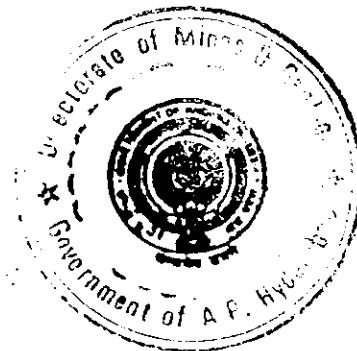


MINING PLAN FOR COLOUR GRANITE
OVER AN EXTENT OF 6.000 Hectare, IN S.No. 53 OF TEKKALI VILLAGE & MANDAL,
SRIKAKULAM DISTRICT, ANDHRA PRADESH STATE, INDIA

(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

Sri. S.N. SURESHA, M.Sc., (Geol.) **APPROVED**
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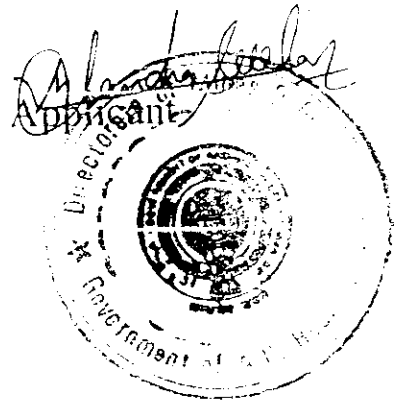
(2004)

DECLARATION

Certified that the Mining Plan for Colour Granite,
Over an extent of 6.000 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



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 6.000 Hectare,
at S.No. 53 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

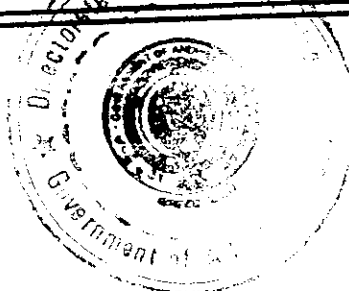


S.N. Suresha M.Sc.,
Recognized Geologist
(RQP/HYD/106/94/A)
(RQP/DMG/HYD/001/2001)
Hyderabad.

S. N. Suresha

Recognized Geologist

RQP/HYD/106/94/A



CONTENTS

| | | |
|-----|---------------------------------|----|
| 1.0 | INTRODUCTION/ GENERAL | 1 |
| 2.0 | LOCATION & ACCESSIBILITY | 2 |
| 3.0 | GEOLOGY | 3 |
| 4.0 | DETAILS OF PROSPECTING | 5 |
| 5.0 | GEOLOGICAL RESERVES | 6 |
| 6.0 | MINING | 7 |
| 7.0 | SCHEME OF WASTE MANAGEMENT PLAN | 10 |
| 8.0 | ENVIRONMENT MANAGEMENT PLAN | 13 |
| 9.0 | ANY OTHER RELEVANT INFORMATION | 16 |

ANNEXURES:

Geological Reserves : I
Five years working : II.

PHOTOGRAPHS

ANNEXURES

| | | |
|---------|-------------------------|---------------|
| PLATES: | 1. LOCATION PLAN - | PLATE NO. I |
| | 2. LEASE SKETCH - | PLATE NO. II |
| | 3. GEOLOGICAL PLAN - | PLATE NO. III |
| | 4. WORKING PLAN - | PLATE NO. IV |
| | 5. ENVIRONMENTAL PLAN - | PLATE NO. V |



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OVER AN EXTENT OF 6.000 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)

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

Mining Plan Approval Letter No.....

19302/R-1/MP/2006, dated 22-06-2006.

1.0 INTRODUCTION :

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 6.000 Hectare at S. No. 53 of Tekkali Village & Mandal, Srikakulam Dt. AP State. The lease was granted on 22/10/97 vide D. M & G Hyderabad Proceeding No. 14374/ R1- 31 /94 dated 22/10/97. It was executed at office of Asst. Director of Mines & Geology, Srikakulam vide their Proceeding No. 3642/Q/97 dated 3/11/1997. The lease is valid for 15 years and it is due for renewal on 2/11/2012. They are operating the mine since 1997, and have produced about 5000 m³ 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,
Jublipura,
Khammam- 507 001 AP

APPROVED

P. Rajasokhar 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 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 valid up to 2/11/2012.

