar and provide irrigation in and around Paonta valley. Keeping in river physics point of view and availability of the minerals, the Giri river can be divided into two portions i.e. upstream of the Dadahu Barrage (Giri-I) and downstream of the Dadahu Barrage (Giri-II).

Minor Mineral Potential in the River Bed

As the stream cut its course through the Himalayan Hills of district Shimla and this formation is the prominent source of annual deposition in the river beds. During flood season, the water carries heavy sediment load comprising gravels and sand which are deposited in the bed of stream. The following mineral potentials have been calculated based on the percentage of each mineral constituent like boulder, river borne bajri, sand upto a depth of one metre leaving the clay and silt as waste. The annual deposition of minor mineral in the river bed has been calculated by taking into consideration the annual deposition of about 5 Cms.

Chapter-2 Project Description

Portion of the River/Stream Recommended for Mineral Concession	Length of Area Recommended for Mineral Concession (in Km)	Average Width of Area Recommended for Mineral Concession (in Metre)	Area Recommended for Mineral Concession (in Sq. metre)	Mineable Minor Mineral Potential (in Metric Tonn) (60% of total mineral Potential)
From Downstream of Confluence Khorika Nala to Confluence with River Jalal near Dadahu	64	120	7680000	10368000

Table Showing Minor Mineral Potential and Annual Deposition of Giri-I River

Mineral Potential				
Boulder 35% (in MT)	River Born Bajri 30% (in MT)	Sand 25% (in MT)	Clay 10% (in MT)	Total Mineable Mineral Potential (in MT)
3628800	3110400	2592000	1036800	10368000
Annual Deposition 5%				
181440	155520	129600	51840	518400

Recommendation

It is evident from the above table that about 10368000 metric tonnes of different sizes of minor minerals are available up to depth of one metre in this portion of river bed in the Sirmour District. Similarly, the annual deposition of minor mineral in the river bed is approximately to the tune of 518400 metric tonnes. As such 10368000 metric tonnes of minor mineral can safely be lifted from the river bed. It is therefore recommended that mineral concession can be granted in the river bed From Downstream of Confluence Khorika Nala to Confluence with River Jalal near Dadahu. No concession may be granted in small tributaries for proper replenishment of River bed.

2.4 Quality of reserve

2.4.1 Method of estimation of reserve

The various constituents of river-borne deposits, such as sand, stone, and bajri, were considered for reserve calculation based on their size classification. However, since it is not feasible to delineate these units separately on the geological map, two pits measuring 1 x 1 x 1 meter were excavated at different locations within the mining lease area. The material

extracted from these pits was then separated into different sizes, and their respective percentages were calculated.

The applied area forms a part of stream bed covered with stone boulders, bajri and Sand deposit of channel alluvium. The proposed maximum annual extraction of RBM from the applied lease area is 66949 metric tonnes per annum. Due to excavation of minor mineral from the applied area up to a depth of 3 feet only, this section of a stream creates conditions conducive for deposition and the area get fully replenished by sediments transport during periods of higher flows i.e. during the monsoon/rainy seasons. It has been observed that in this type of stream, the area excavated get fully replenished with sediments during the rainy/monsoon season every year season (i.e. Non-working Season). As the mineral replenishes every year, the reserves are always renewable and shall not exhaust as such geological reserves in riverbed has no relevance to the production size. Thus, it is feasible to extract 66949 metric tonnes of RBM/year.

As the mineral replenishes every year, the reserves are always renewable and shall not exhaust as such, geological reserves in river beds have no relevance to the production size. The material excavated up to two meters depth would be replenished during the rainy season (i.e. Non-working Season). Thus, it is feasible to take out 66949 metric tons of RBM/year.

The average depth of sediments in the lease area is expected to be 1 meter as per formation gathered from public works department. The total lease area is 2.9755 Hectares thus, following table shows the geological reserves; -

Table-2.4 Summary of Geological reserves

Name of Mineral	Boulder (40%) M.T.	Bajri (30 %) M.T.	Sand (25%) M.T.	Silt/Clay (5 %)	Total M.T.
Quantity	26780	20085	16737	3347	66949

It has been experienced that during monsoon, that in this type of river, the replenishment factor is generally high. Therefore, no rotational mining is proposed because the material excavated up to the two-meter depth would be replenished during the raining season (i.e., Non- working Season).

Table-2.5 Showing Lease Area and the total mineable area available after leaving the no mining area

Total Lease Area	29755 sqm
Area Availability After Leaving no Mining Zone (IN MT)	29755 sqm

Table-2.6 Showing Reserve Estimation in the available Mineable Area

Total Mineable area available	29755 sqm
Depth	1 Mtr
Avg Specific Gravity	2.25
Mineable reserves (In Mt)	66949 MTPA

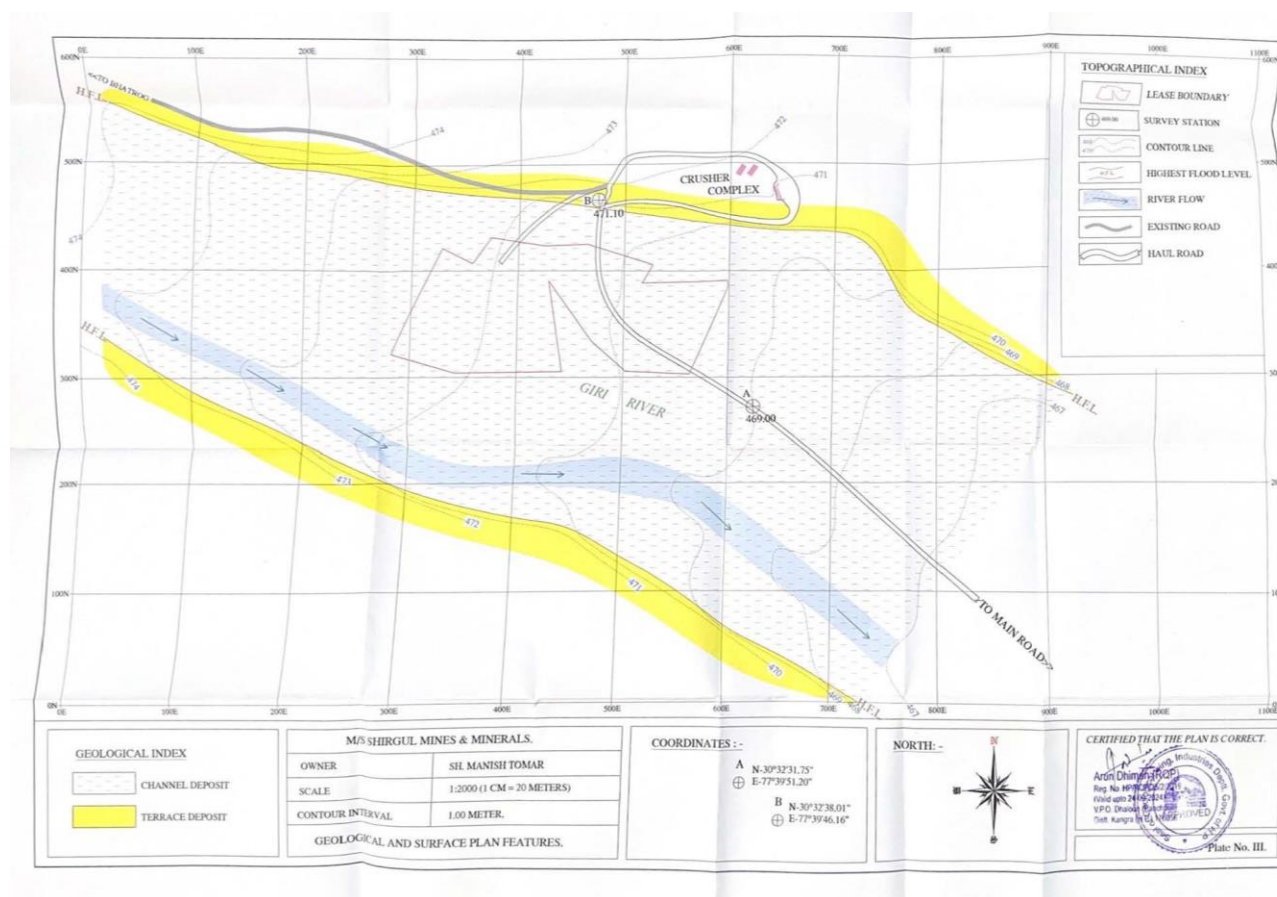


Figure 2.5: Surface Plan

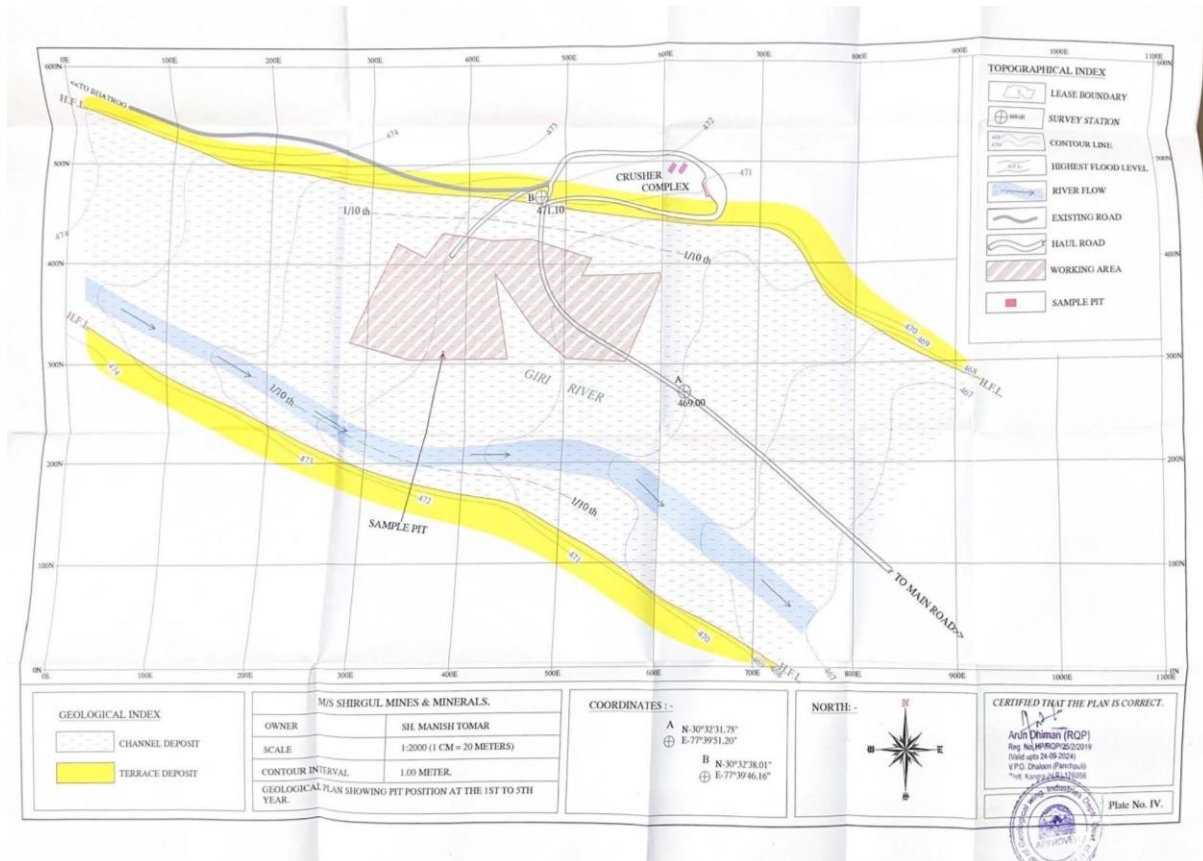


Figure 2.6- Five years mine planning

2.5 MINING

2.5.1 Proposed method of mining/extraction

The mining is confined to extraction of Stone, Sand and Bajri from the proposed mine site. The extracted minerals will be collected in their existing form and manually sorted based on size and market demand. Fine materials will be separated using a manual screener to sort various constituents before being loaded onto tractors/trucks for sale.

Mining operations will be carried out manually, and no blasting will be necessary as the mining will take place in the riverbed. The mining will be performed in a manner that ensures that pits are not made deeper than one meter from the surface. Additionally, the mining activity will only occur during the dry season.

Mine development and plan of progressive mining

The purpose of lease is to use the material in the proposed stone crusher as the source of raw material for manufacturing of grit. As such, the primary raw material required for stone crusher is stone and bajri. The river borne material contains sand, bajri and mixture of clay/

silt. The clay/silt does not have any market value and this material will be used for rehabilitation work, in order to calculate the mineable reserves, the following points are taken in to consideration.

1. A Geological map is prepared and main Litho-units were marked on the plan to know the surface spread of each unit.
2. The different constituents of river borne deposits such as boulder, bajri, sand and silt /clay based on size classification were considered for reserve calculation. One sample pit with dimension of 1x1x1 meter was dug in the lease area and material so excavated was separated into different size and their percentage was worked out and this percentage was taken in to account during calculation of reserves.
3. Keeping in view of the replenishment factor, no rotational mining has been proposed. whole block shall be explored in every year
4. The mining shall be undertaken manually and mechanical mining may be undertaken if permitted by the competent authority.
5. Since the applied mining lease area lies within the HFL and as per the riverbed mining policy, 2003, the whole of the mining lease area measuring 23755 Sq.m. shall be available for mining operations.
6. The average specific gravity of the minor mineral has been taken as 2.25 for calculation of reserves and one-meter depth is taken for calculation of reserves.
7. The total available mineable area is 100% of the total applied mining lease area
8. The mineable reserves have been calculated as per the available reserves in the mineable area after leaving no mining areas.
9. Mining of Sand, Stone and Bajri will be carried out only up to a depth of 1 m (3 feet) depth. The lease area is a river bed which is replenished during monsoon as there is very high catchment and velocity of river to carry load the annual replenishment of the material depends up on the discharge, grade of river and geology of catchment area.
10. The highest point of mining lease area is 471 meters above MSL and lowest point is 470 meters above MSL and average width is 100 to 150 mtrs. However; the total width of river Giri in this part is approximately 270-340 meters.

11. The depth of the mining in the river bed shall not exceed 1 metre or water level whichever is less.

12. Mining will be done as per approved mining plan.

2.5.2 Production detail

Giri River gets replenishment during monsoon and winter rains when the river gets heavy load. The river level is raised up to 1.5 to 2.00 meters sometimes even during the non-rainy season whenever the gates of Jataun Barrage are opened for the de-silting purpose. The mining operations have been planned in the full block up to the depth of 1.00 metres to give a better chance for complete replenishment. The worked-out block shall get replenishment during monsoon and winter rainy seasons for recharging the worked-out area and the worked-out area shall be fully replenished. Total 29755 Sq. meters of the area shall be available for work every year.

Proposed production expected as in table below:

Table 2.7, Year wise Production detail

Year	Area for mining in Sqm.	Quantity of Sand (M.T.)	Quantity of Stone (M.T.)	Quantity of Bajri (M.T.)	Quantity of Silt/ Clay (M.T.)	Total (M.T.)
		25 %	40%	30%	5%	
1st year	29755	16737	26780	20085	3347	66949
2nd year	29755	16737	26780	20085	3347	66949
3rd Year	29755	16737	26780	20085	3347	66949
4th Year	29755	16737	26780	20085	3347	66949
5th Year	29755	16737	26780	20085	3347	66949
Total		83685	133900	100425	16735	334745

**Note: The proposed production is 66949 MTPA.*

Conceptual mine development

The applied area is part of a streambed covered with stone boulders, bajri, and sand deposits from channel alluvium. The proposed maximum annual extraction of riverbed material (RBM) from the lease area is 66,949 metric tonnes per annum. Since the excavation of minor minerals is limited to a depth of only 3 feet, this section of the stream creates favorable conditions for sediment deposition, ensuring that the area is fully replenished by

transported sediments during periods of higher flow, particularly in the monsoon/rainy season.

Observations indicate that in this type of stream, the excavated area gets completely replenished with sediments each year during the rainy/monsoon season (i.e., the non-working season). As the mineral replenishes annually, the reserves remain renewable and will not be exhausted. Therefore, geological reserves in the riverbed have no direct impact on production capacity.

Thus, it is feasible to extract 66,949 metric tonnes of RBM per year. Since the mineral is naturally replenished each year, the reserves remain sustainable. Excavated material up to a depth of two meters will be replenished during the rainy season (non-working season), making it viable to extract 66,949 metric tonnes of RBM annually.

2.5.1 The Competency of River/ Stream at the Mining Site

The competency of a river is a measure of the maximum size of the river-borne material a river is capable of transporting and it is directly dependent upon the velocity of the flow of the river. The competence of a river increases as the square of its velocity. The maximum load of solid particles a river can transport is termed its capacity. The greater the discharge in the river, the greater shall be the capacity for hauling the sediments. The higher velocities are developed when the rivers are in a high stage. In the present case, on average, the competency of the river at the mine site is 25 to 15cm x 20 to 10 cm x 16 x 8 cm.

2.5.2 Meandering Pattern of the River near mining site

The major river in the study area is antecedent in nature. The sinuosity, braiding and meandering in the river course is generally noticed, although, at some places, they are straight and narrow. Due to the increase of the drainage area and the discharge, the river valley becomes wider in the downstream side with a generally flattened gradient. During the monsoons, the flood water level raises about 1.50 mts. to 2.00 meters for a short spell of time. The landform being depositional, the meandering thread constantly changes during the rains depending upon the water level. The highest flood level is the maximum rise level and the lowest flood level is the riverbed level.

2.5.3 Description of the Ground water table in the Mining Area, before and Post Monsoon.

The riverbed level in the mine lease area varies between 471 AMSL to 470m AMSL and the average bed level is 470.00m AMSL as is evident from the surface area map. The mine shall be worked up in 3 feet depth below the natural surface level of the ground at any section. The area is located in the Siwalik system which consists of a boulders bed and has minimum water retention capacity. The area is hilly terrain as such cannot have any regular water table but the percolated water come out the shape of spring at those places where there is non-pervious formation is available from further percolation- After the monsoon period, the springs can be seen functional in number of places but the intensity of discharge intensity of discharge start reducing after September and most of the springs goes dry after November and the major sources of water remain the course of the Giri River where the water is available along the course of a river where the well-developed. As per information gathered as well as based on the previous and ongoing development works like construction of Bridges and Bore wells by the HPPWD and I & PH departments respectively, the average depth of water table is more than five meters Thus, the groundwater table shall not intersect with the bottom of mining pits.

2.5.4 Life of mine

It is not practically forecast the anticipated life of mine as area shall be replenished each year.

2.5.5 Waste Management

No liquid effluent will be generated during this process. Approximately 3,347 TPA of waste material present in the mining lease area in the form of silt is inseparable; however, the leaseholder shall dump any waste material generated near the stone crusher site and explore the possibility of using it for road filling, granular sub-base (GSB) in road works, plantation works, etc.

2.5.6 Drilling and Blasting

Not required.

2.6 General Features

The mining lease area lies in the Giri river which is the main tributary of Yamuna river. The river Giri originates near Kharapathar in Jubbal Tehsil of the district Shimla at an elevation of about 3270 meters. The highest point of the mining lease area is 471 meters above MSL and the lowest point is 470 meters above MSL and the average width is 100 to 150 meters. However; the total width of river Giri in this part is approximately 270-340 meters

2.6.1 Surface Drainage Pattern

The mining lease area lies in the Giri river which is the main tributary of Yamuna River. The Drainage pattern of the Giri River is of dendritic type and ultimately it joins the River Yamuna near Paonta Sahib and forms a part of the Yamuna drainage system. The river forms a dendritic to a sub-dendrite type of drainage pattern. The river Giri originates near Kharapathar in Jubbal Tehsil of the district Shimla at a height of about 3270 meters. About 3270 meters above mean sea level. The highest point of mining lease area is 471 meters above MSL and the lowest point is 470 meters

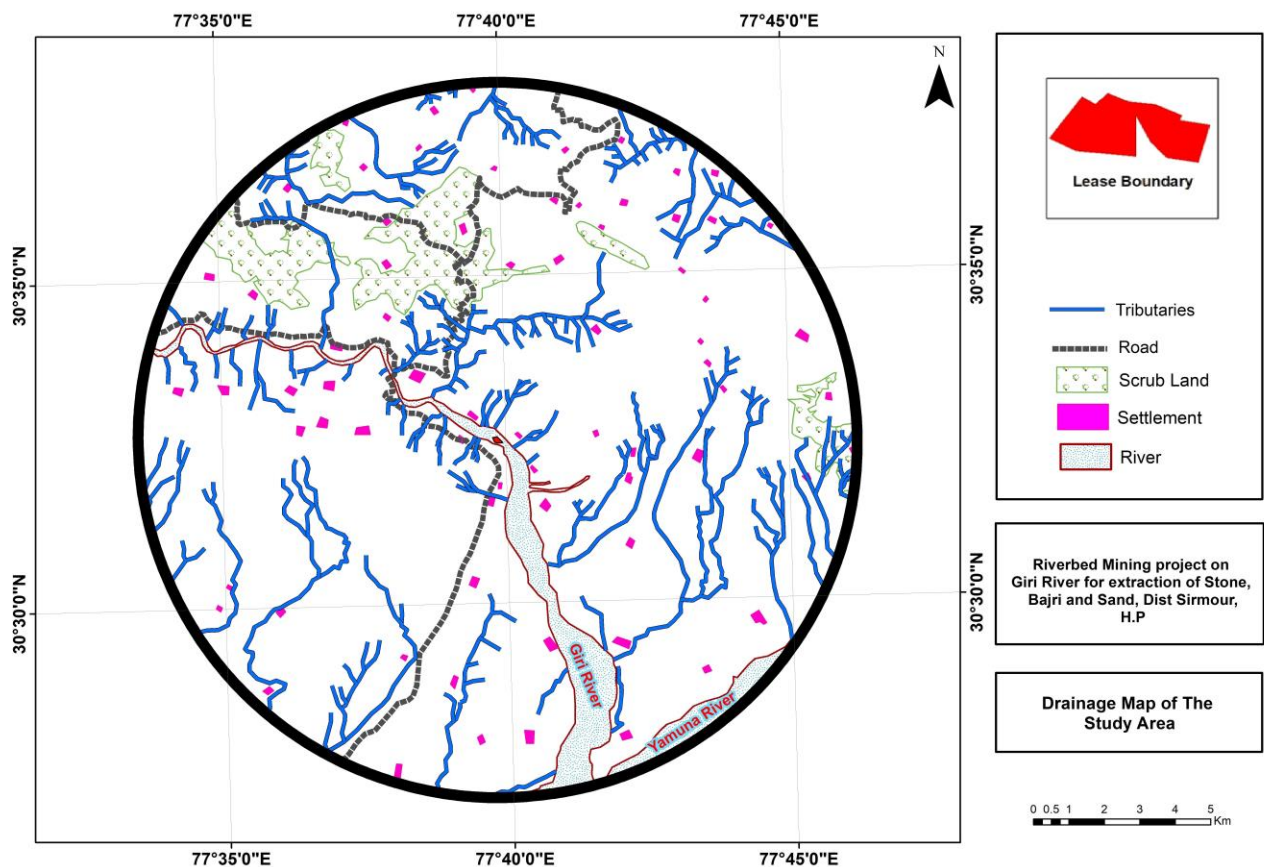


Figure 2.7: Drainage Pattern

2.6.2 Vehicular Traffic Density

Traffic study is carried out by understanding the existing carrying capacity of the road in the vicinity of site and flow towards Highway road 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-2.7 (i)** and shown in traffic density map as **Figure 2.7**.

Table 2.7 (i) Existing Traffic Scenario & LOS

Road	V	C	Existing V/C Ratio	LOS
SH-1(Paonta Sahib-Purwala-Bharii Road)	750	7000	0.10	A
Village metallic road Bhatrog-Dubri road	400	5200	0.07	A

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

The existing Level of Service near Village is "A" i.e. excellent and at highway is "A" i.e. excellent when compared with LOS recommended by IRC, as given in **Table-2.7 (ii)**.

Table 2.7 (ii) V/C Ratio & LOS

V/C	LOS	Performance
0.0 - 0.2	A	Excellent
0.2 - 0.4	B	Very Good
0.4 - 0.6	C	Good / Average / Fair
0.6 - 0.8	D	Poor
0.8 - 1.0	E	Very Poor

*Note: Capacity as per IRC: 64-1990

During Mine operation

Total Capacity of mine	: 66,949 TPA
No. of working days	: 270 days
Total Capacity of mine/day	: 248 tonnes
Truck Capacity	: 9 metric tonnes
No. of truck/day	: 28 trucks
PCU/day (28*3)	: 84

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

Table 2.7 (iii) Additional Traffic Scenario & LOS due to proposed project

Road	V	C	Existing V/C Ratio	LOS
SH-1(Paonta Sahib-Purwala-Bharii Road)	750 + 84= 834	7000	0.11	A
Village metallic road Bhatrog-Dubri road	400 + 84 = 484	5200	0.09	A

From the above analysis it can be seen that the V/C ratio will be modified from 0.10 to 0.11 at SH-1(Paonta Sahib- Purwala-Bharii Road) with LOS being “A” and will be modified from 0.07 to 0.09 at Village metallic road Bhatrog-Dubri road with LOS remain A respectively. So the additional load on the carrying capacity will be affected to a minimum level

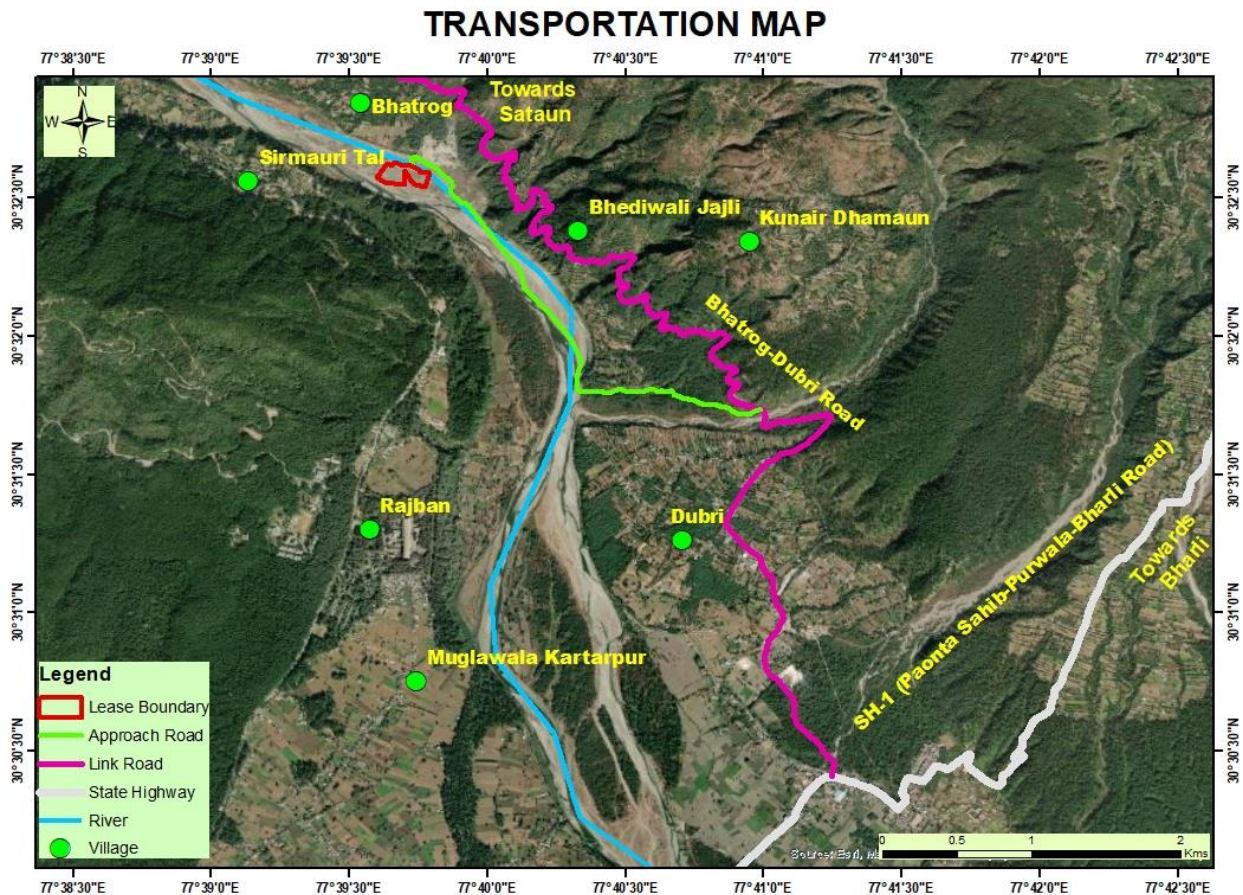


Figure 2.8: Traffic Route Map

2.6.3 Beneficiation/ Processing

No processing of mineral will be done in the mine.

2.6.4 Utilities

2.6.4.1 Water Requirement

Water consumption will be there mainly for dust suppression, green belt development, drinking and other domestic purpose during mining operations. About 3.0 KLD will be required for dust suppression, 2.925 KLD for domestic purpose and 0.5 KLD for plantation. Total water requirement is about 6.425 KLD. The water will be sourced from Giri River through tanker supply. Permission will be obtained from concerned IPH department.

The breakup of total water requirement of the mines is given in Table-2.9.

Table-2.9: Water Calculation

Activity	Calculation	Round off Figure in KLD
Drinking	@ 45 lpcd per labor $60 \times 45 / 1000 = 2.925$ KLD	2.925 KLD
Dust suppression	Total haulage road to be water sprinkled = $600 \text{ m} \times 2.5 \text{ m} \times 2 / 1000 = 3.750$ KLD	3.750 KLD
Plantation	250 Plants 1 Litres/Plant/Day 250×0.002	0.5 KLD
Total		6.425 KLD

2.6.4.2 Power Supply

Operations will not require any electrical power as mining will only take place during the daytime. The office will only require minimal power which will be obtained from the General Electric supply in the area.

2.6.4.3 Employment Generation

The employment of the mine is as below:

- General management and mines office.
- Time keeping, Personal welfare, Training and mines safety.
- Mining operations
- Stores, minor repairs and garage.

Management and Supervisory Personnel: The manpower requirement is given below:

Table 2.10: Manpower Requirement

SI. No	Qualification	No. of persons
1.	Mining Engineer	02
2	Geologist	01
3	Skilled workers	32
4	Unskilled workers	30
Total		65

2.6.4.4 Infrastructure:

The site services like rest room shelter, first aid box, drinking water & facilities will be provide to workers at the mine site.

Mining Equipment's

Mining shall be conducted through open cast manual/semi-mechanized methods without the use of drilling and blasting, as permitted by the government. Excavators shall be deployed on a hire basis as and when required for the removal of overburden.

3.0 INTRODUCTION

The main objective of describing the environment which may be potentially affected, are i) To assess present environmental quality and the environmental impacts and ii) to identify environmentally significant factors that could preclude mine development. Mining activities affect the existing status of environment at site. In order to maintain the existing environmental status at mining site it is essential study existing environmental status and assess the impact of upcoming project on various environmental components.

This Chapter gives idea of description of environment status of the study area and this will be helpful for assessment of impact on the environment due to proposed mining activities.

Baseline environmental status in and around proposed mining lease area describe the existing conditions of air, noise, water, soil, biological and socio-economic environment. The proposed project as a center, a radial distance of 10 km is considered as study area for baseline data collection and environmental monitoring. The data was collected by P & M Solutions for various environmental attributes so as to compute the impacts that are likely to arise due to proposed development activity.

3.0.1 Study area & study period

The proposed project as a center, a radial distance of 10 km is considered as study area for baseline data collection and environmental monitoring. The baseline environment quality was carried out over a radial distance of 10 km around the mining lease area during post monsoon season of 2024 covering the months of Oct 2024 to Dec 2024.

3.0.2 METHODOLOGY

Base line attributes like ambient air, Water, Metrology, Noise, Soil, Ecology and Biodiversity & Socio Economy condition were collected as per approved term of reference. Secondary data was also collected from various government department as well as local people. Methodology adopted in this study is as follows.

- ✓ By setting up metrological station near project site
- ✓ Collection of site-specific meteorological data at the mine site
- ✓ Installation of respiratory dust samplers (for PM₁₀, PM_{2.5}) at different location in the study area for the collection of primary air pollutant and analyze the existing air conditions.
- ✓ Carrying out a detailed biological study for the Core and Buffer Zone

- ✓ Soil sample were collected from various location in the study area to analyze physical and chemical characteristics for assessment of impact on soil.
- ✓ Ground water samples were also collected from the various locations in the study area for analysing the existing water quality in the study area.
- ✓ Noise measurement has been done in core zone as well as buffer zone to analyze the existing situation in the study area.
- ✓ Literature review that includes identification of relevant data and articles from various publications, various government agencies and other sources for socio-economy, demography has been done with primary data collection in 10 km of the study area.
- ✓ Existing pollution load has been also identified in the buffer zone due to similar activities.

Accordingly, field studies were carried out during the study period (Oct 2024 to Dec 2024) to establish the existing baseline conditions.

3.1 Land Environment of the Study area

Land use

Land use involves the management and modification of natural environment or wilderness into built environment such as settlements and semi-natural habitats such as arable fields, pastures, and managed woods. It also has been defined as "the total of arrangements, activities, and inputs that people undertake in a certain land cover type.

Land cover

Land cover is the physical material at the surface of the earth. Land covers include grass, asphalt, trees, bare ground, water, etc. Earth cover is the expression used by ecologist Frederick Edward Clements that has its closest modern equivalent being vegetation.

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 covered with forest. The land use details are given in **Table- 3.1** and shown in **Figure-3.1**.

Table 3.1 Land use Details

SL. No	LU Class	Area (ha)
1	Scrub land	1840.90
2	Forest	19388.69
3	Settlement	259.58

4	River	1417.84
5	Agriculture	9273.34
Total Area		32180.35

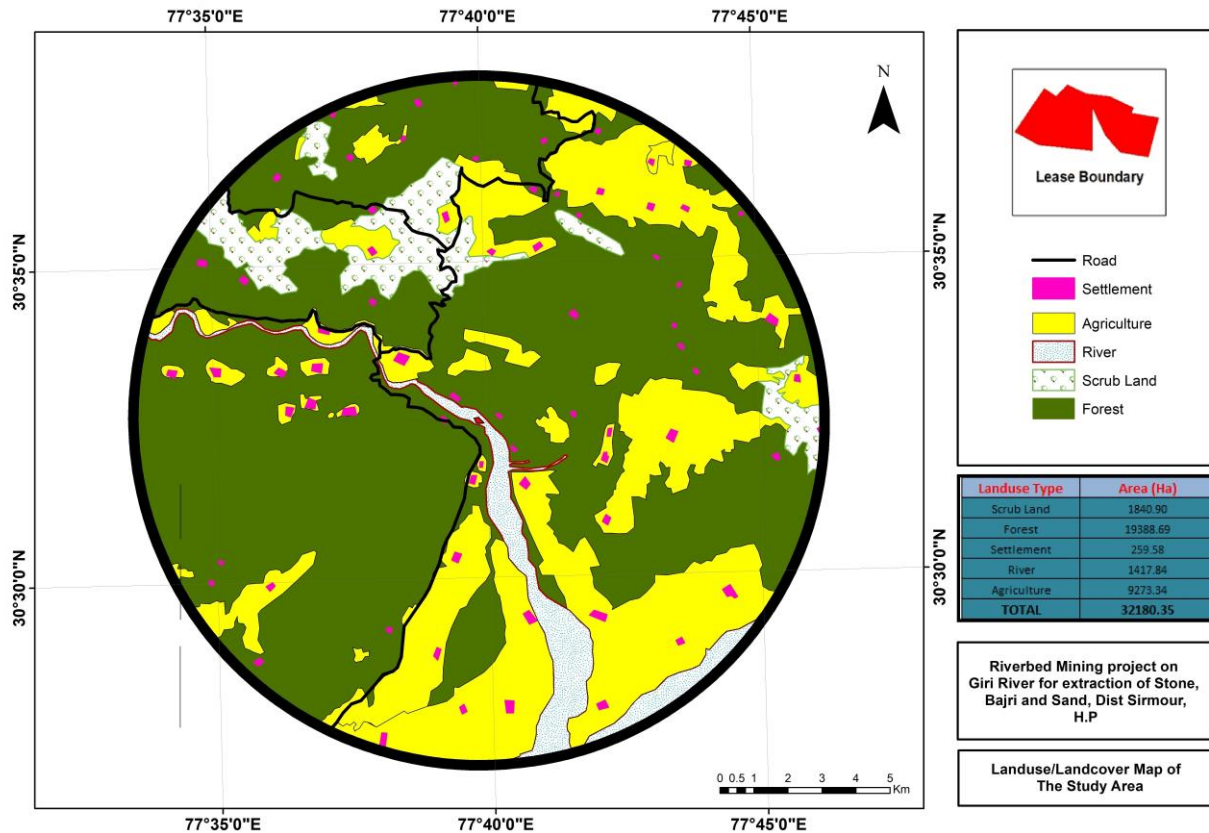


Figure 3.1 Land use details

3.2 Water Environment

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 construction, drinking, cooling and horticulture purpose.

a. Ground water

Three water samples were collected from the study area. The physico-chemical analysis of the water samples is given

The water quality within the 10 km impact zone was monitored during December, 2024. The water sampling locations marked within the study are presented in Table 3.2 and Figure 3.2

and the result of the monitoring and analysis are presented in the **Table 3.3 to Table 3.4** showing Water Quality Monitoring Locations marked within the Study Area.

Table 3.2 Ground water Location

Location	Station name	Coordinates	Distance (approx.) (km) & direction from the lease area	
GWQ1	Project site	30°32'36.73"N 77°39'38.30"E	-	-
GWQ2	Bhatrog	30°32'54.69"N 77°39'28.56"E	0.6	NE
GWQ3	Bhediwali Jajli	30°32'18.31"N 77°40'17.04"E	0.93	SE
GWQ4	Sataun	30°33'27.93"N 77°38'15.71"E	2.67	NW
GWQ5	Khara RF near the Road-NH 707	30°31'28.69"N, 77°39'32.00"E	1.40	SW
GWQ6	Poka	30°33'21.33"N 77°39'47.22"E	1.35	North

Ground Water Monitoring Location Map of 10 Km Buffer for Extraction of Minor Mineral (Stone, Sand & Bajri), Measuring 2.9755 Hectare (Private land, River Bed) Falling in Mauza/Mohal Bhatrog, Tehsil Paonta Sahib, District Sirmour,HP : M/s Shirgul Mines & Mineral, Part II, Partner Sh. Rishi Kumar Aggarwal, Sh Naveen Kumar, Sh Sher Singh Negi & Sh Manish Kumar

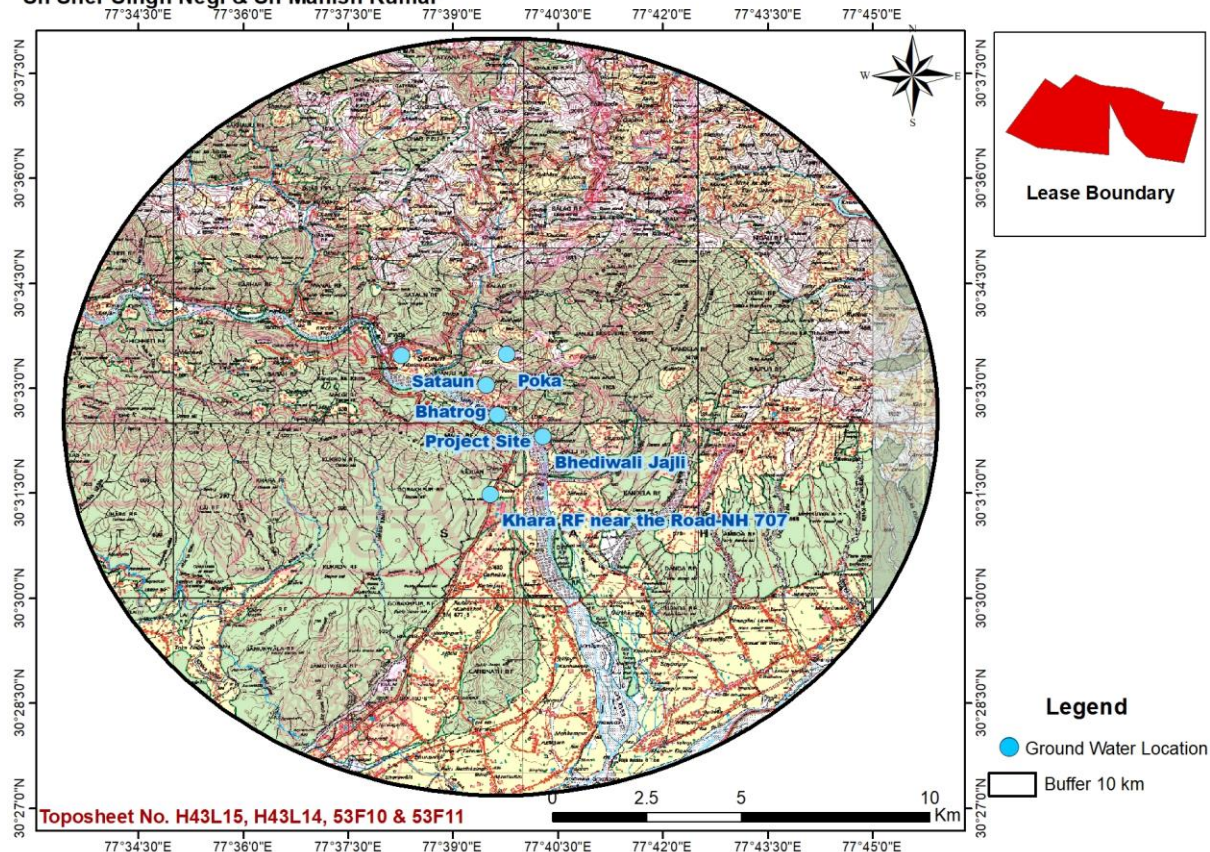


Figure 3.2(a) Ground Water sampling Locations

Table 3.3 Physico-chemical properties of ground water Study Period, December 2024

S. No.	Parameter	Unit	GW1 Project Site	GW2 Bhatrog	GW3 Bhediwali Jajli	GW4 Sataun	GW5 Khara RF near the Road-NH 707	GW6 Poka	Limit (as per IS:10500)- 2012/REV:2023	
									Desirable	Permissible
1	Colour	Hazen	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	5	15
2	Odour	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	-
3	Taste	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	-
4	Turbidity	NTU	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1	5
5	pH	-	7.40	7.68	7.54	7.27	7.36	7.25	6.5-8.5	No Relaxation
6	Total Hardness (as CaCO ₃)	mg/l	178	165	187	172	158	189	200	600
7	Iron (as Fe)	mg/l	0.118	0.130	0.132	0.141	0.127	0.148	1.0	No Relaxation
8	Chlorides (as Cl)	mg/l	12.6	18.0	18.2	17.5	16.8	14.6	250	1000
9	Fluoride (as F)	mg/l	0.25	0.32	0.21	0.24	0.25	0.18	1	1.5
10	TDS	mg/l	320	348	325	341	378	345	500	2000
11	Calcium(as Ca ²⁺)	mg/l	51.3	64.1	56.0	62.6	51.0	61.4	75	200
12	Magnesium (as Mg ²⁺)	mg/l	17.2	18.2	12.4	15.5	6.89	18.0	30	100
13	Copper (as Cu)	mg/l	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	1.5
14	Manganese(as Mn)	mg/l	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.1	0.3
15	Sulphate (as SO ₄)	mg/l	27.8	25.0	28.0	26.0	26.0	24.3	200	400
16	Nitrate(as NO ₃)	mg/l	2.54	2.76	2.16	2.08	2.55	3.40	45	No Relaxation
18	Mercury (as Hg)	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	No Relaxation
19	Cadmium (as Cd)	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.003	No Relaxation
20	Selenium (as Se)	mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	No Relaxation
21	Arsenic (as As)	mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	No Relaxation
22	Cyanide (as CN)	mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.05	No Relaxation
23	Lead (as Pb)	mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	No Relaxation
24	Zinc (as Zn)	mg/l	0.131	0.125	0.142	0.136	0.136	0.128	5	15
25	Anionic Detergent (as MBAS)	mg/l	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.2	1
26	Chromium (as Cr ⁶⁺)	mg/l	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	No Relaxation
27	Mineral oil	mg/l	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0.5	No Relaxation
28	Alkalinity as CaCO ₃	mg/l	188	196	189	185	174	164	200	600
29	Aluminium (as Al)	mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.03	0.2
30	Boron (as B)	mg/l	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.5	2.4
31	Total Coliform	MPN	Absent	Absent	Absent	Absent	Absent	Absent	Absent/100ml	

		/100ml							
32	<i>E. coli</i>	E.coli /100ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent/100ml

Observation:

Analysis results of ground water reveal the following: -

- pH varies from 7.25 to 7.68
- Total hardness varies from 158 mg/l to 189 mg/l
- Total dissolved solids vary from 320 mg/l to 378 mg/l

The ground water from all sources remains suitable for drinking purposes as all the constituents are within the limits prescribed by drinking water standards promulgated by Indian Standards IS: 10500.

Fluorides and nitrates are within the permissible limits. Most of the parameter in ground water sources are well within the permissible limits as per IS – 10500, drinking water standards.

b. Surface water

Three water samples were collected from the study area. The physico-chemical analysis of the water samples is given in the Table below

Table 3.4 Surface water sampling locations

Location	Station Name	Approx. Distance (km)	Direction	Coordinates
SWQ1	Giri River Upstream	0.50	NW	30°32'40.59"N 77°39'18.98"E
SWQ2	Giri River downstream	0.50	SE	30°32'18.50"N 77°39'58.22"E
SWQ3	Project Site	-	-	30°32'31.70"N 77°39'37.49"E

Surface Water Monitoring Location Map of 10 Km Buffer for Extraction of Minor Mineral (Stone, Sand & Bajri), Measuring 2.9755 Hectare (Private land, River Bed) Falling in Mauza/Mohal Bhatrog, Tehsil Paonta Sahib, District Sirmour, HP : M/s Shirlgul Mines & Mineral, Part II, Partner Sh. Rishi Kumar Aggarwal, Sh Naveen Kumar, Sh Sher Singh Negi & Sh Manish Kumar

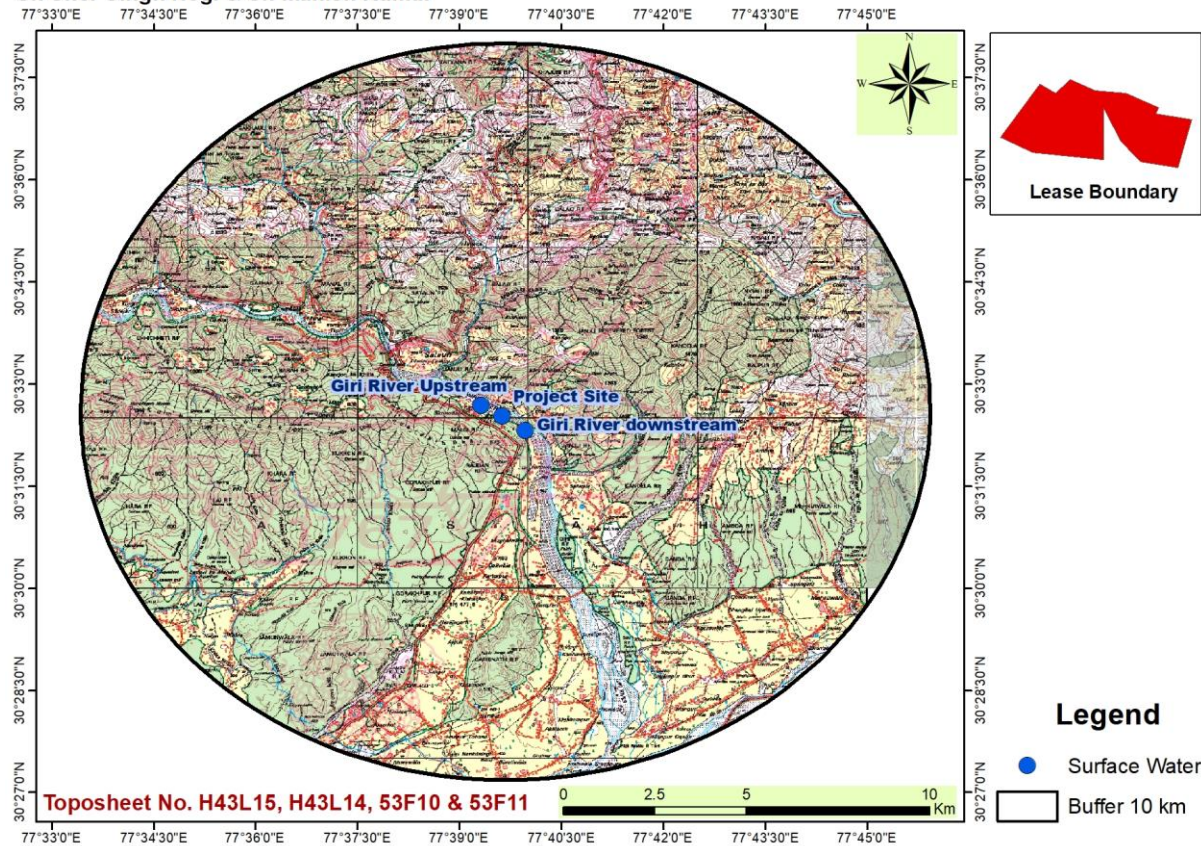


Figure 3.2(b) Ground Water sampling Locations

Table 3.5, Physico-chemical properties of surface water

S. No	Parameter	Test Method	Units	Giri River Upstream	Giri River downstream	Project Site
1.	pH (at 25 ⁰ C)	IS:3025(Part-11)	---	7.54	7.89	7.47
2.	Temperature	IS:3025(Part-9)	⁰ C	12.0	14.0	23.0
3.	Turbidity	IS:3025(Part-10)	NTU	1.0	1.2	2.0
4.	Electric Conductivity @25 ⁰ C	IS:3025(Part-14)	μS/cm	220.0	260.0	302.0
5.	Sulphate (SO ₄)	IS:3025(Part-24)	mg/l	6.0	6.40	5.10
6.	Nitrate (NO ₃)	IS:3025(Part-34)	mg/l	1.50	1.86	2.23
7.	Total Hardness (as CaCO ₃)	IS:3025(Part-21)	mg/l	182.0	198.0	126.0
8.	Chloride (as Cl)	IS:3025(Part-32)	mg/l	11.0	15.0	12.0
9.	Fluoride (as F)	APHA 4500F	mg/l	0.12	0.16	0.28
10.	COD (as O ₂)	APHA-5220 B	mg/l	14.0	18.0	24.0
11.	Iron (as Fe)	IS:3025(Part-53)	mg/l	0.06	0.08	0.15
12.	Dissolve Oxygen	IS-3025(Part-38)	mg/l	7.4	7.2	7.0

13.	Total Dissolved Solid	IS:3025(Part-16)	mg/l	140.0	157.0	198.0
14.	BOD (3 days at 27°C)	IS:3025 (P-44)	mg/l	2.2	2.4	4.5
15.	Calcium (as Ca)	IS:3025(Part-40)	mg/l	102.0	110.0	92.0
16.	Magnesium (as Mg)	IS:3025(Part-46)	mg/l	50.0	56.0	52.8
17.	Arsenic (as As)	IS:3025(Part-37)	mg/l	BDL(<0.01)	BDL (<0.01)	BDL (<0.01)
18.	Lead (as Pb)	IS:3025(Part-47)	mg/l	BDL(<0.01)	BDL (<0.01)	BDL (<0.01)
19.	Copper (as Cu)	IS:3025(Part-42)	mg/l	BDL(<0.010)	BDL (<0.05)	BDL (<0.05)
20.	Zinc (as Zn)	IS:3025(Part-49)	mg/l	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)
21.	Manganese (as Mn)	IS:3025(Part-59)	mg/l	BDL(<0.010)	BDL (<0.10)	BDL (<0.10)
22.	Total Chromium (as Cr)	IS:3025(Part-52)	mg/l	BDL(<0.01)	BDL (<0.05)	BDL (<0.05)
23.	Sodium (as Na)	IS:3025(Part-45)	mg/l	2.28	2.56	3.80
24.	Potassium (as K)	IS:3025(Part-45)	mg/l	0.14	0.20	0.32
25.	Total Alkalinity (as CaCO ₃)	IS:3025(Part-23)	mg/l	146.0	157.0	138.0
26.	Phosphate (as P)	IS:3025(Part-31)	mg/l	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)
27.	Nitrite (as NO ₂)	IS:3025(Part-34)	mg/l	BDL(<0.05)	BDL(<0.05)	BDL(<0.05)
28.	Total Suspended Solid	IS:3025(Part-17)	mg/l	5.4	5.6	7.5
29.	Faecal Coliform	IS-1622	MPN/100 ml	0.98×10^3	1.2×10^3	1.2×10^3
30.	Total Coliform	IS-1622	MPN/100 ml	1.2×10^3	1.5×10^3	2.6×10^3

3.2.1 Sampling frequency

Parameters for analysis of water quality were selected based on the utility of the particular source of water as per CPCB guidance. 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.

As per the standard practice, one sample from each station was taken each month in the study period. Sampling was done by standard sampling technique as per the Standard Methods. Necessary precautions were taken for preservation of samples.

The surface water quality is compared with CPCB water quality criteria mentioned in **Table 3.6** below:

Table 3.6: 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 after conventional treatment and	C	Total Coliforms Organism MPN/100ml shall be 5000 or less; pH between 6 to 9;

disinfection		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

As per the standard practice, one sample from each station was taken each month in the study period. Sampling was done by standard sampling technique as per the Standard Methods. Necessary precautions were taken for preservation of samples.

Observation:

The analysis results indicate that the pH ranges between 7.47 and 7.89.

Dissolved Oxygen (DO) was observed in the range of 7.0 to 7.4 mg/l.

Chlorides were found to be in the range of 11-15 mg/l

Sulphates were found to be in the range of 5.10-6.40 mg/l respectively.

Based on the results it is evident that most of the parameters of the samples comply with 'Category 'B' standards of CPCB indicating their suitability for Drinking water source without conventional treatment but after disinfection.

3.3 Air Environment

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.

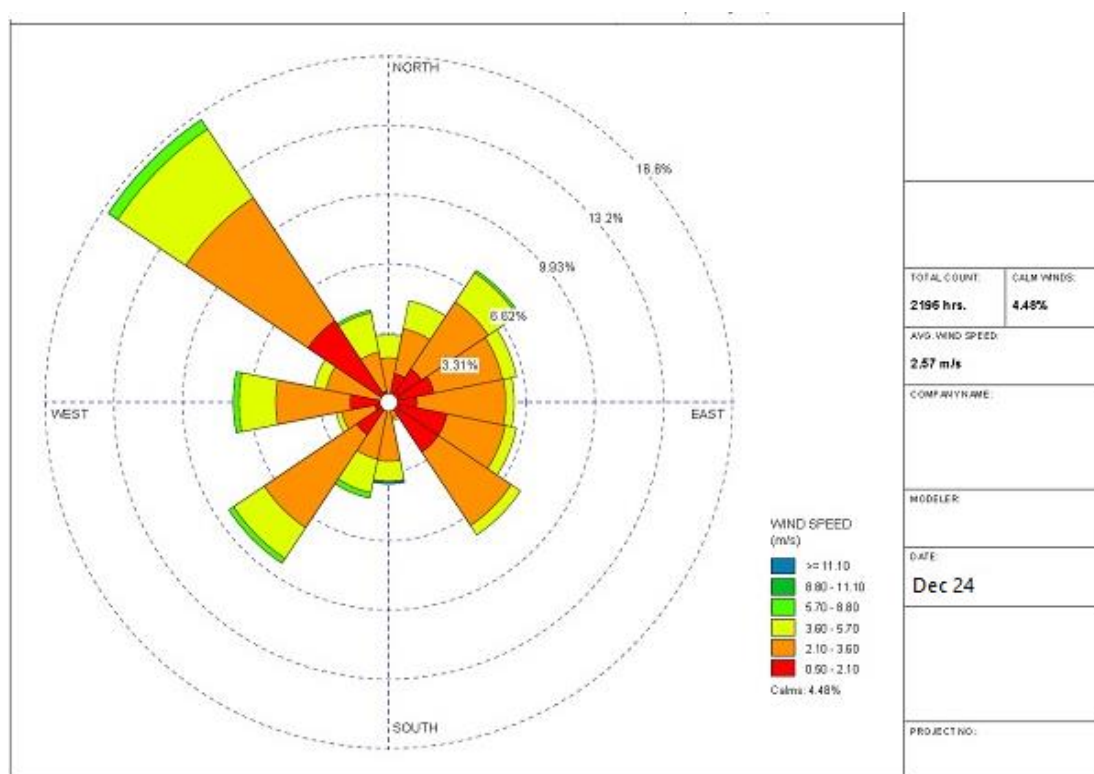
A meteorological station was set up at the proposed mine premises. Meteorological data was generated during the pre -monsoon monitoring period and shown in **Table-3.7**

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

Table-3.7 Summarized Project site Meteorological Data

Month	Wind Speed (km/h)		Temperature (°C)			Rainfall (mm)	
	Max	Avg	Max	Min	Avg	Rain (mm)	No. of rainy Days
Oct 2024	21.8	13.1	35	21	30	7.2	7
Nov. 2024	22.5	13.3	38	25	34	13.7	8
Dec. 2024	21.2	13.4	39	27	35	193.9	18



a. Wind rose diagram

Figure 3.3 Wind rose diagram

Observations:

The prominent seasonal wind direction is from NW & SW contributing more than / approximately 30 % of the total.

Method of monitoring

The Central Pollution Control Board (CPCB) has published comprehensive document on emission testing regulations (“Emission Regulations Part-3, 985”). Those procedures relevant to the particulate monitoring are summarized below:

i. Particulate Matter (PM):-

The CPCB method and IS 5182 (Part-XXIII) adopt a very similar approach to particulate sampling. There are some differences in the expressions used, but they are generally of no practical significance. It is recommended that CPCB method is adapted.

ii. Equipment calculation:

For accurate testing of emission sources, the components of the sampling train is calibrated by outsource and supplier (Master Calibrator) standards and solutions are used, calibrated under certified reference material. The Ambient air quality monitoring locations are marked in **figure 3.4**.

3.3.4 Selection Criteria for Monitoring Location

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 including 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 was carried out twice a week with a frequency of 24 hours for three months during the study period. The common air pollutant namely Particulate Matter-10 (PM₁₀) & PM_{2.5}, Sulphur-dioxide (SO₂) and Oxides of Nitrogen (NO₂) has been measured through a planned field monitoring.

The baseline values of the air pollutants of concern are presented in Tables below statistical parameters like minimum, maximum, average and 98th percentiles have been computed from the observed field data for all sampling stations and are given **Table-3.8**. These are compared with the standards prescribed by Central Pollution Control Board (CPCB) for industrial, residential and rural zone.

Table-3.8 Ambient air quality monitoring stations

Location	Station name	Coordinates	Distance (approx.) (km) & direction from the lease area	
AQ1	Project site	30°32'36.73"N 77°39'38.30"E	-	-
AQ2	Bhatrog	30°32'54.69"N 77°39'28.56"E	0.6	NE

AQ3	Bhediwali Jajli	30°32'18.31"N 77°40'17.04"E	0.93	SE
AQ4	Sataun	30°33'27.93"N 77°38'15.71"E	2.67	NW
AQ5	Khara RF near the Road-NH 707	30°31'28.69"N, 77°39'32.00"E	1.40	SW
AQ6	Poka	30°33'21.33"N 77°39'47.22"E	1.35	North
AQ7	Kunair Dhamaun	30°32'22.07"N 77°41'5.35"E	3.56	East
AQ8	Bangran	30°29'56.61"N 77°40'7.24"E	3.61	South

AAQ Monitoring Location Map of 10 Km Buffer for Extraction of Minor Mineral (Stone, Sand & Bajri), Measuring 2.9755 Hectare (Private land, River Bed) Falling in Mauza/Mohal Bhatrog, Tehsil Paonta Sahib, District Sirmour, HP : M/s Shirgul Mines & Mineral, Part II, Partner Sh. Rishi Kumar Aggarwal, Sh Naveen Kumar, Sh Sher Singh Negi & Sh Manish Kumar

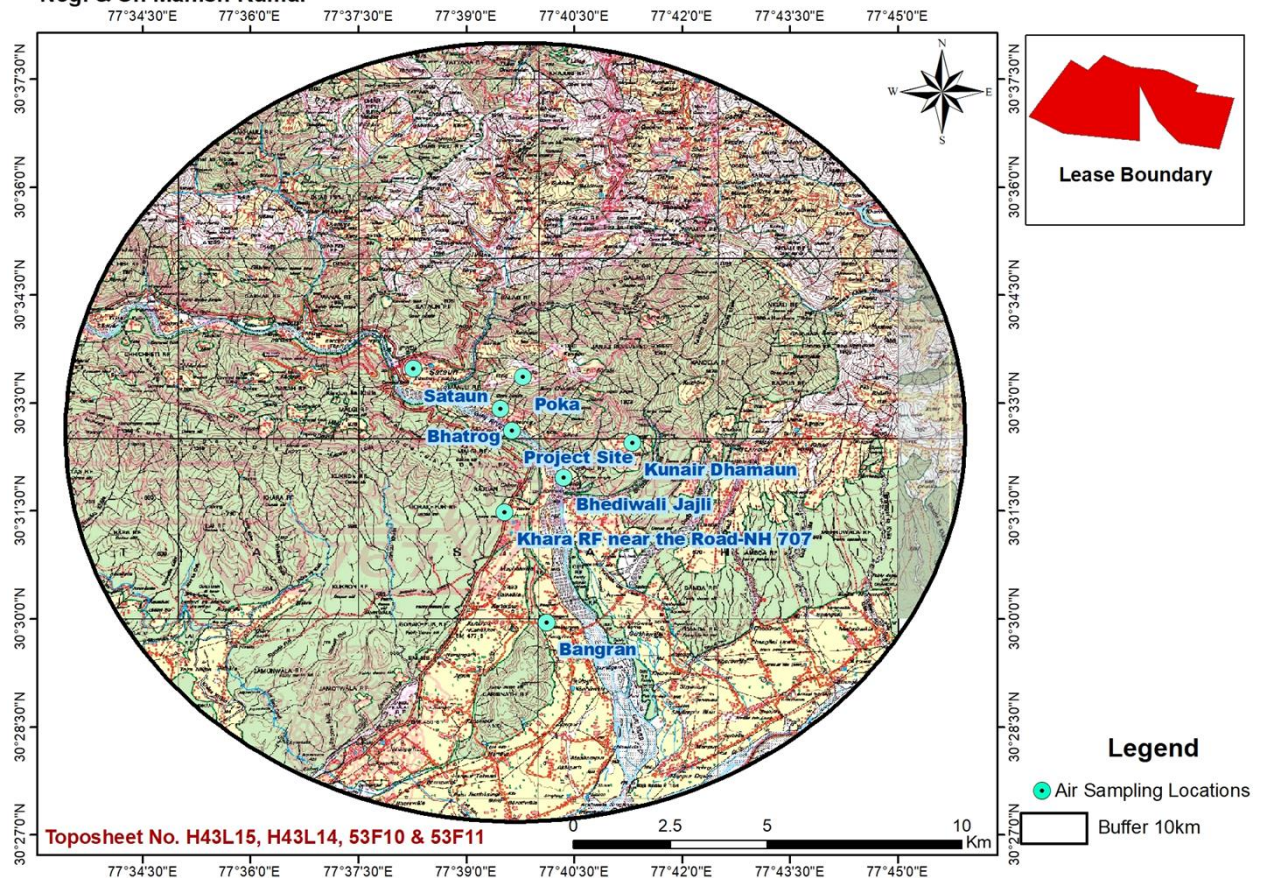


Figure 3.4 Ambient air quality monitoring station

Table-3.9 Ambient air quality monitoring Result is given below

S. No.	Pollutant	Location	No. of observation	Minimum	Maximum	Average	98 th Percentile	CPCB Standards
1.	PM10 ($\mu\text{g}/\text{m}^3$)	AQ1	24	30.52	76.52	57.38	75.75	100
		AQ2		28.44	66.8	45.20	66.34	
		AQ3		34.58	68.5	54.15	68.46	
		AQ4		30.52	64.25	48.76	63.94	
		AQ5		35.96	68.42	49.20	64.38	
		AQ6		30.52	76.52	57.38	75.75	
		AQ7		29.52	72.45	54.02	71.62	
		AQ8		30.99	69.65	55.98	69.49	
2.	PM2.5 ($\mu\text{g}/\text{m}^3$)	AQ1	24	20.53	41.32	32.31	41.04	60.0
		AQ2		17.45	30.96	21.77	30.34	
		AQ3		20.35	37.91	30.02	37.61	
		AQ4		18.43	38.65	27.06	37.54	
		AQ5		18.7	39.68	27.53	37.34	
		AQ6		20.53	41.32	32.31	41.04	
		AQ7		16.83	48.65	27.88	47.16	
		AQ8		18.28	34.85	43.93	202.89	
3.	SO ₂ ($\mu\text{g}/\text{m}^3$)	AQ1	24	5.45	13.84	8.86	13.28	80.0
		AQ2		3.92	14.78	8.29	13.86	
		AQ3		5.48	14.25	9.67	14.25	
		AQ4		5.45	14.1	8.61	13.79	
		AQ5		5.21	9.75	7.75	9.26	
		AQ6		5.45	13.84	8.86	13.28	
		AQ7		5.48	14.53	8.86	14.03	
		AQ8		5.42	20.1	9.13	17.44	
4.	NO ₂ ($\mu\text{g}/\text{m}^3$)	AQ1	24	12.56	20.65	16.87	20.08	80.0
		AQ2		6.0	19.66	11.39	18.74	
		AQ3		12.53	20.15	16.39	20.12	
		AQ4		9.35	19.65	14.55	19.62	
		AQ5		8.95	14.98	12.00	14.64	
		AQ6		12.56	20.65	16.87	20.08	
		AQ7		10.28	19.85	15.39	19.71	
		AQ8		12.42	19.65	15.72	19.19	
5.	Free Silica (mg/m^3)	AQ1	24	0.21	0.66	0.42	0.66	2.0
		AQ2		0.16	0.77	0.41	0.72	
		AQ3		0.2	0.67	0.44	0.66	

	AQ4		0.24	0.66	0.40	0.63	
	AQ5		0.22	0.53	0.41	0.51	
	AQ6		0.21	0.66	0.42	0.66	
	AQ7		0.24	0.67	0.45	0.67	
	AQ8		0.24	0.65	0.43	0.64	

Table-3.9 Ambient air quality monitoring result

Observations:

Ambient Air Quality Monitoring reveals that the minimum & maximum concentrations of PM₁₀ for all the AQ monitoring stations were found to be 28.44 µg/m³ & 76.52 µg/m³, respectively and the minimum & maximum concentrations of PM 2.5 were found to be 18.28 µg/m³ and 48.65 µg/m³ respectively.

As far as the gaseous pollutants SO₂ and NO_x are concerned, the prescribed CPCB limit of 80 µg/m³ for residential and rural areas has never surpassed at any station. The maximum & minimum concentrations of SO₂ were found to be 3.92 µg/m³ & 20.1µg/m³ respectively. The maximum & minimum concentrations of NO_x were found to be in between 6.0 µg/m³ & 20.65 µg/m³.

3.4. Soil Environment

Soil may be defined as a thin layer of earth's crust, medium for the growth of plants. The soil characteristics include both physical and chemical properties. The soil survey and soil sample were carried out / collected to assess the soil characteristics of the study area. Soil samples were collected from 6 locations and analyzed as per CPCB norms.

The soil sampling locations are marked in **figure 3.5**. The physico-chemical characteristic of these soil samples is given in Table No. 3.10.

