MINING PLAN ALONG WITH PMCP FOR KESHRIPURA GRANITE DEPOSIT, AREA 18.90 HECTARES IN VILLAGE KESHRIPURA, TEHSIL LUVKUSHNAGAR & DISTRICT CHHATARPUR (M.P.)

INTRODUCTION:

This Mining Plan for **Keshripura Granite Deposit** in Village **Keshripura**, Tehsil Luvkushnagar, District Chhatarpur of State Madhya Pradesh is being submitted under **Rule 12 of Granite Conservation and Development Rules 1999**.

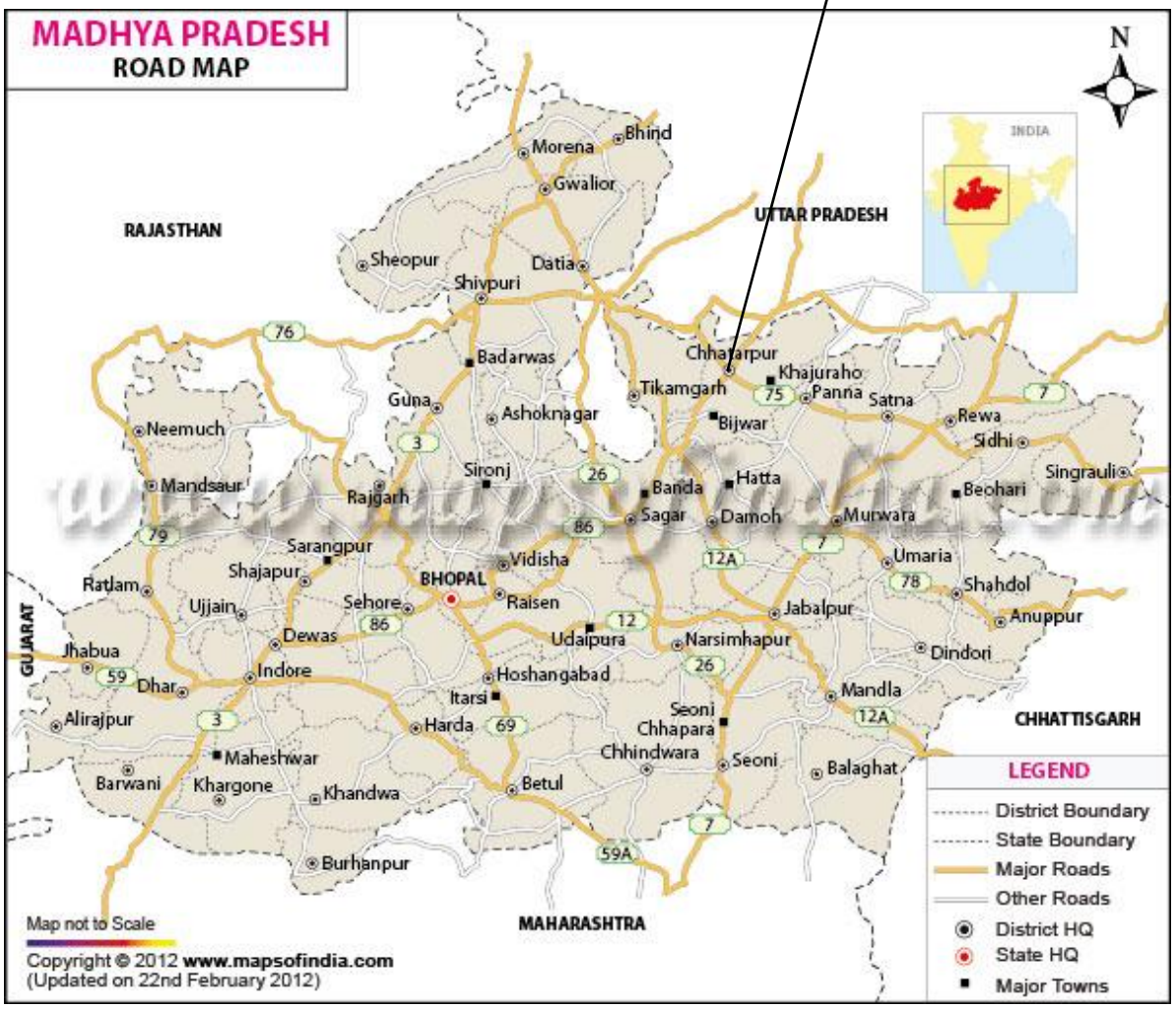
Initially, the PL was sanctioned to **M/s D. G. Minerals Pvt. Ltd.** , Reg. Address - 158, Zone - II, M. P. Nagar, District Bhopal (M.P.) has been granted permission to carryout prospecting operation for the block mining in Granite, over an area **18.90** hectares of Khasra no. 179/2/1 & 180/1/1 (**Forest compartment no. P-703**) in Village Keshripura, Tehsil Luvkushnagar District Chhatarpur (MP) under the State Government Order i.e. (Office of Directorate of Geology and Mining, MP), Bhopal Vide letter no. **5993-96/Khanij/Na.Kr.5/Poo.Anu.2016, Bhopal dated 05-04-2018** (see annexure no. I), & as the land use pattern is forest land, hence applicant has taken the prior consent for three bore hole has been provided by **CCF-Forest Department, Bhopal consent no. F-1/FP/MP/MIN/12/2016/897,** Bhopal date **24/03/2018** . Under their prescribed terms and conditions for the period of one year. Subsequently, the applicant has done the agreement with Office of Collector (Khanij Shakha), District Chhatarpur (MP), on dated **23rd April, 2018,** for the period of one year. Consequently as per agreement, PL operation period is effective from **23-04-2018 to 22-04-2019** (See annexure no. I).

During the exploration period, the applicant has put three core bore holes for avg. 30m depth and the outcome of exploration has proved that the granite of the area is compact & hard and is suitable for block mining. The applied area has hilly to moderately rolling topography with 16m elevation difference; the thickness of soil is negligible and in general Granite is exposed at higher levels while lower level has very thin capping of soil. All three bore holes have been drilled for Geological continuity of Granite and related features for establishing the technical parameters for establishing block mining and depth wise influence hence the entire area is considered G2 with an average 30m depth and is supposed to continue depth wise. Recovery point of view, approx. 20% recovery is expected in granite zone up to the measured depth, the mineral occurrence has been plotted on Geological Plan and Section. This report has been prepared as per provided data for carried out exploration and accordingly this report has been synthesized and submitted .

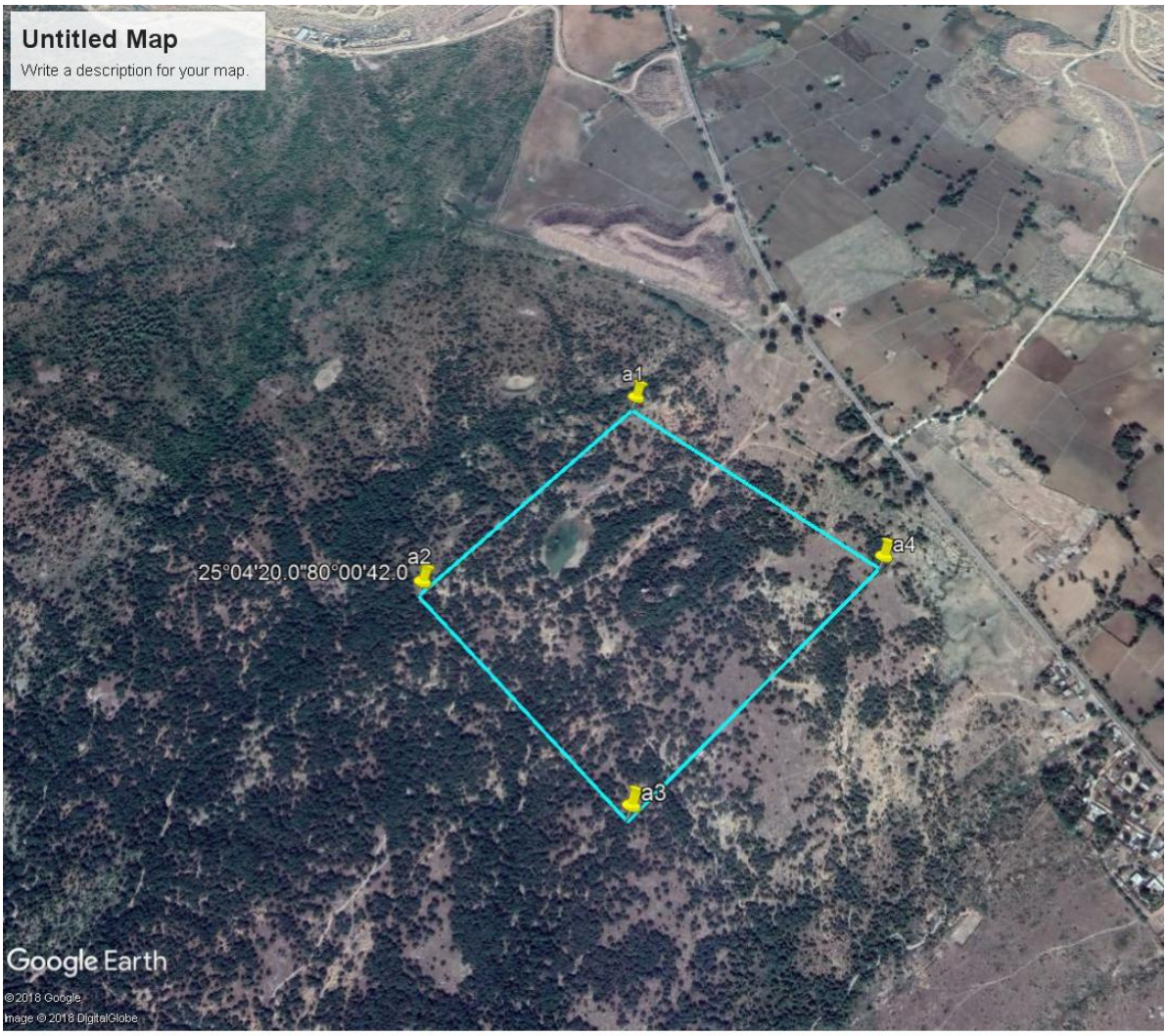
After completing the PL operation the applicant has filed a QL application against the PL sanctioned area of **18.90 ha** and consequently the State Government of Madhya Pradesh **(Office of Directorate of Geology and Mining, Bhopal, MP**), has granted the QL order over an area of **18.90 ha**, vide their Order no. **16011/ Khanij /Na. Kra. 12/ U.Pa./2018, Bhopal dated 05-10-2018** (See annexure no. V).