1.5 *Name, Address And Registration Number Of The Recognized Person Who Prepared 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 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 | 6.000 | Govt. Land |

Boundaries : Boundaries :- North : Q.L. area of M/s Prameela Granites; South : Their own Land; West : South-India Granite; East : Venkatesh Granites;



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.

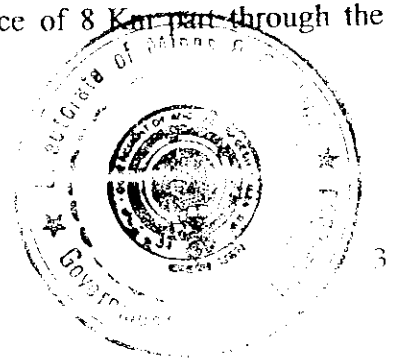
3.0 GEOLOGY AND RESERVES:

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 170 m RL. Whereas lowest level is recorded to be 105 RL. at south-east end. The height ranges from 65 to 70 m from ground level.

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 Charnokites 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 plain country with isolated hillocks and rises as continuous hill range towards west presenting a rugged topography with lush green vegetation. The area is drained by two prominent rivers originating from Orissa, namely Nagavali and Vamshadhara passing almost parallel to one another at a distance of 8 Km apart through the district and joins the Bay of Bengal.



The Srikakulam – Vizianagaram- Vishakapatnam area exposes mainly Khondalite – Charnokite suite of rocks forming a part of the EGGB which include Charnokite, Khondalite – Charnokite to pyroxenic granite, 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 |

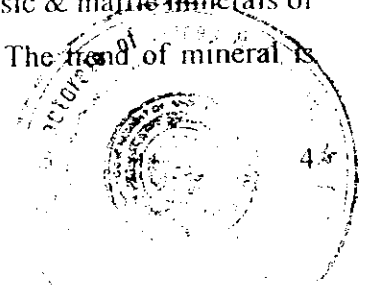
3.3 Local Geology :

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 70 m towards north from southern boundary. The granite in this area occur as concealed garnetiferous 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 aphanetic ferromagnesium are also observed as accessories. The granite in this area is hard and compact with medium-course 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 1997. As on date the mine is having few working pits which are producing dimensional granite through out the lease area. The pits are having varying sizes varies from 20 x 8 x 3 m size to 65 x 25 x 8 m size, in which 42555 m³ of material might have been excavated. In this area the lessee has produced about 5000 m³ of dimensional granite since 1997.

| Location | Size of the benches in the Pit | | | | Remarks |
|----------------------------|--------------------------------|-----------|-----------|--------------------------|---|
| | Length (m) | Width (m) | Depth (m) | Volume (m ³) | |
| Pit No.1: At 150 RL N-W | 20 | 8 | 3 | 480 | 0- 6 m : boulders embedded in Soil cover 0 - 7 m : Granite Boulders. |
| Cutting 2: at 160 RL NE | 65 | 25 | 8 | 13000 | Boulders cutting from surface |
| Cutting 3: at 150 RL NE | 40 | 10 | 5 | 2000 | Boulders cutting |
| Cutting 4: at 130 RL East | 45 | 40 | 10 | 18000 | Boulders cutting |
| Cutting 5: at 125 RL South | 35 | 15 | 8 | 4200 | Boulders cutting |
| Cutting 6: at 115 RL South | 35 | 25 | 3 | 2625 | Boulders cutting |