Table-3.10, Soil sampling locations

Location	Station name	Coordinates	Distance (approx.) (km) & direction from the lease area	
SQ1	Project site	30°32'36.73"N 77°39'38.30"E	-	-
SQ2	Bhatrog	30°32'54.69"N 77°39'28.56"E	0.6	NE
SQ3	Bhediwali Jajli	30°32'18.31"N 77°40'17.04"E	0.93	SE
SQ4	Sataun	30°33'27.93"N 77°38'15.71"E	2.67	NW
SQ5	Khara RF near the Road-NH 707	30°31'28.69"N, 77°39'32.00"E	1.40	SW

SQ6	Poka	30°33'21.33"N 77°39'47.22"E	1.35	North
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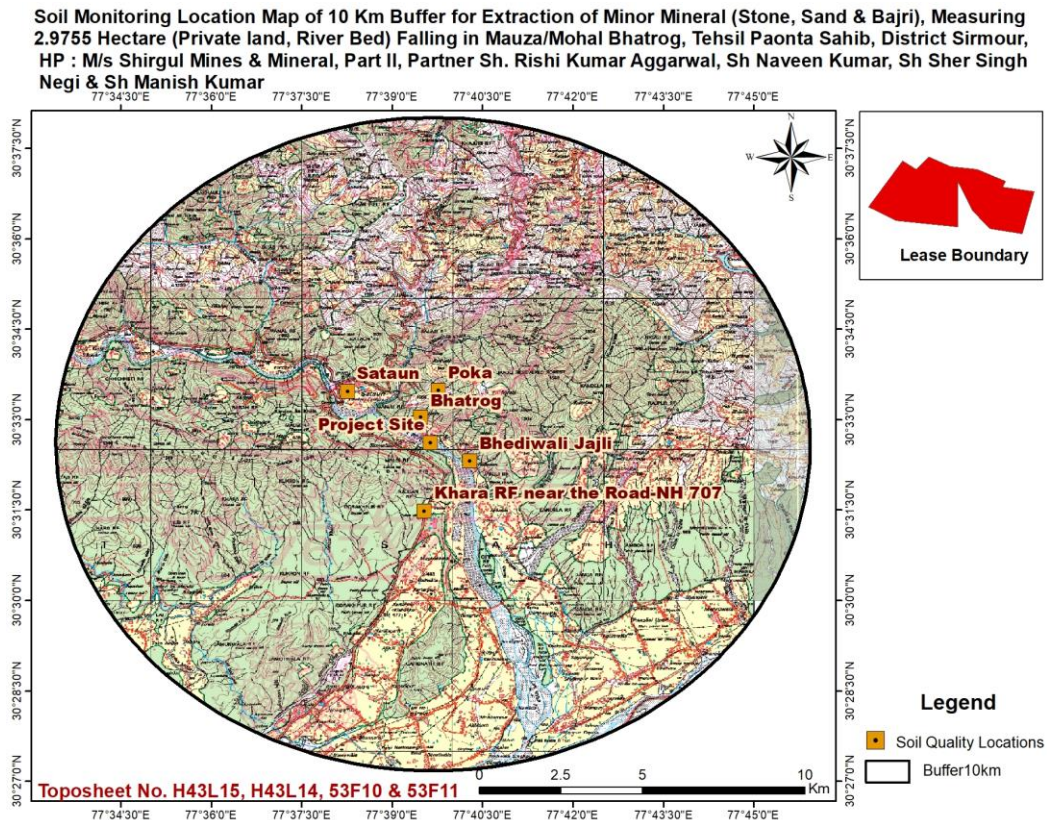


Figure 3.5 Soil sampling locations

Table 3.11, Physico-chemical properties of soil

		Location	Project Site	Bhatrog	Bhediwali Jajli	Sataun	Khara RF near the Road-NH 707	Poka
Sr. No.	Parameters	Units	Results	Results	Results	Results	Results	Results
2	pH	-	7.63	7.27	7.84	7.59	7.46	7.84
3	Conductivity	µmhos/cm	396.15	351.20	402.2	276.21	398.02	402.2
4	Sodium (as Na)	mg/kg	81.52	56.53	75.16	68.51	84.4	75.16
5	Water holding capacity	%	26.0	26.0	25.0	26.4	28.8	25.0
6	Potassium (as K)	mg/kg	248.0	248.0	248.0	216.0	50.8	248.0
7	Sand	%	66.00	56.00	61.00	60.00	66.00	64.00
8	Clay	%	18.00	26.00	18.00	26.00	15.00	22.0
9	Silt	%	16.00	18.00	21.00	14.00	19.00	14.0
10	Calcium (as Ca)	mg/kg	834.0	786.0	518.0	789.0	812.3	858.0
11	Magnesium (as Mg)	mg/kg	385.5	212.8	156.0	326.0	350.0	376.0

12	SAR	-	0.95	1.49	1.55	1.40	0.63	1.55
13	CEC	meq/100gm	2.12	2.12	2.34	2.20	1.99	2.34
14	Phosphorus (as P)	mg/kg	10.80	12.50	12.76	12.44	18.67	12.76
15	Organic carbon	%	0.43	0.41	0.35	0.42	0.26	0.35
16	Porosity	%	38.00	36.89	45.6	35.6	34.83	45.6
17	Permeability	cm/hr	1.82	1.60	1.88	1.76	1.64	1.88
18	Bulk Density	kg/cm ³	1.41	1.42	1.36	1.25	1.56	1.34

Observations:

Samples collected from identified locations indicate the soil is Sandy Loam. type and the pH value ranging from 7.27 to 7.84, which shows that the soil is alkaline in nature. Potassium is found to be from 216 mg/kg to 248 mg/kg. The water holding capacity is found in between 25.0 % to 28.8 %.

3.5 Noise environment

The noise levels within the study area were recorded using Sound Level Meter and noise monitoring results were compared with the Ambient Noise Quality Standard notified under Environment Protection Act, 1986. The levels recorded are as stated in Table 3.3 (x).

The noise level monitoring locations are marked in **Figure no.3.6**.

Table 3.12 Noise quality monitoring stations

Location	Station name	Coordinates	Distance (approx.) (km) & direction from the lease area	
NQ1	Project site	30°32'36.73"N 77°39'38.30"E	-	-
NQ2	Bhatrog	30°32'54.69"N 77°39'28.56"E	0.6	NE
NQ3	Bhediwali Jajli	30°32'18.31"N 77°40'17.04"E	0.93	SE
NQ4	Sataun	30°33'27.93"N 77°38'15.71"E	2.67	NW
NQ5	Khara RF near the Road-NH 707	30°31'28.69"N, 77°39'32.00"E	1.40	SW
NQ6	Poka	30°33'21.33"N 77°39'47.22"E	1.35	North
NQ7	Kunair Dhamaun	30°32'22.07"N 77°41'5.35"E	3.56	East
NQ8	Bangran	30°29'56.61"N 77°40'7.24"E	3.61	South

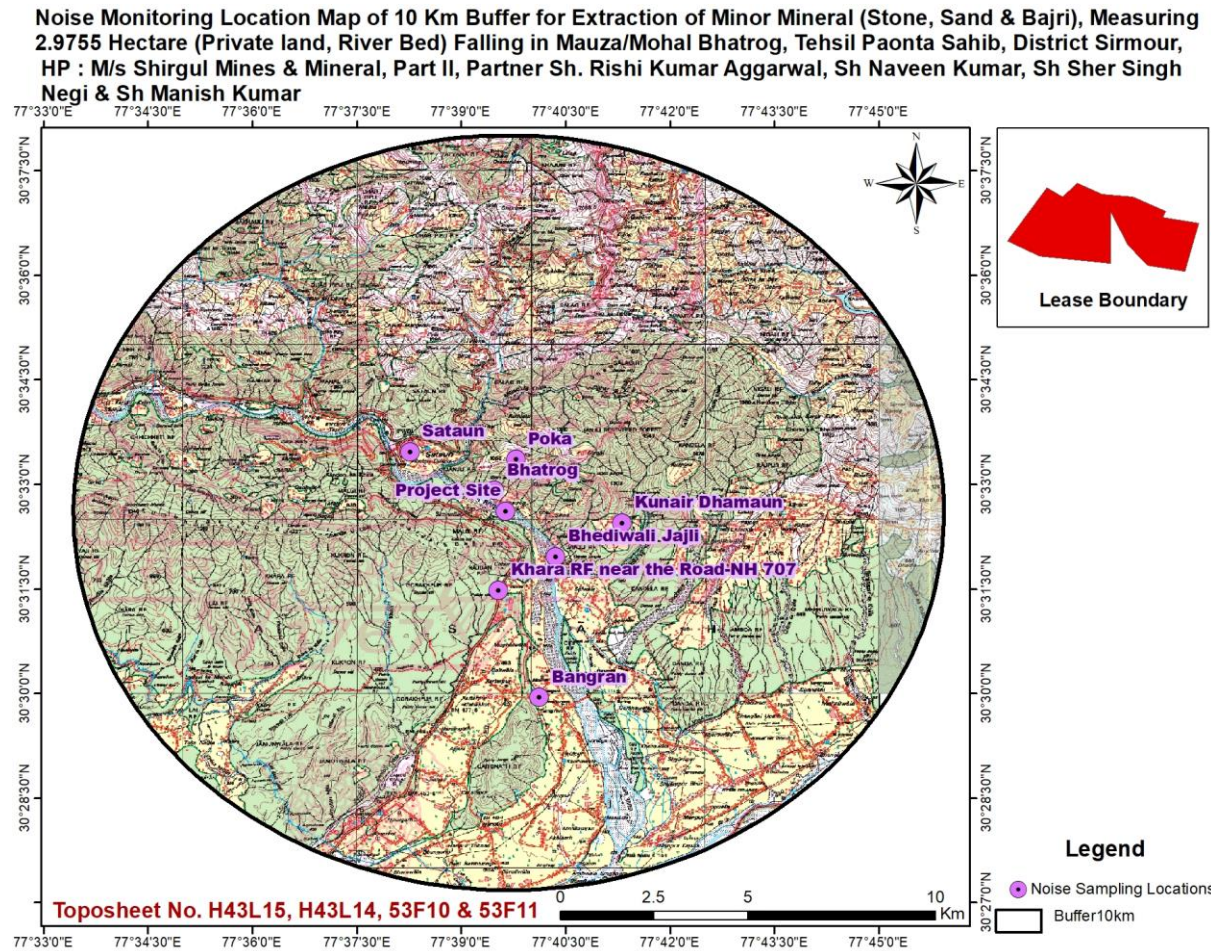


Figure 3.6- Noise quality monitoring stations

Table No. 3.13, Noise level status

S. No.	Locations	Date of Monitoring	Results		Units
			Day	Night	
1.	Project site	08.10.2024	57.6	42.2	dB(A)
2.	Bhatrog	24.10.2024	52.4	41.5	dB(A)
3.	Bhediwali Jajli	05.10.2024	51.8	40.0	dB(A)
4.	Sataun	04.11.2024	53.5	39.8	dB(A)
5.	Khara RF near the Road-NH 707	18.11.2024	54.8	40.6	dB(A)
6.	Poka	23.11.2024	54.6	42.1	dB(A)
7.	Kunair Dhamaun	01.12.2024	52.5	40.7	dB(A)
8.	Bangran	06.12.2024	54.0	43.4	dB(A)
Requirement (as per CPCB Guidelines Limits in dB (A) Leq					
Category of Area/ Zone		Day Time	Night Time		
Industrial Area		75	70		
Residential Area		55	45		
Commercial Area		65	55		
Silence Zone		50	40		

Results

Noise monitoring reveals that the maximum & minimum noise levels at day time were recorded as 57.6 Leq. dB & 51.8 dB (A), respectively. The maximum & minimum noise levels at night time were found to be 39.8 dB (A) & 43.4 dB (A) respectively. There are several other sources in the 10 km radius of study area, which contributes to the local noise level of the area. Traffic activities as well as activities in nearby villages and agricultural fields add to the ambient noise level of the area.

3.6 BIOLOGICAL ENVIRONMENT

Biological diversity comprises the variability of genes, species and ecosystems and is very crucial for maintaining the basic processes on which the life depends. Broadly it can be divided into 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.

Physical Environment of the study area:

District Sirmour is located in outer Himalayas which is commonly known as Shivalik range. This district is bounded by district Shimla in North, Uttar Pradesh in East, Haryana in South and District Solan in North-West. Like other parts of Himachal Pradesh, it has beautiful landscapes, bracing climate, big and small game and legendry temples which hold abiding attraction for the tourists. The river Giri is the biggest river in the district which originates from Kotkhail/Jubbal Tehsil of Shimla district and flows down in the south-east direction. It ultimately joins the river Yamuna near Paonta Sahib. Lot of tributaries join this river in its long course, most important of them being Jalal River which originates from Dharthi range near Pachhad and joins the Giri River at Dadahu from the right side. The river Giri is very useful as it a big source of livelihood fishermen in this district. Another important river which forms the eastern border of the Sirmour district is the river Tons.

Forests cover in Sirmaur District:

The forest cover in the Himachal Pradesh state is 26.37% of the state's geographical area. In terms of forest canopy density classes, the state has 3224 km² area under very dense forest, 6381 km² area under moderately dense forest and 5074 km² area under open forest. Out of 2825 km² total area of Sirmaur district, 130 km² area is under very dense forest, 568 km² fall under moderately dense forest and 687 km² area is open forest.

Study period and methodology

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 pre-monsoon period in order to reduce metrological biasness. The details are given as below:

- Core zone : At the project site along Giri river,
- Buffer zone : Around the project site in 10 km radius.

Methodology:

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 Forests Department of Sirmaur and Forest Department of Dehradun (Being border of Dehradun District) 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 Forests Department of Sirmaur and Forest	Floral and Faunal diversity and study

		Department of Dehradun and available published literatures	of vegetation, forest type, importance etc.
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General Vegetation Study of the area:

Area supports moderately healthy vegetation; the main forest species are along the Shivalik foothills. These Terai plains support the species of Sisam, Arjuna, Kanji, Khair, Saagaun, Subabul, Neem, Eucalyptus, Babul etc. Ground vegetation mainly consists of grasses and small shrubs. Useful fodder grasses, *Cynodon dactylon*, *Eleusine indica*, *Trifolium alexandrinum*, etc. can be seen growing in the area. The large weeds which infest uncultivated tracts are aak (*Calotropis procera*), castor (*Ricinus communis*), dhatura (*Datura metel*) and thorn (*Opuntia stricta*). Other noxious weeds and those which appear in crops are Pohli or Thistle (*Carthamus oxyacantha*), shial kanta (*Argemone mexicana*), kandyari (*Solanum xanthocarpum*), *Parthenium hysterophorus* and Bhang (*Cannabis sativa*).

FLORA OF THE STUDY AREA

The core zone comprises of Giri river bed, where mining operation is proposed. This area consists of riparian vegetation in which aquatic and marshland plants are the main component. Most among them are weeds. No ecologically sensitive plant species has been reported from this area. Riparian vegetation is found along the river side. In stagnant water growth of hydrophytes likes *Hydrolea zeylanica*, *Ipomoea carnea*, *Ludwigia adscendens*, *Sagittaria sagittifolia*, *Spilanthes paniculata*, *Typha latifolia*, etc. can be commonly observed. The river bank supports the growth of poplar and algal bloom.

Table No. 3.15, Flora of the study area

Sl. No	Species	Family	Habit
1	<i>Abutilon indicum</i>	Malvaceae	Herb
2	<i>Acacia catechu</i>	Fabaceae	Tree
3	<i>Acacia nilotica</i>	Fabaceae	Tree
4	<i>Achyranthes aspera</i>	Amaranthaceae	Herb
5	<i>Adhatoda vasica</i>	Acanthaceae	Shrub
6	<i>Ageratum conyzoides</i>	Asteraceae	Herb
7	<i>Albizia procera</i>	Mimosaceae	Tree

Sl. No	Species	Family	Habit
8	<i>Barleria cristata</i>	Acanthaceae	Herb
9	<i>Bauhinia variegata</i>	Fabaceae	Tree
10	<i>Boerhavia diffusa</i>	Nyctaginaceae	Herb
11	<i>Bombax ceiba</i>	Bombacaceae	Tree
12	<i>Carissa carandas</i>	Apocynaceae	Shrub
13	<i>Cassia fistula</i>	<i>Fabaceae</i>	<i>Tree</i>
14	<i>Cissampelos pareira</i>	<i>Menispermaceae</i>	<i>Climber</i>
15	<i>Cordia dichotoma</i>	Boraginaceae	Tree
16	<i>Cryptolepis buchanani</i>	Asclepiadaceae	Climber
17	<i>Dalbergia sissoo</i>	Fabaceae	Tree
18	<i>Datura stramonium</i>	Solanaceae	Shrub
19	<i>Dicliptera bupleuroides</i>	Acanthaceae	Herb
20	<i>Dodonaea viscosa</i>	Sapindaceae	Shrub
21	<i>Eucalyptus</i> sp.	Myrtaceae	Tree
22	<i>Eupatorium</i> sp.	Asteraceae	Herb
23	<i>Euphorbia royleana</i>	Euphorbiaceae	Shrub
24	<i>Ficus benghalensis</i>	Moraceae	Tree
25	<i>Ficus palmata</i>	Moraceae	Tree
26	<i>Ficus religiosa</i>	Moraceae	Tree
27	<i>Ficus rumphii</i>	Moraceae	Tree
28	<i>Jasminum dispersum</i>	Oleaceae	Shrub
29	<i>Lantana camara</i>	Verbenaceae	Shrub
30	<i>Mallotus philippensis</i>	Euphorbiaceae	Tree
31	<i>Mangifera indica</i>	Anacardiaceae	Tree
32	<i>Malva parviflora</i>	Malvaceae	Shrub
33	<i>Morus alba</i>	Moraceae	Tree
34	<i>Murraya koenigii</i>	Anacardiaceae	Shrub
35	<i>Phoenix sylvestris</i>	Arecaceae	Tree
36	<i>Populus deltoides</i>	Salicaceae	Tree

Sl. No	Species	Family	Habit
37	<i>Sida acuta</i>	Malvaceae	Herb
38	<i>Solanum nigrum</i>	Solanaceae	Herb
39	<i>Terminalia arjuna</i>	Combretaceae	Tree
40	<i>Terminalia bellirica</i>	Combretaceae	Tree
41	<i>Terminalia chebula</i>	Combretaceae	Tree
42	<i>Tinospora cordifolia</i>	Menispermaceae	Climber
43	<i>Urena lobata</i>	Malvaceae	Shrub
44	<i>Xanthium strumarium</i>	Asteraceae	Shrub
45	<i>Ziziphus mauritiana</i>	Rhamnaceae	Shrub

Flora of the Buffer zone: Buffer zone of the proposed project is Terai and foothills of Shivalik. Many tree species are planted in the area because of their usefulness, economic and aesthetic values. The tree species observed in the area are, Aam (*Mangifera indica*), Jamun (*Syzygium cumini*), Bail (*Aegle marmelos*), Bakain (*Melia azedarach*), Bargad (*Ficus bengalensis*), Neem (*Azadirachta indica*), Peepal (*Ficus religiosa*), Popular (*Populus deltoides*), Safeda (*Eucalyptus sp.*), Sisam (*Dalbergia sissoo*), *Bauhinia variegata*, *Celtis australis*, *Bombax ceiba*, *Grewia optiva*, etc.

In agricultural waste land and along the road side, growth of weeds like *Argemone mexicana*, *Cannabis sativa*, *Cenchrus ciliaris*, *Heteropogon contortus*, *Lantana camara*, *Parthenium hysterophorus*, etc. are very common. These weeds are affecting the agricultural productivity of the region due to fast growth, short life cycle and enormous production of seeds.

Waste land:

Most of the areas nearby the Core zone are waste land. Commonly seen plant species in such areas are *Cannabis sativa*, *Lantana camara*, *Ipomea carnea*, *Calotropis procera*, *Cassia tora*, *Parthenium hysterophorus*, *Ziziphus sp*, *Heteropogon contortus*, *Argemone Mexicana*, etc. These weeds are affecting the agricultural productivity of the region due to fast growth, short life cycle and enormous production of seeds.

Vegetation in and around human settlement:

Vegetation pattern in villages and surrounding areas are slightly different from the rest of the areas. The common species grown near villages are mostly edible or useful plants such as *Mangifera indica*, *Syzygium cumini*, *Azadirachta indica*, *Albizia lebbeck*, *Delonix regia*, *Tamarindus indica*, *Ficus religiosa*, *Bauhinia variegata*, *Celtis australis*, *Bombax ceiba*, *Grewia optiva*, etc.

FAUNA OF THE STUDY AREA

Table No. 3.16, Fauna of the study area

S. No	Common Name	Scientific name	Wildlife Schedule	IUCN Red List Status
Mammals				
1	Field mouse	<i>Apodemus sylvaticus</i>	-	LC
2	Indian hare	<i>Lepus nigricollis</i>	IV	LC
3	Rhesus macaque	<i>Macaca mulatta</i>	II	LC
4	Fruits bat	<i>Pteropus conspicillatus</i>	V	LC
5	Golden Jackal	<i>Canis aureus</i>	II	LC
6	Indian Palm Squirrel	<i>Funambulus palmarum</i>	IV	LC
7	Indian Grey Mongoose	<i>Herpestes edwardsii</i>	II	LC
8	Rat	<i>Rattus rattus</i>	V	DD
9	Wild pig	<i>Sus scrofa</i>	III	LC
Domestic Animals:				
10	Cow	<i>Bos indicus</i>		NA
11	Buffalo	<i>Bos bubalis</i>		DD
12	Goat	<i>Capra aegagrus hircus</i>		DD
Avian fauna (Birds)				
1	Peacock	<i>Pavo cristatus</i>		
2	Jungle Myna	<i>Acridotheres fuscus</i>	IV	LC
3	Common Myna	<i>Acridotheres tristis</i>	IV	LC
4	Spotted Owlet	<i>Athene brama</i>	IV	LC
5	Cattle Egret	<i>Bubulcus ibis</i>	IV	LC

S. No	Common Name	Scientific name	Wildlife Schedule	IUCN Red List Status
6	Red-rumped Swallow	<i>Cecropis daurica</i>	-	DD
7	Pied kingfisher	<i>Ceryle rudis</i>	IV	DD
8	Blue Rock Pigeon	<i>Columba livia</i>	-	LC
9	Oriental Magpie Robin	<i>Copsychus saularis</i>	IV	LC
10	Indian roller	<i>Coracias benghalensis</i>	IV	LC
11	House Crow	<i>Corvus splendens</i>	V	LC
12	Common Cuckoo	<i>Cuculus canorus</i>	IV	LC
13	Ashy Drongo	<i>Dicrurus leucophaeus</i>	IV	LC
14	Asian Koel	<i>Eudynamys scolopacea</i>	IV	NA
15	White-breasted King fisher	<i>Halcyon smyrnensis</i>	IV	LC
16	Small Green Bee Eater	<i>Merops orientalis</i>	-	LC
17	House Sparrow	<i>Passer domesticus</i>	IV	LC
18	Rose ringed Parakeet	<i>Psittacula krameri</i>	IV	LC
19	Red vented Bulbul	<i>Pycnonotus cafer</i>	IV	LC
20	Spotted Dove	<i>Streptopelia chinensis</i>	IV	NA
21	Pied Myna	<i>Sturnus contra</i>	IV	LC
22	Marsh Sandpiper	<i>Tringa stagnatilis</i>	IV	LC
23	Common Babbler	<i>Turdoides caudatus</i>	IV	NA
24	Hoopoe	<i>Upupa epops ceylonensis</i>	IV	NA
Reptiles				
1	Common Toad	<i>Bufo melanostictus</i>	IV	LC
2	Skipping frog	<i>Bufo stomaticus</i>	IV	LC
3	Krait	<i>Bungarus caeruleus</i>	IV	NA
4	Banded krait	<i>Bungarus multicinctus</i>	-	NA
5	Kashmir Rock Agama	<i>Laudakia tuberculata</i>	-	NA
6	Bronze Grass Skink	<i>Eutropis macularia</i>		NA

S. No	Common Name	Scientific name	Wildlife Schedule	IUCN Red List Status
7	Garden lizard	<i>Calotes versicolor</i>	-	NA
8	House lizard	<i>Hemidactylus frenatus</i>	-	LC
9	Cobra	<i>Naja naja</i>	II	LC
10	Rat snakes	<i>Ptyas mucosus</i>	-	NA

LC: Least Concern, NA: Not Assessed, DD: Data deficient.

Table No. 3.17, List of endemic / Local flora & fauna authenticated by Range Forest Officer, Sirmour

S.NO	Local Name	Botanical Name	Local Name	Botanical Name
	Flora		Fauna	
1	Chil	<i>Pinus roxburghii</i>	Peacock	<i>Pavocristatus</i>
2	Kachnar	<i>Bauhinia variegata</i>	Kakar	<i>Muntiacus</i>
3	Gandela	<i>Murraya kaengii</i>	Suar	<i>Sus scrofa</i>
4	Garna	<i>Carissa opaca</i>	Khargose	<i>Oryctolagus cuniculus</i>
5	Aakhe	<i>Rubus ellipticus</i>	Jungli Murga	<i>Gallus gullus</i>
6	Kamal	<i>Mallotus philippensis</i>	Fox	<i>Vulpes bengalensis</i>
7	Bamboo	<i>Dendro calamus strictus</i>	Brown Sparrow	<i>Emberiza citrinella</i>
8	Congress grass	<i>Parthenium</i>	Goh	<i>Varanus komodoensis</i>
9	Mango	<i>Mangifera indica</i>	Nevla	<i>Herpestes edwardsi</i>

3.7 SOCIAL IMPACT ASSESSMENT, REHABILITATION & RESETTLEMENT (R&R) INTRODUCTION

3.7 Demography & Socio-Economic Features

i) Introduction

The proposed project is a riverbed mining project intended for extracting stone, sand, and bajri. These materials will be utilized in an established stone crusher unit known as "M/s Shrigul Mines & Mineral." The lease area is located at Khasra Nos. 46/1, 47/1, 48/1, 49/1, 50, 51, 52/1, 55, 56, & 71, with a total area of 35-06 Bighas or 2.9755 Hectare. The land is privately owned and situated on the riverbed within Mauza Mohal Bhatrog, Tehsil Paonta

Sahib in District Sirmour Himachal Pradesh. The mining lease has been granted to M/s Shirgul Mines & Mineral, Part II, with Sh. Rishi Kumar Aggarwal, Sh. Naveen Kumar, Sh. Sher Singh Negi, and Sh. Manish Kumar.

According to the EIA Notifications dated 15th January 2016 and 1st July 2016, the project falls under B1 Category with project activity type “1(a)” (Mining of Minerals) with a cluster situation. The area of active mines in the immediate surroundings exceeds 5 hectares, and thus, an EIA and EMP are required to seek Environmental Clearance from SEIAA as per the O.M F. No. L-11011/175/2018/-IA-II (M) dated 12/12/2018.

ii) Need of the Project

The project involves the collection of stone, sand, and bajri, which will be used in an already established stone crusher. The waste material of 16735 MT of mine waste i.e., silt/clay will be generated. However, silt/clay are inseparable from sand thus will be sold in the open market along with sand. The production of minerals depends on the availability of natural resources, the economy of the area, and various developmental and infrastructural works being undertaken in the area, such as road construction and hydroelectric projects. Consequently, the demand for stone, sand, and bajri has increased significantly for the construction of buildings and other infrastructures. These materials are considered highly effective in construction, given their innumerable uses. As a result, they are highly sought-after products in the construction industry.

3.7.1 Demography

Demography is one of the important indicators of environmental health of an area. It includes population, sex ratio, number of households, literacy, population density, etc. In order to assess the Demographic & Socio-economic features of the area, Census data 2011, for the concerned District named Sirmaur in Himachal Pradesh state was compiled and placed in the form of tabulation and graphical representation.

i) Demography of the District Sirmaur, Himachal Pradesh

As per the census records 2011, the total population of Sirmaur district is 5, 29,855 comprising of 2, 76,289 males and 2, 53,566 females. Out of the total population of the district, 89.2% lives in rural areas while 10.8% lives in urban areas. The urban population in

the district is 57,165 comprising 30,114 males and 27,051 females. The total rural population comes to 4, 72,690 comprising 2, 46,175 males and 2, 26,515 females.

The decadal growth rate of district reported as 15.5%. The growth rates for rural and urban areas of the district are 15.0 & 19.9% respectively. The growth rate in urban population is high in the district due to industrialization. The density of population in Sirmaur district comes to 188 persons per Sq. km. against state average of 123 persons.

There are 918 females for every thousand males in Sirmaur district. The sex ratio in rural and urban areas of Sirmaur district comes to 920 and 898, respectively. It is observed that the proportion of females in rural areas is slightly higher than that of urban areas. Sex ratio in the age-group of 0-6 years comes to 928 in the district as a whole. In the rural and urban areas, the ratio comes to 934 and 873, respectively.

According to 2011 Census, the total workers including main and marginal workers constitute 52.9% of the total population of the district, as a whole. Of the total workers, the share of the main workers is 36.6% and the marginal workers come to 16.3%. The remaining 47.1% of the population belongs to the category of non-workers.

As per Census 2011, Sirmaur district has reported 3, 62,645 persons as literates constituting 78.8% of total population excluding the population of age-group of 0-6 years. Total literacy rates of rural and urban areas are 77.3 & 90.7% respectively. The proportion of male and female literates in rural areas is 84.6 & 69.3% while in urban areas this proportion is 93.4 & 87.8% respectively.

ii) Mother Tongue

As per the Census records, the people of Sirmaur district reported their mother tongue as Hindi which constitutes 93.7%. This Sirmaur district is mainly Hindi speaking area. After Hindi the other language spoken is Punjabi which constitutes 4.1% to the total population. Remaining mother tongue language Urdu, Nepali & Tibetan have negligible percentage of population.

iii) Religion

Hindu is the most dominating religious community in Sirmaur district with 90.0% of the total population followed by 91.2% during the year 2001. After Hindu, Muslim religious

community represents 33,215 persons (17,327 males & 15,888 females) in comparison to Census 2001 which was 25,618 Muslims (13,736 males & 11,882 females). The other major religious communities include Sikhs with 15,501 persons (7,887 males & 7,614 females) in comparison to Census 2001 which constitutes 12,105 Sikhs (6,430 males & 5,675 females). The other minor religious communities include Christian, Buddhist, Jains, Religious (unclassified) and Religion not stated.

3.7.2 Methodology

In order to assess the Demographic & Socio-economic features along with the 10 km distance based on field surveys and public consultations undertaken during the baseline field study period and Census records 2011, for the concerned district namely Sirmour of Himachal Pradesh state was compiled and placed in the form of tabulation and graphical representation. Entire study area is observed predominantly rural.

Primary field data was collected during the site visits of selected village through field surveys and group discussions conducted in core zone study area in baseline study period.

As per the Press Information Bureau Government of India Ministry of Home Affairs dated 26 July 2022, regarding Census 2021, the intent of the Government for conducting Census 2021 was notified in Gazette of India on 28th March, 2019.

From the first synchronous census in 1881, the decadal census exercise has never been delayed or postponed. Until now. Census 2021 has now been postponed more than once. Due to outbreak of COVID-19 pandemic, the Census 2021 and related field activities have been postponed. So the Census information of 2011 being used for this study.

3.7.3 Purpose of the Study

Socio-economic study was conducted to establish the baseline demographic features and impacts due to this Stone, Sand & Bajri Mining project, as operation phase of any project invariably leads to Socio-economic changes. The construction phase of any kind of project could lead to unplanned and haphazard development of slums of various size and description with little or rudimentary.

3.7.4 Description of Social Environment

As per the Census Records 2011, the study area has a total no. of 100 villages falling in 2 tehsils i.e. Paonta Sahib (65 Villages), Kamrau (35 Villages) of Sirmour district in Himachal Pradesh state. There are 4 villages observed as uninhabited villages in the 10km radial study zone. No town was found in the study area.

3.7.5 Population Distribution (10 km)

As per the Census Records 2011, the total population of 10 km study zone was recorded as 88141 persons of 100 villages of Sirmour district in Himachal Pradesh state. Male-female wise total population was recorded as 46079 males (52.3%) and 42062 (47.7%) females respectively.

Total number of 'Households' was observed as 15992 in the 10 km radius study zone. Scheduled Caste ('SC') population was observed as 20776 persons, which accounts as 23.6% to the total population of the study zone and consisting of 10785 males (52.0%) and 9991 females (48.0%) in the 10 km study zone. Scheduled Tribes ('ST') population was also observed as 768 persons (1.0%) consisting of 393 males (51.2%) and 375 females (48.8%) in the 10 km study zone. The child population of the study area is recorded as 11201 (12.7%) and comprising of 5822 (52.0%) males & 5379 (48.0%) females respectively. Village wise details of population distribution are given as follows in **Table 3.18, Table 3.19**

Table 3.18: Village-wise Population Distribution (10 km)

Name of Village/Town	No of Households	Total Population			Child Population (0-6 Years)		
		Persons	Males	Females	Persons	Males	Females
Kandon Nadi (86)	88	336	177	159	46	27	19
Malgi Dadhyat (88)	58	324	163	161	46	24	22
Salag Saddi (87)	23	121	61	60	18	10	8
Sara Kaila (85)	53	282	148	134	43	22	21
Chhichheti (84)	70	435	225	210	55	30	25
Bakahan Kelewala (77)	31	200	99	101	22	3	19
Byas (142)	204	1006	520	486	128	67	61
Gulab Garh (141)	162	888	440	448	127	63	64
Toka Nagla (125)	266	1408	737	671	175	98	77
Kundiyon (126)	118	613	322	291	74	34	40
Ajia Wala (124)	123	650	359	291	81	45	36
Rampur Ghat (110)	203	1098	576	522	180	101	79
Sampda Shubh Khera (113)	92	419	234	185	51	30	21
Taruwala (114)	215	1018	511	507	125	59	66
Up Sampda Taruwala	Uninhabited Village						
Dharam Kot (122)	75	389	204	185	54	26	28
Up Sampda Dharam Kot	Uninhabited Village						
Dharam Kot Jangal	Uninhabited Village						

Gondpur (98)	225	1024	555	469	127	70	57
Behrewala (99)	221	1124	575	549	139	75	64
Amar Kot (97)	357	1624	908	716	205	110	95
Nihal Garh (96)	273	1297	714	583	155	90	65
Jawalpur (95)	141	703	376	327	89	46	43
Kanshipur (94)	178	917	495	422	98	50	48
Ajauli (93)	101	516	254	262	55	21	34
Narain Garh (92)	172	909	478	431	145	76	69
Kishan Kot (91)	162	799	414	385	109	53	56
Muglawala Kartarpur (90)	222	1192	629	563	154	83	71
Rajban (89)	444	1877	999	878	207	106	101
Sirmauri Tal (19)	83	464	230	234	72	32	40
Bangran (104)	179	965	487	478	127	67	60
Phulpur Shamshergarh (103)	127	688	371	317	88	53	35
Kanhu Wala (105)	155	773	389	384	88	42	46
Shivpur (102)	139	625	332	293	66	24	42
Mohkampur Nawada (106)	366	1798	909	889	224	120	104
Akal Garh (107)	160	780	408	372	80	40	40
Haripur Tohana (101)	179	967	487	480	114	54	60
Bhungarni (100)	172	762	397	365	90	43	47
Patti Natha Singh (112)	80	372	206	166	40	22	18
Baroti Wala (109)	88	379	201	178	38	22	16
Ambwala Singh Pura (108)	41	195	95	100	27	12	15
Manpur Dewra (56)	673	3306	1784	1522	460	239	221
Shampur Gorkhuwala (57)	919	4584	2386	2198	590	302	288
Dudhla (58)	Uninhabited Village						
Puruwala (59)	240	1244	667	577	166	91	75
Dobri (60)	340	1798	935	863	242	117	125
Danda (32)	353	2003	1030	973	254	134	120
Ram Nagar (34)	61	368	177	191	68	28	40
Amboa (33)	340	1735	916	819	246	135	111
Kadela Adhwar (31)	150	934	479	455	121	58	63
Agrau (42)	63	388	190	198	50	28	22
Rajpur Dagwali (35)	237	1168	615	553	140	80	60
Kangra Gurasa (36)	61	361	176	185	43	24	19
Kulthina (29)	40	221	123	98	14	9	5
Nigali (37)	34	209	104	105	25	15	10
Banor (38)	185	1025	536	489	106	52	54
Bag (39)	39	251	149	102	31	14	17
Shiwa Ridana (40)	153	973	527	446	108	60	48
Bharli (41)	103	613	327	286	62	31	31
Nagheta (43)	187	1186	618	568	110	50	60
Kerka (44)	25	130	64	66	15	5	10
Danda (47)	90	537	271	266	40	16	24
Gojar Arian (53)	288	1417	746	671	215	119	96
Bhagani (54)	1034	5757	2983	2774	748	402	346
Guruwala (55)	96	497	256	241	63	29	34
Tatyana (219)	276	2033	1052	981	324	171	153
Baila Gujon (213)	79	552	298	254	87	50	37
Thountha Jakhal (214)	135	991	514	477	138	69	69
Sathaur (13)	38	282	141	141	47	21	26

Shikandon (11)	53	374	197	177	58	30	28
Korga (9)	136	825	426	399	130	64	66
Bag Hawra (10)	75	543	275	268	110	60	50
Ambaun (6)	36	184	95	89	30	18	12
Jandniyan (7)	16	108	55	53	17	12	5
Sadiyar (8)	56	339	173	166	47	26	21
Bhajhon (15)	90	531	271	260	76	36	40
Gabar (14)	38	206	114	92	12	7	5
Manal (16)	78	535	272	263	62	30	32
Sataun (18)	607	2963	1560	1403	351	186	165
Poka (21)	53	280	146	134	16	8	8
Bhatrog (20)	82	495	260	235	71	36	35
Kunair Dhamaun (30)	130	821	410	411	126	54	72
Kotga Kandon (28)	58	333	181	152	41	23	18
Bhitar Kui (27)	8	34	19	15	3	2	1
Nao Barwa (22)	32	180	99	81	19	11	8
Chauki Mirgwal (17)	87	642	338	304	84	45	39
Dhab Pipli (215)	75	554	269	285	106	51	55
Kanti Mishwa (216)	166	1193	613	580	173	93	80
Barwas (23)	159	1027	536	491	120	67	53
Khuenal Salag (25)	87	551	297	254	45	26	19
Baldwa Bohal (26)	89	536	283	253	43	22	21
Kamrou (24)	355	2217	1158	1059	223	127	96
Chareu (218)	53	467	241	226	80	38	42
Shilla (217)	195	1447	786	661	171	88	83
Bokala Pab (241)	168	1135	596	539	126	64	62
Kandon Dugana (242)	379	2678	1374	1304	294	152	142
Shamahn Pamta (243)	95	623	321	302	57	31	26
Chitli (244)	50	348	175	173	51	27	24
Shaoga (245)	112	832	448	384	100	51	49
Rangwa Pabhar (246)	89	640	342	298	84	38	46
TOTAL (10km)	15992	88141	46079	42062	11201	5822	5379

Source-Census of India, 2011

Table 3.19: Village-wise SC & ST Population Distribution (10 km)

Name of Village/Town	No of Households	Scheduled Castes			Scheduled Tribes		
		Persons	Males	Females	Persons	Males	Females
Kandon Nadi (86)	336	128	73	55	0	0	0
Malgi Dadhyat (88)	324	178	92	86	1	0	1
Salag Saddi (87)	121	48	26	22	0	0	0
Sara Kaila (85)	282	51	23	28	0	0	0
Chhichheti (84)	435	124	66	58	0	0	0
Bakahan Kelewala (77)	200	0	0	0	0	0	0
Byas (142)	1006	32	15	17	1	0	1
Gulab Garh (141)	888	68	35	33	44	21	23
Toka Nagla (125)	1408	45	26	19	4	3	1
Kundiyan (126)	613	0	0	0	1	1	0
Ajia Wala (124)	650	20	12	8	1	1	0
Rampur Ghat (110)	1098	12	9	3	15	6	9
Sampda Shubh Khera (113)	419	10	5	5	0	0	0
Taruwala (114)	1018	161	75	86	3	1	2

Up Sampda Taruwala	Uninhabited Village						
Dharam Kot (122)	389	48	26	22	1	1	0
Up Sampda Dharam Kot	Uninhabited Village						
Dharam Kot Jangal	Uninhabited Village						
Gondpur (98)	1024	104	57	47	0	0	0
Behrewala (99)	1124	273	146	127	0	0	0
Amar Kot (97)	1624	139	83	56	66	33	33
Nihal Garh (96)	1297	418	223	195	2	1	1
Jawalpur (95)	703	231	124	107	1	1	0
Kanshipur (94)	917	82	43	39	0	0	0
Ajauli (93)	516	32	15	17	0	0	0
Narain Garh (92)	909	45	23	22	303	146	157
Kishan Kot (91)	799	97	44	53	0	0	0
Muglawala Kartarpur (90)	1192	102	57	45	0	0	0
Rajban (89)	1877	288	153	135	43	20	23
Sirmauri Tal (19)	464	392	193	199	6	2	4
Bangran (104)	965	71	39	32	1	1	0
Phulpur Shamshergarh (103)	688	54	32	22	0	0	0
Kanhu Wala (105)	773	77	44	33	0	0	0
Shivpur (102)	625	0	0	0	0	0	0
Mohkampur Nawada (106)	1798	119	67	52	7	3	4
Akal Garh (107)	780	5	3	2	7	4	3
Haripur Tohana (101)	967	159	83	76	6	3	3
Bhungarni (100)	762	146	76	70	2	2	0
Patti Natha Singh (112)	372	63	33	30	0	0	0
Baroti Wala (109)	379	45	25	20	0	0	0
Ambwala Singh Pura (108)	195	0	0	0	0	0	0
Manpur Dewra (56)	3306	75	41	34	156	89	67
Shampur Gorkhuwala (57)	4584	449	238	211	7	3	4
Dudhla (58)	Uninhabited Village						
Puruwala (59)	1244	169	90	79	13	9	4
Dobri (60)	1798	1052	536	516	0	0	0
Danda (32)	2003	958	483	475	4	2	2
Ram Nagar (34)	368	317	153	164	0	0	0
Amboa (33)	1735	1066	567	499	1	1	0
Kadela Adhwar (31)	934	399	204	195	0	0	0
Agrau (42)	388	141	72	69	0	0	0
Rajpur Dagwali (35)	1168	640	330	310	0	0	0
Kangra Gurasa (36)	361	131	68	63	0	0	0
Kulthina (29)	221	19	10	9	0	0	0
Nigali (37)	209	0	0	0	0	0	0
Banor (38)	1025	255	134	121	0	0	0
Bag (39)	251	55	33	22	0	0	0
Shiwa Ridana (40)	973	294	155	139	0	0	0
Bharli (41)	613	197	99	98	0	0	0
Nagheta (43)	1186	91	51	40	0	0	0
Kerka (44)	130	13	5	8	0	0	0
Danda (47)	537	103	47	56	0	0	0
Gojar Arian (53)	1417	335	184	151	0	0	0
Bhagani (54)	5757	1257	664	593	3	2	1
Guruwala (55)	497	49	26	23	39	19	20

Tatyana (219)	2033	927	482	445	0	0	0
Baila Gujon (213)	552	171	97	74	0	0	0
Thountha Jakhal (214)	991	271	138	133	0	0	0
Sathaur (13)	282	59	31	28	0	0	0
Shikandon (11)	374	175	98	77	0	0	0
Korga (9)	825	332	176	156	0	0	0
Bag Hawra (10)	543	216	110	106	0	0	0
Ambaun (6)	184	34	17	17	0	0	0
Jandniyan (7)	108	26	15	11	0	0	0
Sadiyar (8)	339	197	102	95	0	0	0
Bhajhon (15)	531	286	139	147	0	0	0
Gabar (14)	206	103	57	46	0	0	0
Manal (16)	535	143	66	77	0	0	0
Sataun (18)	2963	693	367	326	9	4	5
Poka (21)	280	9	4	5	0	0	0
Bhatrog (20)	495	220	113	107	0	0	0
Kunair Dhamaun (30)	821	694	346	348	4	2	2
Kotga Kandon (28)	333	76	42	34	0	0	0
Bhitar Kui (27)	34	5	3	2	0	0	0
Nao Barwa (22)	180	26	15	11	0	0	0
Chauki Mirgwal (17)	642	231	114	117	0	0	0
Dhab Pipli (215)	554	408	192	216	0	0	0
Kanti Mishwa (216)	1193	448	224	224	0	0	0
Barwas (23)	1027	205	107	98	0	0	0
Khuenal Salag (25)	551	74	42	32	0	0	0
Baldwa Bohal (26)	536	10	7	3	0	0	0
Kamrou (24)	2217	347	170	177	8	5	3
Chareu (218)	467	252	131	121	0	0	0
Shilla (217)	1447	353	187	166	1	1	0
Bokala Pab (241)	1135	290	157	133	1	1	0
Kandon Dugana (242)	2678	973	481	492	4	3	1
Shamahn Pamta (243)	623	42	23	19	0	0	0
Chitli (244)	348	96	46	50	0	0	0
Shaoga (245)	832	356	196	160	3	2	1
Rangwa Pabhar (246)	640	96	54	42	0	0	0
TOTAL (10km)	88141	20776	10785	9991	768	393	375

Source-Census of India, 2011

3.7.6 Sex Ratio

The 'Sex Ratio' of the study area is a numeric relationship between females and males of an area and bears paramount importance in the present-day scenario where the un-ethnic pre-determination of sex and killing of female foetus during pregnancy is practiced by unscrupulous medical practitioners against the rule of the law of the country. It is evident that by contrast the practice of female foeticide is not prevalent in the study area.

The 'Sex Ratio' was observed as 918 females per 1000 males in the District. The same was recorded as 913 females for every 1000 males in the study area. The child (0-6-year age) sex

ratio of the study area was observed as 924 female children per 1000 male children. The village wise male-female population distribution for the study area is depicted and shown by graphical representation in **Table 3.17 -3.18 & Figure 3.7.**

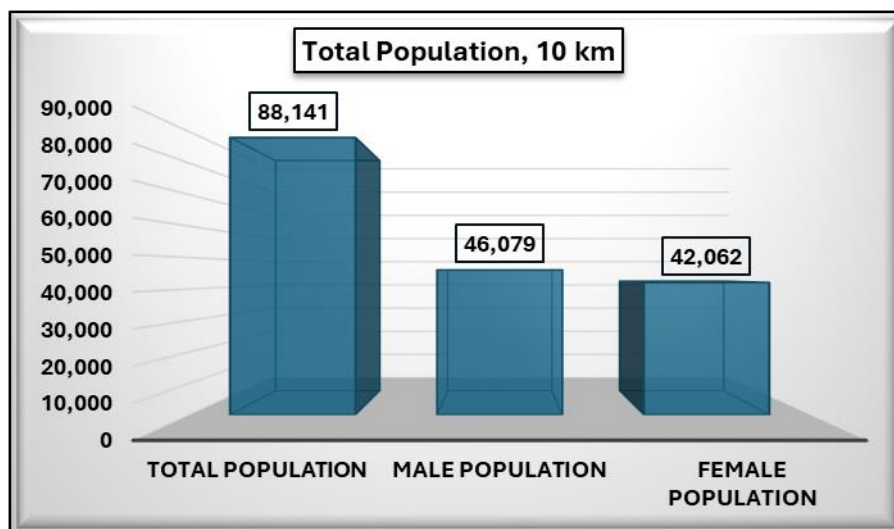


Figure 3.7: Male-Female Wise Population Distribution

3.7.7 Scheduled Caste & Scheduled Tribe Population

On the basis of the village wise SC & ST population distribution of the study area during 2011, the ‘Scheduled Castes’ population was observed as 20776 persons consisting of 10785 males and 9991 females respectively in the study area which accounts as 23.6% to the total population (88141 persons) of the study area. Scheduled Tribes (‘ST’) population was observed as 768 persons, accounts as 1.0% to the total population of the study zone consisting of 393 males and 375 females in the 10 km study zone. It implies that the rest 65.1% of the total population belongs to the general category. Male-female wise distribution of ‘SC’ & ‘ST’ population in the study area is graphically shown in **Figure 3.8 & Figure 3.9** as follows.

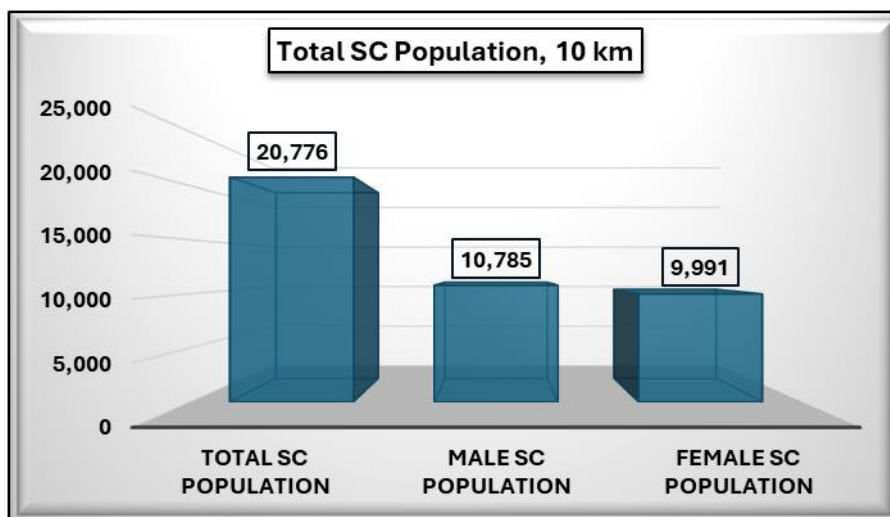


Figure 3.8: Scheduled Caste Population Distribution

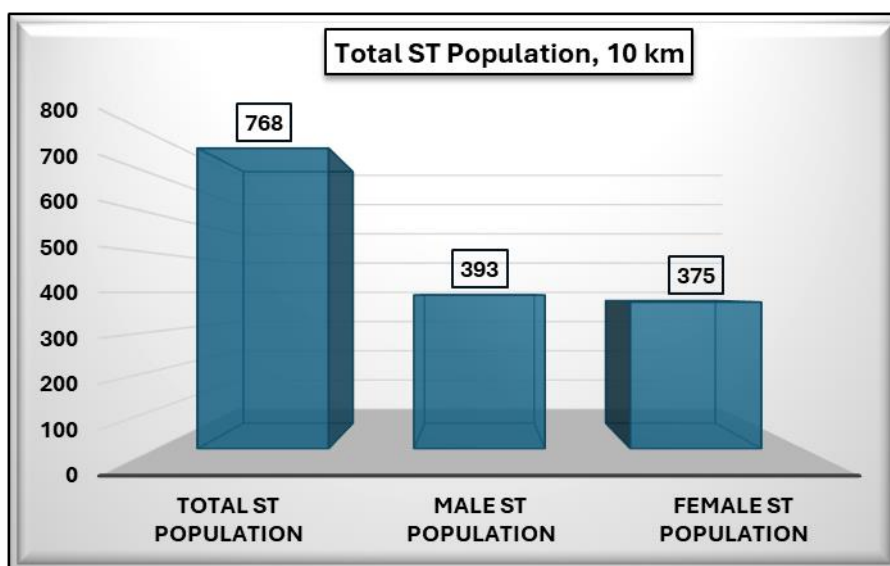


Figure 3.9: Scheduled Tribes Population Distribution

3.7.8 Literacy Rate

Literacy level is quantifiable indicator to assess the development status of an area or region. Male-Female wise literates and illiterate's population is represented in **Table 3.20** Total literate's population was recorded as 56128 persons (63.7%) in the study area. **Table 3.21** reveals that Male-Female wise literates are observed as 32884 & 23244 persons respectively, implies that the 'Literacy Rate' is recorded as 63.7% with male-female wise percentages being 37.3 & 26.4% respectively.

The Male-Female wise graphical representation of literates & illiterate's population in study area villages/town is shown in **Figure 3.10**

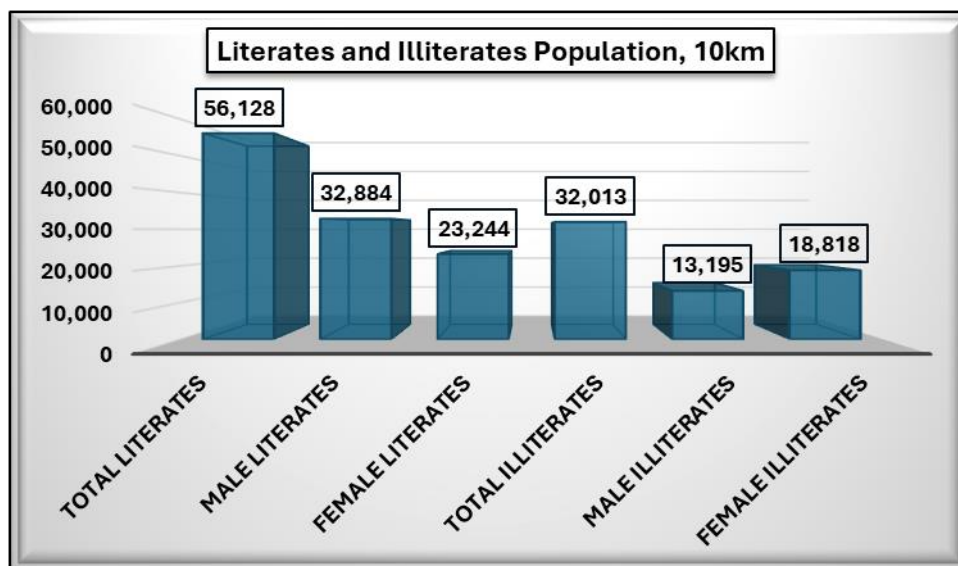


Figure 3.10: Male-Female Wise Distribution of Literates & Illiterates

Table 3.20: Male-Female Wise Literates and Illiterates (10km)

Name of Village/Town	Total Population	Literates			Illiterates		
		Persons	Males	Females	Persons	Males	Females
Kandon Nadi (86)	336	247	135	112	89	42	47
Malgi Dadhyat (88)	324	204	114	90	120	49	71
Salag Saddi (87)	121	76	41	35	45	20	25
Sara Kaila (85)	282	194	112	82	88	36	52
Chhichheti (84)	435	333	187	146	102	38	64
Bakahan Kelewala (77)	200	160	92	68	40	7	33
Byas (142)	1006	653	377	276	353	143	210
Gulab Garh (141)	888	575	322	253	313	118	195
Toka Nagla (125)	1408	931	550	381	477	187	290
Kundiyan (126)	613	432	246	186	181	76	105
Ajia Wala (124)	650	427	275	152	223	84	139
Rampur Ghat (110)	1098	669	388	281	429	188	241
Sampda Shubh Khera (113)	419	303	174	129	116	60	56
Taruwala (114)	1018	790	428	362	228	83	145
Up Sampda Taruwala	Uninhabited Village						
Dharam Kot (122)	389	280	159	121	109	45	64
Up Sampda Dharam Kot	Uninhabited Village						
Dharam Kot Jangal	Uninhabited Village						
Gondpur (98)	1024	716	422	294	308	133	175
Behrewala (99)	1124	832	459	373	292	116	176
Amar Kot (97)	1624	1057	639	418	567	269	298
Nihal Garh (96)	1297	901	536	365	396	178	218
Jawalpur (95)	703	478	292	186	225	84	141
Kanshipur (94)	917	618	382	236	299	113	186

Ajauli (93)	516	352	205	147	164	49	115
Narain Garh (92)	909	517	311	206	392	167	225
Kishan Kot (91)	799	543	320	223	256	94	162
Muglawala Kartarpur (90)	1192	799	478	321	393	151	242
Rajban (89)	1877	1349	777	572	528	222	306
Sirmauri Tal (19)	464	299	178	121	165	52	113
Bangran (104)	965	612	345	267	353	142	211
Phulpur Shamshegarh (103)	688	459	276	183	229	95	134
Kanhu Wala (105)	773	567	316	251	206	73	133
Shivpur (102)	625	488	289	199	137	43	94
Mohkampur Nawada (106)	1798	1234	706	528	564	203	361
Akal Garh (107)	780	581	322	259	199	86	113
Haripur Tohana (101)	967	680	391	289	287	96	191
Bhungarni (100)	762	568	322	246	194	75	119
Patti Natha Singh (112)	372	266	164	102	106	42	64
Baroti Wala (109)	379	280	158	122	99	43	56
Ambwala Singh Pura (108)	195	133	70	63	62	25	37
Manpur Dewra (56)	3306	1855	1163	692	1451	621	830
Shampur Gorkhuwala (57)	4584	2887	1701	1186	1697	685	1012
Dudhla (58)	Uninhabited Village						
Puruwala (59)	1244	723	446	277	521	221	300
Dobri (60)	1798	1124	663	461	674	272	402
Danda (32)	2003	1287	732	555	716	298	418
Ram Nagar (34)	368	205	109	96	163	68	95
Amboa (33)	1735	1174	691	483	561	225	336
Kadela Adhwar (31)	934	574	335	239	360	144	216
Agrau (42)	388	226	132	94	162	58	104
Rajpur Dagwali (35)	1168	780	434	346	388	181	207
Kangra Gurasa (36)	361	236	129	107	125	47	78
Kulthina (29)	221	155	93	62	66	30	36
Nigali (37)	209	122	67	55	87	37	50
Banor (38)	1025	588	361	227	437	175	262
Bag (39)	251	149	102	47	102	47	55
Shiwa Ridana (40)	973	620	388	232	353	139	214
Bharli (41)	613	422	261	161	191	66	125
Nagheta (43)	1186	813	483	330	373	135	238
Kerka (44)	130	84	53	31	46	11	35
Danda (47)	537	392	230	162	145	41	104
Gojar Arian (53)	1417	812	476	336	605	270	335
Bhagani (54)	5757	3627	2091	1536	2130	892	1238
Guruwala (55)	497	330	194	136	167	62	105
Tatyana (219)	2033	998	561	437	1035	491	544
Baila Gujon (213)	552	302	175	127	250	123	127
Thountha Jakhal (214)	991	612	345	267	379	169	210
Sathaur (13)	282	174	97	77	108	44	64
Shikandon (11)	374	194	108	86	180	89	91
Korga (9)	825	410	253	157	415	173	242
Bag Hawra (10)	543	261	146	115	282	129	153
Ambaun (6)	184	104	54	50	80	41	39
Jandniyan (7)	108	64	32	32	44	23	21
Sadiyar (8)	339	205	115	90	134	58	76

Bhajhon (15)	531	327	195	132	204	76	128
Gabar (14)	206	128	84	44	78	30	48
Manal (16)	535	341	201	140	194	71	123
Sataun (18)	2963	2121	1193	928	842	367	475
Poka (21)	280	198	122	76	82	24	58
Bhatrog (20)	495	284	176	108	211	84	127
Kunair Dhamaun (30)	821	478	293	185	343	117	226
Kotga Kandon (28)	333	186	118	68	147	63	84
Bhitar Kui (27)	34	24	14	10	10	5	5
Nao Barwa (22)	180	101	61	40	79	38	41
Chauki Mirgwal (17)	642	338	187	151	304	151	153
Dhab Pipli (215)	554	266	148	118	288	121	167
Kanti Mishwa (216)	1193	703	408	295	490	205	285
Barwas (23)	1027	599	353	246	428	183	245
Khuenal Salag (25)	551	342	203	139	209	94	115
Baldwa Bohal (26)	536	316	188	128	220	95	125
Kamrou (24)	2217	1448	845	603	769	313	456
Chareu (218)	467	277	174	103	190	67	123
Shilla (217)	1447	824	515	309	623	271	352
Bokala Pab (241)	1135	700	416	284	435	180	255
Kandon Dugana (242)	2678	1545	902	643	1133	472	661
Shamahn Pamta (243)	623	408	235	173	215	86	129
Chitli (244)	348	200	121	79	148	54	94
Shaoga (245)	832	473	296	177	359	152	207
Rangwa Pabhar (246)	640	389	258	131	251	84	167
TOTAL (10km)	88141	56128	32884	23244	32013	13195	18818

Source-Census of India, 2011

3.7.9 Economic Profile of Sirmour District

As per the Census records 2011, the economic resources are an important means of subsistence for the working people of the district. Agriculture is the mainstay of economy in the district and about eighty per cent of the population is mainly dependent on the agriculture. Sirmour district has about eighty-five per cent small and marginal farmer families and the holdings are very small and scattered. The yield of crops is below the norm. Major food crops are grouped in three categories namely cereals, pulses and other food crops like chilies, ginger, sugarcane and turmeric. Non-food crops are of two kinds' viz. oil seeds and other crops such as cotton, tobacco etc. During the decade 2001-11, the agriculture production of various crops has increased two to three folds. The females play a main role in rural economy of the district.

Minerals and Mining

The important minerals found are limestone, gypsum and barites. These are being used by local industries as well as the sugar and paper industries of the adjoining states. Huge deposits of limestone varying from cement grade to chemical grade occur at Sataun, Manal,

and Hyona to Kamrau 'Tilor Dhar to Lalag. Paonta Sahib to Bharli, Barthal, Kanor, Borli, Sangrah, Nohra and Bhangri.

Its total reserves are of the order of 200 million tonnes. The limestone produced is used in the manufacture of cement, ordinary lime, and hydrated lime, in sugar and paper industries. Barites occur in the pockets at Kandi Mashwa, Tatyana and Ashnong. Three mines have been sanctioned for its production and it is mostly used in the paint industry. The mineral is white in colour and fine grained. It is associated with Krol limestone, dolomite, crystalline dolomite and calcite at these places.

3.7.10 Workers Scenario

Occupational Pattern was studied to assess the skills of people in the study area. Occupational pattern helps in identifying major economic activities of the area. In the study area the Main and Marginal Workers population was observed as 24279 (27.0%) and 15516 (18.0%) respectively of the total population (88141 persons) while the remaining 48346 (55.0%) persons were recorded as non-workers. Thus it implies that the semi-skilled and non-skilled work-force required in study area for the project is available in aplenty.

The village-wise main and marginal worker's population with further classification as casual, agricultural, households and other workers is shown as follows in **Table 3.22**.

Table 3.22: Village-wise Occupational Pattern (10 km)

Name of Village/Town	MAIN_WORK_P	MAIN_CL_P	MAIN_AL_P	MAIN_HH_P	MAIN_OT_P	MARG_WORK_P	MARG_CL_P	MARG_AL_P	MARG_HH_P	MARG_OT_P
Kandon Nadi (86)	79	3	1	0	75	96	65	0	0	31
Malgi Dadhyat (88)	24	9	1	0	14	233	227	5	1	0
Salag Saddi (87)	22	19	1	0	2	73	73	0	0	0
Sara Kaila (85)	21	10	0	0	11	213	213	0	0	0
Chhichheti (84)	129	80	0	2	47	171	169	0	0	2
Bakahan Kelewala (77)	42	16	0	0	26	94	91	0	0	3
Byas (142)	290	54	0	1	235	34	13	4	0	17
Gulab Garh (141)	272	57	8	2	205	71	61	5	2	3
Toka Nagla (125)	515	230	5	1	279	23	4	2	0	17
Kundiyan (126)	193	59	41	41	52	13	2	3	4	4
Ajia Wala (124)	221	50	0	0	171	9	0	0	0	9
Rampur Ghat (110)	381	160	7	98	116	111	27	1	30	53
Sampda Shubh Khera (113)	138	33	0	0	105	10	8	1	0	1
Taruwala (114)	289	49	0	2	238	11	6	0	1	4
Up Sampda Taruwala	Uninhabited Village									
Dharam Kot (122)	94	3	0	0	91	8	0	1	0	7
Up Sampda Dharam Kot	Uninhabited Village									
Dharam Kot Jangal	Uninhabited Village									
Gondpur (98)	397	101	2	4	290	62	40	0	0	22
Behrewala (99)	532	172	3	4	353	97	78	1	1	17
Amar Kot (97)	502	29	2	3	468	305	85	11	2	207
Nihal Garh (96)	502	134	4	3	361	9	5	1	0	3
Jawalpur (95)	253	100	1	6	146	1	1	0	0	0
Kanshipur (94)	281	95	1	0	185	18	5	0	1	12
Ajauli (93)	137	31	0	0	106	12	0	0	0	12
Narain Garh (92)	247	66	0	0	181	45	1	0	0	44
Kishan Kot (91)	192	49	0	2	141	14	3	0	0	11
Muglawala Kartarpur (90)	365	85	1	2	277	14	7	0	0	7
Rajban (89)	549	42	5	0	502	33	7	9	0	17
Sirmauri Tal (19)	135	49	0	0	86	0	0	0	0	0

Bangran (104)	202	44	0	3	155	106	2	4	1	99
Phulpur Shamshergarh (103)	253	60	43	17	133	6	0	0	4	2
Kanhu Wala (105)	254	65	25	28	136	6	1	0	1	4
Shivpur (102)	187	82	2	5	98	50	17	7	0	26
Mohkampur Nawada (106)	419	75	8	2	334	279	104	20	6	149
Akal Garh (107)	238	70	7	15	146	19	2	4	1	12
Haripur Tohana (101)	278	122	0	0	156	129	69	2	1	57
Bhungarni (100)	249	72	15	0	162	3	0	0	0	3
Patti Natha Singh (112)	154	44	1	0	109	70	55	0	0	15
Baroti Wala (109)	20	1	0	0	19	46	3	2	1	40
Ambwala Singh Pura (108)	18	5	1	0	12	26	4	2	3	17
Manpur Dewra (56)	473	107	173	1	192	1024	353	433	16	222
Shampur Gorkhuwala (57)	1073	288	35	21	729	868	461	151	9	247
Dudhla (58)	Uninhabited Village									
Puruwala (59)	230	49	5	16	160	254	52	120	0	82
Dobri (60)	579	100	14	2	463	393	190	71	1	131
Danda (32)	392	128	5	7	252	356	222	35	5	94
Ram Nagar (34)	73	49	1	0	23	117	112	2	0	3
Amboa (33)	358	114	5	4	235	489	372	17	3	97
Kadela Adhwar (31)	310	202	20	2	86	241	234	1	0	6
Agrau (42)	142	70	11	4	57	94	51	10	2	31
Rajpur Dagwali (35)	238	157	0	1	80	398	382	0	0	16
Kangra Gurasa (36)	23	6	2	1	14	153	150	0	0	3
Kulthina (29)	83	82	0	0	1	63	62	1	0	0
Nigali (37)	113	98	0	0	15	41	40	0	0	1
Banor (38)	456	382	11	1	62	188	181	1	0	6
Bag (39)	84	57	0	0	27	91	90	0	0	1
Shiwa Ridana (40)	358	308	11	0	39	359	343	6	0	10
Bharli (41)	202	196	0	0	6	176	176	0	0	0
Naghetta (43)	112	56	1	2	53	574	538	3	4	29
Kerka (44)	20	17	0	0	3	63	58	0	0	5
Danda (47)	107	61	1	0	45	36	18	13	0	5
Gojar Arian (53)	422	157	10	5	250	226	206	1	2	17

Bhagani (54)	1276	715	41	13	507	766	286	344	13	123
Guruwala (55)	115	83	0	2	30	96	93	0	0	3
Tatyana (219)	549	381	9	1	158	362	326	30	0	6
Baila Gujon (213)	159	127	0	0	32	140	139	1	0	0
Thountha Jakhal (214)	285	237	1	0	47	160	109	0	0	51
Sathaur (13)	83	74	0	0	9	81	81	0	0	0
Shikandon (11)	110	80	7	0	23	132	132	0	0	0
Korga (9)	183	128	0	0	55	466	454	5	1	6
Bag Hawra (10)	112	87	0	0	25	218	214	0	1	3
Ambaun (6)	48	22	1	0	25	27	12	10	0	5
Jandniyan (7)	7	0	0	0	7	41	1	39	0	1
Sadiyar (8)	27	7	0	0	20	125	17	108	0	0
Bhajhon (15)	85	60	1	0	24	181	178	2	0	1
Gabar (14)	125	121	0	0	4	44	22	0	2	20
Manal (16)	187	162	0	0	25	213	169	0	1	43
Sataun (18)	920	167	26	11	716	73	22	5	3	43
Poka (21)	125	74	1	0	50	4	1	0	0	3
Bhatrog (20)	122	55	0	1	66	16	0	0	0	16
Kunair Dhamaun (30)	255	240	1	0	14	7	3	1	0	3
Kotga Kandon (28)	137	126	0	0	11	0	0	0	0	0
Bhitar Kui (27)	14	12	0	0	2	0	0	0	0	0
Nao Barwa (22)	111	77	0	0	34	3	0	0	0	3
Chauki Mirgwal (17)	188	153	0	1	34	175	173	0	0	2
Dhab Pipli (215)	125	104	1	1	19	158	156	0	0	2
Kanti Mishwa (216)	308	258	0	0	50	285	273	3	0	9
Barwas (23)	309	131	6	1	171	273	235	4	0	34
Khuenal Salag (25)	189	72	4	0	113	9	3	0	0	6
Baldwa Bohal (26)	169	92	1	0	76	151	148	0	0	3
Kamrou (24)	684	256	4	1	423	477	399	5	0	73
Chareu (218)	24	1	0	0	23	99	99	0	0	0
Shilla (217)	374	241	3	2	128	500	468	1	4	27
Bokala Pab (241)	401	220	0	3	178	271	219	26	0	26
Kandon Dugana (242)	821	512	102	0	207	707	639	45	3	20

Shamahn Pamta (243)	203	48	111	4	40	67	32	0	2	33
Chitli (244)	95	57	5	0	33	82	19	1	0	62
Shaoga (245)	260	187	2	2	69	212	7	1	0	204
Rangwa Pabhar (246)	172	61	5	2	104	171	14	1	1	155
TOTAL (10km)	24279	10537	822	353	12567	15516	10882	1582	133	2919

Source-Census of India, 2011

ABBREVIATIONS:

MAIN WORKERS POPULATION: MAIN_WORK_P: Main worker's total population, MAIN_CL_P: Main cultivated labour population, MAIN_AL_P: Main agricultural labour population, MAIN_HH_P: Main workers population involved in household industries, MAIN_OT_P: Main other worker's population

MARGINAL WORKERS POPULATION:

MARG_WORK_P: Marginal worker's total population, MARG_CL_P: Marginal cultivated labors total population, MARG_AL_P: Marginal agricultural labors population, MARG_HH_P: Marginal workers involved in household industries, MARG_OT_P : Marginal other workers Population

Distribution of work participation rate of the study area population is shown in **Table 3.23** as follows;

Table 3.23: Distribution of Work Participation Rate (10 km)

Occupation Class	Year, 2011
Main Workers	24279 (27.0%)
Male	20522 (84.5%)
Female	3757 (15.5%)
Marginal Workers	15516 (18.0%)
Male	5614 (36.2%)
Female	9902 (63.8%)
Non-Workers	48346 (55.0%)
Male	19943 (41.3%)
Female	28403 (58.7%)
Total Population (10km)	88141
Source: Census of India Records, 2011	

Graphical representation of Workers Scenario is given below as **Figure 3.11**.

