

**MINING PLAN FOR COLOUR GRANITE**  
**OVER AN EXTENT OF 3.000 Hectare, IN S.No. 53 OF TEKKALI VILLAGE & MANDAL,**  
**SRIKAKULAM DISTRICT, ANDHRA PRADESH STATE, INDIA**  
**(SUBMITTED UNDER RULE S 17 OF G.C.& D.R. 1999)**

**APPLICANT**

M/s. Madhucon Granites Limited.  
Regd. Office : Madhu Complex,  
Jublipura,  
Khammam- 507 001. AP



**PREPARED BY      APPROVED**

Sri. S.N. SURESHA, M.Sc., (Geo),  
Recognised Geologist,

22-1/77/7, Mounika Apartments,  
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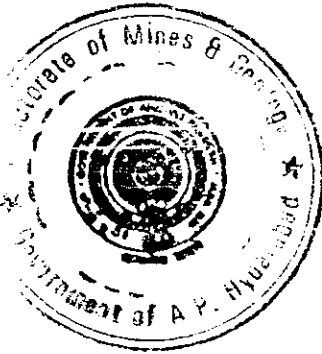
(2004)

## DECLARATION

Certified that the Mining Plan for Colour Granite,  
Over an extent of 3.000 Hectare,  
In S. No. 53 of Tekkali Village, Tekkali Mandal,  
Srikakulam District, Andhra Pradesh State,  
has been prepared in full consultation with me  
and I have understood its contents  
and agree to implement the same in accordance with the law.

Place : Hyderabad,

Date : 10 - 5 - 2004



*[Handwritten Signature]*  
Applicant

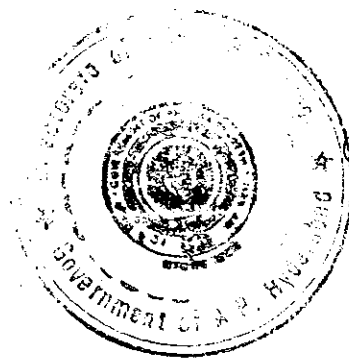
## CERTIFICATE

This is to certify that the provisions of Mines Act, Rules, Regulations,  
Granite Conservation and Development Rules, 1999  
have been observed in the Mining Plan for Colour Granite  
over an extent of 3.000 Hectare,  
at S.No. 53/1 of Tekkali Village & Mandal,  
Srikakulam District of Andhra Pradesh State,  
and wherever specific permissions are required,  
the Applicant will approach the Director General of Mines Safety and  
concerned authorities of Directorate of Mines and Geology for granting the permission.

It is also certified that the information furnished in the Mining Plan  
are true and correct to the best of my knowledge.

Place : Hyderabad

Date : 2 / 06 / 2004



*S.N. Suresha*  
S.N. Suresha M.Sc.,  
Recognized Geologist  
(RQP/HYD/106/94/A)  
(RQP/DMG/HYD/001/2001)  
Hyderabad.

*S. N. Suresha*  
Recognized Geologist  
RQP/DMG/HYD/001/2001

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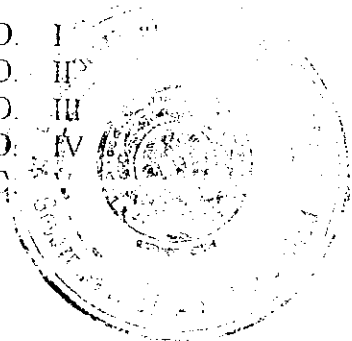
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PLATE NO.



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**OVER AN EXTENT OF 3.000 Hectare, IN S.No. 53 OF TEKKALI VILLAGE & MANDAL,**  
**SRIKAKULAM DISTRICT, ANDHRA PRADESH STATE, INDIA**  

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**(SUBMITTED UNDER RULE S 17 OF G.C. & D.R. 1999)**

This Mining Plan is Approved subject to the  
Conditions/Stipulations Indicated in the

1.0 INTRODUCTION :

Mining Plan Approval Letter No.....  
19300/R-1/MP/2004, dated 22.06.2006.

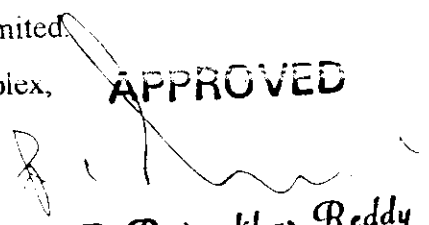
M/s Madhucon Granites Ltd., Khammam, is a versatile company having lot of experience in granite mining industry and earning foreign exchange by exporting the granite from different part of our country. They have got several quarry leases in Andhra Pradesh and elsewhere in India. They have got quarry lease for 'Srikakulam blue' Granite over an extent of 3.000 Hectare at S. No. 53 of Tekkali Village & Mandal, Srikakulam Dt. AP State. The lease was granted on 27/6/94 vide D.M & G Hyderabad Proceeding No. 4556/ K 1 /94 dated 27/6/94. It was executed at office of Asst. Director of Mines & Geology, Srikakulam vide their Proceeding No. 1892/Q/94 dated 17/8/1994. The lease is valid for 15 years and it is due for expire on 16/8/2009. They are operating the mine since 1994, and have produced about 5000 m<sup>3</sup> of dimensional granite. After seeing the wide development in granite industry and export business, the govt. of India has formulated new law for conservation & systematic utilization of natural resources. Hence the Law of "Granite Conservation & Development Rule,1999" has come into force. In accordance with the enforcement of law issued on 01/06/1999 by the Ministry of Steel and Mines (Department of Mines), Govt. of India, the lessee is required to submit approved mining plan to the office of Asst. Director of Mines & Geology, Srikakulam.

Hence, this Mining Plan has been prepared by following the guidelines prescribed by the Director of Mines & Geology, Hyderabad and the guidelines given in GC&DR 1999, and submitted under Rule 17 OF G.C. & D.R. 1999, for existing quarry leases.