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 105 m RL to 170 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 ³) | (-)20% voids (m ³) | Net Res. (m ³) | % of Rec. | P. Gr. m ³ | Waste m ³ |
|-------------|-----------------------------|--------------------------------|----------------------------|-----------|-----------------------|----------------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Pvd. | 1850184 | 370037 | 1480147 | 15 | 222022 | 1258125 |
| Prb. | 351170 | 70234 | 280936 | .. | 42140 | 238796 |
| Pos. | 351170 | 70234 | 280936 | .. | 42140 | 238796 |
| Total | 2552524 | 510505 | 2042019 | .. | 306303 | 1735716 |

Total Geological Reserves = 2552524 m³
Total Prime Granite Reserves = 306303 m³
Total waste = 1735716 m³

Mineable reserves and the life of the mine:

The reserves locked in mines safety slope along lease boundary, bordering with neighboring mine is considered to be deducted during calculation of mineable reserves. The quantity of such reserves is arrived to be 804336 m³ as given in Annexure-I. Therefore the mineable reserves are arrived as following.

Geological reserves of 2552524 - Reserves locked in mines safety slope 804336 = 1748188 m³.

The details of calculation is given in Annexure I. The applicant is proposed to produce 16732 m³ of (2008 m³ prime dimensional blocks) granite per year. There fore the life of the mine is arrived as below:

Mineable reserves = 1748188 m³

Annual production = 16732 m³ = 104.4 years. Say 104 Years.

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

a) *Type of Mining:*

Open cast 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.

In this area the boulders of different size are having good quality, therefore they will be cut to produce required size blocks under production programme. Since most of the boulders are useful the mining for production and development work such as removal of small stones and weathered granite on surface will go hand in hand. The wastes produced during production is anticipated to be 11378 m³ per year. In first 5 years total quantity of waste of 57887 m³ will be generated. Such kind of waste will be disposed off at low levels of the hillock and part of it will be dumped at dumping yard situated at western side of the lease area in their own lands. The details of waste removed during development of mine is given in Annexure II.

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 | Poclaim | 2.75 m ³ 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 130 RL to 125 RL at south-eastern side of the area by cutting a bench of 7.5 m height in 111 m length, 22 m width area adjoining the working pit. In this year 18315 m³ of granite will be produced. After removing 20 % void space, 14652 m³ of net quantity of granite will be produced. Anticipating 15% recovery the prime granite of 2198 m³ will be produced. During this period 12454 m³ of waste will be generated. At the end of the year the bottom level will reach 120 RL.

In second year the bench will move towards north to work in 115 m length 15 m width and 2.5 m depth, to produce 4313 m³ of granite in first attempt. In second attempt 5 m height bench will be cut to produce 8625 m³ granite in same extent of area. In 3rd attempt same quantity of granite will produced by working in same extent of area. In this area total quantity of 21563 m³ of granite will be produced. After removing 20 % void space it will be 17250 m³ of granite. Anticipating 15 % recovery, in this area 2588 m³ of prime granite will be produced along with 14662 m³ of waste. At the end of the year the bottom RL will reach 120 m.

In 3rd year it is proposed to produce 2430 m³ of prime granite by cutting 3 benches of 2.5 m height in first attempt in an area of 108 m length, 15 m width at 135-140 RL. Further benches each of 5 m depth will be cut to produce 8100 m³ of granite in each attempts. At the end of the year 2430 m³ of waste will be generated. The bottom RL proposed to reach 125 m.

In 4th year it is proposed to produce 3131 m³ of prime granite by working at north of 3rd year production place. In first attempt 107 m length, 14 m width and 2.5 m height bench will be cut to produce 3745 m³ granite. In second attempt 5 m height bench will be cut to produce 7490 m³ of granite. In third and fourth attempts again 5 m height benches will be cut in same extent

area, to produce 7450 m³ of granite in each attempts. At the end of the year total quantity of 26095 m³ of granite will be produced, the bottom level will reach 125 m RL. Anticipating 15 % recovery, prime granite of 3131 m³ will be produced.

In 5th year the production will be done at 145-150 RL. In this area 3 benches will be cut to produce 1890 m³ of prime granite, by cutting in an area of 1260 m². In first attempt 2.5 m height bench will be cut. In 2nd and 3rd attempts 5 m height benches will be cut to produce 6300 m³ of granite will be produced in each attempts. At the end of the year the bottom RL of 135 m will be reached. The waste of 10710 m³ 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 2/11/2012, 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.