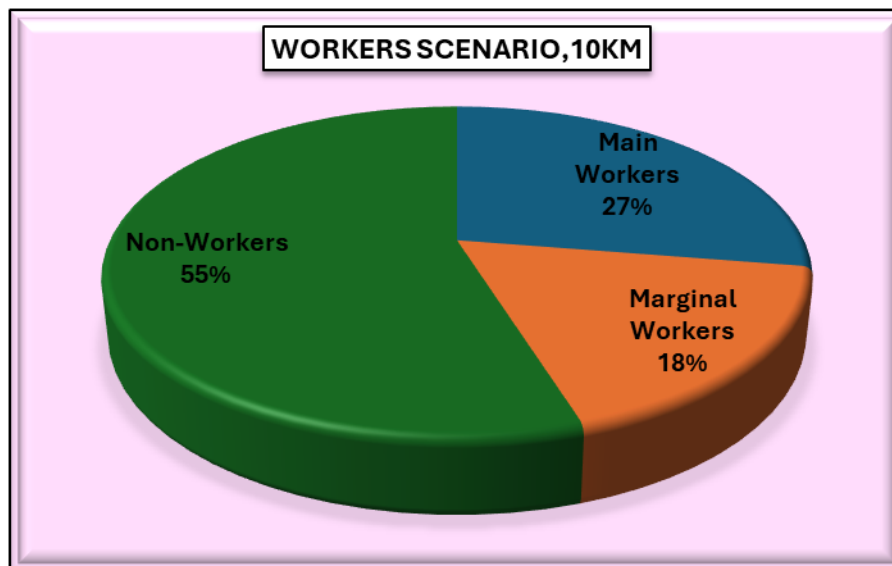


Figure 3.11: Workers Scenario of Study Area

i) Composition of Main Workers:

The 'Main Workers' were observed as 24279 persons (27.0%) to the total population of the study area and its composition is made-up of Casual labourers as 10537 (43.0%), Agricultural

labourers as 822 (3.0%), Household workers 353 (2.0%) and other workers as 12567 (52.0%) respectively. Composition of Main workers is shown below as **Figure 3.11**

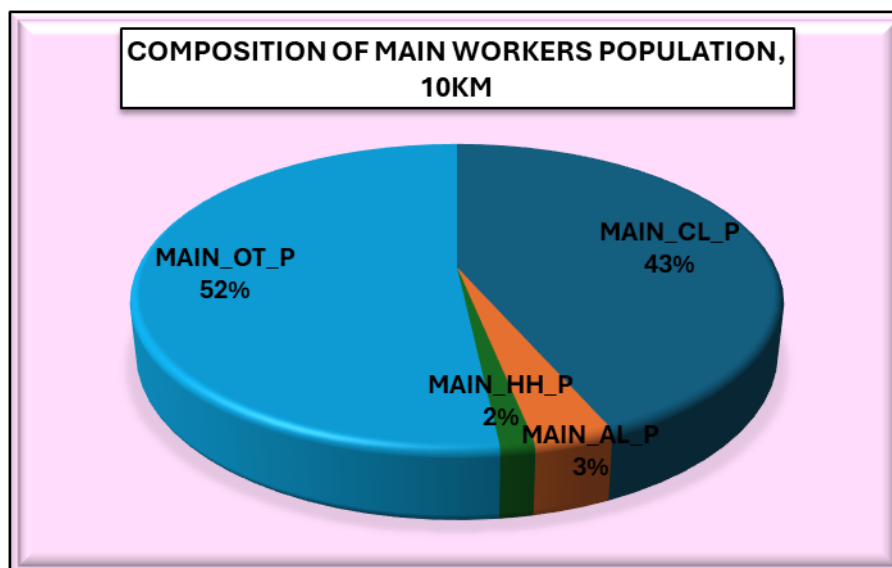


Figure 3.12: Composition of Main Workers Population

ii) Composition of Marginal Workers:

The total marginal workers are observed as 15516 which constitute 18.0% to the total population (88141 persons) comprise of Marginal Casual Labourers as 10882 (71.0%), Marginal Agricultural Labourers as 1522 (10.0%), Marginal Household labourers as 133 (1.0%) and marginal other workers were also observed as 2919 (19.0%) of the total marginal workers respectively.

Details about marginal workers in the study area are tabulated in **Table 3.23**. Composition of Marginal workers is shown in **Figure 3.13** as follows.

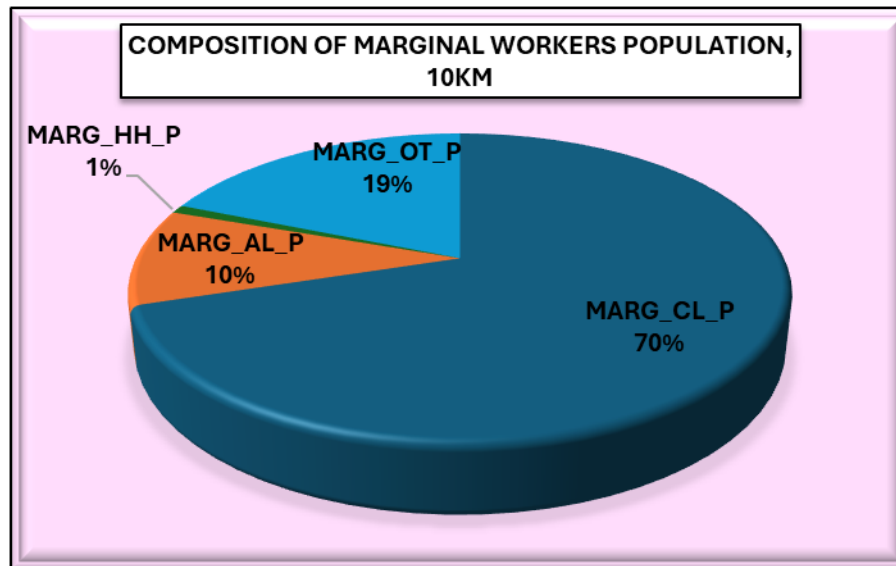


Figure 3.13: Composition of Marginal Workers

iii) Composition of Non-Workers:

The total Non-worker's population was observed as 48346 which constitute 55.0% to the total population (88141 persons) of the study area. Male-female wise Non-worker's population was recorded as 19943 Males (41.3%) and 28403 Females (58.7%) respectively.

Details about Total Non-workers in the study area are compiled in **Table 3.24** and Graphical representation of Non-worker's population is shown as follows in **Figure 3.14**.

Table 3.24: Composition of Non-Workers

Non-Workers Population		
Persons	Males	Females
48346	19943 (41.3%)	28403 (58.7%)

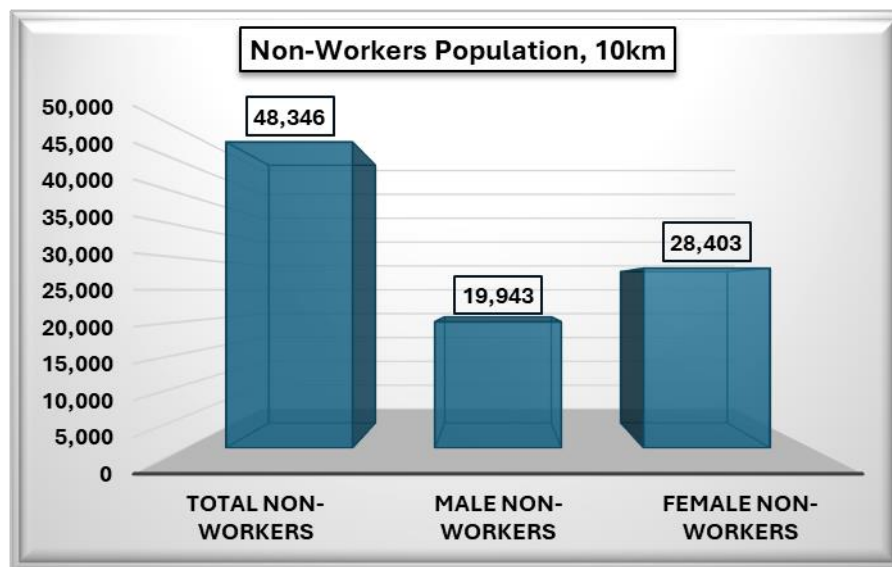


Figure 3.14: Composition of non-Workers

3.7.11 Basic Infrastructure Facilities Availability (as per the census records of 2011)

A review of basic infrastructure facilities (Amenities) available in the study area has been done on the basis of the field survey and Census records, 2011 for the study area inhabited revenue villages of Sirmour District in Himachal Pradesh state. The study area has average level of basic infrastructure facilities like educational, medical, potable water and power supply, transport & communication network etc.

As per the Census Records 2011, the study area has a total no. of 100 villages falling in 2 tehsils i.e. Paonta Sahib (65 Villages), Kamrau (35 Villages) of Sirmour district in Himachal Pradesh state. There are 4 villages observed as uninhabited villages in the 10km radial study zone. No town was found in the study area.

i) Educational Facilities

There is a total no. of 129 Primary schools existing in the 10km radius study area. Fifty-one (51) no of Middle schools are found in the study area. Only 23 Higher Secondary School (SS) are available in the study area. Only 17 no. of Senior Secondary School (SSS) facility is available in the study area. The educational facilities have been further strengthening now and a number of private public schools and colleges are also functioning in the surroundings of the study area. Besides, there are Engineering and Medical colleges available in Towns and District headquarters only. Higher education facilities are available in Towns of the district. There is a considerable improvement in educational facility. The villages of the study

area have no such facilities can reach within 5 to 10km range. There is only one town named Paonta Sahib available in the range of 0 to 70km from the villages of 10km radial study area.

Availability of University Education

There are five Degree colleges in the district. For higher education; the students of this district have to go either to Shimla or Dehradun in Uttarakhand.

iii) Medical Facilities

The medical facilities are provided by different agencies like Govt. & Private individuals and voluntary organizations in the study area. As per the district census handbook information of 2011, only 4 primary health centres exist in the study area; most of the study area villages depend upon the towns & district HQ of the study area having such facility.

Only 12 no of Primary Health Sub-centres exists in the rural part of the study area. Only 2 no of Mother & Child Welfare Centre was found in the study area. No Allopathic Hospital found in the study zone. About only 17 medical dispensaries exist in the study area. Family Welfare Centre was not found in the study zone. Overall study area villages are served by moderate level of medical facilities. Specialized medical facilities are available only in towns and District Headquarter (HQ) only.

iv) Potable Water Facilities

Potable water facility is available in most of the villages/towns of the study area. The entire study area has average level of potable water facilities. Hand Pump (HP) facility is observed only in 39 villages (39.0%) the study area as potable water facility. Out of total 100 villages, only 28 villages (28.0%) are served with River/Canal water in the study area. As per the census records of 2011, only 4 villages being served with Tank/Pond/Lake in the study area.

v) Communication, Road & Transport Facilities

Apart from Post & Telegraph (P & T) services, transport is the main communication linkage in the study area. About 23 villages (23.0%) were found serving with Post Office facilities in the study area, remaining villages are depending upon towns of the study area. The study area has average rail and road network, passes from the area.

Nearest railway station Salogra Railway Station is located at approx. approx. 67.26 km towards NW direction (Aerial distance). Shimla Airport is located at approx. 83.0 km towards

NW direction. District Headquarter Nahan, located at approx. 35.29 km in West direction. Nearest State/National Highway NH-72 (Poanta Hatkoti Road)-About 0.60km in SW direction and SH-1, is passing at About 4.71 km in E direction.

The proposed mining lease area is located in Khasra Nos. 46/1, 47/1, 48/1, 49/1, 50, 51, 52/1, 55, 56 & 71 measuring an area 35-06 Bighas or 2.9755 Hectare (Private Land River Bed) falling in Mauza/Mohal Bhatrog, Tehsil Paonta Sahib, District Sirmour, Himachal Pradesh. The mining site is located in the river bed of River Giri besides the village Bhatrog. The site is approachable through the Salwala - Stauan road near Bhatrog village about 7-50 kilometres from Salwala. The proposed mining site is located within the riverbed of river Giri. The highest point of mining lease area is 471 meters above MSL and lowest point is 470 meters above MSL and average width is 100 to 150 mtrs. However; the total width of river Giri in this part is approximately 270-340 meters.

v) Banking Facility

The study area has almost all the schedule commercial banks with ATM facility at nearest urban areas and the district HQ. The district Sirmour has adequate banking facilities, most of the banks are situated at district, sub-district and block HQ.

vi) Power Supply

It is revealed from the compiled information on Amenities availability as per the census record of 2011; most of the villages and towns are electrified for Domestic, Agriculture, and Commercial & for all purposes. Almost all (about 100%) concerned villages and towns of the study area are electrified for Domestic, Agriculture and Commercial purposes. Out of the total 100 villages, about 58 villages (58.0%) are electrified for all purposes.

As per the district census handbook, 2011, one hydroelectric power station was installed across the Giri River during the year, 1978-79 with an installed capacity of 60 MW. Two lines namely, 220 KV Khodri Majri line and 132 KV D/C Giri Kala Amb line are also executed, which were financed by the World Bank. The two system improvement schemes in tehsil Shillai & Renuka are also being operated. Under this scheme, 2 units (2 x 1.6 MVA), as 33/11 KV sub-station at Shillai under same tehsil and (2 x 1.6 MVA), 33/11 KV sub-station at Charna in Renuka tehsil) has been commissioned to improve the low voltage and reduction in power losses in the area.

Village/town wise Basic Infrastructure and Amenities availabilities data for the entire study area is compiled and presented in **Table 3.25** as follows;

Table 3.25: Village wise Basic Amenities Availability (10km)

Village/Town Name	Educational				Medical							Drinking Water							C T	Communication & Transport				Approach to the Village				Power Supply				Nearest Town Distance from Village,km
	P	M	S S	SS S	C H C	P H C	P H S C	M C W C	H	D	F W C	T	W	H P	T W	R	T K	P O		P T O	BS	R S	P R	K R	N W	FP	E D	E Ag.	E C	E A		
Kandon Nadi (86)	1	0	0	0	0	0	0	0	0	1	0	1	2	2	2	2	2	2	2	1	2	1	2	2	1	1	1	1	1	2	Paonta Sahib,20km	
Malgi Dadhyat (88)	2	1	0	0	0	0	0	0	0	0	0	1	2	2	2	2	2	2	2	2	2	2	1	2	1	1	1	1	1	Paonta Sahib,15km		
Salag Saddi (87)	0	0	0	0	0	0	0	0	0	0	0	1	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	Paonta Sahib,16km		
Sara Kaila (85)	1	0	0	0	0	0	0	0	0	0	0	1	2	2	2	2	2	2	2	2	2	2	1	2	1	1	1	1	1	Paonta Sahib,19km		
Chhichheti (84)	1	1	1	0	0	0	0	0	0	0	0	1	2	2	2	2	2	2	1	2	1	2	2	1	2	1	1	1	1	1	Paonta Sahib,20km	
Bakahan Kelewala (77)	0	0	0	0	0	0	0	0	0	0	0	1	2	2	2	2	2	2	2	1	2	2	1	2	1	1	1	1	1	1	Paonta Sahib,41km	
Byas (142)	1	0	0	0	0	0	0	0	0	1	0	1	1	1	1	1	2	2	2	1	2	1	1	2	1	1	1	1	1	1	Paonta Sahib,11km	
Gulab Garh (141)	1	1	0	0	0	0	0	0	0	0	0	1	1	1	1	1	2	2	2	1	2	1	1	2	1	1	1	1	1	1	Paonta Sahib,11km	
Toka Nagla (125)	1	1	0	0	0	0	0	0	0	0	0	1	1	1	1	1	2	2	2	1	2	1	1	1	1	1	1	1	1	1	Paonta Sahib,10km	
Kundiyan (126)	1	0	0	0	0	0	0	1	0	1	0	1	1	1	1	1	2	2	2	1	2	1	1	2	1	1	1	1	1	1	Paonta Sahib,9km	
Ajia Wala (124)	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	2	2	2	2	1	2	1	1	2	1	1	1	1	1	1	Paonta Sahib,8km	
Rampur Ghat (110)	1	1	0	0	0	0	0	0	0	0	0	1	1	1	1	2	2	2	2	2	2	1	1	2	1	1	1	1	1	1	Paonta Sahib,3km	
Sampda Shubh Khera (113)	1	1	1	1	0	0	0	0	0	0	0	1	1	1	1	1	2	2	2	1	2	1	2	2	1	1	1	1	1	1	Paonta Sahib,1km	
Taruwala (114)	1	1	1	1	0	0	1	0	0	1	0	1	2	1	1	1	2	2	1	2	1	2	2	1	1	1	1	1	1	1	Paonta Sahib,3km	
Up Sampda Taruwala	Uninhabited Village																													Paonta Sahib,3km		
Dharam Kot (122)	0	0	0	0	0	0	0	0	0	0	0	1	2	1	1	1	2	2	2	1	2	1	1	2	1	1	1	1	1	1	Paonta Sahib,4km	
Up Sampda Dharam Kot	Uninhabited Village																													Paonta Sahib,3km		
Dharam Kot Jangal	Uninhabited Village																													Paonta Sahib,3km		
Gondpur (98)	0	0	0	0	0	0	1	0	0	0	0	1	2	1	1	2	2	2	2	1	2	1	2	2	1	1	1	1	1	1	Paonta Sahib,5km	
Behrewala (99)	1	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	2	2	2	1	2	1	2	2	1	1	1	1	1	1	Paonta Sahib,3km	
Amar Kot (97)	1	0	0	0	0	0	0	0	0	0	0	1	2	1	1	2	2	2	2	1	2	1	2	2	1	1	1	1	1	1	Paonta Sahib,5km	
Nihal Garh (96)	1	1	1	1	0	0	0	0	0	0	0	1	2	1	1	2	2	2	1	2	1	2	2	1	1	1	1	1	1	1	Paonta Sahib,5km	
Jawalpur (95)	1	1	0	0	0	0	0	0	0	0	0	1	2	2	1	2	2	2	2	1	2	2	2	2	1	1	1	1	1	1	Paonta Sahib,8km	
Kanshipur (94)	1	0	0	0	0	0	0	0	0	0	0	1	2	2	1	2	2	2	2	1	2	2	2	2	1	1	1	1	1	1	Paonta Sahib,9km	
Ajauli (93)	1	1	1	1	0	0	1	0	0	0	0	1	2	2	1	2	2	2	2	1	1	2	2	2	1	1	1	1	1	1	Paonta Sahib,10km	
Narain Garh (92)	1	0	0	0	0	0	0	0	0	0	0	1	2	2	1	2	2	2	2	1	2	2	2	2	1	1	1	1	1	1	Paonta Sahib,11km	
Kishan Kot (91)	0	0	0	0	0	0	0	0	0	0	0	1	2	2	1	2	2	2	2	1	2	2	2	2	1	1	1	1	1	1	Paonta Sahib,12km	

Draft EIA/EMP for the Riverbed Mining Project on the Giri River for the Extraction of Sand, Stone, and Bajri on Private Land at Khasra Nos. 46/1, 47/1,48/1, 49/1, 50, 51, 52/1, 55, 56 & 7, Measuring an Area of 35-06 Bighas or 2.9755 Hectare, Located in Mauza/Mohal Bhatrog, Tehsil Paonta Sahib, District Sirmour, Himachal Pradesh, Proposed by M/s Shirgul Mines & Mineral, Part II, Partner Sh. Rishi Kumar Aggarwal, Sh Naveen Kumar, Sh Sher Singh Negi & Sh Manish Kumar

Chapter-3 Baseline Study

Muglawala Kartarpur (90)	1	1	0	0	0	0	1	0	0	0	0	1	2	2	1	2	2	2	2	1	2	2	2	2	1	1	1	1	1	Paonta Sahib,13km				
Rajban (89)	2	2	1	1	0	0	0	0	0	0	0	0	1	2	2	2	2	2	1	2	2	2	1	2	1	1	1	1	1	Paonta Sahib,15km				
Sirmauri Tal (19)	1	1	0	0	0	0	0	0	0	0	0	0	1	2	2	2	2	2	2	1	2	2	2	2	1	1	1	1	1	Paonta Sahib,17km				
Bangran (104)	1	0	0	0	0	0	0	0	0	0	0	0	1	2	1	1	2	2	2	2	1	2	1	1	2	1	1	1	1	1	Paonta Sahib,9km			
Phulpur Shamshegarh (103)	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	2	2	2	2	2	1	2	1	1	2	1	1	1	1	1	Paonta Sahib,8km		
Kanhu Wala (105)	1	0	0	0	0	0	0	0	0	0	0	0	1	2	1	1	2	2	2	1	2	1	2	1	1	2	1	1	1	1	1	Paonta Sahib,7km		
Shivpur (102)	1	1	1	1	0	0	1	0	0	0	0	0	1	1	1	1	2	2	2	1	2	1	2	1	1	2	1	1	1	1	1	1	Paonta Sahib,6km	
Mohkampur Nawada (106)	2	1	0	0	0	0	1	0	0	0	0	0	1	2	1	1	2	2	2	2	2	1	2	1	1	2	1	1	1	1	1	1	Paonta Sahib,10km	
Akal Garh (107)	1	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	2	2	2	2	2	1	2	1	1	2	1	1	1	1	1	1	Paonta Sahib,6km	
Haripur Tohana (101)	1	0	0	0	0	0	0	0	0	0	0	0	1	1	2	1	2	2	2	2	2	1	2	1	1	2	1	1	1	1	1	1	Paonta Sahib,5km	
Bhungarni (100)	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	2	2	2	2	2	1	2	1	1	2	1	1	1	1	1	1	Paonta Sahib,4km
Patti Natha Singh (112)	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	2	2	2	2	2	1	2	1	1	2	1	1	1	1	1	1	1	Paonta Sahib,7km
Baroti Wala (109)	0	0	0	0	0	0	0	0	0	0	0	0	1	2	1	1	2	2	2	2	2	2	2	1	1	2	1	1	1	1	1	1	1	Paonta Sahib,7km
Ambwala Singh Pura (108)	1	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	2	2	2	2	2	2	2	1	1	2	1	1	1	1	1	1	1	Paonta Sahib,8km
Manpur Dewra (56)	2	1	1	0	0	0	1	0	0	0	0	0	1	2	1	1	1	2	2	1	2	2	2	1	1	2	1	1	1	1	1	1	1	Paonta Sahib,16km
Shampur Gorkhuwala (57)	3	2	1	1	0	0	1	0	0	1	0	1	2	1	1	1	2	2	2	1	2	1	2	1	1	2	1	1	1	1	1	1	1	Paonta Sahib,15km
Dudhla (58)	Uninhabited Village																											Paonta Sahib,13km						
Puruwala (59)	1	0	0	0	0	0	0	0	0	1	0	1	2	1	1	1	2	2	2	2	1	2	1	1	2	1	1	1	1	1	1	1	Paonta Sahib,12km	
Dobri (60)	1	1	1	0	0	0	0	0	0	0	0	0	1	2	1	1	1	2	2	2	2	2	2	1	1	2	1	1	1	1	1	1	1	Paonta Sahib,14km
Danda (32)	3	1	0	0	0	0	1	0	0	0	0	0	1	2	2	2	2	2	2	2	1	2	1	1	2	1	1	1	1	1	1	1	1	Paonta Sahib,15km
Ram Nagar (34)	1	0	0	0	0	0	0	0	0	0	0	0	1	2	2	2	2	2	2	2	2	1	2	2	1	2	1	1	1	1	1	2	Paonta Sahib,20km	
Amboa (33)	3	1	1	1	0	0	0	0	0	0	0	0	1	2	2	2	2	2	2	2	2	1	2	1	1	2	1	1	1	1	1	1	1	Paonta Sahib,18km
Kadela Adhwar (31)	3	1	0	0	0	0	0	0	0	0	0	0	1	2	2	2	2	2	2	2	2	1	2	2	1	2	1	1	1	1	1	1	1	Paonta Sahib,18km
Agrau (42)	2	1	0	0	0	0	0	0	0	0	0	0	1	2	2	2	2	2	2	2	2	1	2	2	2	1	2	1	1	1	1	1	1	Paonta Sahib,25km
Rajpur Dagwali (35)	3	0	0	0	1	0	0	0	0	0	0	0	1	2	2	2	2	2	2	1	1	1	2	1	1	2	1	1	1	1	1	1	1	Paonta Sahib,21km
Kangra Gurasa (36)	1	0	0	0	0	0	0	0	0	0	0	0	1	2	2	2	2	2	2	2	2	1	2	2	1	2	1	1	1	1	1	1	1	Paonta Sahib,22km
Kulthina (29)	1	0	0	0	0	0	0	0	0	0	0	0	1	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	2	Paonta Sahib,35km	
Nigali (37)	1	0	0	0	0	0	0	0	0	0	0	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	Paonta Sahib,48km
Banor (38)	2	2	1	0	0	0	0	0	0	1	0	1	2	2	2	2	2	2	2	1	2	1	2	2	1	2	1	1	1	1	1	1	1	Paonta Sahib,42km
Bag (39)	1	0	0	0	0	0	0	0	0	0	0	0	1	2	2	2	2	2	2	2	1	2	2	2	1	2	1	1	1	1	1	1	1	Paonta Sahib,40km
Shiwa Ridana (40)	1	1	0	0	0	0	1	0	0	0	0	0	1	2	2	2	2	2	2	1	2	1	2	2	1	2	1	1	1	1	1	1	1	Paonta Sahib,38km
Bharli (41)	1	0	0	0	0	0	0	0	0	0	0	0	1	2	2	2	2	2	2	2	2	1	2	2	1	2	1	1	1	1	1	1	1	Paonta Sahib,35km
Nagheta (43)	2	1	1	1	0	0	0	0	0	0	1	0	1	2	2	2	2	2	2	1	2	1	2	1	1	2	1	1	1	1	1	1	1	Paonta Sahib,30km
Kerka (44)	1	0	0	0	0	0	0	0	0	0	0	0	1	2	2	2	2	1	2	2	2	1	2	2	1	2	1	1	1	1	1	1	1	Paonta Sahib,32km
Danda (47)	1	1	0	0	0	0	0	0	0	0	0	0	1	2	2	2	2	1	2	1	2	2	2	2	1	2	1	1	1	1	1	1	1	Paonta Sahib,35km

Draft EIA/EMP for the Riverbed Mining Project on the Giri River for the Extraction of Sand, Stone, and Bajri on Private Land at Khasra Nos. 46/1, 47/1,48/1, 49/1, 50, 51, 52/1, 55, 56 & 7, Measuring an Area of 35-06 Bighas or 2.9755 Hectare, Located in Mauza/Mohal Bhatrog, Tehsil Paonta Sahib, District Sirmour, Himachal Pradesh, Proposed by M/s Shirgul Mines & Mineral, Part II, Partner Sh. Rishi Kumar Aggarwal, Sh Naveen Kumar, Sh Sher Singh Negi & Sh Manish Kumar

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Gojar Arian (53)	1	1	0	0	0	0	0	0	0	0	0	0	1	2	1	1	1	2	2	2	2	1	2	1	1	2	1	1	1	1	1	Paonta Sahib,27km	
Bhagani (54)	4	1	1	1	0	1	0	0	0	0	1	0	1	1	1	1	1	2	2	2	2	1	2	1	1	1	2	1	1	1	1	1	Paonta Sahib,20km
Guruwala (55)	0	0	0	0	0	0	0	0	0	0	0	0	1	2	1	1	1	2	2	2	2	1	2	1	1	2	1	1	1	1	1	1	Paonta Sahib,18km
Tatyana (219)	3	1	1	1	0	0	0	0	0	0	1	0	1	2	2	2	2	2	2	1	2	2	2	1	1	2	1	1	1	1	1	2	Paonta Sahib,58km
Baila Gujon (213)	1	1	0	0	0	0	0	0	0	0	0	0	1	2	2	2	2	2	2	2	2	2	2	2	1	2	1	1	1	1	1	2	Paonta Sahib,69km
Thountha Jakhal (214)	2	1	0	0	0	0	0	0	0	0	1	0	1	2	2	2	2	2	2	2	2	2	2	1	1	2	1	1	1	1	1	2	Paonta Sahib,62km
Sathaur (13)	1	1	0	0	0	0	0	0	0	0	0	0	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	2	Paonta Sahib,45km
Shikandon (11)	1	0	0	0	0	0	0	0	0	0	0	0	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	2	Paonta Sahib,45km
Korga (9)	3	1	1	1	0	0	0	1	0	1	0	1	2	2	2	2	2	2	2	1	2	2	2	2	2	1	2	1	1	1	1	2	Paonta Sahib,40km
Bag Hawra (10)	1	1	0	0	0	0	0	0	0	0	0	0	1	2	2	2	2	2	2	2	2	2	2	2	1	2	1	1	1	1	1	2	Paonta Sahib,38km
Ambaun (6)	1	0	0	0	0	0	0	0	0	0	0	0	1	2	2	2	2	1	2	2	2	2	1	2	2	1	2	1	1	1	1	2	Paonta Sahib,31km
Jandniyan (7)	0	0	0	0	0	0	0	0	0	0	0	0	1	2	2	2	1	2	2	2	2	1	2	2	1	2	1	1	1	1	1	2	Paonta Sahib,30km
Sadiyar (8)	1	1	1	0	0	0	0	0	0	0	0	0	1	2	1	2	1	2	1	2	2	1	2	2	1	2	1	1	1	1	1	2	Paonta Sahib,30km
Bhajhon (15)	1	0	0	0	0	0	0	0	0	0	0	0	1	2	1	2	2	1	2	2	2	1	2	2	1	2	1	1	1	1	1	2	Paonta Sahib,28km
Gabar (14)	0	0	0	0	0	0	0	0	0	0	0	0	1	2	2	2	2	2	1	2	2	1	2	2	2	2	1	1	1	1	1	2	Paonta Sahib,27km
Manal (16)	1	1	0	0	0	0	0	0	0	0	0	0	1	2	2	1	1	2	2	2	2	1	2	2	2	2	2	1	1	1	1	2	Paonta Sahib,22km
Sataun (18)	3	1	1	1	0	1	0	0	0	0	0	0	1	2	1	2	1	2	2	1	1	1	2	1	1	2	1	1	1	1	1	2	Paonta Sahib,20km
Poka (21)	1	1	0	0	0	0	0	0	0	0	0	0	1	2	2	2	2	2	2	1	2	2	2	2	1	2	1	1	1	1	1	2	Paonta Sahib,25km
Bhatrog (20)	2	0	0	0	0	0	0	0	0	0	0	0	1	2	2	2	2	2	2	2	2	2	2	2	1	2	1	1	1	1	1	2	Paonta Sahib,20km
Kunair Dhamaun (30)	1	1	0	0	0	0	0	0	0	0	0	0	1	2	2	2	2	2	2	2	2	2	2	2	1	2	1	1	1	1	1	2	Paonta Sahib,15km
Kotga Kandon (28)	1	1	0	0	0	0	0	0	0	0	0	0	1	2	2	2	2	2	2	2	2	2	2	2	1	2	2	1	1	1	1	2	Paonta Sahib,30km
Bhitar Kui (27)	1	0	0	0	0	0	0	0	0	0	0	0	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	2	Paonta Sahib,35km
Nao Barwa (22)	1	0	0	0	0	0	0	0	0	0	0	0	1	2	2	2	1	2	2	2	2	2	2	2	1	2	1	1	1	1	1	2	Paonta Sahib,25km
Chauki Mirgwal (17)	2	0	0	0	0	0	0	0	0	0	0	0	1	2	2	2	1	2	2	2	2	2	2	2	2	1	2	1	1	1	1	2	Paonta Sahib,38km
Dhab Pipli (215)	1	0	0	0	0	0	0	0	0	0	0	0	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	2	Paonta Sahib,30km
Kanti Mishwa (216)	2	1	1	1	0	1	0	0	0	0	1	0	1	2	2	1	2	2	2	1	2	2	2	2	1	2	1	1	1	1	1	2	Paonta Sahib,35km
Barwas (23)	2	1	1	0	0	0	0	0	0	0	1	0	1	2	2	1	2	2	2	2	2	2	2	1	1	2	1	1	1	1	1	2	Paonta Sahib,32km
Khuenal Salag (25)	2	0	0	0	0	0	0	0	0	0	0	0	1	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	Paonta Sahib,37km
Baldwa Bohal (26)	2	0	0	0	0	0	0	0	0	0	0	0	1	2	2	2	2	2	2	2	2	1	2	2	2	2	2	1	1	1	1	2	Paonta Sahib,37km
Kamrou (24)	3	1	1	1	0	1	0	0	0	0	0	0	1	2	1	2	2	2	2	1	1	1	2	1	1	2	1	1	1	1	1	2	Paonta Sahib,35km
Chareu (218)	1	1	0	0	0	0	0	0	0	0	0	0	1	2	1	2	1	2	2	2	2	1	2	1	2	2	1	1	1	1	1	2	Paonta Sahib,63km
Shilla (217)	2	1	0	0	0	0	1	0	0	1	0	1	2	1	2	1	2	2	2	1	2	1	2	1	1	2	1	1	1	1	1	2	Paonta Sahib,57km
Bokala Pab (241)	2	1	1	1	0	0	0	0	0	0	1	0	1	2	1	2	1	2	2	1	2	1	2	1	1	2	1	1	1	1	1	2	Paonta Sahib,55km
Kandon Dugana (242)	5	1	1	1	0	0	1	0	0	0	0	0	1	2	1	2	1	2	2	1	2	1	2	2	2	2	2	1	1	1	1	2	Paonta Sahib,35km
Shamahna Pamta (243)	2	1	0	0	0	0	0	0	0	0	1	0	1	2	2	2	1	2	2	2	2	1	2	2	2	2	2	1	1	1	1	2	Paonta Sahib,35km

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Chitli (244)	2	0	0	0	0	0	0	0	0	0	0	0	1	2	2	2	1	2	2	2	2	2	2	2	2	1	1	1	1	2	Paonta Sahib,35km
Shaoga (245)	3	0	0	0	0	0	0	0	0	0	0	0	1	2	1	2	2	2	2	1	2	1	2	1	2	1	1	1	1	2	Paonta Sahib,35km
Rangwa Pabhar (246)	2	0	0	0	0	0	0	0	0	0	0	0	1	2	2	2	1	1	2	2	2	1	2	1	1	1	1	1	1	2	Paonta Sahib,39km
TOTAL (10km)	1												Status for Availability and Non-Availability is shown as A (1) & NA (2)																		
	2	5	2				1			1																					
	9	1	3	17	1	4	2	2	0	7	0																				

Source-<http://www.censusindia.gov.in/2011census/dchb/DCHB.html>

Abbreviations:

Educational Facilities: P-Primary School, M-Middle School, SS-Higher Secondary Schools, SSS-Senior Secondary School

Medical Facilities: CHC- Community Health Centre, PHC-Primary Health Centre, PHSC-Primary Health Sub-Centre, MCWC-Maternity and Child Welfare Centre, H-Hospital, D-Dispensary, FWC-Family Welfare Centre

Drinking Water Facilities: T-Tap Water, W-Well Water, HP-Hand Pump, TW-Tube Well Water, R-River Water, Tk-Tank Water, O-Other Drinking Water Facility, CT-Community Toilet

Communication and Transport Facilities: PO-Post Office, SPO-Sub-Post Office, PTO-Post & Telegraph Office, Tel. -Telephone Connection, Mob. -Mobile Phone Coverage, BS-Bus Services, RS-Railways Services

Approach to Village: PR-Paved Roads, KR-Kuchha Road, FP-Foot Path

Power Supply: ED-Power Supply for Domestic use, E Ag. -Power Supply for Agricultural use, EC- Power supply for Commercial use, EA-Electricity for All Purposes

Nearest Town & Distance, km : a for < 5 Kms, b for 5-10 Kms and c for 10+ kms of nearest place where facility is available is given.

3.7.12 Brief Description of Places of Historical or Archaeological Importance, Religious and Tourist interest in Villages and Towns of the District: *(District level information only)*

District Sirmaur, HP.

(a.) Places of Historical Interest

Nahan - In 'Samvat 1678' Raja Karam Prakash founded Nahan. Situated on an isolated ridge in the Shiwalik at an elevation of 3,057 feet above the mean sea level (MSL) is a picturesque town of Nahan.

Sirmuri Tal - Sirmuri Tal is situated about 10 miles north-west of Paonta Sahib on the right bank of river Giri. It is the site of the ancient Capital of Sirmaur. The ruins of the town, which is believed to have been destroyed in 1139 Bikrami are still visible. Rajban lying about a mile to the south-east of the ruins of this town was made the capital of the state in 1095 A.D.

Majra - Majra lies about 20 miles east of Nahan. It was the headquarters of the tehsil till 1893 when it was transferred to Paonta Sahib.

Rajgarh - Rajgarh fort is situated in tehsil Rajgarh on a natural terrace. It is square, with a tower at each corner about forty feet high. It was nearly demolished by Gurkhas in 1814; about half mile from the fort is the Rajgarh village.

Haripur - Haripur was formerly a fort on the border of the Jubbal State. The height of the place is 8,802 feet.

Jaitak - The fortress of Jaitak is now in ruins. During the war in 1814, the Gurkhas occupied position herewith a garrison of 2,200 men. They were attacked by two British detachments but without success.

(b) Places of Religious Interest

Renuka Lake - The sacred lake of Renuka is an important place of religious and tourist interest. It is situated at a distance of about 26 miles from Nahan, and is linked by an all-weather motorable road. The sacred Parshuram Tal (Tank) is located near the lake. There is a rest house, tourist inn, a forest sanctuary and pretty surroundings.

Paonta Sahib - Paonta Sahib is situated at a distance of about 28 miles from Nahan on the Nahan-Dehradun road. It is an important pilgrim centre for the Sikhs. Guru Gobind Singh, the 10th Guru of Sikhs, resided here for about three years from 1742-45 Bikrami and therefore, the place is considered sacred. The town houses a famous Gurudwara where fairs are held on the occasion of Hola in March and Baisakhi in April. The Gurudwara is visited by thousands of pilgrims on the occasion of the Hola festival. It also has a fine Hindu temple, built by the daughter of Raja Fateh Parkash on the bank of the Jamuna. On her request, she was cremated here and a fine temple was built on the spot.

Tirlokpur - Tirlokpur is situated on an isolated hillock at a distance of about 8 miles from Nahan. The place is famous for its temple of goddess Bala Sundari, who was manifested with Shakti. An annual fair is held at this place in April in her honour.

Katsan Devi - The Katsan Devi pass lies at a distance of 9 miles from Nahan. The elevation of the place above mean sea level is 2,500 feet. The Devi's temple lies in a thick forest of Sal trees with no habitation near it. The place was once a resort of tigers, but none are now found.

Mangarh - Mangarh is a village in tehsil Pachhad about ten miles off Sarahan. It possesses an ancient Hindu temple that traditionally connects with the Pandwas.

Baghani - Baghani is situated about eight miles from Paonta Sahib, Baghani is another centre of religious interest to Sikh. Guru Gobind Singh is said to have defeated the combined forces of some hill Rajas there after a grim battle.

(c) Places of Tourist Interest

Sarahan - Sarahan is HQs of tehsil Pachhad and Community Development Block and lies on Shimla-Nahan road. There is a high school, a primary health centre, a post office, a weaving centre, a tailoring centre, a police station, and a rest house. The village is electrified.

Dadahu - Dadahu is worthy of special mention by virtue of its being headquarters of Renuka tahsil. The place has a higher secondary school, a dispensary, a police station and bazar. It is a big marketing place for potatoes, green ginger and chilies.

Sangrah - Sangrah was the headquarters of Palvi tehsil till 1948 Bikrami. It lies between 77025' north longitude and 30040' east latitude. It commands a fine view of the Sain range.

The place has a senior secondary school, a post office and a police post, besides a P.W.D. rest house and various tahsil level offices.

Dhaulakuan - Dhaulakuan is about 16 miles east of Nahan on the Nahan-Paonta Sahib Road. Its agricultural, horticultural and sericulture farms have made significant contribution for the development of agriculture, horticulture and sericulture in the district.

Kolar - Kolar is a village in tehsil Paonta Sahib about 5 miles from Nahan. There is a senior secondary school and a branch post office.

Kala Amb - Kala Amb is situated at a distance of 11 miles from Nahan. It has a senior secondary school a veterinary dispensary and a police post. It is important industrial focal point in the district and private engineering college has been set up here to cater the needs of technical education in the state.

Rajana - Rajana is a village situated in tehsil Renuka at a height of 5,500 feet above the mean sea level and at a distance of 9 miles from Dadahu. It has a population of 850. There is a primary school and a branch post office.

Kamrau - Kamrau is a village in sub-tehsil Kamrau, about 45 miles from Nahan and 18 miles off Paonta Sahib. There is a primary school, a senior secondary school, a branch post office and an ayurvedic dispensary, besides sub-tehsil office and other offices.

Major Social and Cultural Events, Natural and Administrative Developments and Significant Activities during the Decade:

d) Social & Cultural Events (District Sirmour, HP)

Fairs & Festivals

The people of the Sirmour district celebrate various types of festivals with considerable gusto almost around the year. Bishu fair is celebrated every year in the month of March-April and Haryali in June-July. Diwali coincides with the govt. calendar. Magh festival is the greatest of all the festivals, which is celebrated by all sections of people with tremendous enthusiasm. Janamashtmi, the birthday of Lord Krishna, is also celebrated in the month of August/September every year.

Two fairs namely Bawan Dwadshi Fair and Guga Naumi Fair are celebrated at Nahan which are the main attractions for the local folks. The Hola Mohalla and Baisakhi fairs in Paonta Sahib attract a large number of Sikhs from the far off villages besides local people. A fair is held at Trilokpur twice a year in the months of Chaitra and Asvina. The Renuka Lake is visited by thousands of pilgrims every year on Kartika-Ekadashi. On this occasion, the famous historic Renuka fair is celebrated, which is one of the main attraction for the people of this place. Renuka fair apart from its essential religious character provides a wonderful insight into cultural heritage of Sirmaur.

3.7.13 Rehabilitation & Resettlement (R & R)

Policy to be adopted (Central/State) in respect of the project affected persons including home or land oustees and landless labour. Hence, any planning with respect to rehabilitation & resettlement is not applicable.

3.7.14 Employment Generation (Direct & Indirect)

The total manpower required for the proposed mining project is around 65 skilled and unskilled individuals for activities such as; extraction of minerals, loading of material into trucks. Indirect employment is also expected due to the associated activities. Thus, the production of minerals has tremendous impact on multiple generation of employment in downstream activities. Economy of the area will get a boost and there will be an overall growth of the region in terms of standard of living, education, health and transport.

3.7.15 Primary Field Data Observations

About five (05) villages named Rajban (89) - (2.60km, South), Sirmauri Tal (19) - (0.50km, West), Bhatrog (20) - (0.50km, North), Kunair Dhamaun (30) – (1.60km, East) and Kotga Kandon (28) – (2.00km, NE) under Paonta Sahib and Kamrau Tehsil in Sirmaur District in Himachal Pradesh State, were surveyed through group discussion and questionnaire filling with the villagers. Compiled field data of surveyed villages is shown as follows in **Table 3.26**

Table 3.26: Basic Amenities Availability in Surveyed Villages

S. No.	Name of the Village	Educational	Medical	Drinking Water	Communication & Transport	Sanitation	Electrification
1.	Rajban (89)	P(2),M(2),SS(1),SSS(1)	NA	T	PO,BS,KR,FP	NA	ED, E Ag., EC, EA
2.	Sirmauri Tal (19)	P(1),M(1)	NA	T	BS,FP	NA	ED, E Ag., EC,

							EA
3.	Bhatrog (20)	P(2)	NA	T	KR,FP	NA	ED, E Ag., EC
4.	Kunair Dhamaun (30)	P(1),M(1)	NA	T	KR,FP	NA	ED, E Ag., EC
5.	Kotga Kandon (28)	P(1),M(1)	NA	T	PR,FP	NA	ED, E Ag., EC

Source: Field Survey/Primary Data

Primary field data was collected during the site visits through Field Surveys, Questionnaire filling and group discussions conducted in selected villages of core zone during the baseline field monitoring period. Core zone study area peoples are mostly unskilled and untrained. Their socio-economic conditions are very poor due to non-availability of employment, basic amenities like education, medical, potable water, irrigation sources, certified seeds, small land holdings, poor soil fertility resulting low crop yields in the area.

Primary Education Facilities were found satisfactory. Middle School facility was found in 3 surveyed villages and Higher Secondary and Senior Secondary Schools facilities was found only in one village named Rajban (89) of Paonta Sahib tehsil. Higher education facilities were observed in towns & district headquarters only.

Medical facilities were observed very poor in the surveyed villages; no medical facility was found in all 5 surveyed villages. Hand Pumps and Tube wells were not found in the surveyed villages. Tank water supply facilities were commonly observed in all surveyed villages. Out of 5 surveyed villages, almost all villages were electrified for domestic, agriculture and commercial purposes, Communication and transport facilities were observed poor level. Village roads were found not satisfactory in all surveyed villages, Pucca road facility was observed in one surveyed village. Common Toilet facility was not found in the surveyed villages. Overall socio-economic conditions are required to be improved through better basic amenities.

4.0 GENERAL

All development projects have an impact on the natural set up of the environment. This impact may be beneficial or adverse, depending on the improvement or the deterioration it brings about in the status of air, water, land, ecology, natural systems, socio-cultural life styles and economics of the population. Depending on the nature of activities and baseline environment status, the impacts are assessed for their importance. On the basis of the impact analysis, the mitigating action and future monitoring requirement are focused in the Environmental Management plan for countering or minimizing the impacts.

Keeping in mind, the environmental baseline scenario as detailed in chapter III and the proposed extraction activity described in chapter II, it is attempted to assess the likely impact and its extent on various environmental parameters and likely mitigation measures to be adopted.

4.1 LAND ENVIRONMENT

The mining lease area lies in the Giri river which is the main tributary of Yamuna River. The river Giri originates near Kharapathar in Jubbal Tehsil of the district Shimla at an elevation of about 3270 meters. The Giri River is one of the major tributaries of the Yamuna River system, The river Giri originates near Kharapathar in Jubbal Tehsil of the district Shimla at an elevation of about 3270 meters. Its catchment is stretched between 30°04'30' to 31°15'40" N latitude and 77°00'00' to 77°43'45"E longitude covering the catchment area of 2600 Sq. Km. (As per district survey document). The highest point of the mining lease area is 471 meters above MSL and the lowest point is 470 meters above MSL and the average width is 100 to 150 meters. However; the total width of river Giri in this part is approximately 270-340 meters. At the mining site, It flows in the eastern direction and then it swings towards N-E to S-W direction after confluence with the river Yamuna.

Impact on Land Environment

The mining and allied activities involved in river bed mining are creation of roads/ transportation track and formation of mine pits inside river, etc. Impacts of these activities are given below:

a. Top Soil:

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The mining activities (not involve top soil) involves the extraction of Stone, Sand, & Bajri from the river bed. The RBM activity will be limited up to 1 m water table whichever will be less. Unsystematic removal of Stone Boulder, Sand, & Bajri cause bed degradation and will make it unfit for aquatic environment.

Mitigation measures

Since the project is mainly Stone Boulder, Sand, & Bajri deposit extraction (soil deficient) so no loss of top soil is anticipated.

b. Excavation:

Excavation of pits will be done in the mine lease area.

Mitigation measure

The extraction activity will be manual/semi- mechanized, most of the work will be done manually to mitigate harm associated with heavy machinery / equipments / their functioning, except work include human risk.

c. Waste dumps:

No waste will be generated during the riverbed mining operations. Since a mixture of sand admixed with silt and clay is inseparable, it will be sold in the open market as per demand.

Mitigation measure

Not applicable.

IMPACT OF SAND MINING

Impacts of sand mining can be broadly classified as given below:

Physical

The large-scale extraction of streambed materials, mining below the existing stream bed and the alteration of channel-bed form and shape lead to several impacts such as erosion of channel bed and banks, increase in channel slope, and change in channel morphology. These impacts may cause: (1) the undercutting and collapse of river banks, (2) the loss of adjacent land and/or structures, (3) upstream erosion as a result of an increase in channel slope and changes in flow velocity, and (4) downstream erosion due to increased carrying capacity of

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the stream, downstream changes in patterns of deposition, and changes in channel bed and habitat type.

Mitigation measures

- The mining will be restricted up to 1m below river bed / water table whichever less.
- The RBM will be done in unsaturated zone. Thus, minimum loss to habitat.
- Dredging will not be allowed.

Budget

To determine the budget for Stone, Sand, & Bajri for a particular stream reach, site-specific topographic, hydrologic, and hydraulic information is necessary. This information is used to calculate the amount of Stone Boulder, Sand, & Bajri that can be safely removed from the area without causing undue erosion or degradation, either at the site or at a nearby location, upstream or downstream.

Mining of stone, sand, and bajri in-channel or near-channel can alter the sediment budget and significantly impact channel hydraulics. The effects on aquatic habitat may vary depending on the magnitude and frequency of disturbance, mining techniques, sediment particle size, riparian vegetation characteristics, and the magnitude and frequency of hydrologic events following the disturbance.

Temporal and spatial responses of alluvial river systems are a function of geomorphic thresholds, feedbacks, lags, upstream or downstream transmission of disturbances, and geologic/physiographic controls. Minimization of the negative effects of Stone, Sand, & Bajri mining requires a detailed understanding of the response of the channel to mining disturbances.

Decisions on where to mine, how much and how often require the definition of a reference state, i.e., a minimally acceptable or agreed-upon physical and biological condition of the channel. Present understanding of alluvial systems is generally not sufficient to enable the prediction of channel responses quantitatively and with confidence; therefore, reference states are difficult to determine. Still, a general knowledge of fluvial processes can provide guidelines to minimize the detrimental effects of mining. Well-documented cases and related field data are required to properly assess physical, biological, and economic tradeoffs.

Mitigation measures

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Quantities will be strictly limited so that Stone Boulder, Sand, & Bajri recruitment and accumulation rates are sufficient to avoid extended impacts on channel morphology and in stream habitat. Although conceptually simple, annual Stone Boulder, Sand, & Bajri recruitment to a particular site is highly variable and not well understood.

- Flow and sediment transport in most rivers and streams are highly variable from year to year, so an annual average rate may be meaningless.
- An "annual average deposition rate" may bear little relation to the sediment transport regimes in a river in any given year.
- The site selection was based on several factors, including minor mineral reserves, site-specific problems such as flooding and submergence of crop lands/fields, excavation needs, and the rate of sediment deposition.
- RBM will be done in a responsible manner.
- Stone Boulder, Sand, and Bajri mining will be restricted to a maximum of 1 m below the bed/water table, whichever is less.
- The RBM will be done in the unsaturated zone.
- No mining will be done near important structures such as bridges, dams, and others to prevent bar skimming.
- Mining will not exceed a certain magnitude.
- Mining will not be carried out in close proximity to dams and other important structures to prevent "hungry water" problems.

4.2 WATER ENVIRONMENT

Damage in the water body, depends on its assimilative capacity. To find out assimilative capacity of receiving water body, water samples were collected from different groundwater and surface water sources. The study indicates that assimilative capacity of the river water bodies still exists, but effective measures shall be taken to check water pollution. To find out the effect on ground water an extensive hydro-geological study has been conducted and from the study it can be safely concluded that there is no noticeable effect on surrounding ground water resource due to mining. The mining activity does not require water. The collection of Stone, Sand, & Bajri is done on the river bed where excessive sedimentation has been noticed.

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Mining of stone, sand, and bajri from within or near a streambed has a direct impact on the physical habitat characteristics of the stream. These characteristics include geometry, bed evaluation, substrate composition and stability, in-stream roughness elements, depth, velocity, turbidity, sediment transport, stream discharge, and temperature. Altering these habitat characteristics can have deleterious impacts on both in-stream biota and associated riparian habitat.

The detrimental effects to biota resulting from bed material mining are caused by three main processes:

- i. alteration of flow patterns resulting from modification of the river bed
- ii. an excess of suspended sediment
- iii. damage to riparian vegetation and in stream habitat

As the project activity will be carried out in the meandering part of the riverbed, none of the project activities will affect the water environment or riparian habitats. Furthermore, no stream will be diverted or truncated, and no water will be pumped from the river or ground. During the lean months, the proposed Stone, Sand, & Bajri mining will not expose the base flow of the river, which will prevent any adverse impact on surface hydrology or ground water regime. The contractor will follow all guidelines and rules for proper and scientific methods of mining during the period of extracting the ordinary sand. As a result, the project activities will not have any adverse effect on the physical components of the environment and, therefore, will not have any effect on the recharge of groundwater or water quality.

4.3 AIR ENVIRONMENT

Anticipated impacts and evaluation

Studies were conducted to evaluate the impact of mining activity on air quality using various modeling techniques. The results showed that the mining operation is unlikely to have a significant impact on air quality. While loading, transportation, and unloading of dry materials in mining operations can contribute to air pollution, the handling of only wet materials in this case eliminates the problem of fugitive dust. Moreover, minerals will be collected and lifted manually, without any blasting, resulting in negligible dust generation. As

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a result, the amount of dust generated is insignificant compared to the mining process of other hard minerals that involve drilling, blasting, and mechanized loading."

Air Modeling

In general, mining operations generate substantial quantities of airborne respirable dust, which leads to the development of respirable diseases in mine workers. The increasing trend of mining leads to release of huge amount of dust. This air borne dust particles, generally below 100 micron in size, are nuisance particulates and cause health hazards as an ill effect of mining activities. Extraction activities like drilling, blasting, material handling and transport are a potential source of air pollution. Therefore, a detailed study on emission sources and quantification of pollutant concentration by means of dispersion modeling is required to access the environmental impact of a mine. On the basis of the predicted increments to air pollutant concentrations, an effective mitigation and environmental plan can be devised for sensitive areas. In case of river bed Stone, Sand, & Bajri mining, as there is no blasting and drilling activities, the impacts are caused by material handling and transportation activities.

FUGITIVE DUST- MODELING

In the present study Stone Boulder, Sand, & Bajri extraction site in Bhangani, Tehsil Paonta Sahib, District Sirmaur of Himachal Pradesh State was selected. Air quality modeling was done using line source model as published by USEPA for transportation through roads and the empirical emission factor equations from article, Jyothi Prabha, Gurdeep Singh and I.N.Sinha, 2003 "Emission Factor Equations for Haul roads: The Indian Perspective", Indian Journal of Air Pollution Control Vol. VI No. I March pp 37-43. Emission factors to be used in Line source Dispersion equation is adopted from formula as given below:

$$E = \left[\left\{ \frac{100-m}{m} \right\}^{0.8} \left\{ \frac{s}{100-s} \right\}^{0.1} u^{0.3} \{ 2663 + 0.1 (v+fc) \} 10^{-6} \right] \text{----- (1)}$$

Where

E = Emission Rate (g/sec/m)

m = Moisture Content of the road = 10%

s = Silt Content of the Road = 10%

u = Wind Speed = 2.57 m/s

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v = Average Vehicle Speed = 4.5 m/sec

f = frequency of Vehicle movement in no per hour = 2 vehicles / hour

c = Capacity of the dumper in tons = 20 ton

Thus using equation (1)

$E = 0.005 \text{ g/sec/m}$

Concentration of the fugitive dust was calculated using the empirical equations for unpaved roads published by USEPA- AP42. The Concentration of the fugitive Dust is given below:

$$C = (2/\pi)^{1/2} (E / \sigma_z v) \text{Exp-} [(h^2) / (2 \sigma_z^2)] \times 10^6 \text{ ----- (2)}$$

Where

C = Concentration in microgram/ m^3

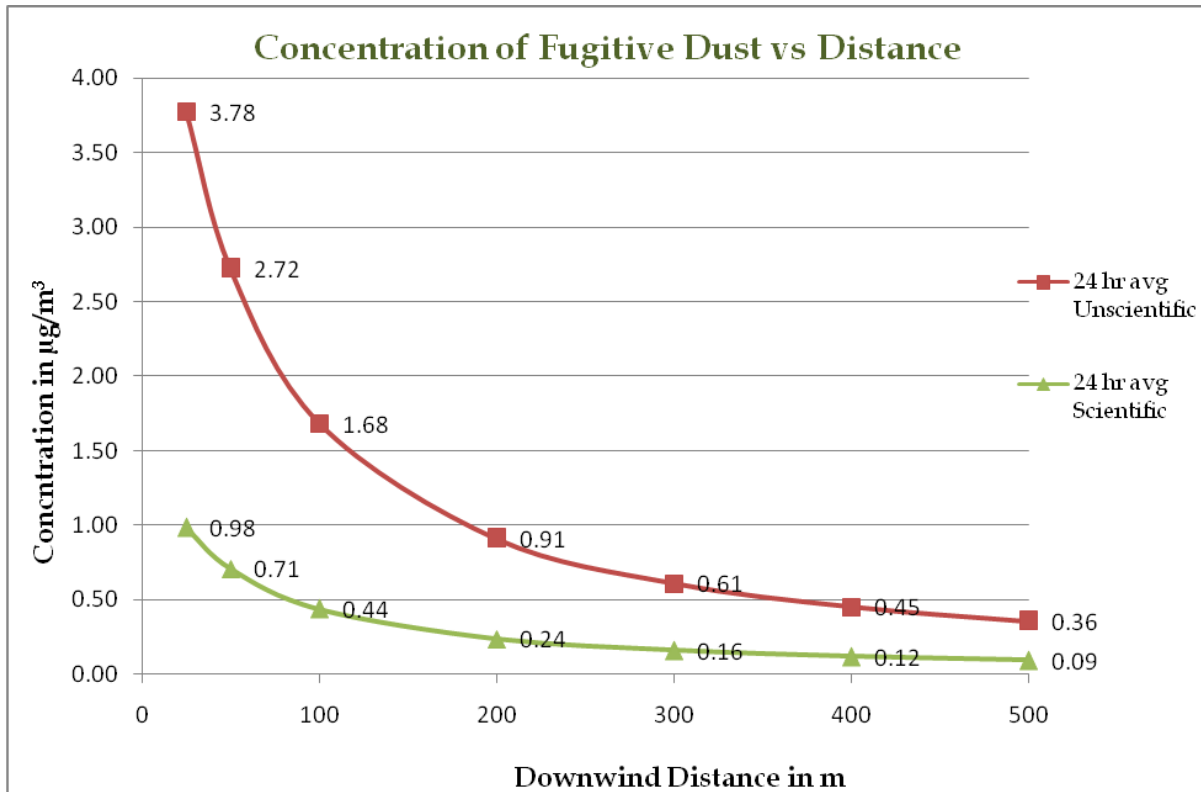
E = Emission Rate = 0.0052 g/sec/m

v = Wind Speed = 2.57 m/s

h = 1m

Modeling was done for an infinite line source assuming unpaved road. For conservative calculation wind was assumed to blow at a velocity of 2.57 m/s perpendicular to the road. The results are given in the graph:

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It is observed that the ground level concentration (GLC) decreases from $3.75 \mu\text{g}/\text{m}^3$ at 50 m from the centre line of the road to $0.38 \mu\text{g}/\text{m}^3$ at 500 m from the centre line of the road. These values have been predicted for a dry unpaved road.

Mitigation measures

The only source of air pollution is the road transport network of trucks. Dust suppression measures, such as water spraying, will be implemented on the roads to reduce dust emissions by 75%. Utmost care will be taken to prevent spillage from the trucks, and overloading will be prevented. Plantation activities along the roads will also help to reduce the impact of dust on nearby villages.

4.4 NOISE ENVIRONMENT

The methodology adopted for sand, stone, and bajri extraction projects involves an open-cast manual mining approach that is primarily non-noisy due to its predominantly manual nature.

Impact on environment

At mines, noise is created by movement of machinery & transportation vehicles, etc. The noise level in the working environment is compared with the standards prescribed by

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Occupational Safety and Health Administration (OSHA-USA) which has been adopted and enforced by the Govt. of India through model rules framed under Factories Act, 1980 and CPCB 2000 norms. The summary of the permissible exposures in cases of continuous noise as per above rules is given below:

Table 4.1, Noise impact

Total time of exposure per day in hour	Sound pressure dB(A)	Remarks
1	2	3
8.0	90	No exposure in excess of 115 dB(A) is permissible
6.0	92	--
4.0	95	For any period of exposure falling in between any figure and lower figure as indicated in column (1), the permissible sound is to be determined by extrapolation or proportionate scale.
3.0	97	
2.0	100	
1 ½	102	
1	105	
¾	107	
½	110	
¼	115	

Noise at lower levels (sound pressure) is quite acceptable and does not have any bad effect on human beings, but when it is abnormally high- it incurs some maleficent effects.

a. Mitigation measures

i. On-site

As mining will be done manually, no machinery will be used. Therefore, no hearing protection is necessary for the miners. Furthermore, well-maintained vehicles will be utilized to minimize noise during vehicle movement.

ii. Off-site

The off-site receptors are not significantly affected as noise generated by mines is insignificant but some disturbances due to vehicle movement cannot be avoided. Plantation will be done along the roadsides, civic amenities, etc. which will more or less dampen the off-site noise level.

4.5 BIOLOGICAL ENVIRONMENT

Table 4.2 Anticipated impact and mitigation measures for biological environment:

Impact Predicted	Mitigation measure
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Disturbance to free movement / living of wild fauna viz. Birds, Reptiles etc.	<ul style="list-style-type: none"> Noise produced due to vehicular movement for carrying sand materials will be in permissible noise level. Higher noise level in the area may lead to restlessness and failure in detection of calls of mates and young ones; Care will be taken not to hunt animals /birds by labors; If wild animals/birds are noticed crossing the core zone, they will not be disturbed at all; Labors will not be allowed to discards food, plastic etc., which can attract animals/birds near the core site; Only low polluting vehicles will be allowed for carrying mining materials. All vehicles allowed in the project site area will have to provide valid pollution under control certificate; Noise level will be maintained within permissible limit (silent zone-50dB (A) during day time or residential zone 55dB (A)) as per noise pollution (regulation and control), rules, 2000, CPCB norms
Disturbance of riparian ecosystem/ wetlands	<ul style="list-style-type: none"> The mine owners will not be allowed to destruct or modify the riparian ecosystem or the wetlands by the side of the river.
Monitoring of upstream and downstream water quality	<ul style="list-style-type: none"> Water quality will be monitored from upstream and downstream area to assess the impact on water quality. Mining activity will be controlled to maintain the clean water conditions.

Impact on Ecology of the Area

Mining, which involves the removal of channel substrate, resuspension of streambed sediment, clearance of vegetation, and stockpiling on the streambed, will have ecological impacts. These impacts may result in the direct loss of stream reserve habitat, disturbances of

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species attached to streambed deposits, reduced light penetration, reduced primary production, and reduced feeding opportunities.

Stone, sand, and bajri have been widely used in the construction of roads and buildings. Today, the demand for these materials continues to increase. Mining operators, in collaboration with cognizant resource agencies, must ensure that mining activities are carried out in a responsible manner.

Excessive and unscientific riverbed stone boulder, sand, and bajri mining cause river degradation. This can lead to bank erosion, depletion of sand in the streambed causing deepening of rivers and enlargement of river mouths. Any volume of sand exported from streambeds represents a loss to the system.

Excessive and unscientific riverbed material mining is a threat to bridges, river banks, and nearby structures. Stone boulder, sand, and bajri mining also affect the adjoining groundwater system and the local people who use the river.

Uncontrolled mining of riverbed stone boulder, sand, and bajri leads to the destruction of aquatic and riparian habitats through significant changes in channel morphology. These changes include bed degradation, bed coarsening, lowered water tables near the streambed, and channel instability. Such physical impacts can cause the degradation of riparian and aquatic biota and may lead to the undermining of bridges and other structures. Continued extraction may also result in the entire streambed degrading to the depth of excavation.

Stone, Sand, and Bajri mining generates additional vehicle traffic that has a negative impact on the environment. Moreover, when access roads cross riparian areas, it can cause adverse effects on the local environment.

Mitigation measures

As the present mining will be done in a scientific manner as mentioned before, not much significant impact is predicted, however, the following mitigation measure will be taken to further minimize it.

- Re-suspension, turbulence, stream flow, channel substrate and associated species will be disturbed and lost due to proposed mining will disturb existing pattern but in respect to river area is very minimum / less. The activity will mainly be carried out

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manually to minimize associate loss, as stated earlier that the settling pit will be created to minimize the adverse impact downstream.

- No mining will be done near to important structure like bridges, dam and others.
- No mining will be carried out during the rainy season to minimize impact on aquatic life.
- As the mining site has no vegetation, thus clearance of vegetation not required.
- The mining activity will employ many heavy vehicles to transport the excavated material outside the mine to desired destination that cause the loss to riparian habitat. Safe site / site having less impact will be selected for transportation, all the vehicles will be employed for transportation purpose will be PUC certified. On closure / during the rainy season the eroded bank will be restored / reclaimed to minimize negative impacts.

Flora and Fauna of Riparian Habitat

If sand mining is done in an unscientific way, i.e., beyond the replenishment capacity, riverbed mining can have adverse effects at the mine sites. The fertile streamside land will be lost gradually and the wildlife in the riparian areas may start vanishing. Degraded stream habitats will result in loss of fisheries productivity, biodiversity, and recreational potential. Thus, the severely degraded channels may lower the aesthetic value too.

All species require specific habitat conditions to ensure long-term survival. Native species in streams are uniquely adapted to the habitat conditions that existed before humans began alterations. These have caused major habitat disruptions that favored some species over others and caused overall declines in biological diversity and productivity. In most streams and rivers, habitat quality is strongly linked to the stability of channel bed and banks. Unstable stream channels are inhospitable to most aquatic species. Factors that increase or decrease sediment supplies often destabilize bed and banks and result in dramatic channel readjustments. For example, human activities that accelerate stream bank erosion, such as riparian forest clearing / Riverbed mining cause stream banks to become net sources of sediment that often have severe consequences for aquatic species. Anthropogenic activities that artificially lower stream bed elevation cause bed instabilities that result in a net release of sediment in the local vicinity. Unstable sediments simplify and, therefore, degrade stream habitats for many aquatic species.

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The most important effects of excessive and unscientific Riverbed sand mining on aquatic habitats are bed degradation and sedimentation, which can have substantial negative effects on aquatic life. The stability of sand-bed streams depends on a delicate balance between stream flow, sediment supplied from the watershed, and channel form. Mining-induced changes in sediment supply and channel form disrupt channel and habitat development processes. Furthermore, movement of unstable substrates results in downstream sedimentation of habitats. The affected distance depends on the intensity of mining, particles sizes, stream flows, and channel morphology. Channel widening causes swallowing of the streambed, producing braided flow or subsurface intergrades flow in riffle areas, hindering movement of fishes between pools. Channel reaches become more uniformly shallow as deep pools fill with gravel and other sediments, reducing habitat complexity, riffle-pool structure, and numbers of large predatory fishes.

All such impacts can be reduced by following scientific mining practices and mitigation measures as restricted.

Mitigation measures

Sand extraction operations will be managed to avoid or minimize damage to stream/river banks and riparian habitats

- Sand extraction in vegetated riparian areas will be avoided.
- Undercut and incised vegetated banks will not be altered.
- Large woody debris in the riparian zone will be left undisturbed or replaced when moved and not be burnt.
- Sand stockpiles, overburden and/or vegetative debris will not be stored within the riparian zone.
- It is essential that overburden is evenly redistributed over exposed areas as soon as possible after the operation has been completed for faster revegetation.
- Operation and storage of heavy equipment within riparian habitat will be restricted.
- Access roads will not encroach into the riparian zones

No exotic species will be introduced by the RBM project activity & associated persons at all.

As the mining will not be done beyond the stipulated limit, so the chances of river mouth widening, bank widening will be negligible.

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The river channel will be filled with sediment deposition, leading to the widening of the channel and eventually causing submergence of nearby areas. Therefore, scientific and systematic mining can help mitigate these potential effects.

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

- Improvement of Soil quality,
- Quick vegetative cover to check soil erosion,
- Improvement in mining site stability,
- Conservation of biological diversity of plants, birds and animals,
- As dust receptor and dust filter, this is likely to be produced during mining.

4.6 STATUTORY REQUIREMENTS

Effective resource management cannot be achieved in isolation; it is widely accepted that coordination and integration are necessary. Accordingly, the Department has pursued approaches to achieve coordination and integration wherever possible, resulting in the development of coordinated regulatory systems.

A regulatory system consists of both statutory and non-statutory components. In the Sectoral-specific strategy for prospecting and mining, the Department participates within an integrated environmental management system which is administered in terms of the Acts and Rules. Other 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:

- 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

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- State Minor Mineral Concession Rules, 1963
- 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
- The Wildlife (Protection) Act, 1972

5.0 GENERAL

The examination of technology and site alternatives is an extremely important aspect of ensuring long-term sustainability for a project, particularly for large-scale ones that involve significant investments in terms of financial resources, labor, safety, environmental considerations, mineral value, and hazards. River bank mining is a relatively straightforward operation that involves extracting sand, stone, and bajri from river banks with minimal mechanization.

The proposed project is specific to the chosen site, which is determined by the geological setup and the mineable area of the river. As the project is located within the meandering course of the river, there is no disturbance to any objects of economic importance. Therefore, there is limited scope for alternative sites.

Alternative technologies can be utilized for the mining operation, although none have been implemented. This approach also offers a high potential for local employment, contributing to the socio-economic development of the region. Consequently, we have decided to adopt the open-cast manually extraction of sand, stone, and bajri at the selected site."

Therefore, the opencast manually extraction of Sand, Stone & Bajri at the selected site is adopted.

6.0 INTRODUCTION

The success of any post-project environmental monitoring program depends on the efficiency of the organizational setup responsible for implementing the program. Regular monitoring of various environmental parameters is also necessary to evaluate the effectiveness of the management program so that necessary corrective measures can be taken if there are any drawbacks in the proposed program. Environmental quality parameters in the work zone and surrounding areas are important for maintaining sound operating practices of the project in line with conformity with environmental regulations. Therefore, the post-project monitoring work is an essential part of EMP.

6.1 PROPOSED SET UP

Keeping the utility of monitoring results in the implementation of the environmental management program in view, an organizational chart has been proposed, headed by General Manager as shown in Fig. 6.1

The said team will be responsible for:

- i. Collecting water and air samples from surrounding area and work zone monitoring for pollutants.
- ii. Analyzing the water and air samples.
- iii. Implementing the control and protective measures.
- iv. Co-coordinating the environment related activities within the project as well as with outside agencies.
- v. Collecting statistics of health of workers and population of surrounding villages.
- vi. Monitoring the progress of implementation of environmental management program.