The **M/s D. G. Minerals Pvt. Ltd** is a Private Limited Company and registered under Company Act 1956, the applicant is well versed with Granite block mining and its marketing. Regionally, Rocks of the area belong to Archaean to Quaternary age which are exposed in Bundelkhand Region. Granite Complex of Archaean to Proterozoic age (^2250my) comprising pink and grey granite with enclaves of basic, ultra basic rocks and meta sedimentary rocks of the area exposed in the eastern part of Chhatarpur District.

APPLIED AREA



GOOGLE IMAGE OF THE AREA



CHAPTER - 1

1.0 GENERAL:

a) Name of the Applicant : **M/s D. G. MINERALS PVT. LTD.**

Registered address : **M/s D. G. MINERALS PVT. LTD**

Reg. Address: 158, Zone - II,

M. P. Nagar, District Bhopal (M.P.) – 462011

Landline: 0755-4058337, Mo.: 9826018281

b) STATUS OF APPLICANT:

It is a Limited Company.

c) Mineral(s), which is occurring in the area and which the applicant intends to mine: -

Granite is occurring in the QL area and the Applicant intends to mine the same.

d) Period for which the mining lease is proposed to be granted:

As per the consent letter, the QL period has been proposed for 30 years.

e) Name of RQP preparing Mining Plan

NAME	:	**Indraneel Dawande**
ADDRESS	:	1338, Vijay Nagar, Jabalpur (M.P.)
PHONE & FAX	:	0761-2641694,
		Mobile: 09425387402
		E-mail: engeotech@rediffmail.com
REGISTRATION NO.	:	RQP/DGMMP/002/2013
VALID UP TO	:	17-04-2023

f) Name of prospecting agency

The applicant himself, under the technical guidance of his own staff, gives the following information as under: Technical Person Involved with drilling rig-

M/S Bhaniyana Soil Investigations and consultant ,

1st ,C-143, Kamla Nehru Nagar, Jodhpur (Rajasthan)

g) Reference no. and date of consent letter from the State Government

Vide State Government **(Office of Directorate of Geology and Mining, Bhopal, MP)** Order no. **16011/ Khanij /Na. Kra. 12/ U.Pa./2018, Bhopal dated 05-10-2018** (see annexure no . V).

CHAPTER – 2

2.0 LOCATION AND ACCESSIBILITY:

The QL sanctioned area is located at a distance of 65 km in NE direction from district headquarters Chhatarpur. Approach from Chhatarpur to the applied area is given below:

- The QL sanctioned area Chhatarpur is located at approx. 65 km in the North-East direction from the district headquarters Chhatarpur, the accessibility of the area is by road. One has to travel 35 km on Chhatarpur to Niwari - Malhera - Srinagar road, then take a turn in East direction for Luvkushnagar another 20 km. Then applied area is approximately 10 Km in the southeastern direction from the Luvkushnagar. The applied PL area is located about 1 Km distance to the northwest of Keshripura village. The regular private taxi or bus, which are plying from Chhatarpur or Lavkushnagar to Keshripura village.
- The Nearest PWD rest house is located at a distance of 10 km in Lavkushnagar, which is located towards the southeastern direction of the quarry. The QL area falls under jurisdiction of police station Lavkushnagar, Schooling facility is up to Middle School in Village Keshripura and the other required facilities i.e. higher education, medical facility, post office and telegram facilities are available in Village Lavkushnagar. The guest house and railway facility is available at Mahoba which is 30 km in the NW direction. ***(Please see Key Plan as Plate No. I).***
- **OTHER DETAILS:**

- **INFRASTRUCTURE**

This is a fresh grant case and at this stage no infrastructures have been developed in the QL area.

- **WATER**

Nearest source of drinking water is in the form of dug well/ bore well in other nearby quarries.

- **ELECTRICITY**

Presently there is no electricity within the QL area however electricity facility is available in other nearby quarries.

- **MANPOWER**

Manpower is easily accessible from the surrounding villages i.e. Kathara, Devikheda, Kesharipur, Parsaniya, Digoni and Lavkushnagar.

a) DETAILS OF THE AREA

District & State : Chhatarpur (M.P.)

Tehsil : Lavkushnagar

Village : Kesharipur

Area : 18.90 hectares

Details of khasra no. and area are given as follows:

KHASRA No.	AREA IN HECTARES*	OWNERSHIP OCCUPANCY
179/2/1 & 180/1/1 Forest Compartment No. - **P-703**	18.90 ha	Govt. forest Land sanctioned for QL of Granite.

*(*Please See the Khasra Plan)*

Whether the area is recorded in forest: Yes .

Existence of public road: No public road is passing through the QL area.

Toposheet No.: Area falls under Survey of India Toposheet No. **63 C/4**

Applied QL area is limited within -

LATITUDE : 25° 04' 09.7"N to 25° 04' 29.3"N

LONGITUDE : 80° 00' 42.0"E TO 80° 01' 05.5"E

APPLIED BOUNDARY PILLAR POINT COORDINATES:

COORDINATE	PILLAR NO. 1	PILLAR NO.2	PILLAR NO.3	PILLAR NO.4
Latitude	25° 04' 29.3"N	25° 04' 20.1"N	25° 04' 09.7"N	25° 04' 19.6"N
Longitude	80° 00' 51.4"E	80° 00' 42.0"E	80° 00' 53.7"E	80° 01' 05.5"E

(Note: The location of the area is verified by applicant /forest department concern officer and coordinates of pillar points are shown on Plate no. iv) Please refer to Plate No. IV

Key Plan is enclosed as Plate no. - I

b) ATTACH A GENERAL LOCATION AND VICINITY MAP SHOWING AREA BOUNDARIES, EXISTING AND PROPOSED ACCESS ROUTES. IT IS PREFERRED THAT THE AREA BE MARKED ON A SURVEY OF INDIA TOPOGRAPHIC MAP OR A CADESTRAL MAP OR FOREST MAP AS THE CASE MAY BE. HOWEVER, IF NONE OF THESE ARE AVAILABLE, THE AREA SHOULD BE SHOWN ON AN ACCURATE SKETCH MAP ON A SCALE OF 1: 50000:

Key Plan is enclosed as Plate no. I; Location Plan is inserted as Plate no. II & Environment Plan as Plate no. IX on 1:5000 scale.

CHAPTER - 3

3.0 GEOLOGY AND EXPLORATION:

[a](i) TOPOGRAPHY

Topographically, the applied QL area is a part of hillock and the area has maximum elevation of 209m in the northeastern part, while minimum elevation of 193m in southwestern part of the applied area. Thus the total elevation difference is of 16m. The applied area is a part of hilly terrain. The area is connected by kuchcha road from eastern side of the applied area. The gradient of the area is moderate and drainage of the area is radial to more prominent in the northeastern direction, meeting to the local nala in North direction. From Land use point of view, it a forest land and the area is covered by scanty bushes and scattered trees.

ii) REGIONAL GEOLOGY:

Geologically, Bundelkhand represents a mixture from different eras, from the earliest days of the formation of the earth, when its upper crust cooled and solidified, till recent times. From the earliest period, older than 2500 million years, are Granite-like formations called gneiss and so-called Bundelkhand Granite. Much of the area of Datia, Jhansi, Lalitpur, Tikamgarh Chhatarpur, Panna and Sagar Districts, and southern portions of Chitrakoot and Mahoba Districts is a Granite country, marked by outcrops of great diversity in mineral composition and size, ranging from small patches to large hillocks. A striking feature of the Granite country, which has impacted settlement patterns and agriculture, is the presence of long and narrow rocky ridges, known as quartz reefs and dolerite dykes. Often these wall like natural features, intercept the course of streams leading to formation of water bodies and enabling the creation of large artificial lakes. From later geological era (570 to 900 million years ago), we get diamond fields in Panna, extensive Limestone deposits in Damoh, Chhatarpur and Datia, basaltic rocks in Southern Lalitpur and Sandstone deposits in Panna and Sagar. Massive Sandstone and Limestone cliffs are seen in the Vindhyan hills which girdle the Granite country. The most recent geological deposits are alluvium, in the form of sand, silt or clay, brought down by north-flowing rivers. Massive blocks of medium to coarse-grained varieties of pink, red and grey Granite are found in Jhansi, Lalitpur, Mahoba, Banda, Datia, Chhatarpur, Panna and Sagar Districts. Multicolored and black Granites are found in parts of Sagar and Panna. A variety called Jhansi Red, mined in Chhatarpur, is found in no other country. Another prized variety of Granite found in the district is called 'Fortune Red'.

Granitic rock gneisses and migmatites of the Bundelkhand Granite Complex of Archaean age occur in the Northern half of the area. The major rocks type of this complex are a variety of medium to coarse grained Granites some being porphyritic migmatite gneisses and locally the fine grained non porphyritic leuco-Granites. The Granite contains minor enclaves of phyllite, sericite quartz rock BHQ and metabasites. The Granites are traversed by large number of NE-SW trending detached outcrops of massive quartz reef a few NW-SE trending dolerites dykes and minor veins of pegmatite and quartz. The overlying granitic rocks are the ENE-WSW trending sedimentaries of the Bijawar Group in the central parts of the area. Further, this Bijawar Group of rocks is overlain by Vindhyan Super group which together with an ENE-WSW, trending broad stretch of soil and alluvial cover, occupy the Southeastern part of the district. Overlying the Vindhyans and immediately underlying the Deccan Traps in the Southwestern part of the area occur a group of rock types comprising of arenaceous Limestone, Cherty Limestone, Pellet Limestone, Conglomerate Grit and Red Clays represent the Bakswaho formation and are correlated with the Lametas of Western India.

REGIONAL GEOLOGICAL SET UP:

AGE		***GROUP***	***LITHOLOGY***
Quaternary	*Deccan trap*		*Soil and Alluvium*
Upper Cretaceous - Eocene			*Deccan Traps*
Upper Cretaceous	*Lameta Group*		*Lameta (Bakswaho Formation)*
Upper Proterozoic	*VINDHYAN SUPER GROUP*	*Bhander Group*	*Upper Bhander (Maihar) Formation*
			Lower Bhander Sandstone
			Sirbhu Shale
			Nagode Limestone
			GanurgarhShle
		Rewa Group	*Upper Rewa (Gahadra) Sandstone/ Quartzite*
			Jhiri Shale
		Kaimur Group	*Dhandraul (BAGHAIN) Quartzite/ Sandstone*
		Semri Group	*Palkawan Shale*
Lower Proterozoic		*Bijawar Group*	*Ferrugious Red shale ferruginous quartzite*
			Light pink grayish blue dolomitic limestone
			Quartzite
			Trap
			Chert breccias
Archaean	*Bundelkhand Granite Complex*		*Unclassified Granite, Gneisses and migmatite*
			Coarse grained pink Granite
			Medium grained pink Granite
			Fine grained pink Granite
			Migmatite
			Quartz reef basic dyke

REFERENCE [A] DRM MAP GSI & web site of MP Govt.

