

**COMPLIANCE  
TO  
OBSERVATION  
OF  
EAC (NON-COAL)  
FOR  
GRANT OF ENVIRONMENTAL CLEARANCE**

**PROPOSAL FOR ENVIRONMENTAL CLEARANCE FOR STONE MINING  
FROM LOLO STONE DEPOSIT ALONG WITH CRUSHING & SCREENING  
PLANT IN THE AREA OF 6.047 HA LOCATED AT MAUZA - LOLO,  
BLOCK - RAMGARH, DISTRICT - RAMGARH, STATE - JHARKHAND  
BY M/S FAIRMINE RESOURCES LIMITED - EC**

**PROPOSAL NO. : IA/JH/MIN/173744/2020  
FILE NO. : J-11015/46/2020-IA-II(M)  
CONSULTANT : CRYSTAL CONSULTANTS**

## **OBSERVATION (1)**

*Serious concerns were raised by the public during the public hearing regarding the air pollution and the measures indicated are not adequate to satisfy the people in the location. People have also raised the issues regarding the transportation; therefore, the air quality data has to be monitored again at the site as well as in the villages, along the road as the emission during the transportation has been shown the maximum. The project proponent also needs to submit the proper and accurate micrometeorological data.*

## **COMPLIANCE (1)**

As directed by EAC (Non-Coal Mining), in their MOM of meeting held on the proponent has carried out air quality monitoring in the study area, the features of which are given below :

### **Environmental Monitoring**

#### **I. Ambient Air Quality Monitoring**

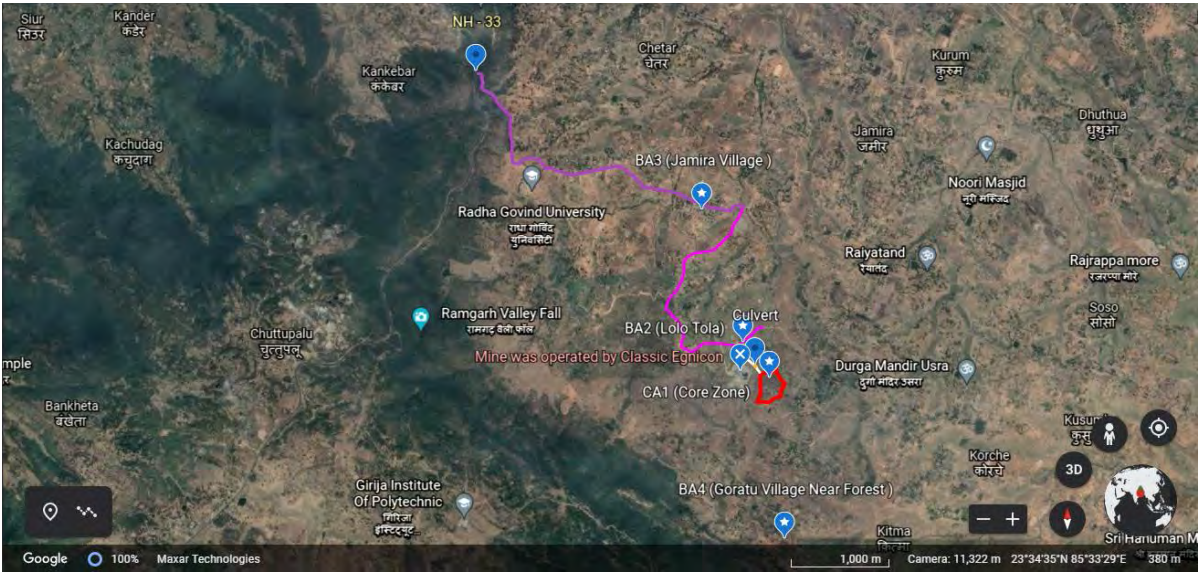
##### **a. Monitoring Station**

Ambient air quality has been monitoring at following locations-

**Table - I**

<b>Sl No.</b>	<b>Station Location &amp; Code</b>	<b>Direction WRT to Lease Area</b>	<b>Distance</b>
1	CA <sub>1</sub>	Core Zone	--
2	BA <sub>2</sub>	Lolo Tola (NW) 23°33'53"N 85°33'48"E	0.35 Km
3	BA <sub>3</sub>	Jamira Village (NW) 23°34'38"N 85°33'35"E	1.70 Km
4	BA <sub>4</sub>	Goratu Village Near Forest (S) 23°32'52"N 85°33'51"E	1.40 Km

Location of AAQ monitoring stations are shown in Fig -1



**FIG. 1**

**b. Frequency**

Three 24 hour samples were collected and tested in two weeks time.

**c. Parameters**

Ambient air quality monitoring programme covered following parameters –

- PM<sub>2.5</sub>
- PM<sub>10</sub>
- SO<sub>2</sub>
- NO<sub>x</sub>

**d. Results**

**Monitoring station – core zone. (CA-1)**

**Table - 2**

Date	Station Code	PM <sub>10</sub> (Mg/m <sup>3</sup> )	So <sub>2</sub> (Mg/m <sup>3</sup> )	NO <sub>x</sub>
1.12.21 to 2.12.21	23.4	43.1	8.6	12.7
8.12.21 to 9.12.21	22.7	42.8	9.2	10.8
15. 12.21 to 16.12.21	23.1	44	8.3	11.5

**BA<sub>2</sub>**

**Table - 3**

Date	PM <sub>2.5</sub> Mg/m <sup>3</sup>	PM <sub>10</sub> (Mg/m <sup>3</sup> )	So <sub>2</sub> (Mg/m <sup>3</sup> )	NO <sub>x</sub>
25.11.21 to 26.11.21	37.5	51.7	10.4	11.7
3. 12.21 to 4.12.21	41.4	61.2	9.3	9.8
10.12.21 to 11.12.21	38.7	59.6	11.6	10.4

**BA<sub>3</sub>****Table - 4**

Date	PM <sub>2.5</sub> Mg/m <sup>3</sup>	PM <sub>10</sub> (Mg/m <sup>3</sup> )	So <sub>2</sub> (Mg/m <sup>3</sup> )	NO <sub>x</sub>
23.11.21 to 24.11.21	41.6	58	9.7	12.3
29.11.21 to 30.11.21	42.8	62.1	11.2	12
6.12.21 to 7.12.21	44.8	63.7	12.5	13.6

**BA<sub>4</sub>****Table - 5**

Date	PM <sub>2.5</sub> Mg/m <sup>3</sup>	PM <sub>10</sub> (Mg/m <sup>3</sup> )	So <sub>2</sub> (Mg/m <sup>3</sup> )	NO <sub>x</sub>
27.11.21 to 28.11.21	42.3	61.1	12.1	14.3
5.12.21 to 6.12.21	37.6	60.8	13.6	14.6
13.12.21 to 14.12.21	40.7	59.2	11.7	13.7

**e. Analysis & Interpretation**

Presently major source of generation of air pollutants in the study area is movement of diesel / petrol based vehicles on road connecting NH-33 to Lolo village. Road traffic on NH-33 which runs on NW side of lease area does not contribute significant pollutant to study area as there is thick green belt between NH-33 & study area. Other source of dust is fallow apicultural land in study area.

Prevailing wind direction in area has been found to be from NW to SE direction. This being so, area lying on SE direction of the road receives air pollutant generated by road traffic. However level of PM<sub>2.5</sub>, PM<sub>10</sub>, So<sub>2</sub> & NO<sub>x</sub> at all monitoring station have been found to be below the level prescribed by MoEF & CC /CPCB. Atmosphere has sufficient assimilative & supportive capacity to absorb additional load of air pollutants to be generated by project activities without exceeding prescribed limit.

**Noise Monitoring**

Noise level at all ambient air quality monitoring station were monitored by integrated noise level meter covering day & night. The results of noise monitoring are given in Table – 6

**NOISE LEVEL {db(A)}****Table - 6**

Sl No.	Station	Day	Night
1	CA <sub>1</sub>	55.8	43.5
2	BA <sub>2</sub>	56.6	44.3
3	BA <sub>3</sub>	58.2	46.5
4	BA <sub>4</sub>	46.7	42.2

### **Analysis & Interpretation**

Presently there is no mining or other industrial project in operation that generate noise in the study area. Only source of noise is movement of vehicle on the evacuation route connecting NH-33 to village Lolo. Effect of movement of traffic on NH-33 does not have significant impact on noise level in the study area as. There is thick green belt between NH-33 & part of study area between mine lease & NH-33.

Level of noise observed both during day time & night time on all monitoring stations have been found to be below level prescribed by MoEF &CPCB.

## **OBSERVATION (2)**

The project proponent needs to submit the proper control measures to be taken during mining, crushing and transportation.

## **COMPLIANCE (2)**

# **ENVIRONMENT POLLUTION CONTROL ACTION PLAN FOR OPERATIONAL PHASE OF MINE**

### **Introduction**

The project has broadly three components.

- Mining of stone
- Crushing & Screening
- Transportation of Finished Product to Consumers by Road.

Activities associated with all above components are potential source for generation of environmental pollutants including dust, noxious gases, waste water, vibration & noise.

Appropriate environmental pollution control measures would be taken to mitigate above impact.

Component wise source of generation of air pollutants and corresponding mitigation measures are discussed below-

## **I. MINING**

### ***1. Control Measures for Air Pollution***

Project activities during project operation, would generate air pollutants. In this project major air pollutants that are of concern are dust PM10, PM2.5. Based on assessed impact appropriate pollution mitigation measures are to be implemented as recommended below to minimize the impact on ambient air quality would be implemented. From earlier discussion, it has been found that major source for air pollutant generation are drilling , blasting , haulage of material on road , crushing & screening. Source wise mitigation measures to control air pollution are described below.

#### **a) Mitigation measures for drilling operation**

Drilling for making Blast Holes are a source for dust generation in mining projects. Quantity of dust generated in drilling operation depends also on dia of drill. Larger the dia more is quantity of generation of dust. In this case dia of drill has been kept as 100 mm.

Principal dust suppression methods for drilling operation are wet drilling suppression by fog and dry dust collection, Wet drilling method is based on introduction of water into the hole being drilled through the centre of drill.

## **b) Dust Control On Haul Road**

- (I) Movement of haulage tippers on unpaved haul road within lease area is another source of dust generation. Sprinkling of water at frequent intervals is most practiced solution to dust control for haul road. Limitation of water alone has been found that water does not penetrate dust layer completely & flows out. Thus dust control is poor by this method . CIMFR has carried out several field trials to improve efficiency of water for dust control. These field trial have identified a number of chemical which when added to water in a fixed ratio , improve the efficiency of water in controlling dust generation from haul road including frequency of sprinkling and volume of water per sprinkling .In addition to it these chemical are found to be bio- degradable. The project proponent would approach CIMFR for identification of appropriate chemical. Dust from haul road would be controlled by sprinkling water with identified chemical. DGMS vide its circular 8 of 97 also recommends addition of suitable chemical to water for improving efficacy to control dust generation.
- (II) Haul road within quarry would be repaired & maintained regularly.
- (III) Overloading of tippers carrying ROM Stone would be avoided.
- (IV) Plantation in safety zone.

## **2. Control Measures For Vibration & Noise**

### **2A. Noise Mitigation**

Noise pollution mitigation measures to be implemented during operational phase of Project are described below.

- (i) Sharp drill bits will be used for drilling. This will reduce noise generation during drilling.
- (ii) Charge per delay would not exceed optimal quantity of explosive. This will ensure that noise level generated due to blasting would be lower.
- (iii) Staggering manner of blasting would be done to reduce generation of noise.
- (iv) Controlled blasting would be practiced which would reduce generation of noise. Non electric detonators will be used for initiation of blast.
- (v) Earmuffs/ earplugs will be provided to workmen exposed to high noise zone in the mine.
- (vi) Proper maintenance, oiling greasing of mining & haulage equipments.
- (vii) Enclosure would be provided around crusher and screening plant with acoustic screen. This will mitigate noise pollution. This screen will control propogation of noise to human habitation near the lease area.
- (viii) 7.5 m wide thick green belt around safety zone would be provided. This will mitigate noise produced within lease area.

### **2B. Control of Ground vibration.**

Vibration caused by blasting would be controlled by implementing following mitigation measures.

- (i) Charge per delay of the holes will be kept in such a way that ground vibration generation due to blasting is within the prescribed limits of DGMS guidelines.
- (ii) Vibration would be minimized by using controlled blasting techniques. Blast geometry will be designed in such a way that explosive charge per delay and

overall explosive charged in a blast are within the optimum limit to minimize the vibration.

- (iii) Face orientation of the blast will be kept in such a way that the vibration propagates in different directions where village dwellings are existing.
- (iv) No secondary blasting would be undertaken.
- (v) Stemming column shall be more than the burden to avoid blown out shots.
- (vi) Staggered manner of blasting would be followed.

### 3. **Water Pollution Mitigation Measures**

Mitigation measures for prevention and control of water pollution will be taken during operational stage of Project. These measures are described below.

#### **(i) Mine Drainage.**

As per approved mining plan for the Project, the quarry is not to intersect ground water table. As such quarry will not receive water during non-monsoon period. During the monsoon, quarry will receive water due to precipitation. Following mitigation measures will be taken.

(a) Provide garland drain around quarry to collect surface run-off caused by rain in lease area on higher elevation. Water intercepted in these garland drains would collect surface run-off from upper area before it flows into mine pit & diverted to decantation pond. Treated water from decantation pond will overflow to natural drainage system. Decantation pond would be provided in safety zone.

(b) Water collected in quarry during monsoon season caused by precipitation over quarry area will be pumped out to facilitate safe mining. This water will also be diverted to decantation pond for removal of suspended solid.

#### **(ii) Sewage Treatment & Disposal.**

Sewage will be generated in rest shelters provided for mine workmen. For treatment & disposal of this sewage, septic tank and cess pool will be provided.

#### **(iii) Catch Drain.**

The Lease area has gradient towards NE – SW side. Surface run-off caused by rainfall in lease area will flow towards NE & SW side. This surface run-off may carry suspended solid collected from active mining area. In order that this surface run-off do not flow to properties contiguous to lease area, catch drain would be provided. Water collected in this catch drain would be diverted to decantation pond for facilitating sedimentation. Treated water will flow to natural drainage channel flowing by side of lease area on western & eastern side.

## **II. CRUSHER CUM SCREENING PLANT**

### **1. Air Pollution Control**

It is proposed to use wet system of dust control method to control dust generated by crushing of ROM boulders & screening

Component of this system include

#### **A. Containment Enclosures**

- **Enclosure for Crusher Discharge Area**

The crusher discharge area from the crusher platform down to ground level has to be enclosed using permanent GI sheet type system. It will have opening for entry of Tipper to discharge ROM boulders.

- **Enclosure to Screen**

The cylindrical screen will be covered with PVC sheets with an opening for maintenance. The sheet covering will restrain dust generated during screen process to get air borne.

#### **B. Dust Suppression System**

The system would comprise of introducing moisture into the material flow by spraying water at key dust generating locations so as to restrain fine particulate matter from becoming air borne. Small quantities of specially formulated wetting agent blended with water would be used for spraying on dust generating point. The nozzles would be provided at following location.

- **Primary crusher feeder chute**
- **Primary crusher discharge**
- **Secondary crusher feeder chute**
- **Secondary crusher discharge location**

This system is capable of reducing dust emission by 70%. A separate arrangement would be made to control dust generated on account of screening of crushed stone to pre-determined size. The screen would be covered from all round with a access to the screen for repair.

### **2. Vibration & Noise**

Operation of the crusher and screening plant would generate vibration and noise. Mitigation measures proposed to be used during the operational phase include following. Following arrangements would be made to mitigate vibration & noise produced by operation of crusher & screen.

- a. Provide vibration isolator or vibration absorption pad (Rubber pad) in the foundation of crusher. This will reduce vibration & noise generated by operation of the crusher.
- b. Faulty functioning of rollers in the belt conveying system is the one of the cause for vibration and noise. To avoid this precision made sealed self-greasing rollers would be used in the belt conveyor.
- c. Chutes would be provided at transfer point to minimized height of fall.
- d. Acoustic screen would be provided between the crusher cum screening plant and nearest human habitation. This screen would be put-up within the lease area and

human habitation the screen would be about 3 m away from the crusher and its height would be about 1.5 m higher than the top most level of crusher.

### **3. Waste Water**

Water is to be used for separation of dust in the crushing plant. Estimated quantity of water would be 2.5 KLD. This quantity is not significant requiring specific treatment. This will be lost on account of ground percolation and evaporation.

## **III. ROAD TRANSPORTATION**

The mine will produce a total of 1203 Tonnes of stone chips per day which will be transported to the consumer by road to the evacuation road connecting lease area to NH-33. Transportation of the product by road would generate air pollutants and noise .

- Dust control action plan
  - Overloading of the transportation vehicle would be strictly prohibited.
  - Transporting vehicle would be covered with PVC sheet.
  - Transporting vehicles with “Pollution under control” only will be operated.
  - Speed restriction rambblers would be provided across the evacuation route near the adjoining villages. This will be provided to check the speed of transporting vehicle (Below 20 KMPH). Signboard would be provided by the side of the road to inform the driver about speed limit (20 KMPH).
  - Avenue plantation would be raised consisting one row of tree (ever green species with thick foliage) on either side of the road along the evacuation road (3 M C/C).
  - Arrangements would be made to sprinkle water on evacuation road three times of the day. Water would be mixed with chemicals that would improve efficiency of dust control.

**OBSERVATION (3)**

The cost of EMP is inadequate. Therefore, the project proponents should include measures for control of noise, vibration and dust separation during blasting and submit.

**COMPLIANCE (3)**

As directed by committee, we revised EMP cost.

**REVISED EMP COST**

<b>Capital Budget</b>	<b>Rs. (in Lakhs)</b>
Water sprinkler	10.00
Garland Drains Decantation pond Interception channel	5.00
Rainwater Harvesting Structure	5.00
Check Dam	10.00
Green Belt	7.00
Dust Control Measures Crusher House	5.00
Acoustic Screen in Crusher House	3.00
Dust Control Measures for the Drill	1.50
Avenue Plantation along evacuation road	3.00
Culvert on the Nallah crossing the link road	5.00
Socio Economic Development Schemes	5.00
<b>TOTAL</b>	<b>59.50</b>
<b>Annual Budget</b>	
Operation & Maintenance	5.00
Road Maintenance	5.00
Chemical for Dust Suppression	2.50
Environmental Monitoring	5.00
Annual Occupation Health Check – Up	2.50
<b>TOTAL</b>	<b>20.00</b>

**OBSERVATION (4)**

The project proponent should also demonstrate the impact of noise and vibration during drilling and blasting on village Lolo as well noise impacts on the roads particularly in the villages.

**COMPLIANCE (4)**

This issue already complied in Sl. No. 2

### **OBSERVATION (5)**

The project proponent should demonstrate the impact of mining on the nala which is being crossed by a kachcha road as well as any impact on Damodar River due to stone mining and crushing in this area as this particular area looks to be rich in stone.