The laboratory will be suitably equipped for sampling/testing for various environmental pollutants.

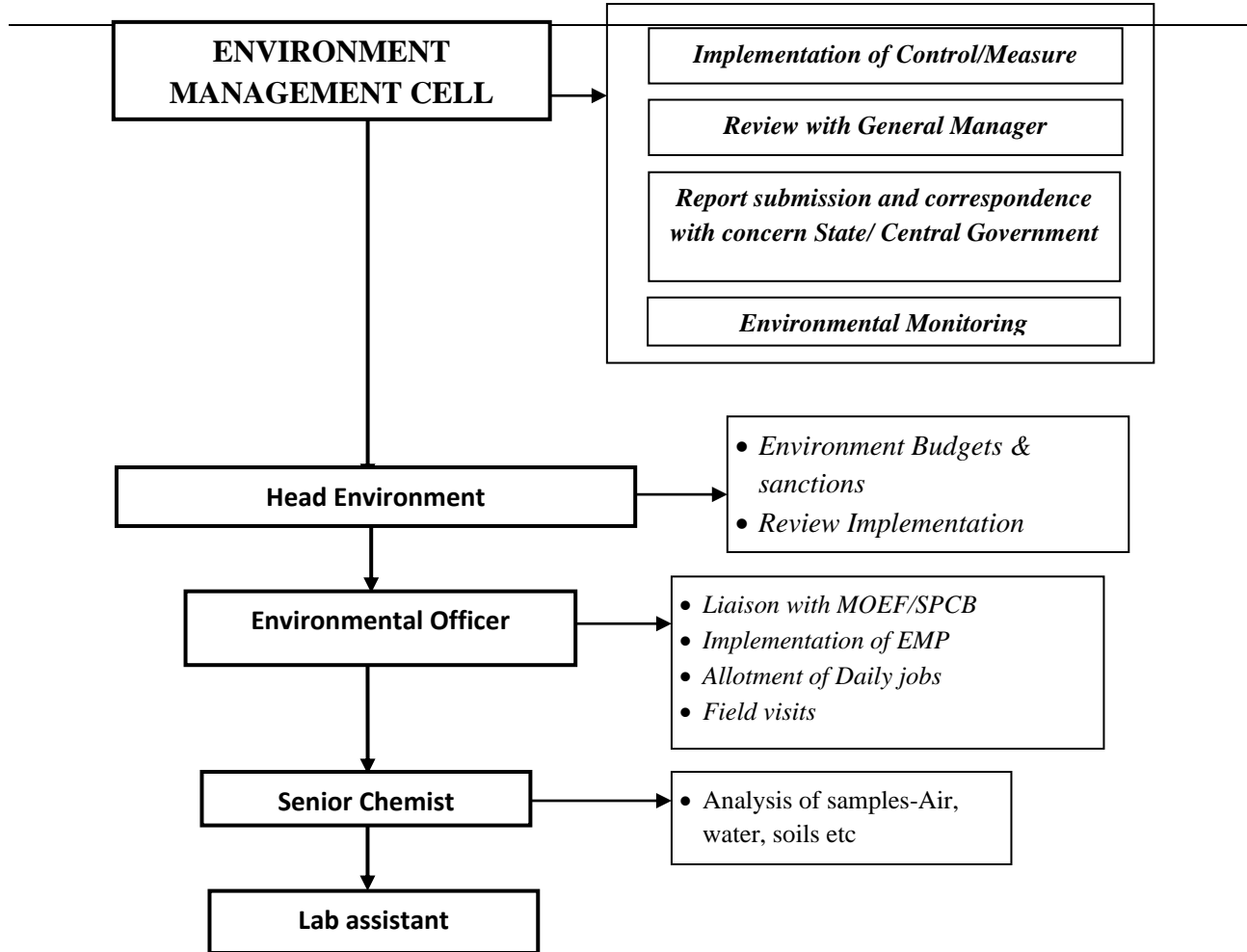


Fig. 6.1 Function of Environmental Management Cell

6.2 MONITORING SCHEDULE AND PARAMETERS

Air Quality Monitoring

Monitoring air quality is essential to evaluate the effectiveness of abatement programs and develop appropriate control measures. The project proponent will monitor ambient air quality in and around the proposed ordinary sand mining projects at a frequency of once every fortnight, or at any other frequency as stipulated by the MoEF, and take appropriate air pollution control measures to ensure that the concentration of PM_{2.5}, PM₁₀, SO₂, and NO_x remain within acceptable limits.

Water Quality monitoring

Water quality monitoring involves periodic assessment of the quality of surface water and groundwater near the mining project. Surface water samples will be analyzed for all parameters according to EPA 1986 standards, while groundwater samples will be analyzed for all parameters per IS-10500.

Phreatic surface levels will be continuously monitored throughout the project's lifespan to assess the impact of mining operations on the groundwater regime. A network of observation wells will be located in the villages surrounding the project area for monitoring phreatic surface levels. The water levels will be monitored four times a year during the pre-monsoon and post-monsoon seasons

Noise Level Monitoring

Noise level monitoring will be done for achieving the following objectives:

- a) To compare sound levels with the values specified in noise regulations
- b) To determine the need and extent of noises control of various noise generating sources
- c) Correlation of noise levels with community response to noise levels

To assess occupational noise exposure levels, noise level monitoring will be conducted at the work zone. Additionally, noise levels at noise-generating sources such as mineral handling arrangements and vehicle movements, as well as nearby villages, will be monitored to study the impact of higher noise levels. This will enable the implementation of necessary control measures at the source.

Table 6.1: Monitoring Schedule and Parameters

S. No.	Description of Parameters	Schedule and Duration of Monitoring
1	Air Quality a) In the vicinity of the mine b) In the vicinity of the transportation network	24 hourly samples twice a week for one month in each season except monsoon.

2	Water Quality a) Water quality of surface and groundwater around the site b) Drinking water must conform to drinking water standards	Once in a season for 4 season in a year
3	Ambient Noise Level	Twice in a year for couple of years & then once in a year
4	Soil Quality	Once in two years on project monitoring area
5	Inventory of Flora (tree plantation, survival etc)	Once in two years on project monitoring area
6	Socio-economic condition of local, population, physical survey	Once in 3 or 4 years

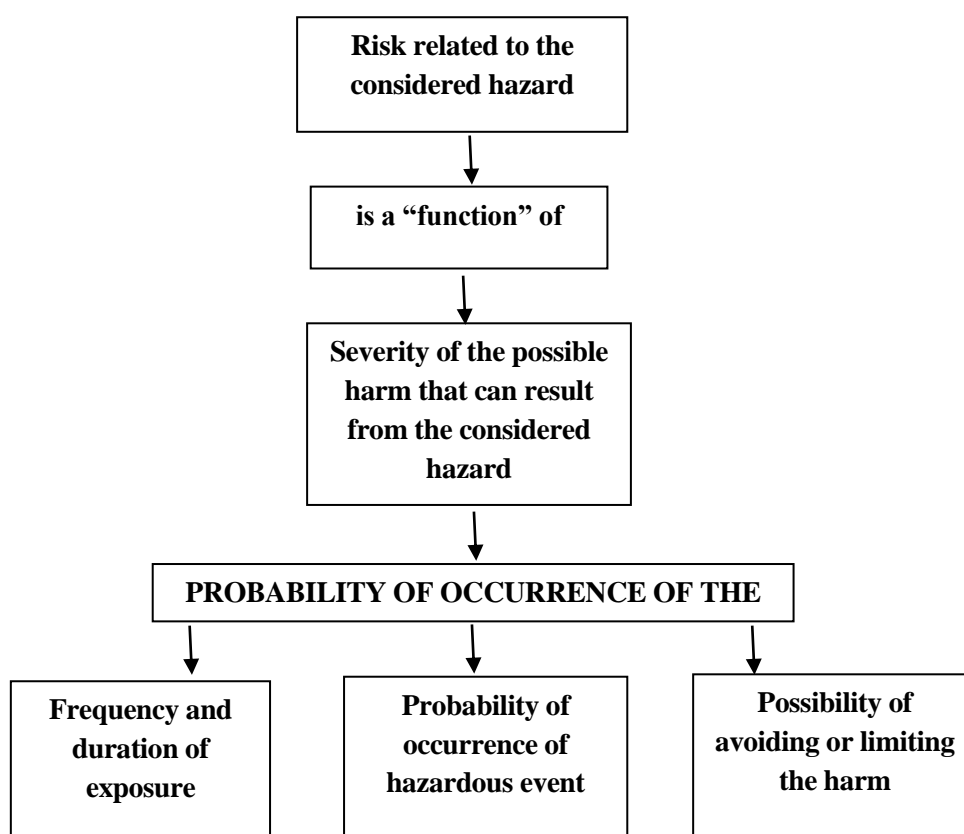
7.0 PUBLIC CONSULTATION

Details of Public hearing will be added in the Final EIA/EMP report.

7.1 HAZARD IDENTIFICATION AND RISK ASSESSMENT METHODOLOGY

A) RISK

Risk concerns the deviation of one or more results of one or more future events from their expected value.



Tolerable risk: Risk which is accepted in a given context based on the current values of society

Protective measure: The combination of risk reduction strategies taken to achieve at least the tolerable risk. Protective measures include risk reduction by inherent safety, protective devices, and personal protective equipment, information for use and installation and training.

Severity: Severity is used for the degree of something undesirable.

Risk Analysis: A systematic use of available information to determine how often specified events

may occur and the magnitude of their likely consequences.

The different steps of risk assessment procedure are as given below:

Step I: Hazard Identification

The purpose of hazard identification is to identify and develop a list of hazards for each job in the organization that are reasonably likely to expose people to injury, illness or disease if not effectively controlled. Workers can then be informed of these hazards and controls put in place to protect workers prior to them being exposed to the actual hazard.

Step II: Risk Assessment

Risk assessment is the process used to determine the likelihood that people exposed to injury, illness or disease in the workplace arising from any situation identified during the hazard identification process prior to consideration or implementation of control measures.

Risk occurs when a person is exposed to a hazard. Risk is the likelihood that exposure to a hazard will lead to injury or health issues. It is a measure of probability and potential severity of harm or loss.

Step III: Risk Control

Risk control is the process used to identify, develop, implement and continually review all practicable measures for eliminating or reducing the likelihood of an injury, illness or diseases in the workplace.

Step IV: Implementation of risk controls

All hazards that have been assessed should be dealt in order of priority in one or more of the following hierarchy of controls

The most effective methods of control are:

- i. Elimination of hazards
- ii. Substitute something safer
- iii. Use engineering/design controls
- iv. Use administrative controls such as safe work procedures
- v. Protect the workers i.e. By ensuring competence through supervision and training, etc.

Each measure must have a designated person and date assigned for the implementation of controls.

This ensures that all required safety measures will be completed.

Step V: Monitor and Review

Hazard identification, risk assessment and control are an on-going process. Therefore, regularly review the effectiveness of your hazard assessment and control measures. Make sure that you undertake a hazard and risk assessment when there is change to the workplace including when work systems, tools, machinery or equipment changes. Provide additional supervision when the new employees with reduced skill levels or knowledge are introduced to the workplace.

B) RISK ANALYSIS

The risk assessment portion of the process involves three levels of site evaluation:

- a) Initial Site Evaluation,
- b) Detailed Site Evaluation,
- c) Priority Site Investigations and Recommendations.

The risk assessment criteria used for all levels of site evaluation take into account two basic factors:

The existing site conditions

The level of the travelling public's exposure to those conditions.

The Initial Site Evaluation and Detailed Site Evaluation both apply weighted criteria to the existing information and information obtained from one site visit. The Initial Site Evaluation subdivides the initial inventory listing of sites into 5 risk assessment site groups. The Detailed Site Evaluation risk assessment is then performed on each of the three highest risk site groups in order of the group priority level of risk. The result of the Detailed Site Evaluation process is a prioritized listing of the sites within each of the three highest risk site groups.

Risk analysis is done for:

- Forecasting any unwanted situation
- Estimating damage potential of such situation
- Decision making to control such situation
- Evaluating effectiveness of control measures

C) ACCEPTABLE RISK

Risk that is acceptable to regulatory agency and also to the public is called acceptable risk. There are no formally recognized regulatory criteria for risk to personnel in the mining industry. Individual organizations have developed criteria for employee risk and the concepts originally arising from chemical process industries and oil and gas industries. Because of the uncertainties linked with probabilistic risk analysis used for quantification of the risk levels the general guiding principle is that the risk be reduced to a level considered

As Low as Reasonably Practicable (ALARP). The risk acceptability criteria are given in following Table. It can be seen that there are three tiers:

- a. A tolerable region where risk has been shown to be negligible and comparable with everyday risks such as travel to work.
- b. A middle level where it is shown the risk has been reduced to As Low As Reasonably Practicable level and that further risk reduction is either impracticable or the cost is grossly disproportionate to the improvement gained. This is referred as the ALARP region.
- c. An intolerable region where risk cannot be justified on any grounds. The ALARP region is kept sufficiently extensive to allow for flexibility in decision making and allow for the positive management initiatives which may not be quantifiable in terms of risk reduction.

Table 7.1: The risk acceptability criteria are given in following table:

1	Risk un acceptance and must be reduced. The actions may include equipment's and people or procedural measures. If risk cannot be reduced to ALARP level, operating philosophy must be fundamentally reviewed by the management.	Intolerable Region
2	Efforts must be made to reduce risk further and to as low as reasonably practicable, without expenditure that is grossly disproportionate to the benefit gained	ALARP Region (As Low as Reasonably Practicable)
3	Risk level is so low as to not require actions to reduce its magnitude further.	Tolerable Region

Table 7.2: Risk Likelihood Table for Guidance

Step 1: Assess the Likelihood	Step 2: Assess the Consequences
--------------------------------------	--

L1	Happens every time we operate	Almost Certain	Common or repeating occurrence	C1	Fatality	Catastrophic
L2	Happens regularly (often)	Likely	Known to have occurred "has happened"	C2	Permanent disability	Major
L3	Has happened (occasionally)	Possible	Could occur or "heard of it happening"	C3	Medical/hospital or lost time	Moderate
L4	Happens irregularly (almost never)	Unlikely	Not likely to occur	C4	First aid or no lost time	Minor
L5	Improbable (never)	Rare	Practically impossible	C5	No injury	Insignificant

A logical systematic process is usually followed during a qualitative risk assessment to identify the key risk events and to assess the consequences of the events occurring and the likelihood of their occurrence

Table 7.3: Risk rank likelihood Consequence

Risk Rank Likelihood x Consequence	L1 Almost certain	L2 Likely	L3 Possible	L4 Unlikely	L5 Rare
C1 Catastrophic	1	2	4	7	11
C2 Major	3	5	8	12	16
C3 Moderate	6	9	13	17	20
C4 Minor	10	14	18	21	23
C5 Insignificant	15	19	22	24	25

RISK RATING:

- **HIGH RISK 1-6**
- **MEDIUM RISK 7-15**
- **LOW RISK 16-25**

7.2 POTENTIAL HAZARDS & 'ALARP' CONDITION

Mining and allied activities are associated with several potential hazards and risk to both the employees and the public at large. A worker in a mine should be able to work under "ALARP" conditions (as stated above), which are adequately safe and healthy. At the same time the environmental conditions should be such as not to be impair his working efficiency. This is possible only when there is adequate safety in mines.

7.3 RISK PRIORITISATION BASED ON HAZARDS

There are various factors, which can create unsafe working conditions/hazards in mining of minor minerals from river bed.

The key risk (hazard x probability) event rating associated with sand bed mining and to assess its consequences of such events occurring and the likelihood based on above Table-7.3 are as: -

The Risk rating of such hazards is as follows:

- a) Inundation / Flooding (C1 x L3=4)
- b) Quick Sand Condition (C2 x L3=8)
- c) Drowning (C5 x L5=25)
- d) Accident due to vehicular movement (C3 x L3=13)
- e) Accident during sand loading, transporting and dumping=14.

(i.e., C4 x L2=14)

7.3.1 Accident during sand/mineral loading, transportation and dumping

The risk rating assigned to this activity is assigned as "14 i.e., it is likely event with minor consequences", as frequency of this operation is more but the predicted/assumed intensity (Based on experience) is less like minor cuts, abrasion, fall due to river bank collapse & falling of cattle, if not under proper supervision to bring under ALARP ZONE.

- a. The minerals are loaded in the trucks using hand shovels. There is possibility of injury in the hands during loading with shovels.
- b. There is possibility that the workers standing on the other side of loading may get injury due to over thrown sand with pebbles.

- c. There is possibility of workers getting injured during opening of side covers to facilitate loading.
- d. There is possibility of riverbank collapse.
- e. There are chances of falling of cattle/children into pits in river bed by overlooking of fenced area near worksite or improper supervision.

7.3.2 Accident due to vehicular movement

The risk rating assigned to this activity is assigned as 13 i.e., it is possible event with moderate consequences as frequency of this operation is more but the predicted/assumed intensity (Based on experience) is less like minor cuts, bodily injury due to reckless or untrained driver. However, a strict control to be exercised to deploy trained drivers with valid driving license with a helper. A strict supervision/control to be exercised to avoid drunken driving or driving by unauthorized person to bring under ALARP ZONE.

The minerals loaded in 15 T trucks are being sent to through public roads.

- a. All possibilities of road accidents are possible due to rash driving.
- b. Accident may also occur during movement in the mine, in case pathway is not compacted suitably or movement is at the embankment.
- c. There are possibilities that due to overloading. Some pebbles or big boulder may injure the passerby public. In case Traffic & vehicle load bearing licensed capacity is neglected.

7.3.3 Inundation/Flooding

The risk rating assigned to this activity is assigned as 4(C1 x L3=4) i.e., it is only possible, if warnings are neglected and work started without assessment of the river bed condition specially during monsoon season the event will be catastrophic with major consequences as frequency of this operation is possible. However, the event has to be brought under 'ALARP' Zone by strict supervision based on river water and other metrological data.

- a. The possibility of inundation/flooding of the mines are very high during monsoon or during heavy rains as the mine area lies in the riverbed.
- b. There is danger to the trucks and other machineries due to flooding.
- c. There is danger to the workers working in the mines.

Inundation or flooding is expected and beneficial for these mines as during this time only the mineral reserve gets replenished.

7.3.4 Quick Sand Condition

The risk rating assigned to this activity is assigned as 8 ($C2 \times L3 = 5$) i.e., it is likely event with major consequences as frequency of this operation is likely but the predicted/assumed intensity (Based on experience) is major.

Hence data of water table must be collected and the mining work must be above the water table (about 1.5 m above to bring under ALARP ZONE.) to avoid dangerous condition to vehicles playing over sand dunes.

This condition occurs when the working crosses the water table at a certain depth and the permeability of the strata is very high. This condition occurs when the effective stress in the sand becomes zero due to influx of water i.e.

$$i = i_{cr} = y'/y_w;$$

Where, i = Hydraulic gradient,

i_{cr} = Critical Hydraulic gradient,

y' = submerged unit weight,

y_w = unit weight of water.

This creates danger condition to the trucks and other machineries plying over the sand dunes on the river banks.

7.3.5 Drowning

The risk rating assigned to this activity is assigned as 25 i.e., it is insignificant due to dry season mining.

There are no possibilities of drowning in the river, since mining operations are carried out only in the dry seasons. All mining activities will be stopped during the monsoon season.

7.4 ADDITIONAL MITIGATION MAJORS TO BRING HAZARDS UNDER “ALARP” ZONE

7.4.1 Measures to Prevent Accidents during Loading

1. The truck should be brought to a lower level so that the loading operation suits to the ergonomic condition of the workers.
2. The loading should be done from one side of the truck only.

3. The workers should be provided with gloves and safety shoes during loading.
4. Opening of the side covers (pattas) should be done carefully and with warning to prevent injury to the loaders.
5. Operations during daylight only.
6. No foreign material should be allowed to remain/spill in river bed and catchment area, or no pits/pockets are allowed to be filled with such material.
7. Stockpiling of harvested material on the river bank should be avoided.

7.4.2 Measures to Prevent Accidents during Transportation

1. All transportation within the main working should be carried out directly under the supervision and control of the management.
2. The Vehicles must be maintained in good repairs and checked thoroughly at least once a week by the competent person authorized for the purpose by the Management.
3. To avoid danger while reversing the trackless vehicles especially at the embankment and tipping points, all areas for reversing of lorries should as far as possible be made man free, and.
4. A statutory provision of the fences, constant education, training etc. will go a long way in reducing the incidents of such accidents.
5. Generally, overloading should not be permitted.
6. The truck should be covered and maintained to prevent any spillage.
7. The maximum permissible speed limit should be ensured.
8. The truck drivers should have proper driving license.

7.4.3 Measures to prevent Dangerous Incidents during Inundation/Flooding

Inundation of flooding is expected and beneficial for these mines as during this time only the mineral reserve gets replenished.

1. During monsoon months and heavy rains, the mining operations are ceased.
2. There should be mechanism/warning system of heavy rains and discharges from the upstream dams.

7.4.4 Measures to Prevent Quick Sand Condition

1. The only way to avoid quick sand condition is by avoiding mineral lifting below water table.

2. The critical hydraulic gradient (i_{cr}) should be maintained at less than 1 to prevent high artesian pressure in a coarse sand area.
3. At least 0.5 m sand bed should be left in-situ while harvesting sand from riverbed.

7.4.5 Measure to Prevent Drowning

1. The mining should be done under strict supervision and only during the dry season.
2. Deep water areas must be identified.
3. No go zones should be clearly marked and made aware to the mine workers.

7.5 NATURAL RESOURCE CONSERVATION

Mineral extraction at the concave side of the river channel should be avoided to prevent bank erosion. Similarly meandering segment of a river should be selected for mining in such a way as to avoid natural eroding banks and to promote mining on naturally building (aggrading) meander components.

8.0 GENERAL

The project's operation will prevent the widening of the river channel and the flooding of surrounding areas caused by sediment buildup. It will also bring overall improvements to the locality, neighborhood, and state by introducing new industries, roads, water supply, electricity, employment opportunities, better living standards, and increased economic growth.

8.1 BENEFIT OF MINING

- Protecting banks
- Reducing submergence of adjoining agricultural lands due to flooding.
- Reducing aggradations of river level.
- Generating useful economic resource for construction.
- Generating employment and improvement of socio-economic conditions of nearby habitats.

8.2 EMPLOYMENT

The socio-economic conditions in the surrounding villages indicate that employment generation is seasonal, with agricultural and cattle rearing activities being the main sources of income. Additionally, many people work in local mines, but only on a daily wage basis. The proposed mining activity has the potential to provide stable employment opportunities for the local community, which would significantly increase their socio-economic status.

The total direct manpower requirement for the mining operation is expected to be around 65 people, with an additional significant number of indirect employments created through associated activities. This project operation will provide livelihoods to some of the poorest members of society. Depending on the general shifts worked, the proposed manpower for the project is as follows.

Table- 8.1, Employment detail

SI. No	Qualification	No. of persons
1.	Mining Engineer	02
2	Geologist	01
3	Skilled workers	32

4	Unskilled workers	30
Total		65

8.3 IMPROVEMENTS IN PHYSICAL AND SOCIAL INFRASTRUCTURE

The opening of the proposed project will enhance the socio-economic activities in the adjoining areas. This will result in following benefits: -

- Improvements in physical infrastructure.
- Improvements in Social Infrastructure.
- Increase in Employment Potential
- Contribution to the Exchequer.
- Prevention of illegal mining.
- During and post-mining enhancement of green cover.

8.4 IMPROVEMENTS IN PHYSICAL INFRASTRUCTURE

The opening of the proposed project will improve the physical infrastructure of the adjoining areas. This will include the following: -

- Improved road communication due to opening of the proposed project.
- Strengthening of existing community facilities through the Community Development Programme.
- Creation of community assets (infrastructure) like provision for drinking water, construction of school buildings, village roads/ linked roads, dispensary & health centre, community centre, market place etc.
- Skill development & capacity building like vocational training, income generation programs and entrepreneurship development program.
- Literacy program, adult education, assists formation of Village Working Group (VWG), Mahila Mandal etc.
- Awareness program and community activities, like health camps, medical aids, family welfare programs, immunization camp sports & cultural activities, plantation etc.

8.5 IMPROVEMENTS IN SOCIAL INFRASTRUCTURE

There will be some obvious changes in various environmental parameters due to mining activity. Increase socio-economic activities, creation of new employment opportunities, infra-structural development, better educational and health facilities.

Following are the specific impacts: -

Socio-Economic: - There will be positive impact in socio-economic area due to increased economic activities, creation of new employment opportunities, infrastructural development and better educational and health facilities.

Table- 8.2, Budget for Corporate Environmental Responsibility (CER)

CER Activity	Capital cost (Rs. in lakhs)
Deposit Demand Draft (@ Rs. 4.00 lacs per S ha.) under CER, shall be deposited in the form of Demand Drat to the office of Director (DEST), GOHP for which the Director (DEST) will devise a plan in consultation with project proponent	Rs 4 lakhs @ 2.9755 Ha. = 12 Lakhs

Table- 8.3, Budget for Occupational Health

Particulars	Recurring Cost per year (Rs.)
For routine checkup	50,000
Medical aid as per ESI Scheme	50,000
Training	50,000
Total	1,50,000

Population dynamics: - Due to the direct and indirect employment potential, there is a scope of migration of people into project area and in the peripheral regions; from nearby areas.

Health Care facilities: - Lessee will undertake awareness program and community activities like health, camps, medical aids, family welfare camps, AIDS awareness program etc.

Employment Potential: - There is a possibility of creation of direct and indirect employment opportunities due to working of this mine.

The mine will also contribute to the Exchequer of State and Central Government.

8.6 PLANTATION

The management will provide free saplings of fruit and other trees to local residents during rainy season for plantation, which will increase awareness among workers and nearby villagers about the importance of greenery. Fruit trees can also contribute to their financial gains.

8.7 HEALTH

Periodic medical checkups, as required by the Mines Act/Rules, and other social development and promotional activities will be undertaken, which will improve the overall health status of the residents in the mines' vicinity.

9.0 INTRODUCTION

To mitigate the adverse impact that may be caused by mining operations and overall scientific development of the local habitat, an environmental management plan (EMP) has been formulated and integrated with the mine planning. Chapter IV of this report discusses the anticipated impacts and mitigative measures based on the results of the present environmental conditions and environmental impact assessment. The EMP considers the implementation and monitoring of environmental protection measures during and after mining operations.

Earlier in this report, the mitigation measures that reduce the impact have already been identified. To further minimize the adverse impact, additional EMPs are enumerated below for implementation.

9.1 ENVIRONMENTAL MANAGEMENT PLAN (EMP)

Proper environmental management plan is proposed for “Sand/stone/bajri” extraction project to mitigate the impact during the mining operation.

- Care will be taken that no labour camps will be allowed on river bed.
- Care will be taken that no cooking, or burning of woods will be allowed in the adjoining area.
- Prior to extraction process, short awareness program will be conducted for labours to make them aware to way of working.
- If some causality or injury to animal occurs, it will be informed to forest department and proper treatment will be given.
- No tree cutting, chopping, lumbering, uprooting of shrubs and herbs will be allowed.
- Corridor movement of wild mammals (If exists) will be avoided.
- Care will be taken that noise produced during vehicles movement for carrying sand are within the permissible noise level.
- No pilling of material will be in adjoining area.

9.2 ENVIRONMENTAL MANAGEMENT PLAN IMPLEMENTATION

An Environmental Management Plan serves no purpose if it is not implemented in true spirit. Some loopholes in the EMP can also be detected after it has been implemented and monitored. Therefore, an implementation and monitoring program must be prepared.

The major attributes of the environment are not confined to the mining site alone. The implementation of proposed control measures and monitoring programs have implications for the surrounding area and the region as a whole. As such, mine management should strengthen the existing control measures, as elaborated earlier in this report, and monitor the effectiveness of the control measures implemented within the mining area. This should relate to the following specific areas for an eco-friendly mining plan.

- 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) The effectiveness of drainage system depends upon proper cleaning of all drains provided in the surrounding of lease area. Any blockage due to siltation or loose material will be checked at least once in a month.
- d) Measurement of water level fluctuations in the nearby ponds, dug wells and bore wells.
- e) Regular visual examination will be carried out to look for erosion of river banks. Any abnormal condition, if observed will be taken care of.
- f) Measurement of noise levels at mine site, stationary and mobile sources, and adjacent villages will be done in every quarter of the year.
- g) Plantation and afforestation should be carried out as per the program, which involves planting trees along the road sides and near civic amenities. These areas will be allotted

by government bodies as it is not feasible to plant trees near the mine lease area. Following the plantation, the area will be regularly monitored in every season to evaluate the success rate. Local people should also be involved in the selection of plant species. Mine management will maintain regular communication with the surrounding villages to update them on the various developmental schemes implemented. They will also consider any immediate requirements that can be taken care of in the near future.

An Environmental Management Cell (EMC) will be responsible for monitoring the Environmental Management Plan (EMP) and its implementation. EMC members should meet once a month to assess the progress and analyze the data collected during the month. The EMC will function according to Figure 6.1 (Section VI)."

EMC will maintain regular communication with both the State Pollution Control Board and the Indian Bureau of Mines, and will send them an annual progress report. Any new industry regulations proposed by the State/Central Pollution Control Board will be duly addressed by EMC.

9.3 PROPOSED SET UP

Keeping the utility of monitoring results in the implementation of the environmental management program in view, an organizational chart has been proposed, headed by General Manager as shown in Fig. 6.1(chapter VI).

The said team will be responsible for:

- (i) Collecting water and air samples from surrounding area and work zone monitoring for pollutants.
- (ii) Analyzing the water and air samples.
- (iii) Implementing the control and protective measures.
- (iv) Co-coordinating the environment related activities within the project as well as with outside agencies.
- (v) Collecting statistics of health of workers and population of surrounding villages.
- (vi) Monitoring the progress of implementation of environmental management program.

(vii) Greenbelt development, etc.

The laboratory will be suitably equipped for sampling/testing for various environmental pollutants.

9.4 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 belt has been planned with emphasis on creating biodiversity; enhance natural surroundings and mitigating pollution.

These plantations will be carried out around mining zone. Most of the area recommended for mining will be used for afforestation/greenbelt as per the “Forest (Conservation) Amendment Rule, 2004”. About 800 trees (as per SSMG guideline) will be planted in five years along both sides of roads and civic amenities in consultation with the local authorities. Variety of wild fruit plants like Shisham, Siris, Khair, Jamun, Orange, Bamboo will be used for plantation.

Table 9.1: Details of Greenbelt Scheme

Year	No. of Plants	Plants Covered Area (Sq m)
1 st	160	1800
2 nd	160	1800
3 rd	160	1800
4 th	160	1800
5 th	160	1800
Total	800	9000

Table 9.2: Proposed species for plantation

Sr no	Local Name of plant species	Botanical Name
1	Shisham	<i>Dalbergia sissoo</i>
2	Babool	<i>Acacia nilotica</i>
3	Siris	<i>Albizia procera</i>
4	Kachnar	<i>Bauhinia variegata</i>
5	Mango	<i>Magnifera indica</i>
6	Ash tree	<i>Fraxinus americana</i>
7	Eucalyptus	<i>Eucalyptus sp.</i>

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8	Pear	<i>Pyrifilia (Asian)</i>
9	Peach	<i>Prunus persica</i>
10	Guava	<i>Psidium guajava</i>
11	Shehtoot	<i>Morus alba</i>
12	Bamboo	<i>Bambusa vulgaris</i>
13	Suhanjna	<i>Moringa pterygosperma</i>
14	Datura	<i>Datura stramonium</i>
15	karonda	<i>Carissa carandas</i>
16	Indian plum	<i>ziziphus mauritiana</i>
17	Congress Grass	<i>Parthenium hysterophorus</i>
18	Doob	<i>Cynodon dactylon</i>
19	Lemon Grass	<i>Cymbopogon citratus</i>

9.5 BUDGET ALLOCATION FOR EMP IMPLEMENTATION

An annual budget for EMP is essential for the successful implementation of EMP. Since there are currently no pollution control systems in place, no capital cost for a pollution control system has been planned. Instead, the costs will consist of annual operating costs as outlined below. The allocated funds will not be diverted for any other purposes, and top management will be held responsible for ensuring this. The budget will consider both capital and operating expenses.

1. Field cost for monitoring of parameters.
2. Cost of any defined outsourcing
3. Cost of chemicals, consumables and transport for data generation
4. Man power cost for environmental cell
5. Any other cost as per EC condition

Table 9.3 Budget allotted for the Environmental Management Plan

S.NO	TITLE	CAPITAL COST RS IN LAKHS	RECURRING COST/YR RS IN LAKHS	RECURRING COST FOR 5 YRS	TIMELINE
1.	Monitoring of Air, Water, Soil, etc. twice a year.	--	0.8	4.0	Once in a six month (As per CPCB guideline)

2.	Air Pollution Control- Management of Haulage Roads & mine road of 1500 meters including Sprinkling. Tractor trolley with sprinkler (*Depreciate cost of tanker & Sprinkler)	3.0	0.54	2.7	Twice a day & as per requirement
3.	Green Belt Development Area for Plantation= 0.9 Ha No. of plants = 800 Plants Cost and No. of plants are as per the *No.Ft.1790-/71(D)2011-12/Vol-VIII(Norms), Himachal Pradesh Forest Department, Shimla Dated 07 June 2019	0.8	----	2.5	As per norms recurring cost for next three years
4.	Retaining wall structure/Check Dam 5 Nos. of check dam. 100 Cu.m. each Total = 500 Cu.m. @ Rs 1500 per Cu.m.	7.50	0.1	YEAR I - 0 YEAR II - 0.1 YEAR III - 0.2 YEAR IV – 0.3 YEAR V – 0.4 Total – 1.0	Retaining Wall have been proposed for protect the water to flow out of HFL.
5.	Occupational Health Measures Provision of PPE, First Aid and other, miscellaneous expenditure.	0.50	---	0.50	As per requirement
Total		7.9	1.94	10.7	-----

- **Plants (@Rs. 80,000 @ 800 Plant i.e., Rs.100/ plant**
- **Maintenance of haul road @ Rs. 2.0 lakh/km**
- **Salary of Labour for haul road maintenance 2 labor*Rs. 200* 300 days= Rs. 1,20,000/- for one year (Rs. 6.0 lakh for 5 years)**

9.6 MONITORING SCHEDULE AND PARAMETERS

To evaluate the effectiveness of environmental management program regular monitoring of the important environmental parameters to be monitored are shown in Table. 6.1. (Chapter 6).

10.0 INTRODUCTION OF PROJECT&PROPONENT

The proposed project is river bed mining project for the mining/extraction of sand, stone and bajri located at Khasra No. 46/1, 47/1, 48/1, 49/1, 50, 51, 52/1, 55, 56, and 71, measuring an area 35-06 Bighas or 2.9755 Hectare (Private Land, River Bed) falling in Mauza Mohal Bhatrog, Tehsil Paonta Sahib, District Sirmour, Himachal Pradesh. The extracted sand, stone, and bajri will be utilized in an already established stone crusher unit, M/s Shirgul Mines & Mineral. The mining lease has been granted to M/s Shirgul Mines & Mineral, Part II, with Sh. Rishi Kumar Aggarwal, Sh. Naveen Kumar, Sh. Sher Singh Negi, and Sh. Manish Kumar, who are partners residing at House No. 133/E, Ward No. 6, Tehsil Paonta Sahib, District Sirmour, H.P. The Department of Industries issued the Letter of Intent (LOI) for the grant of the mining lease vide letter no. Udyog-Bhu(Khani-4)Laghu-761/2019-2203 dated 30-05-2022. The LOI was extended for a further period of two years and six months, w.e.f. 29.05.2023 to 29.11.2025, vide letter no. Udyog-Bhu(Khani-4)Laghu-761/2019-2832, issued on 09-06-2025. Approved Mining plan has been approved vide letter no. Udyog-Bhu (Khani-4) Laghu-761/2019-5898 dated 13.0.2022. The estimated project cost is Rs 50 Lakh. The proposed production is 66949 MTPA.

The proposed project is having area of 35-06 Bighas or 2.9755 Hectare (Pvt. Land, River Bed) and falls under Category- “B1” as per EIA Notification 2006 of the Ministry of Environment and Forests, New Delhi and amended thereof. Distance Certificate from Geologist vide letter no. Udyog-Bhu(Khani-4)Laghu-761/2019-1315 dated 30.04.2025. As per the distance certificate from Mining Officer there are three other mining lease area falls within 500 m, with total area of 12.8155 Ha. including this lease. Cluster of active mines area in the immediate surrounding exceeding 5 hectares,

Cluster Details

S.no	Name of Mining lease	Khasra No.	Area in hectare/ Bighas	Mauza/ Mohal	Validity	Status of EC Mining lease/ weather operating or not operating

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1.	Shirgul Mines & Mineral	24,25,29,23 1,271, & 30/2	4-00 (Hect)	Bhatrog	26.02.2033	Operational
2	Prem Chand Aggarwal	58,59,69 70	2.75(Hect)	Bhatrog	25.02.2033	Operational
3	Bala Sunadri Mines and mineral	137/22/75/1	3.09 (Hect)	Bhatrog	25.11.2028	Operational

The Environmental Impact Assessment (EIA) study report is prepared for obtaining Environmental Clearance (EC) from SEIAA Himachal Pradesh for the proposed Extraction of Sand, Stone & Bajri Project.

10.1 LOCATION

The proposed project is for extraction of Sand, Stone and Bajri from Khasra No. 46/1, 47/1, 48/1, 49/1, 50, 51, 52/1, 55, 56, and 71, measuring an area 35-06 Bighas or 2.9755 Hectare (Private land, River Bed) falling in Mauza Mohal Bhatrog, Tehsil Paonta Sahib, District Sirmour, Himachal Pradesh

Pillar	Latitude	Longitude
A	30° 32.591'N	77° 39.789'E
B	30° 32.542'N	77° 39.774'E
C	30° 32.548'N	77° 39.736'E
D	30° 32.569'N	77° 39.716'E
E	30° 32.602'N	77° 39.699'E
F	30° 32.550'N	77° 39.699'E
G	30° 32.558'N	77° 39.628'E
H	30° 32.573'N	77° 39.595'E
I	30° 32.626'N	77° 39.635'E
J	30° 32.617'N	77° 39.651'E
K	30° 32.631'N	77° 39.665'E
M	30° 32.619'N	77° 39.691'E
N	30° 32.617'N	77° 39.722'E
O	30° 32.603'N	77° 39.755'E
P	30° 32.596'N	77° 39.752'E

Site connectivity:

Nearest Railway Station	Salogra Railway Station is approx 67.26 km towards NW direction (Aerial distance)
Nearest National & State Highway	NH-72 (Poanta Hatkoti Road)-About 0.60 Km in SW direction. SH-1, About 4.71 km in E direction
Nearest Airport	Shimla Airport is approx. 83 km towards NW direction (Aerial distance)
Nearest Town	Nearest Town Paonta Sahib \approx 12.15 Km in SW direction (Aerial distance).

10.2 RESERVES

Summary of Geological reserves

Name of Mineral	Boulder (40%) M.T.	Bajri (30 %) M.T.	Sand (25%) M.T.	Silt/Clay (5 %)	Total M.T.
Quantity	26780	20085	16737	3347	66949

Table Showing Reserve Estimation in the available Mineable Area:

Area in sq. meter (Mineable)	Specific gravity	Depth in meters	Geological Reserves (in MT)
29755 sqm	2.25	1.0	66949 MTPA

Table Year wise Production detail

Year	Area for mining in Sqm.	Quantity of Sand (M.T.)	Quantity of Stone (M.T.)	Quantity of Bajri (M.T.)	Quantity of Silt/ Clay (M.T.)	Total (M.T.)
		25 %	40%	30%	5%	
1st year	29755	16737	26780	20085	3347	66949
2nd year	29755	16737	26780	20085	3347	66949
3rd Year	29755	16737	26780	20085	3347	66949
4th Year	29755	16737	26780	20085	3347	66949
5th Year	29755	16737	26780	20085	3347	66949
Total		83685	133900	100425	16735	334745

**Note: The proposed production is 66949 MTPA(Max)*

10.3 MINING

Extraction will be carried out using an open-cast manual mining methodology without the use of drilling or blasting. The activity will be limited to the excavation of sand, stone, and bajri from the riverbed (Giri River). Mineral excavation will be restricted to a maximum depth of 1 meter.

Approximately 3,347 TPA of waste material present in the mining lease area in the form of silt is inseparable; however, the leaseholder shall dump any waste material generated near the stone crusher site and explore the possibility of using it for road filling, granular sub-base (GSB) in road works, plantation works, etc.

10.4 WATER SUPPLY

Water will be provided to workers for drinking & domestic purpose. Water will also be required for dust suppression. The number of working people is 65. Total water requirement is about 6.425 KLD. The water will be sourced from Giri River through tanker supply. Fresh water will be only used for drinking purpose.

Temporary Rest Shelter

A temporary rest shelter will be provided for the workers near to the site for rest. In addition, first aid box along with anti-venoms to counteract poison produced by certain species of small insects, if any and sanitation facility i.e. septic tank or community toilet facility will be provided for the workers.

10.5 BASE LINE DATA

Environmental data has been collected in relation to proposed mining for Air, Noise, Water, Soil, and Flora & Fauna. The baseline environment study was carried out over an area with radial distance of 10 km around the mining lease area during post monsoon season from Oct 2024 to Dec 2024. Environmental data has been collected in relation to proposed mining for: -

- (a) Air
- (b) Noise
- (c) Water
- (d) Soil

(e) Ecology and Biodiversity

(f) Socio-economy

Table 10.2 BASELINE ENVIRONMENTAL STATUS

Attribute	Baseline status
Ambient Air Quality	<p>Ambient Air Quality Monitoring reveals that the minimum & maximum concentrations of PM₁₀ for all the AQ monitoring stations were found to be 28.44 µg/m³ & 76.52 µg/m³, respectively and the minimum & maximum concentrations of PM 2.5 were found to be 18.28 µg/m³ and 48.65 µg/m³ respectively.</p> <p>As far as the gaseous pollutants SO₂ and NO_x are concerned, the prescribed CPCB limit of 80 µg/m³ for residential and rural areas has never surpassed at any station. The maximum & minimum concentrations of SO₂ were found to be 3.92 µg/m³ & 20.1µg/m³ respectively. The maximum & minimum concentrations of NO_x were found to be in between 6.0 µg/m³ & 20.65 µg/m³.</p>
Noise Levels	<p>Noise monitoring was carried out at 08 locations. The results of the monitoring program indicated that both the daytime and night time levels of noise were well within the prescribed limits of NAAQS, at all the four locations monitored.</p>
Water Quality	<p>06 Groundwater samples and 03 surface water samples were analyzed and concluded that:</p> <p>The ground water from all sources remains suitable for drinking purposes as all the constituents are within the limits prescribed by drinking water standards promulgated by Indian Standards IS: 10500.</p> <p>From the Surface water analysis, it is evident that most of the parameters of the samples comply with 'Category 'B' standards of</p>

	CPCB indicating their suitability for Drinking water source after conventional treatment and disinfection.
Soil Quality	Samples collected from identified locations indicate the soil is Sandy Loam type and the pH value ranging from 7.27 to 7.84, which shows that the soil is alkaline in nature. Potassium is found to be from 216 mg/kg to 248 mg/kg. The water holding capacity is found in between 25.0 % to 28.8 %.
Ecology and Biodiversity	There are no Ecologically Sensitive Areas present in the study area, but many reserved forests regions surround the project area
Socio-economy	The implementation of the Sand, Stone & Bajri extraction project on the Giri river will throw opportunities to local people for both direct and indirect employment. The study area is still lacking in education, health, housing, water, electricity etc. It is expected that same will improve to a great extent due to proposed mining project and associated industrial and business activities.

10.6 BIOLOGICAL ENVIRONMENT

Flora of the Core Zone

The core zone comprises of river sand bed by the side of water channel of Giri River where extraction is proposed. No ecologically sensitive plant species has been reported from this area. The table below here shows the flora of the study area.

Flora of the Buffer Zone

The vegetation of study area varies from dry scrub forests at lower elevation to alpine pasture at higher altitudes. Several tropical elements can be seen scattered in the area. Species of *Saccharum*, *Calotropis*, *Vitex*, *Zizyphus*, etc. are of common occurrence. Tree species viz. *Acacia catechu*, *Albizia lebeck*, *Dalbergia sissoo*, *Morus alba*, etc. are found planted along the boundary of the agricultural lands and along the road sides.

Ground vegetation mainly consists of grasses and small shrubs. Among the grasses, *Vetiveria Zizanioides*, *Cenchrus ciliaris* are very common in the area. Useful fodder grasses, *Cynodon dactylon*, *Eleusine indica*, *Trifolium alexandrinum*, etc. are present in the proposed project area.

The large weeds which infest uncultivated tracts are *aak* (*Calotropis procera*), *arind* (*Ricinus communis*), *datura* (*Datura metel*) and *thor* (*Opuntia stricta*). Other noxious weeds and those which appear in crops are *pohlior* thistle (*Carthamus oxyacantha*), *shialkanta* (*Argemone mexicana*), *kandyari* (*Solanum virginianum*) and *bhanga* (*Cannabis sativa*).

Fauna reported in Core zone:

During the faunal survey in the area no wildlife corridor or movement of animals was recorded from proposed project area. No established habitats of any mammals or birds are noticed in river bed and along the banks. No bird's habitats like nesting, breeding and foraging patterns are noticed in the core zone. Local birds are noticed crossing over the banks in search of food. No fixed pattern in migratory behaviour is noticed.

Many domesticated mammal species are reported from buffer zone during the field survey. Common domestic animals like Buffalo, cow, goat etc. can be noticed in open grass fields while grazing. Small mammals like Indian hare (*A Lepus nigricollis*), Indian Palm Squirrel (*Funambulus palmarum*) and field mouse (*Apodemus sylvaticus*) are noticed in vicinity of the village.

Birds like Jungle Myna (*Acridotheres fuscus*), Common Myna (*Acridotheres tristis*), Spotted Owlet *Athene brama*, Cattle Egret (*Bubulcus ibis*), Pied kingfisher (*Ceryle rudis*) etc are of common occurrence.

The reptilian's species commonly reported are Common Toad (*Bufo melanostictus*) in settlement area, Garden lizard (*Calotes versicolor*) and Krait (*Bungarus caeruleus*) along shady places in agricultural field or where growth of bushes is noticed.

Table 10.3 Anticipated impact and mitigation measures for biological environment

Impact Predicted	Suggestive measure
Disturbance to free movement / living of wild fauna viz. Birds, Reptiles etc.	<p>If birds are noticed crossing the core zone, they will not be disturbed at all;</p> <p>Labours will not be allowed to discards food, plastic etc., which can attract animals/birds near the core site;</p> <p>Only low polluting vehicles having PUC will be allowed for carrying mining materials.</p> <p>Noise level will be maintained within permissible limit (silent zone-50dB (A) during day time or residential zone 55dB (A)) as per noise pollution (regulation and control), rules, 2000, CPCB norms</p>
Disturbance of riparian ecosystem/ wetlands	The riparian ecosystem or the wetlands will not be destroyed by the mine owners
Monitoring of upstream and downstream water quality	Water quality will be monitored from upstream and downstream area to assess the impact on water quality and plankton and mining activity will be controlled to maintain the clean water conditions.

10.7 LAND ENVIRONMENT

Mining Activity: Harvesting of river bed minerals and other associated activities are the main sources of environmental degradations and most serious ones are detailed hereunder:

- Damage of river bank due to access ramps to river bed, causing damage to vegetation, soil erosion, micro disturbance to ground water, possible inducement of charged river course.
- Loss of riparian vegetation standing along the bank due to making roads connecting successive access to river bed.
- Contamination of aquifer water due to ponding, due to uneven rocky bed of river, bed thickness vary considerably and digging more mineral from a pocket where thickness of

sand is more may cause ponding. In this stagnant water bio-degradable materials especially flora waste gets accumulated causing contamination and inducing an unhealthy environment

- Surface degradation due to stockpiling and road network.

Mitigation measures

- Minimum number of access roads to river bed for which cutting of river banks will be avoided and ramps are to be maintained.
- Access points to the river bed will be decided basing on least steepness of river bank and least human activity.
- Mining is avoided during the monsoon season and at the time of floods.
- Mining schedule is synchronized with the river flow direction and the gradient of the land.
- Haulage roads parallel to the river bank and roads connecting access to river bed will be made away from the bank
- Care will be taken to ensure that ponds are not formed in the river bed
- Access roads from public roads and up to river bank will be aligned in such a way that it would cause least environmental damage.
- Vegetation development is proposed along the road sides of the approach roads, to arrest soil erosion. While selecting the plant species, preference will be given for planting native species of the area.

10.8 AIR ENVIRONMENT

Anticipated impacts and evaluation

Information on air quality was studied and various modelling techniques predicted that the mining activity will not affect the air quality in a significant manner. In mining operations, loading, transportation and unloading operations may cause deterioration in air quality due to handling dry materials. In the present case, only wet materials will be handled, thus eliminating problems of fugitive dust. Also, the collection and lifting of minerals will be done manually

without any blasting. Therefore, the dust generated is insignificant as compared to mining process of other hard minerals like the process of drilling, blasting, mechanized loading etc.

Mitigation measures

The only air pollution sources are the road transport network of the trucks. The dust suppression measures like water spraying will be done on the roads. Utmost care will be taken to prevent spillage from the trucks. Overloading will be prevented. Plantation activities along the roads will also reduce the impact of dust in the nearby villages.

10.9 WATER ENVIRONMENT

Extraction of Sand, Stone & Bajri from within or near a streambed has a direct impact on the stream's physical habitat characteristics. These characteristics include geometry, bed evaluation, substrate composition and stability, in stream roughness elements, depth, velocity, turbidity, sediment transport, stream discharge and temperature. Altering these habitat characteristics can have deleterious impacts on both in stream biota and associated riparian habitat.

The detrimental effects to biota resulting from bed material mining are caused by three main processes:

- i.alteration of flow patterns resulting from modification of the river bed
- ii.an excess of suspended sediment
- iii.Damage to riparian vegetation and in stream habitat.

10.10 NOISE ENVIRONMENT

Anticipated impacts and evaluation

As there will be no heavy earth moving machinery there will not be any major impact on noise level due to the mining and other association activities a detailed noise survey has been carried out and results are discussed in chapter III. Blasting technique is not used for mineral lifting, hence no possibility of land vibration. It was found that the mining activity will not have any significant impact on the noise environment of the region. The only impact will be due to transportation of materials by trucks.

Mitigation measures

As the only impact is due to transportation of extracted Stone Boulder, Sand, & Bajri to the construction through village roads, emphasis will be given on the following points.

- Minimum use of Horns at the village area.
- Timely maintenance of vehicles and their silencers to minimize vibration and sound.
- Phasing out of old and worn-out trucks.
- Provision of green belts along the road networks.
- Care will be taken to produce minimum sound during loading.

It was found that the extraction activity will not have any significant impact on the biological environment of the region. Since mining activity is carried out only during the day time, the movement of animals during the night will not be hindered. Proper mitigative measure will be taken by the contractor, in consultation with local NGOs working in the study area.

10.11 TRAFFIC ANALYSIS

In the traffic analysis it can be seen that the V/C ratio will be modified from 0.10 to 0.11 at SH-1 (Paonta Sahib- Purwala-Bharii Road) with LOS being “A” and will be modified from 0.07 to 0.09 at Village metallic road Bhatrog-Dubri road with LOS remain A respectively. So, the additional load on the carrying capacity will be affected to a minimum level

10.12 ENVIRONMENTAL MANAGEMENT PLAN (EMP)

Proper environmental management plan is proposed for “Sand, Stone & Bajri” extraction project to mitigate the impact during the mining operation.

- Care will be taken that no labour camps will be allowed on river bed.
- Care will be taken that no cooking, or burning of woods will be allowed in the adjoining area.
- Prior to mining, short awareness program will be conducted for labours to make them aware to way of working.

- If some causality or injury to animal occurs, it will be informed to forest department and proper treatment will be given.
- No tree cutting, chopping, lumbering, uprooting of shrubs and herbs will be allowed.
- Corridor movement of wild mammals (If exists) will be avoided
- Care will be taken that noise produced during vehicles movement for carrying sand/stone/bajri are within the permissible noise level.
- No pilling of material will be in adjoining area.
- If wild animals are noticed crossing the river bed, it will not be disturbed or chased away, instead the labours will move away from their path.

10.13 ENVIRONMENTAL MANAGEMENT PLAN IMPLEMENTATION

Environmental Management Plan serves no purpose if it is not implemented with true spirit. Some loopholes in the EMP can also be detected afterwards when it is implanted and monitored. Thus, an implementation and monitoring programme has to be prepared.

The major attributes of environment are not confined to the mining site alone. Implementation of proposed control measures and monitoring programme has an implication on the surrounding area as well as for the region. Therefore, mine management will 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. The effectiveness of drainage system depends upon proper cleaning of all drains provided in the surrounding of lease area. Any blockage due to siltation or loose material will be checked at least once in a month.

- d. Measurement of water level fluctuations in the nearby ponds, dug wells and bore wells.
- e. Regular visual examination will be carried out to look for erosion of river banks. Any abnormal condition, if observed will be taken care of.
- f. Measurement of noise levels at mine site, stationary and mobile sources, and adjacent villages will be done in every quarter of the year.
- g. Plantation and afforestation should be carried out as per the program, which involves planting trees along the road sides and near civic amenities. These areas will be allotted by government bodies as it is not feasible to plant trees near the mine lease area. Following the plantation, the area will be regularly monitored in every season to evaluate the success rate. Local people should also be involved in the selection of plant species.

10.14 BUDGET ALLOCATION FOR EMP IMPLEMENTATION

Table 10.4: Budget allotted for the Environmental Management Plan

S.NO	TITLE	CAPITAL COST RS IN LAKHS	RECURRING COST/YR RS IN LAKHS	RECURRING COST FOR 5 YRS	TIMELINE
1.	Monitoring of Air, Water, Soil, etc. twice a year.	--	0.8	4.0	Once in a six month (As per CPCB guideline)
2.	Air Pollution Control- Management of Haulage Roads & mine road of 1500 meters including Sprinkling. Tractor trolley with sprinkler (*Depreciate cost of tanker & Sprinkler)	3.0	0.54	2.7	Twice a day & as per requirement
3.	Green Belt Development Area for Plantation= 0.90 Ha No. of plants = 800	0.80	0.5	2.5	As per norms recurring cost for next

Chapter-10 Executive Summary

	Plants Cost and No. of plants are as per the *No.Ft.1790- /71(D)2011-12/Vol- VIII(Norms), Himachal Pradesh Forest Department, Shimla Dated 07 June 2019				three years
4.	Retaining wall structure/Check Dam 5 Nos. of check dam. Total 300 Cu.m. @ Rs 1200 per Cu.m.	3.60	0.1	YEAR I - 0 YEAR II - 0.1 YEAR III - 0.2 YEAR IV – 0.3 YEAR V – 0.4 Total – 1.0	Retaining Wall have been proposed for protect the water to flow out of HFL.
5.	Occupational Health Measures Provision of PPE, First Aid and other, miscellaneous expenditure.	0.50	---	0.50	As per requirement
Total		7.9	1.94	10.7	-----

- *Plants (@Rs. 80,000 @ 800 Plant i.e., Rs.100/ plant*
- *Maintenance of haul road @ Rs. 2.0 lakh/km*
- *Salary of Labour for haul road maintenance 2 labor*Rs. 200* 300 days= Rs. 1,20,000/- for one year (Rs. 6.0 lakh for 5 years)*

10.15 MONITORING SCHEDULE AND PARAMETERS

Table 10.5 Monitoring Schedule and Parameters

S. No	Description of Parameters	Schedule and Duration of Monitoring
1	Air Quality a) In the vicinity of the mine b) In the vicinity of the transportation	24 hourly samples twice a week for one month in each season except monsoon season

	network	
2	Water Quality Water quality of surface and groundwater around the site Drinking water must conform to drinking water standards	Once in a season for 4 seasons in a year
3	Ambient Noise Level	Twice in a year for couple of years & then once in a year
4	Soil Quality	Once in two years on project monitoring area
5	Inventory of Flora (tree plantation, survival etc)	Once in two years on project monitoring area
6	Socio-economic condition of local, population, physical survey	Once in 3 or 4 years

10.16 BENEFIT OF MINING

- ✓ Controlling river channel.
- ✓ Protecting banks.
- ✓ Reducing submergence of adjoining agricultural lands due to flooding.
- ✓ Reducing aggradations of river level.
- ✓ Generating useful economic resource for construction.
- ✓ Generating employment and improvement of socio-economic conditions of the study area.

CONSULTANTS ENGAGED

Consultant Contact Details:

P & M Solution

Address –C-88, Sector 65, Noida

Mobile no. - +91 8377871554, 8826287364, 0120-4321723

Website- www.pmsolution.in

Email- pmsolutionbxr@gmail.com, info@pmsolution.in

Consultant accreditation details are given below:

**QUALITY COUNCIL
OF INDIA**
Creating an Ecosystem for Quality

**National Accreditation Board
for Education and Training**

Certificate of Accreditation

P and M Solution, Noida

C-88, Sector-65, Noida, Uttar Pradesh- 201301

The organization is accredited as **Category-B** under the QCI-NABET Scheme for Accreditation of EIA Consultant Organization, Version 3: for preparing EIA-EMP reports in the following Sectors –

S.No	Sector Description	Sector (as per)		Cat.
		NABET	MoEFCC	
1	Mining of minerals including opencast & underground	1	1 (a) (i)	A
2	River Valley projects	3	1 (c)	B
3	Coal washeries	6	2 (a)	B
4	Cement plants	9	3 (b)	A
5	Highways	34	7 (f)	A
6	Building and construction projects	38	8 (a)	B
7	Townships and Area development projects	39	8 (b)	B

Note: Names of approved EIA Coordinators and Functional Area Experts are mentioned in RAAC minutes dated July 18, 2023 posted on QCI-NABET website.

The Accreditation shall remain in force subject to continued compliance to the terms and conditions mentioned in QCI-NABET's letter of accreditation bearing no QCI/NABET/ENV/ACO/23/2846 dated August 09, 2023. The accreditation needs to be renewed before the expiry date by P and M Solution, Noida following due process of assessment.


Sr. Director, NABET
Dated: August 09, 2023

Certificate No.
NABET/EIA/2326/RA 0298

Valid up to
May 07, 2026

For the updated List of Accredited EIA Consultant Organizations with approved Sectors please refer to the QCI-NABET website.

Chapter-11 Disclosure of Consultant

S No	Name	EC/FAE	DETAILS
1	Mr. Rahul Kumar Team Member Mr. Sahil Sood	EC	EC
2	Mr. Rahul Kumar	FAE	AQ
3	Mr. Tapan Majumdar	FAE	GEO, HG
4	Mr. Jatin Kumar Srivastava	FAE	SC
5	Mr. Manoj Kumar Pandey	FAE	EB
6	Mr. Dr R K Tewari	FAE	RH, AP
7	Mr. Neha Singh	FAE	NV
8	Mr. Abhay Nath Mishra	FAE	SE
9	Mr. Hussain Ziauddin	FAE	WP
10	Mr. Poonam Kumari Mangalam	FAE	LU

Laboratory Details:

Noida Testing Laboratory

GT-20 Sector 117 Noida

ANNEXURE

LIST OF ANNEXURES

S. No.	TITLE OF ANNEXURE
I	Terms of reference (TOR)
II	Letter of Intent (LOI)
III	500m Cluster Certificate
IV	Joint Inspection Report
V	Mining plan approval letter and Mining plan
VI	Revenue Record (Tatima & Jamabandi)
VII	Panchayat NOC
VIII	Environmental Policy
IX	Test Report



State Level Environment Impact Assessment Authority

Himachal Pradesh

Ministry of Environment, Forest & Climate Change, Government of India,

at Department of Environment Science & Technology,

Paryavaran Bhawan, Near US Club, Shimla-1

Ph: 0177-2656559, 2659608 Fax: 2659609

F. No. HP SEIAA/2023/1061-1390-97

Dated: 16/5/2023

To

M/s Shingul Mines & Minerals, Part-II,
(Partnership Firm, Partners S/Sh. Rishi Kumar Aggarwal,
Naveen Kumar, Sher Singh Negi & Manish Kumar) through
GPA/Partner Sh. Manish Kumar, House No. 133/E, Ward No. 6,
Tehsil Paonta Sahib, Distt. Sirmour, HP.

Subject: Project proposal for Mining of Minerals – Terms of References-reg.

Sir/Madam,

This has a reference to your online application No. SIA/HP/MIN/424088/2023 for approval of Terms of References for undertaking Environment Impact Assessment Study for further seeking Environmental Clearance under Environment Impact Assessment Notification, 2006.

The proposal has been appraised as per prescribed procedure in the light of provisions under the Environment Impact Assessment Notification, dated 14th September 2006 on the basis of documents viz; Form-I, Pre-feasibility Report, Proposed ToRs etc. by the State Expert Appraisal Committee constituted by the competent authority in its 91st meeting held on 4/4/2023. The said project involves following salient features:

- | | | |
|----|--|--|
| a) | Proposal No. | SIA/HP/MIN/422986/2023
HP SEIAA/2022-1061 |
| b) | Project type | Extraction/Collection of Stone boulder, Sand & Bajri. |
| c) | Project Location | Khasra number 46/1, 47/1, 48/1, 49/1, 50, 51, 52/1, 55, 56 & 71 falling in Mauza/ Mohal Bhatrog, Distt. Sirmour, HP. |
| d) | Jamabandi | Jamabandi for the year 2016-17 |
| e) | Land Status | Private Land. |
| f) | Capacity | 66,949 TPA. |
| g) | Mining Area | 35-06 Bighas, 2.9755 ha, Private land, river bed. |
| h) | Leases with in 500 meter from the periphery of the area applied. | |
| i) | Letter of Intent | Letter of Intent issued on dated 30/05/2022
(Valid for one year i.e. up to 29/05/2023) |
| j) | Validity period of ToR | 3 Years as per the provision of EIA Notification 2006 & OM No. J-11013/41/2006-IA-11 (I)
(Part) dated 29/08/2017 issued by MoEF&CC, Gol |

The SEIAA examined the proposal in its 61st meeting held on 21st April, 2023 and considered the recommendations made by SEAC in its 91st meeting held on 4/4/2023. After considering the recommendations of the State Level Expert Appraisal Committee, the State level Environmental Impact Assessment Authority under the provisions of EIA Notification 2006, accord approval to standard Terms of References as published by MoEF&CC, Gol afresh for Mining of Minerals, for the purpose of preparing Environment Impact Assessment Report, Environment Management Plan for obtaining prior Environment Clearance with public consultation, if applicable, with the following additional conditions:

1. The project proponent shall also assess the air quality of the area using Air Quality Models.
2. The project proponent shall assess and provide comprehensive details of muck disposal in the final EIA/ EMP report.
3. The project proponent shall provide details of labour, its management.
4. The traffic/ vehicle flux assessment shall be included in the EIA/ EMP.
5. The project proponent may use baseline data for EIA/ EMP reports from already formulated EIA/ EMP as per the provision of EIA notification 2006 with prior consent of the respective proponent and his undertaking to be submitted to the SEAC.

16/5/23
Member Secretary
State Level Environment Impact Assessment Authority
Himachal Pradesh

Endst. No. As Above.

Dated:

2023.

Copy to following for further necessary action:

1. The Secretary (Environment), Ministry of Environment, Forests & Climate Change (MoEF&CC), Gol, Indira Paryavaran Bhawan, Jor Bagh Road, New Delhi - 110003
2. The Chairman, Central Pollution Control Board, Him Parivesh Bhawan, CBD-cum-office Complex, East Arjun Nagar, New Delhi-110032.
3. The Chairman, Himachal Pradesh State Pollution Control Board, Shimla-171009.
4. The Director (Environment, Science & Technology) to the GoHP, Shimla-171001.
5. The Adviser (IA), MoEF&CC, Gol, Indira Paryavaran Bhawan, Jor Bagh Road, New Delhi - 110003.
6. The Integrated Regional Office, MoEF&CC, CGO Complex, Shivalik Khand, Longwood, Shimla, HP-171001.
7. The Monitoring Cell, MoEF&CC, Gol, Indira Paryavaran Bhawan, Jor Bagh Road, New Delhi - 110003
8. Record File.

16/5/23
Member Secretary
State Level Environment Impact Assessment Authority
Himachal Pradesh

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Dated, Shimla-171001, the

2022

LETTER OF INTENT

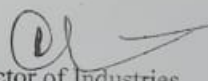
M/s Shirgul Mines & Minerals, Part-II (Partnership Firm, Partners S/Sh. Rishi Kumar Aggarwal, Naveen Kumar, Sher Singh Negi & Manish Kumar), through GPA/Partner Sh. Manish Kumar, House No. 133/E, Ward No. 6, Tehsil Paonta Sahib, District Sirmour, H.P. has applied an area measuring 36-07 Bighas, bearing Kh. Nos. 71, 43/1, 46/1, 47/1, 48/1, 49/1, 52/1, 51, 55, 56 & 50 (Private land/River bed), situated in Mohal/Mauza Bhatrog, District Sirmour, H.P. for the grant of mining lease for collection/extraction of stone boulder, sand & bajri for open sale of minerals under the provisions of Himachal Pradesh Minor Minerals (Concession) and Minerals (Prevention of Illegal Mining, Transportation and Storage) Rules, 2015. The case was referred to the Joint Inspection Committee for inspection of the applied for area and the committee recommended the whole area measuring 36-07 bighas for the grant of mining lease however; the applicant firm requested vide letter dated 24.03.2021 to reduce the area comprising of Kh. No. 43/1, measuring 1-01 bighas, from the total applied area of 36-07 bighas and after reducing the area measuring 1-01 bigha, the area measuring 35-06 bighas remains left. The applicant firm has accordingly submitted the revised revenue papers for the reduced area measuring 35-06 bighas, comprising of Kh. Nos. 46/1, 47/1, 48/1, 49/1, 50, 51, 52/1, 55, 56 & 71. Also they have requested to consider and attach the applied mining lease area with the existing stone crusher unit in place of open sale of minerals for which the applicant firm has submitted revised mining lease application on 25.03.2021. On the basis of recommendations of the Joint Inspection Committee and as per request of the applicant as well as report of the Mining Officer, Nahan on the proposal of the applicant, it has been decided to issue a 'Letter of Intent' for the grant of mining lease for existing stone crusher unit under name & style of "M/s Shirgul Mines & Minerals" over an area measuring 35-06 Bighas, comprising of Kh. Nos. 46/1, 47/1, 48/1, 49/1, 50, 51, 52/1, 55, 56 & 71 situated in Mohal/Mauza Bhatrog, District Sirmour, H.P. in favour of M/s Shirgul Mines & Minerals, Part-II (Partnership Firm, Partners S/Sh. Rishi Kumar Aggarwal, Naveen Kumar, Sher Singh Negi & Manish Kumar), through GPA/Partner Sh. Manish Kumar, House No. 133/E, Ward No. 6, Tehsil Paonta Sahib, District Sirmour, H.P. subject to the following conditions:-

1. The party shall get the area demarcated from the revenue authorities and shall erect permanent boundary pillars to the satisfaction of the Mining Officer so as to clearly depict the provisional granted area. A copy of the demarcation report shall also be submitted to the Mining Officer.
2. The party shall have to submit the approved Mining Plan under Rule 35 of Himachal Pradesh Minor Minerals (Concession) and Minerals (Prevention of illegal Mining, Transportation and Storage) Rules, 2015.
3. The party shall have to obtain Environment clearance under the provision of Environment Protection Act, 1986 from the Competent Authority and forest clearance in case of forest land.
4. The Letter of Intent is subject to any orders passed by the Hon'ble Supreme Court of India/High Court of Himachal Pradesh or other concerned departments from time to time in this regard. This Letter of Intent is valid only for obtaining EIA Clearance from the Competent Authority, as mandated by the Hon'ble Supreme Court in its order dated 27.2.2012.

The grant orders imposing all the conditions and stipulations relevant as per the rules shall be issued only after submission of documents as mentioned at condition Nos. 1 to 3 above and after completing all the codal formalities. This Letter of Intent shall be valid for a period of one year. Thereafter, extension of provisional period shall be granted only after reviewing the progress made for fulfillment of above said conditions. The party shall not resort to any mining activities till getting the final grant orders.

Regd.

**M/s Shirgul Mines & Minerals, Part-II
(Partnership Firm, Partners S/Sh.
Rishi Kumar Aggarwal, Naveen Kumar,
Sher Singh Negi & Manish Kumar)
through GPA/Partner Sh. Manish Kumar
House No. 133/E, Ward No. 6,
Tehsil Paonta Sahib, District Sirmour, H.P.**

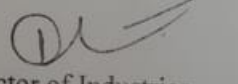

Director of Industries
Himachal Pradesh

Endst. No. Udyog-Bhu (Khani-4) Laghu-761/2019-²⁰²³

Dated: 30/5/2023

Copy to the following for information and necessary action:-

- 1 The Member Secretary, H.P. State Pollution Control Board, 'HIM PARIVESH' Phase-III, New Shimla, H.P.
- 2 The Mining Officer, Nahan, District Sirmour, Himachal Pradesh.
- 3 The Pradhan, Gram Panchayat, Poka, Tehsil Paonta Sahib, Distt. Sirmour, H.P.
- 4 Guard File.