1.1 Name of The Applicant With Complete Address :

M/s. Madhucon Granites Limited.  
Regd. Office : Madhu Complex,  
Jubliipura,  
Khammam- 507 001. AP

**APPROVED**

  
**P. Rajasekhar Reddy**  
Joint Director  
Dept. of Mines and Geology.  
Govt of A.P Hyderabad,



1.2 *Status of the Applicant (Lessee):*

The Applicant is a Limited Company of which Sri N. Nageshwar Rao is the Chairman & Managing Director. The company is versatile granite producers and having lot of experience in granite industry. The overall operation of granite industry, mines and company business is functioning under excellent guidance of Sri N. Krishnaiah, the Executive Director, of the company.

1.3 *Type Of Granite Which The Applicant (lessee) Intends To Mine :*

Colour Granite (Srikakulam Blue).

1.4 *Period of Quarry Lease Granted :*

Quarry Lease is Granted up to 16/8/2009.

1.5 *Name, Address And Registration Number Of The Recognized Person Who Prepared The Mining Plan:*

Sri. S.N. SURESHA, M.Sc., ( Geo),  
Recognised Geologist,

(Ph: 040 – 23068543)  
Cell: 98491 62562

2-22-1/77/7, Mounika Apartments,  
Bhagyanagar Colony, Opp. KPHB.  
HYDERABAD – 500 072

2.0 LOCATION AND ACCESSIBILITY :

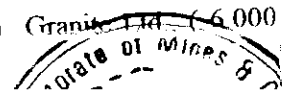
2.1 *Location Map :* Location Map in Plate No. I is enclosed.

2.2 *Details Of The Area:*

(a) The applied area is a remote and barren land. It is located in Topo sheet No.7. B/2 between 84° 11' 17" Longitude and 18° 36' 40" Latitude.

District & State	Taluka Mandal	Village	S.No.	Area in Hectare	Owner Ship & Occupancy Status
Prakasam A.P	Tekkali	Tekkali	53	3.000	Govt. Land

Boundaries : Boundaries : West, North & East : Q.I. area of M/s Madhucon Granite Ltd. (6.000 Hectare area) South : Their own Land.



### 2.3 *Infrastructure :*

The applied area is having very good Infrastructure like road, rail and drinking water etc. It is well connected by jeepable road from Tekkali at a distance of 6 Km. The village Tekkali is connected to National Highway No. 5 at a distance of 2 Kms. connecting vizag – Culcatta. The nearest Railway Station is situated at Palasa, air port and harbor are situated at Vizag. At a distance of 160 Kms. The mine is surrounded by few villages among which Tekkali is the nearest village which is having working category population, hospital, post & telegraph office, schools etc., The power line and telephone line is passing near by area at a distance of 1 Km north side of block (Gudem village). The drinking water is available from the open well situated at 500 m away south. The Vamsha Dhara irrigation canal is passing at a distance of 600 meters south of the applied area.

### 3.0 GEOLOGY AND RESERVES:

#### 3.1 *Brief description of Topography (Physiography) :*

The applied area is elongated hilly area having slope from north - south. The gradient is gently towards south in direction. The highest level observed at northern side is 130 m RL. Whereas lowest level is recorded to be 95.2 RL at south. The height ranges from 30 to 35 m.

#### 3.2 *Regional Geology :*

The rock formation belong to eastern ghat mobile belt of Archaean age. The mobile belt is divided into three zones viz Western Charnockites Zone (WCZ), Central Khondalite Zone (CKZ) and the Eastern Migmatite zone (EMZ). The EMZ is well developed in northern parts of the belt in Vishakapatnam, Vijayanagaram, Srikakulam and partly in Krishna Districts. The broad distribution of rock types of rocks in Srikakulam district are Granite Gneiss, Kondalites, Charnokites, Leptynites, Rajamundry Sand Stone, Alluvium deposits and quartzite at some places. The eastern part of the belt forms a plan country with isolated hillocks and rises as continuous hill range towards west presenting a rugged topography with lush green vegetation.

Charnokite to pyroxene granulite, migmatite, Leptynites and intrusive porphyroblastic Charnokite and granite. Out these migmatite Charnokite and leptynite are extensively quarried out as dimensional stone granite and traded as 'Srikakulam Blue' due to the presence of bluish opalescent quartz and bluish grey feldspar. Actually these are migmatite and migmatite Charnokites. The leptynites are called as 'Kashmir White'. The wavy structure forms due to migmatization of Charnokites. The general geological succession of the area is as follows.

Geological Era	Geological Units
Phenozoic	Tertiary Sedimentary Rocks, Quaternary deposits
Proterozoic	Granites and Epidote Gneiss
Late Archaeons to Proterozoic	Unclassified Granites and Migmatites
Archaeons	Peninsular Gneiss with older granites and migmatites. Migmatite complex. Charnokite group. Khondalite group

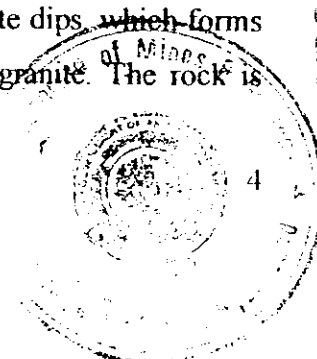
### 3.3 Local Geology :

The local geology of the area is as follows :

Soil cover	:	Recent
Quartz feldspathic rock Khondalites ( granite) Sillimanite gneiss		Archaeons
Basement Rock	:	Not Encountered.