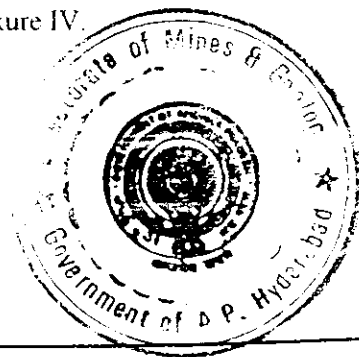
Class 6, ,, I = 2000 mtrs.

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

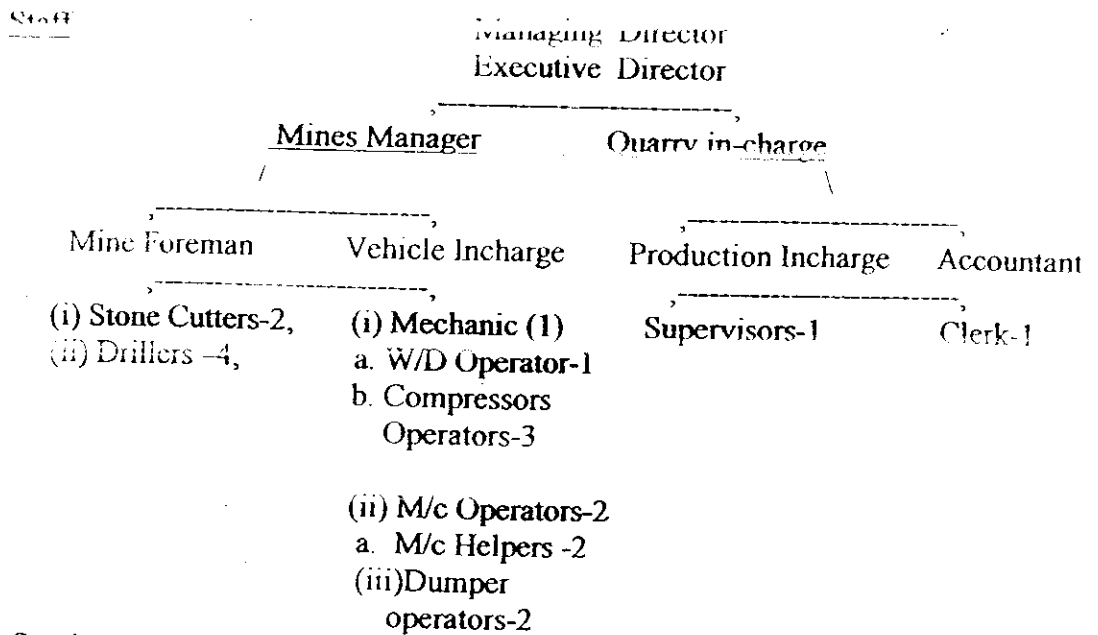
ED - 2000 Nos.

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.



g) *Organization Chart :*



Site Services :

The lessee company has provided well established site services such as medical aid 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.

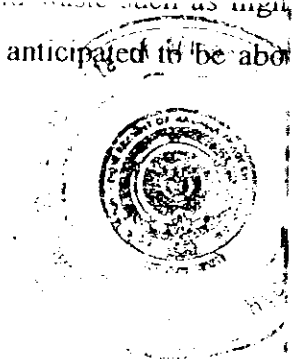
(h) *Market analysis :*

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 and 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.

7.1 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 57887 m³ in first 5 years period.



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

The lease period is ending on 2012, therefore till then the anticipated waste generation is expected to be about 91024 m^3 ($11378 \times 8 = 89150 \text{ m}^3$) at the rate of 11378 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.