Director of Industries
Himachal Pradesh

LOI Extension

No. Udyog-Bhu(Khani-4) Laghu-761/2019
Government of Himachal Pradesh
Department of Industries
"Geological Wing"

- 2832

Dated, Shimla-171001, the

29/06/2025

To

✓ M/s Shirgul Mines & Minerals, Part-II,
(Partnership firm Partners S/Shri
Rishi Kumar Aggarwal, Naveen Kumar,
Sher Singh Negi & Manish Kumar)
House No. 133/E, Ward NO. 6,
Tehsil Paonta Sahib, District Sirmour, H.P.

Subject: - Regarding extension of validity period of Letter of Intent issued in favour of M/s Shirgul Mines & Minerals, Part-II, (Partnership firm Partners S/Shri Rishi Kumar Aggarwal, Naveen Kumar, Sher Singh Negi & Manish Kumar) House No. 133/E, Ward NO. 6, Tehsil Paonta Sahib, District Sirmour, H.P.


D/Sir,

This bears reference to your letter dated 31.03.2025 on the subject cited above.

The Govt. vide letter No. IND-B-F-(6)-16/2017 dated 31.05.2025 has conveyed the approval for extension of validity period of Letter of Intent for further term of two years and six months (w.e.f. 29.05.2023 to 29.11.2025) in favour of M/s Shirgul Mines & Minerals, Part-II, (Partnership firm Partners S/Shri Rishi Kumar Aggarwal, Naveen Kumar, Sher Singh Negi & Manish Kumar) House No. 133/E, Ward NO. 6, Tehsil Paonta Sahib, District Sirmour, H.P. for obtaining environment clearance and completing other codal formalities.

The validity period of Letter of Intent for an area measuring 35-06 Bighas (Private land/Riverbed), comprising Khasra Nos. 46/1, 47/1, 48/1, 49/1, 50, 51, 52/1, 55, 56 & 71, falling in Mauza/Mohal Bhatrog, District Sirmour, H.P. for extraction/collection of stone boulder, sand & bajri for setting up of stone crusher unit is accordingly extended for further term of two years and six months (w.e.f. 29.05.2023 to 29.11.2025) for the purpose of obtaining Environment Clearance under the provisions of Environment Protection Act, 1986 from the competent authority. The applicant shall not resort to any mining activities till getting the final grant order in this behalf.


Yours faithfully,


Geologist (Zone-III)
Geological Wing
Deptt. of Industries, Shimla
Dated: 2025

Endst. No. As above.

Copy to the following for information and necessary action:

1. The Member Secretary, H.P. State Pollution Control Board, 'HIM PARIVESH' Phase-III, New Shimla, H.P.
2. The Mining Officer, Sirmour at Nahan, District Sirmour, Himachal Pradesh.
3. Guard file.


Geologist (Zone-III)
Geological Wing
Deptt. of Industries, Shimla

No. Udyog-Bhu(Khani-4) Laghu-761/2019 -1315
Government of Himachal Pradesh
Department of Industries
Geological Wing

Dated: Shimla-171001

30/04/ 2025

To

✓ M/s Shirgul Mines & Minerals, Part-II,
(Partnership Firm, Partners S/Shri
Rishi Kumar Aggarwal, Naveen Kumar,
Sher Singh Negi & Manish Kumar)
House No. 133/E, Ward No.6,
Tehsil Paonta Sahib, District Sirmour, H.P.

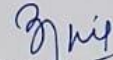
Subject: - Regarding Issuance of Distance Certificate.

Sir,

As desired by you, the necessary certificate authenticated by the Mining Officer Nahan, District Sirmour and further countersigned by undersigned is enclosed for further necessary action at your end please.

Yours faithfully,

Encls: As above.


Geologist (Zone-III)
Geological Wing
Deptt. of Industries, Shimla
Dated: 2025

Endst No. As above.

Copy to: -

The Mining Officer, Nahan w.r.t. your letter No. Udyog(Bhu)SMR-Laghu-Shirgul Mines & Minerals Part-II-48 dated 10.04.2025 for information.

✓
Geologist (Zone-III)
Geological Wing
Deptt. of Industries, Shimla

No.: Udyog (Bhu)SMR-Laghu-Shirgul Mines & Minerals Part II - 50
Office of the Mining Officer, Nahan
District Sirmour (H.P.)

Dated


10-4-2025


Nahan

CERTIFICATE

Certified that as per record of this office, three other mining lease exists/granted by the department, within 500 meters from the periphery of the area applied for grant of mining lease in favour M/s Shirgul Mines & Minerals Part-II, Partner Sh. Naveen Kumar H.No 169/19 ward No 5, Paonta Sahib District Sirmour H.P. comprising of Khasra No. 71, 43/1,46/1, 47/1,48/1,49/1 52/1, 51, 55,56 and 50 measuring 35.06 Bighas in Mauja/Mohal Bhatrog, Tehsil Kamrau, District Sirmour, (H.P.). The status of mining leases is as under:

Sr. No.	Name of Mining Lease	Khasra No.	Area in Hectares	Mohal & Mauza	Validity Period	Status of EC/Mining leases whether operating or not operating
1.	Shirgul Mines & Minerals	24,25,29, 231,271 & 30/2	4.00 (Hect.)	Bhatrog	26.02. 2033	Operational
2.	Prem Chand aggarwal	58,59,69, 70.	2.75(Hect.)	Bhatrog	25.02. 2033	Operational
3.	Bala Sunadri Mines and minerals	137/122/ 75/1	3.09(Hect.)	Bhatrog	25.11. 2028	Operational

C.S.

Geologist (Zone-III)
Geological Wing
Deptt. of Industries Shimla-1


Mining Officer,
District Sirmour at Nahan

Performa for the Joint Inspection of the area applied for mining lease/renewal of mining lease

- (1) Performa should be neatly filled and all conditions /points should be properly explained.
 (2) Points of public utility pertaining to concerned Departmental should be marked on the location Plain with approximate Distance with reference to applied for area.
 (3) Before conducting joint inspection ,concerned Mining officer should ensure that the applicant has submitted the location Plan of the area if not submitted earlier and the points of public utility existing in the area nearby vicinity (within 500Mtrs) has been properly marked on location plan otherwise the joint inspection report shall be treated as incomplete

1. General

1.1 Name of the applicant		M/s Shirgul Mine & Minerals, Part-II
1.2 Address of the applicant	Father's Name	--
	H. No.	133/E, Ward No. 6
	Tehsil	Paonta Sahib
	District	Sirmour
	Pin No	173025
1.3 Approach and location of the area	The area can be approached through Salwala-Sataun road up to village Bhatrog. Thereafter a distance of approx. 700 mtr. towards river Giri upto the area applied for mining lease can be approached.	
1.4 Purpose for which lease is applied e.g. For setting up of stone crusher, Hollow block, Screening unit, free sale etc		For free sale
1.5 Date of Joint Inspection		05-02-19
1.6 Members present during joint inspection		
Sr. No	Name	Designation
1.	Sh. L.R. Verma SDO (C), Paonta Sahib	Chairman
2.	Shri Mohinder Singh, Range Officer, Kafota.	Rep. DFO, Renukaji
3.	Sh. Vishal Bhardwaj Assistant Eng. P.W.D. Sataun	Rep. Ex. En. PWD, Shillai
4.	Sh. Budhi Raj, Assistant Eng. IPH, Kafota	Rep. Ex. En. IPH, Paonta Sahib
5.	Sh. Pawan Sharma, Jr. Env. Eng. HPPCB, Paonta Sahib	Rep. Ex. En. HPPCB, Paonta Sahib
6.	Sh. Suresh Kumar Bhardwaj	Mining Officer, Nahan

2. Revenue Department

2.1 Status w.r.t. Demarcation of Applied for area.

2.2 Detail of area applied

Kh. No	Area (In bighas)	Owner Govt/ private	Kism	Mauza	Panchayat	Any other
71, 43/1, 46, 47/1, 48/1, 49/1, 52/1, 50, 51, 55, 56	36-07	Pvt. Land	Gair Mumkin Burd	Bhatrog	Poka	
G.Total	36-07					
If require ,attach separate sheet						

2.3 Consent of the Gram Panchayat

- Gram Panchayat, Poka has issued its consent w.r.t. proposed mining in the area applied for grant of mining lease vide resolution No. 22 dated 26-10-18. Copy enclosed as **Annexure 'A'**

Point of public utility in the area/near by (Village footpath, road, school, residential house, hospital, cattle shed, charitable building, water channel , cemetery/crème nation ground, place of worship etc.

No point of public utility exists in or near the area applied for mining lease.

2.4 Whether marked on location plan attached with application

If not then please mark recommendation with respect to above points]

Yes

2.5 Any other observation/condition

*During the course of inspection, the area was shown physically by concerned Halqua Patwari. The demarcation of the area applied for grant of mining lease was conducted by the field officials of Revenue Department copy enclosed as **Annexure-B**. The land falling under area applied for is a private land and in accordance to the classification in the revenue record.*

3. Forest Department	
3.1 Types of land i.e Reserve Forest/Protected Forest/ Demarcated Forest/ Non Forest Government Land/ Private Land etc.	<i>Private Land</i>
3.2 Whether attract FCA, 1980	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
If yes, then specify Kh.Nos, which attract FCA	<i>N.A.</i>

3.3 Whether there is any activity of the forest department in the area such as soil conservation works, nursery plantation, check dams, taming of nalls/stream etc. ,if yes please specify and mark on location plan and what precautions are required
Detail

N.A.

3.4 Whether there is any property of Forest Department nearby which may have direct effect if mining is allowed

N.A.

3.5 Any other observation/condition

1. A condition be imposed on the applicant that he shall not carry out any mining activity in the adjoining forest land if he notices any other person carrying out mining activities in the adjoining forest area, he shall report the matter to the forest department immediately. The applicant be asked to furnish an affidavit to this effect.
2. Before granting approval provision of various acts/laws orders passed by various courts and instruction imparted by the State Govt. shall be kept in view.

Divisional Forest Officer, Renukaji Forest Division, Distt. Sirmour vide his office letter NO. 607 dated 29-04-19 has issued report in favour of the applicant which is enclosed as Annexure-C.

4. PWD Department

4.1 Whether any road exist near area by applied for area (with name) *Yes*

*SALWALA SATAUN ROAD
Km 0/00 to 9/610*

If Yes than	Type of road	Distance from area	Marked on location plan as	Minimum safe distance required for mining
	NH	N.A.	N.A.	N.A.
	State highway	N.A.	N.A.	N.A.
	Link road	N.A.	N.A.	N.A.
	Village road	226.29 mtr. (approx.)	Road distance from the area applied for the grant of mining lease from pillar 4 to the PWD road	

4.2 Whether any road exist within applied for area (with name)

NA

Type of road	Distance from area	Marked on location plan as	Minimum safe distance required for mining
NH	N.A.	N.A.	N.A.
State highway	N.A.	N.A.	N.A.
Link road	N.A.	N.A.	N.A.
Village road	N.A.	N.A.	N.A.

4.3 Whether there exist any bridge, culvert etc near by applied for area

Yes, there exists a culvert (marked on location plan)

If yes, than No. of bridges etc.

One no. proposed RCC T-beam bridge of 22 mtrs. span on Tilgan Khad at RD 8/610

Whether marked on location plan		Yes	If not, please mark NA	
Minimum safe distance required from bridge etc.	Bridge	Minimum distance required		Any special precaution required
		U/S	D/S	
	Bridge No.1			
	Bridge No.2			<i>The bridge site is approx. 2 kms. away from the applied area for grant of mining lease (shown on location plan)</i>

4.4 Any other structure of PWD importance, if yes (Please mark on location plan) than specify any special precaution

The PWD road i.e. Salwala Sataun road km. 0/00 to 9/610, a nearby culvert and the proposed RCC T-beam bridge on Tilgan Khad all are PWD importance structures which are marked on the location plan.

4.5 Any other observation/condition

- No lease holder shall store/stack any material in the acquired width of PWD road without the specific permission of the competent authority.
- Plying of overloaded trucks/any other transportation on PWD road (Salwala-Sataun road) should be strictly avoided.

Executive Engineer, Shillai Division (B & R) HPPWD Shillai vide his office letter No. PW/SD/CB-MINE N.O.C/2018-19-17990-91 dated 30-03-19 has issued NOC which is enclosed as Annexure-D.

4.6 Is there any objection if intake point from PWD road to the leased area is used in case lease is granted. If not, whether to allow with conditions

No approach road from PWD road to river/stream beds mining should be constructed, unless lessee obtain written permission from Executive Engineer PWD Shillai for making road leading to all intake places from any point on Salwala to Sataun road km 0/0 to 9/610

5. IPH Department			
5.1 Whether there exist any water supply scheme within/near the area		Yes	
Type of Scheme	Scheme	Minimum Safe distance required	
		U/S	D/S
		Water supply tank / No.	1050 mtrs.
		Water supply bore well	""
		Irrigation Scheme	""
	Any other source	""	""
Whether marked on location plan		If not please mark	

Any special recommendation with respect to above schemes

5.2 Any other important point with respect to IPH department, if yes. Please mark on location plan. Whether any special precaution is required , please specify

5.3 Any other observation/condition

There is no drinking water supply scheme in village Bhatrog Mauza Bhatrog. The distance between mining lease area and the scheme is 1050 mtrs. approximately.
Executive Engineer, I&PH Division, Shillai vide his office letter No. IPHP-CB-Mining-NOC/2018-19-94-95 dated 07-03-19 has issued NOC which is enclosed as Annexure-E.

6. Industries Department	
6.1 Location of applied for area (nearest village/important features)	<i>Mauja Bhatrog</i>
6.2 Purpose of Mining Lease	<i>For free sale</i>
6.3 Overlapping of area with any other lease/contract	<i>No</i>
If yes please give detail N.A	
6.4 Location of the nearest mining area /quarry <i>Mining lease in the name of M/s Neelgiri stone Crusher is located very adjacent to the applied for area.</i>	
6.5 Average daily production anticipated in Metric Tonns	40-50 M.T. (Approx.) Or as per mining plan.

6.5 Suitability of mineral as per the purpose given above (give Detail). *The mineral is suitable as per the purpose specified in application.*

6.5 Feasibility of Mining

(I) Name of Mineral Stone Boulder, Bajri and Sand

(II) Type of mining slope /River Bed River Bed Mining

(A) Hill Slope N.A

(I) Average angle of slope

(II) Nature of rocks

(III) Scientific mine ability considering the orientation of revenue record

(IV) Availability of area for disposal of waste

(V) Availability of area for disposal of waste³

(VI) Approach to the Mine area.

(VII) Whether areas is prone to land slide if Yes
Then the protection measures needed thereof.

(B) River Bed

=====

- (I) Name of river / Stream Giri
- (II) Width of river bed Appox. 400 mtr.
- (III) Approximate length of applied area 150-200 mtrs. Approx.
- (IV) Availability of mineral w.r.t. anticipated production:- *The applied for area for mining lease is a part of Giri riverbed where water flows almost throughout the year. Hence there would be no shortage of material in area under reference.*
- (V) Availability of area for disposal of wastage:- *Since the generation of waste now be very negligible as all material is saleable and some silt -clay if generated during mining operation can be used for plantation work.*
- (VI) Approach to the mine area *The area can be approached through Salwala Sataun road upto village Bhatrog. Thereafter a distance of approx. 700 mtr. towards river Giri upto the area applied for mining lease can be approached.*
- (VII) Location of
- (I) Habitation along the banks- *Nil*
- (II) Agriculture field along the Transmission
Agriculture fields are situated near the area applied for mining lease at a safe distance towards left bank of river Giri.
- (III) Any other structure like transmission lines, telephone Lines etc.- *Nil*
- (VIII) Disposal of wastage.
Generation of waste is almost negligible as all material deposited as minor mineral is saleable, however, it is recommended that any wastage if generated during mining operation should be managed as per the provisions made in the Working Cum Environment Management Plan of mining lease.
- (IX) Area proposed for Plantation
No area is proposed for plantation by the applicant mining lessee. However the applicant is advised to make the provision for plantation in the Working Cum Environment Management Plan of mining lease.

6.6 Whether mining can pose a threat to existing object of Public Utility or private property If any, give detail and precaution required

If no, the reason thereof

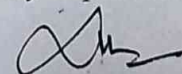
With above mentioned mode the mining shall not pose any threat to existing object of Public Utility or private property. The applicant, however, should take all preventive measures to prevent the river banks from erosion as well as any adverse effect on private property in the form of private land as well as objects of public utility if existing adjoining to the area under reference. The applicant lessee shall be solely responsible for any damage or compensation in lieu of the same.

6.7 Any other special point pertaining to Industries department

The area applied for grant of mining lease comprises of Khasra No. 71, 43/1, 46, 47/1, 48/1, 49/1, 52/1, 50, 51, 55, 56 measuring 36-7 Bighas is situated in Mauja Bhatrog, Sub Teh. Kamrau, Distt. Sirmour, H.P is a piece of private land which falls in river bed of Giri.

While carrying the spot inspection, joint inspection committee scrutinizing the documents produced by applicant and found that applicant has procured consent of Gram Panchayat as well as has demarcated the area from competent authority.

During course of Joint Inspection, it is observed by the committee that the area applied for grant of mining lease is the part of river Giri and has sufficient material available which can be sell in open market after extracting the river borne material from lease area manually in scientific and systematic manner. It is also observed by Joint Inspection Committee that the applied for area has developed partly in shape of river terrace having gentle gradient and mining activities can be undertaken in safe manner without any adverse effect due to sufficient potential of mineral available in said area as the maximum part of excavated area will be replenished smoothly after mining during every rainy/monsoon season by virtue of flash flood during heavy rainy season. Hence, by keeping in view the aforesaid facts, it is recommended that whole of the area may be granted for mining lease in favour of applicant as this area is recommended part of survey documents of the minor mineral available in riverbed of Distt. Sirmour as well as have good deposits of river borne material which is derived from upper reaches of adjoining catchment during rainy season and are easily exploitable in scientific manner.


Mining Officer
Distt. Sirmour
at Nahan

7. Environment Protection & Pollution Control Board

Summary of method for environmental protection

Jr. Environmental Engineer, HPPCB, Paonta Sahib has issued report/comments subject to following conditions which is enclosed as Annexure-F.

- 1. The lessee should apply for consent of the State Board under the provisions of Water (Prevention and Control of Pollution) Act, 1974 and Air (Prevention and Control of Pollution) Act, 1981.*
- 2. The lessee shall obtain Environmental Clearance of the competent authority if required and carry out EIA study along with preparation of EMP.*
- 3. The unit shall adopt all requisite Pollution Control measures to minimize the pollution levels as per norms prescribed by the State Board.*
- 4. The above report/comments in no case shall be considered as a pre-requisite to the other mandatory clearances required under various acts and rules.*
- 5. The above comments are only for mining lease suitable, as far as comments w.r.t. crusher are concerned same shall be considered separately in view of meeting the distance criteria and other condition(s) defined as per notification dated 29-05-14, besides ensuring feasibility for implementation of pollution control measures as per Sr. No. 37 defined under Schedule-1 of Environment (Protection) Act, 1986 and maintain Ambient Noise Standards as prescribed in the Noise Rules, 2000.*

8. Recommendations

8.1 Whether whole of the area is being recommended for mining

✓

Yes

No

If no, please specify the Kh.Nos being recommended

The whole area applied for grant of mining lease is being recommended.

Any other recommendation in addition to recommendations given at to

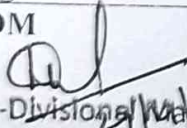
It is also recommended that applicant should have to comply the orders of Hon'ble Supreme Court of India dated 27-02-2012 in I.A No. 12-13 of 2011 in Special Leave petition (c) No. 19628-19629 of 2009 titled as Deepak Kumar etc. Vs. State of Haryana and others with SLP (C) Nos. 729-731/2011 regarding Environmental Clearance before grant of mining lease/start of mining activities in applied for area.

Final recommendation of the Committee

Keeping the facts given above, the area applied for grant of mining lease comprises of Khasra No. 71, 43/1, 46, 47/1, 48/1, 49/1, 52/1, 50, 51, 55, 56 measuring 36-7 Bighas in Mauja Bhatrog was found suitable by the committee and is being recommended for grant subject to stipulations made above and completion of other codal formalities, if any, required to be completed.

Signatures

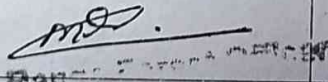
SDM



Sub-Divisional Magistrate

Paonta Sahib, Distt. Sirmour (H.P.)

ACF/R.O.


Ran
Ka.

Representative of P.W.D.


EE

Executive Engineer,
Representative of
IPH

Representative of H.P.
SEP & PCB

Mining Officer
Mining Officer
at Nanan

No. Udyog-Bhu(Khani-4)Laghu-761/2019
 Government of Himachal Pradesh
 Department of Industries
 "Geological Wing"
 Dated; Shimla- 171001,

REGISTERED

3898

13/9/ 2022

To

✓ M/s Shirgul Mines & Minerals, Part-II,
 (Partnership Firm, Partners S/Sh. Rishi Kumar Aggarwal,
 Naveen Kumar, Sher Singh Negi & Manish Kumar),
 through GPA/Partner Sh. Manish Kumar,
 House No. 133/E, Ward No. 6,
 Tehsil Paonta Sahib, District Sirmour, H. P.

Subject:-

Approval of Mining Plan of area applied for grant of mining lease for collection/extraction of stone boulder, sand & bajri from Khasra Nos. 46/1, 47/1, 48/1, 49/1, 50, 51, 52/1, 55, 56 & 71 over an area measuring 35-06 Bighas(Pvt. land, River bed) falling in Mohal/Mauza Bhatrog of Tehsil Paonta Sahib, District Sirmour, H. P. for which Letter of Intent has been issued on 30.5.2022.

Dear Sir,


In exercise of powers conferred by Rule 36 of Himachal Pradesh Minor Mineral (Concession) and Minerals (Prevention of Illegal Mining, Transportation and Storage) Rules 2015, I hereby approve the above said Mining Plan for the purpose of obtaining Environment Clearance of the area applied for grant of mining lease for which the letter of intent has been issued on 30.5.2022. The mining plan is approved for a period of five years from the date of execution of mining lease deed. This approval is subject to the following conditions:-

1. That the Mining Plan is approved without prejudice to any other laws applicable to the mine/area from time to time whether made by the Central/State govt. or any other authority.
2. That this approval of the Mining Plan does not in any way imply the approval of Govt. in terms of any other provisions of the H. P. Minor Minerals (Concession) Revised Rules, 1971 now repealed as Himachal Pradesh Minor Mineral (Concession) and Minerals (Prevention of Illegal Mining, Transportation and Storage) Rules 2015 or any other laws including Forest (Conservation) Act, 1980, Environment Protection Act, 1986 and the rules made there under and other relevant statutes, orders and guidelines as may be applicable to lease area from time to time.
3. That the Mining Plan is approved without prejudice to any orders or directions from any Court of competent jurisdiction.
4. That in case State Geologist, Geologist, any other inspecting officer/official of Geological Wing Department of Industries, after field inspection notices that proposals made and workings shown in the mining lease by the RQP need certain corrections/ amendments due to change in conditions either natural or man made, the inspecting officer can recommend necessary amendments in the Mining Plan at any point of time in the interest of environment and mineral conservation.
5. That the lease holder shall procure Environment clearance from the competent authority as per Environmental Impact Assessment notification, 2006 and amendements/notifications issued time to time in this regard.
6. That the approval of proposed mining operations is restricted to the mining lease area only.

7. That in case additional conditions are imposed by the Ministry of Environment & Forests Govt. of India while according clearance under EIA notification dated 14.9.2006 and any condition imposed by the State Govt. while granting mining lease the same shall have to be incorporated by making necessary amendments in the Mining Plan by the lessee through R. Q. P.
8. That in case Mining lease is not renewed or is terminated or working is suspended before the expiry of the lease period due to any reason, the approval of Mining Plan shall stand automatically cancelled.
9. That the lease holder shall carry out production of mineral in accordance to the production shown in Mining Plan and Environmental Clearance which ever is less.
10. That no person shall undertake mining operations in any mining lease area, except in accordance with a Mining Plan approved under sub rule (2) of Rule 39 of Himachal Pradesh Minor Mineral (Concession) and Minerals (Prevention of Illegal Mining, Transportation and Storage) Rules 2015.
11. That the lease holder shall carry out working in the mining lease area as per Mining Plan only after obtaining permission to work in the mining lease area from the competent authority.
12. That if the mining operations are not carried out in accordance with the approved Mining Plan the State Geologist, Geologist, Assistant Geologist and the Mining Officer, may order suspension of all or any of the mining operations and permit continuation of only such operations as may be necessary to restore the conditions in the mine as envisaged under the said Mining Plan.
13. That if any thing is found to be concealed as required under various Rules and guidelines pertaining to mining in the context of the Mining Plan and the proposal for rectification has not been made, the approval shall be deemed to have been withdrawn with immediate effect.
14. That in case of any violation of terms and conditions of the approved Mining Plan, the financial assurance deposited by the said lessee shall be liable to forfeited.

Enclosed - Copy of approved Mining Plan.

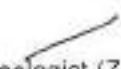
Yours faithfully,


(Anil Kumar Singh Rana)
Geologist (Zone-III)
Himachal Pradesh
Dated, _____ 2022

Endst. No. As above.

Copy for kind information to:-

1. The Mining Officer, Sirmour at Nahan, Distt. Sirmour, H. P. alongwith a copy of Mining Plan for further necessary action.
2. Sh. Arun Dhiman, Village & P. O. Dhaloon(Panchpuli), Tehsil Nagrota Bagwan, Distrit Kangra, H. P.-176056.


Geologist (Zone-III)
Himachal Pradesh

MINING PLAN

(INCLUDING PROGRESSIVE MINE CLOSURE PLAN)

AREA APPLIED FOR MINING LEASE

MINERAL – SAND, STONE AND BAJRI

**KHASRA NOS. – 46/1, 47/1, 48/1, 49/1, 50, 51,
52/1, 55, 56 & 71 (RIVER BED)
AREA – 35-06 BIGHAS (PVT. LAND)**

**MAUZA/MOHAL BHATROG, TEHSIL PAONTA
SAHIB, DISTRICT SIRMAUR, HIMACHAL PRADESH**

APPLICANT

**M/S SHIRGUL MINES & MINERALS, PART-II
(PARTNERSHIP FIRM)**

**PARTNERS S/SHRI RISHI KUMAR AGGARWAL,
NAVEEN KUMAR, SHER SINGH & MANISH KUMAR)
R/O HOUSE NO. 133/E, WARD NO. 6, TEHSIL PAONTA SAHIB,
DISTT. SIRMOUR, HIMACHAL PRADESH**

PREPARED BY

**Arun Dhiman
S/o Sh Jagan Nath
Village & PO Dhaloon (Panchpuli)
Tehsil Nagrota Bagwan, District Kangra
Himachal Pradesh -176056
RQP No. H.P./ RQP/25/2/2019 (Valid up to 24-09-2024)
Mobile No. 98165 79485 Email Id - arundhiman77@yahoo.com**

PREPARED AND SUBMITTED UNDER

**THE HIMACHAL PRADESH MINOR MINERALS (CONCESSION) AND MINERALS (PREVENTION OF
ILLEGAL MINING, TRANSPORTATION AND STORAGE) RULES, 2015**

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**SALIENT FEATURES OF THE LEASE AREA FOR
MINING OF SAND, STONE & BAJRI**

1	Project	Mining Project (Lease Area)	
2	Name of Mineral	Stone, Bajri and Sand	
3	Application No.	IUID no. 67890662.	
4	Letter of Intent	No Udyog- Bhu- (Khani-4) Laghu 761/2019-2203 dated 30-05-2022	
5	Applicant Address	M/s Shirgul Mines & Minerals, Part-II (Partnership Firm, Partners S/Shri Rishi Kumar Aggarwal, Naveen Kumar, Sher Singh & Manish Kumar) R/o House No. 133/E, Ward No. 6, Tehsil Paonta Sahib, Distt. Sirmour, Himachal Pradesh	
6	Location of Mine	Village	Bhatrog
		Mauza & Mohal	Bhatrog
		Khasra Nos.	46/1, 47/1, 48/1, 49/1, 50, 51, 52/1, 55, 56 & 71
		Land Type	Private land
		Panchyat	Poka
		District	Sirmour
		State	Himachal Pradesh
7	Name of Stream/River	Giri River	
8	Total Area	35-06 Bighas	
9	Total Minalable area	35-06 Bighas	
10	Total Mineable Quantity	66949 MTPA (Including Silt/Clay)	
11	Coordinates of Area	30°32'34.42"N - 77°39'37.86"E (U/s)	
		30°32'32.55"N 77°39'48.52"E (D/s)	
12	Elevations	Highest	472
		Lowest	469
13	Average width of River at Lease area	270-340 m	
14	Period of mining Lease Area	As per Lol	
15	Ultimate Pit Limit	3 Feet/1 mtr From Surface Level	
16	Method of Mining	Manual/Mechanical	
17	No. of Working Days	300	
18	End-use of mineral	For manufacturing of Grit	
19	Manpower requirement	50-55 persons	
20	Distances (In Kms)	Paonta Sahib	20 Kms.
		Nahan	64 Kms.
		Ambala	130 Kms.
		Chandigarh	165 Kms.
		Shimla	204 Kms.



Geological Wing
Industries Deptt.
Govt. of H.P.

INTRODUCTION: -

M/s Shirgul Mines & Minerals, Part-II (Partnership Firm, Partners S/Shri Rishi Kumar Aggarwal, Naveen Kumar, Sher Singh & Manish Kumar) R/o House No. 133/E, Ward No. 6, Tehsil Paonta Sahib, Distt. Sirmour, Himachal Pradesh, identified an area measuring 36-07 Bighas comprising of Khasra Nos. 71, 43/1, 46/1, 47/1, 48/1, 49/1, 52/1, 51, 55, 56 & 50 (Private Land/Riverbed) situated in Mauza/Mohal Bhatrog, Tehsil Paonta Sahib, District Sirmour, Himachal Pradesh for the extraction collection of minor minerals Stone Boulder, Sand and Bajri for the grant of mining lease situated in Giri Riverbed near village Bhatrog, Tehsil Paonta Sahib, District Sirmour, Himachal Pradesh under the provisions of the Himachal Pradesh Minor Minerals (Concession) and Minerals (Prevention of Illegal Mining, Transportation and Storage) Rules 2015. The applicant submitted the case for grant of mining lease to the department of Industries through online portal vide **UID no. 67890662**. The case was referred to the Joint Inspection Committee to conduct the joint inspection of the area applied for the grant of mining lease. The committee inspected the area and found that the area measuring 36-07 Bighas comprising of Khasra Nos. 71, 43/1, 46/1, 47/1, 48/1, 49/1, 52/1, 51, 55, 56 & 50 (Private Land/Riverbed) situated in Mauza/Mohal Bhatrog, Tehsil Paonta Sahib, District Sirmour, Himachal Pradesh is suitable for mining operations and recommended the whole area for the grant of mining lease. Thereafter, the partnership firm requested to reduce the area comprising of Khasra No. 43/1 measuring 1-01 bighas from the total applied area measuring 36-07 bighas. The applicant partnership firm accordingly submitted the revised revenue record of the area measuring 35-06 bighas comprising of Khasra Nos. 46/1, 47/1, 48/1, 49/1, 50, 51, 52/1, 55, 56 & 71. Also, the applicant partnership firm submitted the offline revised application for the grant of mining lease area for the extraction of Sand, Stone, Boulder and Bajri (minor minerals) to be used in their already established stone crusher unit in the name and style of "M/s Shirgul Mines and Minerals". Accordingly, the case was forwarded to the Govt. to obtain approval for the issuance of a Letter of Intent in favour of the applicant. The Govt. conveyed the approval for the issuance of a Letter of Intent. Accordingly, the department vide letter No. Udyog-Bhu(Khani-4)Laghu-761/2019-2203 dated 30-05-2022 issued a Letter of Intent (LoI) for the grant of mining lease for the extraction/collection of boulder stone, bajri and sand over an area measuring 35-06 Bighas bearing Khasra Nos. 46/1, 47/1, 48/1, 49/1, 50, 51, 52/1, 55, 56 & 71 situated in Mauza/Mohal Bhatrog, Tehsil Paonta Sahib, District Sirmour, Himachal Pradesh to be used in the already established stone crusher unit in the name and style as "M/s Shirgul Mines and Minerals" in favour of M/s Shirgul Mines & Minerals, Part-II (Partnership Firm, Partners S/Shri Rishi Kumar Aggarwal, Naveen Kumar, Sher Singh & Manish Kumar) R/o House No. 133/E, Ward No. 6, Tehsil Paonta Sahib, Distt. Sirmour, Himachal Pradesh with the following conditions:-

1. The party shall get the area demarcated from the revenue authorities and shall erect permanent boundary pillars to the satisfaction of the Mining Officer so as to clearly depict the provisional granted area. A copy of the demarcation report shall also be submitted to the Mining Officer.
2. ***The party shall have to submit the approved Mining Plan under Rule 35 of Himachal Pradesh Minor Minerals (Concession) and Minerals (Prevention of illegal Mining Transportation and Storage) Rules, 2015.***
3. The party shall have to obtain Environment Clearance under the provisions of Environment Protection Act, 1986 from the competent authority and Forest Clearance in case of Forest land.
4. The letter of intent is subject to any order passed by the Hon'ble Supreme Court of India/High Court of Himachal Pradesh/National Green Tribunal or any other court/ concerned Department from time to time in this regard. This letter of intent is valid only for obtaining EIA clearance from the competent Authority as a mandate by the Hon'ble Supreme court in its order dated 27.02.2012.

In order to fulfil the requirement of condition No. 2 of the Letter of Intent, The applicant approached the undersigned having R.Q.P. No. H.P./R.Q.P/25/2/2019 for preparation of the Mining Plan.

The Mining Plan of the area has been prepared as per the format circulated (Form-M) by the State Geologist Himachal Pradesh and in accordance with the various provisions made in the Himachal Pradesh Minor Minerals (Concession) and Minerals (Prevention of Illegal Mining, Transportation and Storage) Rules, 2015.

The area is located in the Giri Riverbed approximately 2500 to 2800 metres upstream of Bangran Bridge near Village Bhatrog. At the request of the applicant to prepare the Mining Plan, the mapping of the mining lease area was carried out encompassing Topographical, Lithological and other features. The Mining Plan includes the systematic and scientific exploitation of minor minerals from within the lease area encompassing a phased program for afforestation and point of public utility.

1. GENERAL

1.1 Name and address of the applicant

1.1.a Name of the Applicant

M/s Shirgul Mines & Minerals, Part-II
(Partnership Firm, Partners S/Shri Rishi Kumar
Aggarwal, Naveen Kumar, Sher Singh & Manish
Kumar)

1.1.b Address of the Applicant

R/o House No. 133/E, Ward No. 6, Tehsil
Paonta Sahib, Distt. Sirmour, Himachal Pradesh

1.2 Status of the Applicant

Private Individual

1.3 Mineral which the Applicant intends to mine

The Applicants intends to mine Boulder Stone, Bajri and Sand from the lease area. The extracted stone shall be used in the already established stone crusher unit in the name and style of "M/s Shirgul Mines and Minerals" for manufacturing grit and sand to be sold in the open market as per the demand.

1.4 Period for which the Mining lease area is to be granted

The applicant has applied for the grant of mining lease for a term of 15 years however, the mining lease period shall be decided at the time of grant of mining lease as per provisions of the Himachal Pradesh Minor Minerals (Concession) and Minerals (Prevention of Illegal Mining, Transportation and Storage) Rules 2015.

1.5 Name and Address of H.P.R.Q.P. preparing the Mining Plan



Arun Dhiman
S/o Sh Jagan Nath, Village & PO Dhaloon
(Barambali), Tehsil Nagrota Bagwan, District
Kangra, Himachal Pradesh -176056
RQP No. H.P. / RQP/25/2/2019
Mobile No. 98165 79485
Email Id arundhiman77@yahoo.com

Surveyed By:

Sh. C P Negi (Retired Surveyor)
Geological Wing (Department of Industries)

1.6 Name of Prospecting Agency.

The area has been discovered by the applicant and further investigated by the R.Q.P. The site was visited along with the project proponent for identification of the site based on the demarcation conducted by the revenue department in the presence of the project proponent. The surface mapping of the area has been conducted by the surveyor using survey instruments and for carrying out prospecting of the mineral deposit, the preliminary information regarding Geological set up and occurrence of minerals in the area granted for mining lease and in its surroundings has been gathered from the previous work done by the Geological Survey of India and State Government agencies from time to time.

2. LOCATION DETAIL OF THE MINING LEASE AREA

2.1 Location

The applied mining lease area is located in the riverbed of River Giri besides village Bhatrog. The geographical location of the mine lease area is covered under Survey of India Toposheet No. H43L10. The index Location Map of mine site falling in Tehsil Paonta Sahib is enclosed as Figure 1.1. The location of the mine area is marked in toposheet no H43L11. and the high-resolution satellite image is shown in Figures 1.2 and 1.3 respectively. The pictorial view of the mine site is shown in Figure 1.4

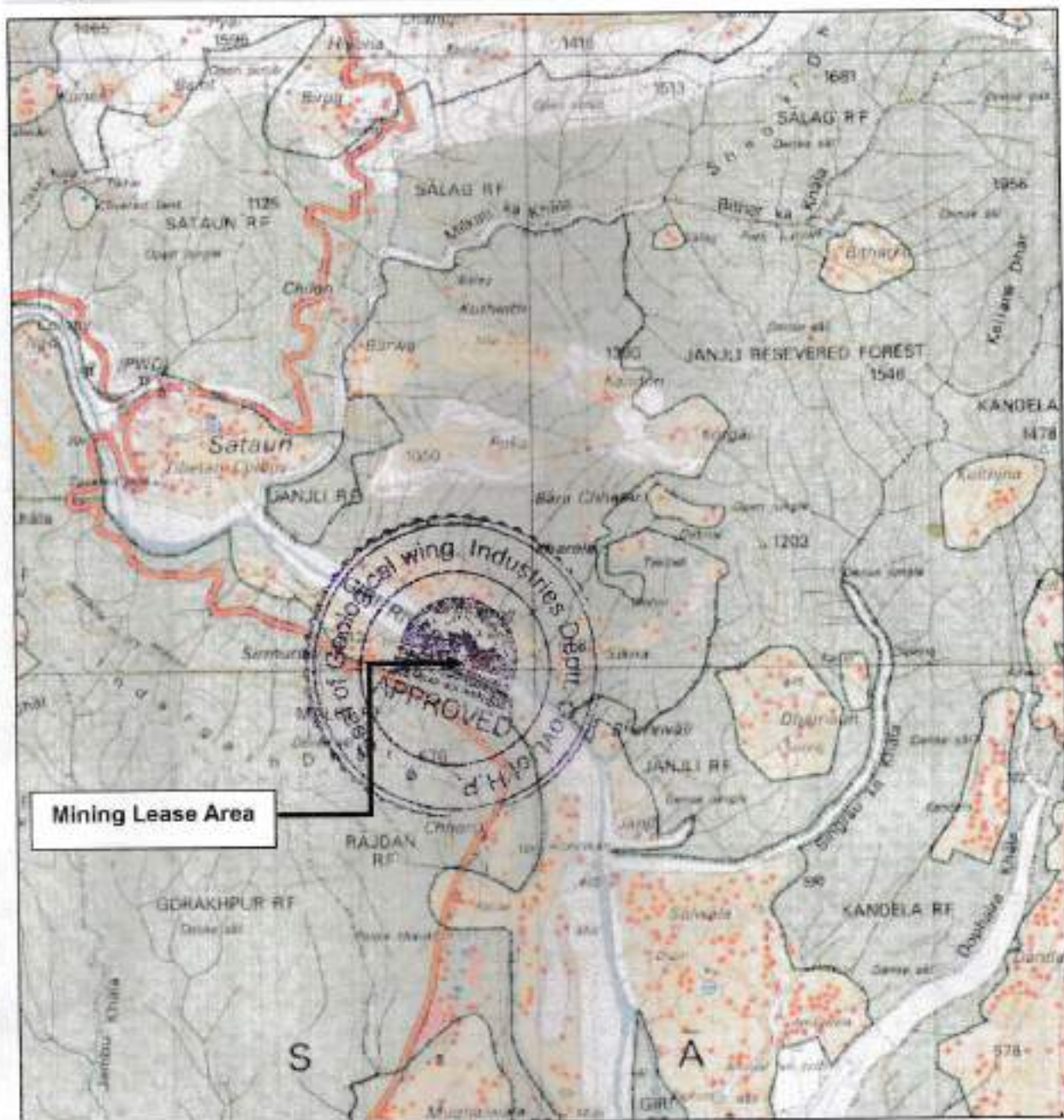


Figure 1.2: Image showing Location of the mine area
Topo-sheet number H43L10

(Source Sol)

Table 1.1 Table showing boundary pillar coordinates

Pillar No	Latitude	Longitude
P1	30°32'34.42"N	77°39'37.86"E
P2	30°32'32.64"N	77°39'43.68"E
P3	30°32'35.51"N	77°39'43.73"E
P4	30°32'32.55"N	77°39'46.55"E
P5	30°32'32.55"N	77°39'48.52"E
P6	30°32'35.71"N	77°39'50.24"E
P7	30°32'37.30"N	77°39'42.71"E
P8	30°32'37.20"N	77°39'40.70"E

*Pillars Photographs attached

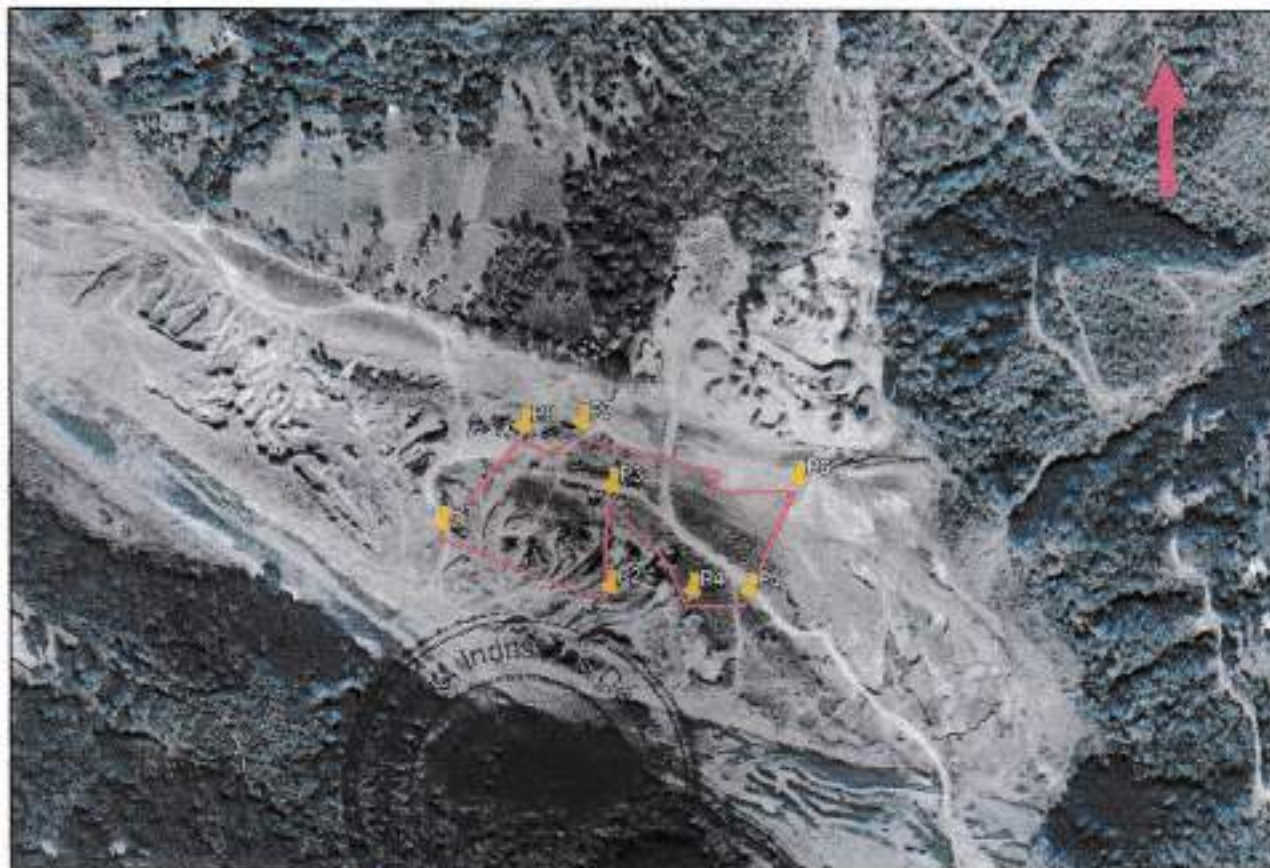


Figure 1.3: Google Earth Image (2D) Showing Satellite topographic view and pillar position of the Lease area

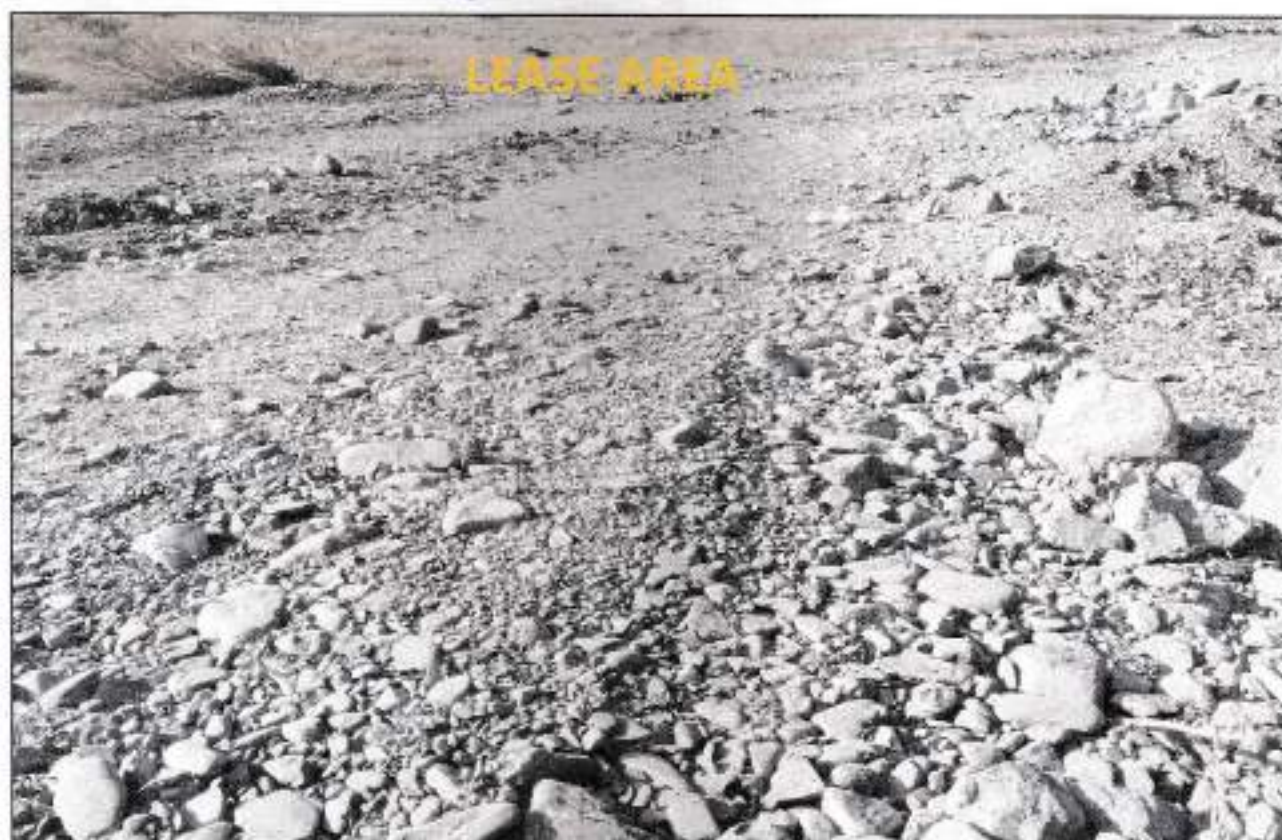


Figure 1.4 - Pictorial view of the mine lease area

2.2(a) Revenue Detail of the area

Table 1.2 Table showing revenue details of the lease Area

Khasra Nos.	Owner	Kism	Mohal	Mauza	Area	Name of the Panchayat
46/1, 47/1, 48/1, 49/1, 50, 51, 52/1, 55, 56 & 71	Private Land	Gair Mumkin Burd	Bhatrog	Bhatrog	35-06 Bighas	Poka
TOTAL 35-06 Bighas or 29755.45 Sq.m.						

2.2(b) Address Details

Village	Bhatrog
Patwar Circle	Sataun
Post Office	Sataun
Tehsil	Kamraoo
District	Sirmour

2.3 Nearest Departments

Sub- Divisional Officer (Civil)	Paonta Sahib
Divisional Forest Officer	Renuka Ji
Sub-Division (IPH)	Paonta Sahib
Sub-Division (PWD)	Sataun
Forest Range Officer	Paonta Sahib
Mining Officer	Nahan

**2.4 Distance from important places in Kilometers**

Paonta Sahib	20 Kms.
Nahan	64 Kms.
Ambala	130 Kms.
Chandigarh	165 Kms.
Shimla	204 Kms.
Dehradun	50 Kms.

2.5 Approach of the Mining Lease Area: -

The mining site is located in the river bed of River Giri besides the village Bhatrog. The site is approachable through the Salwala – Stauan road near Bhatrog village about 7.50 kilometres from Salwala. The proposed mining site is located within the riverbed of river Giri.

Mining plan of Mining lease area

The highest point of mining lease area is 471 meters above MSL and lowest point is 470 meters above MSL and average width is 100 to 150 mtrs. However, the total width of river Giri in this part is approximately 270-340 meters.

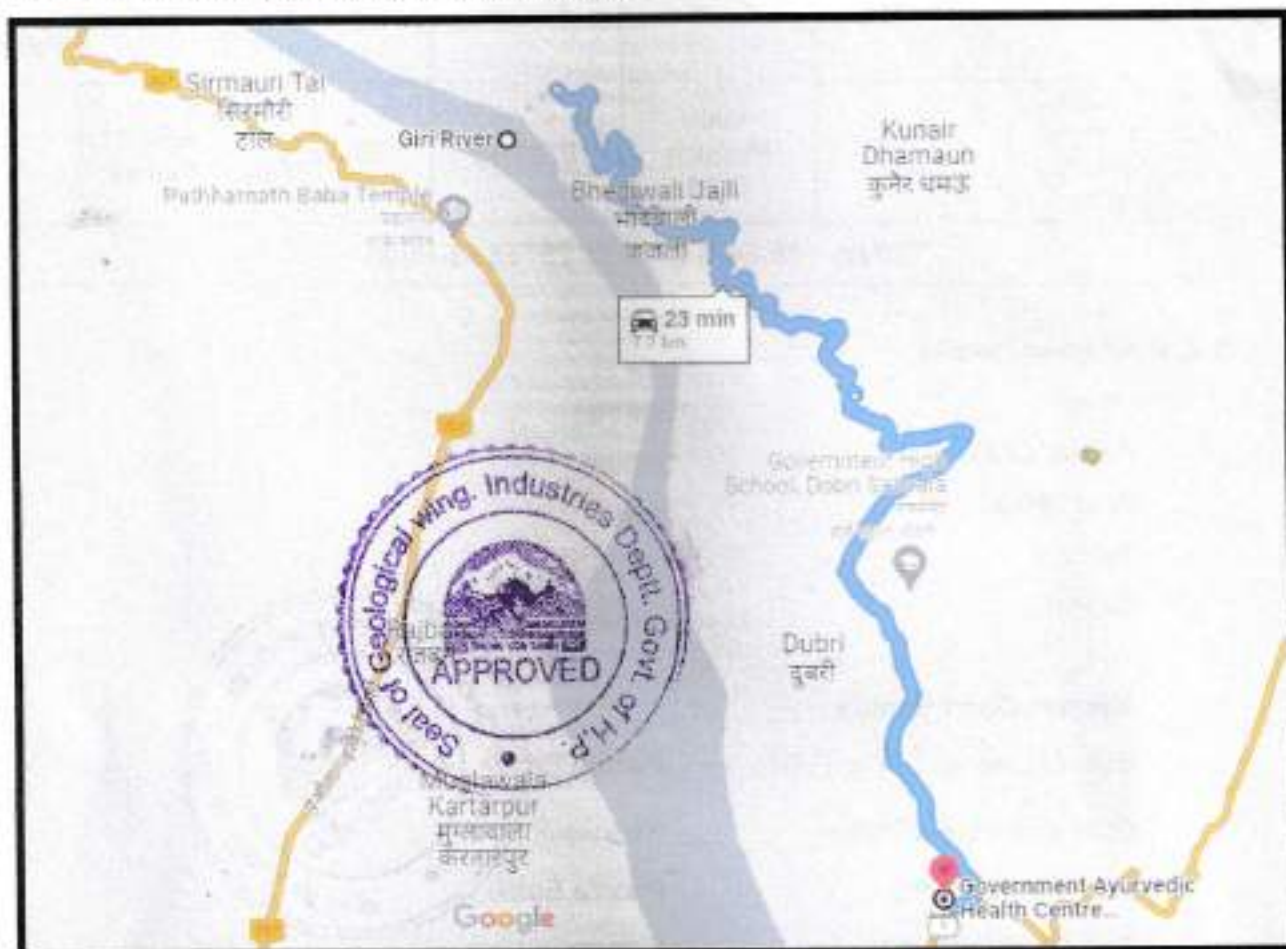


Figure 1.5: Google Map view showing Approach to the granted area

3. PHYSIOGRAPHIC ASPECTS OF THE AREA

3.1 General

The lease area is situated in the Kiar-Da-Dune. In general, the area is a part of the Siwalik range, particularly the part of Dun Valley. The Siwalik Hills is located within the political boundaries of Pakistan, India, Nepal, and Bhutan, and ranges between 6 to 90 km in width. They gradually become steeper and narrower in relief and width respectively, from northern Pakistan to Bhutan (over 2000 km in length). Ongoing erosion and tectonic activity have greatly affected the topography of the Siwaliks. Their present-day morphology is comprised of hogback ridges, consequent, subsequent, obsequent, and resquent valleys of various orders, gullies, choes (seasonal streams), earth-pillars, rilled earth buttresses of conglomerate formations, semi-circular choedivides, talus cones, colluvial cones, water-gaps, and choe terraces. Associated badlands features include the lack of vegetation, steep slopes, high drainage density, and rapid erosion rates. To the south of the Siwaliks are the Indo-Gangetic plains and in the north, they are bordered by the Lesser Himalayas.

Intermittently located between the Siwaliks and the Lesser Himalayas (exclusively in India and Nepal) are duns, flat-bottomed longitudinal structural valleys with their own drainage systems. These essentially comprise several large Himalayan piedmont alluvial fans and terraces, which formed as a result of tectonic episodes in the flanking Siwaliks. The duns also consist of lacustrine, fluvial, aeolian and swamp-environment deposits, and range from Middle Pleistocene to Holocene in age. During their formative stage, most of the duns were slightly narrower and have gradually expanded over time through the erosion of the adjacent Siwaliks sediments (a continuing process). In Nepal, these duns were often naturally filled with alluvial sediments of lacustrine and fluvial deposits, thus burying palaeolithic sites that were later exposed through erosion. The monsoon rains temporarily supply seasonal streams (locally known as choes, khads, or nallas) located both within the Siwalik hills and the adjacent dunes. These stream banks and their terraces yield sizeable numbers of lithic artefacts, owing to the shared location for both water and raw material.

The district is bounded by Shimla District on the north and Solan district in the north-west, the state of Haryana in the south and west while the state of Uttarakhand makes its eastern boundary. Geographically the district can be divided into three parts: -

1. The Trans - Giri (Gir Par Region)
2. Cis - Giri Region (Giri War Region)
3. Plains of Kiar-da-Dun or Dun Valley.

The Trans - Giri region consists of the mountains culminating into the Chur Peak which is commonly known as Chur Chandni Ki Dahr (the hill of silver bangle). It has an altitude of 3647 meters above the mean sea level. From this lofty mountain runs two ranges one in the north-west direction called Dhar Taproli-Jadol and other Dhar Nohra which runs south-east direction toward Haripur Fort at an altitude of 2677 meters above the mean sea level where it is divided into two ranges, one of which runs almost east to the valley of Tons. Two other ranges run north-west called Dudham Dhar and south-west with many minor spurs from them toward the Giri River. The second range initially runs southwest under the name of Dhar Nagali and then turns east under the name of Dhar Kamrau. Dhar Shalai runs parallel to this Dhar on the northern side and both of them form the valleys of the Nera River.

The Cis- Giri region is intersected by three main ranges which run from north-west to southeast, the Sain Dhar which runs parallel to the Giri River. The second is the Dharti Dhar or what is called little range. Between these two ranges flows the Jalan River. The third is quite low range, which runs from the Kala Amb area to the south of Nahan tehsil and forms an open valley with Dahi Dhar. In the western half of this area, the Markanda River flows. Between eastern extremities of this Dharti Dhar lies an open valley Known as Kiar -da - dun valley which borders the Yamuna and Giri River in the east and from the boundary of the District with Uttarakhand. It also touches the western portion of the Nahan tehsil. This flat valley is irrigated by the Bata River which flows from east to west originating from Dharti Dhar.

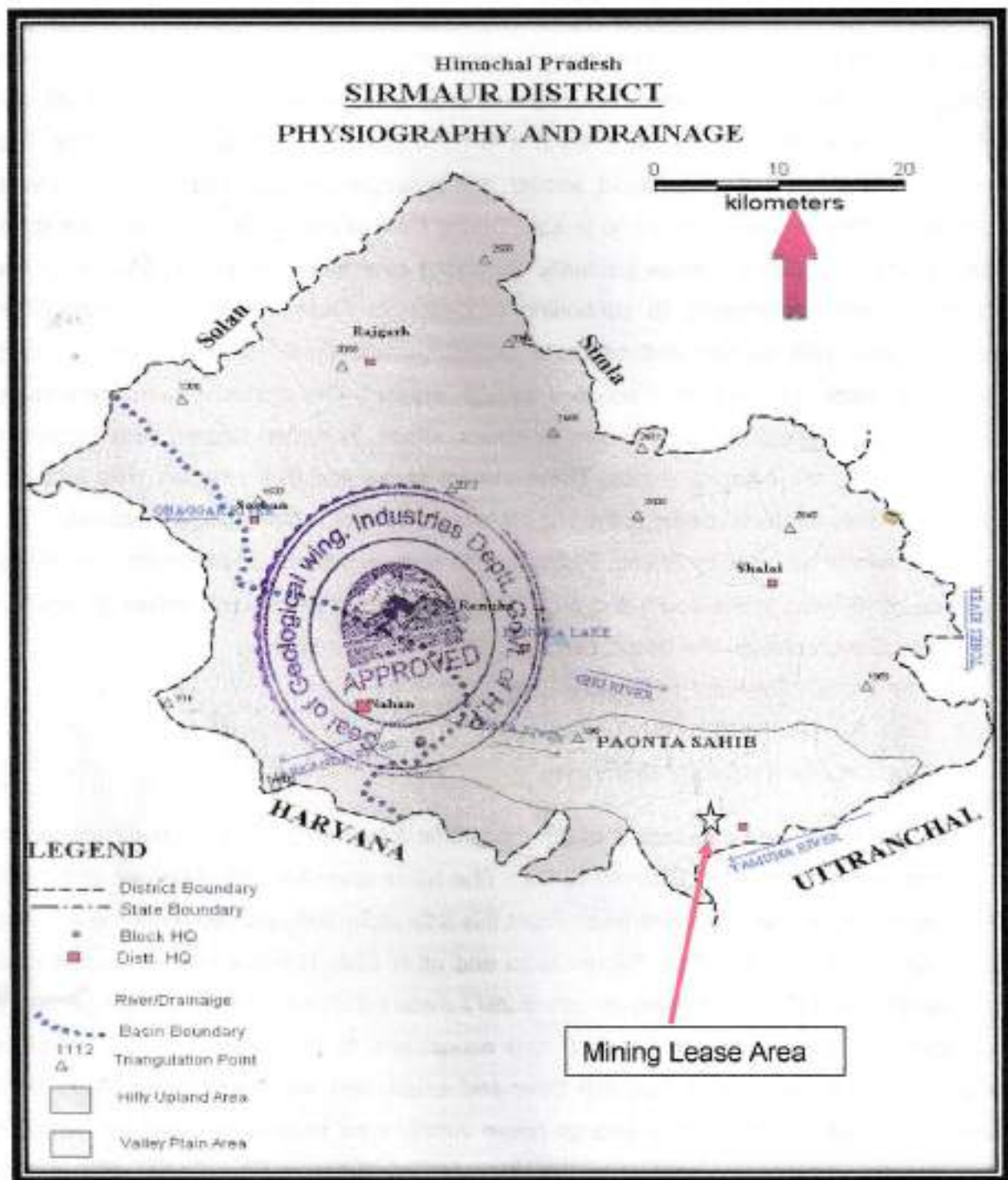


Figure 1.6: Image showing Physiographic and drainage of the District

Geo-morphologically the district can be divided into three zones: -

1. Steep to very steep high hills of lesser Himalaya
2. Moderately steep to steep low hills and intervening valleys of Siwaliks
3. Piedmont Plains

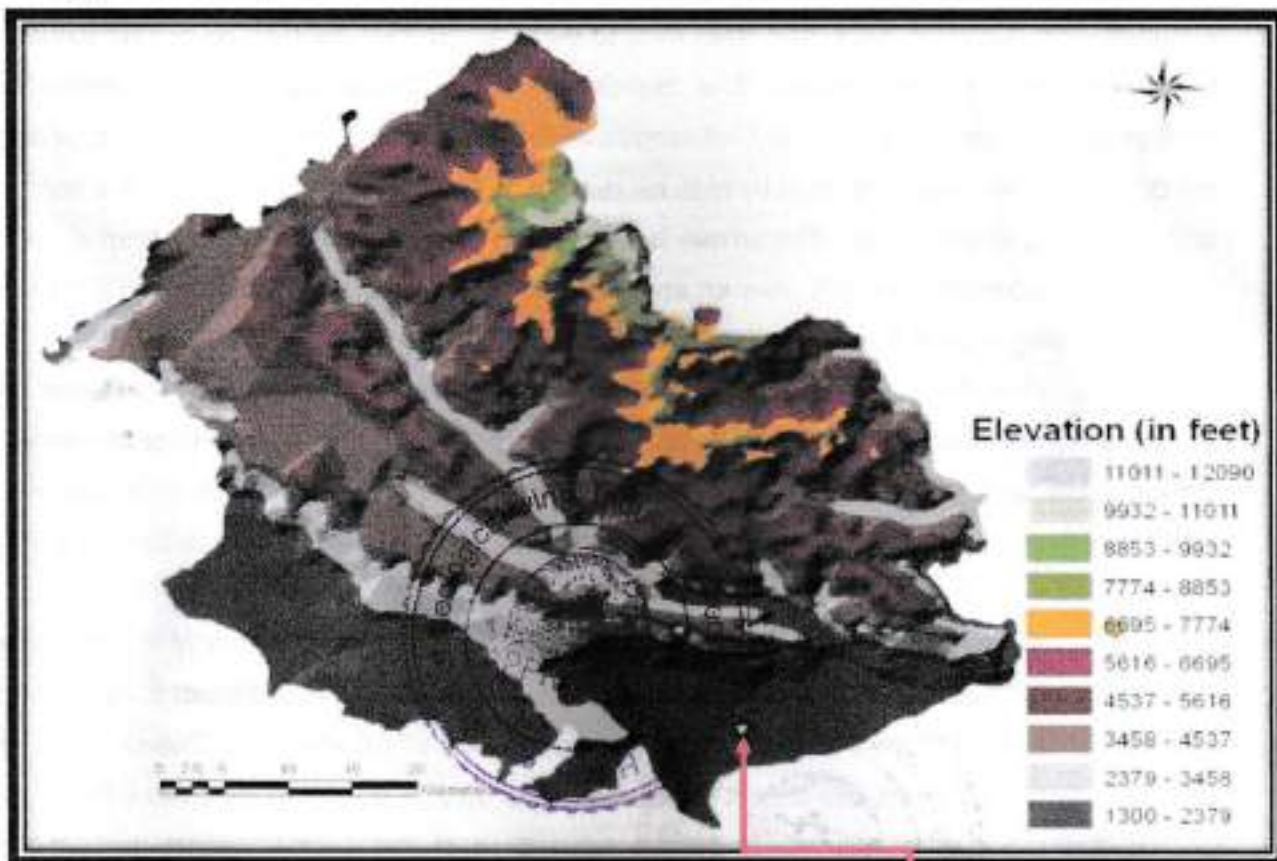


Figure 1.7 Image showing Elevation profile of District Sirmaur

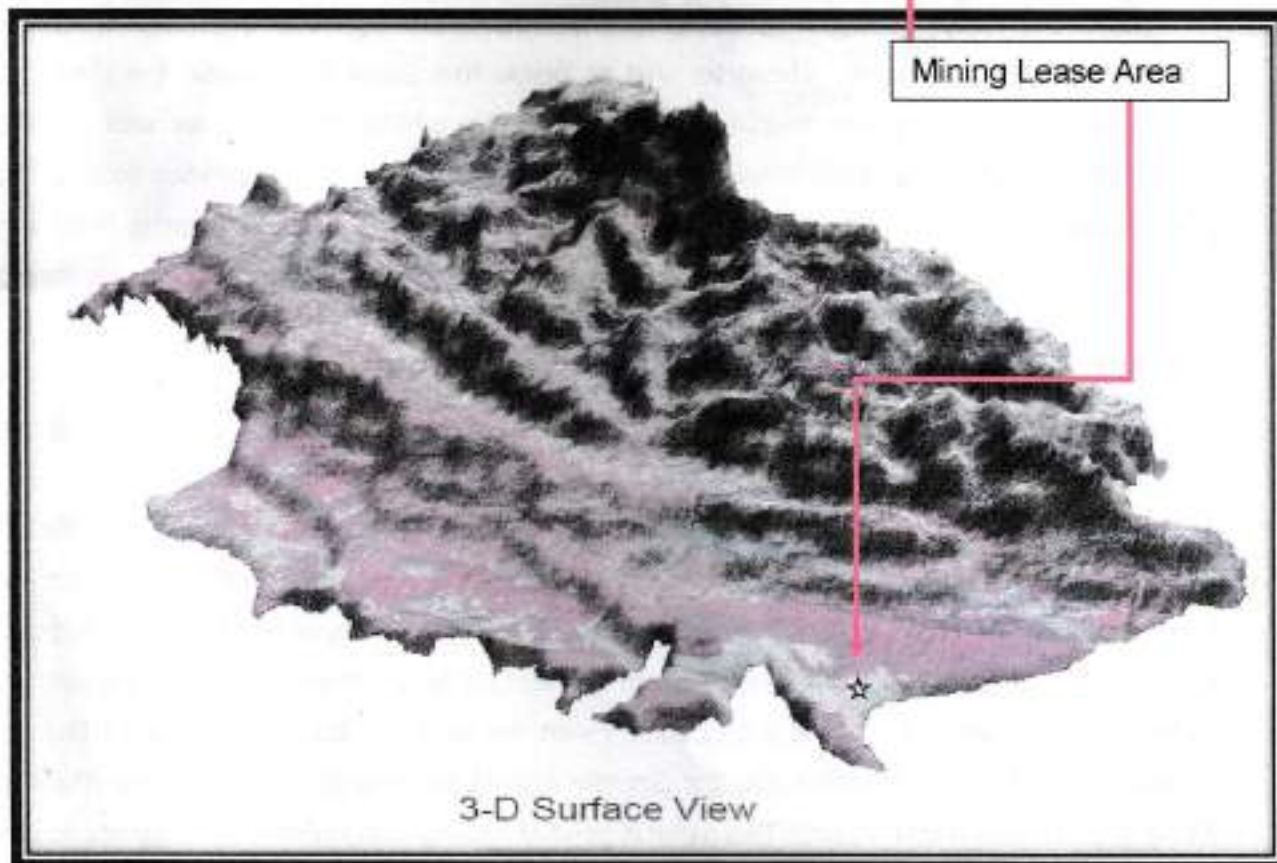


Figure 1.8: Image showing 3-D Surface View of District Sirmaur

Sirmaur district presents an intricate mosaic of high mountain ranges, hills and valleys with altitudes ranging from 300 to 3000 m above MSL. There is a general increase in

elevation from south to north and from east to west. In general, the entire Girdi terrain exhibits highly rugged mountain terrain. The highest peaks in Chaurdhar remain snowbound throughout the year. Low denuded hill ranges of Siwalik represent the southwestern part of the district. In the areas underlain by high hill ranges of the Himalayas, the valleys are narrow and deep with steep slopes. The terrain is moderate to highly dissected with steep slopes. Paonta valley, trending NW-SE, has an area of about 230 sq. km and lies between the main Himalayan ranges on the north and the outer Siwalik hill range on the south.

The Yamuna River that forms the eastern district boundary with the State of Uttaranchal drains a major part of the Sirmaur district. Tons, Girdi, Bata are its major tributaries. Only a small area in the southeast is drained by the river Markanda of the Ghaggar river basin. Girdi River practically bisects the district into two parts, namely the trans-Girdi area and the cis-Girdi area. Paonta valley is drained by river Bata, a tributary of Yamuna.

The mining lease area lies in the Girdi River which is a major tributary of the Yamuna River. The river Girdi originates near Kharapathar in Jubbal Tehsil of the district Shimla at an elevation of about 3270 meters. It travels through the hills of Kot-Khai and Tatesh, parts of Shimla district, and enters the district on its southwest side. It continues its course for about 40 km, forming the boundary with the Keonthal area of the Shimla district. At village Mandoplasa it enters into this district and debouches in the Yamuna at Rampur Ghat.