The subject area is having height of about 35 m towards north from southern boundary. The granite in this area occur as concealed quartz-feldspathic rock with thin soil cover. The rock is considered to be archaeons age falling under Eastern Ghat hill range

The lithological units of the area is Mesocratic quartz feldspathic gneiss which are bluish grey in colour. These are consisting of blue quartz and feldspar constituents varying in proportions. The garnet and pyroxenes are in little quantity. Biotite mica under aphanitic ferromagnesium are also observed as accessories. The granite in this area is hard and compact with medium-coarse grain in texture. The alternative arrangement of felsic & mafic minerals of the rock mass gives decorative pattern with bluish gray back-ground. The trend of mineral is varying in alignment with NNW- SSE, N-S and NNE- SSW with moderate dips which forms wavy banding. This kind of design increases the cost of blocks in blue granite. The rock is





having vertical and horizontal joints are there. The applied area is slightly weathered and having lot of boulders on surface.

3.4 *Brief description of lithology : ( not uniform)*

- Soil Cover : 0 - 0.2 m on surface (along with joints the soil cover is there, which ranges from 0.2 to 2 m)
- Boulders Zone : 0 - 5 m (thickness varying from 2 to 8 m at different places)  
On the surface start from bottom of the hill to top of the hill.
- Sheet rock : 5 - 20 m to 25 m from top of the hillock (geologically confirmed).

4.0 EXPLORATION :

a) *Present Status :*

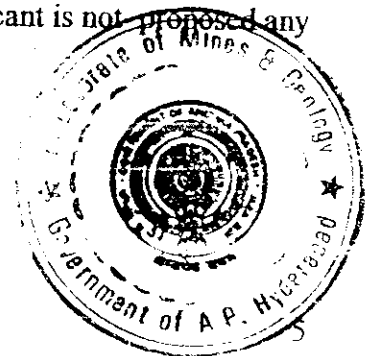
As explained in Introduction para the mine was operated since 1998. As on date the mine is having a big working pit which is producing dimensional granite at south-central place and a bench cutting at north-western side. The pit is 150 x 90 x 6 m size, in which 81000 m<sup>3</sup> of material might have been excavated. Where as at benches cutting at north-western side is about 35 m length, 25 m width and 7 m depth. In this area the lessee has produced about 10,000 m<sup>3</sup> of dimensional granite since 1998. The applicant has dug one trial pit by cutting boulders at surface, and small cutting as shown in geological plan.

Location	Size of the benches in the Pit				Remarks
	Length (m)	Width (m)	Depth (m)	Volume (m <sup>3</sup> )	
Pit No.1 At southern side	150	90	6	81000	0- 6 m : boulders embedded in Soil cover 0 - 7 m : Granite Boulders.
Bench cutting at north-western side	35	25	7	6125	Boulders cutting from surface

The applicant is also done Theodolite Survey and drawn Surface Geological Plan in 1 : 1000 scale with 5 m contour interval.

b) *Future Programme :*

In this area granite is exposed to total height. Therefore the applicant is not proposed any exploration work.



## 5.0 GEOLOGICAL RESERVES :

In this area the granite is exposed to surface from 100 m RL to 150 m RL with boulders of varying sizes. Therefore the reserves exposed to surface is arrived as proved reserves. Anticipating 5 m depth below proved is considered as probable reserves and another 5 m depth is considered as possible reserves. As witnessed in the area surface is containing different size boulders embedded in soil cover, hence 20 % void space is considered during calculation of reserves. Anticipating 15 % recovery, the quantity of prime granite is arrived.

The details of Geological Reserves is given in Annexure No. I. However the brief description of reserves and their categorization is as below :

Cat of Res.	Geol. Res.(m <sup>3</sup> )	(-)20% voids (m <sup>3</sup> )	Net Res. (m <sup>3</sup> )	% of Rec.	P. Gr. m <sup>3</sup>	Waste m <sup>3</sup>
1.	2	3	4	5	6	7
Pvd.	775580	155116	620464	15	93070	527394
Prb.	231025	46205	184820	„	27723	157097
Pos.	231025	46205	184820	„	27723	157097
Total	1237630	247526	990104	„	148516	841588

Total Geological Reserves = 1237630 m<sup>3</sup>

Total Prime Granite Reserves = 148516 m<sup>3</sup>

Total waste = 841588 m<sup>3</sup>

### *Mineable reserves and the life of the mine:*

The reserves locked in mines safety slope is considered during calculation of mineable reserves. The quantity of such reserves is arrived to be 247620 m<sup>3</sup> as given in Annexure-I. Therefore the mineable reserves are arrived as following.

Geological reserves of 1237630 – Reserves locked in mines safety slope 247620 = 990010 m<sup>3</sup>.

The details of calculation is given in Annexure I. The applicant is proposed to produce 26220 m<sup>3</sup> of (3146 m<sup>3</sup> prime dimensional blocks) granite per year. There fore the life of the mine is arrived as below:

$$\frac{\text{Mineable reserves } 990010 \text{ m}^3}{\text{Annual production } 26220 \text{ m}^3} = 37.76 \text{ years. Say 38 years.}$$

6.0 MINING : In this area partially mechanized open cast mining is

### a) Type of Mining:

Open cast Semi-mechanized mining is being undertaken in this mine.



b) *Existing Method of Workings involved in the mine :*

*Removal / Excavation of OB and other quarry waste :* The granite in this area is exposed to surface. The surface of the area is full of boulders, therefore initially the production is being won by cutting boulders to required size blocks along with removing the soil cover. The development work is not done separately as it is being done along with production. Since 1998 the mine was operated and most of the waste was removed at south-central place of the area, therefore at that place open well has formed and now the production is proposed at that place preferentially. So no OB is required to be removed to a large extent.