### **COMPLIANCE (5)**

Link Road connecting lease area in Lolo village to NH-33 through evacuation road which is about 3.5 Km long is partly black topped and partly metalled crosses a seasonal Nala. Shown as "A" in enclosed study area plan (Plate-I). This drainage crossing would consist of a pipe culvert with abutments & splay wall. This would be designed to take load of Trucks passing over it. The abutment and splay wall will prevent flow of loose soil to the water stream. This will ensure that the hydrology of seasonal stream is not affected as well quality of stream water is not impacted.

Quality of water of this seasonal stream would not be affected by project activities as no waste water generated by project would be allowed to flow into this stream. This has been explained at compliance to observation.

### **OBSERVATION (6)**

As 1203 tonnes per day will be excavated as per the plan given, no. of trucks that will be deployed, the frequency of vehicles and emissions from the vehicles (air and noise both) needs to be computed and mitigated through proper measures.

### **COMPLIANCE (6)**

Evacuation of the finished product will generate the additional traffic of 60 Trucks in a day. This works out to 8 trucks per hour which will be approx. 8-9 minutes per vehicles.

With this rate of vehicle movement there would not be overlapping of noise produced by one truck with the Truck following it or leading it. Thus, the net noise level close to the evacuation route will be that of noise produced by 1 truck. The observed level of noise is 70 dBA when measured at a distance of 3m from the source. There is also less sound pressure level with increasing distance. With this situation the level of noise in village located at some distance (say 100m) from the highway will be less than the prescribed limit. Normally the human habitation are about 100-200m away from the road.

**OBSERVATION (7)**

The project proponent needs to submit an undertaking stating that the quarry seen in the mine lease area through KML file is not done by the present project proponent. The PP also needs to submit the copy of Geology report mentioning about the quarry already done.

**COMPLIANCE (7)**

Undertaking by the PP with the copy of Geological Report published by Dept. of Mines & Geology, Govt. of Jharkhand is attached.

### **OBSERVATION (8)**

The project proponent needs to submit the potential impacts on the protected forest due to dust, since protected forest is only 1.5 kms from the mine lease.

### **COMPLIANCE (8)**

Nearest forest is located on south side of the lease area. Its distance from boundary of lease area is 1.5 KM.

Prevailing wind direction in the study area has been found to be from NW to SE. Thus air pollutants generated by project activities would impact air quality on area lying in SE quadrant.

Using Aermom versin-9.0 prediction of project activities on air quality have been drawn for study area.

It has been concluded from the study that contribution of air pollutants generated by project activities have insignificant impact at a distance of 1.5KM from lease area. Present level of PM<sub>10</sub> near the forest has been observed as 61.1 Mg/m<sup>3</sup>. Hence net level of PM<sub>10</sub> near forest would be a little over this value.

Impact of project activities on ambient air quality is confined to area covered under 100-200 m from lease area. Thus impact of project activities on the nearest forest would not be significant.

**PERIOD – 1ST DECEMBER, 2021 TO 15TH DECEMBER, 2021**

**COPY OF HOURLY OBSERVATION OF MICRO – METEOROLOGICAL DATA**

Date	Time	Temp	Rain	Wind speed (Km/hr)	Wind Directio	Cloud	Humidity	Pressure in mb
01/12/2021	0:30	20°C	0.0 mm	3	292.5	48%	60%	1014
	1:30	20°C	0.0 mm	3	292.5	48%	59%	1014
	2:30	22°C	0.0 mm	4	270	48%	59%	1014
	3:30	22°C	0.0 mm	4	270	47%	53%	1014
	4:30	22°C	0.0 mm	4	270	47%	45%	1015
	5:30	22°C	0.0 mm	4	292.5	47%	40%	1016
	6:30	25°C	0.0 mm	4	315	46%	39%	1016
	7:30	30°C	0.0 mm	4	315	46%	35%	1016
	8:30	31°C	0.0 mm	4	315	35%	32%	1015
	9:30	32°C	0.0 mm	5	337.5	29%	31%	1015
	10:30	33°C	0.0 mm	5	337.5	27%	31%	1014
	11:30	34°C	0.0 mm	6	0	26%	30%	1013
	12:30	34°C	0.0 mm	6	0	14%	30%	1012
	13:30	34°C	0.0 mm	6	0	15%	35%	1012
	14:30	34 °c	0.0 mm	7	0	13%	40%	1012
	15:30	32°C	0.0 mm	5	0	10%	46%	1012
	16:30	30°C	0.0 mm	4	0	9%	49%	1013
	17:30	28 °c	0.0 mm	4	0	8%	53%	1013
	18:30	27°C	0.0 mm	4	292.5	7%	55%	1014
	19:30	26°C	0.0 mm	3	147.5	7%	55%	1014
20:30	24 °c	0.0 mm	3	202.5	6%	55%	1014	
21:30	24°C	0.0 mm	4	202.5	5%	55%	1014	
22:30	23°C	0.0 mm	4	225	5%	61%	1013	
23:30	23 °c	0.0 mm	5	225	44%	62%	1013	

Date	Time	Temp	Rain	Wind speed (Km/hr)	Wind Directio	Cloud	Humidity	Pressure in mb
02/12/2021	0:30	20	0.0 mm	2	0	44%	62%	1013
	1:30	20	0.0 mm	2	0	44%	63%	1013
	2:30	21 °c	0.0 mm	3	337.5	44%	63%	1013
	3:30	21°c	0.0 mm	3	337.5	45%	65%	1013
	4:30	20°c	0.0 mm	2	315	45%	45%	1014
	5:30	20 °c	0.0 mm	2	315	35%	39%	1015
	6:30	25°c	0.0 mm	1	315	25%	38%	1016
	7:30	29°c	0.0 mm	0	292.5	22%	37%	1016
	8:30	31 °c	0.0 mm	0	292.5	30%	36%	1015
	9:30	31°c	0.0 mm	1	270	45%	35%	1015
	10:30	32°c	0.0 mm	2	202.5	48%	36%	1014
	11:30	32 °c	0.0 mm	2	180	38%	37%	1013
	12:30	32°c	0.0 mm	3	180	22%	39%	1013
	13:30	31°c	0.0 mm	4	180	12%	50%	1013
	14:30	31 °c	0.0 mm	4	180	12%	52%	1013
	15:30	30°c	0.0 mm	5	180	11%	53%	1013
	16:30	29°c	0.0 mm	5	180	11%	55%	1014
	17:30	26 °c	0.0 mm	6	180	7	58%	1015
	18:30	25°c	0.0 mm	6	202.5	6	57%	1016
	19:30	24°c	0.0 mm	6	202.5	5	58%	1016
20:30	23 °c	0.0 mm	6	225	6	59%	1016	
21:30	23°c	0.0 mm	6	225	9	60%	1016	
22:30	22°c	0.0 mm	6	225	10%	65%	1014	
23:30	22 °c	0.0 mm	6	225	30%	64%	1014	

Date	Time	Temp	Rain	Wind speed (Km/hr)	Wind Directio	Cloud	Humidity	Pressure in mb
03/12/2021	0:30	20	0.0 mm	2	315	32%	65%	1014
	1:30	20	0.0 mm	2	315	32%	64%	1015
	2:30	21 °c	0.0 mm	3	292.5	35%	62%	1015
	3:30	21°c	0.0 mm	3	315	45%	61%	1015
	4:30	22°c	0.0 mm	2	315	46%	59%	1015
	5:30	22 °c	0.0 mm	4	315	35%	58%	1016
	6:30	25°c	0.0 mm	4	337.5	29%	45%	1016
	7:30	29°c	0.0 mm	4	337.5	12%	42%	1016
	8:30	29 °c	0.0 mm	4	0	12%	40%	1015
	9:30	30°c	0.0 mm	4	0	11%	34%	1015
	10:30	32°c	0.0 mm	4	0	11%	34%	1014
	11:30	33 °c	0.0 mm	4	22.5	15%	32%	1013
	12:30	33°c	0.0 mm	4	0	17%	33%	1012
	13:30	33°c	0.0 mm	4	0	20%	45%	1012
	14:30	33 °c	0.2 mm	4	337.5	19%	50%	1012
	15:30	30°c	0.2 mm	3	315	18%	55%	1012
	16:30	28°c	0.2 mm	2	315	17%	59%	1013
	17:30	26 °c	0.1 mm	2	315	15%	60%	1014
	18:30	25°c	0.1 mm	3	292.5	14%	61%	1014
	19:30	24°c	0.1 mm	4	247.5	13%	62%	1014
20:30	23 °c	0.1 mm	5	225	12%	62%	1014	
21:30	23°c	0.1 mm	4	270	11%	63%	1014	
22:30	22°c	0.1 mm	4	270	11%	69%	1014	
23:30	22 °c	0.0 mm	4	247.5	4	69%	1014	

Date	Time	Temp	Rain	Wind speed (Km/hr)	Wind Directio	Cloud	Humidity	Pressure in mb
04/12/2021	0:30	19	0.0 mm	2	292.5	4	69%	1014
	1:30	19	0.0 mm	2	292.5	4	69%	1014
	2:30	20 °c	0.0 mm	3	270	4	69%	1014
	3:30	20°c	0.0 mm	3	315	4	69%	1014
	4:30	20°c	0.0 mm	4	315	4	59%	1015
	5:30	19 °c	0.0 mm	4	0	4	50%	1016
	6:30	20°c	0.0 mm	4	0	4	49%	1016
	7:30	25°c	0.0 mm	4	0	4	48%	1016
	8:30	27 °c	0.0 mm	5	22.5	5	38%	1015
	9:30	29°c	0.0 mm	6	22.5	6	34%	1015
	10:30	30°c	0.0 mm	6	22.5	7	32%	1014
	11:30	31 °c	0.0 mm	7	22.5	8	32%	1013
	12:30	31°c	0.0 mm	7	22.5	9	30%	1013
	13:30	32°c	0.0 mm	6	22.5	10%	39%	1013
	14:30	32 °c	0.0 mm	6	22.5	9	41%	1013
	15:30	30°c	0.0 mm	6	0	5	45%	1013
	16:30	29°c	0.0 mm	5	0	6	50%	1014
	17:30	25 °c	0.0 mm	5	0	6	51%	1015
	18:30	24°c	0.0 mm	4	0	5	53%	1016
	19:30	23°c	0.0 mm	3	0	5	55%	1016
20:30	21 °c	0.0 mm	3	337.5	5	58%	1016	
21:30	21°c	0.0 mm	2	337.5	4	60%	1016	
22:30	20°c	0.0 mm	1	337.5	4	65%	1015	
23:30	19 °c	0.0 mm	1	337.5	11%	65%	1015	

Date	Time	Temp	Rain	Wind speed (Km/hr)	Wind Directio	Cloud	Humidity	Pressure in mb
05/12/2021	0:30	17	0.0 mm	0	0	8	65%	1015
	1:30	17	0.0 mm	0	0	8	65%	1015
	2:30	18 °c	0.0 mm	0	337.5	9	65%	1015
	3:30	18°c	0.0 mm	0	0	8	65%	1015
	4:30	17°c	0.0 mm	0	0	8	59%	1015
	5:30	17 °c	0.0 mm	1	0	7	38%	1016
	6:30	20°c	0.0 mm	1	22.5	6	37%	1016
	7:30	25°c	0.0 mm	1	45	5	35%	1016
	8:30	28 °c	0.0 mm	1	90	5	33%	1015
	09:30	30°c	0.0 mm	2	90	6	30%	1015
	10:30	32°c	0.0 mm	3	90	6	29%	1014
	11:30	33 °c	0.0 mm	3	90	9	29%	1013
	12:30	33°c	0.0 mm	3	45	11%	29%	1013
	13:30	33°c	0.0 mm	4	45	12%	35%	1013
	14:30	33 °c	0.0 mm	4	22.5	12%	40%	1014
	15:30	30°c	0.0 mm	4	22.5	13%	48%	1014
	16:30	28°c	0.0 mm	4	45	14%	50%	1015
	17:30	25 °c	0.0 mm	4	45	15%	55%	1016
	18:30	24°c	0.0 mm	4	67.5	16%	66%	1016
	19:30	24°c	0.0 mm	3	135	17%	66%	1016
20:30	22 °c	0.0 mm	3	157.5	18%	67%	1015	
21:30	22°c	0.0 mm	3	202.5	20%	67%	1015	
22:30	21°c	0.0 mm	4	225	22%	76%	1015	
23:30	20 °c	0.0 mm	4	247.5	55%	76%	1015	

Date	Time	Temp	Rain	Wind speed (Km/hr)	Wind Directio	Cloud	Humidity	Pressure in mb
06/12/2021	0:30	20	0.0 mm	4	247.5	55%	76%	1015
	1:30	20	0.0 mm	4	247.5	50%	76%	1015
	2:30	21 °c	0.0 mm	5	225	45%	77%	1015
	3:30	21°c	0.0 mm	5	225	39%	77%	1015
	4:30	21°c	0.0 mm	4	225	34%	65%	1015
	5:30	21 °c	0.0 mm	4	247.5	33%	59%	1016
	6:30	25°c	0.0 mm	4	270	32%	54%	1016
	7:30	27°c	0.0 mm	3	270	30%	45%	1016
	8:30	29 °c	0.0 mm	2	292.5	70%	40%	1015
	09:30	30°c	0.0 mm	2	315	85%	38%	1015
	10:30	31°c	0.0 mm	1	337.5	100%	40%	1014
	11:30	32 °c	0.0 mm	1	0	100%	45%	1013
	12:30	30°c	0.0 mm	1	45	100%	46%	1013
	13:30	29°c	0.0 mm	1	90	100%	49%	1013
	14:30	29 °c	0.0 mm	1	135	100%	50%	1013
	15:30	28°c	0.0 mm	1	135	100%	56%	1014
	16:30	27°c	0.0 mm	3	135	100%	65%	1015
	17:30	26 °c	0.0 mm	5	157.5	80%	69%	1015
	18:30	24°c	0.0 mm	5	180	85%	71%	1016
	19:30	23°c	0.0 mm	5	180	70%	72%	1016
20:30	23 °c	0.0 mm	5	202.5	65%	73%	1017	
21:30	23°c	0.0 mm	5	225	45%	75%	1017	
22:30	22°c	0.0 mm	4	225	35%	84%	1015	
23:30	22 °c	0.0 mm	4	225	6%	83%	1015	

Date	Time	Temp	Rain	Wind speed (Km/hr)	Wind Directio	Cloud	Humidity	Pressure in mb
07/12/2021	0:30	18	0.0 mm	2	247.5	5	82%	1015
	1:30	18	0.0 mm	2	247.5	5	82%	1015
	2:30	20 °c	0.0 mm	3	225	4	82%	1016
	3:30	20°c	0.0 mm	3	247.5	2	80%	1016
	4:30	20°c	0.0 mm	3	270	0	75%	1017
	5:30	20 °c	0.0 mm	3	292.5	0	55%	1017
	06:30	25°c	0.0 mm	3	315	0	45%	1018
	7:30	27°c	0.0 mm	3	315	0	40%	1017
	8:30	29 °c	0.0 mm	4	337.5	0	38%	1016
	09:30	30°c	0.0 mm	4	0	0	32%	1016
	10:30	31°c	0.0 mm	4	0	0	30%	1016
	11:30	32 °c	0.0 mm	4	0	0	29%	1015
	12:30	32°c	0.0 mm	4	0	1	29%	1014
	13:30	32°c	0.0 mm	5	0	2	39%	1014
	14:30	32 °c	0.0 mm	6	0	2	35%	1014
	15:30	30°c	0.0 mm	5	0	3	48%	1014
	16:30	29°c	0.0 mm	4	0	3	50%	1015
	17:30	25 °c	0.0 mm	4	337.5	3	55%	1016
	18:30	24°c	0.0 mm	3	315	3	64%	1017
	19:30	23°c	0.0 mm	3	270	3	69%	1017
20:30	21 °c	0.0 mm	2	225	2	70%	1016	
21:30	20°c	0.0 mm	3	225	0	71%	1016	
22:30	19°c	0.0 mm	4	225	0	65%	1015	
23:30	17 °c	0.0 mm	4	225	0%	66%	1015	

Date	Time	Temp	Rain	Wind speed (Km/hr)	Wind Directio	Cloud	Humidity	Pressure in mb
08/12/2021	0:30	18	0.0 mm	3	0	0	66%	1015
	1:30	18	0.0 mm	3	0	0	66%	1015
	2:30	19 °c	0.0 mm	4	0	0	67%	1016
	3:30	19°c	0.0 mm	4	0	0	68%	1016
	4:30	19°c	0.0 mm	4	0	0	58%	1016
	5:30	19 °c	0.0 mm	4	337.5	0	47%	1017
	06:30	20°c	0.0 mm	4	0	0	48%	1018
	7:30	25°c	0.0 mm	4	0	0	42%	1018
	8:30	27 °c	0.0 mm	4	0	0	35%	1017
	09:30	30°c	0.0 mm	4	0	0	33%	1017
	10:30	31°c	0.0 mm	4	0	0	30%	1016
	11:30	31 °c	0.0 mm	4	22.5	0	28%	1015
	12:30	31°c	0.0 mm	4	0	0	29%	1014
	13:30	32°c	0.0 mm	5	0	0	35%	1014
	14:30	32 °c	0.0 mm	5	0	0	40%	1015
	15:30	30°c	0.0 mm	5	0	0	47%	1015
	16:30	28°c	0.0 mm	4	22.5	0	55%	1015
	17:30	26 °c	0.0 mm	4	22.5	0	59%	1016
	18:30	25°c	0.0 mm	3	90	0	64%	1017
	19:30	24°c	0.0 mm	2	180	0	60%	1017
20:30	21 °c	0.0 mm	2	202.5	0	59%	1016	
21:30	21°c	0.0 mm	3	202.5	0	59%	1016	
22:30	20°c	0.0 mm	4	225	0	70%	1016	
23:30	20 °c	0.0 mm	6	225	0%	75%	1016	

Date	Time	Temp	Rain	Wind speed (Km/hr)	Wind Directio	Cloud	Humidity	Pressure in mb
09/12/2021	0:30	19	0.0 mm	2	270	0	76%	1016
	1:30	19	0.0 mm	3	270	0	76%	1016
	2:30	20 °c	0.0 mm	4	247.5	0	77%	1016
	3:30	19°c	0.0 mm	3	270	0	78%	1016
	4:30	19°c	0.0 mm	2	270	0	65%	1017
	5:30	18 °c	0.0 mm	2	270	0	55%	1018
	6:30	25°c	0.0 mm	2	247.5	0	44%	1018
	7:30	29°c	0.0 mm	2	247.5	0	42%	1018
	8:30	29 °c	0.0 mm	1	247.5	0	41%	1017
	09:30	30°c	0.0 mm	1	225	0	30%	1017
	10:30	32°c	0.0 mm	2	202.5	0	28%	1016
	11:30	34 °c	0.0 mm	2	180	0	26%	1015
	12:30	34°c	0.0 mm	2	135	2	26%	1014
	13:30	34°c	0.0 mm	1	67.5	3	45%	1014
	14:30	35 °c	0.0 mm	1	45	3	50%	1014
	15:30	30°c	0.0 mm	2	67.5	3	51%	1014
	16:30	29°c	0.0 mm	2	90	3	55%	1015
	17:30	25 °c	0.0 mm	3	112.5	2	65%	1016
	18:30	24°c	0.0 mm	3	135	0	70%	1016
	19:30	22°c	0.0 mm	3	175.5	0	69%	1016
20:30	22 °c	0.0 mm	4	180	0	67%	1016	
21:30	22°c	0.0 mm	4	202.5	0	65%	1016	
22:30	21°c	0.0 mm	5	202.5	0	70%	1015	
23:30	21 °c	0.0 mm	5	225	8%	75%	1015	