The mining lease is located downstream of Jataun Barrage and the majority of the effective catchment area lies above as well as below this Barrage however; the Gates of Jataun Barrage are opened frequently to release the additional water, as well as the sediments, collected upstream of the Barrage for de-silting purpose. In addition to this, the gates of this Barrage are full time partially opened during the rainy season. Hence, there are sufficient mineral reserves available as well as a sufficient amount of minor minerals are being replenished in this area.

3.2 Altitude, General Terrain Description, with map and Contours Encompassing the Mine area: -

The map of the mining lease area on a 1:2000 scale with one-meter contour interval is Plate No III. The river Girdi originates near Kharapathar in Jubbal Tehsil of the district Shimla at a height of about 3270 meters. It flows through the hills of Kot-Khai and Tatesh, parts of Shimla district, and enters the district Sirmaur on its south-west side. It continues its course for about 40 km, forming the boundary with the Keonthal area of the Shimla district. At village Mandoplasa, it enters into the Sirmaur district and merges with Yamuna River at Rampur Ghat near Paonta Sahib. The highest point of mining lease area is 471 meters above MSL and lowest point is 470 meters above MSL and average width is 100 to 150 mtrs. However; the total width of river Girdi in this part is approximately 270-340 meters.

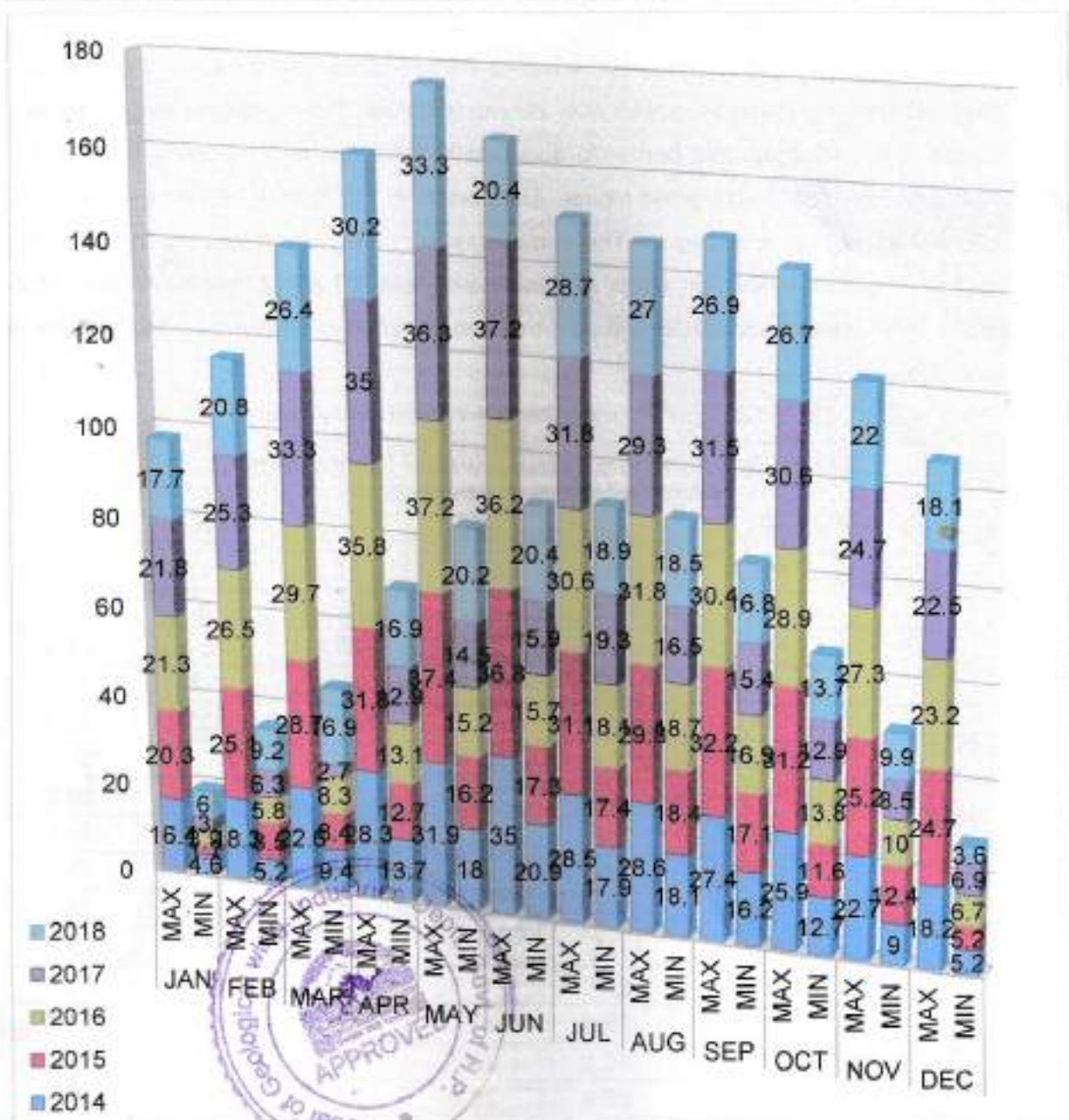
3.3 Climate of the Area

The climate of this district varies according to the elevation. The terrain is mountainous with deep valleys lying between ranges with varying altitudes. The elevations range between 500 metres in the southwestern border to about 2500metres as one proceeds towards the northeast with individual peaks going higher. The portion of the district, beyond the Giri river, is mostly a wild mountainous region. The summer is from March to about the end of June. The southwest monsoon season starts thereafter and lasts till about mid-September. Mid-September to November constitutes the post-monsoon season and December to February is the winter season.

Table 1.3 Table Showing Climate around the lease area

Maximum & Minimum Temperature of District Sirmaur (Meteorological Centre-Nahan)						
MONTH	YEAR	2014	2015	2016	2017	2018
JAN	MAX	16.4	20.3	21.3	21.8	17.7
	MIN	4.6	1.7	3.9	3	6
FEB	MAX	18.3	25.1	26.5	25.3	20.8
	MIN	5.2	8.5	5.8	6.3	9.2
MAR	MAX	22.6	28.7	29.7	33.3	26.4
	MIN	9.4	8.4	8.3	2.7	16.9
APR	MAX	29.5	31.8	35.8	35	30.2
	MIN	13.7	12.7	13.1	12.9	16.9
MAY	MAX	31.9	37.4	37.2	36.3	33.3
	MIN	18	16.2	15.2	14.5	20.2
JUN	MAX	35	36.8	36.2	37.2	20.4
	MIN	20.9	17.3	15.7	15.9	20.4
JUL	MAX	28.5	31.1	30.6	31.8	28.7
	MIN	17.9	17.4	18.1	19.3	18.9
AUG	MAX	28.6	29.8	31.8	29.3	27
	MIN	18.1	18.4	18.7	16.5	18.5
SEP	MAX	27.4	32.2	30.4	31.5	26.9
	MIN	16.2	17.1	16.9	15.4	16.8
OCT	MAX	25.9	31.2	28.9	30.6	26.7
	MIN	12.7	11.6	13.8	12.9	13.7
NOV	MAX	22.7	25.2	27.3	24.7	22
	MIN	9	12.4	10	8.5	9.9
DEC	MAX	18.2	24.7	23.2	22.5	18.1
	MIN	5.2	5.2	6.7	6.9	3.6

Source: Meteorological Department, Govt. of India



Graph 1.1 - Average monthly temperature of the district Sirmaur from the year 2014 to 2018

3.4 Rainfall of the Area

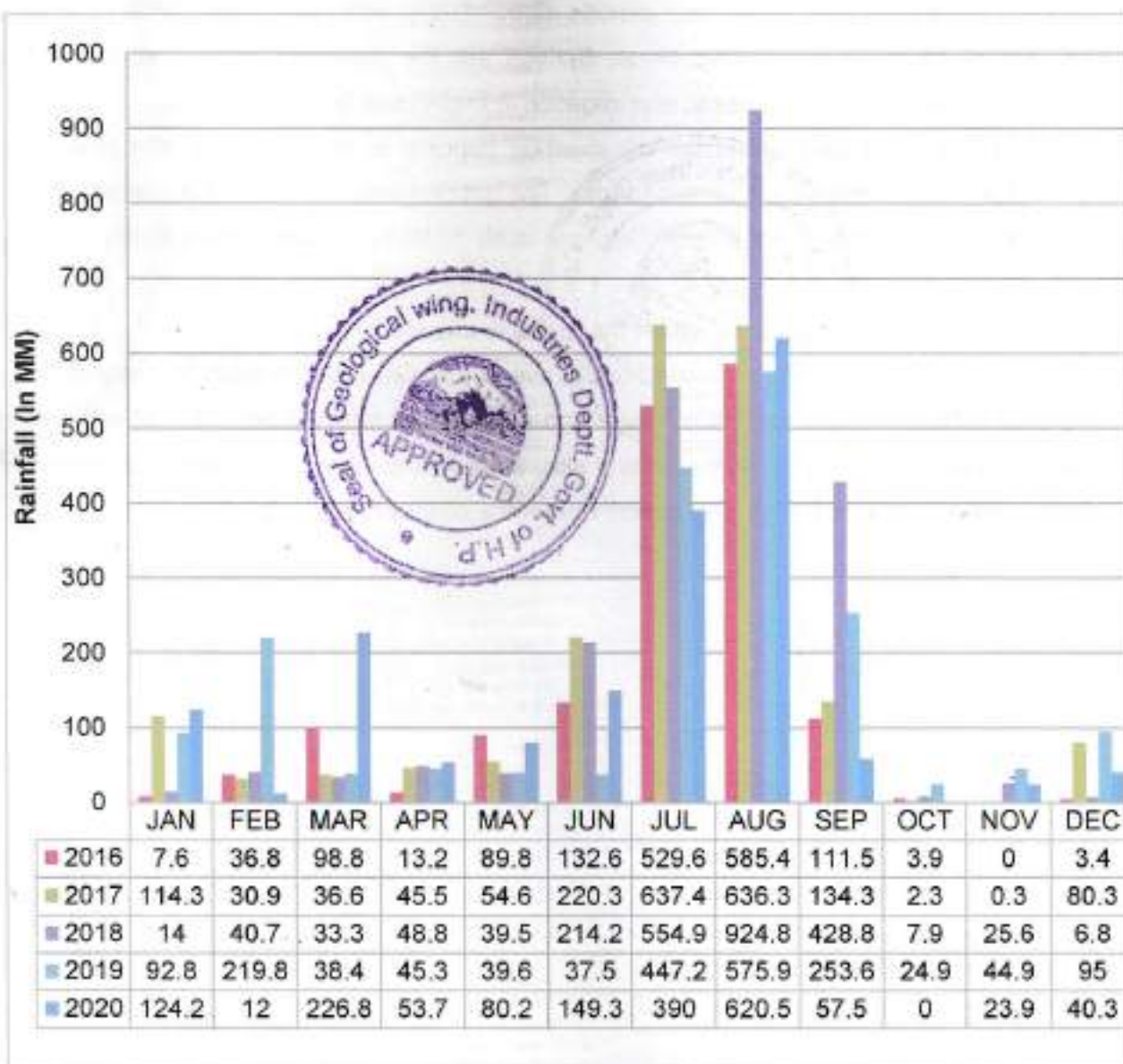
The average annual rainfall in the district is 1688.7 mm. It will be seen from the Table that the southwest monsoon season is the chief rainy season and rainfall during the southwest monsoon season constitutes about 71% of the annual rainfall normal. July is the rainiest month. In association with passing western disturbances, some rain occurs in the period January to March. The precipitation in the winter season is mostly in the form of snow in the north-eastern portion of the district at higher elevations. The catchment area receives rainfall due to western disturbances that pass over the north-western part of the country during the winter months. Significant precipitation in form of snow is received at higher altitudes and rainfall in valleys is received during the winter month. During winter the rains

are scarce and extend between 15th December to 15th February. The following Table shows the quantum of rainfall from year 2016 to 2020 adjoining to the mining lease area as per IMD.

Table 1.4 Table showing monthly rainfall data of the district

SIRMAUR DISTRICT RAINFALL IN MILLIMETERS (R/F)												
YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
	RAIN FALL (IN mm)											
2016	1.1	27.1	49.5	11.9	42.6	146	388.9	259.4	88.7	9.4	0	3.7
2017	117.4	10.2	38.9	41.2	66.7	257.4	276.1	386.8	291.7	0	0	23.4
2018	21.4	40.9	9.6	45.2	45.2	151.1	555.9	306.9	305.9	2.8	17	15.4
2019	68.8	138.4	29.6	54.6	27.6	55.3	391.5	447	242.3	37.5	24.1	49.2
2020	134.3	29.7	184.5	43	47.7	112.2	277.2	428.2	37.4	0	40.6	22.8

Source: Meteorological Department, Govt. of India



Graph 1.2- Average monthly rainfall data of the district Sirmaur from year 2016 to 2020

3.5 Any Other Important Feature

Sirmaur district falls in the south-eastern parts of Himachal Pradesh which constitutes a part of southern Himachal Pradesh of Himachal Pradesh Himalaya region. The district is further sub-divided into four sub-micro regions of Upper Sirmaur Forested Region, Cis-Giri Region, Sirmaur Shiwalli and Kiar-dun valley. It lies between 30° 27' 30" and 31° 02' 20" north latitude and 77° 01' 12" and 77° 49' 40" east longitude. Shimla district bounds it in the north, Solan district in the northwest, the State of Haryana in the west and south while the State of Uttarakhand and Uttar Pradesh make its eastern boundary. According to the Surveyor General of India, the district has a total area of 2,825 sq km. It has 7th position among districts in terms of area in the State. It has a total number of 976 villages, of which 968 are inhabited.

The major part of the district is hilly and mountainous with highly dissected and undulating terrain. These areas are underlain by semi-consolidated and consolidated hard rocks of the tertiary and pre-tertiary periods. Groundwater potential in such an area is very low due to its hydro-geomorphic setup. Springs are the main groundwater structure that provides water supply for domestic and irrigation in major rural and urban areas.

The applied area comprises the riverbed deposits of the Giri River. Giri River is a glacier-fed from Himalayan Mountain ranges. The granted area lies within the riverbed of Giri River near village Kainhwala which is approximately 10.00 Kms. from Paonta Sahib.

3.6. Description of the Area in which the lease is situated: -

The mining lease area is situated in the riverbed of Giri River, a main tributary of River Yamuna. The river is perennial in nature and experiences heavy water flows (flood) during the monsoon/rainy season. At the Mining site, it flows in the eastern western direction and then it swings towards N-E to S-W direction after the confluence with the River Yamuna.

PART-I

DESCRIPTION OF GEOMORPHOLOGY AND MINE DEVELOPMENT

1. DESCRIPTION OF GEOMORPHOLOGY AND MINE DEVELOPMENT

1.1 General

Giri River is one of the major tributaries of the Yamuna River system. The river Giri originates near Kharapathar in Jubbal Tehsil of the district Shimla at an elevation of about 3270 meters. Its catchment is stretched between 30°04'30" to 31°15'40" N latitude and 77°00'00" to 77°43'45" E longitude covering the catchment area of 2600 Sq. Km. (As per district survey document). The highest point of the mining lease area is 471 meters above MSL and the lowest point is 470 meters above MSL and the average width is 100 to 150 meters. However; the total width of river Giri in this part is approximately 270-340 meters.

The stream is perianal in nature and water flows in it throughout the year. The riverbed of Stream is occupied with recent deposits comprising predominantly of boulders, Sand and river-borne silt. The boulder beds are considered as the prominent source of river-borne deposits and during monsoon season the stream carries heavy sediment load and deposit it over the riverbed annually.

1.2 Name of the River/Stream Bed on which the mining lease is situated

The mining lease area lies in the Giri River which is the main tributary of Yamuna River.

1.3 Drainage System

The Drainage pattern of the Giri River is of dendritic type and ultimately it joins the River Yamuna near Paonta Sahib and forms a part of the Yamuna drainage system.

1.4 Type of Drainage

The river forms a dendritic to a sub-dendrite type of drainage pattern.

1.5 Origin of river/stream

The river Giri originates near Kharapathar in Jubbal Tehsil of the district Shimla at a height of about 3270 meters.

1.6. Altitude at the origin.

About 3270 meters above mean sea level. The highest point of mining lease area is 471 meters above MSL and the lowest point is 470 meters

1.7 Geometry of the Catchment of the River impacting the Replenishment of Deposits.

The geometry of the Giri River

Effective Area of catchment	=	2629.84 Sq. Km.
Area of catchment up to mining site	=	2510 Sq. Km

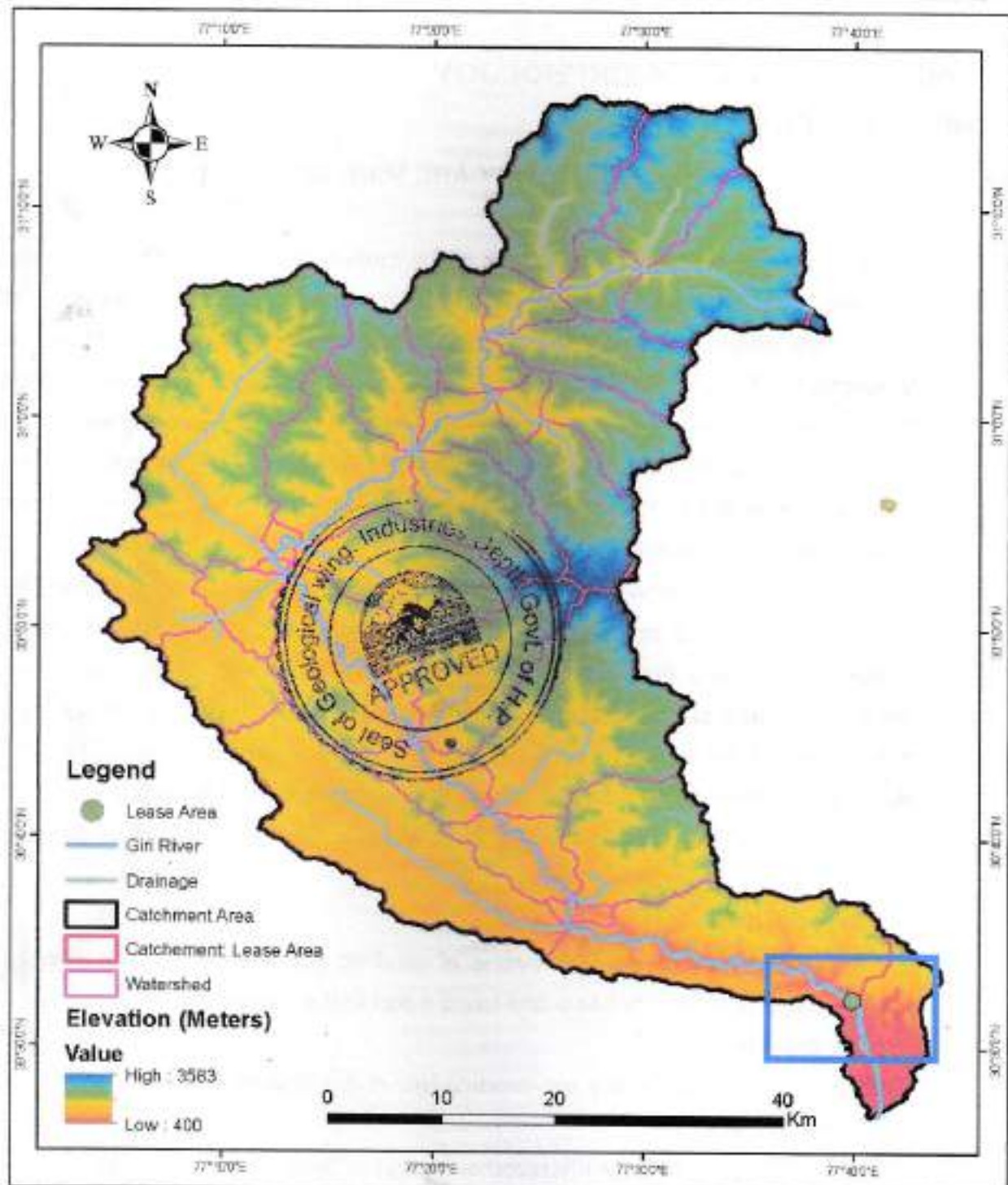


Figure 1.9: Image showing Geometry of the Catchment of the River

The following are the different ingredients of the Giri Khad

Number of tributaries on right bank	7
Number of tributaries on left bank	6
Stream order up to lease area	5
Maximum length of water shed	122.00Km
Maximum breadth of water shed	42.00Km
Length breadth ratio = 2.90:1, Higher the ratio, higher is the asymmetry of the water shed.	

Profile of River Bed

Altitude at the origin	3270m
Elevation at lease area	471-470
Total length of River	160.00 Km
Total length of River up to lease area	148.00 Km
Cumulative Elevation Loss	2798 m
Average Slope	1.83 % i.e. about 1.05°
Slope angle at lease area	1.25 % i.e. about 0.71°

The cycle of erosion at the lease area is old.



Figure 1.10: Image showing Profile of the River

As per the studies, the physiographic and morphometric parameters like relief ratio, drainage density, drainage texture, bifurcation ratio and sediment delivery ratio (SDR) depict that the catchments of the river fall under severe erosion. The Replenishment of river bed material will be very much dependent on rainfall and run-off from the surrounding watershed area. In contrast to surface erosion, mass movements have always been common on steep slopes. Therefore, minerals excavated in a year shall be replenished during the monsoon season and hence, the whole block shall be exploited on yearly basis.

1.8 Annual Deposition of River/ Stream Bed: -

The river has sufficient capacity to replenish almost equivalent to the stress on the lease area/material excavated up to a depth of one meter from the lease area. The Giri River cut its course all along its length through the rocks of various formations as well as through the Siwalik formation. The Siwalik Group comprises sandstone, siltstone and clay/clay-stone alternations in the lower part, whereas the upper part is represented by conglomerates, pebbly bands and sandstone lenses, ranging in age from Middle Miocene to Lower Pleistocene. The river bed is occupied with recent deposits of minor minerals comprising sand, silt, gravel and pebbles of Newer Alluvium belonging to the Quaternary age. These sediments are deposited in the shape of channel bars, piedmont bars, flood plains and

alluvial fan deposits. The Alluvium consists of loose sand, silt, clay, pebble, gravel, boulder and kankar. It unconformably overlies different formations in different areas. As the banks comprised of soft rocks hence, leading to higher deposition in this area. The river is approximately 270-340 meters wide at the applied mining lease area which gives a better chance of replenishment in this area. During the monsoon season, the stream carries a heavy sediment load and deposit it annually on the river bed, therefore, mineral excavated in a year shall be replenished during the monsoon season and hence, the whole block shall be exploited on yearly basis.

1.9 The Competency of River/ Stream at the Mining Site

The competency of a river is a measure of the maximum size of the river-borne material a river is capable of transporting and it is directly dependent upon the velocity of the flow of the river. The competence of a river increases as the square of its velocity. The maximum load of solid particles a river can transport is termed its capacity. The greater the discharge in the river, the greater shall be the capacity for hauling the sediments. The higher velocities are developed when the rivers are in high stage. In the present case, on average, the competency of the river at the mine site is 25 to 15cm x 20 to 10 cm x 16 x 8 cm.



1.11: Image Showing Competency of River/ Stream

1.10 Meandering Pattern of the River near the mining site

The major river in the study area is antecedent in nature. The sinuosity, braiding and meandering in the river course is generally noticed, although, at some places, they are straight and narrow. Due to the increase of the drainage area and the discharge, the river valley becomes wider in the downstream side with a generally flattened gradient.

During the monsoons, the flood water level raises about 1.50 mts. to 2.00 meters for a short spell of time. The landform being depositional, the meandering thread constantly changes during the rains depending upon the water level. The highest flood level is the maximum rise level and the lowest flood level is the riverbed level.

1.11 Altitude of the Mining area

The highest point of the mining lease area is 471 meters above MSL and the lowest point is 470 meters and the average width is 270-340 Mtrs.

1.12 Description of the Groundwater table in the Mining Area, before and Post Monsoon.

The riverbed level in the mine lease area varies between 471 amsl to 470m AMSL and the average bed level is 470.00m AMSL as is evident from the surface area map. The mine shall be worked up in 3 feet depth below the natural surface level of the ground at any section.

The area is located in the Siwalik system, which consists of a boulders bed and has minimum water retention capacity. The area is a hilly terrain as such cannot have any regular water table but the percolated water comes out in the shape of spring at those places where there is non-pervious formation is available to stop the water from further percolation. After the monsoon period, the springs can be seen functional in a number of places but the intensity of discharge start reducing after September and most of the springs goes dry after November and the major sources of water remain the course of the Giri River where the water is available along the course of a river where the wells are developed. As per information gathered as well as based on the previous and ongoing development works like construction of Bridges and Bore wells by the HPPWD and I&PH departments respectively, the average depth of water table is more than five meters Thus, the groundwater table shall not intersect with the bottom of mining pits.

(2). GEOLOGY

2.1 Regional Geology of the Area

District Simaur forms part of the Shiwalik and Lesser Himalaya ranges and it exhibits a rugged mountainous terrain with moderate relief. The rocks found in the area comprise sandstone, shale, limestone and schist deposited during the past 600 million years.

Various litho-units ranging from Proterozoic to the recent era are found to occur in the Simaur district. Among all, typical Mesozoic era formations cover most of the parts and Quaternary formations occupy the southern part of the district. Granite Gneisses of the Jatogh Formation belonging to the lower Proterozoic is located in the northern part of the district while the Deoban Formation of upper Proterozoic is confined to the eastern part to a limited extent Jaunsar and Simla Group of lower Proterozoic to upper Proterozoic period cover middle portion of the district which encircles Tal, Krol and Infra-Krol formation of

Triassic period respectively. Among these the Krol Formation of the Triassic period is known for its limestone deposits. Subathu and Dharamshala Formation of Oligocene cover a major portion of the southern area.

The main boundary fault of the Himalayas, extending from Indus to Brahmaputra, runs through the south-central portion of the district. The major tectonic break here is called Nahan thrust, and along this fault plane, the older rocks rest on the younger Shiwalik rocks. A marked plane of structural discordance exists as a district linear feature between the Nahans (Lower Shiwalik) to the south and the older Tertiary (Subathu-Dagshai group of rocks) to its north.

The Pre-tertiary limestone deposits (Sataun Formation), where exposed, occurs as discontinued lensoid outcrop along the northern fringes of the Nahan thrust and sandwiched in between the Nahan and the Subathu. Generally, all the Formations trend in WNW-ESE direction with moderate to high northerly dip.

Generalised Stratigraphic Successions of the district is given in the following table:-

Table 1.6- Table showing Litho-stratigraphy of the area

<u>Era</u>	<u>Period</u>	<u>Formations</u>	<u>Lithology</u>
Quaternary	Recent to Pleistocene	Almora valley filled alluvium	Sand with pebble and clay & multiple cyclic sequence of medium to coarse grained sand with pebble of sandstone and lenses of clay
Tertiary	Pliocene – M-Miocene	Shiwalik Group	Sandstone, shale, conglomerate, mudstone, clay, gravel & boulder beds
	L-Miocene – Oligo-Eocene	Kasauli/Dagshai/ Subathu	Grey, purple sandstone, Shale, nodular clay, Shale, Limestone etc.
Pre-Tertiary Group	Paleozoic	Karol/ Infra-Karol, Blainis boulder beds	Limestone, shale, red shale
	Carboniferous	Karol, Blainis boulder beds	Carbonaceous shale, slate, greywacke, dolomitic limestone.
	Devonian	Jaunsar series	Slates schist phyllite.
	Pre-Cambrian	Chail series	Slates called Shimla slates
	Achaean	Jutogh series	Quartzites, schist and limestone.

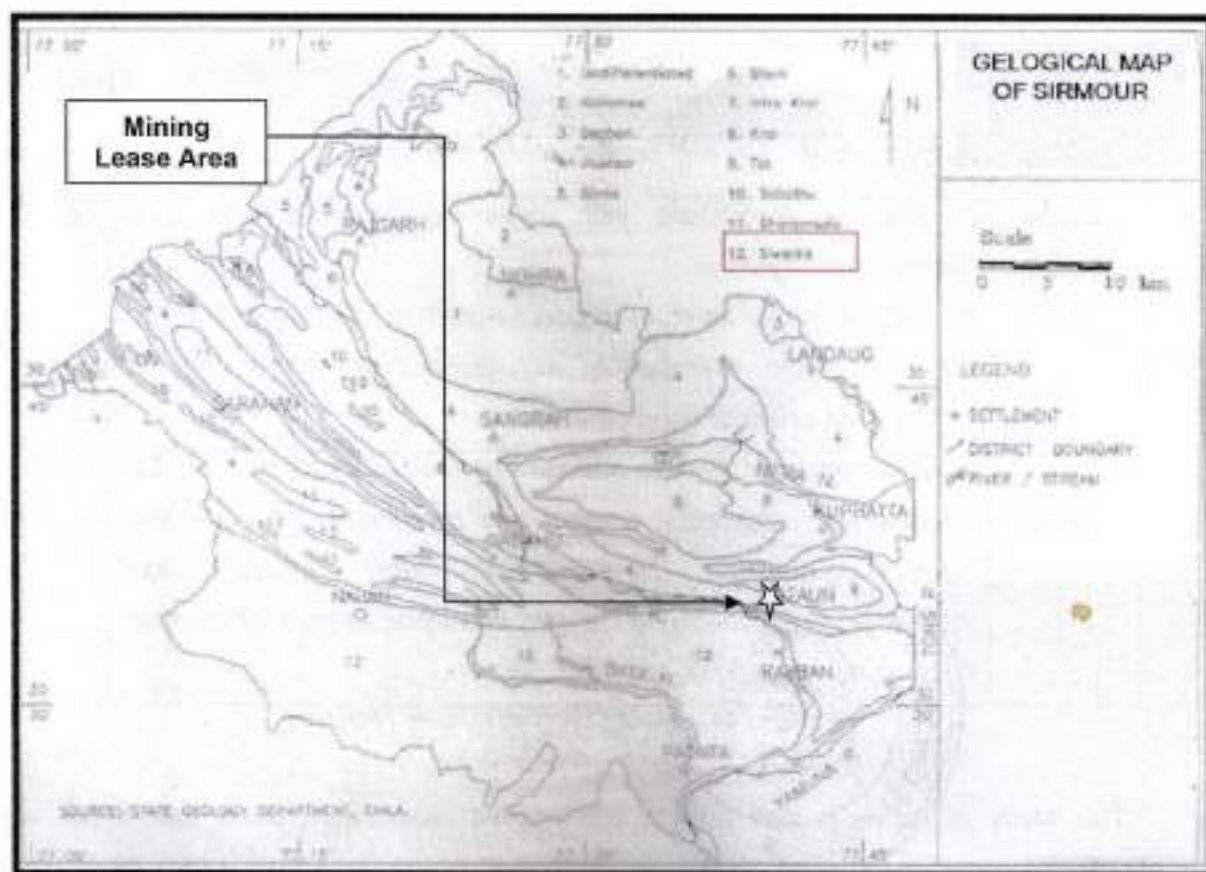


Figure 1.12: Geological Map of the District Sirmour

2.2 The Local Geology of the area:

The leased out area forms a part of the stream bed covered with boulders, cobbles, pebbles, and river-borne bajri, sand and silt deposits of Channel alluvium. The rocks along the banks are Terrace Alluvium and Fan Alluvium and in higher reach of catchments Upper Siwalik Formation.

The lithostratigraphy of the area near the mining lease is given below: -

Table 1.5 Showing Lithostratigraphy of the area

Group		Lithology	Age
Newer Alluvium	Channel Alluvium	Boulders, cobbles, pebbles, Grey micaceous, fine to coarse-grained sand, silt and clay	Quaternary
	Terrace Alluvium	Cyclic sequence of Boulders, cobbles, pebbles, grey micaceous sand, silt and clay	
	Fan Alluvium	Brownish grey clay, sand and gravel with boulders	
Older Alluvium	Dun Gravels	Multicyclic sequence of brown to grey silt, clay with kankar and reddish-brown to grey micaceous sand with pebbles	Neogen
Siwalik Group	Upper Siwalik	B. Predominantly massive conglomerate with red and orange clay as matrix and minor sandstone and earthy buff and	

		<i>brown claystone</i>
		<i>A. Sandstone, clay and conglomerate alternation</i>
	<i>Middle Siwalik</i>	<i>B. Massive Sandstone with minor conglomerate and local variegated claystone</i> <i>A. Predominantly medium to coarse-grained sandstone and red clay alternation, soft pebbly with subordinate claystone, the locally thick prism of conglomerate</i>
	<i>Lower Siwalik</i>	<i>B. Alternation of fine to medium-grained sporadically pebbly sandstone, calcareous cement and prominent chocolate and medium to fine-grained claystone in the middle part</i> <i>A. Red and mauve claystone with thin intercalations of medium to fine-grained sandstone</i>

(Source: Geological Survey of India Publications)

The study of rocks in and around the applied lease area show that these are formations of Lower Siwalik. The stream is full of river borne sediments which have been generated by the erosion process of Siwalik Hills. The river borne material consists of boulder, pebble, cobble, bajri, sand and silt which is non-separable. The area has gentle slope angle and is occupied with residual soil which is formed due to weathering of upper hill slopes. The thickness of this river borne material is at least 3.0mts. as per information gathered in discussion with P.W.D. authorities as they have noticed in the past while digging for bridge abutments. The area granted submerges during monsoon therefore no permanent vegetation is possible in the river bed, however seasonal grass grows in the stable lands of the river. For calculation of quantity of mineral one meter depth has been taken into consideration.

2.3 The Nature of boulders, cobbles, sand etc.

The area is part of the Giri riverbed which contains boulders, sand, bajri and silt. Siwalik rocks are present in the upstream as well as in and around lease area and sediments of quartzite, granite and sand stone are noticeable. The river borne material consist of boulder, pebble, cobble, bajri, sand and silt in the applied area. The boulders, cobbles and pebbles available in the area are rounded to sub rounded in shape.

2.4 The nature of rocks of the banks and their attitude

In this part the river passes through area with comparatively gentle slope having wider river width. There will be no change in the river course due to mining as the river course is mainly guided by the hydraulic gradient of surface water and the geological conditions of the bank as it passes through a well cemented conglomeratic formation of

Upper Siwalik group of rocks. In the applied mining lease area, the river section is well defined and is confined between both the flanks.



Figure 1.12: Pictorial view of the Bank of the river of Area

2.5 The description of Annual Deposition with Respect to Geology of Catchment Area

The particles deposited in the river bed depend upon the energy of the river. The Giri River traverses through Siwalik rocks comprising of Siwalik rocks of Middle and Lower Siwaliks. The middle and lower Siwalik contains medium to coarse-grained sandstone and red clay alternation, soft pebbly with subordinate clays stone, the locally thick prism of the conglomerate of middle Siwaliks. These rocks are soft to moderately hard in nature. The deposition of river-borne material mostly takes place during the monsoon season when the river is in full spate and bring lots of sediments/materials as they move downstream. The River flows in rapids in its initial reaches which results in erosion of boulders, sand etc. and deposited/scattered in the bed of the river in the downstream areas. The tributaries of this stream have carved a wide flood plain as the banks comprised of soft rock. The annual deposition is around six cms to 10 cms in general depending upon the location.

From field experience and data collected during monsoon, it has been observed that the river Giri travels through the Siwalik formations which comprise Channel and Terrace deposits, the material excavated from the mining lease area shall be fully replenished every year. Due to excavation of minor mineral from the applied area up to the depth of 3 feet only, this section of a stream creates conditions conducive for deposition and the area get fully replenished by sediments transport during periods of higher flows i.e. during the monsoon/rainy seasons. Hence it has been observed that in this type of stream, the area excavated get fully replenished with sediments during the rainy/monsoon season every year.

(3) RESERVES ESTIMATE

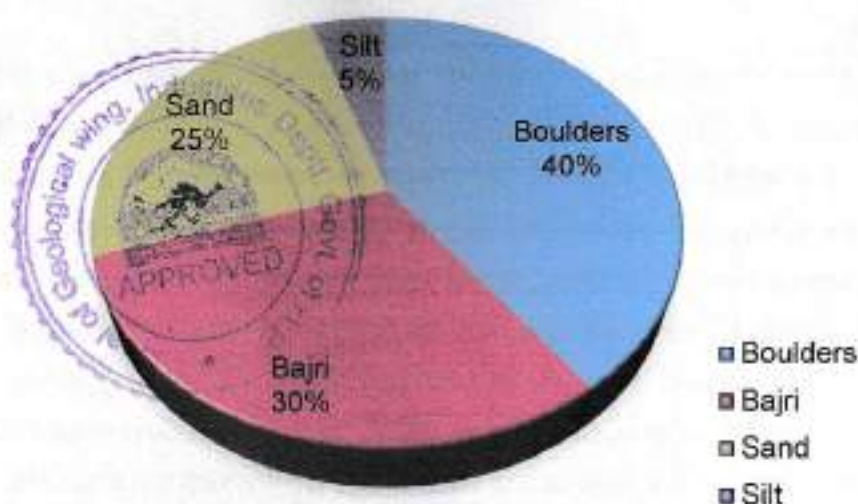
3.1 Percentage-wise Distribution of stone, gravel sand etc.

The different constituents of river-borne deposits such as Boulder, Bajri, Sand and silt /clay based on size classification were considered for reserve calculation. Although it is not possible to mark these units separately on the geological map as such two pits at different locations of 1x1x1 meter were got dug in the Mining lease area and material so excavated was separated into different sizes and their percentage was worked out and this percentage was taken in to account during the calculation of reserves. The results of the test pit dug are given in the following table:

Table 1.6 - Table showing Percentage of minor mineral constituents

Availability of mineral (In Percentage)		
Mineral	Percentage	Size
Boulders	40%	40 mm. to 60 cms
Bajri	30%	5 mm to 40mm
Sand	25%	2 mm to 5 mm
Silt	5%	2 mm to 5 mm

Availability of mineral (In Percentage)



1.3 – Pie chart of Availability of mineral (in percentage)

3.2 Estimate of Geological Reserves of Each Mineral

An average of specific gravity i.e. 2.25 is taken into consideration for the calculation of mineral potential in the area of Mining purposes. Total 29755 Sq.m. area is available for mining purposes. As per information gathered as well as based on the previous and ongoing development works like construction of Bridges and Borewells by the HPPWD and I&PH departments respectively, the average depth of sediments in and around the Mining lease

area is more than 3 meters. On the basis of this information, the following are the geological reserves calculated up to a minimum of 3 meters depth only in the available mineable area: -

Table 1.7 - Table showing geological reserves of minor mineral constituents

ESTIMATION OF MINEABLE GEOLOGICAL RESERVES UP TO <u>THREE METERS (IN MT)</u> IN MINEABLE AREA		
TOTAL AREA AVAILABLE	29755	Sq. m
TOTAL MINEABLE AREA AVAILABLE	29755	Sq. m
DEPTH	3	Mtr.
SPECIFIC GRAVITY	2.25	
AVAILABILITY OF MINERAL	200846	MT

However, as the mineral replenishes every year, the reserves are always renewable and shall not exhaust as such geological reserves in river bed has no relevance to the production.

3.3 Estimate of mineable reserves of Boulder, Bajri (gravels) and Sand

The average depth of sediments in the Mining Lease area is expected to be more than 3.00 meters in the whole applied lease area; however, considering the guidelines of river bed mining policy the Mineable reserves were computed in the Lease area up to the one-meter depth. The Mineable reserves up to the depth of one meter are given below:

Table 1.8 - Table showing estimated reserves of minor mineral constituents

ESTIMATION OF MINEABLE RESERVES UP TO <u>ONE METER</u>		
TOTAL MINEABLE AREA AVAILABLE	29755	Sq. m
DEPTH	1	Mtr.
SPECIFIC GRAVITY	2.25	
AVAILABILITY OF MINERAL	66949	MT

3.4 Estimate deposition of different constituents of mineral of mineable reserves of the boulder, bajri (gravels) and sand *

The applied area forms a part of a stream bed covered with stone boulders, bajri and sand deposits of channel alluvium. The proposed maximum annual extraction of RBM from the applied lease area is 66949 metric tonnes per annum. Due to excavation of minor mineral from the applied area up to a depth of 3 feet only, this section of a stream creates conditions conducive for deposition and the area get fully replenished by sediments transport during periods of higher flows i.e. during the monsoon/rainy seasons. It has been observed that in this type of stream, the area excavated get fully replenished with sediments during the rainy/monsoon season every year season (i.e. Non-working Season). As the mineral replenishes every year, the reserves are always renewable and shall not exhaust as such geological reserves in riverbed has no relevance to the production size. Thus, it is feasible to extract 66949 metric tonnes of RBM/year.

(4) MINE DEVELOPMENT AND PLAN OF PROGRESSIVE MINING

4.1 Development and production Programme for First Five years

The purpose of Mining is to use the extracted material in the already established stone crusher unit in the name and style of "M/s Shirgul Mines and Minerals" for manufacturing Grit and stone dust (artificial sand/manufacturing sand). The river-borne material contains boulders, sand, bajri and silt. Sand shall be sold on the open market as per demand. Further, waste material i.e. Silt does not have any market value and this material will be used for rehabilitation work. In order to calculate the mineable reserves, the following points are taken into consideration.

- 1 A Geological map is prepared (Scale 1:2000) and main Litho-units were marked on the plan to know the surface spread of each unit.

The different constituents of river-borne deposits such as the boulder, bajri, sand and silt /clay based on size classification were considered for reserve calculation. Although, It is not possible to mark these units separately on the geological map as such two different locations in the Mining lease area identified already of 1-meter height in the Mining lease area and material from different locations o excavated was separated into different sizes and their percentage was worked out and this percentage was taken into account during the calculation of reserves.



1.14: Image showing pits excavated and type of mineral in the granted area

- 2 Keeping in view the replenishment factor, the whole block shall be explored every year.
- 3 The mining shall be undertaken manually and mechanical mining may be undertaken if permitted by the competent authority.
- 4 Since the applied mining lease area lies within the HFL and as per the riverbed mining policy, 2003, the whole of the mining lease area measuring 29755 Sq.m. shall be available for mining operations.

Table 1.9 - Table showing total granted and mineable area

TOTAL APPLIED MINING LEASE AREA	29755	Sqm.
AREA AVAILABLE FOR MINING	29755	Sqm.

- 5 The average specific gravity of the minor mineral has been taken as 2.25 for calculation of reserves and one-meter depth is taken for calculation of reserves.

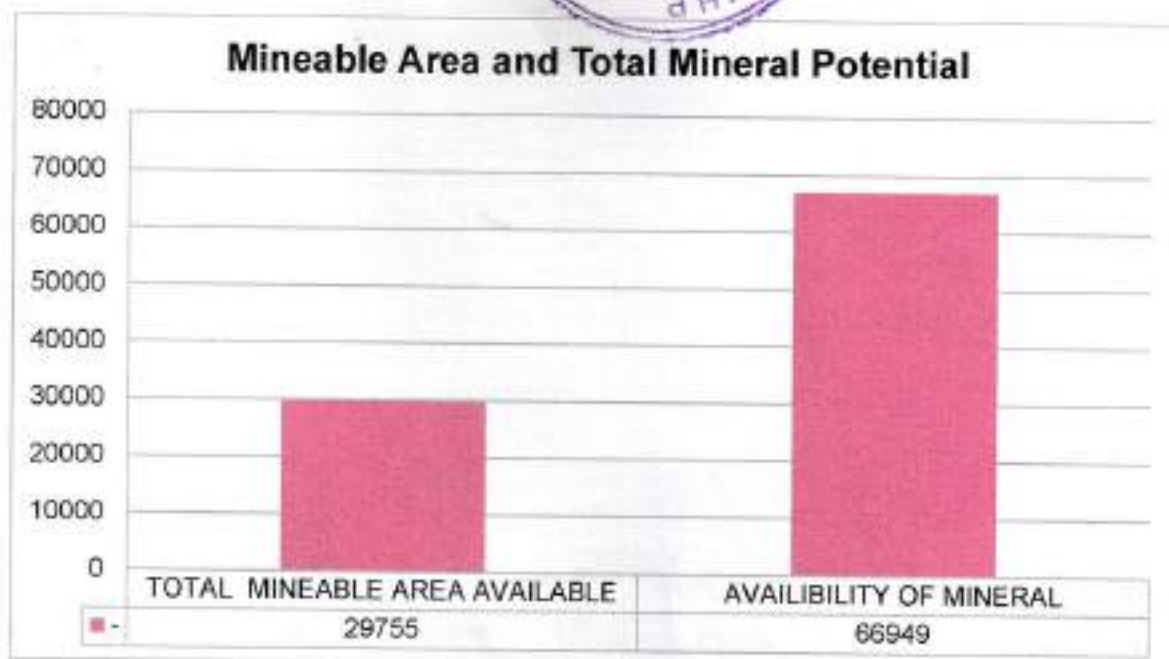
Table 1.10 - Table showing mineable area and total mineral potential

ESTIMATION OF MINEABLE RESERVES UP TO <u>ONE METER</u>		
TOTAL MINEABLE AREA AVAILABLE	29755	Sq. m
DEPTH	1	Mtr.
SPECIFIC GRAVITY	2.25	
AVAILABILITY OF MINERAL	66949	MT

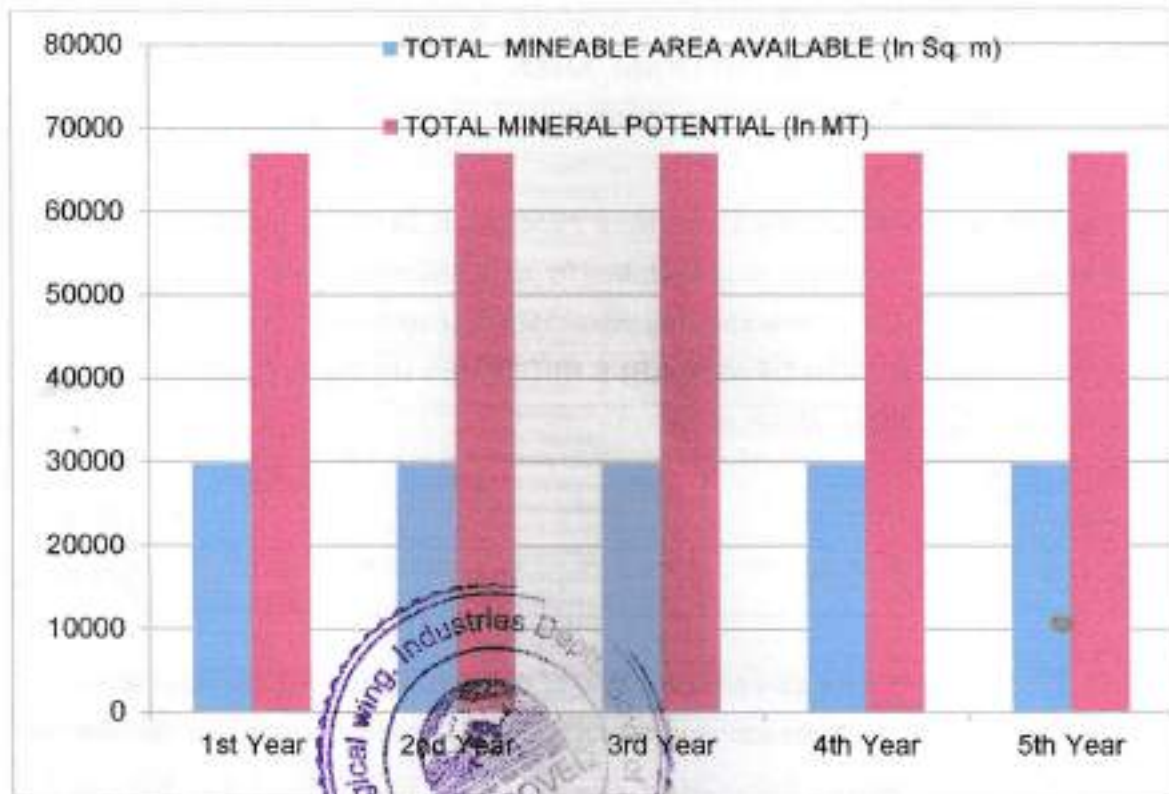
- 6 The total available mineable area is 100% of the total applied mining lease area.

Table 1.11 - Table showing the total available mineable area and the potential mineable area

YEAR	TOTAL MINEABLE AREA AVAILABLE (In Sq. m)	TOTAL MINERAL POTENTIAL (In MT)
1st Year	29755	66949
2nd Year	29755	66949
3rd Year	29755	66949
4th Year	29755	66949
5th Year	29755	66949
TOTAL		334744

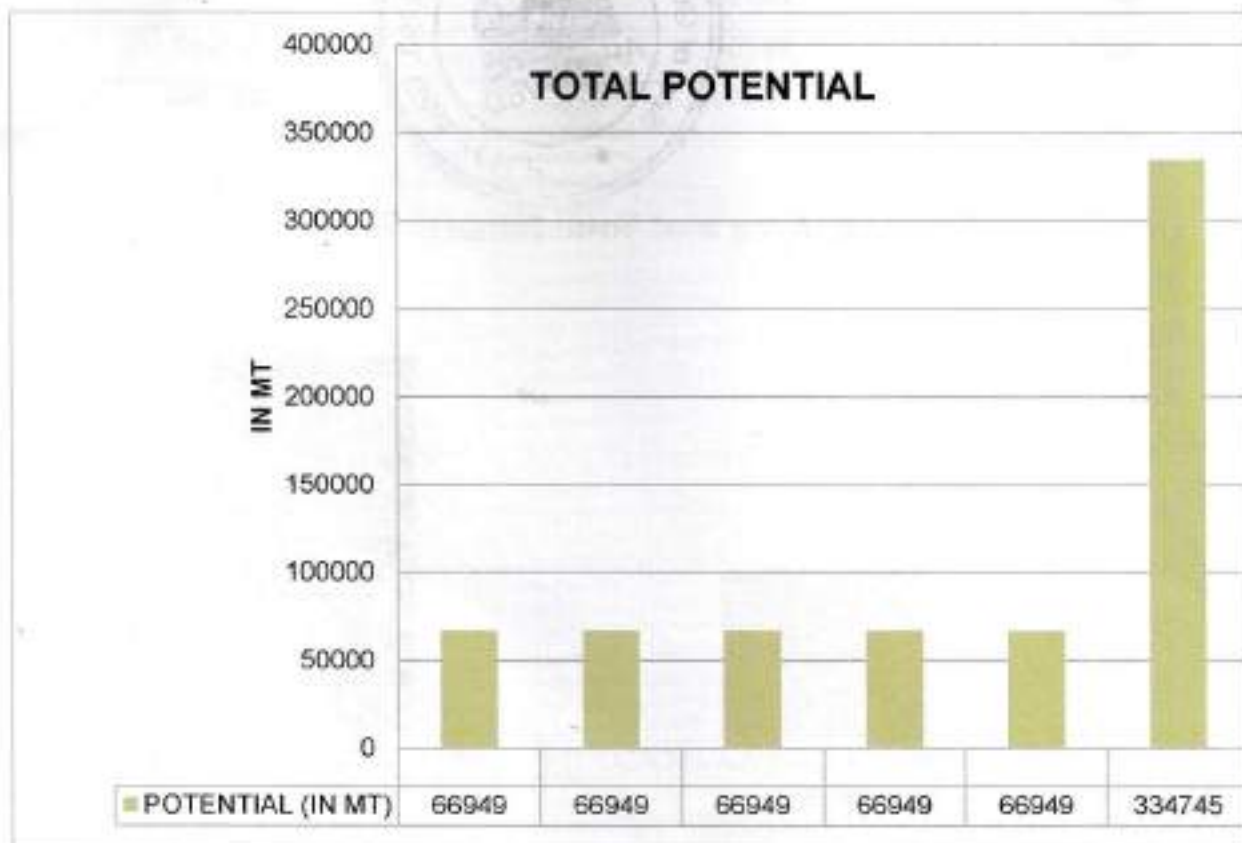


1.4- Graph Showing Mineable area and total potential



1.5 - Graph Showing year wise Mineable area and year wise potential In Five Years

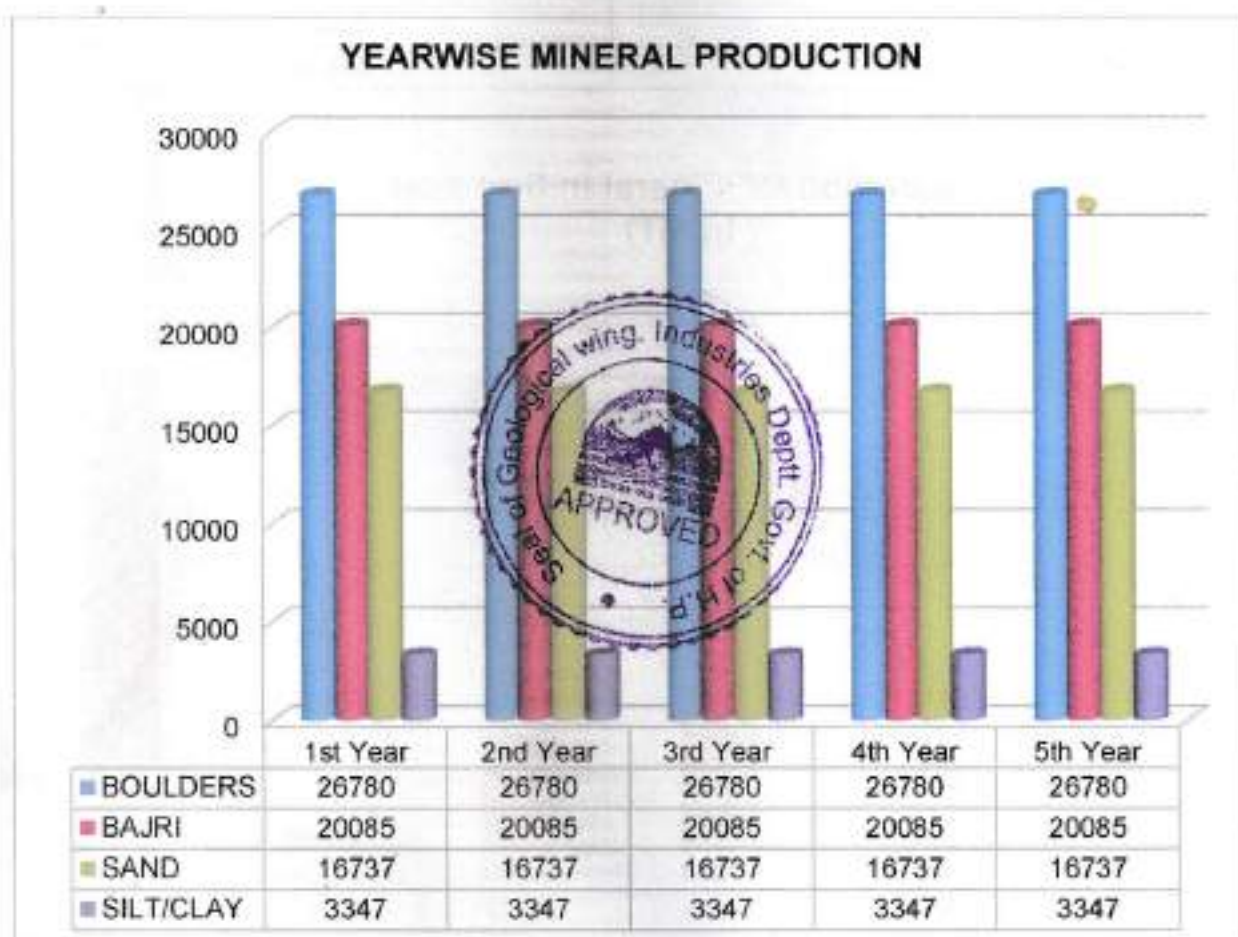
- 7 The Mineable reserves have been calculated as per the available reserves in the mineable area after leaving no mining areas.



1.6 - Graph Showing Five Years mineral potential in the mineable area

Table 1.12 - Table showing five years mineral potential in the Mining lease area

YEAR	BOULDERS	BAJRI	SAND	SILT/CLAY	TOTAL POTENTIAL
	40%	30%	25%	5%	
1st Year	26780	20085	16737	3347	66949
2nd Year	26780	20085	16737	3347	66949
3rd Year	26780	20085	16737	3347	66949
4th Year	26780	20085	16737	3347	66949
5th Year	26780	20085	16737	3347	66949
TOTAL	133900	100425	83685	16735	334745



1.7- Graph Showing Mineral Wise Material Handling In Five Years

4.2 Year Wise Production Detail

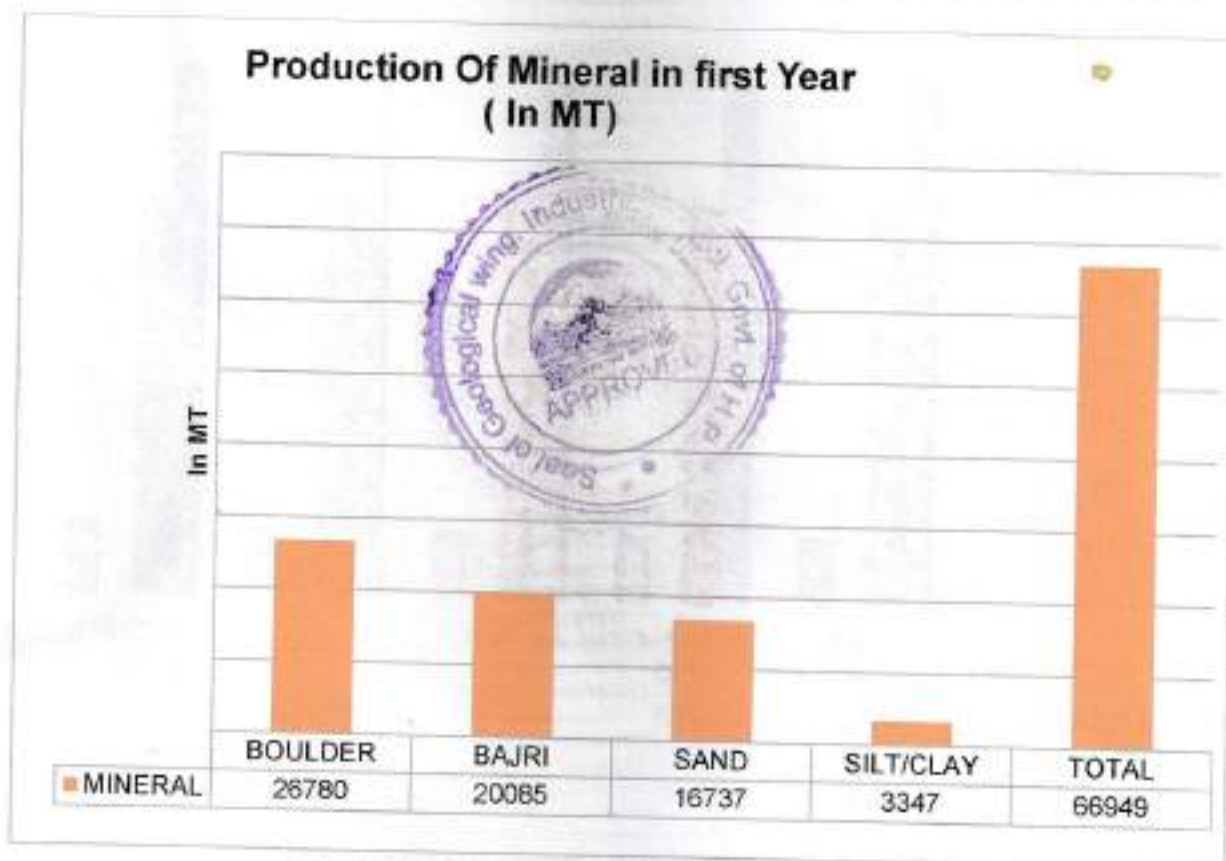
Giri River gets replenishment during monsoon and winter rains when the river gets heavy load. The river level is raised up to 1.5 to 2.00 meters sometimes even during the non-rainy season whenever the gates of Jataun Barrage are opened for the de-silting purpose. The mining operations have been planned in the full block up to the depth of 1.00 metres to give a better chance for complete replenishment. The worked-out block shall get replenishment during monsoon and winter rainy seasons for recharging the worked-out area and the worked-out area shall be fully replenished. Total 29755 Sq. meters of the area shall be available for work every year.

4.2 (a) Development and Production in the First Year (Plate No. -IV)

During 1st Year of the development and production Programme, mining is proposed in the 29755 square meters only. The production of each mineral Constituent will be as under:-

Table 1.13 - Table showing Production of Each Mineral in First Year

Production Of Each Mineral in First Year (In MT)	
BOULDER	26780
BAJRI	20085
SAND	16737
SILT/CLAY	3347
TOTAL	66949



1.8 - Graph Showing Production of Each Mineral in First Year

Afforestation – The whole of the area is within the high flood level, therefore there is no possibility of any plantation within the lease area. The lease holder shall find out suitable place in consultation with the concerned Gram Panchayat near the lease area and raise plantations of local species.

Protection of banks — As the whole of the mining lease area lies within the High Flood Levels of river Giri, no retaining structures can be constructed.

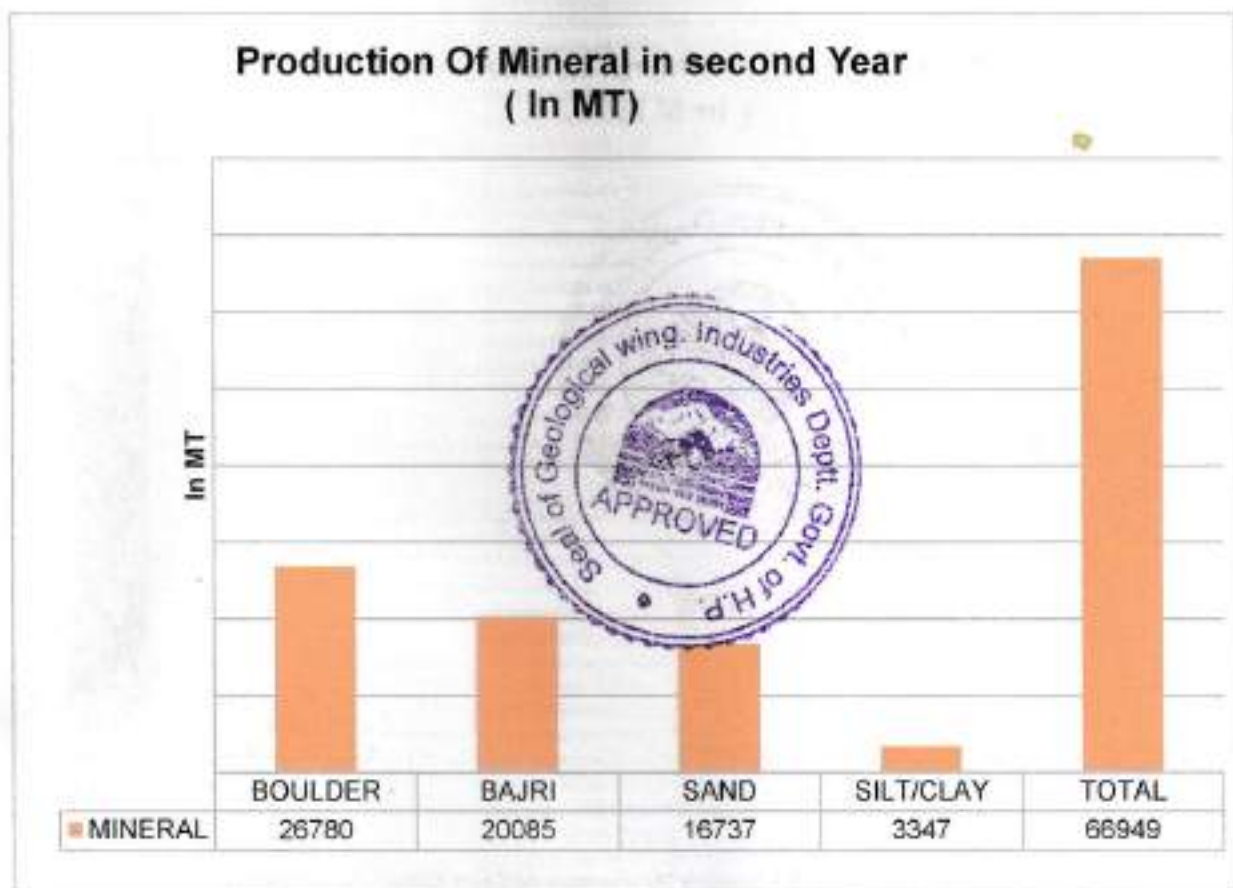
Waste dump – Although, the waste material present in the mining lease area in the form of silt is inseparable, however, the lease holder shall dump the waste material if any generated near the stone crusher site and should also find out the possibility to use the material in road filling, Granular sub-base (GSB) for road works and plantation works etc.

4.2 (b) Development and Production Programme during 2nd Year (Plate No. - IV)

During the 2nd year, mining is proposed in the 29755 Square meters only. The production of each mineral Constituent will be as under:-

Table 1.14 - Table showing Production of Each Mineral in Second Year

Production Of Each Mineral in Second Year (In MT)	
BOULDER	26780
BAJRI	20085
SAND	16737
SILT/CLAY	3347
TOTAL	66949



1.9 -Graph Showing Production of Each Mineral in Second Year

Afforestation – The whole of the area is within the high flood level, therefore there is no possibility of any plantation within the lease area. The lease holder shall find out suitable place in consultation with the concerned Gram Panchayat near the lease area and raise plantations of local species.

Protection of banks — As the whole of the mining lease area lies within the High Flood Levels of river Giri, no retaining structures can be constructed.

Waste dump Although, the waste material present in the mining lease area in the form of silt is inseparable, however; the lease holder shall dump the waste material if any generated near the stone crusher site and should also find out the possibility to use the material in road filling, Granular sub-base (GSB) for road works and plantation works etc.

4.2 (c) Development and Production Programme during 3rd Year (Plate No. - IV)

During the **Third year** mining is proposed in the 29755 Square meters only. The production of each mineral constituent will be as under:-

Table 1.15 - Table showing Production of Each Mineral in Third Year

Production Of Each Mineral in Third Year (In MT)	
BOULDER	26780
BAJRI	20085
SAND	16737
SILT/CLAY	3347
TOTAL	66949



1.10 -Graph Showing Production of Each Mineral in Third Year

Afforestation – The whole of the area is within the high flood level, therefore there is no possibility of any plantation within the lease area. The lease holder shall find out suitable place in consultation with the concerned Gram Panchayat near the lease area and raise plantations of local species.

Protection of banks — As the whole of the mining lease area lies within the High Flood Levels of river Giri, no retaining structures can be constructed.

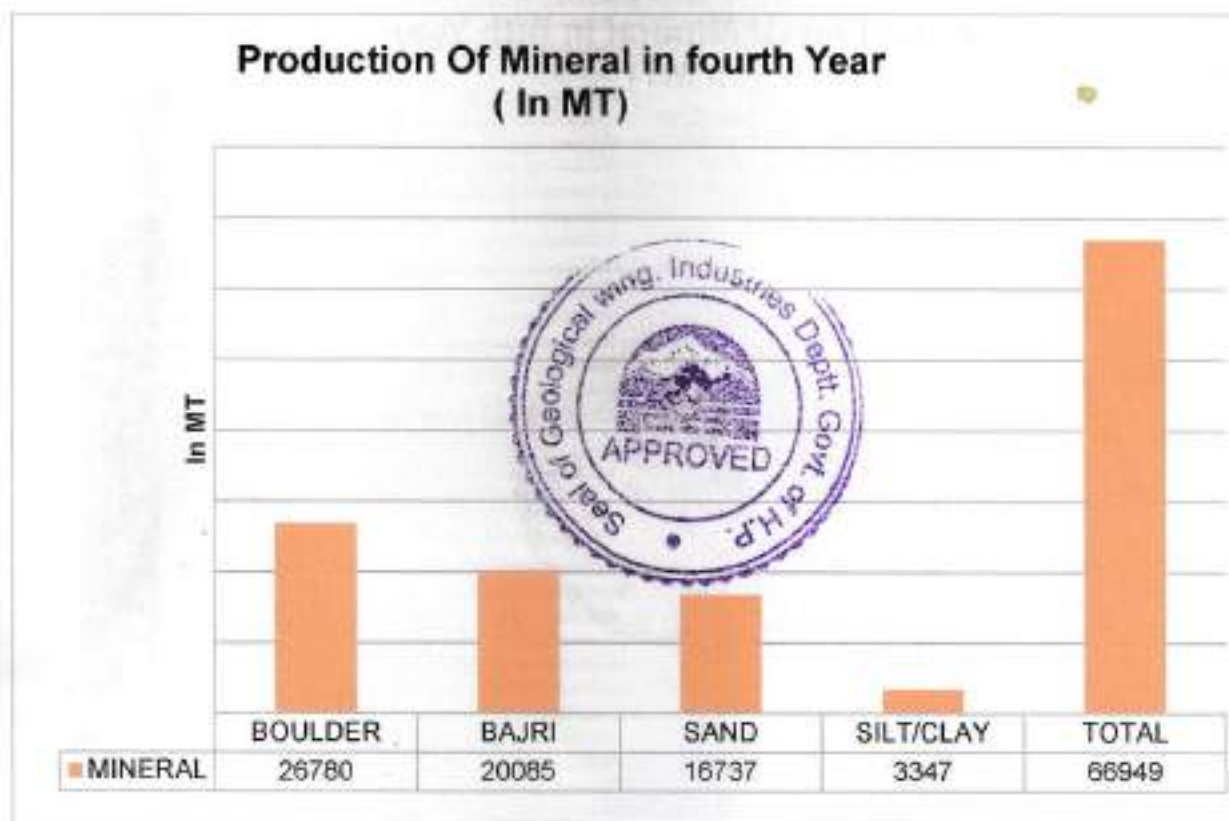
Waste dump – Although, the waste material present in the mining lease area in the form of silt is inseparable, however, the lease holder shall dump the waste material if any generated near the stone crusher site and should also find out the possibility to use the material in road filling, Granular sub-base (GSB) for road works and plantation works etc.

