

*Brick Clay Mining Project of M/s Ram Brick Field Vill: Salarpur (magalaur) & kamaura
mangalaur, Tehsil- Roorkee & Distt- Haridwar, Uttarakhand*

PRE FEASIBILITY REPORT

Brick Clay Mining Project of M/s Ram Brick Field Vill: Salarpur (magalaur) & kamaura mangalaur, Tehsil- Roorkee & Distt- Haridwar, Uttarakhand

1. EXEXECUTIVE SUMMARY

The present proposal for mining of brick earth in village Salarpur (mangalaur) & Kamaura mangalaur, Tehsil – Roorkee, District- Haridwar, (U.K.) for lease area 2.446ha. by M/s Ram brick field, District Haridwar. The Gata Nos. of lease area are 48, 103, 105, 47, 311, 312, 281 & 310. The project proponent intends to excavate clay for brick making for their brick kiln established near the proposed mining site.

During the operational phase not more than 23 semi skilled and non skilled workers will be hired. The contractors will get the direct or indirect benefit from the project activity

The Soil mining lease area is located at village Salarpur (mangalaur) & Kamaura mangalaur, Tehsil Rorkee, District:- Haridwar, Uttarakhand. No ecological Sensitive zone that lies within 10 Km radius of the proposed soil mining project activity.

As per the EIA Notification 2006 & OM dated 12.12.2018 the project will be considered as a Category B₂.

It is a new mine & being applied for environmental clearance. The proposed production is 7044m³ per year.

The excavated quantity of clay will be used to make about **35 Lakh** bricks per Year.

No heavy earth moving machinery/equipments will be deployed. Only Manual mining will be done.

The vehicle for transportation will be hired from local villages. The water tanker will be hired for sprinkling purpose. On-call ambulance facility will also made available for proper treatment of any mishap during mining activity.

The proposed production of clay is 7044 m³ per year that will be use used in manufacturing of bricks and transported from the mining site to brick kiln. The manufactured bricks will be transported through tractor trolleys from mine to brick kiln.

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There will be very small quantity of domestic waste in terms of food and packaging materials generated by workers. This waste will be disposed off on composting site. No servicing of vehicles will be done onsite hence no onsite generation of used/waste oil.

The requirement of water is given above under raw materials. About 1.0 KLD water will be required for sprinkling on haul road for suppressing dust, 0.7 KLD for drinking, 0.5 KLD for horticulture & 5 KLD for casting of bricks. The mining staff/workers use water from hand pump & supplied by water tankers.

No liquid waste is generated during the mining. No chemical or toxic effluents are made/ discharged in the area during mining operations.

The lease hold area falls in village-Salarpur (mangalaur) & Kamaura mangalaur, from where Roorkee railway Station is 4 km N. The Salarpur (mangalaur) & Kamaura mangalaur village are located 0.5 km away from mine site. The site is easily assessable form road.

The landform represents typical clay features suitable for manufacturing of bricks. The area of lease is 2.446ha. No proposal of office, workshop onsite. The mining site is adjacent to brick kiln hence all essential infrastructure facilities are already available at brick kiln site.

The mineable reserve are 35222 m³ considering 1.8 m as depth of excavation, leaving berm, and area left in slope/safety measures.

The strength of workers will be 23 so the total drinking water requirement will be 0.7 KL/day. The drinking water is provided through Hand-pump and bore well.

The mining lease encompasses only 2.446 hectare area, which is almost low fertile agricultural land for agricultural use. There is no habitation existing on the mining area. The entire lease area is free from forest land. The land after end of the lease period will be restored for agricultural purpose, There will be no rehabilitation and resettlement involved with the project.

The project cost is about Rs. 25 lakhs. Due to Manual nature of activity the project is economically viable.

PRE FEASIBILITY REPORT

2.0: INTRODUCTION

The activities of borrowing excavation of brick earth' and ordinary earth , up to an area less than 5 ha, categorized under “B2” category subject to purpose of clay for brick manufacturing, construction of roads, embankments and not involve blasting.