(iii) LOCAL GEOLOGY

Local geology point of view, the sanctioned QL area has Bundelkhand granite and belongs to Archaean in age. Locally, the QL area has granite formation which is correlated with exposed mound of granite exposed and three drilled bore to know its depth continuity of granite. The Granite continuity has been reported from reported from ARL 209 ARL to 168 MRL i.e. **average 30m** thick deposit has been considered over the sanctioned area. The exploration data reveals that granite continuity has been seen in all three drilled bore hole and as per provided information the technical parameters are suggestive of block mining. The lower level has very thin capping of soil and weathered granite, while higher level exposes massive boulders of Granite. The granite is grayish pink to pink in colour and having porphyritic texture is in nature. In the area following geological setup has been found:

Weathered granite & very thin capping of Soil

Granite

Base not known

MINERALIZED AREA :-

The mineralization of Granite is exposed on the surface and elevation of the mineralized from 209m-193m, while depth continuity up to 168m has been confirmed by three core drilled bore-hole. In general, except exposed Granite, the entire area is capped by Weathered Granite/ thin capping of soil. All drilled boreholes are within 350-400m radial and depth wise it is considered upto drilled depth , i.e. bottom RL is upto 168 MRL or average 30 m has been considered under G2.

PHYSICAL CHARACTERISTICS (AS DIMENSION STONE)

GRANULARITY	MEDIUM GRAINED
COLOUR	GRAYISH PINK
BLOCK MINING AVAILABILITY	AVAILABLE
LUSTRE	VITREOUS
FORM	BOULDER TO SHEATH
TEXTURE	PORPHYRITIC
PHYSICAL OBSERVATION	FELDSPAR PINK TO GREYISH, QUARTZ, HORNBLEND HAVING MEDIUM SP. GRAVITY
HARDNESS	6-7

STRUCTURAL FINDINGS

Intrusive form.

Refer - Surface Geological Plan. Plate No. – IV

(i) DETAILS OF ALREADY CARRIED OUT EXPLORATION:

This is fresh grant case ,During the PL period, 03 no's core bore hole has been done and the outcome of exploration proved that the entire area with respect to UNFC norms comes under G2 category is mineralized for Granite, for an average 30m thick zone, up to **168 MRL** over an area of G2= **18.90 ha .**

(ii) CORE LOGGING *(Please refer to PL report & Annexure no VI)*

BH. NO.	TYPE OF BORE HOLE	AVG. DEPTH OF BORE HOLE & COLLAR RL	LOGGING	LOCATION
BH-1	NX CORE	30m (Avg.) & 201m	201m to 171m =GRANITE	As shown on Geological Plan & Section
BH-2	NX CORE	30m (Avg.) & 198m	198m to 168m =GRANITE	
BH-3	NX CORE	30m (Avg.) & 202m	202m to 172m =GRANITE	

**** Please see Form 'J' and 'K'***

(iii) Year wise future program of exploration

To know the exact depth wise influence of Granite, six core bore hole of 4" diameter have been proposed and shown on Surface Geological Plan & Section.

PROPOSED BORE HOLE	LOCATION	DEPTH- M	TYPE	TIME
PBH-1 TO PBH-5	Shown on Geological Plan	50m (each)	NX SIZE CORE BORE	DURING THE FIFTH YEAR OF M. PLAN

(B) GEOLOGICAL RESERVES: -

UNITED NATIONS FRAMEWORK CLASSIFICATION (UNFC) OF MINERAL RESERVES AND RESOURCES

The UNFC consist of a three dimensional system with following three axes-

1. Geological Assessment
2. Feasibility Assessment
3. Economic Viability

The reserves/ resource have been calculated under the Dimension stones parameters.

Geological Reserves

Geological study of the area:

The sanctioned QL area has been sanctioned for block mining of Granite. During the exploration period three core bore holes for avg. 30m depth have been drilled and as per received information the cores of Granite put under physical testing and overall outcome is proved 1 for block mining. The area has a viability for block mining and blocks/ slabs are saleable therefore economic status is 1 on UNFC codification while area has not been exposed for its maximum depth hence explored depth 30 M is

considered under F2 over the sanctioned area and. Local geology point of view, the QL area has Bundelkhand granite which belongs to Archaean age. Locally the QL area has granite formation on surface level and its depth wise continuity has been seen in three drilled core bore holes and obtained cores are showing good technical findings for block mining. The lower level has thin capping of soil/ alluvium while higher level exposes massive boulder form of Granite. The texture is porphyritic in nature and color is grayish pink .

The depth parameter has been considered with drilled depth of avg. 30m and its lateral extent has been considered with exposures of Granite and its lateral influence is upto 300-400m for DBH , thus under UNFC , it is considered under G2; MRL point of view, the south western part is having minimum elevation of 193m and northeastern part having maximum elevation of 209m thus **average 30 m** thick deposit of Granite (dimension stone) is considered over the QL area of **18.90 ha**. The color of granite is grayish pink, which is well acceptable in the market. Recovery point of view, approx. 20% recovery is expected in granite zone up to the measured depth, the mineral occurrence has been plotted on Geological Plan and Section.

STRUCTURAL FINDINGS

Intrusive form.

Evaluation of area on UNFC Classification Basis:

Tabulated information is as follows -

I. Dimension Stone

UNFC Categorization = 122		
1. Geological Axis: 2	**G2 (General Exploration) UNFC norms**	**ACTUAL**
	1. Geological Survey: (i) Mapping-1:25000 or larger scale (ii) Preparation of detailed topographical-cum-geological map including all surface geological features, joint patterns and fracture density etc. (iii) Delineation of blockable stone zones areas.	**1. Geological Survey:** Area is surveyed and geology is marked on a map prepared on 1:1000 scale. The QL area has been sanctioned for exploring the block mining of granite and during the exploration period, the applicant has put three core bore holes ,the outcome of exploration proved that the granite of the area is compact & hard and suitable for block mining. Keeping the present exploration and geological consideration, avg. depth of granite is considered for **avg. 30m** depth.(up to 209 m to 168m) and Granite (dimension stone) considered over the QL area of **18.90 ha** under G2 category. From recovery point of view, average recovery for granite block is 20%. Please refer to Plate no. IV.
	2. Geochemical Survey: Identification of deleterious constituents, measurement of abiotic geoenvironmental parameters.	**2. Geochemical Survey:** Not required.

	3. Geophysical Survey:	**3**. Not required.
	4. Technological: (i) Pitting - Not required; (ii) Drilling- One or two per prospect (iii) Geotechnical measurement of compressive strength, tensile strength, traverses strength, abrasion strength specific gravity, porosity absorption polishing index.	**4.** (i) Pitting : Not Done Working - (ii) Drilling: 03 cores bore hole (as per PL report), of **avg. 30m** depth. (iii) This is a fresh grant case, the geotechnical parameters likely to be proving for block mining of Granite.
	5. Petrographic and other study: Colour granularity, inclusion, texture and microstructure study. (ii) Ground water table measurement at each prospect.	5. It has been done only megascopically where all necessary characteristics like pinkish grayish color, porphyritic texture, vitreous lustre etc. are matching to Granite.
Feasibility Axis:2	**F2 (Feasibility Study) UNFC norms**	
	1. Geology: Detailed exploration geological map delineating blockable area and identification for productive zones with recovery factors based on geotechnical studies.	1. Local geology belongs to the Bundelkhand Granite of Archaean age.
	2. Mining: Mining plan block recoveries and efficiencies heavy machinery, equipment selection manpower requirement.	2. This is a fresh grant case. Block Mining will be adopted i.e. Opencast and mechanized mining will be done, 20% recovery, and average production will reach up to 12000 cubic metre (when the quarry is fully developed).
	3. Environment: EIA studies with particular reference to geo hydrological aspects bulk material and EMP including socio economic impact, rehabilitation of project affected persons waste disposal detailed land use data	3. This is a fresh grant case; all air, water and noise pollutions are within permissible limit. There are no surface water bodies; the ground water is available in the form of well/ hand pump, near the lease area. Ground water level is below the conceptual pit depth proposed as per the present knowledge of deposit.
	4. Processing: Industrial scale investigation data on physical characteristics data details of petro fabric studies setting up of cutting polishing plant (optional) list of equipments manpower.	4. As per given information these blocks have been processed for 14 mm to 16 mm slab cutting and after polishing it will be sent to the market for acceptability and it is concluded that the slabs have good demand.
	5. Infrastructure and services, construction activities:	5. This is a fresh grant case no infrastructure has been developed. Now proposals are given for required infrastructure.
	6. Costing: Detailed breakup of capital cost operating cost details of working capital **7. Marketing**: Overview specific market aspect **8. Economic viability:** Cash flow forecast inflation affects sensitivity studies.	6-8. This is a fresh grant case, the lessee has already done the exercise for procuring the Granite block to slab splitting and polishing, and as per information, about Rs. 100/- per sq. ft. will be the profit which is quite higher than the interest incurred on the invested amount.
	9. Other factors: Statutory provisions relating to labour, land, mining, taxation, etc.	The applicant will follow all the statutory provisions under different heads.

	Economic Inference UNFC norms	
Economic Axis:3	1. Detailed exploration.	This is a fresh grant case; the exploration is meant by 03 cores bore hole, of **avg. 30m** depth.
	2. Mining Report/ Mining Plan/ Working quarry.	Present exploration has proved for Block mining of Granite to be used as dimension stone; hence this Mining Plan is being submitted under Rule 12 of Granite Conservation and Development Rule 1999.
	3. Specific identification of marketable varieties	Block Mining and see reserves previous Para.
	4. Specific knowledge of forest/ non-forest and other land use data.	It is a non forest and Government Waste Land, sanctioned for Granite QL for block mining.

Geological Axis: Dimension Stone

The QL sanctioned area is geologically proved for granite mineralization. During the exploration period, the applicant has put three bore holes and collected granite has been put for cutting and polishing. The outcome of area has been explored under technical and physical testing and outcome of studies proved for block mining. The area has a viability for block mining and slabs are saleable hence economic status is 1 on UNFC codification while area has not been exposed for its maximum depth hence explored depth is considered under F2 over the demarcated area and core of the Granite have been explored for block mining.

FEASIBILITY AXIS:

As this is a fresh QL case, the Granite of the area is suitable for block mining and the explored depth as shown on Geological Plan and Section. The status of feasibility is of F2 on UNFC codification.

ECONOMIC AXIS:

On the basis of feasibility/ prefeasibility of Granite, the blocks/ slabs and these are saleable and profitable hence studies carried out are of E = 1 status therefore economic viability is E = 1 on UNFC codification.