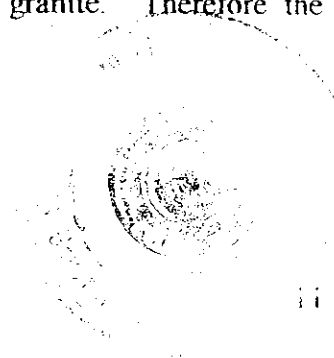
Liquid Waste : In this area no Liquid waste is anticipated.

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.



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 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 worker 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. I

| 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 6.00 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.

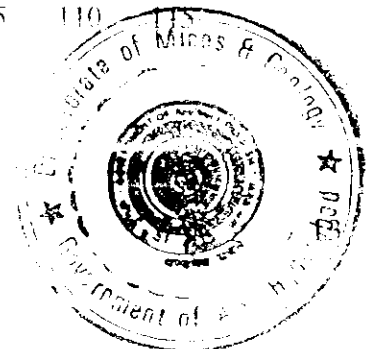
| Sl.No. | Charectoristics | Desirable Limit | Maximum Permissible Limit |
|--------|-----------------|-------------------|---------------------------|
| 1. | Colour | 5 | 25 |
| 2. | Odor & Taste | Un Objectionable | Un Objectionable |
| 3. | Turbidity | 5 NTU | 10 NTU |
| 4. | pH value | 6.5 to 8.5 | 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 ³ | 360 mg/m ³ |
| RSPM = | 60 mg/m ³ | 120 mg/m ³ |
| SO ₂ = | 40 mg/m ³ | 80 mg/m ³ |
| NO ₂ = | 40 mg/m ³ | 80 mg/m ³ |
| CO = | 1.0 mg/m ³ | 5.0 mg/m ³ |

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 | 1/2 | 1/4 | 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 much blasting and no utility of more explosives in this mine. The vibration causes due movement of people and vehicles is under control

vii) Socio-Economic conditions: There shall have positive impact in the rural area as the 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.

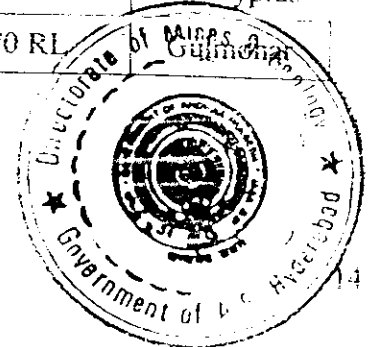
8.3 Environmental Management :

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 other adverse 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 st Year | 20 | 1 | North-west dump 135 RL | Eucalyptus |
| 2 nd Year | 20 | 1 | South-west 110 RL | Eucalyptus |
| 3 rd Year | 20 | 1 | South side 105 RL | Gulmohar |
| 4 th Year | 20 | 1 | South-east dump 123 RL | Eucalyptus |
| 5 th Year | 20 | 2 | Northern side 170 RL | Gulmohar |



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.

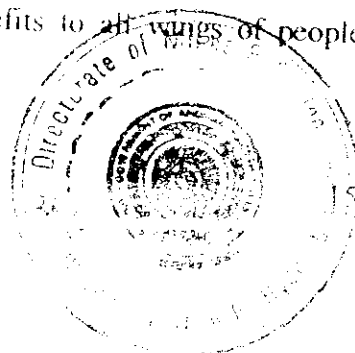
vi) Measures for dust suppression: Water sprinkling will be carried out on mine benches and haulage roads regularly. The dust arises at drilling hole will be suppressed by putting cloth at drilling hole. The laborers will be provided with Respirators etc., for using during drilling.

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.


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



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)

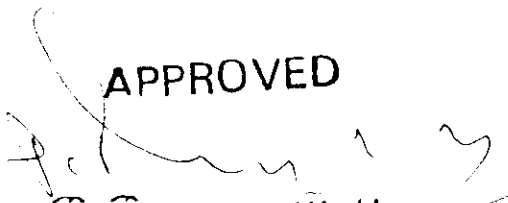


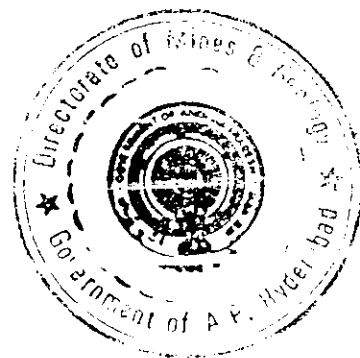
S.N. SURESHA, RQP

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.....
19302/2004 dated 22-06-2004.