Clay soils are compounds of silica and alumina. Calcareous clay have calcium carbonate & Non-calcareous typically contain feldspar and iron oxide. The silica in the clay, when fired at 900-1200⁰C, will turn to a glassy phase. This process, called vitrification, will turn the clay to a crystalline structure. Therefore, temperature is important. If under-fired, the bonding between the clay particles will be poor and the brick will be weak. If the temperature is too high, the bricks will melt or slump.

Vitrification does not have to be complete, and does not actually occur in many of the small traditional brick making plants around the world. However, the vitrification does occur enough to give sufficient strength to the brick.

In recent years, the Environment becomes major concern for the human survival across the countries. Now-a-days intellectuals, academicians and environmentalists put their concern at all platforms for betterment of society. A systematic and multidisciplinary approach of mapping, monitoring and controlling the impact caused by the mining activities is necessary so as to understand the character and magnitude of these hazardous events

Environmental Impact Notification S.O.1533 (E), dt.14th September 2006,as amended 2009 & 2012 issued under Environment (Protection) Act 1986, has made it mandatory to obtain environmental clearance for scheduled development projects. The notification has classified projects under two categories ‘A’ & ‘B’. Category A projects (including expansion and modernization of existing projects) require clearance from Ministry of Environment and Forest (MoEF), Govt. of India (GoI) and for category B from State Environmental Impact Assessment Authority (SEIAA), constituted by Government of India.

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Ministry of Environment and Forest & Climate Change, (MoEFCC) Govt. of India vide its circular No. L-11011/47/2011-IA.II(M) dated May 18th 2012 states as under:

“In order to ensure compliance of the above referred order of the Hon’ble Supreme Court dated 27.2.2012, it has now been decided that all mining projects of minor minerals including their renewal, irrespective of the size of the lease would henceforth require prior environment clearance. Mining projects with lease area up to less than 50 ha including projects of minor mineral with lease area less than 5 ha would be treated as category ‘B’ as defined in the EIA Notification, 2006 and will be considered by the respective SEIAAs notified by MoEF and following the procedure prescribed under EIA Notification, 2006.”

In compliance to NGT order dated 13.09.2018 & 11.12.2018 in which it was directed to Ministry of environment, forest and climate change (MOEF & CC) to take appropriate steps to revise the procedure laid down in impugned notification dated 15 January 2016 in terms of the conformity with the letter and spirit of the directions passed by the hon,ble supreme court in Deepak Kumar Vs State Of Haryana others (2012) 4SCC 629 & also of NGT tribunal in original application no. 123 of 2014 dated 13.01.2015.

Therefore MoEF& CC issued a circular dated 12.12.2018 and accordingly the project comes under category B2 thus applied for environmental clearance under this category.

A prior environmental clearance granted for a specific project or activity to an applicant may be transferred during its validity to another legal person entitled to undertake the project or activity on application by the transferor or the transferee with a written “no objection” by the transferor, to, and by the regulatory authority concerned, on the same terms and conditions under which the prior environmental clearance was initially granted, and for the same validity period.

2.1 IDENTIFICATION OF THE PROJECT AND PROJECT PROPONENT

The present proposal for a mining of brick earth in village Salarpur (mangalaur) & Kamaura mangalaur, Tehsil – Rorkee, District- Haridwar, (U.K.) for lease area 2.446ha. by M/s Ram brick field, District Haridwar. The Gata Nos. of lease area are 48, 103, 105, 47, 311, 312, 281 & 310. The project proponent intends to excavate clay for brick making for their brick kiln established near the proposed mining site.

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2.2 Brief description of the nature of the project:-

The proposed project is to mine brick clay from above mentioned plots sustainably and scientifically. Mining will be opencast and Manual method & as per mining rules keeping all the nearby plots unaffected. Following geo-scientific methods are proposed to carry out the activity:

1. Mining will be confined to extraction of Brick Clay in its existing form, from their allotted plots only.
2. Mining of Brick Clay from their allotted plot (s) will be restricted to a maximum depth of 1.8m from the surface.
3. No drilling and blasting is proposed.
4. Approximately 7044 cum/season minor mineral will be extracted.
5. No mining activity will be undertaken during the monsoon season.
6. In order to avoid environmental pollution or any accidental hazards, the mining activity will be restricted to daytime only.
7. The operation will remain Manual.