UNFC CATEGORIZATION OF RESERVES

A] GRANITE ZONE VOLUME IN M^3

Parameters considered-

1. Category : "Semi-Mechanized"
2. Area : 18.90 ha
3. Mineralization area : **18.90 ha**
4. Present Avg. depth of mineralization: G2 = **30m up to 168m**
5. Avg. G2 area depth : **30m avg.** (as per cross section thickness)
6. Form : Boulder to Sheath
7. Surface RL : 209m to 193 m
8. Recovery : **20%** (blockable)

Granite zone in m³

G2 area

Section line	Area in m2	Mean area in m2	Distance between section line in m.	Volume in m3
MRL - 168m	**332**	**332**	**332**	**332**
X1-X1' *WEST*	2805			
		2805	40	**112200**
X1-X1'	2805			
		5747	100	**574700**
X2-X2'	8689			
		11771	100	**1177100**
X3-X3'	14854			
		15839	100	**1583900**
X4-X4'	16824			
		14035	100	**1403500**
X5-X5'	11247			
		8231	100	**823100**
X6-X6'	5215			
		5215	87	**453705**
X6-X6' *EAST*	5215			
Total volume in m³				**6128205**

B] GEOLOGICAL RESOURCES IN M³

Parameters considered-

Sub-grade = Nil

Mineral rejects = Nil

Intercalated/ Mine waste = 80%

Recovery = 20%

Based on obtained core and general experience of nearby working mines.

INDICATED MINERAL RESOURCE (332)

Indicated Mineral Resource has been calculated up to present knowledge and drilled bore hole, where average depth of Granite is **avg. 30m** from 209 m to 168 m, taken below G2 area. Under this category, the probable 122 will be the reserves and rest will be the resources under 222 as prefeasibility resource.

A (G2) = **6128205** m³

A (G2) x recovery 20% = **6128205 m³** x 20% =**1225641 m³**

C] RESERVES

Parameters considered-

Unmineable portion of lease area due to

7.5 m Barrier zone:

Average area along lease boundary for loss in 7.5 m (G2) = 1713 m

Average perimeter along slope loss in G2 zone along with unit cross section area =

G2=1600 m along with 450 m^2

RESERVES IN M^3

Reserves: Out of 332

PROBABLE RESERVES (122) = (332 - 222)

122 = Reserves blocked in boundary and slope from G2 area

PREFEASIBILITY MINERAL RESOURCE (222):

Under the Statutory Rules (Granite is blocked in barrier zone and for maintaining the benches slope) the exploitation cannot be done in this area.

CATEGORY	GRANITE BLOCKED IN BARRIER ZONE - M^3	GRANITE BLOCKED IN MAINTAINING THE SLOPE OF BENCHES - M^3
PREFEASIBILITY MINERAL RESOURCE (222)	BZ LENGTH X 7.5M X MINERAL THICKNESS-M X RECOVERY 1713 m x 7.5m x avg. 30m x 20% = **77085 m^3**	AVERAGE CROSS SECTIONAL AREA IN M^2 x MEAN LENGTH-M x RECOVERY Avg. 1600m x avg. 450m^2 x 20%= **144000 m^3**
Total	**221085 m^3**	

Hence,

MINEABLE RESERVES

122 = (332 – 222)

1225641 m^3 - 221085 m^3= **1004556 m^3**

3.4 CATEGORY WISE UPDATED RESERVES WITH GRADE (INDICATED END USE GRADE WITH ANALYSIS) AS WELL AS MARGINAL GRADE

GEOLOGICAL RESERVES AS PER UNFC CLASSIFICATION FOR KESHRIPURA GRANITE DEPOSIT AREA 18.90 HA.

Classification	Code	Quantity - m^3	Grade
A. Mineable Reserves			
Probable Mineral Reserves	**122**	**1004556 m^3**	Block Mining
B. Remaining Resources			
Prefeasibility Mineral Resources	**222**	**221085 m^3**	

CHAPTER - 4

4.0 MINING:

a) (1) **EXISTING MINING**

This is a fresh grant case; proposed mining method is Block Mining by adopting the Gali Toda method by using help of wire saw, LD-4, Jack Hammer, Hydraulic Jack, Compressor, Tata Hitachi Shovel excavator and Crane.

PRINCIPLE OF BLOCK MINING: -

1. Selection of suitable block which has physical quality color, grain size, polish behavior with the diamond tools and concern block should be without cracks and fractures.
2. The principle of block mining is to get three free faces known as the Gali (along the strike) and Toda (across the strike). The basic purpose to prepare the Gali and Toda is to get proper space for block cutting in L shape (combination of Gali and Toda) therefore first Gali and then Toda is developed which is localized for proper functioning of wire saw machine approximately 3 - 6 m space.
3. After getting the L shape vertical and horizontal hole, required depth or height of the bench then making the thread alignment in the rectangular shape the holes are drilled with LD-4 portable DTH drill machine. After getting the bore hole drilled then diamond wire saw machine to cut the bottom with diamond pearls followed by both vertical cuts making rock free from all the sides and now this block is pushed with help of pneumatic bags or water bags with hydraulic jack 'Power jack' and cut down blocks are lifted to the surface by crane or pock land machine and waste material is kept at required places with the help of dumpers/ tractors.
4. **Details of proposed machinery**: Following are the proposed machinery likely to be deployed in the area.

ITEM	**No.**
Excavator (210) Tata Hitachi	1
Derrick Crane 40 t/ 40 m Boom	1
Hydraulic Jack - 120 Tonnes	1
Compressor (Chicago CPS-600)	1
DG Set (Tata Cummins-200 KVA)	1
Dumper	1
Wire Saw: - Two [40 hp & 20 hp]	1

Note: deployment of machineries in subjected to geological occurrence and may vary and due enhance will be informed.

Specifications of Diamond Wire Saw

I] Main Motor: 40 - 60 hp

II] DC Motor for feed: 1.00 hp

III] Main gear box for rotation through warm & warm wheel: 360°

IV] Diamond wire speed completed with electric panel and 6 m rail: 25-40 m/ sec.

Proposed specifications of Derrick Crane

I] Length of Jib: 40 m

II] Length of vertical Post: 19 m

III] Length offside support: 26 m

IV] Area covered: 2200 m^2

V] Angle of Swivel: 220°

VI] Load lifting capacity: 25-40 MT

VII] Lifting Motor: 20 hp

VIII] Boom lifting Motor: 20 hp

IX] Lifting speed: 1-9/ Minute

4.1 MINING

PROPOSED METHOD OF MINING

This is a fresh grant case; the opencast semi-mechanized method of mining has been proposed. All operations of mining will be done by deployment of heavy earth moving machinery with LD-4 on single shift basis to develop/ work in the Granite deposit. The individual bench faces will be kept nearly vertical (80° - 85°) while the pit slope will be less than 45°.

REASONS FOR CHOOSING THE WORK SITE ARE:

Keeping the Applicant's interest, the proposals are given towards the northeastern part of the area with three to four production benches in Granite zone.

Layout of haulage road: Haulage roads 6-7m wide will be constructed at required places and it will be laid at a maximum 1: 16 gradient from surface stack yard to pit bottom at ARL 182 m with in bye roads to faces of individual benches and additional area covered by proposed road will be 100 m^2 in the proposed pit.

Benches in Soil/ OB: Negligible soil hence separate bench is not considered.

Benches in Granite: The north mound area will be developed from ARL 206 m to 182 m. Width of benches will be as per DGMS requirements and not less than the height where as Granite bench length will be as per production requirements.

The ROM quantity of Granite from individual bench will depend on the presence of block of standard size.

Granite : 20% recovery

Waste : Unsized blocks 80%

PRODUCTION OUTPUT PLAN

The mining operations are proposed in the north eastern part of the applied lease area with three to four benches. The bench advancement will be E-W, while the pit advancement will be towards the south, thus

during the production phase the RL will reach from 206m to 182m. After getting the final sized blocks, they will be loaded in to the trucks and dumpers manually.

Proposed mining operation will be carried out at following locations:

Details of five year working are as follows:

FIRST YEAR:

During the year about 10000 m^2 area will be developed in the north eastern part, the top area from ARL 202m to 195m will be benched, and during the production phase bench advancement will be E-W, while the pit advancement will be towards the south (please see details in 5 year development and production chart).

Total production - Granite: **12000 m^3**

SECOND YEAR:

During the year, existing mound in the northeastern region of about 2105 m^2 area will be sliced off from ARL 206m to 203m. After slicing off the mound , about 9130 m^2 area will be further developed upto 195m and during the production phase bench advancement will be E-W, while the pit advancement will be towards the south (please see details in 5 year development and production chart).

Total production - Granite: **12008 m^3**

THIRD YEAR:

During the year about 15958 m^2 area will be developed below the previous working, the top area from ARL 195m to 191.2m will be benched, and during the production phase bench advancement will be E-W, while the pit advancement will be towards the south (please see details in 5 year development and production chart).

Total production - Granite: **12128 m^3**

FOURTH YEAR

During this year, previous year bench from ARL 191.2m, will be further developed from 191.2m to 189m, then additional bench consisting area of 13060 m^2 will be developed depth wise with one bench from 189m to 187m, bench advancement will be E-W, while the pit advancement will be towards the south (please see details in 5 year development and production chart).

Total production - Granite: **12245 m^3**

FIFTH YEAR

During this year, previous year bench from ARL 187m, will be further developed from 187m to 183m, then additional bench consisting area of 10452 m^2 will be developed depth wise with one bench from 183m to 182m, bench advancement will be E-W, while the pit advancement will be towards the south (please see details in 5 year development and production chart).