APPROVED

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



GEOLOGICAL RESERVES -

Annexure : I

(Total applied area : 6 Hectare (60,000 m²) - M/s Madhucon Granites Ltd.,
Tekkali 53, Skm.

| CS | Cat of Res. | CSA x (m ²) | CSI (m) | Geol. Res.(m ³) |
|-----|-------------|-------------------------|---------|-----------------------------|
| (1) | (2) | (3) | (4) | (5) |
| AA' | Pvd. | 4956 | 109 | 540204 |
| | Prb. | 530 | „ | 57770 |
| | Pos. | 530 | „ | 57770 |
| BB' | Pvd. | 4832 | 60 | 289920 |
| | Prb. | 560 | „ | 33600 |
| | Pos. | 560 | „ | 33600 |
| CC' | Pvd. | 4851 | 60 | 291060 |
| | Prb. | 525 | „ | 31500 |
| | Pos. | 525 | „ | 31500 |
| DD' | Pvd. | 6593 | 60 | 395580 |
| | Prb. | 920 | „ | 55200 |
| | Pos. | 920 | „ | 55200 |
| EE' | Pvd. | 5557 | 60 | 333420 |
| | Prb. | 1045 | „ | 62700 |
| | Pos. | 1045 | „ | 62700 |
| FF' | Pvd. | 5735 | 120 | 688200 |
| | Prb. | 920 | „ | 110400 |
| | Pos. | 920 | „ | 110400 |

| Cat of Res. | Geol. Res.(m ³) | (-)20% voids (m ³) | Net Res. (m ³) | % of Rec. | P. Gr. m ³ | Waste m ³ |
|-------------|-----------------------------|--------------------------------|----------------------------|-----------|-----------------------|----------------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Pvd. | 1850184 | 370037 | 1480147 | 15 | 222022 | 1258125 |
| Prb. | 351170 | 70234 | 280936 | „ | 42140 | 238796 |
| Pos. | 351170 | 70234 | 280936 | „ | 42140 | 238796 |
| Total | 2552524 | 510505 | 2042019 | „ | 306303 | 1735716 |
| (-) *1 | 804336 | | | | | |
| M. Res. | 1748188 | 349638 | 1398550 | „ | 209783 | 1188767 |

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



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

| Location | Length (m) | width(m) | height(m) | reserves (m ³) |
|--------------------------|--------------------------|----------|-----------|----------------------------|
| Northern side boundary : | 175 | 15 | 40 | 105000 |
| North-eastern side ,, : | 293 | 24 | 73 | 513336 |
| Southern ,, ,, : | 166 | 5 | 10 | 8000 |
| Eastern ,, ,, : | 178 | 20 | 50 | 178000 |
| Western ,, ,, : | their own land is there. | | | |
| Total Reserves : | | | | 804336 |

Life of the mine : mineable reserves of 1748188 / proposed production of 16732 = 104.4
Say, 104 Years.