2.3 Need for the project and its importance to the country and region.

The production of Brick Clay will benefit to the state in the form of royalty. Apart from this project operation will provide employment directly and indirectly to the people residing in vicinity, thus improving the Socio- economic status of the area.

Clay/brick earth mining is small scale activity for making of bricks. Bricks are consumed in large quantities in road, building construction, and other infrastructure developmental activities. It has major role in development. The activity will also generate direct as well as indirect employment to the locals; apart from this it will earn revenue for state in terms of royalty.

2.4 Demands-Supply Gap

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Brick Clay has become a very important mineral for the manufacturing of Bricks which contributes to the expansion of infrastructure in the society. With the increase of urbanization the demand for Bricks is growing in infrastructure sector in our country. Individual and private companies are increasingly demanding Brick for construction purposes and this has immense pressure on brick clay resources. This increasing demand and extraction makes this an environmental issue.

2.5 Domestic / Export Market

Due to the increased industrial and infrastructural growth of the rural and urban areas demand of Brick is very high. Construction companies and local vendors in the nearby town and cities are the potential market for the brick made up of brick clay.

2.6 Employment Generation

The proposed project will generate direct /indirect employment to the people of all class of society. During the operational phase not more than 23 semi skilled and non skilled workers will be hired. The contractors will get the direct or indirect benefit from the project activity

3. PROJECT DESCRIPTION

Type of Project

Type of project including interlinked and interdependent projects, if any

This is an independent new mining project. The proposed project is for the extraction of Brick Clay from the allotted plot(s) manually

3.2 Location

The Soil mining lease area is located at village Salarpur (mangalaur) & Kamaura mangalaur, Tehsil Rorkee, District:- Haridwar, Uttarakhand. No ecological Sensitive zone that lies within 10 Km radius of the proposed soil mining project activity.

As per the EIA Notification 2006 & OM dated 12.12.2018 the project will be considered as a Category 'B-2' project. A Buffer map of 05 km radius is attached as **Annexure III**.

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3.3 Details of alternate sites considered and the basis of selecting the proposed site, particularly the environmental considerations gone should be highlighted.

Mining is site specific and feasible in the allotted area. Hence no alternative site is examined for mining.

3.4 Size or magnitude of operation

It is a new mine & being applied for environmental clearance. The proposed production is 7044m³ per year.

The excavated quantity of clay will be used to make about **35 Lakh** bricks per Year.

3.5 Project description with process details

The proposed project is to mine Brick Clay from plot(s) by sustainably and scientifically. Mining will be opencast and manually along the plot (s) keeping the nearby plot (s) unaffected. Following geo-scientific methods are proposed to carry out the activity:

Salient Features of the Mode of Working:

- ❖ It will be opencast Manual mine.
- ❖ No Drilling & blasting will be done
- ❖ Working pit in the mine will be developed by proper benching formation
- ❖ The activity will be done in single shift operation
- ❖ Excavated clay will be used onsite for manufacture of bricks
- ❖ Bricks will be stored at storage site.

No heavy earth moving machinery/equipments will be deployed. Only Manual mining will be done.

The vehicle for transportation will be hired from local villages. The water tanker will be hired for sprinkling purpose. On-call ambulance facility will also made available for proper treatment of any mishap during mining activity.

PROCESS DETAILS

Normally, brick contains the following ingredient:

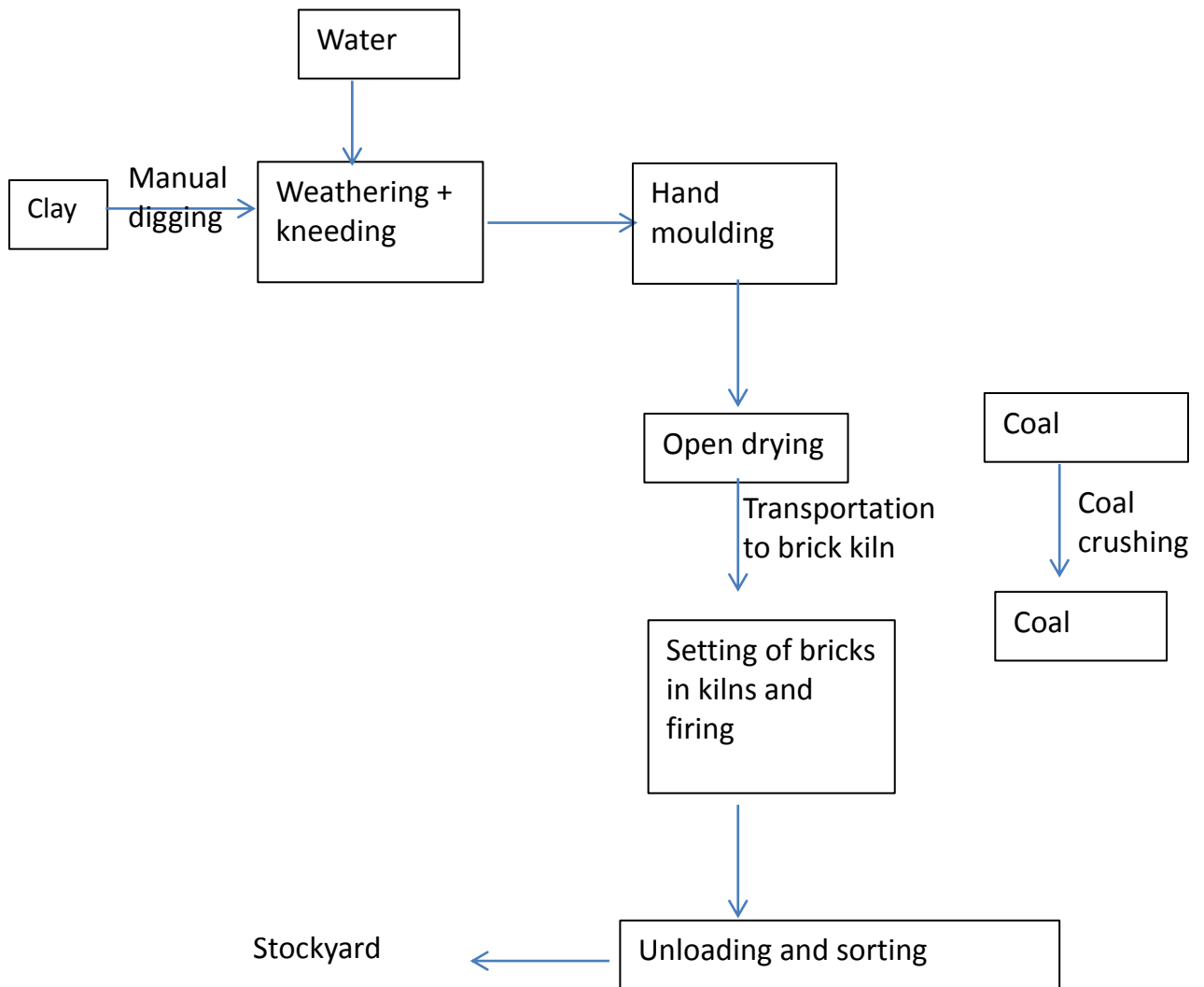
1. Silica (sand) – 50% to 60% by weight

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2. Alumina (clay) – 20% to 30% by weight
3. Lime – 2 to 5% by weight
4. Iron oxide – $\leq 7\%$ by weight
5. Magnesia – less than 1% by weight

The soft mud method is the most common, as it is the most economical. It starts with the raw clay, preferably in a mix with 25–30% sand to reduce shrinkage. The clay is first grinded and mixed with water to the desired consistency. The clay is then pressed into steel moulds with a hydraulic press. The shaped clay is then fired ("burned") at 900–1000 °C to achieve strength. The process chart for brick manufacturing is illustrated in figure given below-

Process flow:-Manufacturing of bricks



Fired bricks are burned in a kiln which makes them durable. Modern, fired, clay bricks are formed in one of three processes -soft mud, dry press, or extruded.