Total production - Granite: **12538m^3**

For details please see year wise table below:

YEAR	1ST YEAR	2ND YEAR		3RD YEAR	4TH YEAR		5TH YEAR	
BENCH	PROD. B1	SLICE WORKING	PROD. B1	*PROD. B2	*PROD. B2	*PROD. B3	*PROD. B3	PROD. B4
AVG. AREA OF EXCAVATION - M^2	10000	2105	9130	15958	15958	13060	13060	10452
AVG. HT. OF EXCAVATION - M	6.0	2.5	6.0	3.80	2.20	2.0	4.0	1.0
VOLUME - M^3	60000	5263	54780	60640	35107	26120	52240	10452
MINE WASTE 80% IN M^3	48000	4210	43284	48512	28085	20896	41792	8361
GRANITE 20% IN M^3	12000	1052	10956	12128	7021	5224	10448	2090
Avg. MRL - M	202-195	206-203	202-195	195-191.2	191.2-189	189-187	187-183	183-182
STRIPPING RATIO	1:4	1:3.9		1:4	1:4		1:4	
MINE WASTE IN M^3	48000 m^3	47494 m^3		48512 m^3	48981 m^3		50153 m^3	
TOTAL PRODUCTION M^3	**12000 m^3**	**12008 m^3**		**12128 m^3**	**12245 m^3**		**12538 m^3**	

6m single bench

b) Composite plans and year wise sections are shown on Plate no. V.

c) Composite plans, sections, mine waste dumps are shown on Plate no. VI.

d) (i) PROPOSED RATE OF PRODUCTION WHEN THE MINE IS FULLY DEVELOPED

Average production during the proposed mining plan period will be 12183 say **12000m^3.**

e) EXPECTED LIFE OF THE MINE AND THE YEAR FROM WHICH EFFECTED:

Available reserves = **1004556m^3** (Reserves 122)

Hence mine life = Reserves m^3/ Avg. Prod. m^3 = **1004556 m^3** / 12183 say **12000m^3=** 83.71 say 84 years

(* quarry life has been estimated using maximum production and it is changed with proposed exploration & production)

f) CONCEPTUAL MINING PLAN FOR THE ENTIRE LEASE PERIOD:

(i) THE ULTIMATE AREA AND EXTENT OF THE EXISTING MINE WORKING

4.1 Anticipated Mine Life

84 years

i) CONCEPTUAL EXPLORATION

The conceptual exploration will be as per proposal period exploration.

ii) CONCEPTUAL DEVELOPMENT

Proposals are given by open cast semi-mechanized means confined within the lease area and total mine life is 84 years and the workings are conceptualized on the basis of present knowledge of deposit which may change after further proving of deposit.

a) Following pits are available in the area at present:

This is a fresh grant case; as per present knowledge, before the start of mining plan period the area was developed with 03 cores bore hole (as per PL report), of **avg. 30m** depth(each) , presently there is no pit /excavation within the sanctioned QL area .

b) Following pits will be available at the end of Mining Plan period:

During this proposal period, the QL area will be developed with one single quarry and at the end of five years in the working quarry three to four benches will be developed in the Granite zone. Fencing will be

provided around the working pit, which will restrict the fall of animal in to the working pit. Entrance of general public will be restricted and can be permitted if necessary with prior permission of Manager/ Supervisor/ lessee.

PIT/ QUARRY NO.	AVERAGE AREA	AVERAGE DEPTH - m	SURFACE RL	PIT BOTTOM RL
PIT/ QUARRY NO. 1	19146 m^2	22-25 m (on a sloping topography)	209-193m	182m

LOCATIONS ARE SHOWN ON THE FIVE YEAR DEV. PROD. PLAN

c) Following pits will be available at the end of conceptual period:

In the event of non proving of the Granite zone after the carried out exploration, the mined out area will be wire fenced and necessary infrastructure will be shifted to a safe distance. At the end of conceptual period, the working will be within 7.5m barrier zone with three to four development benches of production in Granite zone.

PIT NO.	AVERAGE AREA	AVERAGE DEPTH -m	SURFACE RL	PIT BOTTOM RL
PIT/ QUARRY NO. 1	176800m^2	30-35m (on a sloping topography)	209-193m	168 m

LOCATIONS ARE SHOWN ON THE CONCEPTUAL PLAN

iii) CONCEPTUAL OVERBURDEN DUMP MANAGEMENT

The conceptual dumping area is chosen beyond ultimate pit limit on ground which may not cause any land or water pollution.

a-i) Following OB dump are available in the sanctioned QL area:

No dump is there in the sanctioned QL area.

b) Following OB dumps will be available at the end of proposal period:

The generated waste i.e. unsized blocks will be dumped in the sanctioned QL area (**See the details in para 7.0 this para is deals with OB management).**

Total dump quantum = 243683 m^3

Approx. area of dump = 13112 m^2

Average height of dump = 18-19 m

c) Following OB dumps will be available at the end of conceptual period:

At the end of conceptual period, following OB will be generated -

Conceptual period approximate Soil generated: Negligible soil will be used for afforestation.

Conceptual period approximate 80% intercalated waste will be =3774541 m^3 (A)

Earlier five year period generated waste will be =243683 m^3 (B)

Conceptual period total OB (A+B) = 3774541(Conceptual period waste) + 243683 (five year generated waste) = 4018224 m^3 which will be further used for BF the mined out area.

If the Granite ceases after the carried out exploration then this OB will be used for backfilling the conceptual pit (**Please see the conceptual plate**).

Area to be backfilled-ha.	Height of backfilling-m	Available waste-m^3	Rehabilitation of backfilled area
11.50 ha	Avg. 34-35m	4018224 m^3	By sowing fast growing grass seeds

iv) CONCEPTUAL RECLAMATION AND REHABILITATION:

In the conceptual period about 17.68 ha area will be developed up to ARL 168m.

Presently there is no mined out land.

a) Presently reclamation and rehabilitation is not required.

b) No area will be "mined out" at the end of five year.

After proving the non Granite zone, this conceptual OB will be used for backfilling (please see the Conceptual plan).

Area of backfilling = 11.50 ha

Average depth of backfilling =

4018224 m^3/ 115000 m^2 = Avg. 34-35m (on a sloping topography)

Ultimate use of mined out land = **17.68** ha

11.50 ha = Backfilling area

1.18 ha = Bench afforestation/Grass seeds/ fast growing seeds

5.00 = Water reservoir for average 20-25m depth

The pit will be wire fenced with gate and proper haulage road will be provided up to pit bottom limit.

***Afforestation details**

FIVE YEAR PLANTATION	CONCEPTUAL AFFORESTATION
20 Plants per year in northern Barrier zone.	11.50/ 0.0009 = 12777 trees (Backfilled Area) 1.18/0.0009=1311 trees (bench afforestation)

OPENCAST MINE

(i) SALIENT FEATURES OF MODE OF WORKING

This is a fresh grant case and mining activity is yet to start after all statutory clearances.

Mining of Granite blocks will be carried out by making the holes with LD-4, vertically and horizontally. Holes are matched for cutting purpose then diamond chain is put in to holes for cutting of blocks. After getting the proper size block it will be sent for further processing of slab cutting. Hired trucks/ dumpers will be used for transportation of blocks from mine site.

Proposed mining will be done by adopting the existing procedure, efforts will be made to increase the production. Proposed mining will be carried out by open cast semi-mechanized mining method. Separate benches will be made in over burden and Granite. Proposed production is assumed to be 20% of sizeable block. Intercalated waste will be removed using excavator with tipper combination. Waste in the form of weathered rock fractured, jointed and unsized blocks will be dumped as per given proposal. Proposed five year working will be done from top to bottom level and as per suitability of the situation. During the development and production the proper shape of pit/ quarry will be developed, and the ARL will reach up to 182m. During the proposed mining site services, DG room and separate lavatory for males and females will be maintained as it is and plantation of 20 trees per annum will be done along the Northern boundary of the area.

(ii) LAYOUT OF MINE WORKINGS FOR FACES AND SIDES FOR DISPOSAL OF OVERBURDEN/ WASTE

Layout of mine working and sites for disposal of overburden and mine waste are shown on Plate no. VI

Proposed mining will be carried out by open cast semi-mechanized method, using block-cutting machinery. Layout of proposed working along with sites for disposal of waste are shown on Plate no. VI, i.e. Five Year Development and Production Plan and Section.

CHAPTER - 5

5.0 BLASTING

"As such there is no requirement of blasting in block mining cases", however sometimes OB is required to be removed with blasting hence essential bottom wire saw cut has been provided, and then blasting is done after drilling so that the area below bottom cut has negligible penetration of vibration affected due to blasting.

(A) BROAD BLASTING PARAMETERS:

PARAMETERS	JACK HAMMER	WAGON DRILL
Spacing:	1	2
Burden:	1.2	3
Depth of Hole:	1.5	5
Length of cartridge:	200 MM	200 MM
Weight of cartridge:	200 GM	200 GM
Charge per hole:	1.6 KG (APPROX.)	8 KG (APPROX.)
Powder Factor:	7 T/ KG	7 T/ KG
Dia. of hole: 32mm	32 MM	100 MM

(B) TYPE OF EXPLOSIVES USED/ TO BE USED

(i) Ammonium Nitrate mixture with safety fuse

(ii) Ordinary detonator.

(iii) Gelatine.

(C) POWDER FACTOR IN ORE AND OVERBURDEN: -

Powder factor in Granite is varying from 5 t/ kg to 7 t/ kg hence for calculation purpose 7 tonnes per kg of explosive it is taken.

Explosive Consumption

Powder factor: 7 t/ kg

Yearly production (AVERAGE): 12000 m^3 x 2.65 = 31800 t

80% of excavation: 25440 t

Average quantum of explosives to be required yearly = 25440 / 7 = about 3634 kg

Daily explosive = 3634/ 300 = 12.11 kg approx. 13 kg

D) WHETHER SECONDARY BLASTING IS NEEDED:-

Secondary blasting will not be needed.

STORAGE OF EXPLOSIVE:-

It will be stored in a Magazine.

PRECAUTION TO BE OBSERVED DURING DRILLING AND BLASTING:-

Following precautions will be taken during blasting period. Sufficient warning is given by signal over the entire area falling within the danger zone & it is ensured that all persons within such area have taken proper shelter. Wet drilling is to be done in hand holes as well as jack hammer drilling. Suitable air respirator will be provided to drillers. During blasting, controlled blasting will be done and not more than six holes will be blasted at a time and no hole will be charged with more than 350/ 450 gm of explosives at a time.

Muffle blasting will be done to prevent flying fragments, which may cause injury to local inhabitations within danger zone. Muffle blasting will be carried out by keeping sand filled bags on wire net placed on holes.

Quality control: -

In-spite of the fact that the color or granite variation in the production may arise, presently all the grades have good marketing.

Any change in proposed method of mining and development of machinery:

As discussed earlier, the mining in the area has to be done by semi- mechanized method with following machineries:

1. Drilling by Jackhammer drill/ wagon drill.
2. Disposal of mineral rejects from mining faces to stockyard to dumping yard by trucks & tippers.
3. Supply of drinking water to storage tank near mine faces; from well, by diesel operated pump.
4. Spraying of water on approach mine roads by water tankers.

CHAPTER - 6

6.0 MINE DRAINAGE:

A) During the proposed mining, seepage of ground water will not affect the ongoing mining work because depth of ground water is about 40 m below the surface level (ARL 209-193 m). Rainwater may get accumulated in to the working pit, which will be dewatered using 10 hp diesel operated pump.

B) QUANTITY AND QUALITY OF WATER LIKELY TO BE ENCOUNTERED THE PUMPING ARRANGEMENT AND PLACES WHERE THE MINE WATER IS FINALLY PROPOSED TO BE DISCHARGED:

During the proposed mining, seepage of ground water will not affect the mining work because depth of ground water is about 40 m below the surface level (ARL 209 -193m). Although there will be some seepage water which will be dewatered by pump. Rain water and seepage may get accumulated in to working pit which will be dewatered using 2 - 3 diesel operated pumps of 10 hp i.e. having capacity to lift 10,000 lit/ hour with maximum head of 12 to 15 m. The discharged water will be passed through the settling tanks, where suspended particles will be settled before the discharging of water for agricultural use in surrounding agricultural land or it will be drained to the adjacent nala.