S.N. SURESHA

RQP

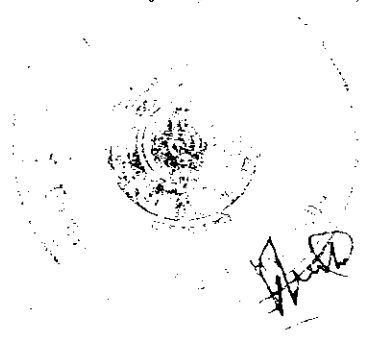


**PRODUCTION and DEVELOPMENT SCHEME
FOR FIRST 5 YEARS PERIOD
(6.00 Ha. Tekkali - M/s Madhucon Granites Ltd.,)**

| Sl. No. | Bench | SIZE OF THE PIT | | | Volume (m ³) | (-) 20 % Voids (m ³) | Net Gr. Prod. (m ³) | 15% Perm Gr. Prod. (m ³) | Stony Waste (m ³) | R. L. |
|---------|-------|-----------------|-----------|-----------|--------------------------|----------------------------------|---------------------------------|--------------------------------------|-------------------------------|-------|
| | | Length (m) | Width (m) | Depth (m) | | | | | | |
| I | 2 | 3 | | | 4 | 5 | 6 | 7 | 8 | 9 |
| I | 1 | 111 | 22 | 7.5 | 18315 | 3663 | 14652 | 2198 | 12454 | 120 |
| II | 1 | 115 | 15 | 2.5 | 4313 | | | | | 130 |
| " | 2 | " | " | 5 | 8625 | | | | | 125 |
| " | 3 | " | " | 5 | 8625 | | | | | 120 |
| | | Total | | | 21563 | 4313 | 17250 | 2588 | 14662 | |
| III | 1 | 108 | 15 | 2.5 | 4050 | | | | | 135 |
| " | 2 | " | " | 5 | 8100 | | | | | 130 |
| " | 3 | " | " | " | 8100 | | | | | 125 |
| | | Total | | | 20250 | 4050 | 16200 | 2430 | 13770 | |
| IV | 1 | 107 | 14 | 2.5 | 3745 | | | | | 140 |
| " | 2 | " | " | 5 | 7450 | | | | | 135 |
| " | 3 | " | " | 5 | 7450 | | | | | 130 |
| " | 4 | " | " | 5 | 7450 | | | | | 125 |
| | | Total | | | 26095 | 5219 | 20876 | 3131 | 17745 | |
| V | 1 | 90 | 14 | 2.5 | 3150 | | | | | 145 |
| " | 2 | " | " | 5 | 6300 | | | | | 140 |
| " | 3 | " | " | 5 | 6300 | | | | | 135 |
| | | Total | | | 15750 | 3150 | 12600 | 1890 | 10710 | |
| 5 | Yr. | Total | | | 83658 | 16732 | 66926 | 10039 | 57887 | |
| 1 | Yr. | Avg | | | 16732 | 3346 | 13386 | 2008 | 11378 | |

(Please refer plate No. IV)

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



S.N.SURESHA
RQP

GOVERNMENT OF ANDHRA PRADESH
DEPARTMENT OF MINES AND GEOLOGY

PROCEEDINGS OF ASST. DIRECTOR OF MINES AND GEOLOGY: SRIKAKULAM.
(Present: SRI. D. SANTHAPPA, M.Sc.,)

Proc.No. 3642/Q/97.

Dated 3-11-1997.

Sub: MINES AND QUARRIES - Quarry Lease for colour granite over an extent of 6.00 Hec., in S.No.53 of Tekkali Village and Mandal, Srikakulam District. Granted in favour of M/s Madhucon Granites Ltd - Execution of Lease Deed - Work Orders - Issued - Re

Ref: 1. Proc.No. 14374/R1-3h/94, dt. 22-10-97 from the Director of Mines and Geology, Hyderabad.

2. Letter dated 3-11-97 from M/s Madhucon Granites Ltd

ORDER:

The Quarry Lease granted in favour of M/s Madhucon Granites Limited, Khanmam for colour granite in S.No.53 of Tekkali Village and Mandal, Srikakulam District over an extent of 6.00 Hec. for a period of 15 years has been executed on 3-11-97 by the undersigned. The Quarry Lease is valid for a period of 15 years from 3-11-97 to 2-11-2012.