4.2. (d) Development and Production Programme during 4th Year (Plate No. - IV)

During the **Fourth year**, mining is proposed in the 29755 Square meters only. The production of each mineral Constituent will be as under:-

Table 1.16 - Table showing Production of Each Mineral in Fourth Year

Production Of Each Mineral in Fourth Year (In MT)	
BOULDER	26780
BAJRI	20085
SAND	16737
SILT/CLAY	3347
TOTAL	66949



1.11 - Graph Showing Production of Each Mineral in Fourth Year

Afforestation – The whole of the area is within the high flood level, therefore there is no possibility of any plantation within the lease area. The lease holder shall find out suitable place in consultation with the concerned Gram Panchayat near the lease area and raise plantations of local species.

Protection of banks — As the whole of the mining lease area lies within the High Flood Levels of river Giri, no retaining structures can be constructed.

Waste dump – Although, the waste material present in the mining lease area in the form of silt is inseparable, however; the lease holder shall dump the waste material if any generated near the stone crusher site and should also find out the possibility to use the material in road filling, Granular sub-base (GSB) for road works and plantation works etc.

4.3 End-use of mineral

There is a huge demand for construction material, like coarse aggregate and fine aggregate required in the construction works. The boulders and pebbles shall be used for the manufacturing of grit in the already established stone crusher unit and sand shall be sold in the open market. The majority of waste material shall be used in mining lease and other approach road works however; if still any waste material remains, it shall be dumped in the adjoining land of the mining lease holder.

4.4 Detail of Road transport:-

The mining site is located in the river bed of River Giri near the village Bhatrog. The main connectivity of this is with the Salwala - Sataun road.

Assecibility of transport up to the mining lease area

The lease is in the river bed and there is very low to no traffic from the mining lease area to the stone crusher site. The extracted material shall be transported to the stone crushing unit located near the lease area. The lease is in the river bed and there is very low to no traffic from the mining lease area till the stone crusher site however; for the transportation of the loaded vehicles to the nearest approach road, the vehicles may pass through private as well as Govt. Lands. The project proponent shall make necessary arrangements between land owners (Pvt. & Govt.) and will take care of other issues if any on his own for the mineral transportation to the nearest road.

As per proposed production, 66949 metric tonnes of material shall be transported in a year by trucks/tractors from the mining lease area up to the stone crusher unit. At this rate, only 223 metric tonnes of material shall be transported at an average per day (Total working days 300/year) for which an average of 25-26 trucks with 09 metric tonnes capacity are required.



PART –II

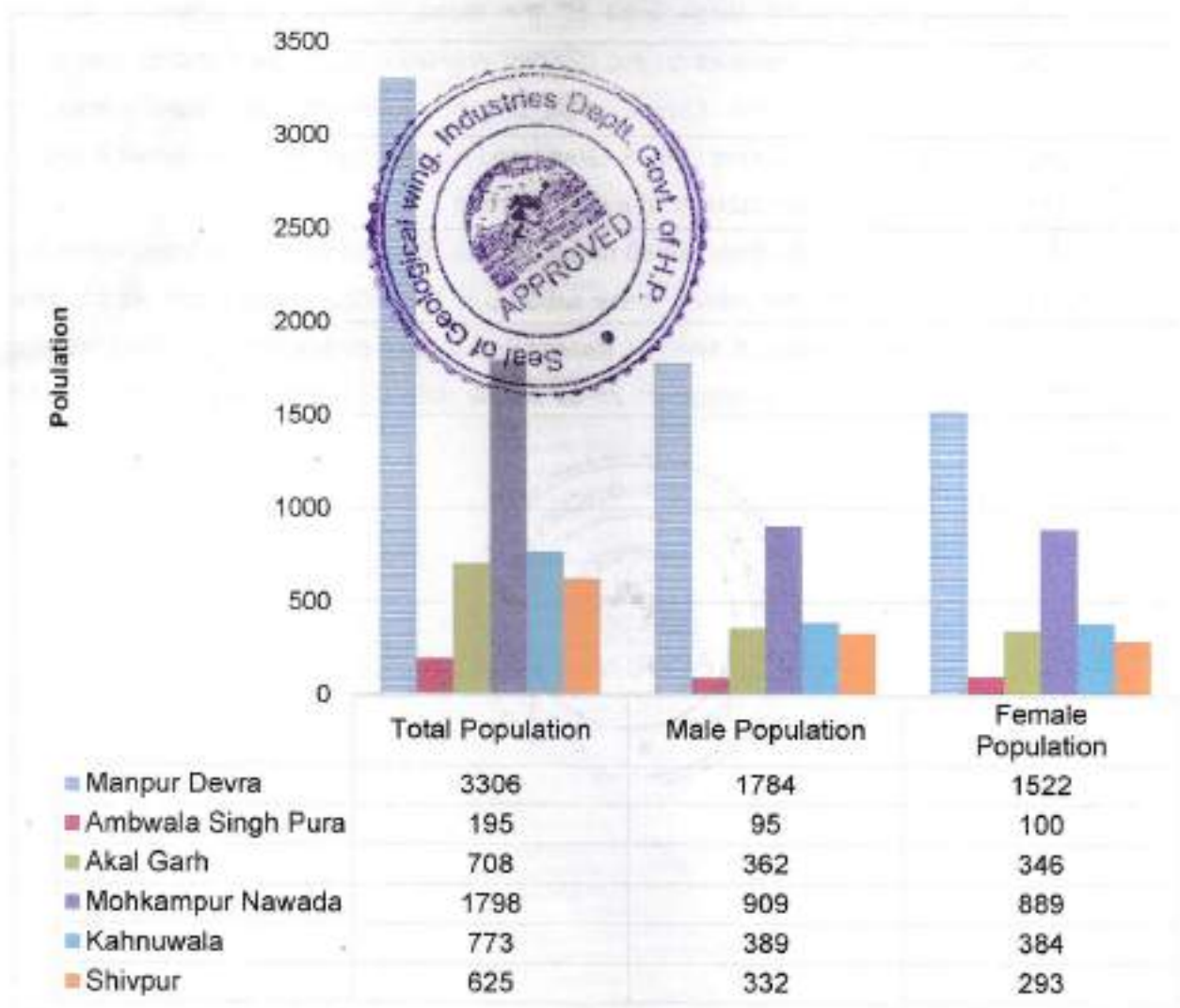
ENVIRONMENT MANAGEMENT PLAN

1 BASE LINE DATA

1.1. Detail of Population Distribution

Table 1.18 - Table Showing Details of Population Distribution

Sr. No.	Name of Villages	Total Population	Male Population	Female Population
1	Manpur Devra	3306	1784	1522
2	Ambwala Singh Pura	195	95	100
3	Akal Garh	708	362	346
4	Mohkampur Nawada	1798	909	889
5	Kahnuwala	773	389	384
6	Shivpur	625	332	293



1.13 -Graph Showing Details of Population Distribution

1.2 Socio Economy of the Village

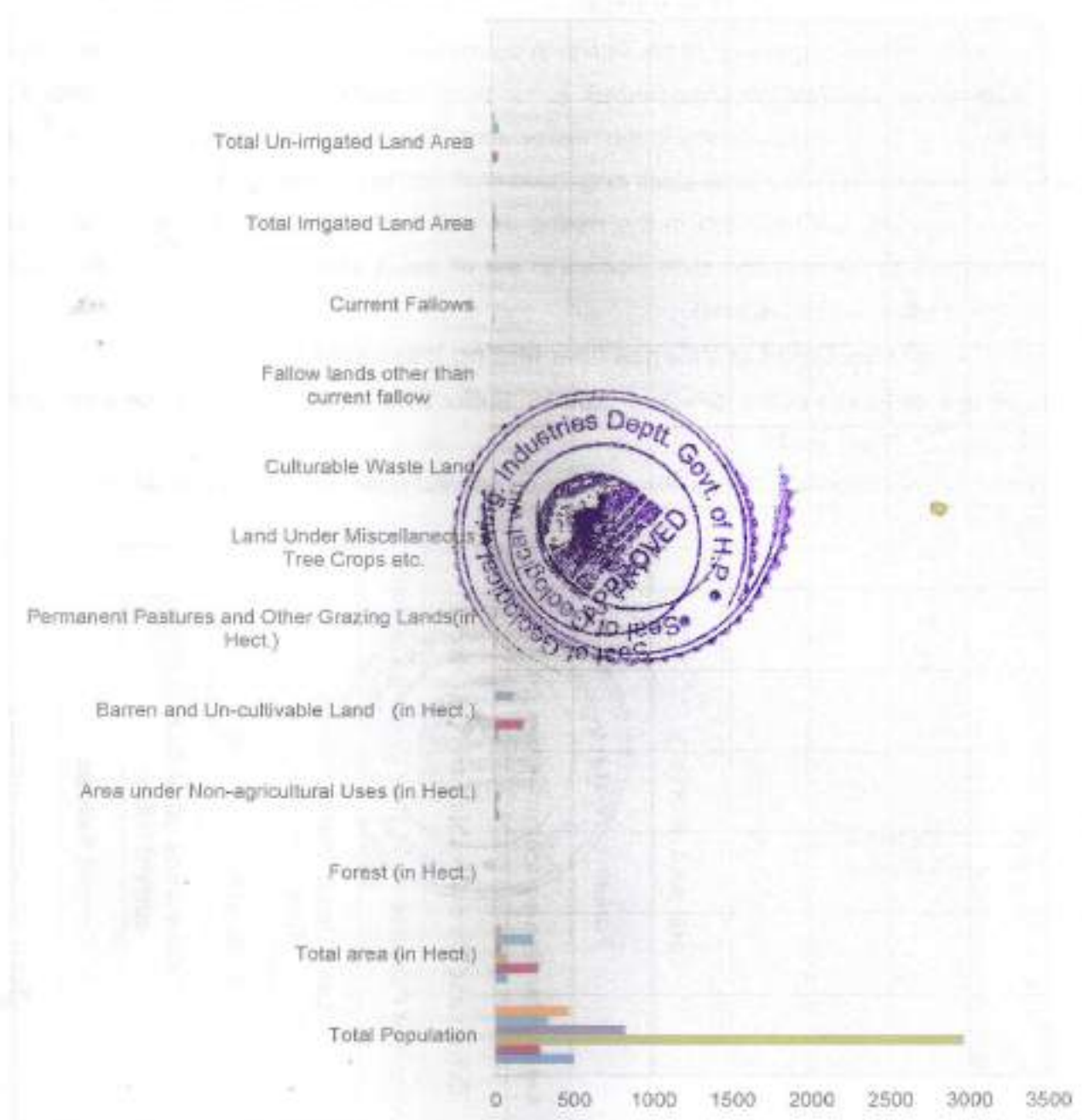
The general economy of the village is agriculture and animal husbandry based and people go to find out job opportunities in for flung industrial area outside the state of Himachal as there is no industry in the nearby area. Therefore, any job opportunity created by any entrepreneur may be of small magnitude shall add to the economy of the people. The people who are offered a job in the mining as well in the stone crusher shall be local employment at the door and such workers in the off hours shall be able to look after their routine agriculture and live stock.

1.3 Land Use Detail of Villages near Mining lease area:-

Land use and Land cover details of 5.00 km buffer map around Mining lease area also attached as (Plate no 2.)

Table 1.19 - Table Showing Details of the area under different types of land use of Surrounding Villages

Sr. No.	Name of Villages	Total Population	Total area (in Hect.)	Forest (in Hect.)	Area under Non-agriculture Uses (in Hect.)	Barren and Un-cultivable Land (in Hect.)	Permanent Pastures and Other Grazing Lands (in Hect.)	Land Under Miscellaneous Tree Crops etc.	Culturable Waste Land	Fallow lands other than current fallow	Current Fallows	Total Irrigated Land Area	Total Un-irrigated Land Area
1	Bhatrog	495	74	0	29	22	0	0	1	0	1	19	3
2	Poka	280	273	0	10	184	8	7	11	0	8	8	36
3	Sataun	2963	75	0	33	0	0	0	14	2	3	23	0
4	Kunair Dhamaun	821	33	0	4	1	0	0	2	0	2	23	1
5	Kotga Kandon	333	237	0	7	120	16	18	8	0	6	20	43
6	Sirmauri Tal	464	33	0	0	3	5	0	0	0	0	5	20



1.14 - Graph Showing General Land Use Pattern of Surrounding Villages

1.4 AGRICULTURE

Agriculture is the main occupation of the people in the district, having different types of soil and agro-climate conditions that are quite suitable for the growth of various types of cereals vegetables, temperate and stone fruits and other crops. The major crops grown in the district are wheat, Paddy, Maize, Barley, Millet. Besides these, potatoes and a variety of vegetables like green peas, cauliflower, cabbage, spinach tomatoes, etc. are also grown in the district. The economy is mostly agrarian and the majority of the population depend on agriculture and activities allied to it for earning their lively hood. Most of the land is un-irrigated and depends upon the rainy season. The part of the lands are irrigated and the irrigation facilities are provided by lifting water from streams, shallow Dug wells and medium

to deep tube wells in the valley area. The source of water type of irrigation can be classified into the following five classes.

- 1 Lift irrigation scheme
- 2 Well used for irrigation
- 3 Well use for domestic purpose
- 4 Kuhls
- 5 Tube wells

The water flows throughout the year in this river. The landholding in the district is small and scattered. The farmers grow more than two crops in a year so as to get maximum production from the land. The crop rotation followed in the district is:

- I. Maize- Toria-Wheat
- II. Maize-Potato-Potato
- III. Maize- Toria-Wheat-BaisakhiMoong
- IV Paddy Wheat
- V Maize-Wheat

Wheat and Maize are major crops of the district. These are followed by the gram, Paddy and other pulses. Besides these, Barley, Ragi, Mustard, Sesamum and Sugarcane are also grown in the district. Peas, Carrot, Cabbage, Ladyfinger, Tomato, Brinjal, Capsicum, Cauliflower, Cucumber, Pumpkin etc. Vegetables are also grown. About 95% of the total cultivable area in the district is rain-fed. Hence the production of the district mainly depends upon rain.

Table 1.20 - Table Showing Crop Pattern Surrounding lease area

June	July	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
Maize				Wheat				Maize			
Maize			Toria			Wheat			Maize		
Maize			Patato			Wheat			Maize		
Maize			Potato			Potato			Maize		
Bhindi				Cauliflower				French Bean/Tomato/brinjal/CapsicumCucubits			
Sesame						Sarson/Raya/G.Sarson					
Ginger/Caucasia/Turmeric				Potato		Wheat			Ginger		
Paddy						Wheat					
Paddy						Barseem					
Paddy						Potato					
Kulthi Mash					B. Sarson/Raya/G. Sarson/Taramira(Eruca Sativa)						
Mash						Wheat					

Mining plan of Mining lease area

to deep tube wells in the valley area. The source of water type of irrigation can be classified into the following five classes.

- 1 Lift irrigation scheme
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Maize			Toria			Wheat			Maize		
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Sesame						Sarson/Raya/G.Sarson					
Ginger/Caucasia/Turmeric				Potato		Wheat			Ginger		
Paddy						Wheat					
Paddy						Barseem					
Paddy						Potato					
Kulthi Mash					B. Sarson/Raya/G. Sarson/Taramira(Eruca Sativa)						
Mash						Wheat					

Table 1.28 - Table showing other Livestock censuses of District

Other Livestock							
Mules	Donkeys	Camels	Pigs	Yaks	Others	Poultry	Dogs
1782	285	46	1214	7	9	101427	19762

Source: Directorate of Animal Husbandry, HP

**1.22 - Graph showing other Livestock censuses of the District**

1.7 FISHERIES

Fisheries play an important role in the rural economy by augmenting food supply, generating employment and raising the nutritional contents of food. There is an abundance of fish in rivers and perennial streams. The important species are Mahasheer, Rohu, singhara, Baranguli, Kali Macchi, Kala banas, Bhareli, Mrigal, and Bhunga. Fishery activities in district Sirmour include riverine fisheries and aquaculture. Department of Fisheries, Himachal Pradesh issues annual licenses to the fishermen for fishing in riverine stretches using cast nets. The main rivers & their tributaries flowing through the district are Giri, Yamuna, Markanda, Roon Bata, Jalal, Nera & Tonnes. Presently 554 licensed fishermen are engaged in the fishery profession catching approximately 706 metric tons of fish annually. The culture of fish in ponds is called aquaculture. Although pisciculture is a non-traditional activity, yet depletion of fish in rivers and increasing market demands have forced the Government as well as farmers to think on these lines. There is a vast scope of fishery development in the

Mining plan of Mining lease area

district. Paonta and to some extent Rajgarh areas are suitable for fish culture. There is also a good scope for running water fish culture in the Shillai area.

Table 1.29 - Table Showing Annual Production of Fisheries and Its Value of Catch in District

Table showing Annual Production of Fisheries at District Sirmaur		
YEAR WISE	TOTAL PRODUCTION (IN MT)	VALUE OF FISH PRODUCED (IN LAKHS)
2014-15	1017.70	814.16
2015-16	1254.69	1003.75
2016-17	1371.96	2056.89
2017-18	1505.00	1505.00
2018-19	1422.00	1422.00

Source: Fisheries Department, HP



1.23- Graph Showing Annual Production of Fisheries and Its Value of Catch in District

1.8 FLORA

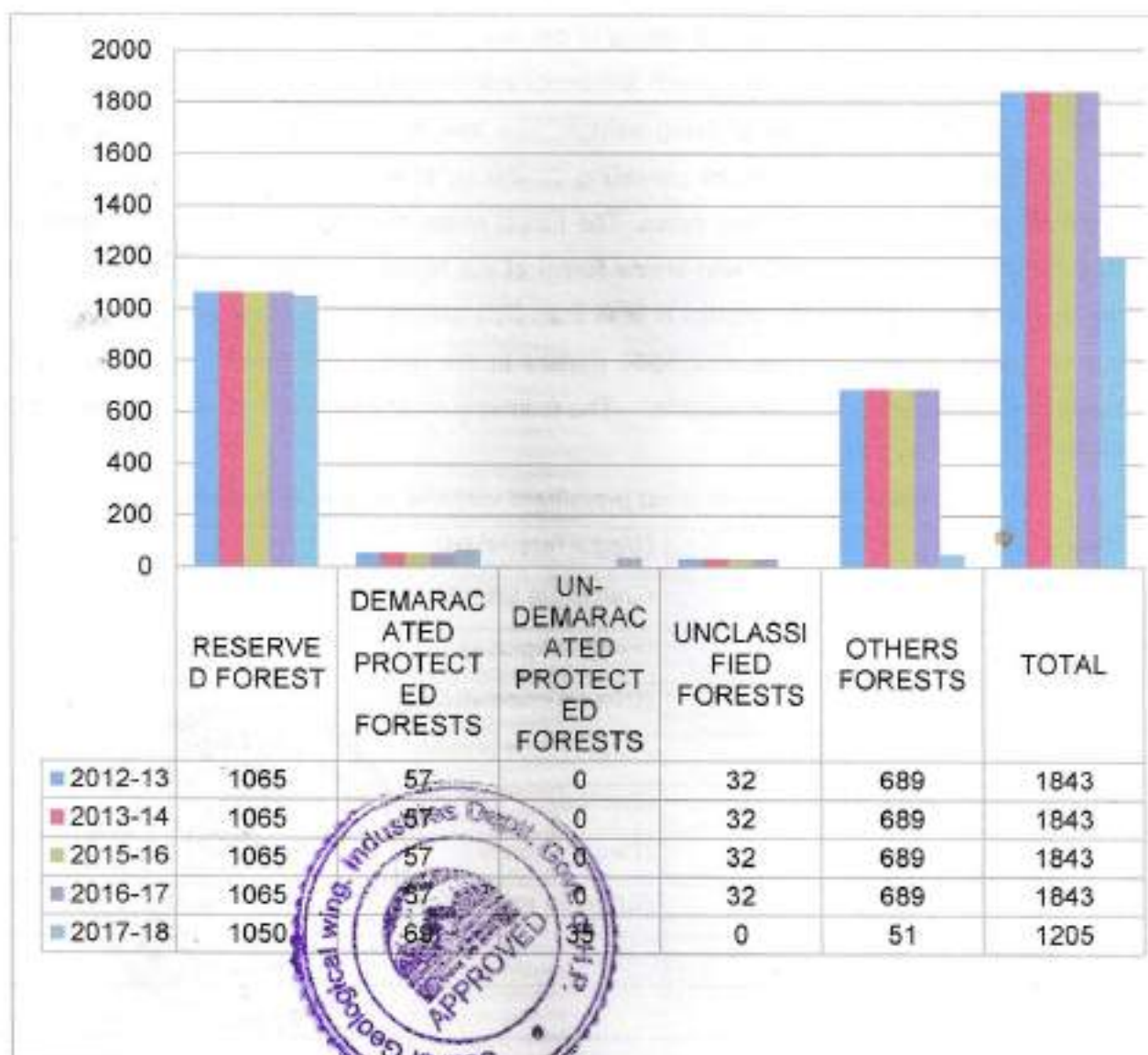
The topography climate and nature of the soil is mainly responsible for the growth of various types of trees and shrubs which are important for making the environment of the area most suitable for the survival of living beings. The tree and shrubs grow according to the heights. The Chil is considered the prevailing conifer up to about 1950 meters when it gives place to the Deodar and the blue pines. The forest range from shrubs sal and the bamboo forest of the low hills to the fur and alpine forest of the higher elevation. The lowest point of the southern boundary of the district is less than 300 meters above mean sea level and the highest range is at an elevation of 5500 meters in the north. The forests grown between these two extremes vary as the elevation. The following most prominent varieties of trees are found in the different elevations.

Table 1.30 shows the most prominent varieties of trees in the area

Mango	(Magni feraindica)
Tali	(Dalbergia sisco))
Pipal	(Ficus religiosa)
Behul	(Grewia oppsitifolia)
Chil	(Pinus Rose burghi)
Simbal	(Bombere malabaricum)
Tuni	(Cedrcla toana)
Jamun	(Engenia jambolana)
Bamboo	
Brah	
Tos	
Broadleaf species	
Ber and other bushes	

1.31 - Table Showing classification of forest area (in sq.km.) of district

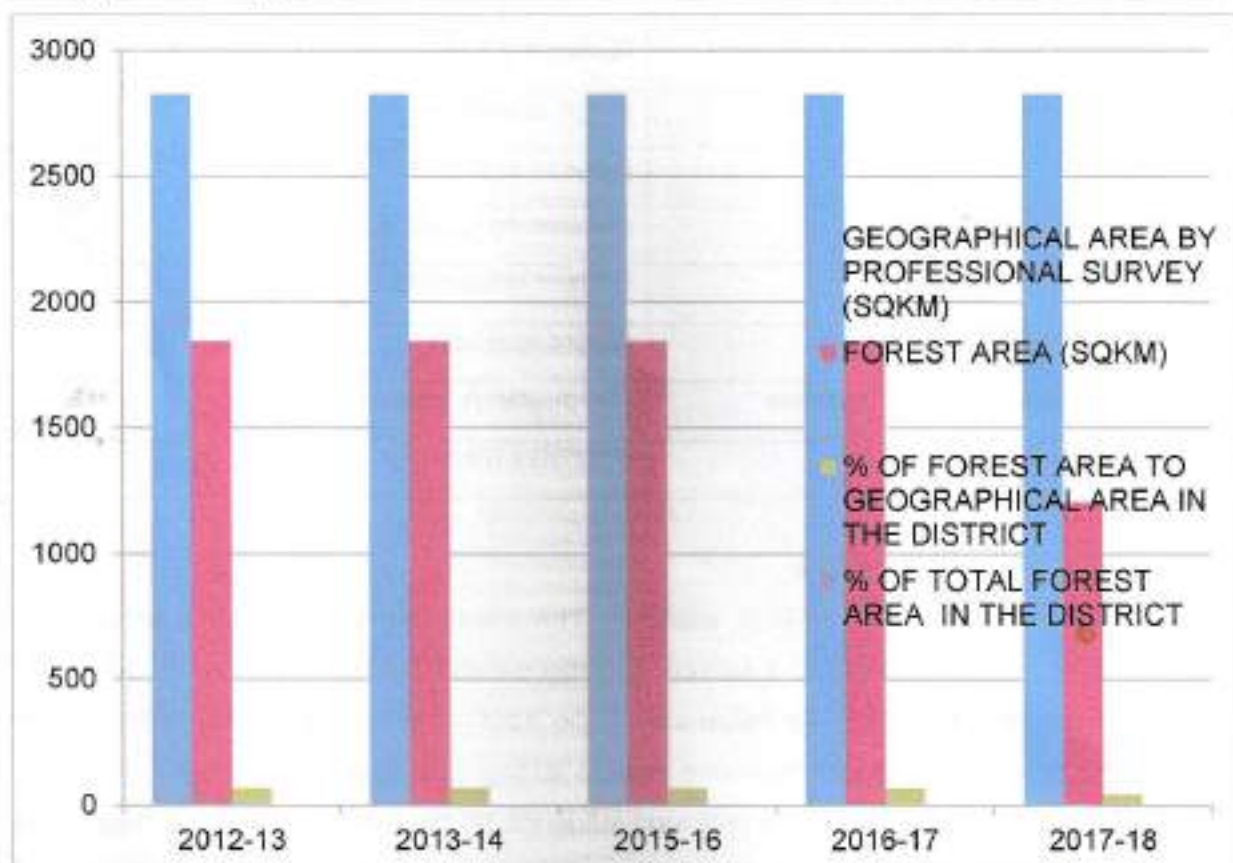
CLASSIFICATION OF FOREST AREA (IN SQ.KM.) OF SIRMAUR DISTRICT						
YEAR	RESERVED FOREST	DEMARACATED PROTECTED FORESTS	UN-DEMARACATED PROTECTED FORESTS	UNCLASSIFIED FORESTS	OTHERS FORESTS	TOTAL
2012-13	1065	57	...	32	689	1843
2013-14	1065	57	...	32	689	1843
2015-16	1065	57	...	32	689	1843
2016-17	1065	57	...	32	689	1843
2017-18	1050	69	35	...	51	1205



1.24 -Graph showing classification of forest area (in sq.km.) of district

1.32 Table showing Geographical forest area (in sq.km.) of district

FOREST AREA OF SIRMAUR DISTRICT				
YEAR	GEOGRAPHICAL AREA BY PROFESSIONAL SURVEY (SQKM)	FOREST AREA (SQKM)	% OF FOREST AREA TO GEOGRAPHICAL AREA IN THE DISTRICT	% OF TOTAL FOREST AREA IN THE DISTRICT
2012-13	2825	1843	65.2	5
2013-14	2825	1843	65.2	5
2015-16	2825	1843	65.2	5
2016-17	2825	1843	65.2	5
2017-18	2825	1205	42.65	3.18



1.25 - Graph showing Geographical forest area in sq. km. of district Simsha.

FAUNA

Common mammals found in the area are Fox, Hare, Jungle cat & common avifauna are crow, common pigeon, Hawk etc. Details of common mammals are given below in the table:

Table 1.33 - Showing Details of common mammals

1	Black bear	(Selenarctos thebatanus)
2	Sambar	(Cervus unicolor)
3	Leopard	(Felis bengalensis)
4	Musk deer	(moschu mischifarus)
5	Hare	(Lepus nigricollies)
6	Fox	(Vaulepus bengalanesis)
7	Langoor	(Preshytes entellus)
8	Flying squirrel	(Hylopetus fimbriatus)
9	Bat	(Hippsideros armiger)
10	Snow leopard	(Panthera unica)
11	Monkey	(Macaca mulatta)
12	Barking deer	(Munteicus muntisk)

13	Pigeon	(Columbia livia)
14	Mor	(Payo crisslatus)
15	Crow	(Crovus splendens)
16	Parrot	(Prottacula karneri)
17	House sparrow	(Parser domcrticus)
18	Cranes	(Grurs species)
19	Himalayan flycatcher	(Terpsibhous paradisi)
20	Wood pecker	(Picoides Macer)

1.9 CLIMATE OF THE AREA

The region has four distinct seasons. The area experiences severe winter from December to March followed by a servers summer season lasting from April to June. The area receives rainfall under the influence of the southwest monsoon from July to mid-September followed by the post-monsoon season lasting up to November.

The terrain in general has a profound influence on the temperatures of a region. The temperature generally rises from the beginning of March till June, which is the hottest month of the year with mean minimum and maximum temperature of 25.6°C to 44°C respectively. With the onset of monsoons by the end of June temperature begins to fall. The drop-in day temperature is much more than the drop in night temperature. The night temperature falls rapidly after the withdrawal of monsoons by mid-September. The month of January is the cooler month with the mean maximum and minimum temperature being 24°C and 1.7°C respectively. Under the influences of western disturbance, the temperature falls appreciably during winters and it may go even below 0° C.

Humidity is generally low throughout the year. During the summer season, humidity is lowest at 36 %. During monsoon months, it goes as high as 80-90%. The highest levels of humidity are observed in the month of August. The average humidity during synoptic hours is 53% and 62% respectively.

Table 1.34 : Showing climate of the leased out area district Sirmaur

CLIMATE OF THE LEASED OUT AREA DISTRICT SIRMAUR HIMACHAL PRADESH			
CLIMATE	WINTER	SUMMER	RAINY SEASON
PERIOD	OCT.-MID MARCH	MID MARCH -JUNE	JULY-SEPTEMBER
Weather	Cool	Hot	Humid

(2) ENVIRONMENT MANAGEMENT PLAN

2.1 Impact on Air

In riverbed manual mining, dust emissions are generated during various mining activities, material handling and due to plying of transportation trucks in the mine lease area and also on haul roads. The magnitude of mining is not very high and restricted to the limited area as such there is hardly any impact on the environment. The major part of dust emission can be caused due to vehicular movement which too at a smaller extent i.e. up to approach road which can be reduced by controlled vehicular movement.

Apart from these mitigation measures, the idle running of transport vehicles at the mine site shall be avoided. The sprinkling of water on the surface of haul roads and over the silt/clay disposal in the plantation area shall involve a major cost component of the works towards air pollution control.

2.2 Impact on Water

The major impact due to riverbed surface mining is the increased siltation owing to sediment particles coming under the influence of the current and due to the erosion of bank in the mine lease area. Spillage of stone and sand into the flowing water should be avoided during transportation. The plantation under the green belt programme shall also help in checking the erosion of the bank. Besides this, the ambient air noise level monitoring shall be periodically carried out at locations. For control of the toe erosion of banks retaining structures/Gabion structures shall have to be erected as per the approved mine plan.

There is no water source such as well or spring near the applied area and no mining operations shall be carried out under the flowing water hence, mining has no adverse impact on the flow of the river. Neither there is any intake of Kuhl within the lease area nor below the applied area, which could be affected by the mining operations.

2.3 Impact on Noise Level

The area is away from the habitation and the noise shall be caused only by plying tractors/tippers/trucks to bring mineral to the stone crusher site, which shall be kept under control by proper lubrication and the working would only be done during day time to keep noise level below the permissible limit prescribed. No blasting operations are involved as the process is only to lift the material manually and to load in tractors/tippers/trucks hence, the noise level will not exceed the required level.

On the other hand, the green belt shall be developed along with the haul road as well as in the area earmarked for plantation within the project area. The other types of equipment like earplug/muff and noise level monitoring during mining shall be provided under the occupational health and safety plan and environmental monitoring plan.

2.4 Waste Disposal Arrangement, if Any

The waste material shall be used for the maintenance of the approach road of the mining lease and the stone crusher unit as well as the road from the stone crusher unit connecting the main State Highway. If required, the waste shall be dumped in the private land of the mining lease holder near the stone crusher unit which shall, later on, be used in road filling, Granular sub-base (GSB) for road works and plantation works etc.

2.5 Socio-Economic benefits

The mining shall provide employment to approx. 45-50 local people who are unskilled and are in need of an additional source of income when they are free from agriculture engagements shall be helpful in raising additional sources of income. The raw material for the construction of local infrastructure will be available at a lower cost.

2.6 Transport of Mineral

The lease is in the river bed and there is very low to no traffic from the mining lease area to the stone crusher site. The extracted material shall be transported to the stone crushing unit located near the lease area. The lease is in the river bed and there is very low to no traffic from the mining lease area till the stone crusher site however; for the transportation of the loaded vehicles to the nearest approach road, the vehicles may pass through private as well as Govt. Lands. The project proponent shall be made necessary arrangements between landowners (Pvt. & Govt.) and will take care of other issues if any on his own for the mineral transportation to the nearest road.

As per proposed production, 66949 metric tonnes of material shall be transported in a year by trucks/tractors from the mining lease area up to the stone crusher unit. At this rate, only 223 metric tonnes of material shall be transported at an average per day (Total working days 300/year) for which an average of 25-26 trucks with 09 metric tonnes capacity are required.

PART-III

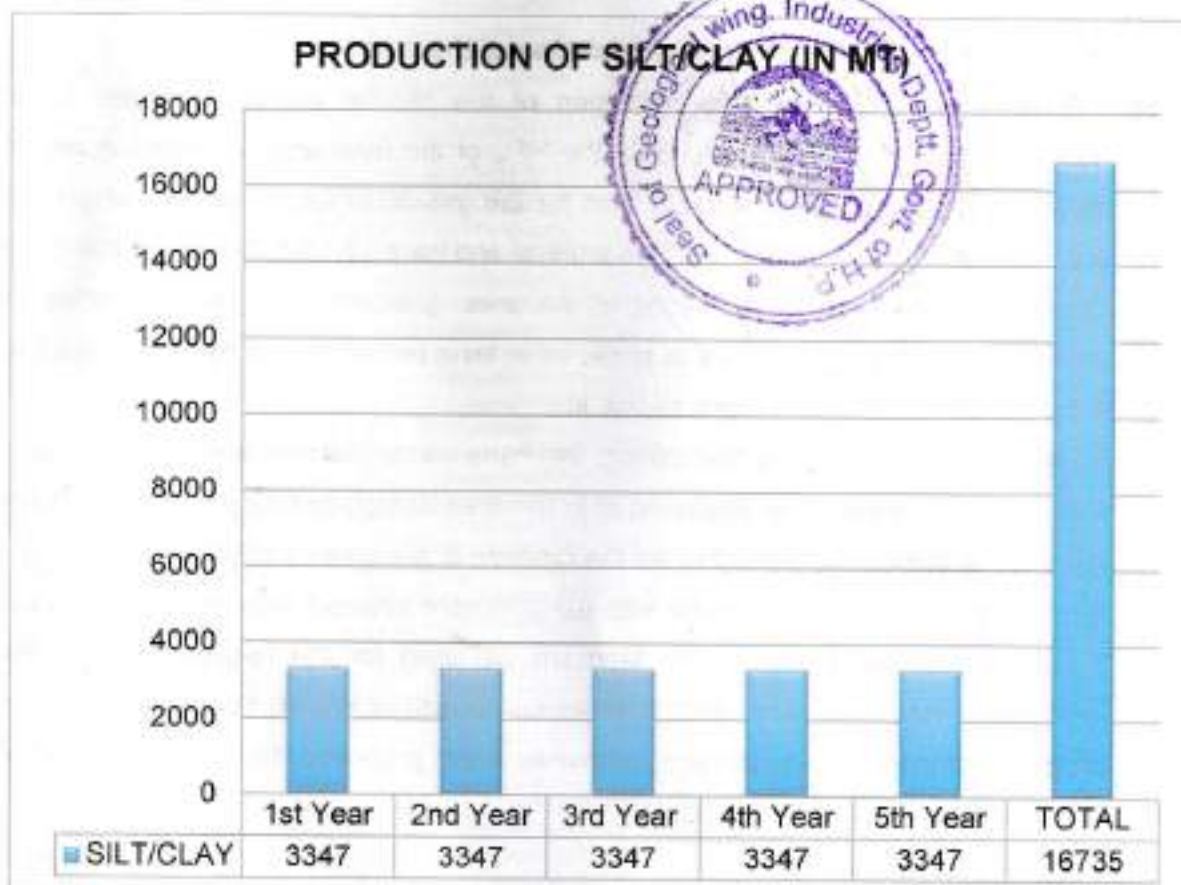
PROGRESSIVE MINE CLOSURE PLAN/ RECLAMATION PLAN

1.1 MINE WASTE DISPOSAL

a) Year wise generation of mine waste (Five Years)

Table 1.35 : Showing Year wise generation of mine waste

YEAR	SILT/CLAY
1st Year	3347
2nd Year	3347
3rd Year	3347
4th Year	3347
5th Year	3347
TOTAL	16735



1.26 - Graph Showing Year wise generation of mine waste

b) Year-wise disposal of waste and soil cover

The waste material shall be used for the maintenance of the approach road of the mining lease and the stone crusher unit as well as the road from the stone crusher unit connecting the main State Highway. If required, the waste shall be dumped in the private

land of the mining lease holder near the stone crusher unit which shall, later on, be used in road filling, Granular sub-base (GSB) for road works and plantation works etc.

c) Cost of Mine Waste Disposal

The material shall be brought to the dumpsite by trucks and it shall be a little addition to the mining cost which shall be around Rs. 10/- per tonne of waste. The total waste production in 5 years is 16735 tonnes. The total cost of dumping shall be around Rs. 1,67,350 in 5 years.

1.2 Top Soil Arrangement

There is no topsoil available in the riverbed.

1.3 Preventive Retaining Structures

As the whole of the mining lease area lies within the High Flood Levels of river Giri, no retaining structures can be constructed.

1.4 Plantation Work (Plantation and Re-grassing of the area)

- a) The area lies within the channelization of the regular course of River. As the maximum part of the area lies within the HFL of the river and is flooded during the rainy season which is not suitable land for the growth of any Plantation or grassing etc. However, in consultation with the experts and based on the characteristics of soil, topography and climatic conditions of the area, plantation of grasses/bushes and other tree species will be done in some other land owned by the applicant which will fit for the growth of fodder, flora, fauna, etc."
- b) In the present case of riverbed mining, the mine waste material is silt and clay which have been proposed to be disposed of in the area designated for plantation and shall be properly dressed and levelled for the creation of the green belt/plantation.
- c) Suitable private land is available with the applicant situated near to the mining area for plantation. Some part of the land will be used for the re-grassing and other vegetation, including trees which is fit for the growth of fodder, flora, fauna, etc. in a phased manner. The estimated year-wise area proposed for plantation and re-grassing of fodder etc. is as under:-

Table 1.38- Table showing Year wise area proposed for plantation

Sr. No	Year	Area in Sq. Mts.	No Of Plants
1	1 st Year	200	20
2	2 nd year	200	20
3	3 rd year	200	20

Mining plan of Mining lease area

4	4 th Year	200	20
5	5 th Year	200	20
	Total	1000	100

- d) The plantation/regressing and its maintenance cost will be borne by the applicant. Also, a green belt will be developed in consultation with the local panchayat and forest department along approach roads in order to minimize pollution.
- e) Based on the characteristics of soil, topography and climatic conditions of the area, plantation of grasses/bushes and other tree species will be done by the applicant.
- f) Plantation before the onset of the monsoon season will be done progressively until the final closure of the mine.
- g) Green Belt shall be properly designed in consultation with the forest department. Plantation shall be carried out as per the periodical plantation programme.
- h) Fast-growing and evergreen trees, trees with broadleaf resistance to specific pollutants and those which would maintain the regional ecological balance, soil and hydrological conditions shall be favoured.
- i) Green belt areas along the haul roads, riverbanks, dumping sites shall be developed.
- j) Besides this, only local labours shall be engaged for watch and ward and plantation activity with proper maintenance.
- k) The plantation/regressing and its maintenance cost will be borne by the applicant. Also, a green belt will be developed in consultation with the local panchayat and forest department along approach roads in order to minimize pollution.
- l) The estimated survival rate proposed to be achieved shall be 80%

(2) Strategy for protection of point of public utility etc.: -

There is no point of public utility or of interest that need to be protected while undertaking mining operations.

(3) Manpower development: -

Around 45-50 unskilled people shall be employed to carry on the mining and associated activities and preference shall be given to employing 100%, local people. Along with this, proper consultation will be taken from time to time from the geologist/Mine engineer and also possibilities of hiring them shall be explored as per the financial conditions of the project.

(4) Use of Mineral: -

The extracted minor mineral shall be used in the proposed stone crusher unit for manufacturing grit to be used for construction purposes and also additional requirements shall be explored to use the waste material in road construction and other works.

(5) Any other relevant information:-

A lot of construction activity in the private & Government sectors is going on. Grit is the basic requirement for construction material and there is a necessity for such activity to flourish so that the requirement of the material could be met locally.

In the mining lease area, the following safety measures will be adopted after anticipating the hazard risk:

- ✓ All the provisions of Mines Act 1952, Metalliferous Mines Regulations, 1961, Mineral Conservation and Development Rules, and other laws applicable to mine will be strictly complied with.
- ✓ Personnel working in dusty areas will be provided with wear protective respiratory devices.
- ✓ Experienced drivers with valid documents will be permitted for the transportation of minerals.
- ✓ Occupational health check ups for all the employees/workers should be undertaken periodically (on annual basis) to observe any changes due to exposure to dust, and corrective measures should be taken immediately if needed.
- ✓ All emergency nos, like the hospital, Police, fire service will be provided at the site. All mining personnel should be aware of the nearest health centres and hospitals. First aid kits will be provided at the site.
- ✓ All persons in supervisory capacity will be provided with proper communication facilities.
- ✓ Road signage shall be erect and maintained at appropriate stretches after assessment of the site.

CERTIFICATE

Minerals (Prevention of Illegal Mining, Transportation and Storage) Rules, 2015 Metalliferous Mines Regulation 1961 and other guidelines issued from time to time in this regard have complied with the preparation of the Mining Plan applied for the grant of mining lease for the extraction/collection of boulder stone, Bajri and sand over an area measuring 35-06 Bighas bearing Khasra Nos. 46/1, 47/1, 48/1, 49/1, 50, 51, 52/1, 55, 56 & 71 situated in Mauza/Mohal Bhatrog, Tehsil Paonta Sahib, District Sirmaur, Himachal Pradesh to be used in the already established stone crusher unit in the name and style as "M/s Shirgul Mines and Minerals in favour of M/s Shirgul Mines & Minerals, Part-II (Partnership Firm, Partners S/Shri Rishi Kumar Aggarwal, Naveen Kumar, Sher Singh & Manish Kumar) R/o House No. 133/E, Ward No. 6, Tehsil Paonta Sahib, Distt. Sirmour, Himachal Pradesh.

While preparing the mining plan including a progressive mine closure plan, all statutory rules, regulations, orders made by competent authorities of the State or Central Government or orders passed by Courts have been taken into consideration.

The information provided and the data furnished in this Mining Plan are correct to the best of my knowledge.

Date:

Place:



Arun Dhiman

S/o Sh. Jagan Nath,

Village & PO Dhaloon (Panchpuli),

Tehsil Nagrota Bagwan, District Kangra

Himachal Pradesh -176056

RQP No. H.P./ RQP/25/2/2019

Valid Up to 24-09-2024

Mobile No. 98165 79485

Email Id arundhiman77@yahoo.com

DECLARATION

This is to declare that the Mining Plan includes Progressive Mine Closure Plan of lease area applied for the grant of mining lease for the extraction/collection of boulder stone, bajri and sand over an area measuring 35-06 Bighas bearing Khasra Nos. 46/1, 47/1, 48/1, 49/1, 50, 51, 52/1, 55, 56 & 71 situated in Mauza/Mohal Bhatrog, Tehsil Paonta Sahib, District Sirmour, Himachal Pradesh to be used in the already established stone crusher unit in the name and style as "M/s Shirgul Mines and Minerals in favour of M/s Shirgul Mines & Minerals, Part-II (Partnership Firm, Partners S/Shri Rishi Kumar Aggarwal, Naveen Kumar, Sher Singh & Manish Kumar) R/o House No. 133/E, Ward No. 6, Tehsil Paonta Sahib, Distt. Sirmour, Himachal Pradesh has been prepared with my consent and approval and that we'll shall abide by all commitments thereunder.

"The Mining Plan and 'Progressive Mine Closure Plan' complies with all statutory rules, regulations, orders made by competent authorities of State or Central Government or orders passed by courts have been taken into consideration and wherever specific permission is required, shall be obtained.

We undertake to implement all the measures proposed in this Mining Plan and Progressive Mine Closure Plan in a time-bound manner.

We have deposited a sum of Rs with the competent authority of the State Government in form of a Fixed Deposit Receipt as a financial assurance of the same. In case of default on my/our part, the approval of the Mining Plan may be withdrawn and the aforesaid sum assured may be forfeited.

Date: -

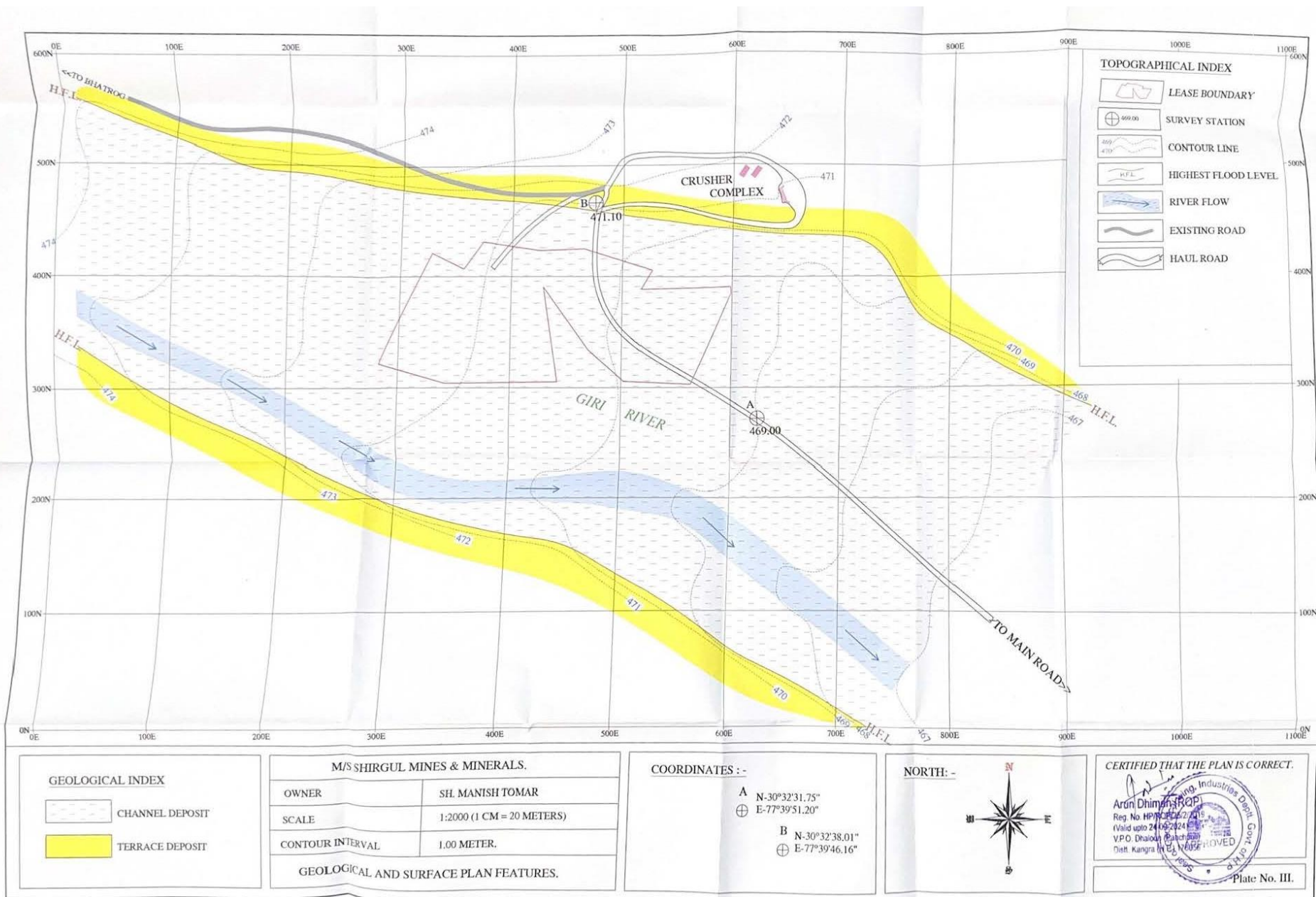
Place:-

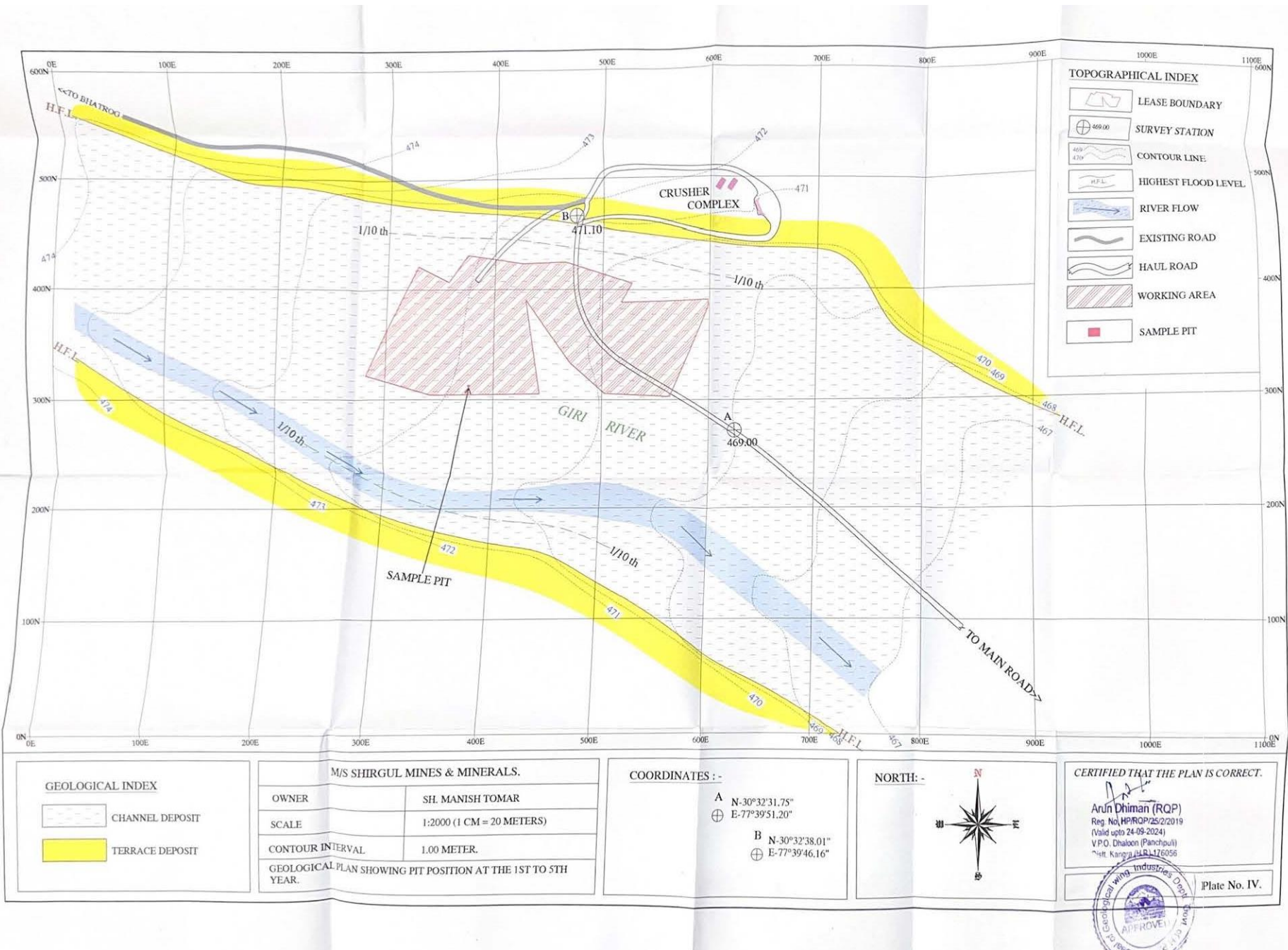
Applicant

M/s Shirgul Mines & Minerals, Part-II

Address

Partners S/Shri Rishi Kumar Aggarwal,
Naveen Kumar, Sher Singh & Manish
Kumar) R/o House No. 133/E, Ward No.
6, Tehsil Paonta Sahib, Distt. Sirmour,
Himachal Pradesh.





राजस्व विभाग, हिमाचल प्रदेश - नकल जमाबंदी

एस.सी.ए रसीद संख्या: 4382212202004469

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 सेवा शुल्क : 20
 कुल शुल्क : 21

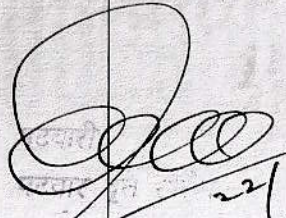
जिला : सिरमौर
 तहसील : कमराऊ
 कानूनगोवत : कमराऊ
 पटवार वत : सतौन
 हदबस्त न. : 20

मोहाल : भटरोग

साल : 2016-2017

रकबा ईकाई: बीघा-बि.-बि.

खेवट नं. नाम पत्नी या तरफ मय नाम नम्बरदार मुताबला व शरह मुआमला व हबब	खतौनी नं. लगान जो मुजारा अदा करता है व तफसील शरह व तदाद	नाम मालिक व एहवाल	नाम काश्तकार व एहवाल	नाम चाह व दीगर वसायल आबपाशी	नम्बर खसरा हाल	रकबा हर खेत व मिजान खाता मय किस्म अराजी मीट्रीक ईकाइयों में	हिस्सा या पैमाना हकीयत व तरीका बाछ	कैफियत
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14 मिन 14 बशरहा खेवट न. (1) 11.82 माल 6.39 स्वाई 5.43	37 37 X 11.82 माल 6.39 स्वाई 5.43	जीवन सिंह, खजान सिंह पुत्र मुन्शी राम पुत्र सोभा राम भाग बराबर स्थानिय वासी	बसन्त पुत्र हरी राम पुत्र जयसिंह स्थानिय वासी काबिज	झड़ वाली खाला कि कुहल	48 01-07-00 00-09-00 कहल अक्वल 00-18-00 गै.मु.बुर्द	रकबा हर खेत व मिजान खाता मय किस्म अराजी मीट्रीक ईकाइयों में	कब्जा व पड़ता बशरह खेवट न.(1) नोट:- बरूवे ई.न. 372 आइ रहन द्वारा खाता हजा से 1/2 भाग रकबा तादादी 18-4 बिघा बदले मु. 8,10,000/- (आठ लाख दस हजार) रुपये में मिन जानिब खजान सिंह पुत्र मुन्शीराम मालिक बहक कैजरा बैंक शाखा पांवटा साहिब के पास ता अदायगी कर्जा आइ रहन रहेगा। नोट:- बरूवे रपट न. 299 मिति 04-04-2014 के मुताबिक खाता हजा से सालम हिस्सा बदले मु. 7,00, 000/-(सात लाख) रुपये में मिन जानिब जीवन सिंह पुत्र मुन्शीराम मालिक बहक कोरपोरेशन बैंक पांवटा साहिब के पास ता अदायगी कर्जा बावत KCC Limit आइ रहन	न.ई. कि.ई. 357 फकल आइ रहन 372 आइ रहन नोट:- बरूवे ई.न. 372 आइ रहन द्वारा खाता हजा से 1/2 भाग रकबा तादादी 18-4 बिघा बदले मु. 8,10,000/- (आठ लाख दस हजार) रुपये में मिन जानिब खजान सिंह पुत्र मुन्शीराम मालिक बहक कैजरा बैंक शाखा पांवटा साहिब के पास ता अदायगी कर्जा आइ रहन रहेगा। नोट:- बरूवे रपट न. 299 मिति 04-04-2014 के मुताबिक खाता हजा से सालम हिस्सा बदले मु. 7,00, 000/-(सात लाख) रुपये में मिन जानिब जीवन सिंह पुत्र मुन्शीराम मालिक बहक कोरपोरेशन बैंक पांवटा साहिब के पास ता अदायगी कर्जा बावत KCC Limit आइ रहन

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		जोड़ भू-सम्पत्ति				<p>नोट:- क्रमिक ई. नं. 376 दिवस 1/2 भाग खजाना सिंह द्वारा क्र. 68 से 1/2 भाग खजाना सिंह के हक में अमृत कुमार चौहान सिंह दिनांक 28-3-2019 को (लिखा है)</p> <p> 22/12/2020 तहसील सिरमौर जिला सिरमौर</p>		<p>रहेगा (Has Executed govt. organisation transaction Deed. Vide Reg.No. 48/ 2018 Dated: 01/03/ 2018 In Favour Of L (Sh Khajan Singh पुत्र Sh Munshi Ram पुत्र Sh Sobha Ram Has Executed mortgage without possession Deed. Vide Reg.No. 68/ 2018 Dated: 29/03/ 2018 In Favour Of L (Khajan Singh पुत्र Sh Munshi Ram पुत्र Sh Sobha Ram Has Executed gift Deed. Vide Reg.No. 65/2019 Dated: 22/ 03/2019 In Favour Of Amit Chauhan पुत्र Sh Khajan Singh पुत्र Sh Munshi Ram).</p>

VLE VIKAS BANSAL
 LMR PAONTA SAHIB (URBAN)
 BLOCK PAONTA SAHIB
 DISTT. SIRMOUR (H.P.)
 Mob 9888822222, 9888833333

Certified that this copy has been generated from the database of Revenue Department as accessed by the Lok Mitra Kendra LMK Ponta (Urban) on 22-December-2020

To Verify, enter the Copy No above Bar Code at
<http://admis.hp.nic.in/himbhoomilmk>
 For Validity Refer : Notific. No:Rev-C(F)/10-1/2009 Dated 14-Feb-2011
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राजस्व विभाग, हिमाचल प्रदेश - नकल जमाबंदी

एस.सी.ए रसीद संख्या: 1076131925019486

जिला : सिरमौर
तहसील : कमराऊ
कानूनगोवत : कमराऊ
पटवार वृत्त : सतौन
हदबस्त न. : 20

नाम : A
पिता/पति : B

नकल शुल्क : 4.00
सेवा शुल्क : 30
कुल शुल्क : 34

मोहाल : भटरोग

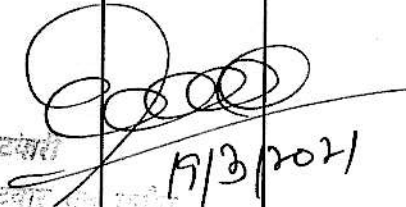
साल : 2016-2017

रकबा ईकाई: बीघा-बि.-बि.

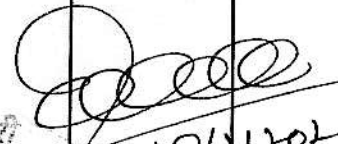
खेवट नं. नाम पत्नी या तरफ मय नाम नम्बरदार मुताबला व शरह मुआमला व हबब	खतौनी नं. लगान जो मुजारा अदा करता है व तफसील शरह व तदाद	नाम मालिक व एहवाल	नाम काश्तकार व एहवाल	नाम चाह व दीगर वसायल आबपाशी	नम्बर खसरा हाल	रकबा हर खेत व मिजान खाता मय किस्म अराजी मीट्रीक ईकाइयों में	हिस्सा या पैमाना हकीयत व तरीका बाछ	कैफियत
1	2	3	4	5	6	7	8	9
15	39	कुल भाग (32) तपेन्द्र सिंह, जोगेन्द्र सिंह पुत्र चेत सिंह पुत्र रूप सिंह भाग बराबर (7) भाग भगवान सिंह (7) भाग पुत्र व श्रीमति सुमित्रा देवी, श्रीमति रुक्मी देवी भाग बराबर (2) भाग पुत्रियां रूप सिंह पुत्र भूप सिंह सतीश कुमार, जयप्रकाश पुत्र व कुमारी बीना देवी, कुमारी किरण देवी पुत्रियां व श्रीमति शीला देवी विधवा शान्ती स्वरूप पुत्र जंगल भाग बराबर (2) भाग चम्बेल सिंह, रमेश, बहादुर सिंह, पंच राम, प्रताप सिंह पुत्र व श्रीमति हरदेवी भाग बराबर (12) भाग पुत्री व श्रीमति गुमान्नी देवी, श्रीमति बेली देवी भाग बराबर (2) भाग विधवाएँ जंगल पुत्र भूप सिंह स्थानिय वासी	कब्जा स्वयं	इड वाली खाला क कुहल	71	14-18-00 04-00-00 कूहल अक्वल 389 10-18-00 404	कब्जा व पडता बशरह खेवट न.(1) पराहा फि इड कुल नोट:- बरूवे ई.न. 355 आइ रहन द्वारा खाता हजा से 7/32 भाग रकबा तादादी 6-12 बिघा बदले मु. 6,00,000/- (छ: लाख) रुपये में मिन जानिब जोगेन्द्र सिंह, तपेन्द्र सिंह पुत्र चेत सिंह मालिक बहक The H.P. State Co-op. Agri. & Rural Dev. Bank Branch Paonta Sahib के पास ता अदायगी कर्जा आइ रहन रहेगा । नोट:- बरूवे रपट न. 122 मिति 22-11-2013 के मुताबिक खाता हजा से सालम हिस्सा बदले मु. 2,00, 000/- (दो लाख) रुपये में मिन जानिब भगवान सिंह पुत्र रूप	न.ई. कि.ई. 347 वरास्त 355 आइ रहन नोट:- बरूवे ई.न. 355 आइ रहन द्वारा खाता हजा से 7/32 भाग रकबा तादादी 6-12 बिघा बदले मु. 6,00,000/- (छ: लाख) रुपये में मिन जानिब जोगेन्द्र सिंह, तपेन्द्र सिंह पुत्र चेत सिंह मालिक बहक The H.P. State Co-op. Agri. & Rural Dev. Bank Branch Paonta Sahib के पास ता अदायगी कर्जा आइ रहन रहेगा । नोट:- बरूवे रपट न. 122 मिति 22-11-2013 के मुताबिक खाता हजा से सालम हिस्सा बदले मु. 2,00, 000/- (दो लाख) रुपये में मिन जानिब भगवान सिंह पुत्र रूप

नोट:- बरूवे ई.न. 389 पराहा पच राठ
पुत्र जंगल कूहल क्री चोदार पुत्र पचराठ व
श्रीमति गुमान्नी देवी, पुत्रियां ललामाग निना
10-1-2017 को लीबा (ई)
नोट:- बरूवे ई.न. 404 पराहा पच राठ
पुत्र जंगल कूहल क्री चोदार पुत्र पचराठ व
श्रीमति गुमान्नी देवी, पुत्रियां ललामाग निना
10-1-2017 को लीबा (ई)
19/3/2021
तहसील कमराऊ जिला सिरमौर

1	2	3	4	5	6	7	8	9
								सिंह मालिक बहक कोरपोरेशन बैंक पांवटा साहिब के पास बावत KCC Limit ताप अदायगी कर्जा आइ रहन रहेगा <i>(Kumari Beena Devi</i> <i>पुत्री Sh Shanti</i> <i>Swaroop पुत्र -</i> <i>Kumari Kiran पुत्री</i> <i>Sh Shanti Swaroop</i> <i>पुत्र - Has Executed</i> <i>instrument of</i> <i>release Deed, Vide</i> <i>Reg.No. 154/2020</i> <i>Dated: 07/08/2020</i> <i>In Favour Of</i> <i>Satish Kumar पुत्र sh</i> <i>Shanti Swaroop</i> <i>पुत्र - Jai Prakash</i> <i>पुत्र Sh Shanti</i> <i>Swaroop पुत्र -).</i>
40			काश्त व कब्जा स्वयं भगवान सिंह, तपेन्द्र सिंह, जोगेन्द्र सिंह हिस्सादारान	झंड वाली खाला की 12 कुहल	20	01-06-00 कुहल अव्वल 05-17-00 01-00-00 ओबड़ अव्वल 04-17-00 नाकाबिल जंगल झाड़ी 02-12-00 02-10-00 ओबड़ अव्वल 00-02-00 गै.मु.आबादी		
40					21			
						किता 3	09-15-00	


 17/3/2021
 पटवार
 पटवार
 तह 0 जमरद जिला सिराई

1	2	3	4	5	6	7	8	9
					कृष्ट 04-16-00 कुहल अक्वल 01-06-00 ओबड़ अक्वल 03-10-00	अकृष्ट 04-19-00 नाकाबिल 04-17-00 गैर मुमकिन। 00-02-00		
41			काशत स्वयं चम्बेल सिंह, रमेश, बहादुर सिंह, पंच राम, प्रताप सिंह, सतीश कुमार, जयप्रकाश, कुमारी बीना देवी, कुमारी किरण देवी, श्रीमति हरदेवी, श्रीमति गुमानी देवी, श्रीमति बेला देवी, श्रीमति शीला देवी हिस्सादारान	झड़ वाली खाला की 11 कुहल		02-01-00 कुहल अक्वल		
42			जीवन सिंह, खजान सिंह पुत्र मुन्शीराम पुत्र सोभाराम स्थानिय वासी काबिजान	46 झड़ वाली खाला की कुहल	किता 6	03-10-00 00-10-00 गै.मु.बुर्द 03-00-00 कुहल अ. बगीचा आम 30-04-00		
42					कृष्ट 13-17-00 कुहल अक्वल 07-07-00 कुहल अ. बगीचा आम 03-00-00 ओबड़ अक्वल 03-10-00	अकृष्ट 16-07-00 नाकाबिल 04-17-00 गैर मुमकिन। 11-10-00		
X.		जोड़ भू-सम्पत्ति						


 परकारी
 19/3/2021
 तहसील काबिजान

PS Clerk

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KAMRAU as accessed by the Lok Mitra Kendra LMK SHAMSHERPUR on 17-March-2021

निकनेट : हिमाचल प्रदेश - शिमला

दिनांक: 17-Mar-2021

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For Validity Refer : Notific. No:Rev-C(F)/10-1/2009 Dated 14-Feb-2011

Jam11062065449



पृष्ठ संख्या: 4

राजस्व विभाग, हिमाचल प्रदेश - नकल जमाबंदी

जिला : सिरमौर
तहसील : कमराऊ
कानूनगोवत : कमराऊ
पटवार वृत : सतौन
हदबस्त न. : 20

एस.सी.ए रसीद संख्या: 1076134025229842

नाम : A
पिता/पति : B

नकल शुल्क : 3
सेवा शुल्क : 20
कुल शुल्क : 23

मोहाल : भटरोग

साल : 2016-2017

रकबा ईकाई: बीघा-बि.-बि.

खेवट नं.	खतौनी नं.	नाम मालिक व एहवाल	नाम काश्तकार व एहवाल	नाम चाह व दीगर वसायल आबपाशी	नम्बर खसरा हाल	रकबा हर खेत व मिजान खाता मय किस्म अराजी मीट्रीक ईकाइयों में	हिस्सा या पैमाना हकीयत व तरीका बाछ	कैफियत
1	2	3	4	5	6	7	8	9
3	4	कुल भाग (2) बसन्त पुत्र हरी राम पुत्र	काश्त व कब्जा स्वयं	झंड वाली खाला क 3		03-14-00	कब्जा व पड़ता बरह	नोट:- बरुवे रपट न. 108
3	4	जयसिंह (1) भाग नेतर सिंह, सुभाष, सतपाल		कुहल		01-12-00	खेवट न.(1)	मिति 19-11-2012 के
.....	पुत्र बसन्त पुत्र हरी राम भाग बराबर		झंड वाली खाला क 4 म		00-16-00	मुताबिक खाता हजा से सालम	हिस्सा बदले मु. 80,000/-
बशरहा खेवट न.		(1) भाग स्थानिय वासी		कुहल		09-08-00	हिसा मु. 80,000/-	(अस्सी हजार) रुपये में मिन
(1)				झंड वाली खाला क 7 म		07-05-00	जाजिब सुभाष, सतपाल पुत्र	बसन्त मालिक बहक यहाँ बैंक
12.36				कुहल	49	02-03-00	सतौन के पास ता अदायगी कर्जा	आइ रहन रहेगा 10 मय खाता न.
माल				झंड वाली खाला क		00-11-00	23	नोट:- बरुवे रपट न. 469
6.68				कुहल	50	16-01-00	मिति 08-08-2014 के	मुताबिक खाता हजा से सालम
स्वाई								हिस्सा बदले मु. 3,00,
5.68								000/- (तीन लाख) रुपये में
								मिन जाजिब बसन्त पुत्र हरीराम
								व नेतर सिंह पुत्र बसन्त
								मालिक बहक हि0प्र0 राज्य
								सहकारी बैंक शाखा सतौन के पास
								ता अदायगी कर्जा आइ रहन रहेगा
								1 मय अराजी मौजा पौका

पटवारी
पटवारी
तह0 कमराऊ जिला सिरमौर

दिनांक: 17-Mar-2021

नेकनेट : हिमाचल प्रदेश - शिमला

पृष्ठ संख्या: 1

राजस्व विभाग. हिमाचल प्रदेश - नकल जमाबंदी

एस.सी.ए रसीद संख्या: 1076134225252844

जिला : सिरमौर
तहसील : कमराऊ
कानूनगोवत : कमराऊ
पटवार वत : सतौन
हदबस्त न. : 20

नाम : A
पिता/पति : B

नकल शुल्क : 1
सेवा शुल्क : 10
कुल शुल्क : 11

मोहाल : भटरोग

साल : 2016-2017

रकबा ईकाई: बीघा-बि.-बि.