CHAPTER - 7

7.0 (A) STACKING OF MINERAL REJECT AND DISPOSAL OF WASTE

a) NATURE AND QUANTITY OF TOP SOIL, OVERBURDEN/ WASTE AND MINERAL REJECTS LIKELY TO BE GENERATED DURING THE NEXT FIVE YEARS.

RATE OF YEARLY GENERATION OF WASTE AND PROPOSALS FOR DISPOSAL OF WASTE NEXT FIVE YEAR:

In general, quality of waste is in two form:

1. Lateritic soil and weathered formation as OB
2. Intercalated waste/ unsized block = 80%

PRESENT OB: No OB dumps are in the sanctioned QL area.

YEAR WISE GENERATION OF OB

b) REHANDLING OF EXISITNG WASTE DUMPS WITHIN THE PROPOSED WORKING AREA:

During the proposal period, the generated intercalated waste will be dumped in the sanctioned QL area.

FIVE YEAR GENERATION OB:-

YEARS	WASTE (MIXED FERR. MATERIAL/ UNSIZED BLOCKS) –M^3
I ST YEAR	48000 m^3
II ND YEAR	48035 m^3
III RD YEAR	48512 m^3
IV TH YEAR	48982 m^3
V TH YEAR	50154 m^3
Total	**243683 m^3**

c) MANNER OF DISPOSAL OF AND CONFIGURATION, SEQUENCE OF BUILD OF DUMPS ALONG WITH THE PROPOSAL FOR THE STACKING OF SUB GRADE ORE, TO BE INDICATED YEARWISE:

PROPOSAL OF DISPOSAL OF OB

MINE WASTE:

During the proposal period, the generated mine waste i.e. unsized blocks total quantum = **243683 m^3** will be used as minor mineral in future. In due course of time the applicant will apply for use of such siliceous waste material (Unsized Blocks) under minor mineral use mentioned in MPMMR 1996 and after getting the permission this siliceous waste material (Unsized Blocks) will put under crusher for desired size and sold to the end users. In the event of no such permission, it will be dumped in the sanctioned area in Western direction.

A	B		C		
YEAR	EFFECTIVE QUANTITY DUMPED DURING THE YEAR	CUMULATIVE QUANTITY DUMPED	SIZE OF DUMPED PORTION AT THE END OF THE YEAR		
	m^3	m^3	Bottom area- m^2	Top area- m^2	Avg. height/ thickness-m
2019-20 YEAR	48000 m^3	5029 m^3	13112 m^2	4300 m^2	2-4 m
2020-21 YEAR	48035 m^3	96035 m^3	13112 m^2	4300 m^2	4-8 m
2021-22 YEAR	48512 m^3	144547 m^3	13112 m^2	4300 m^2	8-12 m
2022-23 YEAR	48982 m^3	193529 m^3	13112 m^2	4300 m^2	12-16 m
2023-24 YEAR	50154 m^3	243683 m^3	13112 m^2	4300 m^2	16-19 m

7. (a) LAND CHOSEN FOR DISPOSAL OF WASTE WITH PROPOSED JUSTIFICATION

The dumping will be progressive height wise and retailed with toe wall by the end of five year following cumulative one dump will be available:

Total dump quantum = 243683 m^3

Approx. area of dump = 13112 m^2

Average height of dump = 18-19 m

(b) Following OB dumps will be available at the end of proposal period:

Presently there is one dump proposed over the Lease area.

DUMP NO.	TYPE ACTIVE/ INACTIVE	BASE AREA - m^2	(Avg.) Height - m	Avg. Vol. - m^3	REMARK
MW-1	INACTIVE	13112 m^2	18-19 m	243683 m^3	WEATHERED GRANITE AND UNSIZEABLE BLOCKS

PRECAUTIONS FOR CONFINEMENT OF DUMPS TO PREVENT POLLUTION OF SURFACE WATER BODIES/ COURSES

Proposal of compaction for rehabilitation and water condition/ channels/ garland drain will be provided around the dump and these channels will further meet to settling tank and the desilted water will be drained in to the agriculture land.

SUB GRADE:

No sub grade mineral is likely to be generated.

CHAPTER - 8

8.0 USE OF MINERAL:

[A] The Granite blocks produced from the mine will be supplied for the purpose of slab cuttings, and after polishing it can be sold to end users.

[B] PHYSICAL AND CHEMICAL SPECIFICATIONS STIPULATED BY BUYERS: -

Chemical specifications are not the basis for marketing, only color, compactness, appearance of blocks is the criterion for sale of blocks.

[C] BLENDING OF DIFFERENT GRADE OF ORES: -

Not required.

CHAPTER - 9

9.0 OTHERS:

A) SITE SERVICES:

This is Fresh Grant case, Proposed Site services will be in the form of mine office, store room, rest shelter, lavatory and mess. Separate D.G. rooms will be shortly installed. Mine roads will be developed as per requirement, from working pit bottom to the stacking yard as shown on plan. These facilities will be maintained properly and will be increased as required.

B) MANPOWER:

Man power is easily available from the surrounding villages i.e. Mahoba, Devikheda, Kesharipur, Parsaniya, Digoni, Lavkushnagar etc.

DETAILS OF PROPOSED MANPOWER MANAGEMENT AND SUPERVISORY PERSONNEL: -

		PROPOSED
1.	Mining engineer	1
2.	Geologist	1
3.	Mining mate	1
4.	Operator/ Driver	5
5.	Time keeper	1
LABOR SKILLED, SEMISKILLED, UNSKILLED:		
1.	Store keeper cum first aider	1
2.	Gardener/ Watchman	1
3.	Semi skilled labor	25

Working days 300 days

Avg. annual production: 12000 m^3

Number of shifts per day: One shift/ day (as on date). If demand of block will increase, working may be carried out in two shifts per day.

CHAPTER - 10

10.0 MINERAL PROCESSING: -

Granite blocks will be further processed for slab cutting and then polishing.

CHAPTER - 11

11.0 ENVIRONMENTAL MANAGEMENT PLAN:

A) BASE LINE INFORMATION

EXISTING LAND USE PATTERN: - This is a Fresh Grant case, where required infrastructures of the area will be developed after getting QL and other site services. Details of existing land use pattern of the sanctioned QL area given as follows:

Total area is 189000 m^2 and it is a Govt. Forest Land.

LANDUSE PATTERN OF THE KESHRIPURA GRANITE QUARRY AREA:

	Forest Land m^2	Crop Land m^2	Grazing Land m^2	Waste Land m^2	Other m^2	Total Within The Lease Area m^2	Land Acquired Outside If Any m^2
A. Pits and quarry	NIL	NIL	NIL	NIL	NIL	NIL	NIL
B. Dumps of waste and overburden	NIL	NIL	NIL	NIL	NIL	NIL	NIL
C. Infrastructure inclusive of office work - shop	NIL	NIL	NIL	NIL	NIL	NIL	NIL
D. Township	NIL	NIL	NIL	NIL	NIL	NIL	NIL
E. Other to be specified	NIL	NIL	NIL	NIL	NIL	NIL	NIL
F. Area back filled	NIL	NIL	NIL	NIL	NIL	NIL	NIL
G. Area afforested by mine owner	NIL	NIL	NIL	NIL	NIL	NIL	NIL
H. Area occupied by road/ footpath (Remaining area covered by shrubs and bushes)	NIL	NIL	NIL	NIL	NIL	NIL	NIL
TOTAL	NIL	NIL	NIL	NIL	NIL	NIL	NIL

DETAILS OF LAND AROUND 100 M RADIUS OF THE SANCTIONED QL AREA:

Please refer to Plate No. IX

ii) Water Regime: The area has an undulating rolling topography and the drainage of the area meet in to the local nala.

The water resource is available in the form of dug well and hand pump and dependency of people in core zone is only the ground water.

Ground water level is reported as 140 m and 150 m in post monsoon and summer respectively.

iii) FLORA AND FAUNA

FLORA:

Regionally the area falls under subtropical climatic zone and sustaining dry tropical land. The common trees are Seja (*Terminalis tomentosa*), Achar (*Anogcissus latifolia*), Lundiya (*Lagers toemia purvilora*), Amaltas (*Cassiafistula*) and Mahuwa. Apart from this many varieties of grass creepers and climbers are found. The area has an undulating topography of agriculture land and no flora is presently available. No wild life is reported in the area.

iv) QUALITY OF AIR, AMBIENT NOISE LEVEL AND WATER QUALITY:

A) AMBIENT AIR QUALITY:

The area does not have any industrial activity in the core/ buffer zone and hence the ambient air quality is good for habitants.

B) AMBIENT NOISE LEVEL:

The area does not have any industrial activity in the core/ buffer zone and hence the ambient noise quality good for habitants.

C) AMBIENT WATER QUALITY:

Quality of water of the dug well is potable. The Groundwater of this area is free from pollution and is suitable for drinking purpose.

v) CLIMATIC CONDITIONS

The area witnesses the subtropical climate with an averaging rainfall of 1200 mm annually. The variation in temperature is 46° to 4°C during summer and winter respectively. The wind generally blows in Northeast direction. From November to February the area experiences pleasant winter. March is start of summer, which continues up to June. The monsoon sets in by June and retreats by September. Relative humidity varies from 18% to 80% in a year.

HUMAN SETTLEMENT: It has been shown on Plate no. I

vi) PUBLIC BUILDING, PLACES OF WORSHIP AND MONUMENT

No public building, places of worship and monument are located within 500 m radius of the area.

vii) ATTACH PLANS SHOWING THE LOCATIONS OF SAMPLING STATIONS

Please refer Plate no. VII

viii) DOES AREA FALL UNDER NOTIFIED AREA WATER (ACT 1974): Yes.

11(b) ATTACH AN ENVIRONMENT IMPACT ASSESMENT STATEMENT DESCRIBING THE IMPACT OF MINING AND BENEFICIATION ON ENVIRONMENT ON THE FOLLOWING OVER THE NEXT FIVE YEARS (AND UPTO CONCEPTUAL PLAN PERIOD FOR 'A' CATEGORY QUARRY)

i) LAND AREA INDICATING THE AREA LIKELY TO BE DEGRADED DUE TO QUARRYING/ PITTING, DUMPING, ROAD, WORKSHOP, PROCESSING PLAN, TOWNSHIP ETC.