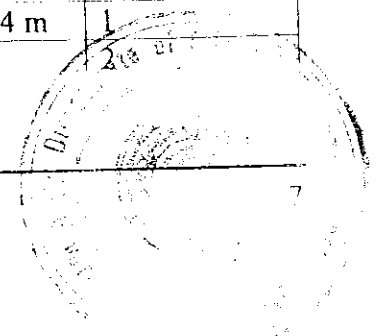
*Separation of Primary blocks from mother rock :* The surface of the area is covered with varying size boulders and soil in joints and in between boulders. Therefore the small boulders of less than 0.66 x 0.66 x 0.66 m size and soil cover are easily removed from insitu with the help of poclain. Where as for massive boulders of 5 x 5 x 5 m and more than that size dimensional blocks will be cut by employing Line drilling with 6" gap and blasting by using mild explosives. After blasting, the primary blocks will be loosened and separated from mother rock with the help of poclain. During separation of primary blocks the joints, weathered surface & fracture zones will be considered. The loosened blocks will be subdivided into secondary blocks, then removed from insitu. At present the cutting of big blocks will be done by rope cutting.

*Subdivision of large (primary) block in to secondary blocks:* The huge boulders (primary blocks) will be subdivided into secondary blocks of required size (3.2 x 2 x 2 m, 3 x 2 x 1.8 m, 2.6 x 2 x 1.5 m, 2 x 1.5 x 1 m & 0.66 x 0.66 x 0.66 m) after thorough inspection, by drilling line holes with the gap of 6". For smooth surface and neat blocks the diamond wire cutting will be done. The blocks will be used for manufacture of monuments at their factory situated at Khammam.

*Production of commercial blocks:* The secondary blocks finally dressed by chipping the corners and uneven surfaces to get the commercial blocks with right angle corners for good look and correct measurement. In this area maximum possible dimensional block are ranging to 3.2 m x 2 m x 2 m size. Regular sizes dimensional stones that can be retrieved from this quarry ranges from 180 c m to 260 c m length, 120 to 200 c m width and 100 c m to 180 c m height.

In this mine the following machineries are being utilised :

Sl. No.	Type of machinery	Capacity	Unit
01	Compressors	600 cpm	2
02	Poclain	2.75 m <sup>3</sup> boom length -6.4 m	1
03	Tippers	200 sft	2



c) *Mining Programme for first five years period :*

In first 5 years period it is proposed to produce granite from 120 RL northern side bench cutting place of the area where the production was won in existing lease period by cutting progressive benches. Therefore by using the face opened at this place in first year the production will resumed by cutting the boulders in first bench of 47 m length, 24 m width and 5 depth. In 2<sup>nd</sup> bench 82 m length, 24 m width and 5.5 m depth. will be cut. At the end of the year total quantity of 16464 m<sup>3</sup> of granite will be produced. After removing 20 % void space, 13171 m<sup>3</sup> of granite will be arrived. Anticipating 15% recovery the prime granite of 1976 m<sup>3</sup> will be produced. During this period 11195 m<sup>3</sup> of stony waste will be generated. At the end of the year the bottom level will reach 112 RL.

In second year the bench will move southwards, in this year 70 m length 18 m width and 2 m height will be cut to produce 2520 m<sup>3</sup> of granite. In second attempt 4 m height bench will be cut to produce 5040 m<sup>3</sup> granite. In 3<sup>rd</sup> bench 6 m depth will be cut in same extent of area to produce 7560 m<sup>3</sup> of granite. In 4<sup>th</sup> attempt 4.5 m bench will be cut to produce 5670 m<sup>3</sup> of granite. In this area total quantity of 20790 m<sup>3</sup> of granite will be produced. At the end of the year 2495 m<sup>3</sup> of prime granite will be produced. The bottom RL will reach 92.5 m.

In 3<sup>rd</sup> year the bench will move further south, in this year it is proposed to produce 3978 m<sup>3</sup> of prime granite by cutting 4 benches in an area of 85 m length and 20 m width. In first attempt 4 m height bench will be cut to produce 6800 m<sup>3</sup> of granite. In 2<sup>nd</sup> attempt 6 m bench will be cut to produce 10200 m<sup>3</sup> of granite. In third attempt 4.5 m bench will be cut to produce 7650 m<sup>3</sup> of granite. In 4<sup>th</sup> attempt 5 m depth bench will be cut in same extent of area to produce 8500 m<sup>3</sup> of granite. At the end of the year 33150 m<sup>3</sup> of granite will be produced and the waste of 22542 m<sup>3</sup> will be generated. The bottom level will reach 87.5 m.

In 4<sup>th</sup> year it is proposed to produce 3534 m<sup>3</sup> of prime granite by working at southern side of 3<sup>rd</sup> year production place by cutting 4 benches. In first attempt 95 m length, 20 m width and 2 m height to produce 3800 m<sup>3</sup> granite. In 2<sup>nd</sup> attempt 6 m bench will be cut in same extent of area to produce 11400 m<sup>3</sup> of granite. In 3<sup>rd</sup> attempt 4.5 m depth bench will be cut in same extent of area to produce 8550 m<sup>3</sup> of granite. In 4<sup>th</sup> attempt 5 m depth bench will be cut to produce 9500 m<sup>3</sup> of granite. At 15 % recovery rate 3534 m<sup>3</sup> prime granite will be produced. At the end of the year total quantity of 20026 m<sup>3</sup> of waste will be produced, the bottom level will reach 87.5 m RL.

In 5<sup>th</sup> year the production will be done at 99 RL. In this area 3 benches will be cut to produce 3750 m<sup>3</sup> of prime granite, by cutting in an area of 2016 m<sup>2</sup>. In first attempt 6 m height benches will be cut. In 2<sup>nd</sup> attempt 4.5 m bench will be cut to produce 9072 m<sup>3</sup> of granite. In 3<sup>rd</sup> attempt 5 m height bench will be cut to produce 10080 m<sup>3</sup> granite will be produced. At the end of the year total quantity of 31248 m<sup>3</sup> of granite will be produced, the bottom RL of 87.5 m will be reached. The waste of 21248 m<sup>3</sup> will be generated.