Date	Time	Temp	Rain	Wind speed (Km/hr)	Wind Directio	Cloud	Humidity	Pressure in mb
10/12/2021	0:30	15	0.0 mm	2	270	10%	77%	1015
	1:30	15	0.0 mm	3	270	15%	79%	1015
	2:30	16°c	0.0 mm	4	270	17%		1015
	3:30	16°c	0.0 mm	3	247.5	19%	81%	1015
	4:30	15°c	0.0 mm	2	247.5	21%	75%	1015
	5:30	15 °c	0.0 mm	2	270	18%	55%	1016
	6:30	20°c	0.0 mm	2	247.5	17%	40%	1016
	7:30	25°c	0.0 mm	1	225	17%	39%	1016
	8:30	28 °c	0.0 mm	0	202.5	10%	25%	1015
	09:30	30°c	0.0 mm	0	180	9	24%	1015
	10:30	32°c	0.0 mm	1	180	8	23%	1014
	11:30	34 °c	0.0 mm	1	157.5	7	22%	1013
	12:30	34°c	0.0 mm	1	135	6	20%	1012
	13:30	34°c	0.0 mm	2	22.5	5	35%	1012
	14:30	35 °c	0.0 mm	2	0	7	40%	1012
	15:30	30°c	0.0 mm	2	45	9	45%	1012
	16:30	29°c	0.0 mm	3	90	10%	49%	1012
	17:30	24 °c	0.0 mm	3	112.5	10%	55%	1013
	18:30	23°c	0.0 mm	3	135	10%	71%	1013
	19:30	22°c	0.0 mm	4	157.5	10%	69%	1013
20:30	21 °c	0.0 mm	5	180	10%	65%	1013	
21:30	21°c	0.0 mm	5	180	9	65%	1013	
22:30	20°c	0.0 mm	5	180	9	67%	1011	
23:30	20 °c	0.0 mm	5	202.5	8%	65%	1011	

Date	Time	Temp	Rain	Wind speed (Km/hr)	Wind Directio	Cloud	Humidity	Pressure in mb
11/12/2021	0:30	17	0.0 mm	1	337.5	800%	63%	1011
	1:30	17	0.0 mm	1	337.5	9	63%	1011
	2:30	18 °c	0.0 mm	2	315	9	63%	1012
	3:30	18°c	0.0 mm	2	315	18%	62%	1012
	4:30	17°c	0.0 mm	2	337.5	20%	59%	1012
	5:30	17 °c	0.0 mm	2	337.5	20%	43%	1013
	6:30	20°c	0.0 mm	2	0	21%	33%	1013
	07:30	25°c	0.0 mm	1	0	21%	30%	1013
	8:30	28 °c	0.0 mm	1	22.5	22%	25%	1012
	09:30	30°c	0.0 mm	1	45	24%	20%	1012
	10:30	32°c	0.0 mm	1	45	25%	20%	1011
	11:30	34 °c	0.0 mm	1	67.5	25%	20%	1010
	12:30	34°c	0.0 mm	1	67.5	24%	20%	1009
	13:30	34°c	0.0 mm	2	67.5	24%	25%	1009
	14:30	35 °c	0.0 mm	2	67.5	15%	30%	1010
	15:30	29°c	0.0 mm	2	90	10%	36%	1010
	16:30	28°c	0.0 mm	4	112.5	7	45%	1011
	17:30	26 °c	0.0 mm	5	135	9	50%	1011
	18:30	25°c	0.0 mm	5	157.5	10%	58%	1012
	19:30	24°c	0.0 mm	5	157.5	11%	58%	1012
20:30	22 °c	0.0 mm	5	180	10%	59%	1012	
21:30	22°c	0.0 mm	5	180	9	59%	1012	
22:30	21°c	0.0 mm	5	180	9	62%	1011	
23:30	21 °c	0.0 mm	5	202.5	8%	60%	1011	

Date	Time	Temp	Rain	Wind speed (Km/hr)	Wind Directio	Cloud	Humidity	Pressure in mb
12/12/2021	0:30	18	0.0 mm	2	247.5	8	59%	1011
	1:30	18	0.0 mm	2	247.5	7	58%	1011
	2:30	19 °c	0.0 mm	3	225	7	58%	1011
	3:30	18°c	0.0 mm	3	225	6	58%	1011
	04:30	18°c	0.0 mm	3	225	5	50%	1012
	5:30	18 °c	0.0 mm	3	202.5	6	35%	1013
	6:30	25°c	0.0 mm	3	202.5	7	34%	1013
	07:30	25°c	0.0 mm	2	202.5	9	30%	1013
	8:30	28 °c	0.0 mm	2	202.5	9	24%	1012
	09:30	30°c	0.0 mm	2	180	8	24%	1012
	10:30	35°c	0.0 mm	1	67.5	8	25%	1011
	11:30	36 °c	0.0 mm	1	45	20%	25%	1010
	12:30	36°c	0.0 mm	1	22.5	25%	26%	1010
	13:30	36°c	0.0 mm	2	22.5	28%	30%	1010
	14:30	36 °c	0.0 mm	3	0	27%	45%	1010
	15:30	35°c	0.0 mm	4	45	25%	46%	1010
	16:30	29°c	0.0 mm	4	90	21%	55%	1011
	17:30	29 °c	0.0 mm	5	135	19%	65%	1012
	18;30	28°c	0.0 mm	5	157.5	18%	76%	1012
	19:30	27°c	0.0 mm	5	157.5	18%	75%	1012
20:30	26 °c	0.0 mm	5	180	18%	75%	1012	
21:30	25°c	0.0 mm	5	180	17%	74%	1012	
22:30	24°c	0.0 mm	4	180	17%	74%	1011	
23:30	22 °c	0.0 mm	4	202.5	25%	74%	1011	

Date	Time	Temp	Rain	Wind speed (Km/hr)	Wind Directio	Cloud	Humidity	Pressure in mb
13/12/2021	0:30	20	0.0 mm	2	270	30%	74%	101
	1:30	20	0.0 mm	2	247	32%	75%	1012
	2:30	21 °c	0.0 mm	3	247.5	35%	75%	1012
	3:30	21 °c	0.0 mm	3	270	39%	76%	1012
	4:30	21 °c	0.0 mm	3	292.5	41%	55%	1013
	5:30	21 °c	0.0 mm	3	315	39%	50%	1014
	6:30	25 °c	0.0 mm	4	337.5	35%	47%	1014
	07:30	25 °c	0.0 mm	5	337.5	35%	46%	1014
	8:30	27 °c	0.0 mm	6	0	30%	35%	1014
	9:30	29 °c	0.0 mm	6	0	27%	37%	1014
	10:30	30 °c	0.0 mm	6	0	23%	37%	1013
	11:30	32 °c	0.0 mm	6	22.5	25%	36%	1012
	12:30	32 °c	0.0 mm	6	22.5	27%	36%	1011
	13:30	32 °c	0.0 mm	6	22.5	28%	39%	1011
	14:30	32 °c	0.0 mm	6	22.5	35%	45%	1012
	15:30	30 °c	0.0 mm	6	22.5	40%	48%	1012
	16:30	28 °c	0.0 mm	5	22.5	46%	50%	1012
	17:30	28 °c	0.0 mm	5	22.5	16%	55%	1013
	18:30	27 °c	0.0 mm	4	45	15%	64%	1014
	19:30	25 °c	0.0 mm	3	45	45%	67%	1014
20:30	24 °c	0.0 mm	2	67.5	29%	70%	1014	
21:30	23 °c	0.0 mm	2	157.5	20%	73%	1014	
22:30	22 °c	0.0 mm	2	202.5	19%	67%	1013	
23:30	22 °c	0.0 mm	3	225	7%	67%	1013	

Date	Time	Temp	Rain	Wind speed (Km/hr)	Wind Directio	Cloud	Humidity	Pressure in mb
14/12/2021	0:30	20	0.0 mm	1	270	7	67%	1013
	1:30	20	0.0 mm	1	270	7	67%	1014
	2:30	20 °c	0.0 mm	1	247.5	8	67%	1014
	3:30	20°c	0.0 mm	2	270	10%	67%	1014
	4:30	19°c	0.0 mm	2	315	11%	57%	1014
	5:30	19 °c	0.0 mm	3	22.5	9	55%	1015
	6:30	20°c	0.0 mm	3	45	6	47%	1015
	7:30	25°c	0.0 mm	4	45	5	40%	1015
	8:30	27 °c	0.0 mm	5	45	5	35%	1015
	9:30	30°c	0.0 mm	4	37.5	5	36%	1015
	10:30	32°c	0.0 mm	3	67.5	5	36%	1014
	11:30	33 °c	0.0 mm	3	67.5	16%	35%	1013
	12:30	33°c	0.0 mm	4	90	20%	34%	1012
	13:30	33°c	0.0 mm	4	90	26%	49%	1012
	14:30	33 °c	0.0 mm	4	90	36%	50%	1012
	15:30	32°c	0.0 mm	4	112.5	4	52%	1012
	16:30	29°c	0.0 mm	4	112.5	46%	59%	1013
	17:30	26 °c	0.0 mm	4	135	38%	60%	1014
	18:30	25°c	0.0 mm	4	157.5	36%	69%	1014
	19:30	24°c	0.0 mm	4	180	32%	75%	1014
20:30	22 °c	0.0 mm	4	202.5	35%	77%	1014	
21:30	22°c	0.0 mm	4	202.5	38%	78%	1014	
22:30	21°c	0.0 mm	4	202.5	39%	86%	1013	
23:30	21 °c	0.0 mm	4	202.5	71%	86%	1013	

Date	Time	Temp	Rain	Wind speed (Km/hr)	Wind Directio	Cloud	Humidity	Pressure in mb
15/12/2021	0:30	18	0.0 mm	1	202.5	75%	86%	1013
	1:30	18	0.0 mm	1	202.5	78%	86%	1013
	2:30	19 °c	0.0 mm	1	180	79%	86%	1013
	3:30	19°c	0.0 mm	1	90	89%	86%	1013
	4:30	20°c	0.0 mm	2	45	99%	75%	1014
	5:30	20 °c	0.0 mm	2	0	93%	60%	1015
	6:30	21°c	0.0 mm	2	0	92%	61%	1015
	7:30	23°c	0.0 mm	5	0	90%	55%	1015
	8:30	24 °c	0.0 mm	7	22.5	25%	45%	1015
	09:30	25°c	0.0 mm	7	22.5	19%	42%	1015
	10:30	27°c	0.0 mm	7	22.5	0	40%	1014
	11:30	29 °c	0.0 mm	7	22.5	10%	35%	1013
	12:30	30°c	0.0 mm	7	22.5	15%	36%	1012
	13:30	31°c	0.0 mm	6	22.5	18%	39%	1012
	14:30	32 °c	0.0 mm	6	22.5	35%	45%	1013
	15:30	30°c	0.0 mm	6	22.5	39%	48%	1013
	16:30	28°c	0.0 mm	6	22.5	45%	50%	1014
	17:30	26 °c	0.0 mm	6	22.5	35%	55%	1015
	18:30	25°c	0.0 mm	6	22.5	20%	61%	1015
	19:30	25°c	0.0 mm	5	22.5	19%	65%	1015
20:30	24 °c	0.0 mm	3	22.5	15%	67%	1015	
21:30	23°c	0.0 mm	2	45	9	69%	1015	
22:30	22°c	0.0 mm	1	45	8	58%	1015	
23:30	21 °c	0.0 mm	1	67.5	0%	55%	1015	



**UNDERTAKING**

In reference to the Minutes of 41st EAC (Non-Coal Mining) Meeting held during 15th – 16th November and 18<sup>th</sup> November, 2021, it is mentioned in point no. 19 Observation and Recommendation of the Committee clause 7 that the Project Proponent needs to submit an undertaking stating that the quarry seen in the mine lease area through KML file is not done by the present project proponent. The PP also needs to submit the copy of Geology report mentioning about the quarry already done.

We hereby declare that the quarry seen in the mine lease area through KML file is not done by Fairmine Resources Limited, the Project Proponent. We hereby submit the copy of the Geological Report which was part of the tender document published by Department of Mines and Geology, Government of Jharkhand.

Chapter 5 – Geology, Section 5.2, Page no 9 of the Geological Report refers to existence of three old Mines /Quarries observed towards the Southern part inside the demarcated block area. Also in Mine Plan approved by Government of Jharkhand 3 existing quarries is seen in Plate 3 ie Surface Plan of the block.

For Fairmine Resources Limited

Rajeev Kumar Singh  
Director





झारखण्ड सरकार

**GOVERNMENT OF JHARKHAND  
DEPARTMENT OF MINES & GEOLOGY  
DIRECTORATE OF GEOLOGY**

**Geological Report on Investigation of General Stone  
Occurring in Plot No. 2392 (P), 2402(P), 2403, 2404,  
2405(P), 2408(P), 2410(P), 2411(P), 2412(P) &  
Khata No. 184 of Village - LOLO, Block- Ramgarh  
District- Ramgarh, Jharkhand**

**(Area- 6.07 Hectare)**

***ITEM NO: RC/GS/22/2018-19***



**December, 2018**

## ABSTRACT

As per annual field investigation programme 2018-19 of Directorate of Geology, Department of Mines & Geology, Government of Jharkhand, under Item No. - RC/GS/22/2018-19, delineation of Auctionable Minor Mineral Block of General Stone was carried out in 6.07 Hectare area in Plot No. 2392(P), 2402(P), 2403, 2404, 2405(P), 2408(P), 2410(P), 2411(P), 2412(P) & Khata No. 184 of Village - Lolo, Block - Ramgarh, District - Ramgarh, Jharkhand.

The area of Investigation falls under Survey of India OSM No. F45B10 and is bounded by Coordinates N23° 33' 33.64" to N23° 33' 44.94" Latitude and E85° 33' 53.51"- E85° 34' 03.40"Longitude. The area is about 48 km NE of State Capital, Ranchi, 16 km SE from district headquarters, Ramgarh. The area can be approached from Ranchi via NH-33 up to Chutupalu Ghati (36Km). The village Lolo is about 11 km East of Chutupalu Ghati and can be approached by metalled road passing via Burha Khukhra - Jamira- Korche Villages. The area is about 1km NW of Burha Khukhra - Jamira- Korche metalled road.

Local geology of the area is marked by the presence of Granite Gneiss covering almost entire the area. The rock is hard, compact, medium to coarse grained and Grey in color.

During the course of investigation, an area of about 6.07 Hectare has been mapped on 1:4000 scale. Mapping has been done with the help of hand held GPS, Brunton Compass, Measuring tape and True pulse. The contour plan has been made at an interval of 4m. Grids have been drawn on 1:4000 scale at an interval of 100m. Representative grab samples were collected from outcrops within the demarcated area for petrological analysis & determination of specific gravity.

A total **3.00 Million Tonnes** of Resource of General Stone is estimated in the area, under **Category -C1**. The area is well connected by road & rail network. Infrastructure facility and man power is also easily available in the area. As the rock is hard and compact, it can be used as stone bricks (building material); sized bricks for soling of roads (road materials) and lining of dug wells, etc. The demarcated block area is also a non-forest government land (GM Khas). Thus, the area is highly suitable for auction as General Stone.

## **ACKNOWLEDGEMENT**

The author expresses his sincere gratitude to Smt. Kumari Anjali, Director Geology for the opportunity given by her to prepare Stone Block for Auction.

A special thanks to Shri Sharad Kumar Sinha, Deputy Director Geology, Ranchi Circle for sharing his valuable experience in demarcation of Auctionable Stone Block and preparation of this report.

Author also acknowledges Shri Rajesh Kumar Pandey, Assistant Director, Geology District Geological Office, Chaibasa for their guidance in investigation work as well as in the preparation of this report.

Lastly, author is very much thankful to all concerned field staffs and local villagers for helping in the field work.

(Om Prakash Vishwakarma)  
Geologist  
Office of Deputy Director Geology  
Ranchi Circle, Ranchi

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## 1. Title & Ownership

### 1.1 Introduction

As per annual field investigation programme 2018-19 of Directorate of Geology, Department of Mines & Geology, Government of Jharkhand, under Item No. – RC/GS/22/2018-19, delineation of Auctionable Minor Mineral Block of General Stone was carried out in 6.07 Hectare area in Plot No. 2392(P), 2402(P), 2403, 2404, 2405(P), 2408(P), 2410(P), 2411(P), 2412(P) & Khata No. 184 of Village – Lolo, Block – Ramgarh, District – Ramgarh, Jharkhand.

Based upon the collected preliminary information, a detailed Geological mapping on 1:4000 scale was carried out in the area.

### 1.2 Details of period of Prospecting

The prospecting in the above mentioned area was done during the month of October 2018 to December 2018.

### 1.3 Details of exploration agency, qualification, experience of associated technical persons engaged in Exploration

#### 1.3.1 Exploration Agency

Directorate of Geology,  
Department of Mines and Geology,  
Government of Jharkhand, Ranchi

#### 1.3.2 Associated technical persons

A list of all the technical persons associated with the field work as well as in report preparation is given in the below table -

**Table No.: 01 - Associated Technical Persons**

S. N.	Name of Associated Technical Person		
1.	Shri Sharad Kumar Sinha	Deputy Director, Geology	Controlling officer
2.	Shri Rajesh Kumar Pandey	Assistant Director, Geology	Supervision & Report Writing
3.	Shri Om Prakash Vishwakarma	Geologist	Investigating Officer
4.	Shri Bhushan Prasad	Surveyor	Surveyor

## 2. Details of the Area

### 2.1 Mauza/Village, Post Office, Taluka, District, State

<b>Plot No.</b>	2392(P), 2402(P), 2403, 2404, 2405(P), 2408(P), 2410(P), 2411(P), 2412(P)
<b>Khata No.</b>	184
<b>Thana No.</b>	107
<b>Village / Mauza</b>	Lolo
<b>Thana / Block</b>	Ramgarh
<b>District</b>	Ramgarh
<b>Area</b>	6.07 Hectare
<b>Nature of Land</b>	Non Forest Government Land <b>GM Khas</b> (Source- online)
<b>OSM No.</b>	F45B10 (Part)
<b>Limiting Coordinates</b>	Latitude : N23° 33' 33.64"- N23° 33' 44.94" Longitude : E85° 33' 53.51"- E85° 34' 03.40"

The Coordinate of demarcated Block boundary has also been plotted on Cadastral Map by the help of data taken by handheld GPS (**Plate - II**). However, the actual demarcation of Block boundary will only be established after DGPS survey in the area.