खेवट नं. नाम पत्नी या तरफ मय नाम नम्बरदार मुताबला व शरह मुआमला व हबब	खतौनी नं. लगान जो मुजारा अदा करता है व तफसील शरह व तदाद	नाम मालिक व एहवाल	नाम काश्तकार व एहवाल	नाम चाह व दीगर वसायल आबपाशी	नम्बर खसरा हाल	रकबा हर खेत व मिजान खाता मय किस्म अराजी मीट्रीक ईकाइयों में	हिस्सा या पैमाना हकीयत व तरीका बाछ	कैफियत
1	2	3	4	5	6	7	8	9
4	7	कुल भाग (2) शुपा राम, बलदेव सिंह पुत्र	काश्त व कब्जा स्वयं		51	04-16-00	कब्जा व पड़ता बशरह	न.ई. कि.ई.
4	7	मुख राम पुत्र देवी सिंह भाग बराबर (1)			52	गै.मु.बुर्द 05-04-00 04-00-00 कहल अचवल 01-04-00 गै.मु.बुर्द	खेवट न.(1)	360 फकल आड रहन 373 आड रहन नोट:- बरुवे ई.न. 373 आड रहन द्वारा खाता हजा से सालम हिस्सा बदले मु. 3.00, 000/- (तीन लाख) रुपये में मिन जानिबा बलदेव सिंह पुत्र मुखराम मालिक बहक The H. P. State Co- operative Agri. and Rural Dev. Bank Ltd. Branch Paonta Sahib के पास ता अदायगी कर्जा आड रहन रहेगा । मय खाता न. 5 । मय मौजा पौका
बशरहा खेवट न. (1)		भाग रती राम पुत्र देवी सिंह पुत्र देवी राम (1) भाग स्थानिय वासी		झाड वाली खाला के कुहल	किता 2 कृष्ट कहल अचवल 04-00-00	10-00-00 अकृष्ट गैर मुमकिन। 06-00-00		
3.02 माल 1.63 स्वाई 1.39								

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पटवारी सतौन
तहसील कमराऊ जिला सिरमौर
19/3/2021



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निकनेट : हिमाचल प्रदेश - शिमला

दिनांक: 17-Mar-2021

पृष्ठ संख्या: 1

राजस्व विभाग, हिमाचल प्रदेश - नकल जमाबंदी

एस.सी.ए रसीद संख्या: 1076133325166955

जिला : सिरमौर
तहसील : कमराऊ
कानूनगोवत : कमराऊ
पटवार वत : सतौन
हदबस्त न. : 20

नाम : A
पिता/पति : B

नकल शुल्क : 4
सेवा शुल्क : 40
कुल शुल्क : 44

मोहाल : भटरोग

साल : 2016-2017

रकबा ईकाई: बीघा-बि.-बि.

खेवट नं. नाम पत्नी या तरफ मय नाम नम्बरदार मुताबला व शरह मुआमला व हदब	खतौनी नं. लगान जो मुजारा अदा करता है व तफसील शरह व तदाद	नाम मालिक व एहवाल	नाम काश्तकार व एहवाल	नाम चाह व दीगर वसायल आबपाशी	नम्बर खसरा हाल	रकबा हर खेत व मिजान खाता मय किस्म अराजी मीट्रीक ईकाइयों में	हिस्सा या पैमाना हकीयत व तरीका बाछ	कैफियत
1	2	3	4	5	6	7	8	9
14	35	जीवन सिंह, खजान सिंह पुत्र मुन्शी राम	काश्त व कब्जा स्वयं	झड़ वाली खाला के	10	01-04-00	कब्जा व पड़ता बरहर	न.ई. कि.ई.
14	35	पुत्र सोभा राम भाग बराबर स्थानिय वासी		कुहल	22	02-13-00	खेवट नं.(1)	357 फकल आड रहन
बशरहा खेवट न.						02-08-00	7-5 फल 10.63	372 आड रहन
(1)						ओबड़ अक्वल	384 फल 10.24	नोट:- बरुवे ई.न. 372 आड
11.82						00-05-00	नोट:- 10.15- 2038 फल	रहन द्वारा खाता हजा से 1/2
माल						नाकाबिल तोड़ा	फल 10.24 ले (फाल् इना)	भाग रकबा तादादी 18-4 बिघा
6.39					23	07-07-00	रकबा 10.24 ले (फाल् इना)	बदले मु. 8,10,000/-
स्वाई						02-07-00	रकबा 10.24 ले (फाल् इना)	(आठ लाख) दस हजार रुपये में
5.43						ओबड़ अक्वल	8,10,000/केन 1/2 केन 1/2	मिन जानिब खजान सिंह पुत्र
						01-00-00	रकबा 10.24 ले (फाल् इना)	मुन्शीराम मालिक बहक केनरा बैंक
						नाकाबिल तोड़ा	इन्तफाज मिति 26-2-2018	शाखा पांवटा साहिब के पास ता
						04-00-00	को हकीयत है	अदायगी कर्जा आड रहन रहेगा।
					47	गै.मु.बुर्द		नोट:- बरुवे रपट न. 299
						02-08-00		मिति 04-04-2014 के
						02-00-00		मुताबिक खाता हजा से सालम
						कुहल अक्वल		हिस्सा बदले मु. 7,00,
						00-08-00		000/-(सात लाख) रुपये में
					56	गै.मु.बुर्द		मिन जानिब जीवन सिंह पुत्र
						06-14-00		मुन्शीराम मालिक बहक कोरपोरेशन
						02-10-00		बैंक पांवटा साहिब के पास ता
						कुहल अक्वल		अदायगी कर्जा
								बावत KCC Limit आड रहन

			कुहल		04-04-00 गै.मु.बुर्द 01-17-00 बंजर कदीम 02-00-00 कुहल अक्वल 00-13-00 गै.मु.बुर्द 11-12-00 03-00-00 कुहल अक्वल 08-12-00 गै.मु.बुर्द	रहेगा (Has Executed govt. organisation transaction Deed. Vide Reg.No. 48/ 2018 Dated: 01/03/ 2018 In Favour Of Sh Khajan Singh पुत्र Sh Munshi Ram पुत्र Sh Sobha Ram Has Executed mortgage without possession Deed. Vide Reg.No. 68/ 2018 Dated: 29/03/ 2018 In Favour Of Sh Khajan Singh पुत्र Sh Munshi Ram पुत्र Sh Sobha Ram Has Executed gift Deed. Vide Reg.No. 65/2019 Dated: 22/ 03/2019 In Favour Of Armit Chauhan पुत्र Sh Khajan Singh पुत्र Sh
			झंड वाली खाला क 66 म कुहल	68	किता 9 36-08-00	नई. कि.ई. 348 फकल आड रहन
			झंड वाली खाला क कुहल	73	सालम 7 मिल 2 कुष्ट 15-09-00 कुहल अक्वल 10-14-00 ओबड़ अक्वल 04-15-00	अकुष्ट 20-19-00 बंजर कदीम 01-17-00 नाकाबिल 01-05-00 गैर मुमकिन। 17-17-00
36			कुल भाग (3) खजान सिंह पुत्र थुपाराम पुत्र काहन सिंह (1) भाग पूर्ण सिंह पुत्र सीताराम पुत्र काहन सिंह (1) भाग भीम सिंह पुत्र काहन सिंह पुत्र नत्थवा (1) भाग स्थानिय	झंड वाली खाला क 57 म कुहल	00-16-00 कुहल अक्वल	पटवारी 19/3/2021 तहसील कनकट मिला सिरमौर
36						
.X.						

		वासी काबिजान						
37		बसन्त पुत्र हरी राम पुत्र जयसिंह स्थानिय			48	01-07-00		
37		वासी काबिज				00-09-00		
X.			झड़ वाली खाला के			कहल अक्वल		
			कुहल			00-18-00		
						गै.मु.बुर्द		
38		चेत सिंह, भगवान सिंह पुत्र रूपसिंह पुत्र			57 म	00-13-00		
38		भूपसिंह भाग बराबर स्थानिय वासी काबिजान				00-11-00		
X.			झड़ वाली खाला के			कहल अक्वल		
			कुहल			00-02-00		
					66 म	गै.मु.बुर्द		
						00-10-00		
						00-08-00		
			झड़ वाली खाला के			कहल अक्वल		
			कुहल			00-02-00		
						गै.मु.बुर्द		
					किता 2	01-03-00		
					सालम 0			
					मिन 2			
					कुष्ट	अकुष्ट		
					कहल अक्वल	गैर मुमकिन।		
					00-19-00	00-04-00		
		जोड़ काबिजान			किता 3	03-06-00		
					सालम 1			
					मिन 2			
					कुष्ट	अकुष्ट		

पटवारी

पटवारी का नाम

पहल फ. जिला सिरमौर

1	2	3	4	5	6	7	8
		जोड़ भू-सम्पत्ति			कृहल अव्वल 02-04-00 किता 13 सालम 8 मिल 5 कृह 17-13-00 कृहल अव्वल 12-18-00 ओबड़ अव्वल 04-15-00	गैर मुमकिन। 01-02-00 39-14-00 अकृह 22-01-00 बंजर कदीम 01-17-00 नाकाबिल 01-05-00 गैर मुमकिन। 18-19-00	

पटवारी

पटवार एवम् जमीन

तहसील कलाक जिला सिरमौर

19/3/2021

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To Verify; enter the Copy No above Bar Code at <http://admis.hp.nic.in/himbhoomilmk>

For Validity Refer : Notific. No:Rev-C(F)/10-1/2009 Dated 14-Feb-2011

Jam 11



निकनेट : हिमाचल प्रदेश - शिमला

दिनांक: 17-Mar-2021

पृष्ठ संख्या: 4

राजस्व विभाग, हिमाचल प्रदेश - नकल जमाबंदी

एस.सी.ए रसीद संख्या: 1076134425274944

जिला : सिरमौर
तहसील : कमराऊ
कानूनगोवृत : कमराऊ
पटवार वृत : सतौन
हदबस्त न. : 20

नाम : A
पिता/पति : B

नकल शुल्क : 7
सेवा शुल्क : 50
कुल शुल्क : 57

मोहाल : भटरोग

साल : 2016-2017

रकबा ईकाई: बीघा-बि.-बि.

खेवट नं.	खतौनी नं.	नाम मालिक व एहवाल	नाम काश्तकार व एहवाल	नाम चाह व दीगर वसायल आबपाशी	नम्बर खसरा हाल	रकबा हर खेत व मिजान खाता मय किस्म अराजी मीट्रीक ईकाइयों में	हिस्सा या पैमाना हकीयत व तरीका बाछ	कैफियत
1	2	3	4	5	6	7	8	9
12	24	कुल भाग (12) कन्ठीराम, बलवीर सिंह पुत्र मोहर सिंह पुत्र शिबू भाग बराबर (3) भाग जीवन सिंह, जोगीराम पुत्र नन्दा पुत्र शिबू भाग बराबर (8) भाग रामभज, धनवीर सिंह, ओम प्रकाश, सुमेर चन्द पुत्र व श्रीमति सत्या देवी पुत्री श्रीमति दुर्गा देवी पुत्री नन्दा भाग बराबर (1) भाग स्थानिय वासी	कब्जा मालकान		14 म 19 55	00-03-00 गै.मु.आबादी 01-09-00 गै.मु.रास्ता 04-04-00 गै.मु.बुर्द 05-16-00	कब्जा व पडता बशरह खेवट न.(1)	न.ई. कि.ई. 359 सेहत नामसेहत नाम 365 आड रहन 366 वरास्त बदर न. 1 बदर न. 2 नोट:- बरुवे रपट न. 173 दिनांक 19-11-2009 के मुताबिक खाता हजा से 1/4 भाग तादादी 0-17 बिघा मिन जानिब नन्दा पुत्रशिबू बहक The Sataun Co-operative Multi Purpose Society Ltd. Sataun के पास बदले मु. 35,000/- (पैन्तीसहजार रुपये) में आड रहन है। नोट:- बरुवे ई.न. 365 आड रहन द्वारा खाता हजा से 1/4 भाग रकबा तादादी 4-18 बिघा व

पटवारी
पटवार
तह 0 कमराऊ जिला सिरमौर
19/3/2021

मौजा पौका से हिस्सा 1/3
भाग रकबा तादादी 5-18 बिघा
कुल 10-16 बिघा बदले मु.
2,00,000/- (दो लाख)
रुपये में मिन जानिब जोगीराम
पुत्र नन्दा मालिका बहक
हि0प्र0 राज्य सहकारी कृषि
ऐव ग्रामीण विकास बैंक शाखा
पांवटा साहिब के पास ता अदायगी
कर्जा आइ रहन रहेगा ।

नोट:- बरूवे रपट न. 310
मिति 26-02-2009 के
मुताबिक खाता हजा से सालम
हिस्सा बदले मु. 45,000/-
(पैन्तालिस हजार)0 रुपये मिन
जानिब जीवन सिंह पुत्र नन्दा
मालिक बहक हि0प्र0 राज्य
सहकारी बैंक शाखा सतौन के पास
ता अदायगी कर्जा आइ रहन रहेगा

25

25

काशत व कब्जा स्वयं कन्ठीराम, बलवीर सिंह
हिस्सादारान

झड वाली खाला की 14 म

कुहल

झड वाली खाला की 145/131/41 म

कुहल

54 म

झड वाली खाला की

कुहल

01-08-00

कुहल अव्वल

00-04-00

कुहल अव्वल

00-12-00

00-10-00

कुहल अव्वल

00-02-00

गै.मु.बुर्द

02-04-00

किता 3

सालम 0

पञ्चमी
पञ्चमी
तह 0 कानरज जिला मारनौर

19/3/2021

				मिल 3			
				बटा 1			
				कुष्ठ		अकुष्ठ	
				कहल अव्वल		गैर मुमकिन।	
				02-02-00		00-02-00	
26			कन्ठीराम, बलवीर सिंह भाग बराबर हिस्सादारान	झड वाली खाला की 144/131/41		01-09-00	
26			बायान कुल भाग (2) हिरदा राम पुत्र जालम	कुहल		कहल अव्वल	
.....			सिंह पुत्र शिब राम (1) भाग देविन्द्र,				
माल .50 स्वाई			राजेन्द्र पुत्र व श्रीमति बबीता, श्रीमति				
33 कुल .83			कविता, श्रीमति ललीता पुत्रियां व श्रीमति				
			पुन्नी विधवा बस्ती राम पुत्र जालम सिंह भाग				
			बराबर (1) भाग स्थानिय वासी मुश्त्रीयान				
			काश्त स्वयं मुश्त्रीयान				
			जोड़ कन्ठीराम आदि हिस्सादारान				
				किता 4		03-13-00	
				सालम 1			
				मिल 3			
				बटा 2			
				कुष्ठ		अकुष्ठ	
				कहल अव्वल		गैर मुमकिन।	
				03-11-00		00-02-00	
27			काश्त व कब्जा स्वयं जीवन सिंह, जोगीराम,	झड वाली खाला की 14 म		01-07-00	
27			रामभज, सुमेर चन्द, धनवीर सिंह, ओम प्रकाश,	कुहल		कहल अव्वल	
.....			श्रीमति सत्या देवी हिस्सादारान	झड वाली खाला की 145/131/41 म		01-18-00	
				कुहल		कहल अव्वल	
				54 म		00-11-00	
				झड वाली खाला की		00-08-00	
						कहल अव्वल	

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काशत व कब्जा स्वयं जीवन सिंह, जोगीराम
हिस्सादारान

कुहल

00-03-00

गै.मु.बुर्द

किता 3

03-16-00

सालम 0

मिन 3

बटा 1

कृष्ट

अकृष्ट

कुहल अव्वल

गैर मुमकिन।

03-13-00

00-03-00

झड वाली खाला की 14 म

02-00-00

कुहल

कुहल अव्वल

झड वाली खाला की 129/41 म

00-17-00

कुहल

कुहल अव्वल

54 म

01-03-00

01-00-00

झड वाली खाला की

कुहल अव्वल

कुहल

00-03-00

गै.मु.बुर्द

किता 3

04-00-00

सालम 0

मिन 3

बटा 1

कृष्ट

अकृष्ट

कुहल अव्वल

गैर मुमकिन।

03-17-00

00-03-00

जोगीराम, जीवन सिंह हिस्सादारान बायान जीवन

झड वाली खाला की 130/41

02-04-00

न.ई.

कि.ई.

29

माल .45 स्वाई

29 कुल .74

30

30

X.

जोड़ भू-सम्पत्ति

सिंह पुत्र नन्दा पुत्र शिबू स्थानिय वासी
मुश्तरी काश्त स्वयं मुश्तरी

जोड़ जोगीराम आदि हिस्सादारान

गुमनासिंह पुत्र खोखाराम पुत्र देवीसिंह
स्थानिय वासी काबिज

कुहल

झड़ वाली खाला

कुहल

किता 4

सालम 1

मिल 3

बटा 2

कुहल

कुहल अव्वल

06-01-00

कुहल अव्वल

06-04-00

अकुहल

गैर मुमकिन।

00-03-00

01-13-00

कुहल अव्वल

03-00-00

बंजर कदीम

किता 2

04-13-00

सालम 1

मिल 1

बटा 1

कुहल

कुहल अव्वल

01-13-00

अकुहल

बंजर कदीम

03-00-00

किता 16

24-02-00

सालम 5

मिल 1

बटा 6

कुहल

कुहल अव्वल

14-18-00

अकुहल

09-04-00

बंजर कदीम

03-00-00

गैर मुमकिन।

पञ्चगती

पञ्चगती

तह 0 पञ्चगती जिला गिरमौर

पृष्ठ संख्या: 5

1	2	3	4	5	6	7	8	9
						06-04-00		

पटवारी
 पञ्चर 19/3/2021
 तह ० कसरत गिला तिरपौर

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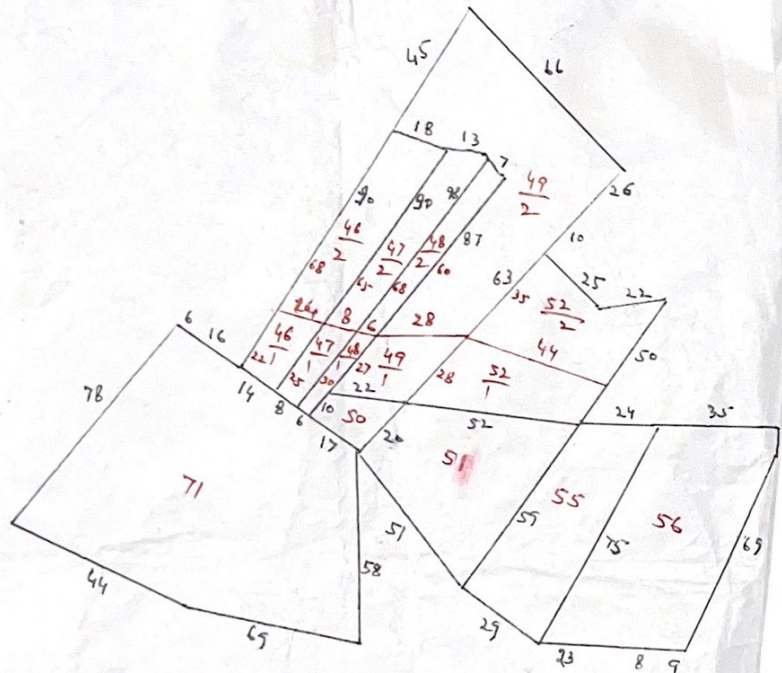
निकनेट : हिमाचल प्रदेश - शिमला

दिनांक: 17-Mar-2021

पृष्ठ संख्या: 6



कमल तृतीया मोका योजना संलग्न नं० १८ तहसील कमल जिला सिलगूरि हि० प्र०
पमाना नं० ५० बेलं दी र-३



फील्ड बुक

नं०/प्र०/सं०	नं०/प्र०/सं०	वर्ग/प्र०/सं०	वर्ग/प्र०/सं०
46	46/1	28(12+11) = 322	0-16 नै० बु०
	46/2	बाकी माना बर-वरा	2-14 . . .
47	47/1	28(8+7) = 218	3-10 . . .
	47/2	बाकी माना बर-वरा	0-11 नै० बु०
48	48/1	31(5+5) = 155	1-17 . . .
	48/2	बाकी माना बर-वरा	2-8 . . .
49	49/1	31(12+7) = 294	0-8 नै० बु०
	49/2	बाकी माना बर-वरा	0-19 . . .
52	52/1	58(12+10) = 668	1-7 . . .
	52/2	बाकी माना बर-वरा	0-15 नै० बु०
			8-13 . . .
			9-8 . . .
			1-13 नै० बु०
			3-17 . . .
			5-4 . . .

नं० ५०, ५१, ५२, ५३, ५४, ५५, ५६, ५७, ५८, ५९, ६०, ६१, ६२, ६३, ६४, ६५, ६६, ६७, ६८, ६९, ७०, ७१, ७२, ७३, ७४, ७५, ७६, ७७, ७८, ७९, ८०, ८१, ८२, ८३, ८४, ८५, ८६, ८७, ८८, ८९, ९०, ९१, ९२, ९३, ९४, ९५, ९६, ९७, ९८, ९९, १००
नै० ५०, ५१, ५२, ५३, ५४, ५५, ५६, ५७, ५८, ५९, ६०, ६१, ६२, ६३, ६४, ६५, ६६, ६७, ६८, ६९, ७०, ७१, ७२, ७३, ७४, ७५, ७६, ७७, ७८, ७९, ८०, ८१, ८२, ८३, ८४, ८५, ८६, ८७, ८८, ८९, ९०, ९१, ९२, ९३, ९४, ९५, ९६, ९७, ९८, ९९, १००
नै० ५०, ५१, ५२, ५३, ५४, ५५, ५६, ५७, ५८, ५९, ६०, ६१, ६२, ६३, ६४, ६५, ६६, ६७, ६८, ६९, ७०, ७१, ७२, ७३, ७४, ७५, ७६, ७७, ७८, ७९, ८०, ८१, ८२, ८३, ८४, ८५, ८६, ८७, ८८, ८९, ९०, ९१, ९२, ९३, ९४, ९५, ९६, ९७, ९८, ९९, १००

पटवारी
११-१०-२१

पटवारी
११/१०/२०२१
पटवारी
११-१०-२१
तहसील कमल जिला सिलगूरि

नतीजा मुताबिक मोका के दावे हैं एवं मेरे।
लायल नैमा (कल उजाला) सी० नं० २६ पार

कार्यालय ग्राम पंचायत पोका

Annex-A

विकास खण्ड पांवटा साहिब जिला सिरमौर (हि०प्र०)

क्रमांक.....

दिनांक 26-10-2018.....

आज दिनांक 02-10-2018.....को ग्राम पंचायत पोका की प्रथम/द्वितीय मासिक/ग्राम सभा/विषय की बैठक प्रधान श्री. माली शीलादेवी.....की अध्यक्षता में समय 11:00.....बजे कार्यालय ग्राम पंचायत में बुलाई गई। जिसमें निम्न कार्यवाही की गई। उपस्थिति 132/.....रही।
नकल प्रस्ताव संख्या. 22..... 452 पं परिवार

विषय-शिरगुल भाईन्स रून्ड मिनिस्टर्स 2 भट्टरोग के डोनापति बारे:-

लेख में यह प्रस्ताव ग्राम सभा द्वारा सर्व-सम्मती से रखा गया वृ पास किया गया कि यदि ग्राम पंचायत-पोका के भट्टरोग में शिरगुल भाईन्स रून्ड मिनिस्टर्स 2 भट्टरोग में खन्म उद्योग भा कृ शर लगवाती है तो ग्राम पंचायत-पोका को कोई आपति नहीं है। जिसका खसरा नं०= 71, 43/1, 46/47/1, 48/1, 49/1, 52/1, 51, 55, 56 तथा 50 है। प्रस्ताव ग्राम सभा सदस्यों द्वारा सर्वसम्मती से पारित किया गया।
श्री माली

प्रस्ताव जन्मलनकापेवाही रजिस्टर मुताबिक असल है।

पंचायत सचिव
ग्राम पंचायत पोका...
विकास खण्ड पांवटा साहिब

प्रधान शीलादेवी
ग्राम पंचायत पोका
विख पांवटा साहिब (हि.प्र.)

Date: 04.06.2025

Environmental Policy

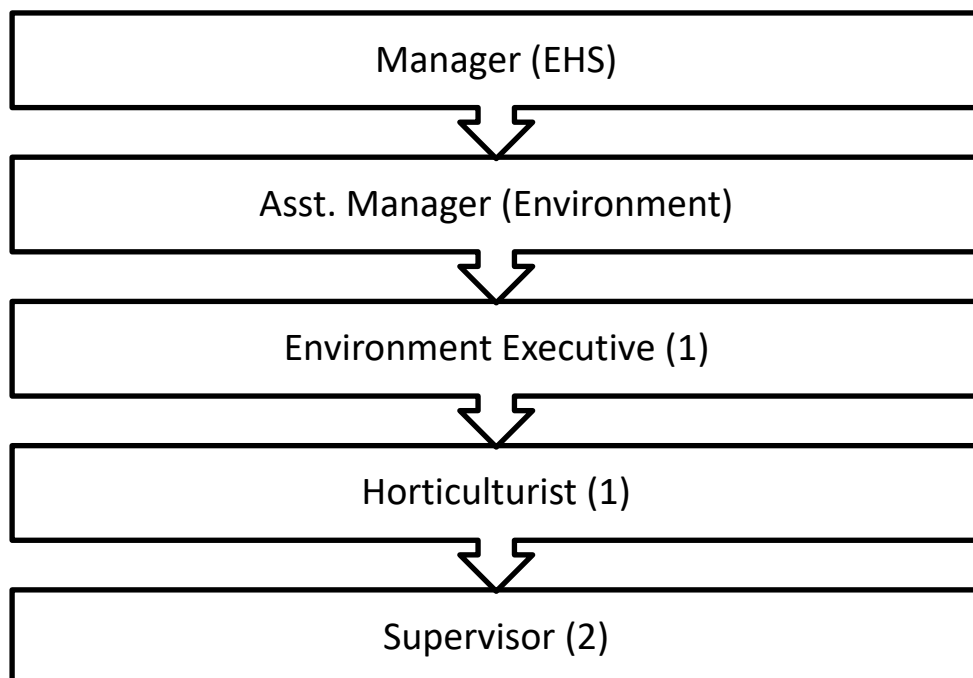
M/s Shirgul Mines & Minerals (Part II), through its partners Sh. Rishi Kumar Aggarwal, Sh. Naveen Kumar, Sh. Sher Singh Negi, and Sh. Manish Kumar, located at House No. 133/E, Ward No. 6, Tehsil Paonta Sahib, District Sirmour, Himachal Pradesh, accepts the responsibility to manage the environmental impact of extracting minor minerals like sand, stone, and bajri from a 2.9755-hectare area (35-06 Bighas) in Khasra Nos. 46/1, 47/1, 48/1, 49/1, 50, 51, 52/1, 55, 56, and 71. This area is private land and river bed in Mauza Mohal Bhatrog, Tehsil Paonta Sahib, District Sirmour, Himachal Pradesh. We are committed to creating value for our workers and the local community.

Implementation:

- Comply with applicable environmental laws and regulations at all time; at all locations and at all stages of exploration, development, operations and reclamation.
- Establish and maintain standards, procedures and management controls to ensure that environmental considerations are balanced equally with competing priorities and other key business activities.
- Ensure that all employees and contractors are trained to understand their environmental responsibilities and create an environment that adheres to the Company's Policies, procedures and applicable regulations.
- Hold leadership accountable for good environment performance of our operations and projects. Inherent in that accountability will be the commitment of senior management to provide resources and successfully create an appropriate environment.
- Reward and recognize behavior that supports environmental stewardship.
- Implement procedures to measure environmental performance, including regular inspection by our consultancy to verify compliance with all the applicable regulations.
- Communicate openly with employees, regulatory agencies, the public and shareholders on environmental issues.
- Work proactively with other mining companies, policy makers and the public to define environmental priorities and to contribute to the development of responsible laws and regulations to protect the environment.
- Actively engage with credible third parties to develop continuous improvement in our environmental policies and practices.

- Continuously review environmental achievements and technologies to share and promote implementation of best practices.
- The system of reporting of Non-conformances/ violation of any Environmental Law/Policy will be as per quality management system. The internal audit will be conducted on periodic basis and any Non-conformances/ violation to Environmental Law/Policy will be closed and discussed during Management Review Meetings of board of directors/partners.

Hierarchy of Environment for dealing



(Authorized Signatory)

M/s Shirgul Mines & Mineral, Part II, Partner
Sh. Rishi Kumar Aggarwal, Sh Naveen Kumar,
Sh Sher Singh Negi & Sh Manish Kumar
R/o House No. 133/E, Ward No. 6,
Tehsil Paonta Sahib, District Sirmour, H.P.

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MoEF & CC (Ministry of Environment, Forest & Climate Change), UPPCB Recognized Laboratory

+91-9313611642, 8510081921, 7503031145, 8527870572, 7503031146, 9999794369

TEST CERTIFICATE

Test Report of	Report Code	Date of Issue
Ambient Air Quality Analysis	AAQ-031024-01	06/01/2025

Issued To: M/s Shirgul Mines & Mineral, Part II, Partner Sh. Rishi Kumar Aggarwal,
Sh Naveen Kumar, Sh Sher Singh Negi & Sh Manish Kumar)

Project Name: Extraction of Minor Mineral (Stone, Sand & Bajri), measuring an area 35- 06 Bighas
or 2.9755 Hectare (Private land, River Bed)

Location: Falling in Mauza/Mohal Bhatrog, Tehsil Paonta Sahib, District Sirmour, H.P.

Sampling & Analysis Data

Sample Drawn By : NTL Laboratory
Sampling Location : Project Site
Sampling Plan & Procedure : SOP-AAQ/08

Monitoring Period : Oct 2024 - Dec 2024
Protocol Used : CPCB Guidelines
Sampling Instrument Used : Respirable Dust Sampler (PM₁₀),
Fine Particulate (PM_{2.5}) Sampler

S. No.	Monitoring Date	PM10	PM2.5	SO ₂	NO ₂	Free Silica
		IS:5182(Part-23)	IS:5182(Part-24)	IS:5182(Part-2)	IS:5182(Part-6)	Gravimetric
1	03.10.2024	30.52	20.53	10.53	18.42	0.65
2	04.10.2024	55.36	31.56	6.86	16.25	0.25
3	12.10.2024	60.42	34.44	5.75	15.60	0.55
4	15.10.2024	31.42	22.37	9.45	12.56	0.27
5	19.10.2024	33.52	23.42	8.45	15.20	0.29
6	22.10.2024	65.32	37.23	11.25	18.63	0.53
7	26.10.2024	71.42	40.71	5.88	13.56	0.27
8	29.10.2024	42.85	26.53	9.88	19.42	0.42
9	02.11.2024	64.15	36.57	8.62	15.45	0.29
10	05.11.2024	43.14	24.59	11.42	15.68	0.62
11	09.11.2024	74.85	40.12	5.68	15.68	0.53
12	12.11.2024	59.42	32.09	12.44	18.42	0.42
13	16.11.2024	53.65	28.97	5.69	16.58	0.25
14	19.11.2024	57.42	31.01	6.89	16.47	0.35
15	23.11.2024	76.52	41.32	13.84	20.65	0.66
16	26.11.2024	64.52	34.84	12.63	17.54	0.53
17	01.12.2024	68.52	37.00	6.88	18.42	0.42
18	04.12.2024	55.48	29.96	9.56	16.89	0.51
19	08.12.2024	53.45	28.86	5.45	16.85	0.52
20	11.12.2024	65.35	35.29	8.96	19.36	0.36
21	15.12.2024	59.63	32.20	6.82	14.69	0.53
22	18.12.2024	68.53	37.01	11.47	17.42	0.25
23	22.12.2024	58.47	31.57	5.69	16.89	0.21
24	25.12.2024	63.25	37.32	12.56	18.25	0.35
Min		30.52	20.53	5.45	12.56	0.21
Max		76.52	41.32	13.84	20.65	0.66
Avg.		57.38	32.31	8.86	16.87	0.42
98 percentile		75.75	41.04	13.28	20.08	0.66
NAAQS, For 24 hourly monitoring (except CO for Eight hour)		100 µg/m ³	60 µg/m ³	80 µg/m ³	80 µg/m ³	-

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AUTHORIZED SIGNATORY

Laboratory : GT-20, Sector-117, Gautam Budh Nagar - 201 301 (U.P.)

Branch Office :

HARIDWAR | DEHRADUN | PUNE

E-mail : noida.laboratory@gmail.com | Website : www.noidalabs.com



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TEST CERTIFICATE

Test Report of	Report Code	Date of Issue
Ambient Air Quality Analysis	AAQ-031024-02	06/01/2025

Issued To: M/s Shirgul Mines & Mineral, Part II, Partner Sh. Rishi Kumar Aggarwal,
Sh Naveen Kumar, Sh Sher Singh Negi & Sh Manish Kumar)

Project Name: Extraction of Minor Mineral (Stone, Sand & Bajri), measuring an area 35- 06 Bighas
or 2.9755 Hectare (Private land, River Bed)

Location: Falling in Mauza/Mohal Bhatrog, Tehsil Paonta Sahib, District Sirmour, H.P.

Sampling & Analysis Data

Sample Drawn By NTL Laboratory : **Monitoring Period** Oct 2024 - Dec 2024
Sampling Location Bhatrog : **Protocol Used** CPCB Guidelines
Sampling Plan & Procedure SOP-AAQ/08 : **Sampling Instrument Used** Respirable Dust Sampler (PM₁₀),
Fine Particulate (PM_{2.5}) Sampler

S. No.	Monitoring Date	PM10	PM2.5	SO ₂	NO ₂	Free Silica
		IS:5182(Part-23)	IS:5182(Part-24)	IS:5182(Part-2)	IS:5182(Part-6)	Gravimetric
1	03.10.2024	65.80	29.61	9.41	11.63	0.56
2	04.10.2024	66.80	30.96	14.78	19.66	0.77
3	12.10.2024	64.80	29.16	11.26	13.17	0.50
4	15.10.2024	65.50	29.48	9.16	16.38	0.65
5	19.10.2024	60.75	27.34	10.39	17.09	0.67
6	22.10.2024	61.31	27.59	9.81	15.61	0.64
7	26.10.2024	53.29	19.18	10.71	15.78	0.60
8	29.10.2024	54.31	19.55	12.78	12.48	0.59
9	02.11.2024	53.38	19.22	10.99	13.60	0.47
10	05.11.2024	53.37	19.21	10.66	12.53	0.52
11	09.11.2024	53.42	19.23	11.62	12.97	0.47
12	12.11.2024	54.11	19.48	11.26	17.66	0.60
13	16.11.2024	29.52	17.63	4.35	6.25	0.20
14	19.11.2024	28.44	17.45	4.83	6.06	0.19
15	23.11.2024	30.59	19.52	3.92	6.39	0.18
16	26.11.2024	30.12	18.68	4.82	6.55	0.16
17	01.12.2024	28.70	18.24	4.83	6.00	0.17
18	04.12.2024	30.48	18.24	4.96	6.35	0.18
19	08.12.2024	32.65	19.45	5.86	9.68	0.29
20	11.12.2024	32.52	20.85	6.48	9.45	0.28
21	15.12.2024	33.25	20.68	6.54	9.65	0.29
22	18.12.2024	33.56	20.59	6.25	9.42	0.31
23	22.12.2024	33.63	20.53	6.42	9.63	0.24
24	25.12.2024	34.52	20.69	6.86	9.42	0.25
Min		28.44	17.45	3.92	6	0.16
Max		66.8	30.96	14.78	19.66	0.77
Avg.		45.20	21.77	8.29	11.39	0.41
98 percentile		66.34	30.34	13.86	18.74	0.72
NAAQS, For 24 hourly monitoring (except CO for Eight hour)		100 µg/m ³	60 µg/m ³	80 µg/m ³	80 µg/m ³	-

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Laboratory : GT-20, Sector-117, Gautam Budh Nagar - 201 301 (U.P.)

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TEST CERTIFICATE

Test Report of	Report Code	Date of Issue
Ambient Air Quality Analysis	AAQ-031024-03	06/01/2025

Issued To: M/s Shirgul Mines & Mineral, Part II, Partner Sh. Rishi Kumar Aggarwal,
Sh Naveen Kumar, Sh Sher Singh Negi & Sh Manish Kumar)

Project Name: Extraction of Minor Mineral (Stone, Sand & Bajri), measuring an area 35- 06 Bighas
or 2.9755 Hectare (Private land, River Bed)

Location: Falling in Mauza/Mohal Bhatrog, Tehsil Paonta Sahib, District Sirmour, H.P.

Sampling & Analysis Data

Sample Drawn By NTL Laboratory : **Monitoring Period** Oct 2024 - Dec 2024
Sampling Location Bhediwali Jajli : **Protocol Used** CPCB Guidelines
Sampling Plan & Procedure SOP-AAQ/08 : **Sampling Instrument Used** Respirable Dust Sampler (PM₁₀),
Fine Particulate (PM_{2.5}) Sampler

S. No.	Monitoring Date	PM10	PM2.5	SO ₂	NO ₂	Free Silica
		IS:5182(Part-23)	IS:5182(Part-24)	IS:5182(Part-2)	IS:5182(Part-6)	Gravimetric
1	03.10.2024	59.63	30.53	10.42	13.65	0.45
2	04.10.2024	61.23	36.13	12.42	12.53	0.52
3	12.10.2024	34.58	26.42	8.56	18.35	0.36
4	15.10.2024	68.50	32.42	5.48	15.23	0.25
5	19.10.2024	50.53	37.25	14.22	20.15	0.67
6	22.10.2024	43.47	25.65	6.53	15.47	0.65
7	26.10.2024	43.85	30.24	5.75	16.59	0.65
8	29.10.2024	61.23	35.42	11.25	12.56	0.52
9	02.11.2024	34.58	20.40	6.58	16.75	0.65
10	05.11.2024	58.45	32.15	5.85	15.85	0.55
11	09.11.2024	53.63	29.50	14.25	16.58	0.56
12	12.11.2024	51.24	25.63	10.42	14.45	0.23
13	16.11.2024	54.63	30.05	5.69	18.63	0.54
14	19.11.2024	53.20	20.35	14.25	20.08	0.56
15	23.11.2024	58.45	32.15	12.56	17.45	0.52
16	26.11.2024	49.63	24.58	11.45	16.90	0.36
17	01.12.2024	56.23	30.93	9.68	19.53	0.35
18	04.12.2024	68.42	35.12	11.36	17.45	0.45
19	08.12.2024	56.85	33.54	5.48	16.56	0.24
20	11.12.2024	64.25	37.91	12.52	16.53	0.25
21	15.12.2024	36.52	22.42	11.65	14.65	0.26
22	18.12.2024	55.47	32.73	10.42	14.23	0.28
23	22.12.2024	65.32	30.56	5.69	18.42	0.37
24	25.12.2024	59.63	28.42	9.68	14.69	0.20
Min		34.58	20.35	5.48	12.53	0.2
Max		68.5	37.91	14.25	20.15	0.67
Avg.		54.15	30.02	9.67	16.39	0.44
98 percentile		68.46	37.61	14.25	20.12	0.66
NAAQS, For 24 hourly monitoring (except CO for Eight hour)		100 µg/m ³	60 µg/m ³	80 µg/m ³	80 µg/m ³	-

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Laboratory : GT-20, Sector-117, Gautam Budh Nagar - 201 301 (U.P.)

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TEST CERTIFICATE

Test Report of	Report Code	Date of Issue
Ambient Air Quality Analysis	AAQ-031024-04	06/01/2025

Issued To: M/s Shirgul Mines & Mineral, Part II, Partner Sh. Rishi Kumar Aggarwal,
Sh Naveen Kumar, Sh Sher Singh Negi & Sh Manish Kumar)

Project Name: Extraction of Minor Mineral (Stone, Sand & Bajri), measuring an area 35- 06 Bighas
or 2.9755 Hectare (Private land, River Bed)

Location: Falling in Mauza/Mohal Bhatrog, Tehsil Paonta Sahib, District Sirmour, H.P.

Sampling & Analysis Data

Sample Drawn By NTL Laboratory : **Monitoring Period** Oct 2024 - Dec 2024
Sampling Location Sataun : **Protocol Used** CPCB Guidelines
Sampling Plan & Procedure SOP-AAQ/08 : **Sampling Instrument Used** Respirable Dust Sampler (PM₁₀),
Fine Particulate (PM_{2.5}) Sampler

S. No.	Monitoring Date	PM10	PM2.5	SO ₂	NO ₂	Free Silica
		IS:5182(Part-23)	IS:5182(Part-24)	IS:5182(Part-2)	IS:5182(Part-6)	Gravimetric
1	03.10.2024	45.6	25.99	12.54	18.45	0.59
2	04.10.2024	53.53	30.51	7.45	19.65	0.57
3	12.10.2024	55.62	31.70	9.56	16.50	0.53
4	15.10.2024	54.15	30.87	6.96	16.35	0.47
5	19.10.2024	45.63	26.01	12.36	14.36	0.49
6	22.10.2024	53.62	30.56	7.45	15.65	0.33
7	26.10.2024	54.15	30.87	13.42	16.58	0.38
8	29.10.2024	63.56	36.23	6.85	16.69	0.39
9	02.11.2024	46.99	26.78	7.42	14.25	0.37
10	05.11.2024	51.20	18.43	9.46	13.50	0.53
11	09.11.2024	52.30	18.83	7.13	10.65	0.54
12	12.11.2024	32.47	19.87	5.47	9.35	0.31
13	16.11.2024	34.58	20.96	5.86	9.78	0.30
14	19.11.2024	33.66	21.45	5.96	9.45	0.28
15	23.11.2024	32.47	21.63	5.47	9.68	0.29
16	26.11.2024	30.52	19.24	5.87	9.98	0.30
17	01.12.2024	31.69	20.35	7.85	9.45	0.29
18	04.12.2024	64.25	38.65	14.10	19.58	0.66
19	08.12.2024	62.15	33.56	6.85	14.75	0.25
20	11.12.2024	59.35	32.05	13.42	15.48	0.36
21	15.12.2024	63.58	34.33	5.45	15.78	0.24
22	18.12.2024	55.42	29.93	10.52	18.25	0.25
23	22.12.2024	40.53	21.89	12.65	18.42	0.53
24	25.12.2024	53.25	28.76	6.48	16.50	0.24
Min		30.52	18.43	5.45	9.35	0.24
Max		64.25	38.65	14.1	19.65	0.66
Avg.		48.76	27.06	8.61	14.55	0.40
98 percentile		63.94	37.54	13.79	19.62	0.63
NAAQS, For 24 hourly monitoring (except CO for Eight hour)		100 µg/m ³	60 µg/m ³	80 µg/m ³	80 µg/m ³	-

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Shubhash

AUTHORIZED SIGNATORY

Laboratory : GT-20, Sector-117, Gautam Budh Nagar - 201 301 (U.P.)

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TEST CERTIFICATE

Test Report of	Report Code	Date of Issue
Ambient Air Quality Analysis	AAQ-011024-05	06/01/2025

Issued To: M/s Shingul Mines & Mineral, Part II, Partner Sh. Rishi Kumar Aggarwal, Sh Naveen Kumar, Sh Sher Singh Negi & Sh Manish Kumar)

Project Name: Extraction of Minor Mineral (Stone, Sand & Bajri), measuring an area 35- 06 Bighas or 2.9755 Hectare (Private land, River Bed)

Location: Falling in Mauza/Mohal Bhatrog, Tehsil Paonta Sahib, District Sirmour, H.P.

Sampling & Analysis Data

Sample Drawn By NTL Laboratory : **Monitoring Period** Oct 2024 - Dec 2024

Sampling Location Khara RF near the : **Protocol Used** CPCB Guidelines

Sampling Plan & Procedure SOP-AAQ/08 : **Sampling Instrument Used** Respirable Dust Sampler (PM₁₀), Fine Particulate (PM_{2.5}) Sampler

S. No.	Monitoring Date	PM10	PM2.5	SO ₂	NO ₂	Free Silica
		IS:5182(Part-23)	IS:5182(Part-24)	IS:5182(Part-2)	IS:5182(Part-6)	Gravimetric
1	01.10.2024	45.63	23.73	6.85	10.63	0.35
2	02.10.2024	42.10	23.58	8.45	12.45	0.40
3	13.10.2024	59.63	34.59	8.65	13.45	0.39
4	16.10.2024	41.52	22.42	8.47	10.48	0.48
5	20.10.2024	52.36	27.75	6.96	13.20	0.44
6	23.10.2024	35.96	18.70	5.21	8.95	0.22
7	27.10.2024	55.47	32.73	8.60	12.59	0.39
8	28.10.2024	42.53	24.67	8.42	13.10	0.43
9	03.11.2024	39.68	22.62	6.45	10.56	0.41
10	06.11.2024	52.36	30.89	7.85	13.65	0.39
11	10.11.2024	48.56	27.19	8.08	13.25	0.44
12	13.11.2024	54.12	31.39	8.45	10.74	0.47
13	17.11.2024	59.63	32.20	6.89	10.78	0.39
14	20.11.2024	47.35	25.10	7.45	11.63	0.48
15	24.11.2024	39.45	20.51	8.69	10.68	0.38
16	27.11.2024	68.42	39.68	9.75	14.98	0.53
17	02.12.2024	39.56	21.36	7.69	12.84	0.39
18	05.12.2024	44.56	23.17	6.95	10.78	0.46
19	09.12.2024	52.36	30.89	8.47	11.85	0.39
20	12.12.2024	55.45	32.72	8.56	14.23	0.42
21	16.12.2024	48.36	27.08	6.78	10.69	0.44
22	19.12.2024	55.47	29.95	7.85	13.99	0.34
23	23.12.2024	44.75	25.51	6.85	10.75	0.41
24	26.12.2024	55.60	32.25	7.65	11.65	0.42
Min		35.96	18.7	5.21	8.95	0.22
Max		68.42	39.68	9.75	14.98	0.53
Avg.		49.20	27.53	7.75	12.00	0.41
98 percentile		64.38	37.34	9.26	14.64	0.51
NAAQS, For 24 hourly monitoring (except CO for Eight hour)		100 µg/m ³	60 µg/m ³	80 µg/m ³	80 µg/m ³	-

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TEST CERTIFICATE

Test Report of	Report Code	Date of Issue
Ambient Air Quality Analysis	AAQ-011024-06	06/01/2025

Issued To: M/s Shirgul Mines & Mineral, Part II, Partner Sh. Rishi Kumar Aggarwal, Sh Naveen Kumar, Sh Sher Singh Negi & Sh Manish Kumar)

Project Name: Extraction of Minor Mineral (Stone, Sand & Bajri), measuring an area 35- 06 Bighas or 2.9755 Hectare (Private land, River Bed)

Location: Falling in Mauza/Mohal Bhatrog, Tehsil Paonta Sahib, District Sirmour, H.P.

Sampling & Analysis Data

Sample Drawn By : NTL Laboratory : Monitoring Period : Oct 2024 - Dec 2024

Sampling Location : Poka : Protocol Used : CPCB Guidelines

Sampling Plan & Procedure : SOP-AAQ/08 : Sampling Instrument Used : Respirable Dust Sampler (PM₁₀), Fine Particulate (PM_{2.5}) Sampler

S. No.	Monitoring Date	PM10	PM2.5	SO ₂	NO ₂	Free Silica
		IS:5182(Part-23)	IS:5182(Part-24)	IS:5182(Part-2)	IS:5182(Part-6)	Gravimetric
1	01.10.2024	30.52	20.53	10.53	18.42	0.65
2	02.10.2024	55.36	31.56	6.86	16.25	0.25
3	13.10.2024	60.42	34.44	5.75	15.60	0.55
4	16.10.2024	31.42	22.37	9.45	12.56	0.27
5	20.10.2024	33.52	23.42	8.45	15.20	0.29
6	23.10.2024	65.32	37.23	11.25	18.63	0.53
7	27.10.2024	71.42	40.71	5.88	13.56	0.27
8	28.10.2024	42.85	26.53	9.88	19.42	0.42
9	03.11.2024	64.15	36.57	8.62	15.45	0.29
10	06.11.2024	43.14	24.59	11.42	15.68	0.62
11	10.11.2024	74.85	40.12	5.68	15.68	0.53
12	13.11.2024	59.42	32.09	12.44	18.42	0.42
13	17.11.2024	53.65	28.97	5.69	16.58	0.25
14	20.11.2024	57.42	31.01	6.89	16.47	0.35
15	24.11.2024	76.52	41.32	13.84	20.65	0.66
16	27.11.2024	64.52	34.84	12.63	17.54	0.53
17	02.12.2024	68.52	37.00	6.88	18.42	0.42
18	05.12.2024	55.48	29.96	9.56	16.89	0.51
19	09.12.2024	53.45	28.86	5.45	16.85	0.52
20	12.12.2024	65.35	35.29	8.96	19.36	0.36
21	16.12.2024	59.63	32.20	6.82	14.69	0.53
22	19.12.2024	68.53	37.01	11.47	17.42	0.25
23	23.12.2024	58.47	31.57	5.69	16.89	0.21
24	26.12.2024	63.25	37.32	12.56	18.25	0.35
Min		30.52	20.53	5.45	12.56	0.21
Max		76.52	41.32	13.84	20.65	0.66
Avg.		57.38	32.31	8.86	16.87	0.42
98 percentile		75.75	41.04	13.28	20.08	0.66
NAAQS, For 24 hourly monitoring (except CO for Eight hour)		100 µg/m ³	60 µg/m ³	80 µg/m ³	80 µg/m ³	-

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TEST CERTIFICATE

Test Report of	Report Code	Date of Issue
Ambient Air Quality Analysis	AAQ-011024-07	06/01/2025

Issued To: M/s Shingul Mines & Mineral, Part II, Partner Sh. Rishi Kumar Aggarwal, Sh Naveen Kumar, Sh Sher Singh Negi & Sh Manish Kumar)

Project Name: Extraction of Minor Mineral (Stone, Sand & Bajri), measuring an area 35- 06 Bighas or 2.9755 Hectare (Private land, River Bed)

Location: Falling in Mauza/Mohal Bhatrog, Tehsil Paonta Sahib, District Sirmour, H.P.

Sampling & Analysis Data

Sample Drawn By NTL Laboratory : **Monitoring Period** Oct 2024 - Dec 2024

Sampling Location Kunair Dhamaun : **Protocol Used** CPCB Guidelines

Sampling Plan & Procedure SOP-AAQ/08 : **Sampling Instrument Used** Respirable Dust Sampler (PM₁₀), Fine Particulate (PM_{2.5}) Sampler

S. No.	Monitoring Date	PM10	PM2.5	SO ₂	NO ₂	Free Silica
		IS:5182(Part-23)	IS:5182(Part-24)	IS:5182(Part-2)	IS:5182(Part-6)	Gravimetric
1	01.10.2024	29.52	16.83	5.65	19.53	0.36
2	02.10.2024	50.42	28.74	6.45	17.45	0.38
3	13.10.2024	65.36	37.26	13.45	19.85	0.67
4	16.10.2024	58.69	33.45	12.52	16.58	0.45
5	20.10.2024	53.36	19.21	8.64	12.32	0.52
6	23.10.2024	53.26	19.17	8.42	13.82	0.47
7	27.10.2024	53.30	19.19	8.79	14.98	0.42
8	28.10.2024	52.45	18.88	8.45	10.63	0.36
9	03.11.2024	53.45	19.24	7.87	10.28	0.37
10	06.11.2024	52.60	18.94	8.58	13.63	0.52
11	10.11.2024	54.29	19.54	7.82	10.57	0.47
12	13.11.2024	43.85	24.99	11.32	17.24	0.29
13	17.11.2024	70.63	38.54	5.89	13.40	0.28
14	20.11.2024	69.53	39.63	12.56	17.63	0.62
15	24.11.2024	69.53	30.25	8.25	15.75	0.35
16	27.11.2024	70.65	45.40	5.48	16.86	0.58
17	02.12.2024	72.45	48.65	14.53	19.54	0.67
18	05.12.2024	52.36	30.42	8.45	18.42	0.34
19	09.12.2024	43.96	25.06	12.63	15.46	0.38
20	12.12.2024	43.47	29.63	8.46	17.65	0.37
21	16.12.2024	55.65	30.45	5.65	13.53	0.65
22	19.12.2024	58.63	31.66	5.63	16.50	0.48
23	23.12.2024	31.52	18.60	10.25	12.53	0.62
24	26.12.2024	37.48	25.36	6.85	15.24	0.24
Min		29.52	16.83	5.48	10.28	0.24
Max		72.45	48.65	14.53	19.85	0.67
Avg.		54.02	27.88	8.86	15.39	0.45
98 percentile		71.62	47.16	14.03	19.71	0.67
NAAQS, For 24 hourly monitoring (except CO for Eight hour)		100 µg/m ³	60 µg/m ³	80 µg/m ³	80 µg/m ³	-

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TEST CERTIFICATE

Test Report of	Report Code	Date of Issue
Ambient Air Quality Analysis	AAQ-011024-08	06/01/2025

Issued To: M/s Shirgul Mines & Mineral, Part II, Partner Sh. Rishi Kumar Aggarwal,
Sh Naveen Kumar, Sh Sher Singh Negi & Sh Manish Kumar)

Project Name: Extraction of Minor Mineral (Stone, Sand & Bajri), measuring an area 35- 06 Bighas
or 2.9755 Hectare (Private land, River Bed)

Location: Falling in Mauza/Mohal Bhatrog, Tehsil Paonta Sahib, District Sirmour, H.P.

Sampling & Analysis Data

Sample Drawn By NTL Laboratory : **Monitoring Period** Oct 2024 - Dec 2024
Sampling Location Bangran : **Protocol Used** CPCB Guidelines
Sampling Plan & Procedure SOP-AAQ/08 : **Sampling Instrument Used** Respirable Dust Sampler (PM₁₀),
Fine Particulate (PM_{2.5}) Sampler

S. No.	Monitoring Date	PM10	PM2.5	SO ₂	NO ₂	Free Silica
		IS:5182(Part-23)	IS:5182(Part-24)	IS:5182(Part-2)	IS:5182(Part-6)	Gravimetric
1	01.10.2024	60.65	38.45	8.15	18.42	0.26
2	02.10.2024	66.59	32.12	7.45	17.42	0.28
3	13.10.2024	58.65	33.56	10.20	17.63	0.24
4	16.10.2024	68.56	37.71	5.48	16.25	0.26
5	20.10.2024	59.35	35.42	5.66	12.63	0.52
6	23.10.2024	45.12	24.82	7.65	12.42	0.32
7	27.10.2024	56.58	30.42	9.56	16.50	0.45
8	28.10.2024	69.65	340.85	20.10	19.65	0.65
9	03.11.2024	30.99	18.28	6.53	16.53	0.53
10	06.11.2024	53.56	28.92	9.68	14.58	0.56
11	10.11.2024	62.42	33.71	10.58	16.95	0.52
12	13.11.2024	54.85	29.62	9.48	13.56	0.42
13	17.11.2024	56.35	30.43	6.53	12.56	0.45
14	20.11.2024	53.29	30.38	6.56	16.58	0.42
15	24.11.2024	69.3	40.94	14.32	15.63	0.52
16	27.11.2024	47.6	27.13	8.25	15.33	0.63
17	02.12.2024	52.69	30.03	9.48	12.63	0.53
18	05.12.2024	52.52	29.94	7.85	16.47	0.25
19	09.12.2024	47.85	27.27	6.54	17.42	0.24
20	12.12.2024	55.63	30.60	5.65	12.63	0.52
21	16.12.2024	62.32	34.28	12.63	18.65	0.36
22	19.12.2024	45.25	24.89	12.47	14.53	0.42
23	23.12.2024	62.53	34.39	5.42	16.58	0.52
24	26.12.2024	51.26	30.25	12.85	15.63	0.35
Min		30.99	18.28	5.42	12.42	0.24
Max		69.65	340.85	20.1	19.65	0.65
Avg.		55.98	43.93	9.13	15.72	0.43
98 percentile		69.49	202.89	17.44	19.19	0.64
NAAQS, For 24 hourly monitoring (except CO for Eight hour)		100 µg/m ³	60 µg/m ³	80 µg/m ³	80 µg/m ³	-

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TEST CERTIFICATE

Test Report of	Report Code	Date of Issue
Ground Water	GW-241224-014	06/01/2025

Issued To: M/s Shirgul Mines & Mineral, Part II, Partner Sh. Rishi Kumar Aggarwal,
Sh Naveen Kumar, Sh Sher Singh Negi & Sh Manish Kumar)

Project Name: Extraction of Minor Mineral (Stone, Sand & Bajri), measuring an area 35- 06 Bighas
or 2.9755 Hectare (Private land, River Bed)

Location: Falling in Mauza/Mohal Bhatrog, Tehsil Paonta Sahib, District Sirmour, H.P.

SAMPLING & ANALYSIS DATA

Sample Received on : 23/12/2024
 Sample Drawn By : NTL Representative
 Sample Quantity : 2.0 lit. + 500 ml.
 Analysis Duration : 24/12/2024 to 30/12/2024
 Sample Description : Ground Water

S. No.	Parameter	Unit	GW1 Project Site	GW2 Bhatrog	GW3 Bhediwali Jajli	GW4 Sataun	GW5 Khara RF near the Road-NH 707	GW6 Poka	Limit (as per IS:10500)- 2012/REV:2023	
									Desirable	Permissible
1	Colour	Hazen	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	5	15
2	Odour	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	-
3	Taste	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	-
4	Turbidity	NTU	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1	5
5	pH	-	7.40	7.68	7.54	7.27	7.36	7.25	6.5-8.5	No Relaxation
6	Total Hardness (as CaCO ₃)	mg/l	178	165	187	172	158	189	200	600
7	Iron (as Fe)	mg/l	0.118	0.130	0.132	0.141	0.127	0.148	1.0	No Relaxation
8	Chlorides (as Cl)	mg/l	12.6	18.0	18.2	17.5	16.8	14.6	250	1000
9	Fluoride (as F)	mg/l	0.25	0.32	0.21	0.24	0.25	0.18	1	1.5
10	TDS	mg/l	320	348	325	341	378	345	500	2000
11	Calcium (as Ca ²⁺)	mg/l	51.3	64.1	56.0	62.6	51.0	61.4	75	200
12	Magnesium (as Mg ²⁺)	mg/l	17.2	18.2	12.4	15.5	6.89	18.0	30	100
13	Copper (as Cu)	mg/l	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	1.5
14	Manganese (as Mn)	mg/l	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.1	0.3

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15	Sulphate (as SO ₄)	mg/l	27.8	25.0	28.0	26.0	26.0	24.3	200	400
16	Nitrate(as NO ₃)	mg/l	2.54	2.76	2.16	2.08	2.55	3.40	45	No Relaxation
18	Mercury (as Hg)	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	No Relaxation
19	Cadmium (as Cd)	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.003	No Relaxation
20	Selenium (as Se)	mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	No Relaxation
21	Arsenic (as As)	mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	No Relaxation
22	Cyanide (as CN)	mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.05	No Relaxation
23	Lead (as Pb)	mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	No Relaxation
24	Zinc (as Zn)	mg/l	0.131	0.125	0.142	0.136	0.136	0.128	5	15
25	Anionic Detergent (as MBAS)	mg/l	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.2	1
26	Chromium (as Cr ⁶⁺)	mg/l	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	No Relaxation
27	Mineral oil	mg/l	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0.5	No Relaxation
28	Alkalinity as CaCO ₃	mg/l	188	196	189	185	174	164	200	600
29	Aluminium (as Al)	mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.03	0.2
30	Boron (as B)	mg/l	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.5	2.4
31	Total Coliform	MPN /100ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent/100ml	
32	E. coli	E.coli /100ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent/100ml	

BDL- Below Detection Limit

Notes: -

1. The results given above are related to the tested sample, as received & mentioned parameters. The customer asked for the above tests only.
2. Responsibility of the Laboratory is limited to the invoiced amount only.
3. This test report will not be generated again, either wholly or in part, without prior written permission of the laboratory.
4. The test samples will be disposed off after two weeks from the date of issue of test report, unless until specified by the customer.

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TEST CERTIFICATE

Test Report of	Report Code	Date of Issue
Ambient Noise	AN-041024-010	06/01/2025

Issued To: M/s Shirgul Mines & Mineral, Part II, Partner Sh. Rishi Kumar Aggarwal,
Sh Naveen Kumar, Sh Sher Singh Negi & Sh Manish Kumar

Project Name: Extraction of Minor Mineral (Stone, Sand & Bajri), measuring an area 35- 06 Bighas
or 2.9755 Hectare (Private land, River Bed)

Location: Falling in Mauza/Mohal Bhatrog, Tehsil Paonta Sahib, District Sirmour, H.P.

SAMPLING & ANALYSIS DATA

Sample Drawn By : NTL Representative
Sample description : Ambient Noise
Sampling Time : 24 hrs
Sampling Instrument Used : Digital Noise Meter
Weather Condition : Normal
Monitoring Period : Oct 2024 – Dec 2024

S. No.	Locations	Date of Monitoring	Results		Units
			Day	Night	
1.	Project site	08.10.2024	57.6	42.2	dB(A)
2.	Bhatrog	24.10.2024	52.4	41.5	dB(A)
3.	Bhediwali Jajli	05.10.2024	51.8	40.0	dB(A)
4.	Sataun	04.11.2024	53.5	39.8	dB(A)
5.	Khara RF near the Road-NH 707	18.11.2024	54.8	40.6	dB(A)
6.	Poka	23.11.2024	54.6	42.1	dB(A)
7.	Kunair Dhamaun	01.12.2024	52.5	40.7	dB(A)
8.	Bangran	06.12.2024	54.0	43.4	dB(A)
Requirement (as per CPCB Guidelines Limits in dB (A) Leq					
Category of Area/ Zone		Day Time	Night Time		
Industrial Area		75	70		
Residential Area		55	45		
Commercial Area		65	55		
Silence Zone		50	40		

Notes: -

- The results given above are related to the tested sample, as received & mentioned parameters. The customer asked for the above tests only.
- Responsibility of the Laboratory is limited to the invoiced amount only.
- This test report will not be generated again, either wholly or in part, without prior written permission of the laboratory.
- The test samples will be disposed off after two weeks from the date of issue of test report, unless until specified by the customer.

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TEST CERTIFICATE

Test Report of	Report Code	Date of Issue
Soil Quality	SQ-241224-011	06/01/2025

Issued To: M/s Shirgul Mines & Mineral, Part II, Partner Sh. Rishi Kumar Aggarwal,
Sh Naveen Kumar, Sh Sher Singh Negi & Sh Manish Kumar)

Project Name: Extraction of Minor Mineral (Stone, Sand & Bajri), measuring an area 35- 06 Bighas
or 2.9755 Hectare (Private land, River Bed)

Location: Falling in Mauza/Mohal Bhatrog, Tehsil Paonta Sahib, District Sirmour, H.P.

Sampling & Analysis Data

Sample Received On : 23/12/2024

Sample Description : Soil Sample

Sample Quantity : 2.0 Kg

Sample Drawn By : NTL Representative

Analysis Duration : 24/12/2024 to 30/12/2024

		Location	Project Site	Bhatrog	Bhediwali Jajli	Sataun	Khara RF near the Road-NH 707	Poka
Sr. No.	Parameters	Units	Results	Results	Results	Results	Results	Results
2	pH	-	7.63	7.27	7.84	7.59	7.46	7.84
3	Conductivity	µmhos/cm	396.15	351.20	402.2	276.21	398.02	402.2
4	Sodium (as Na)	mg/kg	81.52	56.53	75.16	68.51	84.4	75.16
5	Water holding capacity	%	26.0	26.0	25.0	26.4	28.8	25.0
6	Potassium (as K)	mg/kg	248.0	248.0	248.0	216.0	50.8	248.0
7	Sand	%	66.00	56.00	61.00	60.00	66.00	64.00
8	Clay	%	18.00	26.00	18.00	26.00	15.00	22.0
9	Silt	%	16.00	18.00	21.00	14.00	19.00	14.0
10	Calcium (as Ca)	mg/kg	834.0	786.0	518.0	789.0	812.3	858.0
11	Magnesium (as Mg)	mg/kg	385.5	212.8	156.0	326.0	350.0	376.0
12	SAR	-	0.95	1.49	1.55	1.40	0.63	1.55
13	CEC	meq/100gm	2.12	2.12	2.34	2.20	1.99	2.34
14	Phosphorus (as P)	mg/kg	10.80	12.50	12.76	12.44	18.67	12.76
15	Organic carbon	%	0.43	0.41	0.35	0.42	0.26	0.35
16	Porosity	%	38.00	36.89	45.6	35.6	34.83	45.6
17	Permeability	cm/hr	1.82	1.60	1.88	1.76	1.64	1.88
18	Bulk Density	kg/cm ³	1.41	1.42	1.36	1.25	1.56	1.34

Notes: -

- The results given above are related to the tested sample, as received & mentioned parameters. The customer asked for the above tests only.
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- The test samples will be disposed off after two weeks from the date of issue of test report, unless until specified by the customer.

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[Signature]

AUTHORIZED SIGNATORY

Laboratory : GT-20, Sector-117, Gautam Budh Nagar - 201 301 (U.P.)

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TEST CERTIFICATE

Test Report of	Report Code	Date of Issue
Surface Water	SW-241224-013	06/01/2025

Issued To: M/s Shirgul Mines & Mineral, Part II, Partner Sh. Rishi Kumar Aggarwal,
Sh Naveen Kumar, Sh Sher Singh Negi & Sh Manish Kumar)
Project Name: Extraction of Minor Mineral (Stone, Sand & Bajri), measuring an area 35- 06 Bighas
or 2.9755 Hectare (Private land, River Bed)
Location: Falling in Mauza/Mohal Bhatrog, Tehsil Paonta Sahib, District Sirmour, H.P.

SAMPLING & ANALYSIS DATA

Sample Received On : 23/12/2024
Sample Description : Surface Water
Sample Collected By : NTL Representative
Sample Quantity : 2.0 Litre + 1 Lit.
Analysis Duration : 24/12/2024 to 30/12/2024

S. No	Parameter	Test Method	Units	Giri River Upstream	Giri River downstream	Project Site
1.	pH (at 25°C)	IS:3025(Part-11)	---	7.54	7.89	7.47
2.	Temperature	IS:3025(Part-9)	°C	12.0	14.0	23.0
3.	Turbidity	IS:3025(Part-10)	NTU	1.0	1.2	2.0
4.	Electric Conductivity @25°C	IS:3025(Part-14)	µS/cm	220.0	260.0	302.0
5.	Sulphate (SO ₄)	IS:3025(Part-24)	mg/l	6.0	6.40	5.10
6.	Nitrate (NO ₃)	IS:3025(Part-34)	mg/l	1.50	1.86	2.23
7.	Total Hardness (as CaCO ₃)	IS:3025(Part-21)	mg/l	182.0	198.0	126.0
8.	Chloride (as Cl)	IS:3025(Part-32)	mg/l	11.0	15.0	12.0
9.	Fluoride (as F)	APHA 4500F	mg/l	0.12	0.16	0.28
10.	COD (as O ₂)	APHA-5220 B	mg/l	14.0	18.0	24.0
11.	Iron (as Fe)	IS:3025(Part-53)	mg/l	0.06	0.08	0.15
12.	Dissolve Oxygen	IS:3025(Part-38)	mg/l	7.4	7.2	7.0
13.	Total Dissolved Solid	IS:3025(Part-16)	mg/l	140.0	157.0	198.0
14.	BOD (3 days at 27°C)	IS:3025 (P-44)	mg/l	2.2	2.4	4.5
15.	Calcium (as Ca)	IS:3025(Part-40)	mg/l	102.0	110.0	92.0
16.	Magnesium (as Mg)	IS:3025(Part-46)	mg/l	50.0	56.0	52.8
17.	Arsenic (as As)	IS:3025(Part-37)	mg/l	BDL(<0.01)	BDL (<0.01)	BDL (<0.01)
18.	Lead (as Pb)	IS:3025(Part-47)	mg/l	BDL(<0.01)	BDL (<0.01)	BDL (<0.01)
19.	Copper (as Cu)	IS:3025(Part-42)	mg/l	BDL(<0.010)	BDL (<0.05)	BDL (<0.05)
20.	Zinc (as Zn)	IS:3025(Part-49)	mg/l	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)

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21.	Manganese (as Mn)	IS:3025(Part-59)	mg/l	BDL(<0.010)	BDL (<0.10)	BDL (<0.10)
22.	Total Chromium (as Cr)	IS:3025(Part-52)	mg/l	BDL(<0.01)	BDL (<0.05)	BDL (<0.05)
23.	Sodium (as Na)	IS:3025(Part-45)	mg/l	2.28	2.56	3.80
24.	Potassium (as K)	IS:3025(Part-45)	mg/l	0.14	0.20	0.32
25.	Total Alkalinity (as CaCO ₃)	IS:3025(Part-23)	mg/l	146.0	157.0	138.0
26.	Phosphate (as P)	IS:3025(Part-31)	mg/l	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)
27.	Nitrite (as NO ₂)	IS:3025(Part-34)	mg/l	BDL(<0.05)	BDL(<0.05)	BDL(<0.05)
28.	Total Suspended Solid	IS:3025(Part-17)	mg/l	5.4	5.6	7.5
29.	Faecal Coliform	IS-1622	MPN/100 ml	0.98×10^3	1.2×10^3	1.2×10^3
30.	Total Coliform	IS-1622	MPN/100 ml	1.2×10^3	1.5×10^3	2.6×10^3

BDL- Below Detection Limit

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