The details of production of granite, waste and weathered granite removal is given in Annexure II.

d) *Reclamation Programme :*

The applied area is a part of big hillock, therefore except degradation of height no mining impact is anticipated in this area. Therefore no reclamation programme is planned in lease period ending on 16/8/2009, due for renewal.

e) *Magazine Type & Capacity (Storage and handling of the explosives):*

As explained above the explosives are being stored in the explosives magazines kept at isolated elevated place on abandoned dump at southern side of the quarry. The area is fenced as per the norms prescribed by the Dept. of Explosives. The explosives are handled by the mining staff specially appointed for the purpose. The licensed capacity of the magazine is as follows:

Class 2&3 ,Division I = 400 Kgs.

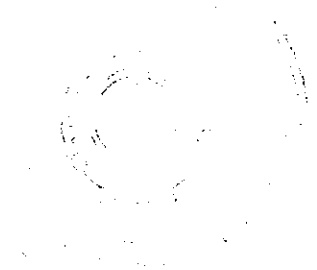
Class 6, ,, I = 2000 mtrs.

Class 6, ,, 3, OD - 2000 Nos.

ED - 2000 Nos.

f) *Description of Processing Plant if any :*

The applicant is having 100 % export oriented granite processing plant at Gollagudem village Khammam District. The approximate annual production is said to be 1000 Sq. Ft., and 150 Tons (6 containers) of granite monuments and tomb stones in a month. They have employed 35 man power. The details of machines, number of machineries & workers is given in Annexure IV.



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g) Organisation Chart

Staff at Mine:

Managing Director / Executive Director

Mines Manager

Quarry in-charge

Mine Foreman

Vehicle Incharge

Production Incharge

Accountant

(i) Stone Cutters-2,  
(ii) Drillers 4,

(i) Mechanic (1)  
a. W/D Operator-1  
b. Compressors  
Operators-3

Supervisors-1

Clerk-1

(ii) M/c Operators-2  
a. M/c Helpers -2

(iii) Dumper operators-2

Site Services :

The lessee company has provided well established site services such as medical aide provision, drinking water facility, safety measures to the workers at mines and rest shelter along with first aid and office rooms in the area neighboring to the applied area.

(h) Market analysis :

Assured and expected supply contracts: The applicant is a 100 % export organisation having assured supply orders for their granite blocks and monuments in China, Japan, Europe, Australia, USA and Canadian markets.

Pattern of demand : The M/s Madhucon Granite Ltd. is a Brand name with international fame produces beautiful monument and granite articles. Therefore it has got world popularity & good demand in market.

7.0 SCHEME OF WASTE MANAGEMENT PLAN TO BE PREPARED IDENTIFYING THE SOURCES OF WASTE ( SOLID, LIQUID) GENERATION AND THEIR CONTROL:

7.0 Solid Wastes: As given in previous para the generation of solid waste such as highly weathered granite etc., is anticipated. The quantity of such waste is anticipated to be about 120614 m<sup>3</sup> in first 5 years period.

Estimated waste quantities that will be generated over the entire period:

The lease period is ending on 2009, therefore till then the anticipated waste generation is expected to be about  $89150 \text{ m}^3$  ( $17830 \times 5 = 89150 \text{ m}^3$ ) at the rate of  $17830 \text{ m}^3$  per year.

Dumping sight particulars :

The waste removed from the mine site is transported to dumping yard located at their own land situated at western side of the lease area.

Liquid Waste : In this area no Liquid waste is anticipated.

Utilisation of waste if not prevented :

- (i) The applicant is planned to reduce the production of waste by improving maximum utility of blocks and small size boulders, as they have got their own granite cutting and polishing unit.
- (ii) In waste boulders also usable blocks will be produced and further utilized for slabs production.
- (iii) It is planed to make maximum recovery of dimensional blocks, out of rejects by adapting following parameters.
  - a) Good operating practices will be adopted in this mine.
  - b) Simple technology of quarrying of dimensional blocks will be adopted.
- (iv) Use for Backfilling the quarried out areas and other landfill operations as a source of road, building material etc : the waste will be used for road formation and construction purpose. Wherever necessary, the waste will be utilized for back filling the quarried out areas as ultimate resort. The top soil will be utilized for plantation in the lease area and in the own land demarked for dumping the waste.

8.0 ENVIRONMENT MANAGEMENT PLAN:

In this area no trees cutting is expected except cutting of granite. Therefore the environmental impact is anticipated to be negligible.

8.1 *Base line information:*

- i) *Existing land use pattern* : The applied land is a part of hillock with high elevation. Therefore it is not being used for any purpose.



ii) *Water Regime* : The applied land is a part of hillock. The rain water in rainy season constitutes the drainage system of the area. except this no any other kind of water regime is located in this area.

iii) *Flora are Fauna* : In applied area less density of vegetation or plants are there. There is no forest area in the nearby. No wild animals are reported in this area.

(iv) *Climatic conditions* : The area is coming under semi-arid tropical zone of the globe. Normal average temperature of this area is learnt to be 30°C-48°C. The maximum temperature recorded in recent days is 51°C, minimum temperature is 18°C, during summer and winter seasons respectively.

v) *Human Settlement* : The lease area is surrounded by 4 villages and few areas of workers concentrations. The literacy of the area is very less. The details of the villages is given in following table and the details of the location is demarked in plate no. 1

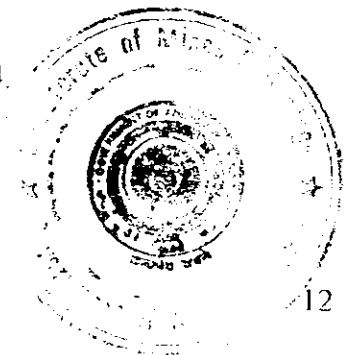
Sl.No.	Name of the village	Location	Distance	Population
1	Tekkali	East	3 Km	20000 Nos.
2	Palasa	East	6 ,,	5000 ,,
3	Tarlakota	South	4.5 ,,	1000 ,,
4	Kasibugga	South	5 ,,	1000 ,,

vi) *Public Buildings, places and monuments*: There are no public building, places and monuments within 2.5 Km.

vii) *Quality of air, ambient noise level and water* : The quality of water is good. Naturally the air is pollution - free, but due to transportation pollution of air occurs. The noise is expected due to drilling and compressor operation, it is recorded to be tolerable (80-100 db).

viii) *Does area (partly or fully) fall under notified area under water (prevention and control of pollution) Act. 1974.:*

The area is not falling under notified area under water Act. 1974.