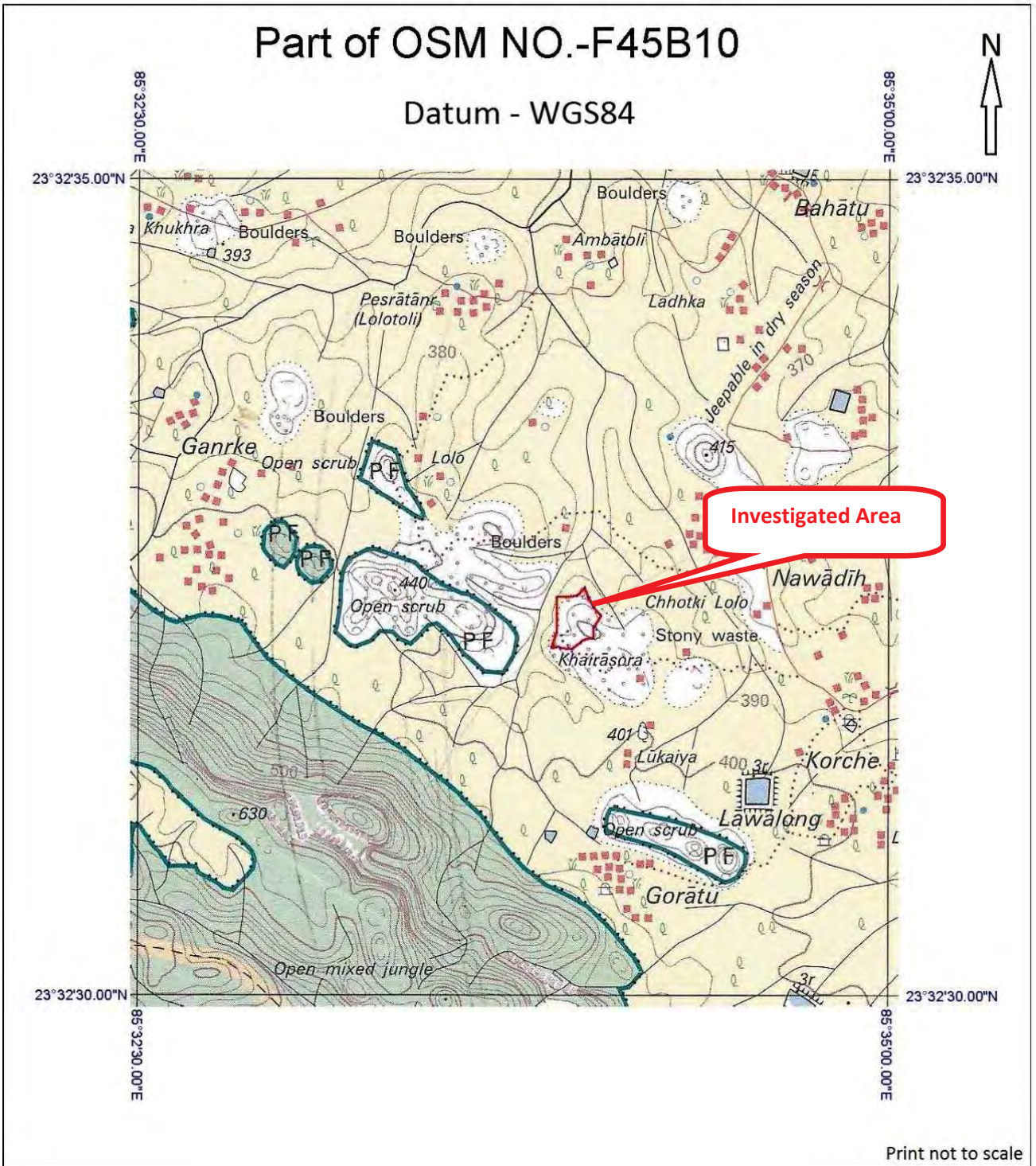
### 2.2 Geo-coordinates of all corner points of the area

**Table No. : 03 –GPSCoordinates of all Corner Points of Demarcated Block Boundary (Datum-WGS 84)**

Corner Points	Latitude	Longitude	Corner Points	Latitude	Longitude
<b>A</b>	23° 33' 43.20"N	85° 33' 54.51"E	<b>H</b>	23° 33' 35.66"N	85° 34' 01.88"E
<b>B</b>	23° 33' 43.42"N	85° 33' 58.52"E	<b>I</b>	23° 33' 35.01"N	85° 33' 59.47"E
<b>C</b>	23° 33' 44.94"N	85° 34' 00.13"E	<b>J</b>	23° 33' 33.64"N	85° 33' 57.62"E
<b>D</b>	23° 33' 43.26"N	85° 34' 00.75"E	<b>K</b>	23° 33' 33.85"N	85° 33' 55.40"E
<b>E</b>	23° 33' 41.36"N	85° 34' 01.90"E	<b>L</b>	23° 33' 33.92"N	85° 33' 53.51"E
<b>F</b>	23° 33' 39.83"N	85° 34' 03.40"E	<b>M</b>	23° 33' 36.68"N	85° 33' 54.59"E
<b>G</b>	23° 33' 37.62"N	85° 34' 01.96"E			

### 2.3 Mineral under Investigation: - General Stone.

Figure: 01- Demarcated Block on OSM Sheet



### 3. Infrastructure & Environment

#### 3.1 Local Infrastructure

##### 3.1.1 Road

The area is about 48 km NE of State Capital, Ranchi and 16 km SE of district headquarter, Ramgarh. The area can be approached from Ranchi via NH-33 up to Chutupalu Ghati (36Km). The village Lolo is about 11 km East of Chutupalu Ghati and can be approached by metalled road passing via Burha Khukhra - Jamira-Korche villages. The area is about 1km NW of Burha Khukhra - Jamira- Korche metalled road.

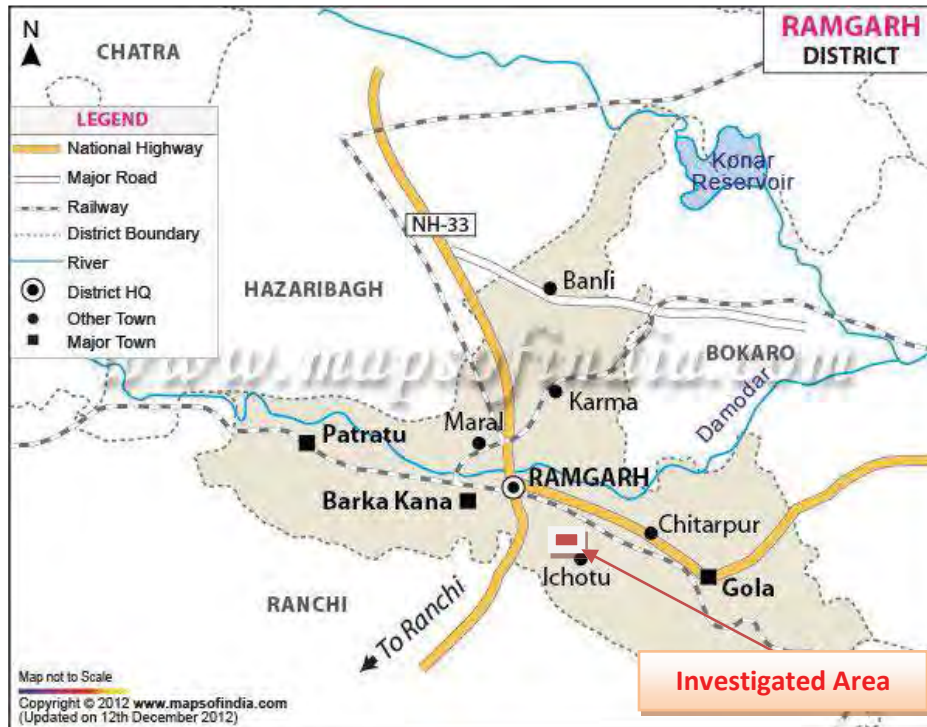
##### 3.1.2 Rail

Mael Railway Station is the nearest railway station (10km) on Barkakana – Muri Rail Section of South-Eastern Railway.

##### 3.1.3 Airport

Nearest airport is at Ranchi, which is about 48 km SW from the area.

Figure 02: Road and Rail Map of Ramgarh District



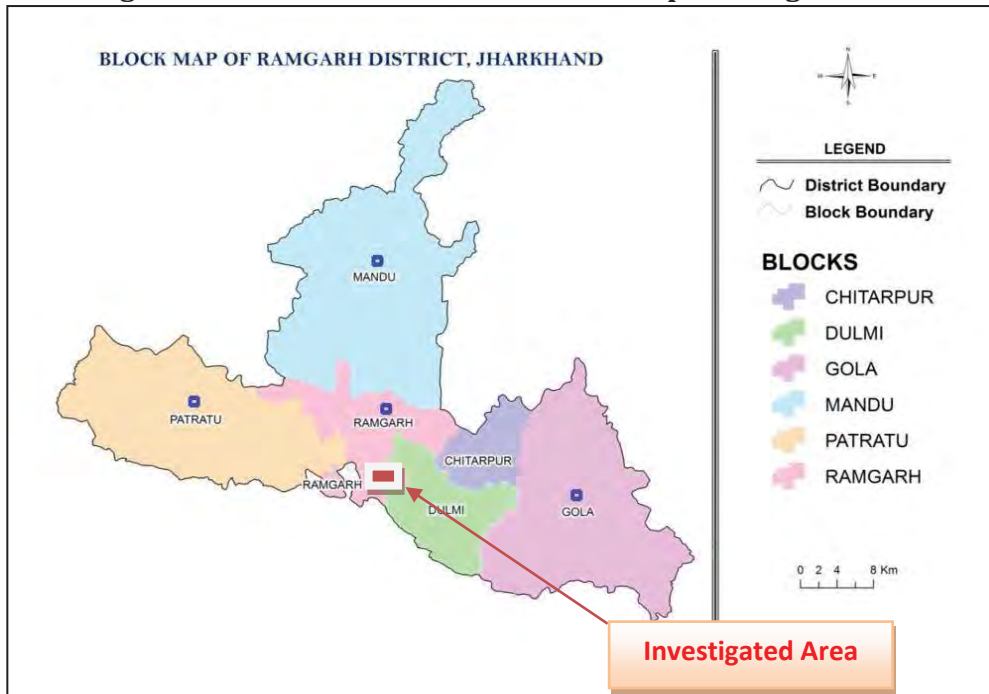
### 3.2 Electricity

Lolo is completely electrified and power lines can be seen passing through 700 meters NE of the Block area.

### 3.3 Water

Water is sufficiently available in the Nalas, Ponds, Wells and Tube wells of the nearby area.

**Figure 03: Location of the area in Block Map of Ramgarh District**



### 3.4 Host Population

The Lolo village has population of 1027 of which 510 are males while 517 are females as per Population Census 2011. There are total 186 households.

### 3.5 Climate and Vegetation

The area experiences sub-tropical climate. The average temperature is 25.6 °C. The average rainfall of Ramgarh district is about 1215 mm/year. May & June are the warmest month with maximum temperature up to 45°C. December & January are the coldest month, with temperatures averaging 18.1 °C. In the month of December, the temperature goes below 4°C.

Demarcated Block area has sparse vegetation. Few Small herbs and bushes are present within the demarcated Block area.

### **3.6 Geomorphology**

Demarcated block has undulating topography. The highest relief inside the demarcated block is towards Eastern part, which is 400 m above M.S.L., and the lowest relief is towards North Western part, which is less than 384m above M.S.L.



**Photograph 01:-** Topography of the Demarcated Block Area

### **3.7 Drainage**

The regional Drainage Pattern of the area is Dendritic.

## **4. Previous Exploration**

The area has been systematically mapped by Geological Survey of India on 1:50,000 Scale covering Toposheet No. 73E/10. No detailed exploration has been carried out by any other Central/State agencies for exploration of General Stone.

## 5. Geology

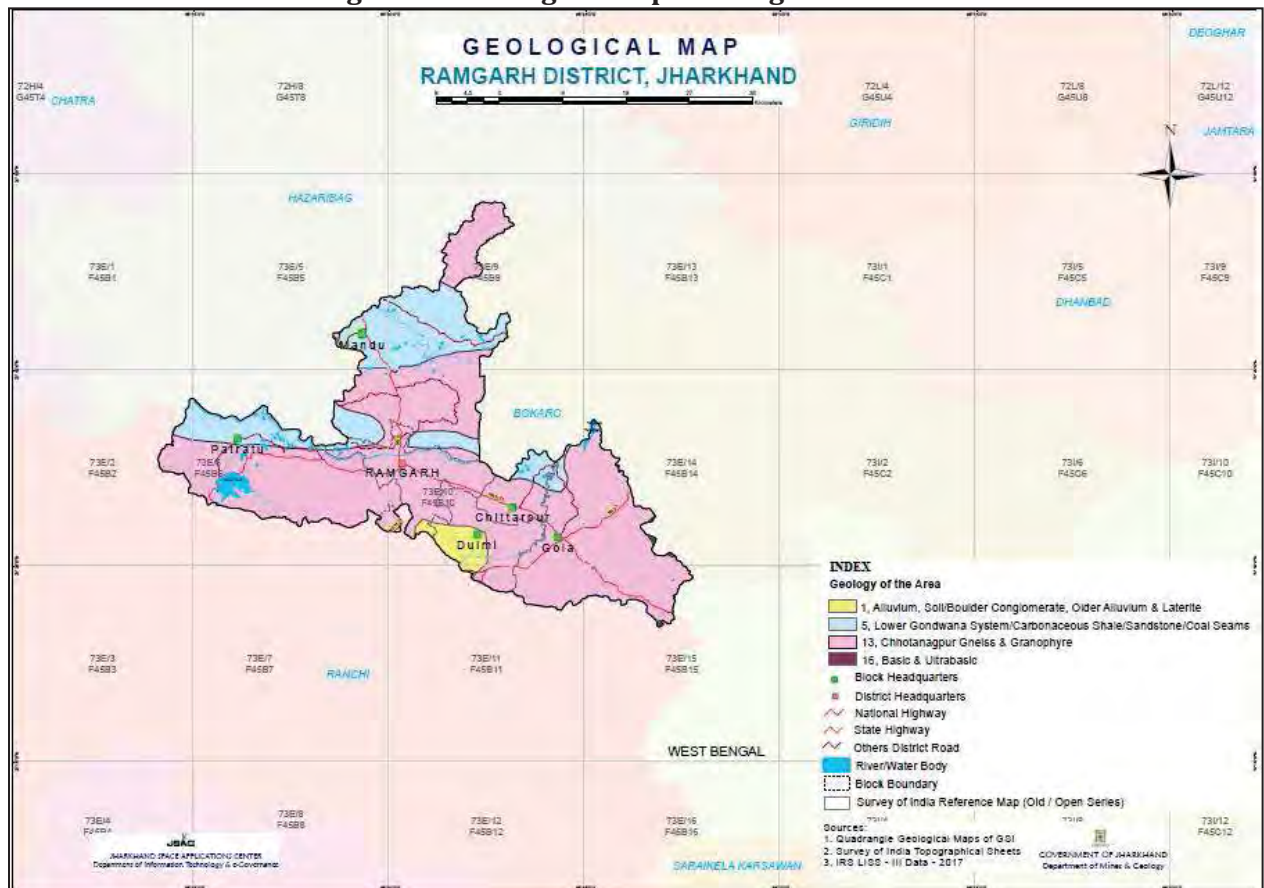
### 5.1 Regional Geology

Geologically, Ramgarh District comprises of Chotanagpur Granite Gneissic Complex (CGGC) rocks of Archean Age and rocks of Gondwana Supergroup. The CGGC terrain exposing complex assemblage of diversified rocks which have witnessed several period of magmatism, tectonism, sedimentation, metamorphism, partial melting and mineralization that have altered pre-existing volcanic, plutonic, sedimentary rocks to a Gneiss-Granulite-Granite association.

Two formations of Damuda group of Lower Gondwana are exposed in the District are Barakar formation and Barren Measures. Barakar Formation is prominently developed in Damodar valley Basin comprising Conglomerate, Sandstone, Shale and thick measures of Coal seams, which are succeeded, by barren measures comprising Iron Stone Shale, Sandstone, Mudstone and some fossils.

Structurally, CGGC bears imprints of three generations of deformation producing distinctive Folds and related fabrics whereas Gondwana exhibits Gravity Normal Faults along with a various primary and Secondary Sedimentary structures.

Figure 03: Geological Map of Ramgarh District



## 5.2 Local Geology / Lithology

Geologically Demarcated Block area falls under “**Chotanagpur Granite Gneissic Complex**” of **Archean age**. Local geology of the area is marked by the presence of Granite gneiss Rock covering almost entire the area. The Granite gneiss Rock present in the area is medium to coarse grained, hard & compact and dark grayish in colour.

The local geological set up as observed in the area is given below-

**Recent - Soil/Alluvium**  
**Archean - Granite Gneiss**



**Photograph 02:-** Outcrops of Granite- Gneiss Rock present in the area



**Photograph 03:-** A close view of Granite- Gneiss Rock

There are 3 (Three) old Mines /Quarries observed towards the Southern part inside the demarcated block area. In all these three Mines / Quarries Granite Gneiss Rock is observed.



**Photograph 04:-** Exposures of Granite Gneiss Rock inside the first Mines / Quarry



**Photograph 05:-** Exposures of Granite Gneiss Rock inside the second Mines / Quarry



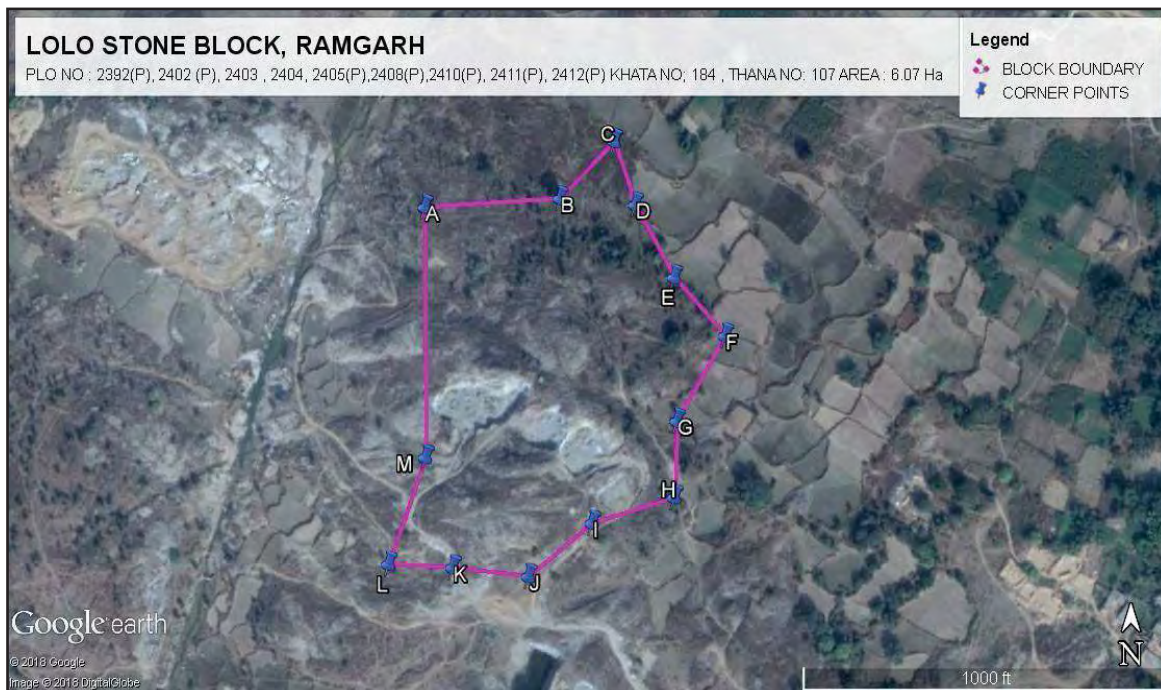
**Photograph 05:-** Exposures of Granite Gneiss Rock inside the third Mines / Quarry

### 5.3 Structures

The general trend of foliation is Strike – N140° and Dip is nearly vertical. Gneissosity is the common structure observed in Granite Gneiss Rock.