3.6 Raw Material Required Along With Estimated Quantity, Likely Source, Marketing Area of Final Product/S, Mode of Transport of Raw Material and Finished Product

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It is a small scale activity, which as a matter of fact, extracts raw material from nature. The important inputs required for excavation of desired quantity of clay are shown in the table given alongside.

Inputs	Approx Quantity required
Bricks manufacturing	5.0 KLD
Water for Sprinkling	1.0 KLD
Water for drinking	0.7 KLD
Water for horticulture	1.0 KLD

Market and Mode of Transport:

The proposed production of clay is 7044 m³ per year that will be use used in manufacturing of bricks and transported from the mining site to brick kiln. The manufactured bricks will be transported through mule carts from mine to brick kiln.

3.7 Resource optimization/ recycling and reuse

There will be very small quantity of domestic waste in terms of food and packaging materials generated by workers. This waste will be disposed off on composting site. No servicing of vehicles will be done onsite hence no onsite generation of used/waste oil.

3.8 Availability of water its source, energy/ power requirement and source

Requirement of Water, Energy/Power:

The requirement of water is given above under raw materials. About 1.0 KLD water will be required for sprinkling on haul road for suppressing dust, 0.7 KLD for drinking, 0.5 KLD for horticulture & 5 KLD for casting of bricks. The mining staff/workers use water from hand pump & supplied by water tankers.

Quantity of wastes to be generated (liquid and solid) and scheme for their management/ disposal.

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No liquid waste is generated during the mining. No chemical or toxic effluents are made/ discharged in the area during mining operations.

3.9.1 Solid Waste Generation & its Disposal

No solid waste generation is expected, hence no disposal is required.

3.9.2 Liquid Effluent

No liquid effluent will be generated at the mine site due to the mineral excavation.

4.0 SITE ANALYSIS:

4.1 Connectivity:

The lease hold area falls in village-Salarpur (mangalaur) & Kamaura mangalaur, from where Roorkee railway Station is 4 km N. The Salarpur (mangalaur) & Kamaura mangalaur village is located 0.5 km away from mine site. The site is easily assessable form road.

4.2 Landform, Land-use and Ownership:

The landform represents typical clay features suitable for manufacturing of bricks. The area of lease is 2.446ha. No proposal of office, workshop onsite. The mining site is adjacent to brick kiln hence all essential infrastructure facilities are already available at brick kiln site.

Land of applied area has been taken on agreement for five years period. Entire lease area is free from forest land.

Topography:

Haridwar district is located in south – western part of Uttarakhand State. It lies from 29⁰ 35' to 30⁰ 40' North latitude and 77⁰ 43 ' to 78⁰ 22' East longitude and falls in Survey of India Degree Sheet Nos. 53 J, F, G and K. Dehradun and Pauri bounds the district in northeast, Bijnor district of Uttar Pradesh in the south-east, southern boundary with Muzaffarnagar district of Uttar Pradesh while the western part is bounded by district Saharanpur. The geographical area of the district is 2360 km².

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Haridwar district has been divided into three Tehsils viz. Roorkee, Bhagwanpur and Laksar and six Development Blocks namely Roorkee, Bhagwanpur, Laksar, Khanpur, Bahdarabad and Narsan and comprises 622 villages.

Haridwar district has been very well connected with the network of metalled roads and railway lines. The length of metalled road in the district is 1871 km out of which 954 km are under the Public Works Department. The major towns of Haridwar district are connected by railways.

Geology:

The topography is undulating in the northern part and more or less plain towards south. The altitude ranges from 869 to 232 m. In the vicinity of Siwalik Hills, the gradient is steep. Geomorphologically Haridwar district can be divided into four geomorphic units. These are flood plain, lower piedmont plain, upper piedmont plain and structural hills.

The flood plain area is relatively flat, low lying and adjacent to Solani River. It comprises unconsolidated, coarse to fine sand with silt and clay. The area is repeatedly inundated during the floods. The lower piedmont plain is flat to undulating with gradient towards southwest having micro relief. The sediments vary from fine clastic to coarse clastic manifesting in variable runoff and infiltration.