8.2 *Environmental impact assessment statement :*

i) *Land degradation :* In this area the anticipated extent of quarrying is limited to 3.00 Hectare only. Therefore the impact of mining activity on environment of the local area is negligible except land degradation from high elevation to low elevation.

ii) *Water regime:* The applied area is not having any water reservoir within 500 m radius. However in rainy season water falls on surface will flow down ward and flows to plane lands. The mining activity will not disturbed flow of water.

iii) *Water quality :* The water quality is good since the flow of aesthetic mineralised water is not expected in this area. There will be no change in quality of water. The norms are as follows.

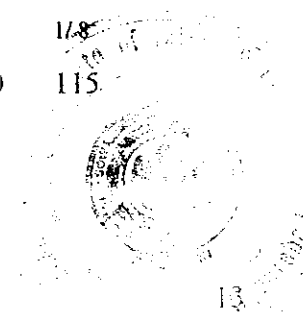
Sl.No.	Charectoristics	Desirable Limit	Maximum Permissible Limit
1.	Colour	5	25
2.	Odor & Taste	Un Objectionable	Un Objectionable
3.	Turbidity	5 NTU	10 NTU
4.	pH value	6.5 to 8.5	No relaxation
5.	TDS	500 mg. Per Ltre.	2000 mg. Per Ltre.
6.	Total Hardness	300 mg. Per Ltre.	600 mg. Per Ltre.

iv) *Ambient air quality :* In the mine certain amount of air pollution is anticipated. The base level and permissible levels of pollution is given as below.

Base Levels		Allowable Levels
SPM =	140 mg/m <sup>3</sup>	360 mg/m <sup>3</sup>
RSPM =	60 mg/m <sup>3</sup>	120 mg/m <sup>3</sup>
SO <sub>2</sub> =	40 mg/m <sup>3</sup>	80 mg/m <sup>3</sup>
NO <sub>2</sub> =	40 mg/m <sup>3</sup>	80 mg/m <sup>3</sup>
CO =	1.0 mg/m <sup>3</sup>	5.0 mg/m <sup>3</sup>

v) *Noise levels:* The noise produced due to machinery operation and vehicles will not be continuous throughout the day. Therefore the noise in this area will be less. However the permissible noise levels and working hours is given as below.

Duration Per Day ( Hrs):	16	8	4	2	1	½	¼	1/8
Sound Level dBA :	85	85	90	95	100	105	110	115



vi) Vibration levels : There is going to be hardly any impact on surroundings, as there are no much blasting and no utility of more explosives in this mine. The vibration causes due to movement of poclain and vehicles is under control.

vii) Socio-Economic conditions: There shall have positive impact in the rural area as there will be organized employment with social security and financial benefits.

viii) Historical monuments etc., : The area is free of any historical monuments within the distance of 5 km.

### 8.3 *Environmental Management* :

i) Temporary Storage & Preservation of top soil: The soil mixed with small granite boulders is preserved in the form of dumps and part of it will be utilized for plantation.

ii) Year wise proposal for reclamation of land affected by mining activity during first five years: In this area except degradation of land no impact is expected on the area. Therefore no reclamation is proposed in first 5 years period, except plantation at lease border and at waste dumps.

iii) Programme of Afforestation, year wise for the initial five years. Indicating number of plants with name of species to afforested under different areas in hectares: The plantation will be undertaken at borders and around the dumps to avoid run - off of material in the lease area in first five years period. The details of plantation is as follows.

Year	No. of plants	No. of Rows	Location	Species
1 <sup>st</sup> Year	20	1	South-west 100 RL	Eucalyptus
2 <sup>nd</sup> Year	20	1	South-west RL	Eucalyptus
3 <sup>rd</sup> Year	20	1	Western side	Gulmochar
4 <sup>th</sup> Year	20	1	South-east 105 RL	Eucalyptus
5 <sup>th</sup> Year	20	2	„ „ 110 RL	Gulmochar

The plantation undertaken on dumps are temporary since the dumps may be removed from site as and when the area is required for mining. The plants will be grown in joint planes and fractures zones also.

iv) Stabilisation and vegetation of dumps along with waste dump management year wise for the first five years:

Stabilisation and plantation will be made under the programme mention above table.

v) Measures to control erosion/sedimentation of water regime: The aerial erosion and erosion due to water flow by rain water will affect the surface but no water regime is observed.