M/s Madhucon Granites Ltd, Khanmam is hereby permitted to enter and work the quarry area under the provisions of APMNC Rules, 1966 and conditions laid down in G.O.Ms.No.317, Industries and Commerce Department, dt.9-7-93 and subsequent instructions issued on the matter from time to time. The lessee should submit the Quarterly returns to the concerned Asst. Director of Mines and Geology, Srikakulam, the Dy. Director of Mines and Geology, Visakhapatnam and the Director of Mines and Geology, Hyderabad. This work order is issued subject to the condition that the Government reserve the right to cancel the quarry lease granted and executed under A.P.M.&C. Rules, 1966 without assigning any reasons and giving notice and the conditions imposed in the grant order and Appendix.

ASST. DIRECTOR OF MINES AND GEOLOGY,
SRIKAKULAM.

To
M/s Madhucon Granites Ltd,
1-7-70, Madhu Complex,
Sublipada, KHANMAM-507 003.

- Copy submitted to the Director of Mines and Geology, Hyderabad for favour of information.
- Copy submitted to the Dy. Director of Mines and Geology, Visakhapatnam for favour of information.
- Copy submitted to the Dt. Collector, Srikakulam for favour of information.
- Copy submitted to the Chief Executive Officer, Z.P. Srikakulam for favour of information.
- Copy submitted to the Revenue Divisional Officer, Tekkali for favour of information.
- Copy to the Mandal Revenue Officer, Tekkali for information.
- Copy to the Mandal Development Officer, Tekkali for information.
- Copy to the Surpanch, Tekkali Village and Mandal, Srikakulam District for information.

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.

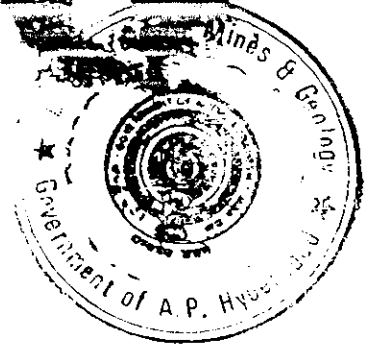
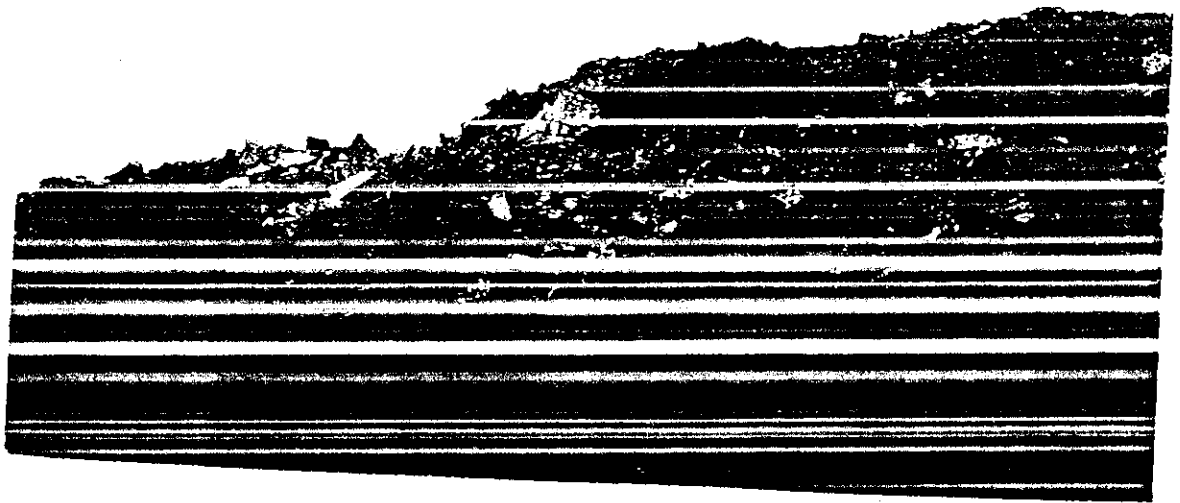
The approximate annual production is said to be 1000 Sq Ft. and 150 Tons (6 containers) of granite monuments and tomb stones in a month


S.N.SURESHA RQP

Photo No. I: Exposure of Granite Boulders, at Surface ground level.



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



Handwritten signature or initials.