The upper piedmont zone is narrow, southerly sloping upland adjoining the Siwalik Hills in varying lateral and areal extent formed at the foot hills by the coalescence of several alluvial fans comprising unsorted coarse clastic sediments (boulders, pebbles, gravels sand and clay). It has high gradient (about 10 m/km) in the northern part to about 0.4 m/km in the southern part close to Tarai. In this zone, most of the ephemeral rivers draining the area disappear. There is high moisture content in upper piedmont zone which support dense forest and lies to the south of Bhabar zone.

Structural hills show high relief and deep incised drainage with steep and sharp hill slopes and well defined crest line (northern boundary of the block). This unit shows rugged topography and homogenous lithology. The vegetation is dense indicating the presence of loose alluvial material.

SOIL

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Soils play an important role in ground water recharge and the agriculture production of the area. The land of Bhagwanpur block is highly fertile. The northern part, paleochannels and active floodplain of rivers have soils of sandy loam, where as remaining part of the block is covered by silty loam soils. Important soils are Ultisols, which are the brown hill soil, occurring all through the northern part of the block. These are the soils with a horizon of clay accumulation and low base supply. Entisols are the soils (also called the Bhabar soil) occurring all along the foothills of Siwaliks and extends up to Tarai. These soils are without pedogenic horizons. Though these soils consist of boulders, pebbles, sand, silt and clay, they are highly fertile. Mollisols, also called the Terai soil, occur in the southern part of the block. They consist mainly of fine-grained sand, silt and clay. These are the soils with a nearly black, organic-rich surface horizon and high base supply. These three types of soils are mineral soils with organic matter less than 25%. These are the most fertile soils of the block.

HYDROGEOLOGY

The ground water conditions in alluvial parts of Haridwar district are considerably influenced by the varying lithology of the subsurface formations. The fluvial deposits of Indogangetic Plains exhibit significant variations, both laterally and vertically. The main source of water, which sustains groundwater in the district, is rainfall. The other sources of groundwater replenishment are infiltration from canals and irrigation return flow. The common ground water abstraction structures in Haridwar district are shallow and deep tubewells. Dug wells are also used for drinking and other domestic purposes up to a limited extent. Most of the dug wells have been abandoned.

Hrdrogeological surveys carried out in Haridwar district showing that, water levels range from 0.78 to 50.20 m bgl in pre-monsoon period and from 0.64 to 48.56 m bgl during post- monsoon period, respectively. The northern and northeastern parts of the district comprise boulders, pebbles, gravels, sand and clay, which form a good recharge zone. The water levels in this area range from 4.02 to 50.20 m bgl. The deepest water level was recorded at Laldang in Bahadrabad block. The water level in gangetic alluvium ranges from 0.64 to 24.13 m bgl. The deepest water level is recorded at Bhagwanpur town.

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Alluvium is the main water bearing formation in the area, which consists of coarse sand, fine sand and silt. Ground water in Haridwar district occurs under unconfined, confined and semi-confined conditions. The aquifers are separated with thick clay with considerable thickness, which act as confining layers. The water level data suggests the presence of multilayer aquifer system. The first one is unconfined and the others are semi-confined to confined. The depth of first unconfined aquifer ranges from 4 to 8 m bgl and the others are 18 to 25 m bgl, 40 to 60 m bgl and 90 to 120 m bgl. Due to variable thickness of clay layers, the aquifers become double layered from west to east.

4.4 Existing land use pattern

The mine lease area is flat. There is no forest land or agriculture land in the soil mine lease area.

4.5 Existing Infrastructure

No infrastructure available on site.

Sensitivity of Location:

There is no any significant sensitive structure with in 5 km buffer zone around the mining site. The proposed mining activity is a small scale activity without drilling and blasting. Only manual method will be envisaged to excavate the desired quantity of clay. There is no national park, wild life sanctuary within 15 km. There are few small ponds within 5 km radius. Hence no major impact on environment has been anticipated.

Existing Infrastructure:

Electricity is available in nearby village, communication facilities have also been improved with introduction of mobile phones.

Climate:

District Haridwar experiences moderate subtropical to humid climate with three distinct seasons viz. summer followed by rainy and winter seasons.