(a) LAND ENVIRONMENT

I) LANDSCAPE AND LAND SUBSIDENCE

Topographically the lease area has an undulating topography with mound/ hilly, as per given information G2 has been taken from ARL 209m to 168m and in ensuing five years 1.9146 ha and in conceptual period approx. 17.68 ha area will be excavated with five to six production benches of 5-6m height for average 30m depth, and the entire area of 11.50ha will be backfilled and rehabilitated by afforestation.

Cumulative Land Degradation:

Sr. No.	Heads	At present - ha	At the end of 5 years - ha	At the end of conceptual period - ha
1.	Pits	-	1.9146	11.50
2.	Dumps	-	-	-
3.	Mineral stack	-	-	-
4.	Road	-	0.01	-
5.	Green belt	-	0.09	-
6.	Infrastructure	-	0.01	-
7.	Others	-	-	-
TOTAL		-	2.0246 ha	11.50 ha

I-a) LAND RECLAMATION AND AFFORESTATION PROGRAMME

RECLAMATION

Sr. No.	Heads	At Present	At The End Of 5 yrs	At the end of Conceptual Period
1.	Total Area Excavated By Mining Activity (Broken)	-	-	17.68
2.	Area Fully Mined Out (Out Of 1)	-	-	11.50
3.	Area Fully Reclaimed (Back Filled) (Out Of 2)	-	-	-
4.	Area Rehabilitated (Out Of 3) By Afforestation, Agri Use, Hutment Etc.	-	-	-
5.	Area Rehabilitated By Natural Rehabilitation	-	-	5.00
6.	Area Fully Rehabilitated By Bench/ Slope Afforestation (Out Of 2)	-	-	1.18

AFFORESTATION

A	B	D			E	F	
Position at the end of year	Plantation during the year (No. of saplings)	Area covered during the year			Survival rate	Remarks	
		BF AREA Nos/ Area	Dump Nos/ Area-HA	Green Belt Nos/ Area		Location	Specimen
I st Year II nd Year III rd Year IV th Year V th Year	20 20 20 20 20	- - - - -	- - - - -	20/ 180 m^2 20/ 180 m^2 20/ 180 m^2 20/ 180 m^2 20/ 180 m^2	70% 70% 70% 70% 70%	As Shown On Plan	MANGO, SUBABOOL & OTHERS
Total	100	-	-	100/ 900 m^2	70%		
Conceptual Period	14088	11.50+1.18=12 .68/ 0.0009	-	-	70%	As Per Plate No. VIII	MANGO, SUBABOOL & OTHERS

II) AESTHETIC ENVIRONMENT AND TOURIST SPOTS (IF ANY)

Proper development as per proposal will maintain the aesthetic environment.

III) SOIL & LAND USE PATTERN: It is a Forest Land and there is no top soil in the area.

IV) AGRICULTURE: It is a forest Land.

V) FOREST: It is a forest Land.

VI) VEGETATION: No vegetation.

VII) PUBLIC BUILDINGS, PLACES AND MONUMENTS INCLUDING ARCHAELOGICAL SITES:

There are no public buildings, places and monuments including archaeological sites in and around 500 m radius of the lease area.

b) WATER ENVIRONMENT

IMPACT OF MINING ON WATER ENVIRONMENT ON FOLLOWING HEADS:

I) SURFACE WATER:

From quarry open to conceptual period mining activity will not interfere with water bodies and thus there is no chance of toxicity.

II) GROUND WATER: Use of water for mining purpose will be around 1 KL for workers which will be managed from the lease area.

III) WATER QUALITY:

From quarry open to the conceptual period the proposals are given above GWT, as per information received, which is about 40m below the surface level (RL 29m). Rainwater may get accumulated in to working pit, which will be dewatered using 10 hp diesel operated pump to the nearby agricultural land. In the area there is no water stream course or springs. The Granite is non-toxic in nature and will not affect the ground water quality.

c) AIR ENVIRONMENT:

(i) Noise (ii) Air (iii) Climatic Condition

IMPACT OF MINING ACTIVITY ON

AIR ENVIRONMENT SPECIFICALLY ON:

a) Dust fall or precipitation rate & b) Respirable free silica

It is anticipated that ongoing mining activity dust generation will be due to the movement of trucks and by mining activity like drilling, excavation etc. which may pollute the air to some extent but spraying of water on roads and bench faces before blasting and loading will control its generation. While keeping the production limit and nature of mineralization and proposed mining activity, the dust fall during the mining activity will be transitory and under manageable norms by providing the dust masks to the workers and suitable air respiratory to drillers. Further keeping the previous experience there was no as such respirable free silica reported and however in the ensuing year mining activity it is anticipated that with preventive measures there should not be any respirable free silica problem and proposed parameters under air quality survey will take care of such respirable free silica.

A. FACTORS CONTRIBUTING TO AIR POLLUTION

As earlier said mining activity dust generation will be due to the movement of trucks and by mining activity which may pollute the air to some extent but spraying of water on roads and bench faces before blasting and loading will control its generation.

B. Sources of their generation like,

1. Dust:

1. Traffic & Transport
2. Drilling, blasting
3. Loading
4. Waste dumps

This will be contained within permissible limit by spraying water on road and providing avenue plantation. Like sharp bits and dust collectors providing dust masks to operators, water infusion of benches before and after drilling and sowing of grass seeds in the air borne area.

NOISE LEVEL

It will be created by movement of trucks/ dumpers, drilling etc. However noise generated by these will be occurring at very low level as it being a small nature of working.

VIBRATION LEVEL (DUE TO BLASTING)

As no blasting is proposed hence vibration due to blasting is not considered.

d) SOCIO-ECONOMICS

I) SOCIAL AND DEMOGRAPHIC

II) OCCUPATIONAL HEALTH AND SAFETY

III) HUMAN SETTLEMENT

IV) RECREATIONAL FACILITIES.

There will be no adverse impact of mining but up to some extent socio-economic environment of the area will improve as, the mining activity has already given the job security & job opportunities for the local people. Further the applicant will provide occupational health and safety by providing regular medical checkup and medicine distribution. Further the Lessee will provide the recreational facility at the local people permissible demand. Proposed mining operations may improve the financial status of the local people.

V) HISTORICAL MONUMENTS ETC.

There are no historical monuments in and around 500 m radius of the lease area.

VI) PUBLIC BUILDINGS, PLACES AND MONUMENTS INCLUDING ARCHAELOGICAL SITES:

Except few huts, there are no public building, places and monuments including archaeological sites in and around 500 m radius of the leases area.

11. C ATTACH AN ENVIRONMENT MANAGEMENT PLAN (SUPPORTED BY APPROPRIATE PLANS AND SECTION) DEFINING THE TIME BOUND ACTION PROPOSED TO BE TAKEN WITH SEQUENCE AND TIMING IN THE FOLLOWING AREAS:

ENVIRONMENT MANAGEMENT PLAN ENCLOSED AS PLATE NO. IX.

ENVIRONMENTAL MANAGEMENT PLAN:

1. TEMPORARY STORAGE AND UTILIZATION OF TOP SOIL

Please refer to para 7 a & 7 b & 7 c.

2. YEAR WISE PROPOSAL FOR RECLAMATION/ REHABILITATION OF LAND AFFECTED BY ABANDONED QUARRIES AND OTHER MINING ACTIVITIES DURING FIRST FIVE YEARS (AND UPTO CONCEPTUAL PLAN PERIOD FOR 'A' CATEGORY QUARRY) CLARIFYING THE EXTENT OF BACK FILLING AND RECONTOURING AND/ OR ALTERNATIVE USE OF UNFILLED/ PARTIALLY FILLED EXCAVATIONS/ ROAD SIDES/ SLOPES AND MINE.

IN CASE ABANDONED QUARRIES/ PITS ARE PROPOSED TO BE USED AS RESERVOIR, THEIR, SIZE, WATER HOLDING CAPACITY AND PROPOSAL FOR UTILIZATION OF SUCH WATER TO BE GIVEN:

This is a fresh grant case and after the end of mine life it will be reclaimed and rehabilitated as given in previous chapters.

3. PROGRAMME OF AFFORESTATION

Progressive Afforestation: Please refer pervious para.

Area covered by afforestation is 0.09 ha (five year) and for conceptual period 11.50+1.18=12.68ha. (Please see details previous chapter)

4. STABILIZATION AND VEGETATION OF DUMPS

This is a fresh grant case, the there is no earlier generated dump sand also no dumps are been proposed during five year working.

5. MEASURES TO CONTROL EROSION/ SEDIMENTATION OF WATER COURSES:

The mining operations will not have any adverse effect on ground water and surface water in the core/ buffer zone, because during the next five years and conceptual period mining will be carried out above the ground water level. For the soil dump afforestation proposal has been given.

6. TREATMENT AND DISPOSAL OF WATER FROM MINE

Rain water accumulated if any in the working pit will be pumped out to the surrounding through settling tank to the agricultural fields.

7. MEASURES FOR MINIMISING ADVERSE EFFECTS ON WATER REGIME

No adverse effect on water regime is expected as mining will be on small scale and there is no water body in the surrounding.

8. PROTECTIVE MEASURES FOR GROUND VIBRATIONS/ AIR BLAST CAUSED BY BLASTING

Blasting is not proposed; hence no impact of blasting.

9. MEASURES FOR PROTECTING HISTORICAL MONUMENTS AND FOR REHABILITATION OF HUMAN SETTLEMENT LIKELY TO BE DISTURBED DUE TO MINING ACTIVITY

There is no human settlement or historical monument in 500 m radius of the area, therefore proposed mining will not disturb the human settlement or historical monuments.

10. SOCIO-ECONOMIC BENEFITS ARISING OUT OF MINING:

There will be positive effect to some extent on socio-economic environment of the area as mining activity will assure job continuity of already engaged people also it may cause further job opportunities for additional people, which ultimately will improve the financial status of the local people.

CHAPTER -12

12.0 COMPLIANCE OF SAFETY RULES AND REGULATIONS: -

(i) WHETHER THERE ARE ANY SERIOUS VIOLATION OF SAFETY REGULATION WHICH MAY JEOPARDIZE HUMAN HEALTH AND SAFETY:

No, there are no serious violations of safety regulation which may jeopardize human health and safety.

(ii) IF SO GIVE DETAILS OF THE VIOLATION AND STATE THE PROPOSED MEASURES TO TAKEN UP WITH A TIME SCHEDULE TO CLARIFY THE VIOLATION

There is no serious violation of safety regulation which may jeopardize human health and safety.

CHAPTER - 13

PROGRESSIVE MINE CLOSURE PLAN

13.01.1BRIEF INTRODUCTION OF THE QUARRY

a) Name of the Applicant : **M/s D. G. MINERALS PVT. LTD.**

Registered address : **M/s D. G. MINERALS PVT. LTD**

Reg. Address: 158, Zone - II,

M. P. Nagar, District Bhopal (M.P.) – 462011

Landline: 0755-4058337, Mo.: 9826018281

b) STATUS OF APPLICANT:

It is a Limited Company.

c) Details of the sanctioned QL area

District & State : Chhatarpur (M.P.)