## 6. Aerial/Ground Geophysical/Geochemical Data

Aerial/Ground Geophysical/Geochemical Survey is not required for exploration of General Stone.



**Figure 04:** Location of Demarcated Block Boundary on Google Earth

## 7. Technological Investigation

### 7.1 Pitting and Trenching

The outcrops of Granite Gneiss Rock are exposed throughout the area. So, fresh pits/trenches were not required within the demarcated area.

**7.2 Drilling** - Not required.

## 8. Sampling

Two nos. of representative Grab Samples (No.-RG/LO/01 & RG/LO/02) were collected from exposed outcrops inside demarcated block boundary and were sent to State Geological Laboratory, Hazaribagh for Petrological analysis and determination of Specific Gravity.

The analysis report was received from State Geological Laboratory, Hazaribagh vide letter no. **SGLab. (Tech)- 219, Hazaribag, Date: 17/12/2018 (Annexure-I)**.

## 9. Bulk Density / Specific Gravity

As per analytical result received from State Geological Laboratory, Hazaribagh, the average Specific Gravity of the stone is **2.65. (Annexure- I)**

## 10. Mapping & Surveying

A Geological map on 1:4000 scale has been prepared in 6.07 Hectare area. Contouring & Mapping has been done with the help of handheld GPS, Brunton Compass, Measuring tape & True Pulse. Contour plan of the area has been prepared at an interval of 4m. Grid lines were drawn at an interval of 100m. (**Plate - I**).

The coordinates of demarcated Block boundary was then plotted on Cadastral Map by the help of data taken by handheld GPS (**Plate - II**). However, the actual demarcation of Block boundary will only be established after DGPS survey in the area.

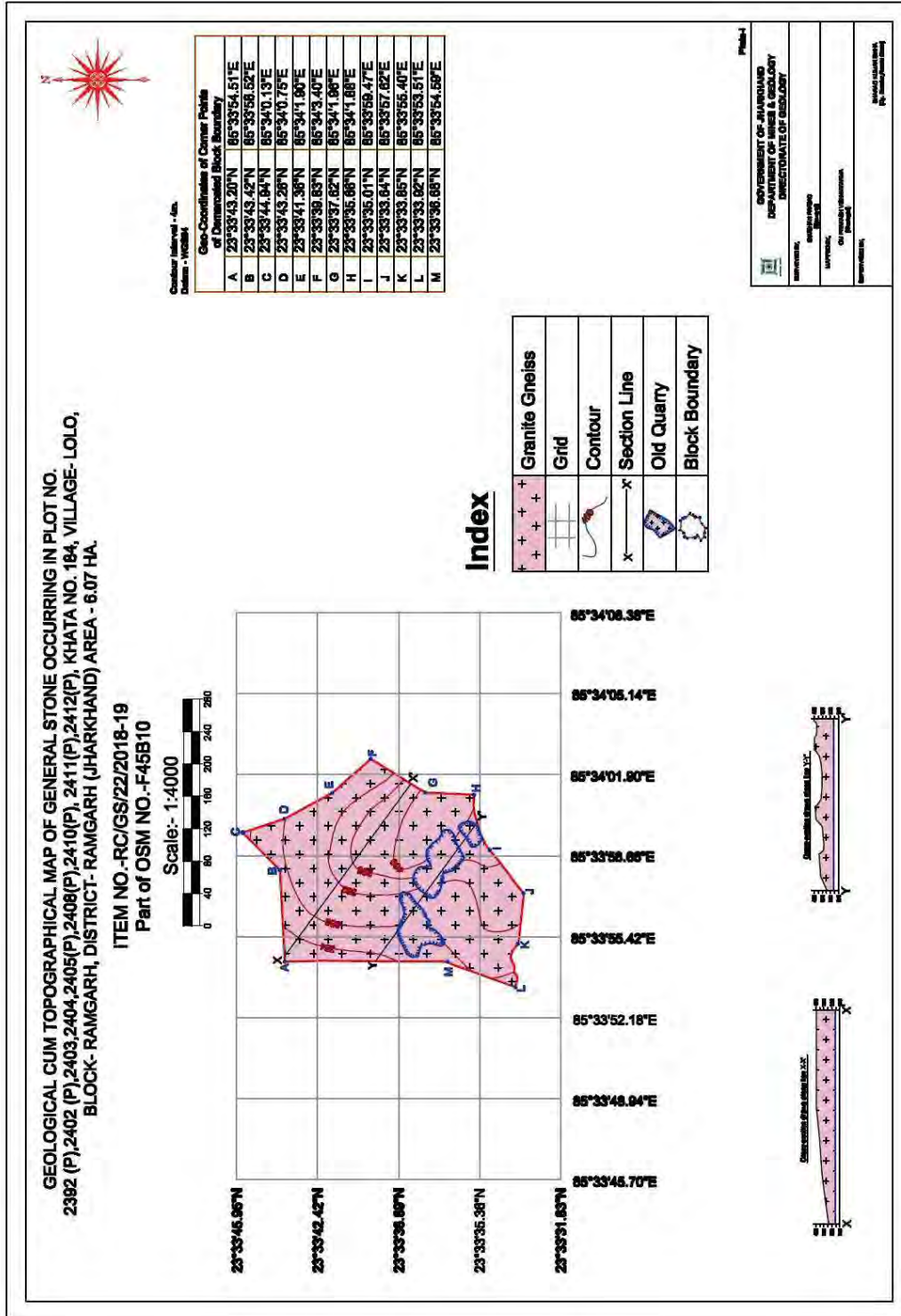


Figure 05: Geological Cum Topographical Map of the Demarcated Block

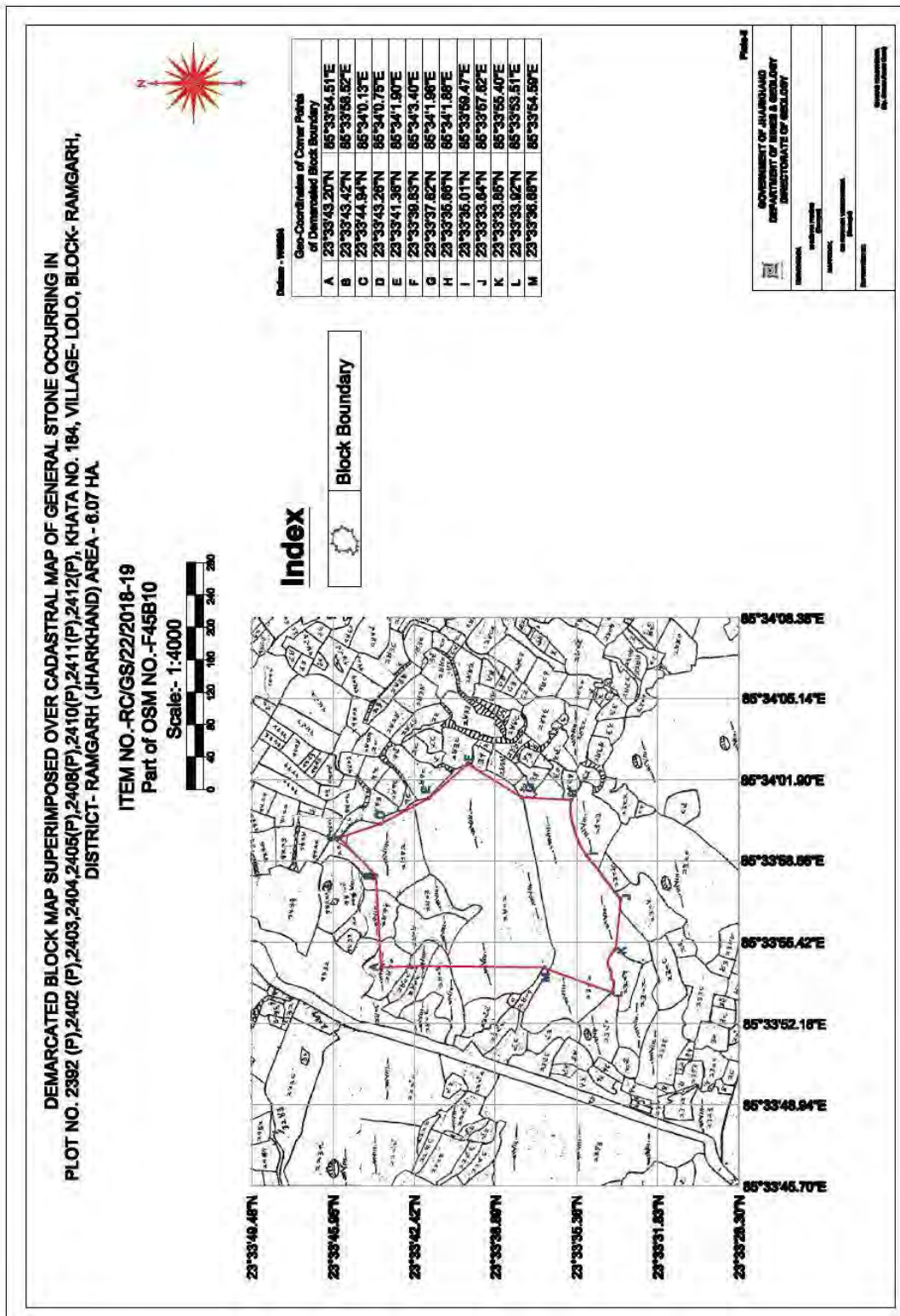


Figure 06: Demarcated Block superimposed Over Cadastral Map



## 11. Resource Estimation

For calculation of resource, Cross-sectional method was used. Two sections were drawn (X-X') & (Y-Y') in the middle of demarcated block boundary along NW-SE direction. The cross-sectional area of the stone deposit was calculated along the section line and was multiplied with the lateral influence to get the total volume. The total volume was then multiplied by Specific Gravity to get the tonnage.

The ground surface is taken as 384 m R.L and the thickness for calculation of resource beneath the surface was taken as 8 m, i.e. up to 376 m R.L. that is well above the general ground water level of the area. This is to mention here that in general, ground water is present beneath 09-12 m from surface of the area.

**Table No. : 03 –Resource Calculation of General Stone within Demarcated Block Boundary**

Section Line	Sectional Area (m <sup>2</sup> )	Influence Length (m.)	Volume (m <sup>3</sup> )	Specific Gravity	Tonnage (In Tonnes)	Tonnage (In Million Tonnes)
X-X'	5110.00	118.0	602980.00	2.65	1597897.0	1.598
Y-Y'	3634.72	145.6	529215.23	2.65	1402420.4	1.402
<b>Total</b>					<b>3000317.4</b>	<b>3.000</b>

Thus, a total of Resource of **3.00Million Tons** of General Stone under **Category C-1** is estimated in the area.

## 13. Conclusion& Recommendations

The geological investigation work was carried out in 6.07 Hectare area in Plot No. 2392(P), 2402(P), 2403, 2404, 2405(P), 2408(P), 2410(P), 2411(P), 2412(P) & Khata No. 184 of Village – Lolo, Block – Ramgarh, District – Ramgarh, Jharkhand for delineation of auctionable block of General Stone. The demarcated area consists of Granite-Gneiss rock. During the course of investigation, about 0.06 Sq. Km. area has been mapped on 1:4000 scale. Representative grab samples were also collected from fresh exposed surface for petrological analysis & determination of specific gravity.

A total **3.00Million Tonnes** of Resource of General Stone under **Category C-1** is estimated in the area. The area is well connected by road & rail network. Infrastructure facility and man power is also locally available in the area. As the rock is hard and compact, it can be used as stone bricks (building material); sized bricks for soling of roads (road materials) and lining of dug wells, etc. The demarcated block area is also a non-forest government land (GM Khas). Thus, the area is highly suitable for auction of General Stone.

# ANNEXURE - I



GOVT. OF JHARKHAND  
DEPT. OF MINES & GEOLOGY  
STATE GEOLOGICAL LABORATORY  
HAZARIBAG

SGLab. No.:- (Tech)-	219	Hazaribag, Date :- 17/12/2018
Name of Sender	:- Om Prakash vishwakarma (Geologist) Government Office	
Item No.	:- MMB	
Ref. No.	:- 36/2017 dated 11/12/2018	
Nature of Samples	:- Rock	
Place of Samples	:- Ranchi	
Sample drawn by	:- himself Others*	

### Petrological Report


Sl.No.	Sample No.	Pet No.	Nomenclature	Specific Gravity
1.	RG/LO/01	984	Granite gneiss	2.67
2.	RG/LO/02	985	Granite gneiss	2.64
3.	RG/LO/03	986	Granite gneiss	2.62
4.	RO/LO/04	987	Granite gneiss	2.63

This is of ornamental quality stone. It taken polish. For Geophysical Mechanical tasting these sample should tested in NABL or CIMFR Lab.

- Sample examined by Laboratory has not been collected by Laboratory personnel and location of sample is not confirmed by Laboratory.

Reported By,

Checked By,

  
(Dr. I.M. Asadullah)  
Dy. Director, Lab  
Hazaribag.

## ANNEXURE - II

## PART – III A

## REPORTING OF MINOR MINERAL RESOURCES

S. No.	Contents	Explanation																																													
1.	Title & Ownership	<p><b>Title:</b> Geological Report on Investigation of General Stone in Village – Lolo, Block – Ramgarh, District – Ramgarh, Jharkhand.</p> <p><b>Prospector:</b> Directorate of Geology, Government of Jharkhand, Department of Mines &amp; Geology, Engineering Hostel, 2<sup>nd</sup> Floor, Dhurwa, Ranchi – 834004.</p> <p>Telephone: 0651-12400791, Fax: 0651-12400792, Email: dirgeojh@gmail.com</p> <p><b>Period of Prospecting:</b> October 2018 to December 2018.</p> <p><b>Mineral Right:</b> No.</p> <p><b>Ownership:</b> Government of Jharkhand</p>																																													
2.	Details of the area	<p><b>Village:</b> Lolo  <b>Block:</b> Ramgarh  <b>District:</b> Ramgarh  <b>State:</b> Jharkhand  <b>Area:</b> 6.07 Hectare  <b>Plot No.:</b> 2392(P), 2402(P), 2403, 2404, 2405(P), 2408(P), 2410(P), 2411(P), 2412(P)  <b>Khata No.:</b> 184  <b>Nature of Land:</b> Non Forest Government Land <b>GM-KHAS</b>(Online Source)  <b>OSM No.:</b> F45B10 (Part)  <b>Geo-coordinates of all corner points:</b></p> <table border="1" data-bbox="597 1178 1263 1793"> <thead> <tr> <th colspan="3">GPS Coordinates (<i>Datum: WGS-84</i>)</th> </tr> <tr> <th>Corner Points</th> <th>Latitude</th> <th>Longitude</th> </tr> </thead> <tbody> <tr><td>A</td><td>23° 33' 43.20"N</td><td>85° 33' 54.51"E</td></tr> <tr><td>B</td><td>23° 33' 43.42"N</td><td>85° 33' 58.52"E</td></tr> <tr><td>C</td><td>23° 33' 44.94"N</td><td>85° 34' 00.13"E</td></tr> <tr><td>D</td><td>23° 33' 43.26"N</td><td>85° 34' 00.75"E</td></tr> <tr><td>E</td><td>23° 33' 41.36"N</td><td>85° 34' 01.90"E</td></tr> <tr><td>F</td><td>23° 33' 39.83"N</td><td>85° 34' 03.40"E</td></tr> <tr><td>G</td><td>23° 33' 37.62"N</td><td>85° 34' 01.96"E</td></tr> <tr><td>H</td><td>23° 33' 35.66"N</td><td>85° 34' 01.88"E</td></tr> <tr><td>I</td><td>23° 33' 35.01"N</td><td>85° 33' 59.47"E</td></tr> <tr><td>J</td><td>23° 33' 33.64"N</td><td>85° 33' 57.62"E</td></tr> <tr><td>K</td><td>23° 33' 33.85"N</td><td>85° 33' 55.40"E</td></tr> <tr><td>L</td><td>23° 33' 33.92"N</td><td>85° 33' 53.51"E</td></tr> <tr><td>M</td><td>23° 33' 36.68"N</td><td>85° 33' 54.59"E</td></tr> </tbody> </table> <p><b>Mineral (s) under Investigation:</b> General Stone</p>	GPS Coordinates ( <i>Datum: WGS-84</i> )			Corner Points	Latitude	Longitude	A	23° 33' 43.20"N	85° 33' 54.51"E	B	23° 33' 43.42"N	85° 33' 58.52"E	C	23° 33' 44.94"N	85° 34' 00.13"E	D	23° 33' 43.26"N	85° 34' 00.75"E	E	23° 33' 41.36"N	85° 34' 01.90"E	F	23° 33' 39.83"N	85° 34' 03.40"E	G	23° 33' 37.62"N	85° 34' 01.96"E	H	23° 33' 35.66"N	85° 34' 01.88"E	I	23° 33' 35.01"N	85° 33' 59.47"E	J	23° 33' 33.64"N	85° 33' 57.62"E	K	23° 33' 33.85"N	85° 33' 55.40"E	L	23° 33' 33.92"N	85° 33' 53.51"E	M	23° 33' 36.68"N	85° 33' 54.59"E
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3.	Infrastructure & Environment	<p><b>Local Infrastructure:</b> The area is about 48 km NE of State Capital, Ranchi and 16 km SE of district headquarter, Ramgarh. The area can be approached from Ranchi via NH-33 up to Chutupalu Ghati (36Km). The village Lolo is about 11 km East of Chutupalu Ghati and can be approached by metalled road passing via Burha Khukhra - Jamira- Korche villages. The area is about 1km NW of BurhaKhukhra - Jamira- Korche metalled road. Mael Railway Station is the nearest railway station (10km) on Barkakana – Muri Rail Section of South-Eastern Railway. Nearest airport is at Ranchi which is about 48 km from the area.</p> <p>Lolo is completely electrified and power lines can be seen passing through 700 meters NE of the Block area. Water is sufficiently available in the Ponds, Wells and Tube wells of the nearby area.</p> <p><b>Host Population:</b> The Lolo village has population of 1027 of which 510 are males while 517 are females as per Population Census 2011. There are total 186 households.</p> <p><b>Forest:</b> No</p> <p><b>Sanctuaries:</b> No</p> <p><b>National Park:</b> No</p> <p><b>Environment setting of the area:</b>The area experiences sub-tropical climate. The average temperature is 25.6 °C. The average rainfall of Ramgarh district is about 1215 mm/year. May &amp; June are the warmest month with maximum temperature up to 45°C. December &amp; January are the coldest month, with temperatures averaging 18.1 °C. In the month of December, the temperature goes below 4°C.</p> <p>Demarcated Block area has sparse vegetation. Few Small herbs and bushes are present within the demarcated Block area.</p> <p>Demarcated block has undulating topography. The highest relief inside the demarcated block is towards Eastern part, which is 400 m above M.S.L., and the lowest relief is towards North Western part, which is less than 384 m above M.S.L.</p>
4.	Previous Exploration	<p>The area has been systematically mapped by Geological Survey of India on 1:50,000 Scale covering Toposheet No. 73E/10. No detailed exploration has been carried out by any other Central/State agencies for exploration of General Stone.</p>
5.	Geology	<p><b>Regional Geology:</b> Geologically, Ramgarh District comprises of Chotanagpur Granite Gneissic Complex (CGGC) rocks of Archaean Age and rocks of Gondwana Supergroup. The CGGC terrain exposing complex assemblage of diversified rocks which have witnessed several period of magmatism, tectonism, sedimentation, metamorphism, partial melting and mineralization that have altered pre-existing volcanic, plutonic, sedimentary rocks to a Gneiss-Granulite-Granite association.</p> <p>Two formations of Damuda group of Lower Gondwana are exposed in the District are Barakar formation and Barren Measures. Barakar Formation is prominently developed in Damodar valley Basin comprising Conglomerate, Sandstone, Shale and thick measures of Coal seams, which are succeeded, by barren measures comprising Iron Stone Shale, Sandstone, Mudstone and some fossils.</p> <p>Structurally, CGGC bears imprints of three generations of deformation producing distinctive Folds and related fabrics whereas Gondwana exhibits Gravity Normal Faults along with a various primary and Secondary Sedimentary structures.</p>