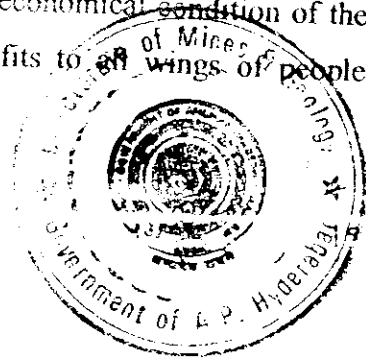
vi) Measures for dust suppression: Water sprinkling will be carried out on mine benches and haulage roads regularly. The dust arises at drilling hole will be suppressed by putting cloth at drilling hole. The laborers will be provided with Respirators etc., for using during drilling.

vii) Protective Measures to minimise ground vibrations and noise: To minimise ground vibrations it is proposed to use less quantity of explosives for blasting, reduce movement of heavy vehicles, maintain sufficient gradient of road, keeping good condition of machineries. To minimise noise it is proposed to keep compressor far from working spots and maintain machineries in good condition. However the ear-plugs will be provided to jack hammer operators.

viii) Treatment and disposal of water from the mine and beneficiation plant: In this area no water will be discharged from the mine.

ix) Measures for protection of historical monuments and for rehabilitation of human settlements likely to be disturbed due to mining activity. No historical monuments or human settlements are there in or around the mine within 4 Km radius.

x) Socio-economic benefits arising out of mining: The local people are engaged in mining. Due to establishment of these mines in this area the socio-economical condition of the area is developed enormously. There is a direct or indirect benefits to all wings of people including non-mining professionals.

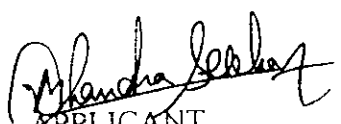


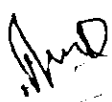
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9.0 ANY OTHER RELEVANT INFORMATION:

The lessee company is following the minor mineral concession rules and metalliferous mines regulations 1961 and mines rules etc., The mining operations in this area is providing socio economical support to the local people. Therefore the existence of mining operations and quarry lease for commercial, dimensional block granite will be additional support for self employment as well as employment to the local people. The 'Srikakulam Blue' granite industry is a unique product available only at this part of the world. The characteristic wavy granite has got its own world popularity and enormous commercial demand. This granite is reaching far away places like China, Japan, Malaysia, Australia, Italy, Germany, America and Russian countries. Therefore this industry should be supported as the national interest.

The mining plan is prepared by

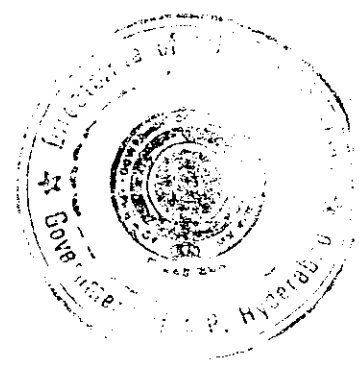
  
APPLICANT  
(Authorised Signatory)

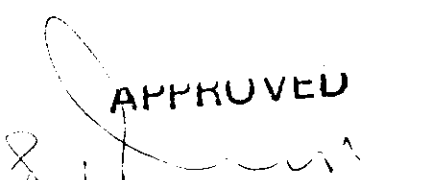
  
S.N. SURESHA, RQP

Place: Hyderabad.  
Date: 2/6/2004.

(Reg.No.RQP/HYD/106/94/A)  
(RQP/DMG/HYD/001/2001)  
HYDERABAD

This Mining Plan is Approved subject to the  
Conditions/Stipulations Indicated in the  
Mining Plan Approval Letter No.....  
19300/R/MP/2004, dated 22.06.2004.



  
**APPROVED**  
**P. Rajasekhari Reddy**  
Joint Director  
Dept. of Mines and Geology.  
Govt of A.P. Hyderabad.

**GEOLOGICAL RESERVES -**

Annexure : I

(Total applied area : 3 Hectare (30,000 m<sup>2</sup>) - M/s Madhucon Granites Ltd.,)

CS	Cat of Res.	CSA x (m <sup>2</sup> )	CSI (m)	Geol. Res.(m <sup>3</sup> )
(1)	(2)	(3)	(4)	(5)
AA'	Pvd.	2310	150	346500
	Prb.	630	..	94500
	Pos.	630	..	94500
RR'	Pvd.	1995	60	119700
	Prb.	635	..	38100
	Pos.	635	..	38100
CC'	Pvd.	1996	155	309380
	Prb.	635	..	98425
	Pos.	635	..	98425

Cat of Res.	Geol. Res.(m <sup>3</sup> )	(-)20% voids (m <sup>3</sup> )	Net Res. (m <sup>3</sup> )	% of Rec.	P. Gr. m <sup>3</sup>	Waste m <sup>3</sup>
1	2	3	4	5		
Pvd.	775580	155116	620464	15	93070	527394
Prb.	231025	46205	184820	..	27723	157097
Pos.	231025	46205	184820	..	27723	157097
Total	1237630	247526	990104	..	148516	841588
(-)*1	247620					
M. Res.	990010	198002	792008	..	118801	673207

CS : Cross Section ; Cat.: Category; CSA : Cross Sectional Area; CSI : Cross Sectional Influence; Vol. : Volume; % of Rec. : Percentage of Recovery; P Gr.: Prime Granite Reserves; M.Res. : Mineable Reserves.

# 20 % of 101700 m<sup>3</sup> of considered as voids between boulders, that quantity is deducted to arrive actual boulder reserves.

\*1 : (Less) Reserves locked in mines safety slope (60° angle) :

Location	length (m)	width(m)	height(m)	reserves (m <sup>3</sup> )
Northern side boundary :	260	15	43	167700
Southern " " :	240	4	12	11520
Eastern " " :	150	8	27	32400
Western " " :	160	9	25	36000
<b>Total Reserves :</b>				<b>247620</b>



Life of the mine : mineable reserves of 990010 / proposed production of 26220 = 37.76 Yrs.