Tehsil : Lavkushnagar

Village : Kesharipur

Area : 18.90 hectares

Details of khasra no. and area are given as follows:

KHASRA No.	AREA IN HECTARES*	OWNERSHIP OCCUPANCY
179/2/1 & 180/1/1 Forest Compartment No. - **P-703**	18.90 ha	Govt. forest Land sanctioned for QL of Granite.

*(*Please See the Khasra Plan)*

Whether the area is recorded in forest: Yes .

Existence of public road: No public road is passing through the QL area.

Toposheet No.: Area falls under Survey of India Toposheet No. **63 C/4**

Applied QL area is limited within -

LATITUDE : 25° 04’ 09.7”N to 25° 04’ 29.3”N

LONGITUDE : 80° 00’ 42.0”E TO 80° 01’ 05.5”E

APPLIED BOUNDARY PILLAR POINT COORDINATES:

COORDINATE	PILLAR NO. 1	PILLAR NO.2	PILLAR NO.3	PILLAR NO.4
Latitude	25° 04’ 29.3”N	25° 04’ 20.1”N	25° 04’ 09.7”N	25° 04’ 19.6”N
Longitude	80° 00’ 51.4”E	80° 00’ 42.0”E	80° 00’ 53.7”E	80° 01’ 05.5”E

(Note: The location of the area is verified by applicant /forest department concern officer and coordinates of pillar points are shown on Plate no. iv) Please refer to Plate No. IV

Key Plan is enclosed as Plate no. - I

Land use pattern: Government forest Land. [SEE 5SALA]

METHOD OF MINING AND MINERAL PROCESSING:

Open cast semi mechanized means of mining method.

13.01.02 REASON FOR CLOSURE

As per Rule Minor Mineral Rules and latest amendment vide Gazette notification dated 23rd March 2013, Progressive Mine Closure Plan has been opted because mining operations are yet to start and are supposed to continue till the existence of the mineral in the area.

13.01.03 STATUTORY OBLIGATIONS

No statutory obligations are there; routine legislative conditions were mentioned in the approval letter. The details as required:

Any special condition while execution of lease: No

Any directives issued by State Government: No

Any imposed conditioned by MoEF or Central Pollution Board: It will be as per MoEF/ MPPCB/ CPCB rules.

Directorate of Quarry Safety: - No.

13.01.04 CLOSURE PLAN PREPARATION

Name of the Applicant : **M/s D. G. MINERALS PVT. LTD**
Reg. Address: 158, Zone - II,
M. P. Nagar, District Bhopal (M.P.) – 462011
Landline: 0755-4058337, Mo.: 9977294111

Name and address of recognized qualified person:

NAME	:	**Indraneel Dawande**
ADDRESS	:	1338, Vijay Nagar, Jabalpur (M.P.)
PHONE & FAX	:	0761-2641694,
		Mobile: 09425387402
		E-mail: engeotech@rediffmail.com
REGISTRATION NO.	:	RQP/DGMMP/002/2013
VALID UP TO	:	17-04-2023

13.02 MINE DESCRIPTION

13.02.1 a) TOPOGRAPHY

Please refer to page no. 8

b) REGIONAL GEOLOGY:

Please refer to page no. 8-9

c) LOCAL GEOLOGY

Please refer to page no. 10

13.02.2 RESERVES AND RESOURCES

Please refer to page no. 14-16

UPDATED RESERVES:

Updated reserves will be the same as geological reserves.

13.02.3 MINING METHOD

Please refer to page no. 17-22

13.02.4 MINERAL BENEFICIATION: -

Please refer to page no. 28

13.03 REVIEW OF IMPLEMENTATION OF MINING PLAN OF MINING INCLUDING FIVE YEARS PROGRESSIVE CLOSURE PLAN UP TO THE FINAL CLOSURE OF MINE

Not applicable as it is a fresh grant case.

13.04 CLOSURE PLAN

13.04.1 MINED OUT LAND

During the next five years no mined out land will be left.

13.04.2 WATER QUALITY MANAGEMENT:

There are no surface water bodies; the ground water is available in the form of well and hand pump near the area. Ground water level is below the conceptual pit depth proposed as per the present knowledge of deposit. After the completion of mining operations in this area, the surface water is likely to be contaminated due to wash off from the dust prone area then it will provided by adequate plantation before the conceptual period is over.

During present PMCP period to conceptual period following steps will be taken for water quality management:

1. As such there is no surface water body, the water table is quite below the proposed five and conceptual working, hence there will be no impact on ground water.
2. Proposal of settling tank: During the rainy or post monsoon season the collected water within the pit will be passed through the settling tank to suspend heavy particles then this discharge water will be drain to agriculture land/ nala.
3. The garland drain will be provided around the dump, whatever washes off from higher altitude area then it will be further drained to settling tank to suspend if any heavy particles then it will be drained to nearby agriculture field or nala.
4. The Granite does not contain any toxic element which is likely to cause surface/ ground water pollution. Mining operation will not pose any problem to general water table of area.

13.04.2.1 AIR QUALITY MANAGEMENT: -

Once the mining operation in this area is over the ambient air can only be polluted by dust raised from the waste dumps. As stated above the waste dumps will be stabilized and secured against dust being air borne by adequate plantation before the conceptual period is over.

At the end of conceptual period following steps will be taken for air quality management:

1. Adequate plantation.
2. If required then regular sprinkling of water over the dust zone.

The proposed mining operation are small, hence there will be no such impact on air quality management.

13.04.3 WASTE MANAGEMENT

Please refer to para 7 b & c

13.04.4 TOP SOIL MANGEMENT:

No top soil generation for the five year and conceptual period.

13.04.5 TAILING DAM MANAGEMENT:

There is no tailing generation; hence tailing dam management is not required.

13.04.6 INFRASTRUCTURE

During the plan period mine office, separate toilet for men and women and shelter room will be constructed and first aid facilities will be enhanced.

(i) Any decommissioning proposal: No

13.04.7 DISPOSAL OF MINING MACHINERY

As such there is no mining machinery.

13.04.8 SAFETY AND SECURITY

For mining activity separate watch man will be appointed for security of mine. First aid facility will be provided at mine site. Fencing will be provided around the working pit, which will restrict the fall of animal in to working pit. Entrance of general public will be restricted and can be permitted if necessary with prior permission of manager/ supervisor/ applicant.

13.04.9 DISASTER MANAGEMENT: -

High-risk accidents are not anticipated in the area because proposed mining is of small scale. In case of natural disaster such as earthquake, flood, storm etc., as per the situation, Applicant will take the assistance from the local competent authority of Govt. and Non-Govt. agency, similarly quarry manager will be in touch of local people for immediate amelioration and in the case of flood in the local nala which is between 1-3 km (aerial) in radial direction, he will take anticipatory care in coordination with State Govt. directives. Further proper maintenance and replacement of required machineries of crusher unit will be taken care to avoid any accidental event.

13.04.10 CARE AND MAINTENANCE DURING TEMPORARY DISCONTINUANCE

Special precautions and guidelines will be followed giving by the Central/ State government for unplanned mining operations. Proposed mining is of small scale mine, most of the mining facilities will be adopted on hire basis in such case care will be taken as per the terms and conditions of the contract. During the temporary discontinuous of mining operations, Chowkidar will be appointed for protection of mine site.

13.5 ECONOMIC REPERCUSSION OF CLOSURE OF MINE AND MANPOWER RETRENCHMENTS

Proposed mining is of small scale mine, most of the mining facilities will be adopted on hire basis in such case care will be taken as per the terms and conditions of the contract. So far the machineries which are on contractual basis will be dealt as per their terms and conditions of contract.

13.5.1 Number of local residents employed in the mine, status of the continuation family occupation and scope of joining the occupation:

The number of local residents proposed to be employ will be around 25+ (statutory norms) from the nearby areas and these local people have already their own traditional and family occupations like

agriculture, sundry jobs, having their huts and in future when mine totally closed down due to exhaustion of reserves or other reason, they can easily join back to their respective employments.

13.5.2 Compensating given or to be given to the employees connecting with sustenance of himself and their family members:

For employees the retrenchment compensations to the workers, as and when required will be done as per the Central Labour Legislations applicable to Metalliferrous Quarry.

13.5.3 Satellite occupation connected to the mining industry-number of person engaged therein - continuance of such business after mine close:

This is a fresh grant case and there is no proposal for closing of mining operation during the plan period or up to lease period. There are other quarries also operating in the vicinity of the area. The workers mostly work in seasonal agriculture and hence satellite occupations connected to the mining industry are not considered. Hence, after the mine closes there will not be any adverse effect.

13.5.4 Continued engagement of employees in the rehabilitated status of mining lease area and any other remnant activities:

This is a very little chance of Mining Lease area getting rehabilitated as the land is a Government Waste Land and it will be as per State Government's Rules.

13.5.5 Envisaged repercussions on the expectation of the society around due to closure of mine:

The employment potential of the quarry is small; hence it will have no repercussion or the society around due to closure of mine.

13.6.0 TIME SCHEDULING FOR PROGRESSIVE RECLAMATION AND REHABILITATION

The details of time schedule of all abandonment operations as lease in Para 4 should be described here. The manpower and other resources required for completion of lease job should be described. The schedule such operation should also be supplemented by PERT (Programme Evaluation and Review Technique) Bar chart etc.:

It is not applicable at this stage because the mining operations are yet to be started and will be continuing for forthcoming period. There will not be any mined out area or generation of soil dump during the proposal period hence no reclamation and rehabilitation is envisaged. As discussed in the foregoing chapters there is no proposal for abandonment of mine or initiating closure operations during the mining plan period so at this stage no question of abandonment does arise.

13.07 COSTS FOR PROGRESSIVE RECLAMATION AND REHABILITATION

The applicant has applied for grant of mining lease and mining operation will commence after the grant of mining lease therefore at this stage it is not possible to assess the abandonment cost.

13.08 FINANCIAL ASSURANCE

Total area is 18.90 ha say 19.00 ha ,hence financial assurance calculation will be-

Area x Rs. 15000.00 (Per ha)

18.90 ha say 19.00 ha x 15000 = Rs. 2, 85,000/-

This FA will be submitted after the necessary instruction from approval officer /concern department.

13.09 CERTIFICATE: Refer to annex no. III

13.10 PLANS, SECTIONS ETC:

Necessary information is supported with plans and sections, enclosed as Plate no. IX.

Place: Jabalpur

Date: / /2018

INDRANEEL DAWANDE
RQP/DGMMP/002/2013