		<p><b>Local Geology:</b> Geologically Demarcated Block area falls under “Chotanagpur Granite Gneissic Complex” of Archean age. Local geology of the area is marked by the presence of Granite gneiss Rock covering almost entire the area. The Granite gneiss Rock present in the area is medium to coarse grained, hard &amp; compact and dark grayish in colour.</p> <p>The local geological set up as observed in the area is given below-</p> <p style="text-align: center;"><b>Recent - Soil/Alluvium</b> <b>Archean - Granite Gneiss</b></p>			
6.	Aerial/ground geophysical/ geochemical data	Not Required.			
7.	Technological Investigation	The outcrops of Granite Gneiss Rock are exposed throughout the area. So, fresh pits/ trenches were not required within the demarcated area.			
8.	Type of Sampling	Two nos. of representative Grab Samples (No.-RG/LO/01 & RG/LO/02) were collected from exposed outcrops inside demarcated block boundary and were sent to State Geological Laboratory, Hazaribagh for Petrological analysis and determination of Specific Gravity. The analysis report has been received from State Geological Laboratory, Hazaribagh is annexed with the Geological Report as Annexure-I.			
9.	Drilling Technique & drill sampling employed	Not Required.			
10.	Grade & Chemical Analysis	Not Required			
11.	Bulk Density/ Specific Gravity	As per the result received from State Geological Laboratory, Hazaribagh, the average Specific Gravity of the Rock Sample is 2.65(Annexure-I).			
12.	Resource Estimation Techniques	For calculation of resource, Cross-sectional method was used. Two sections were drawn (X-X') & (Y-Y') in the middle of demarcated block boundary along NW-SE direction. The cross-sectional area of the stone deposit was calculated along the section line and was multiplied with the lateral influence to get the total volume. The total volume was then multiplied by Specific Gravity to get the tonnage.			
		The ground surface is taken as 384 m R.L and the thickness for calculation of resource beneath the surface was taken as 8 m, i.e. up to 376 m R.L. that is well above the general ground water level of the area. This is to mention here that in general, ground water is present beneath 09-12 m from surface of the area.			
		<b>Type of Resource</b>	<b>Volume (In Million M<sup>3</sup>)</b>	<b>Quantity (In Million Tones)</b>	<b>Grade/Tenor/ Average/Range</b>
		Measured/Indicated (C1)	1.13	3.00	-
	Inferred (C2)	-	-	-	
	<b>Total</b>	<b>1.13</b>	<b>3.00</b>	-	

13.	Geotechnical Studies for Dimensional Stone Report	Not Required.
14.	Annexure/ Enclosures to the report	Provided in the Geological Report
15.	Any other information	No.

(Om Prakash Vishwakarma)  
Geologist



Directorate of Geology, Department of Mines & Geology, Government of Jharkhand

(Sharad Kumar Sinha)  
Deputy Director, Geology



झारखण्ड सरकार

झारखण्ड सरकार  
राजस्व एवं भूमि सुधार विभाग  
अधिकार अभिलेख

रैयत का नाम, अभिभावक का नाम, रिश्ता										
अनाबाद विहार सरकार. .... जाति-----, निवासी-----										
जिला का नाम	रामगढ़	अंचल का नाम	रामगढ़	हलका का नाम	हल्का-03	मौजा का नाम	लोलो	खाता का प्रकार	गैरमजरूवा खास	
खेवट नम्बर	0	खाता नम्बर	184	थाना का नाम	रामगढ़	थाना नम्बर	0107			
खाता नम्बर	खेसरा नम्बर	चौहद्दी उत्तर 3 चौहद्दी दक्खिन 4	किस्म जमीन	मिजान	कैफियत / अभ्युक्ति	हाकिम के तहकीकात मुताबिक लगान/सेस	लगान	खास शर्त		
(1)	(2)	(3)	किचारी संख्या (5)		(8)	(9)	रौ (10)	आ (11)	पै (12)	(13)
184	2585	१.०१.०	मोटा आर 0	0 एकड़	26 डिसमील		0	0	0	
	2598	१.०१.०	परती 0	0 एकड़	18 डिसमील					
	2611	१.०१.०	पहाड़ 0	0 एकड़	13 डिसमील					
	2628	१.०१.०	परती पत्थर 0	0 एकड़	3 डिसमील					
	2635	१.०१.०	मोटा आर 0	0 एकड़	7 डिसमील					
	2650	१.०१.०	पहाड़ 0	0 एकड़	43 डिसमील					
	2651	१.०१.०	पहाड़ 0	0 एकड़	17 डिसमील					
	2694	१.०१.०	परती पत्थर 0	0 एकड़	6 डिसमील					
	2698	१.०१.०	परती 0	0 एकड़	21 डिसमील					
	272	१.०१.०	परती 0	0 एकड़	4 डिसमील					
	2788	१.०१.०	मोटा आर 0	0 एकड़	21 डिसमील					
	2798	१.०१.०	परती 0	0 एकड़	9 डिसमील					

2801	१.०१.०	परती ०	० एकड़	50 डिसमील		
2842	१.०१.०	परती ०	० एकड़	० डिसमील		
2842	१.०१.०	--०	० एकड़	16 डिसमील		
2911	१.०१.०	--०	० एकड़	16 डिसमील		
2912	१.०१.०	--०	० एकड़	30 डिसमील		
2940	१.०१.०	--०	० एकड़	12 डिसमील		
2941	१.०१.०	--०	० एकड़	15 डिसमील		
2942	१.०१.०	--०	० एकड़	4 डिसमील		
2945	१.०१.०	--०	० एकड़	3 डिसमील		
2946	१.०१.०	--०	० एकड़	4 डिसमील		
2965	१.०१.०	--०	० एकड़	4 डिसमील		
2972	१.०१.०	--०	० एकड़	18 डिसमील		
2976	१.०१.०	--०	० एकड़	35 डिसमील		
2978	१.०१.०	--०	1 एकड़	66 डिसमील		
2979	१.०१.०	--०	० एकड़	38 डिसमील		
2982	१.०१.०	--०	1 एकड़	4 डिसमील		
2983	१.०१.०	--०	० एकड़	83 डिसमील		
2990	१.०१.०	--०	० एकड़	82 डिसमील		
2993	१.०१.०	--०	० एकड़	33 डिसमील		
2998	१.०१.०	--०	० एकड़	15 डिसमील		
3009	१.०१.०	--०	० एकड़	48 डिसमील		
3011	१.०१.०	--०	० एकड़	30 डिसमील		

3016	१.०१.०	--०	०	13	एकड़ डिसमील		
3019	१.०१.०	--०	०	15	एकड़ डिसमील		
3021	१.०१.०	नाली ०	०	2	एकड़ डिसमील		
3022	१.०१.०	--०	०	21	एकड़ डिसमील		
3024	१.०१.०	--०	०	5	एकड़ डिसमील		
3030	१.०१.०	--०	०	18	एकड़ डिसमील		
3031	१.०१.०	--०	०	14	एकड़ डिसमील		
2451	१.०१.०	--०	०	17	एकड़ डिसमील		
2556	१.०१.०	--०	०	2	एकड़ डिसमील		
2564	१.०१.०	--०	०	65	एकड़ डिसमील		
2251	१.०१.०	--०	21	84	एकड़ डिसमील		
2252	१.०१.०	--०	०	27	एकड़ डिसमील		
2255	१.०१.०	--०	०	3	एकड़ डिसमील		
2281	१.०१.०	--०	०	3	एकड़ डिसमील		
2288	१.०१.०	--०	०	16	एकड़ डिसमील		
2289	१.०१.०	--०	1	39	एकड़ डिसमील		
2290	१.०१.०	--०	2	62	एकड़ डिसमील		
2294	१.०१.०	--०	०	11	एकड़ डिसमील		
2297	१.०१.०	--०	०	33	एकड़ डिसमील		
2298	१.०१.०	--०	1	2	एकड़ डिसमील		
2299	१.०१.०	--०	०	69	एकड़ डिसमील		
2300	१.०१.०	--०	०	57	एकड़ डिसमील		

2301	१.०१.०	--०	०	८१	एकड़ डिसमील		
2303	१.०१.०	--०	०	२९	एकड़ डिसमील		
2305	१.०१.०	--०	०	२९	एकड़ डिसमील		
2305	१.०१.०	--०	०	२६	एकड़ डिसमील		
2307	१.०१.०	--०	०	२६	एकड़ डिसमील		
2309	१.०१.०	--०	०	४१	एकड़ डिसमील		
2310	१.०१.०	--०	१	१३	एकड़ डिसमील		
2314	१.०१.०	--०	१	७०	एकड़ डिसमील		
2315	१.०१.०	--०	०	४३	एकड़ डिसमील		
2319	१.०१.०	--०	०	४	एकड़ डिसमील		
2321	१.०१.०	--०	०	२०	एकड़ डिसमील		
2323	१.०१.०	--०	०	५५	एकड़ डिसमील		
2327	१.०१.०	--०	०	१४	एकड़ डिसमील		
2329	१.०१.०	--०	०	१०	एकड़ डिसमील		
2331	१.०१.०	--०	०	७	एकड़ डिसमील		
2332	१.०१.०	--०	०	५	एकड़ डिसमील		
2336	१.०१.०	--०	१	७	एकड़ डिसमील		
2355	१.०१.०	--०	०	१६	एकड़ डिसमील		
2365	१.०१.०	--०	०	७	एकड़ डिसमील		
2372	१.०१.०	--०	०	६१	एकड़ डिसमील		
2378	१.०१.०	--०	९	७२	एकड़ डिसमील		
2379	१.०१.०	--०	०	३५	एकड़ डिसमील		

2380	१.०१.०	--०	4 एकड़	3 डिसमील	
2383	१.०१.०	--०	0 एकड़	95 डिसमील	
2388	१.०१.०	--०	0 एकड़	85 डिसमील	
2390	१.०१.०	--०	0 एकड़	70 डिसमील	
2391	१.०१.०	--०	0 एकड़	49 डिसमील	
2392	१.०१.०	--०	5 एकड़	60 डिसमील	
2393	१.०१.०	--०	0 एकड़	34 डिसमील	
2396	१.०१.०	--०	0 एकड़	36 डिसमील	
2397	१.०१.०	--०	0 एकड़	40 डिसमील	
2399	१.०१.०	--०	0 एकड़	54 डिसमील	
2402	१.०१.०	--०	9 एकड़	57 डिसमील	
2404	१.०१.०	--०	0 एकड़	75 डिसमील	
2406	१.०१.०	--०	0 एकड़	52 डिसमील	
2407	१.०१.०	--०	0 एकड़	41 डिसमील	
2408	१.०१.०	--०	0 एकड़	48 डिसमील	
2409	१.०१.०	--०	0 एकड़	24 डिसमील	
2410	१.०१.०	--०	0 एकड़	72 डिसमील	
2411	१.०१.०	--०	0 एकड़	51 डिसमील	
2412	१.०१.०	--०	1 एकड़	59 डिसमील	
2439	१.०१.०	--०	0 एकड़	2 डिसमील	
2460	१.०१.०	--०	0 एकड़	10 डिसमील	
2490	१.०१.०	--०	0 एकड़	14 डिसमील	

2497	१.०१.०	--०	०	2	एकड़ डिसमील		
2506	१.०१.०	--०	०	19	एकड़ डिसमील		
2508	१.०१.०	--०	०	33	एकड़ डिसमील		
2548	१.०१.०	--०	०	49	एकड़ डिसमील		
2552	१.०१.०	--०	०	59	एकड़ डिसमील		
2555	१.०१.०	--०	०	10	एकड़ डिसमील		
2577	१.०१.०	--०	०	14	एकड़ डिसमील		
2583	१.०१.०	--०	०	36	एकड़ डिसमील		
2603	१.०१.०	--०	०	16	एकड़ डिसमील		
2619	१.०१.०	--०	०	11	एकड़ डिसमील		
2620	१.०१.०	--०	०	25	एकड़ डिसमील		
2634	१.०१.०	--०	०	27	एकड़ डिसमील		
2636	१.०१.०	--०	०	15	एकड़ डिसमील		
2628	१.०१.०	--०	०	3	एकड़ डिसमील		
2671	१.०१.०	--०	०	15	एकड़ डिसमील		
2659	१.०१.०	--०	०	6	एकड़ डिसमील		
2672	१.०१.०	--०	०	3	एकड़ डिसमील		
2676	१.०१.०	--०	०	10	एकड़ डिसमील		
2682	१.०१.०	--०	०	34	एकड़ डिसमील		
2687	१.०१.०	--०	०	3	एकड़ डिसमील		
2693	१.०१.०	--०	०	8	एकड़ डिसमील		
2708	१.०१.०	--०	०	10	एकड़ डिसमील		

2701	१.०१.०	--०	०	10	एकड़ डिसमील		
2706	१.०१.०	--०	०	46	एकड़ डिसमील		
2721	१.०१.०	--०	०	15	एकड़ डिसमील		
2741	१.०१.०	--०	०	2	एकड़ डिसमील		
2735	१.०१.०	--०	०	10	एकड़ डिसमील		
2744	१.०१.०	--०	०	14	एकड़ डिसमील		
2755	१.०१.०	--०	०	17	एकड़ डिसमील		
2759	१.०१.०	--०	०	80	एकड़ डिसमील		
2760	१.०१.०	--०	०	31	एकड़ डिसमील		
2774	१.०१.०	--०	०	19	एकड़ डिसमील		
2775	१.०१.०	--०	०	40	एकड़ डिसमील		
2780	१.०१.०	--०	०	3	एकड़ डिसमील		
2785	१.०१.०	--०	०	7	एकड़ डिसमील		
2808	१.०१.०	--०	०	23	एकड़ डिसमील		
2812	१.०१.०	--०	०	5	एकड़ डिसमील		
2816	१.०१.०	--०	०	2	एकड़ डिसमील		
2820	१.०१.०	--०	०	27	एकड़ डिसमील		
2824	१.०१.०	--०	०	82	एकड़ डिसमील		
2835	१.०१.०	--०	०	20	एकड़ डिसमील		
2836	१.०१.०	--०	०	4	एकड़ डिसमील		
2840	१.०१.०	--०	०	4	एकड़ डिसमील		
2843	१.०१.०	--०	०	5	एकड़ डिसमील		

2844	१.०१.०	--०	० एकड़	11 डिसमील	
2845	१.०१.०	--०	० एकड़	6 डिसमील	
2846	१.०१.०	--०	० एकड़	5 डिसमील	
2847	१.०१.०	--०	० एकड़	10 डिसमील	
2848	१.०१.०	--०	० एकड़	11 डिसमील	
2856	१.०१.०	--०	० एकड़	11 डिसमील	
2856	१.०१.०	--०	० एकड़	14 डिसमील	
2876	१.०१.०	--०	० एकड़	6 डिसमील	
2882	१.०१.०	--०	० एकड़	21 डिसमील	
2888	१.०१.०	--०	2 एकड़	36 डिसमील	
2890	१.०१.०	--०	० एकड़	10 डिसमील	
2903	१.०१.०	--०	० एकड़	24 डिसमील	
2907	१.०१.०	--०	० एकड़	29 डिसमील	
2996	१.०१.०	--०	० एकड़	23 डिसमील	
3000	१.०१.०	--०	1 एकड़	29 डिसमील	
3003	१.०१.०	--०	० एकड़	22 डिसमील	
3006	१.०१.०	--०	० एकड़	20 डिसमील	
3043	१.०१.०	--०	० एकड़	89 डिसमील	
3048	१.०१.०	--०	० एकड़	17 डिसमील	
3054	१.०१.०	--०	० एकड़	27 डिसमील	
3060	१.०१.०	--०	० एकड़	36 डिसमील	
3076	१.०१.०	--०	० एकड़	50 डिसमील	

3085	१.०१.०	--०	०	९	एकड़ डिसमील		
3086	१.०१.०	--०	०	३३	एकड़ डिसमील		
3088	१.०१.०	--०	०	१९	एकड़ डिसमील		
3089	१.०१.०	--०	०	२०	एकड़ डिसमील		
3090	१.०१.०	--०	०	३६	एकड़ डिसमील		
3098	१.०१.०	--०	०	४८	एकड़ डिसमील		
3102	१.०१.०	--०	१	३	एकड़ डिसमील		
3115	१.०१.०	--०	०	३३	एकड़ डिसमील		
3121	१.०१.०	--०	०	१९	एकड़ डिसमील		
3139	१.०१.०	--०	०	८८	एकड़ डिसमील		
3144	१.०१.०	--०	०	८	एकड़ डिसमील		
3167	१.०१.०	--०	०	१६	एकड़ डिसमील		
3189	१.०१.०	--०	०	२०	एकड़ डिसमील		
3206	१.०१.०	--०	०	४५	एकड़ डिसमील		
3210	१.०१.०	--०	०	५१	एकड़ डिसमील		
3213	१.०१.०	--०	०	३४	एकड़ डिसमील		
3215	१.०१.०	--०	०	४	एकड़ डिसमील		
2058	१.०१.०	--०	०	३१	एकड़ डिसमील		
2060	१.०१.०	--०	०	१३	एकड़ डिसमील		
1497	१.०१.०	--०	०	५	एकड़ डिसमील		
1498	१.०१.०	--०	०	२	एकड़ डिसमील		
1502	१.०१.०	टाइ तीन ०	०	४२	एकड़ डिसमील		