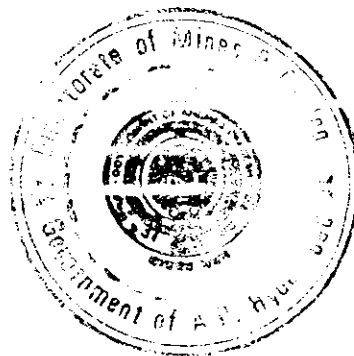
Say. 38 Years

PRODUCTION and DEVELOPMENT SCHEME  
FOR FIRST 5 YEARS PERIOD  
(3.00 Ha. - M/s Madhucon Granites Ltd.,)

(Please refer plate No. IV)

Yr	Be nch	SIZE OF THE PIT:			Volume (m <sup>3</sup> )	(-) 20 % Voids (m <sup>3</sup> )	Net Gr. Prod. (m <sup>3</sup> )	15% Pm Gr.Prod. (m <sup>3</sup> )	Stony Waste (m <sup>3</sup> )	B. L.
		Lngh (m)	Wdh (m)	Dpth (m)						
I	2	3			4	5	6	7	8	9
I	1	47	24	5	5640					117.5
"	2	82	"	5.5	10824					112
		Total			16464	3293	13171	1976	11195	
II	1	70	18	2	2520					107
"	2	"	"	4	5040					103
"	3	"	"	6	7560					97
"	4	"	"	4.5	5670					92.5
		Total			20790	4158	16632	2495	14137	
III	1	85	20	4	6800					103
"	2	"	"	6	10200					97
"	3	"	"	4.5	7650					92.5
"	4	"	"	5	8500					87.5
		Total			33150	6630	26520	3978	22542	
IV	1	95	20	2	3800					103
"	2	"	"	6	11400					97
"	3	"	"	4.5	8550					92.5
"	4	"	"	5	9500					87.5
		Total			29450	5890	23560	3534	20026	
V	1	96	21	6	12096					97
"	2	"	"	4.5	9072					92.5
"	3	"	"	5	10080					87.5
		Total			31248	6250	24998	3750	21248	
5	Yr.	Total			131102	26220	104882	15732	120614	
1	Yr.	Avrg			26220	5244	20976	3146	17830	

Yr/B : Year / Bench; BL : Bottom Level;



S.N.SURESHA  
RQP

Received  
RQP/DE/HYD/0014

No. IV)

	B. L.
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GOVERNMENT OF ANDHRA PRADESH  
DEPARTMENT OF MINES AND GEOLOGY

OFFICES OF THE ASST. DIRECTOR OF MINES AND GEOLOGY, SRIKAKULAM.

(Present: Sri C.V. Raghava Rao, M.Sc., Tech, Asst. Director)

Proc. No. 1892/94.

Dated 7-3-94.

Subj: Mines and Geology - Quarry lease for colour granite over an extent of 3.00 Hec. in S. No. 53 of Tankali Village and Mandal, Srikakulam District - Granted in favour of M/s Madhucan Granites Ltd. Execution of Lease Deed - Work Order - Issued - Regarding.

Ref: 1. Proc. No. 4556/K1/94, dated 27-6-94 of the Director of Mines and Geology, Hyderabad.

2. D. Dis. 2069/94, dated 16-5-94 of the District Collector, Srikakulam.

3. Letter dated 1-3-94 of M/s Madhucan Granites Ltd.

As quarry lease granted in favour of M/s Madhucan Granites Ltd. for colour granite in S. No. 53 of Tankali Village and Mandal, Srikakulam District over an extent of 3.00 Hec. on the 15 years lease basis executed on 17-3-94 by the undersigned authority stands valid for a period of 15 years from 7-3-94 to 16-3-2009.

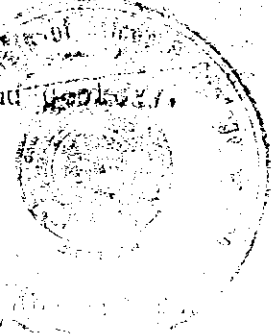
M/s Madhucan Granites Ltd., through its duly permitted agent, are to work the quarry area and on the provisions of A.P.M.G. Rules, 1966 and conditions laid down in G.O.M. No. 217, dated 17-1-92 issued by the Government, Hyderabad and on the conditions laid down in the order of the undersigned authority, S. No. 1098 dated 16-5-94 and in the order of the undersigned District Industries Officer, the undersigned authority, Director of Mines and Geology, Srikakulam, the Dy. Director of Mines and Geology, Vijayanagara and the Director of Mines and Geology, Hyderabad. This work order is issued subject to the condition that the lessee shall not exercise the right to open the quarry lease granted under section 10 of A.P.M.G. Rules, 1966 without applying any revenue stamp and the conditions imposed in the quarry order and approved by the undersigned authority.

HA

Asst. Director of Mines and Geology,

M/s Madhucan Granites Ltd.,  
New Complex, Jubilee,  
Ramp. Co. Fl. 1-7-17,  
Sri. 201-5

Copy submitted to the Director of Mines and Geology, Hyderabad.  
Copy submitted to the Dy. Director of Mines and Geology, Vijayanagara.  
Copy submitted to the District Industries Officer, Srikakulam.



M/s Madhukon Granite Ltd.

Annexure IV

Granite Processing Plant :

Cutting Machineries

1. Block- Saw 3 Nos.
2. Edge Cuttings 2 Nos.
3. Notch- Cuttings 1 Nos.
4. Millings 1 Nos.
5. Hand Cuttings 1 Nos.
6. Dia- Deck 1 Nos.

Polishing Machineries

1. G.B. 530 1 Nos.
2. G.B. 615 1 Nos.
3. Jenlin 2 Nos.
4. BGM Machines 1 Nos.
5. Devick 1 Nos.
6. Hand Polishing 4 sets.
7. Chambering 1 Nos.

Workers :

For Cutting Machines : 30 Nos.

For Polishing Machines : 20 Nos.

For Miscellaneous : 15 Nos.

Annual turn-over : Rs. 2.5 Crore.

The approximate annual production is said to be 1000 Sq. Ft., and 150 Tons (6 containers) of granite monuments and tomb stones in a month.



*S.N. Sureshia*

S.N. SURESHIA RQP



Photo No. I: Exposure of Granite Boulders.



Photo No. II: Workings at Pit No. I.



*Handwritten signature*