Temperature begins to rise from March (29.10C) and reaches to its maximum in May (39.20C), with the commencement of monsoon season by mid-June, the temperature begins to

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fall. During the winter season in the month of November to February the temperature ranges between 10.50C and 6.10C.

The relative humidity is highest in monsoon season (85% in the morning and 79% in the evening). The lowest humidity is observed during the month of April and May i.e. 24% (in evening) and 40% in May (in morning). The mean monthly wind speed is highest in the summer season when it goes up to 7.4 and 7.2 km/hour in the month of May and June and the minimum wind speed is observed during winter when it is 2.6 km/hour in the month of October. The potential evapotranspiration is maximum in the month of May 198.9 mm and minimum 38.5 mm in the month of December.

The average normal annual rainfall in Haridwar district is 1174.3 mm, out of which 84% is received during monsoon season and only 16% occurs during non-monsoon period. The district receives heaviest rainfall in northern part. The rainfall gradually decreases towards south. To study the recent trend of rainfall distribution over the district, monthly rainfall during monsoon has been given in Table 2. The monthly distribution of rainfall during the monsoon season over the district shows that July and August are the wettest month in the district having a rainfall 329.3 and 393.8 mm, respectively. The rainfall during the month of July and August is more or less the same. The monsoons retreat in the first fortnight of October giving a meager rainfall of about 31 to 34 mm. Maximum rainfall occurs in the foothills of Himalayas and gradually decreases towards south.

Social Infrastructure available:

Hospital:

The Primary Medical Health Centre in Roorkee apart from this, other government, private hospital & nursing homes facilities are also available in Rorkee.

School:

Primary, junior high school and higher education facilities are available in in Rorkee & Haridwar.

Transport:

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The lease area is located adjacent to NH-58 road. Local bus services are easily available on this road.

Mineable Reserve:

The mineable reserve are 35222 m³ considering 1.8 m as depth of excavation, leaving berm, and area left in slope/safety measures.

5.0 PLANNING BRIEF:

A mining project is much different than other industrial projects. Therefore, it's planning part also differ. In case of brick earth mining, the mining is small scale activity and granted the clay to be excavated will be used for manufacture of bricks for captive brick kiln of project proponent. This mining activity is simple, to be practiced by manual method upto 1.8 metre depth only. However, the salient and important features of this project are given below —

- The maximum strength of workers will be 23.
- The workers will be hired from local area.
- It is an open cast Manual mining.
- The ultimate land use of mined out land area is proposed to be restored.
- During plan period local plants shall be used for plantation purpose. Plantation shall be undertaken along the roads, community places.

5.2 Population projection

The project will employ most of the workers from nearby villages except for supervisory staff. Thus there will no increase in population due to the project. However, few people from other area may migrate in this area for business opportunities.

5.3 Land use planning

The land use of the mine lease area is agricultural and there will be no change in land use after operation. The ultimate land use of the mine lease area will not be change. Extracted mineral will be used in casting raw bricks which will be transported directly to the kiln, the workers will be hired locally and temporarily, no housing facility will be required.

5.4. Assessment of infrastructure demand (physical &social)

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5.4.1 Physical

The road facility available which will be used maintained. The labor requirement is drawn from the nearest villages, which shall also be trained for the requirement in mines. Other requisite infrastructure for mine workers is Jeep or two-wheeler. Medical facility such as first-aid box will be provided at project site.

5.4.2. Social

This project is providing employment for about 23 people directly and indirectly including mine workers, supervisor and drivers.

5.4.3 Amenities/facilities

The following facilities/amenities will be extended by the mine management:

- Direct and indirect Employment, of which most of which will be from nearby villages.
- Arrangements for safe and healthy working conditions
- Provision of Drinking water.
- Conducting medical camps for workers and nearby villagers at regular interval.

6.0 PROPOSED INFRASTRUCTURE

6.1 Industrial area (Processing Area)

No industrial area is proposed.

6.2 Residential area (Non Processing Area)

The mine workers will be hired from nearby villages, no housing facility is required.

Physical Infrastructure:

As mentioned earlier the mining projects are much different than other industrial projects. Therefore, its infrastructure pattern is also different. The small lease area will be worked by manual means, thus not requiring electricity. The haul road is already available up to mine, hence no requirement of construction of roads however haul road will be properly compacted before start of activity.