1505	१.०१.०	--०	०	20	एकड़ डिसमील		
1507	१.०१.०	--०	०	16	एकड़ डिसमील		
1509	१.०१.०	--०	०	8	एकड़ डिसमील		
1527	१.०१.०	--०	०	1	एकड़ डिसमील		
1529	१.०१.०	--०	०	91	एकड़ डिसमील		
1530	१.०१.०	--०	०	14	एकड़ डिसमील		
3137	१.०१.०	--०	1	13	एकड़ डिसमील		
1541	१.०१.०	--०	०	20	एकड़ डिसमील		
1555	१.०१.०	--०	०	6	एकड़ डिसमील		
1558	१.०१.०	--०	०	7	एकड़ डिसमील		
1574	१.०१.०	--०	०	4	एकड़ डिसमील		
1612	१.०१.०	--०	1	14	एकड़ डिसमील		
548	१.०१.०	--०	०	10	एकड़ डिसमील		
552	१.०१.०	--०	०	6	एकड़ डिसमील		
613	१.०१.०	--०	०	11	एकड़ डिसमील		
625	१.०१.०	--०	०	2	एकड़ डिसमील		
634	१.०१.०	--०	०	10	एकड़ डिसमील		
645	१.०१.०	--०	०	4	एकड़ डिसमील		
646	१.०१.०	--०	०	46	एकड़ डिसमील		
648	१.०१.०	--०	०	4	एकड़ डिसमील		
650	१.०१.०	--०	०	7	एकड़ डिसमील		
659	१.०१.०	--०	०	5	एकड़ डिसमील		

662	१.०१.०	--०	० एकड़	2 डिसमील	
696	१.०१.०	--०	० एकड़	1 डिसमील	
697	१.०१.०	--०	० एकड़	11 डिसमील	
727	१.०१.०	--०	० एकड़	2 डिसमील	
735	१.०१.०	--०	1 एकड़	20 डिसमील	
740	१.०१.०	--०	2 एकड़	64 डिसमील	
768	१.०१.०	--०	० एकड़	8 डिसमील	
771	१.०१.०	--०	० एकड़	14 डिसमील	
776	१.०१.०	--०	० एकड़	14 डिसमील	
781	१.०१.०	--०	० एकड़	18 डिसमील	
839	१.०१.०	--०	० एकड़	2 डिसमील	
841	१.०१.०	--०	० एकड़	7 डिसमील	
871	१.०१.०	--०	० एकड़	5 डिसमील	
872	१.०१.०	--०	० एकड़	16 डिसमील	
886	१.०१.०	--०	० एकड़	3 डिसमील	
930	१.०१.०	--०	० एकड़	63 डिसमील	
935	१.०१.०	--०	० एकड़	4 डिसमील	
939	१.०१.०	--०	० एकड़	17 डिसमील	
955	१.०१.०	--०	० एकड़	91 डिसमील	
965	१.०१.०	--०	० एकड़	4 डिसमील	
966	१.०१.०	--०	० एकड़	26 डिसमील	
982	१.०१.०	--०	० एकड़	4 डिसमील	

1058	१.०१.०.	--०	०	८	एकड़	डिसमील		
1067	१.०१.०	--०	२३	२८	एकड़	डिसमील		
1085	१.०१.०	--०	०	६	एकड़	डिसमील		
1087	१.०१.०	--०	०	१६	एकड़	डिसमील		
1094	१.०१.०	--०	०	४	एकड़	डिसमील		
1129	१.०१.०	--०	०	१	एकड़	डिसमील		
1133	१.०१.०	--०	०	८	एकड़	डिसमील		
1139	१.०१.०	--०	०	२९	एकड़	डिसमील		
1141	१.०१.०	--०	०	७	एकड़	डिसमील		
1145	१.०१.०	--०	०	३	एकड़	डिसमील		
1147	१.०१.०	--०	०	१७	एकड़	डिसमील		
1151	१.०१.०	--०	०	२५	एकड़	डिसमील		
1154	१.०१.०	--०	८	७०	एकड़	डिसमील		
1206	१.०१.०	--०	०	३३	एकड़	डिसमील		
1212	१.०१.०	--०	०	६	एकड़	डिसमील		
1216	१.०१.०	--०	०	२	एकड़	डिसमील		
1230	१.०१.०	--०	०	७	एकड़	डिसमील		
1248	१.०१.०	--०	०	६०	एकड़	डिसमील		
1253	१.०१.०	--०	०	६	एकड़	डिसमील		
1255	१.०१.०	--०	०	२१	एकड़	डिसमील		
1260	१.०१.०	--०	०	४	एकड़	डिसमील		
1264	१.०१.०	--०	०	१	एकड़	डिसमील		

1272	१.०१.०	--०	० एकड़	21 डिसमील	
1276	१.०१.०	--०	० एकड़	17 डिसमील	
1289	१.०१.०	--०	2 एकड़	5 डिसमील	
1290	१.०१.०	--०	० एकड़	7 डिसमील	
1291	१.०१.०	--०	० एकड़	3 डिसमील	
1297	१.०१.०	--०	० एकड़	51 डिसमील	
1312	१.०१.०	--०	1 एकड़	6 डिसमील	
1325	१.०१.०	--०	० एकड़	2 डिसमील	
1326	१.०१.०	--०	० एकड़	6 डिसमील	
1327	१.०१.०	--०	० एकड़	48 डिसमील	
1340	१.०१.०	--०	० एकड़	11 डिसमील	
1378	१.०१.०	--०	० एकड़	1 डिसमील	
1383	१.०१.०	--०	० एकड़	11 डिसमील	
1397	१.०१.०	--०	० एकड़	29 डिसमील	
1408	१.०१.०	--०	० एकड़	22 डिसमील	
1411	१.०१.०	--०	० एकड़	8 डिसमील	
1431	१.०१.०	--०	1 एकड़	52 डिसमील	
1439	१.०१.०	--०	० एकड़	2 डिसमील	
1444	१.०१.०	--०	० एकड़	81 डिसमील	
1445	१.०१.०	--०	1 एकड़	12 डिसमील	
1448	१.०१.०	--०	1 एकड़	38 डिसमील	
1467	१.०१.०	--०	० एकड़	28 डिसमील	

1464	१.०१.०	--०	०	21	एकड़ डिसमील		
1490	१.०१.०	--०	०	7	एकड़ डिसमील		
1491	१.०१.०	--०	०	53	एकड़ डिसमील		
215	१.०१.०	--०	०	15	एकड़ डिसमील		
216	१.०१.०	--०	०	6	एकड़ डिसमील		
249	१.०१.०	--०	०	3	एकड़ डिसमील		
298	१.०१.०	--०	०	4	एकड़ डिसमील		
533	१.०१.०	--०	०	2	एकड़ डिसमील		
535	१.०१.०	--०	०	3	एकड़ डिसमील		
542	१.०१.०	--०	०	2	एकड़ डिसमील		
4	१.०१.०	--०	०	45	एकड़ डिसमील		
15	१.०१.०	--०	०	2	एकड़ डिसमील		
18	१.०१.०	--०	०	8	एकड़ डिसमील		
20	१.०१.०	--०	०	18	एकड़ डिसमील		
46	१.०१.०	--०	०	4	एकड़ डिसमील		
49	१.०१.०	--०	०	3	एकड़ डिसमील		
54	१.०१.०	--०	०	2	एकड़ डिसमील		
60	१.०१.०	--०	०	65	एकड़ डिसमील		
62	१.०१.०	--०	०	2	एकड़ डिसमील		
66	१.०१.०	--०	०	14	एकड़ डिसमील		
67	१.०१.०	--०	०	30	एकड़ डिसमील		
71	१.०१.०	--०	०	13	एकड़ डिसमील		

74	१.०१.०	--०	०	5	एकड़ डिसमील		
84	१.०१.०	--०	०	4	एकड़ डिसमील		
104	१.०१.०	--०	०	12	एकड़ डिसमील		
108	१.०१.०	--०	०	15	एकड़ डिसमील		
109	१.०१.०	--०	०	23	एकड़ डिसमील		
111	१.०१.०	--०	०	12	एकड़ डिसमील		
114	१.०१.०	--०	०	24	एकड़ डिसमील		
118	१.०१.०	--०	०	2	एकड़ डिसमील		
120	१.०१.०	--०	०	5	एकड़ डिसमील		
122	१.०१.०	--०	०	3	एकड़ डिसमील		
125	१.०१.०	--०	०	7	एकड़ डिसमील		
127	१.०१.०	--०	०	6	एकड़ डिसमील		
131	१.०१.०	--०	०	12	एकड़ डिसमील		
132	१.०१.०	--०	०	6	एकड़ डिसमील		
133	१.०१.०	--०	०	8	एकड़ डिसमील		
139	१.०१.०	--०	०	17	एकड़ डिसमील		
140	१.०१.०	--०	०	10	एकड़ डिसमील		
142	१.०१.०	--०	०	9	एकड़ डिसमील		
152	१.०१.०	--०	०	3	एकड़ डिसमील		
153	१.०१.०	--०	०	6	एकड़ डिसमील		
157	१.०१.०	--०	०	10	एकड़ डिसमील		
158	१.०१.०	--०	०	6	एकड़ डिसमील		

160	१.०१.०	--०	०	21	एकड़ डिसमील		
166	१.०१.०	--०	०	20	एकड़ डिसमील		
168	१.०१.०	--०	०	9	एकड़ डिसमील		
176	१.०१.०	--०	०	6	एकड़ डिसमील		
178	१.०१.०	--०	०	7	एकड़ डिसमील		
180	१.०१.०	--०	०	11	एकड़ डिसमील		
181	१.०१.०	--०	०	41	एकड़ डिसमील		
184	१.०१.०	--०	०	8	एकड़ डिसमील		
188	१.०१.०	--०	०	67	एकड़ डिसमील		
189	१.०१.०	--०	5	94	एकड़ डिसमील		
191	१.०१.०	--०	०	1	एकड़ डिसमील		
193	१.०१.०	--०	०	2	एकड़ डिसमील		
195	१.०१.०	--०	०	2	एकड़ डिसमील		
197	१.०१.०	--०	०	2	एकड़ डिसमील		
205	१.०१.०	--०	०	1	एकड़ डिसमील		
210	१.०१.०	--०	०	2	एकड़ डिसमील		
214	१.०१.०	--०	०	7	एकड़ डिसमील		
217	१.०१.०	--०	०	89	एकड़ डिसमील		
221	१.०१.०	--०	०	18	एकड़ डिसमील		
226	१.०१.०	--०	०	9	एकड़ डिसमील		
227	१.०१.०	--०	०	44	एकड़ डिसमील		
236	१.०१.०	--०	०	3	एकड़ डिसमील		

241	१.०१.०	--०	०	६	एकड़ डिसमील		
245	१.०१.०	--०	०	२	एकड़ डिसमील		
247	१.०१.०	--०	०	५	एकड़ डिसमील		
255	१.०१.०	--०	०	८	एकड़ डिसमील		
256	१.०१.०	--०	०	३२	एकड़ डिसमील		
258	१.०१.०	--०	०	२५	एकड़ डिसमील		
262	१.०१.०	--०	०	४९	एकड़ डिसमील		
263	१.०१.०	--०	०	३८	एकड़ डिसमील		
264	१.०१.०	--०	०	४	एकड़ डिसमील		
270	१.०१.०	--०	०	४	एकड़ डिसमील		
271	१.०१.०	--०	०	३२	एकड़ डिसमील		
275	१.०१.०	--०	०	१	एकड़ डिसमील		
282	१.०१.०	--०	०	२३	एकड़ डिसमील		
287	१.०१.०	--०	०	१३	एकड़ डिसमील		
288	१.०१.०	--०	०	२	एकड़ डिसमील		
292	१.०१.०	--०	०	४	एकड़ डिसमील		
2149	१.०१.०	--०	८	५०	एकड़ डिसमील		
313	१.०१.०	--०	०	२७	एकड़ डिसमील		
317	१.०१.०	--०	०	७	एकड़ डिसमील		
319	१.०१.०	--०	०	११	एकड़ डिसमील		
322	१.०१.०	--०	०	५	एकड़ डिसमील		
332	१.०१.०	--०	०	१२	एकड़ डिसमील		

335	१.०१.०	--०	०	३	एकड़ डिसमील	
336	१.०१.०	--०	०	१	एकड़ डिसमील	
337	१.०१.०	--०	०	३	एकड़ डिसमील	
338	१.०१.०	--०	०	३६	एकड़ डिसमील	
345	१.०१.०	--०	०	२	एकड़ डिसमील	
346	१.०१.०	--०	०	१२	एकड़ डिसमील	
349	१.०१.०	--०	०	३	एकड़ डिसमील	
350	१.०१.०	--०	०	१४	एकड़ डिसमील	
363	१.०१.०	--०	०	२	एकड़ डिसमील	
369	१.०१.०	--०	०	२	एकड़ डिसमील	
380	१.०१.०	--०	०	६	एकड़ डिसमील	
382	१.०१.०	--०	०	८	एकड़ डिसमील	
384	१.०१.०	--०	०	५	एकड़ डिसमील	
385	१.०१.०	--०	०	१०	एकड़ डिसमील	
386	१.०१.०	--०	०	८	एकड़ डिसमील	
387	१.०१.०	--०	०	२१	एकड़ डिसमील	
393	१.०१.०	--०	०	२४	एकड़ डिसमील	
395	१.०१.०	--०	०	८	एकड़ डिसमील	
398	१.०१.०	--०	०	८	एकड़ डिसमील	
398	१.०१.०	--०	०	६	एकड़ डिसमील	
404	१.०१.०	--०	०	६	एकड़ डिसमील	
407	१.०१.०	--०	०	१३	एकड़ डिसमील	

410	१.०१.०	--०	० एकड़	1 डिसमील	
413	१.०१.०	--०	० एकड़	42 डिसमील	
415	१.०१.०	--०	० एकड़	6 डिसमील	
417	१.०१.०	--०	० एकड़	6 डिसमील	
419	१.०१.०	--०	० एकड़	4 डिसमील	
428	१.०१.०	--०	० एकड़	2 डिसमील	
433	१.०१.०	--०	० एकड़	8 डिसमील	
439	१.०१.०	--०	० एकड़	5 डिसमील	
459	१.०१.०	--०	० एकड़	93 डिसमील	
460	१.०१.०	--०	1 एकड़	5 डिसमील	
476	१.०१.०	--०	० एकड़	17 डिसमील	
466	१.०१.०	--०	० एकड़	18 डिसमील	
474	१.०१.०	--०	० एकड़	8 डिसमील	
479	१.०१.०	--०	० एकड़	6 डिसमील	
483	१.०१.०	--०	० एकड़	12 डिसमील	
489	१.०१.०	--०	० एकड़	3 डिसमील	
494	१.०१.०	--०	० एकड़	2 डिसमील	
508	१.०१.०	--०	० एकड़	5 डिसमील	
514	१.०१.०	--०	० एकड़	7 डिसमील	
1677	१.०१.०	--०	० एकड़	8 डिसमील	
1066	१.०१.०	--०	० एकड़	14 डिसमील	
2219	१.०१.०	--०	० एकड़	8 डिसमील	

2238	१.०१.०	--०	4 एकड़	67 डिसमील	
2247	१.०१.०	--०	2 एकड़	24 डिसमील	
183	१.०१.०	--०	0 एकड़	6 डिसमील	
751	१.०१.०	--०	0 एकड़	25 डिसमील	
811	१.०१.०	--०	1 एकड़	77 डिसमील	
1015	१.०१.०	--०	0 एकड़	12 डिसमील	
1083	१.०१.०	--०	0 एकड़	7 डिसमील	
1391	१.०१.०	--०	1 एकड़	22 डिसमील	
1592	१.०१.०	--०	0 एकड़	11 डिसमील	
1833	१.०१.०	--०	0 एकड़	9 डिसमील	
700	१.०१.०	--०	0 एकड़	7 डिसमील	
2130	१.०१.०	--०	0 एकड़	27 डिसमील	
2240	१.०१.०	--०	0 एकड़	47 डिसमील	
2260	१.०१.०	--०	0 एकड़	17 डिसमील	
2275	१.०१.०	--०	0 एकड़	72 डिसमील	
2371	१.०१.०	--०	0 एकड़	54 डिसमील	
2374	१.०१.०	--०	0 एकड़	76 डिसमील	
2376	१.०१.०	--०	0 एकड़	52 डिसमील	
2456	१.०१.०	--०	0 एकड़	3 डिसमील	
2498	१.०१.०	--०	0 एकड़	3 डिसमील	
2610	१.०१.०	--०	0 एकड़	21 डिसमील	
2662	१.०१.०	--०	0 एकड़	11 डिसमील	

2703	१.०१.०	--०	०	३५	एकड़ डिसमील		
2762	१.०१.०	--०	०	११	एकड़ डिसमील		
2960	१.०१.०	--०	०	६	एकड़ डिसमील		
2984	१.०१.०	--०	०	३१	एकड़ डिसमील		
3093	१.०१.०	--०	०	३७	एकड़ डिसमील		
3195	१.०१.०	--०	०	१५	एकड़ डिसमील		
2560/3250	१.०१.०	--०	०	११	एकड़ डिसमील		
1810	१.०१.०	--०	४	६१	एकड़ डिसमील		
2806	१.०१.०	--०	०	८	एकड़ डिसमील		
2386	१.०१.०	--०	०	२१	एकड़ डिसमील		
2394	१.०१.०	--०	०	३२	एकड़ डिसमील		
2395	१.०१.०	--०	०	११	एकड़ डिसमील		
2400	१.०१.०	--०	०	४	एकड़ डिसमील		
2367	१.०१.०	--०	०	५६	एकड़ डिसमील		
2367	१.०१.०	--०	०	५६	एकड़ डिसमील		
2369	१.०१.०	--०	०	८५	एकड़ डिसमील		
2320	१.०१.०	--०	०	७	एकड़ डिसमील		
2325	१.०१.०	--०	०	१	एकड़ डिसमील		
2333	१.०१.०	--०	०	२०	एकड़ डिसमील		
2334	१.०१.०	--०	०	३	एकड़ डिसमील		
2335	१.०१.०	--०	०	४	एकड़ डिसमील		
2338	१.०१.०	--०	०	१६	एकड़ डिसमील		

2339	१.०१.०	--०	०	11	एकड़ डिसमील		
2226	१.०१.०	--०	०	12	एकड़ डिसमील		
2608	१.०१.०	--०	०	18	एकड़ डिसमील		
2228	१.०१.०	--०	०	10	एकड़ डिसमील		
2230	१.०१.०	--०	०	6	एकड़ डिसमील		
2187	१.०१.०	--०	०	17	एकड़ डिसमील		
2194	१.०१.०	--०	०	41	एकड़ डिसमील		
2203	१.०१.०	--०	०	6	एकड़ डिसमील		
2206	१.०१.०	--०	०	6	एकड़ डिसमील		
2212	१.०१.०	--०	०	12	एकड़ डिसमील		
1969	१.०१.०	--०	०	31	एकड़ डिसमील		
1970	१.०१.०	--०	०	10	एकड़ डिसमील		
1877	१.०१.०	--०	०	20	एकड़ डिसमील		
1878	१.०१.०	--०	०	44	एकड़ डिसमील		
1890	१.०१.०	--०	०	10	एकड़ डिसमील		
1941	१.०१.०	--०	०	3	एकड़ डिसमील		
1867	१.०१.०	--०	०	11	एकड़ डिसमील		
1868	१.०१.०	--०	०	60	एकड़ डिसमील		
1874	१.०१.०	--०	०	16	एकड़ डिसमील		
1875	१.०१.०	--०	०	21	एकड़ डिसमील		
1539	१.०१.०	--०	1	36	एकड़ डिसमील		
1565	१.०१.०	--०	०	23	एकड़ डिसमील		

1594	१.०१.०	--०	०	62	एकड़ डिसमील		
1864	१.०१.०	--०	०	35	एकड़ डिसमील		
461	१.०१.०	--०	2	2	एकड़ डिसमील		
462	१.०१.०	--०	०	63	एकड़ डिसमील		
917	१.०१.०	--०	०	22	एकड़ डिसमील		
1386	१.०१.०	--०	०	26	एकड़ डिसमील		
2920	१.०१.०	--०	०	13	एकड़ डिसमील		
112	१.०१.०	--०	०	76	एकड़ डिसमील		
113	१.०१.०	--०	०	25	एकड़ डिसमील		
266	१.०१.०	--०	०	6	एकड़ डिसमील		
274	१.०१.०	--०	०	1	एकड़ डिसमील		
1756	१.०१.०	--०	०	6	एकड़ डिसमील		
1700	१.०१.०	--०	०	17	एकड़ डिसमील		
1748	१.०१.०	--०	०	60	एकड़ डिसमील		
2304	१.०१.०	--०	०	60	एकड़ डिसमील		
1643	१.०१.०	--०	०	10	एकड़ डिसमील		
1629	१.०१.०	--०	०	4	एकड़ डिसमील		
1624	१.०१.०	--०	०	2	एकड़ डिसमील		
1613	१.०१.०	--०	०	15	एकड़ डिसमील		
2784/3252	१.०१.०	--०	०	5	एकड़ डिसमील		
2278	१.०१.०	--०	०	3	एकड़ डिसमील		
2279	१.०१.०	--०	०	13	एकड़ डिसमील		

2280	१.०१.०	--०	०	18	एकड़ डिसमील		
969/3259	१.०१.०	--०	०	8	एकड़ डिसमील		
1462/3260	१.०१.०	--०	०	6	एकड़ डिसमील		
1745	१.०१.०	--०	०	4	एकड़ डिसमील		
2481/3246	१.०१.०	--०	०	10	एकड़ डिसमील		
2504/3247	१.०१.०	--०	०	10	एकड़ डिसमील		
2557/3248	१.०१.०	--०	०	10	एकड़ डिसमील		
2555/3249	१.०१.०	--०	०	4	एकड़ डिसमील		
2283	१.०१.०	--०	1	57	एकड़ डिसमील		
3028	१.०१.०	--०	1	85	एकड़ डिसमील		
2168	१.०१.०	--०	3	83	एकड़ डिसमील		
2692	१.०१.०	--०	०	15	एकड़ डिसमील		
2098	१.०१.०	--०	०	4	एकड़ डिसमील		
1609	१.०१.०	--०	०	42	एकड़ डिसमील		
1734	१.०१.०	--०	०	17	एकड़ डिसमील		
1735	१.०१.०	--०	०	22	एकड़ डिसमील		
2120	१.०१.०	--०	1	82	एकड़ डिसमील		
2602	१.०१.०	--०	०	8	एकड़ डिसमील		
2248	१.०१.०	--०	1	29	एकड़ डिसमील		
2377	१.०१.०	--०	०	14	एकड़ डिसमील		
2624	१.०१.०	--०	०	13	एकड़ डिसमील		
3142	१.०१.०	--०	1	14	एकड़ डिसमील		

2313	१.०१.०	--०	7 एकड़	98 डिसमील	
2729	१.०१.०	--०	0 एकड़	10 डिसमील	
535/3232	१.०१.०	--०	0 एकड़	3 डिसमील	
1044/3233	१.०१.०	--०	0 एकड़	2 डिसमील	
1081/3234	१.०१.०	--०	0 एकड़	4 डिसमील	
1047/3235	१.०१.०	--०	0 एकड़	3 डिसमील	
1140/3236	१.०१.०	--०	0 एकड़	13 डिसमील	
1588/3237	१.०१.०	--०	0 एकड़	4 डिसमील	
1750/3238	१.०१.०	--०	0 एकड़	12 डिसमील	
1740/3239	१.०१.०	--०	0 एकड़	13 डिसमील	
2149/3240	१.०१.०	--०	0 एकड़	39 डिसमील	
460/3226	१.०१.०	--०	0 एकड़	18 डिसमील	
707/3227	१.०१.०	--०	0 एकड़	8 डिसमील	
720/3230	१.०१.०	--०	0 एकड़	36 डिसमील	
531/3231	१.०१.०	--०	0 एकड़	5 डिसमील	
2971	१.०१.०	--०	0 एकड़	9 डिसमील	
595/3224	१.०१.०	--०	0 एकड़	8 डिसमील	
2901	१.०१.०	--०	0 एकड़	20 डिसमील	
2854	१.०१.०	--०	0 एकड़	28 डिसमील	
2166	१.०१.०	--०	0 एकड़	5 डिसमील	
2174	१.०१.०	--०	0 एकड़	17 डिसमील	
2880	१.०१.०	--०	0 एकड़	21 डिसमील	

2704	१.०१.०	--०	०	1	एकड़ डिसमील			
1678	१.०१.०	--०	०	7	एकड़ डिसमील			
2739	१.०१.०	--०	०	3	एकड़ डिसमील			
2833	१.०१.०	--०	०	5	एकड़ डिसमील			
1975	१.०१.०	--०	०	30	एकड़ डिसमील			
2626	१.०१.०	--०	०	14	एकड़ डिसमील			
2645	१.०१.०	--०	०	3	एकड़ डिसमील			
2609	१.०१.०	--०	०	48	एकड़ डिसमील			
2615	१.०१.०	--०	०	12	एकड़ डिसमील			
2079	१.०१.०	--०	०	19	एकड़ डिसमील			
2074	१.०१.०	--०	०	11	एकड़ डिसमील			
2082	१.०१.०	--०	०	18	एकड़ डिसमील			
2083	१.०१.०	--०	०	43	एकड़ डिसमील			
3106	१.०१.०	--०	०	10	एकड़ डिसमील			
3108	१.०१.०	--०	०	4	एकड़ डिसमील			
3110	१.०१.०	--०	०	80	एकड़ डिसमील			
307	१.०१.०	--०	०	17	एकड़ डिसमील			
2312	१.०१.०	--०	०	14	एकड़ डिसमील			
खाता मे कुल प्लोट संख्या		558	खाता का कुल मिजान (खतियान के अनुसार)		264 70	खाता का कुल लगान		0 0 0

यह एक कंप्यूटर जनित प्रति है

12/12/2018

यह प्रपत्र केवल प्रार्थी की जानकारी के लिए है

इसका उपयोग किसी भी न्यायालय में साक्ष्य के रूप में नहीं किया जा

12/12/2018

आर ओ आर

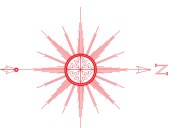
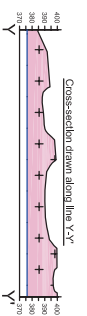
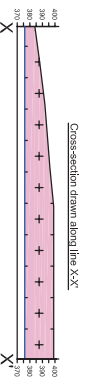
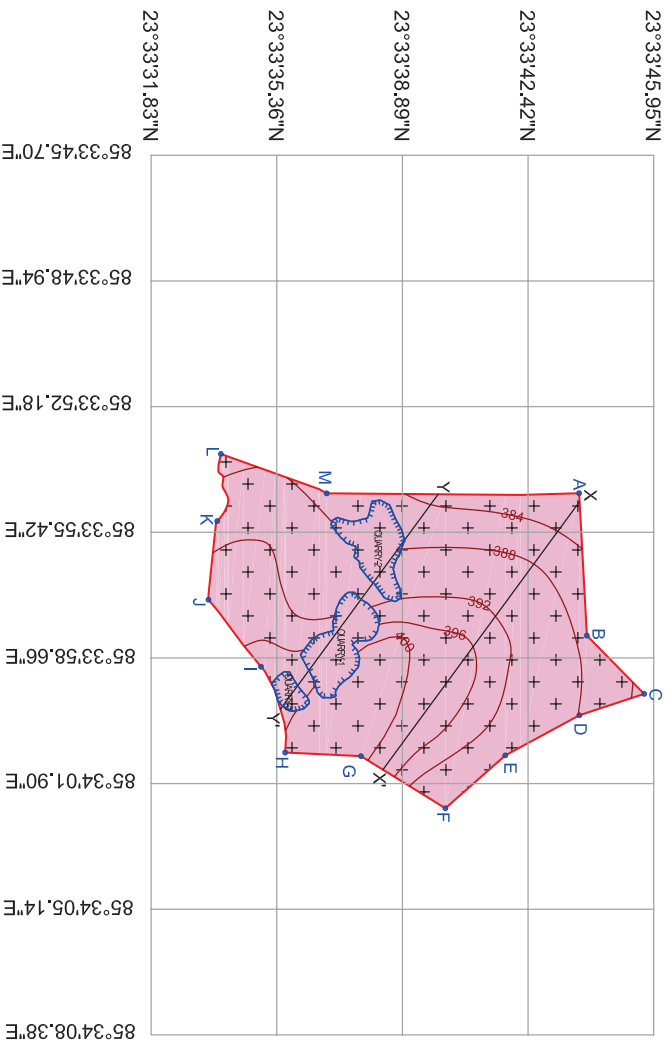
सकता है।

किसी भी प्रकार की अशुद्धियों के लिए सम्बन्धित अंचलाधिकारी से संपर्क करें।

GEOLOGICAL CUM TOPOGRAPHICAL MAP OF GENERAL STONE OCCURRING IN PLOT NO.  
 2392(P), 2402(P), 2403, 2404, 2405(P), 2408(P), 2410(P), 2411(P), 2412(P), KHATA NO. 184, VILLAGE- LOLO,  
 BLOCK- RAMGARH, DISTRICT- RAMGARH (JHARKHAND) AREA - 6.07 HA.

ITEM NO.-RC/GS/22/2018-19  
 Part of OSM NO.-F45B10

Scale:- 1:4000



Contour Interval - 4m.  
 Datum - WGS84

Geo-Coordinates of Corner Points of Demarcated Block Boundary		
A	23°33'43.20"N	85°33'54.51"E
B	23°33'43.42"N	85°33'58.52"E
C	23°33'44.94"N	85°34'01.3"E
D	23°33'43.26"N	85°34'07.5"E
E	23°33'41.36"N	85°34'1.90"E
F	23°33'39.83"N	85°34'3.40"E
G	23°33'37.62"N	85°34'1.96"E
H	23°33'35.66"N	85°34'1.88"E
I	23°33'35.01"N	85°33'59.47"E
J	23°33'33.64"N	85°33'57.62"E
K	23°33'33.85"N	85°33'55.40"E
L	23°33'33.92"N	85°33'53.51"E
M	23°33'36.68"N	85°33'54.59"E

## Index

	Granite Gneiss
	Grid
	Contour
	Section Line
	Old Quarry
	Block Boundary

Plate-I

 <b>GOVERNMENT OF JHARKHAND</b> <b>DEPARTMENT OF MINES &amp; GEOLOGY</b> <b>DIRECTORATE OF GEOLOGY</b>	
SUBMITTED BY: BHUBANJAN PRASAD (Surveyor)	
MAPPED BY: O.M. PRADHAN, USHAKANKANNA (Geologist)	
SUPERVISED BY: SHANKU KUMAR SINGHA (Sr. Surveyor/Chief Geologist)	

DEMARCATED BLOCK MAP SUPERIMPOSED OVER CADASTRAL MAP OF GENERAL STONE OCCURRING IN  
 PLOT NO. 2392(P), 2402(P), 2403, 2404, 2405(P), 2408(P), 2410(P), 2411(P), 2412(P), KHATA NO. 184, VILLAGE- LOLO, BLOCK-

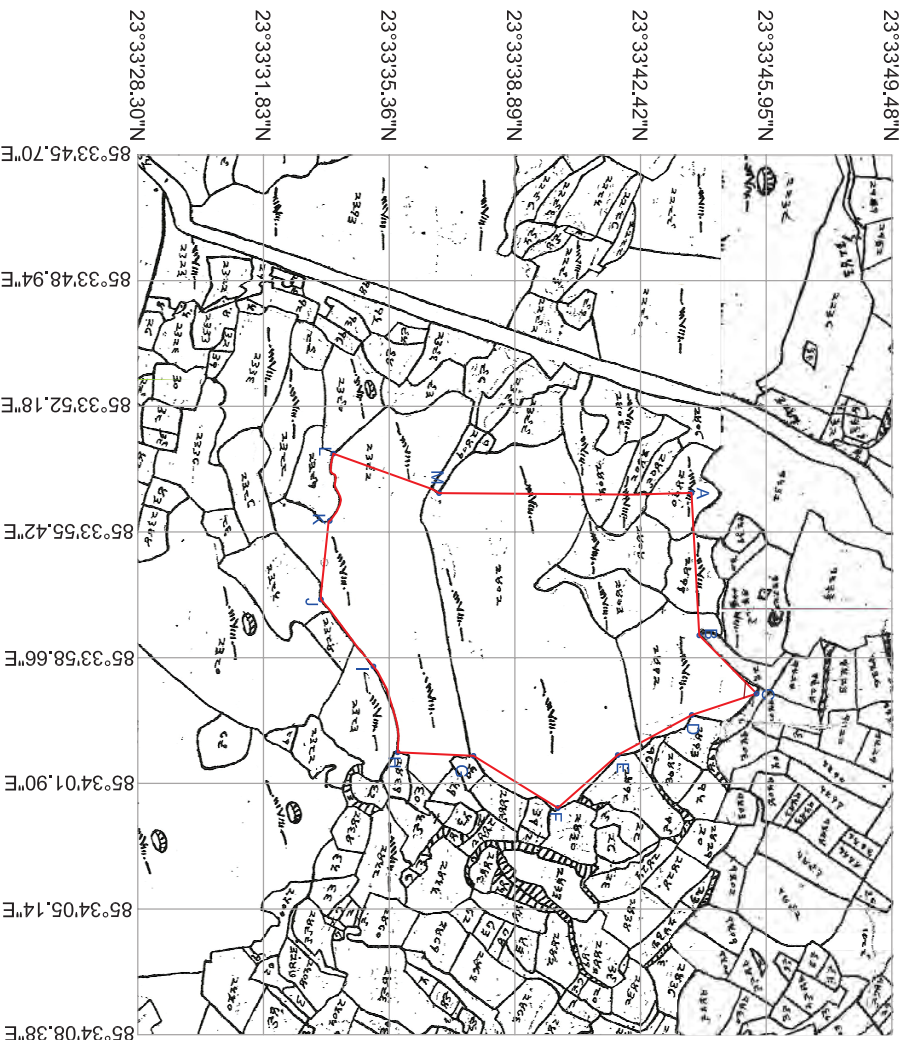
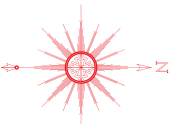
RAMGARH,

DISTRICT- RAMGARH (JHARKHAND) AREA - 6.07 HA.

ITEM NO.-RC/GS/22/2018-19

Part of OSM NO.-F45B10

Scale:- 1:4000




## Index

 Block Boundary

Datum - WGS84

Geo-Coordinates of Corner Points of Demarcated Block Boundary	
A	23°33'43.20"N 85°33'54.51"E
B	23°33'43.42"N 85°33'58.52"E
C	23°33'44.94"N 85°34'0.13"E
D	23°33'43.26"N 85°34'0.75"E
E	23°33'41.36"N 85°34'1.90"E
F	23°33'39.83"N 85°34'3.40"E
G	23°33'37.62"N 85°34'1.96"E
H	23°33'35.66"N 85°34'1.88"E
I	23°33'35.01"N 85°33'59.47"E
J	23°33'33.64"N 85°33'57.62"E
K	23°33'33.85"N 85°33'55.40"E
L	23°33'33.92"N 85°33'53.51"E
M	23°33'36.68"N 85°33'54.59"E

Plate-I

 <b>GOVERNMENT OF JHARKHAND</b> DEPARTMENT OF MINES & GEOLOGY DIRECTORATE OF GEOLOGY	
SUBMITTED BY: BHAUSANU PRASAD (Surveyor)	
MADE BY: OM PRAKASH, USURKUKUSA (Geologist)	
SUPERVISED BY:	SHAKHAI KUMAR SINGHA (Sr. District Surveyor)





**INDEX**

BOUNDARY PILLAR NO	LOCATION (CO-ORDINATES)	
	LATITUDE	LONGITUDE
A	N23°33'43.20"	E85°33'54.51"
B	N23°33'43.42"	E85°33'58.52"
C	N23°33'44.94"	E85°34'00.13"
D	N23°33'43.28"	E85°34'00.75"
E	N23°33'41.38"	E85°34'01.80"
F	N23°33'39.83"	E85°34'03.40"
G	N23°33'37.62"	E85°34'01.98"
H	N23°33'35.68"	E85°34'01.88"
I	N23°33'35.01"	E85°33'58.47"
J	N23°33'33.64"	E85°33'57.62"
K	N23°33'33.85"	E85°33'55.40"
L	N23°33'33.82"	E85°33'53.51"
M	N23°33'36.88"	E85°33'54.59"

-  LEASE BOUNDARY
-  SAFETY ZONE
-  CONTOUR LINES
-  APPROACH ROAD
-  TBM 384.00M
-  GRID LINE
-  EXISTING QUARRY

**LOCATION:-**  
 BETWEEN LATITUDE N23°33'33.64" TO N23°33'44.94" &  
 BETWEEN LONGITUDE E85°33'53.51" TO E85°34'03.40"

**LOLO STONE MINE**  
 IN MOUZA - LOLO, BLOCK - RAMGARH,  
 DISTRICT - RAMGARH, JHARKHAND.  
**APPLICANT: M/s FAIRMINE RESOURCES LIMITED**

**SURFACE PLAN**  
 AREA: 15.00 ACRES (6.07 HA)  
 SCALE 1:2000      PLATE NO - 3  
 CERTIFIED THAT THE PLAN IS UPDATED AND CORRECT

  
 P. K. SEN  
 QUALIFIED PERSON

*mbh*  
 मुकुल प्रसाद  
 अपर निदेशक खान  
 राँची