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6.3 Green Belt/Afforestation:

During plan period local plants/native species having better survival rate will be selected will be planted along the road and boundary between brick kiln site and proposed mining area. Besides this, it is also proposed that periodical plantation drive will be undertaken in the surroundings with the involvement of community, to improve aesthetics of the environment. Plantation shall be done in large sized 50cm x 50 cm. pits dug in advance and filled with manure about 50 days before planting. The plantation raised earlier should be carefully maintained. Mortalities should be replaced by fresh saplings.

6.4 Social infrastructure

- Road facility (existing roads will be maintained regularly)
- Employment opportunity
- Medical camps
- Social awareness camps,
- Donations to schools
- Secondary employment opportunities
- Formation of self help groups for the women in nearby villages

6.5 Connectivity

Mining area is connected by an 'unmettaled' road which leads to the nearest metalled road thereafter the metalled road is connected to NH-58 road.

6.6 Drinking Water Management (Source & Supply of Water):

The drinking water requirement will be for mine workers. The strength of workers will be 23 so the total drinking water requirement will be 0.7 KL/day. The drinking water is provided through Hand-pump and bore well.

6.6 Sewerage System

No sewerage system is proposed at the mine site. However, bio-toilets will be provided for employee.

6.7 Industrial Waste Management

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Not applicable

Solid Waste Management:

There is thin topsoil cover that is supposed to dump on the earmarked dumping site. All the quantity of clay excavated will be used as raw material source for manufacture of bricks, and no waste will be generated.

No toxic and hazardous elements are present in the inter-burden material.

6.9 Power Requirement & supply/source:

Being a small scale activity and that to be undertaken with manual methods, hence no deployment of heavy earth moving machinery/equipments. Diesel will be used for transportation vehicles used for transportation of materials.

7.0 ADDITIONAL STUDIES

Risk & Hazards Management

As it is soil mining project, so there are no major risk and hazard activities associated with the proposed activities. But the project proponent will must take care the site location by:

- Appropriate fencing all around the borrowed/ excavated pit shall be made to prevent any mishap.
- Measures will be taken to prevent dust emission by covering of excavated soil during transportation.
- Safeguards will be adopted against health risks on account of breeding of vectors in the water bodies created due to excavation of soil.

REHABILITATION AND RESETTLEMENT (R & R) PLAN

The mining lease encompasses only 2.446 hectare area, which is almost low fertile agricultural land for agricultural use. There is no habitation existing on the mining area. The entire lease area is free from forest land. The land after end of the lease period will be restored for agricultural purpose, There will be no rehabilitation and resettlement involved with the project.

8. PROJECT SCHEDULE & COST ESTIMATES.

**Brick Clay Mining Project of M/s Ram Brick Field Vill: Salarpur (magalaur) & kamaura
mangalaur, Tehsil- Roorkee & Distt- Haridwar, Uttarakhand**

8.1 Likely date of start of mine:

The proposed activity is open cast Manual mining and will commence immediately after getting environmental clearance.

8.2 Estimated Project Cost along with analysis in terms of Economic Viability of the Project.

The project cost is about Rs. 25 lakhs. Due to Manual nature of activity the project is economically viable.

Rs. 50000 has been allocated for corporate environment responsibility programme in which solar street light will be installed in nearby village.

9.0 ANALYSIS OF PROPOSAL (FINAL RECOMMENDATIONS)

9.1. Financial and social benefits with special emphasis on the benefit to the local people including tribal population, if any, in the area

- There will be direct and indirect employment at the first instance. The employment will be given to locals.
- The brick earth mining activity is interlinked with brick kiln hence generation of indirect employment on brick kiln.
- Further, the share of indirect employment like increased purchasing power, dhabas and retail shops etc. is largely shared by local residents.
- The most important aspect of the project is the land proposed for mining is low fertile and not providing any significant income to the owner, implying that there will be no significant impact on the livelihood of residents.
- Finally, all clay excavated will be used in manufacture of bricks that will be used in construction of road buildings, which otherwise is a contribution towards building nation.