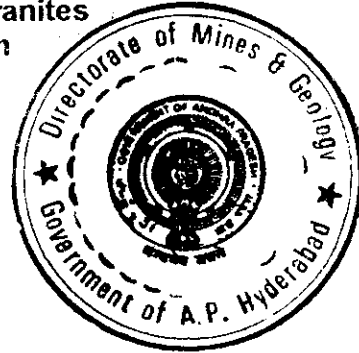


MINING PLAN FOR COLOUR GRANITE
Over an extent of 5.00 Hectares in Sy. No. 53
of Tekkali (V) & (M), Srikakulam Dist. A.P.

For

transformed to
11/10/07

M/s Gautham Granites
Srikakulam



APPROVED

Prepared by

V.T. Chander

Consultant Geologist & RQP
(RQP/DMG/HYD/02/2001)

H.No. 10-1, Flat No. 202, Mahalaxmi Ganapathi Complex,
Sai Baba Temple Lane, Beside Sri Sai Grammer High School,
P & T Colony, Dilsukhnagar, Hyderabad - 500 060.

☎ : 55618351, 24068218 ☎ : 31056234

11/10/07

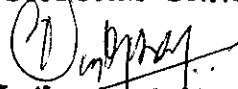
CERTIFICATE

This is to certify that Mining Plan in respect of Quarry Lease area over an extent of 5.00 Hectares, Sy. No. 53, Tekkali Village & Mandal, Srikakulam District, A.P. has been prepared by Sri V.T. Chander, Consultant Geologist & RQP and we agree to follow the same in accordance to the provision of Law.

Date :

Place :

For GAUTAM GRANITES



Authorised Signatory

For M/s Gautham Granites



CERTIFICATE

The provision of Granite Conservation and Development Rules 1999 have been Observed in the Mining Lease of COLOURED GRANITE, area over an extent of 5.00 Hectares, Sy. No. 53, Tekkali Village & Mandal, Srikakulam District, A.P. leased to M/s Gautham Granites, Srikakulam. Whenever specific permissions are required the applicant will approach the concerned authorities.

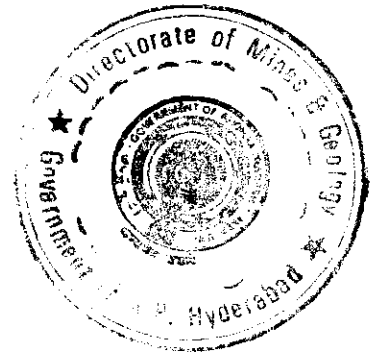
This is to certify that the information provided in the mining plan is correct to the best of my knowledge.

Date : 7-11-03

Place : Hyderabad

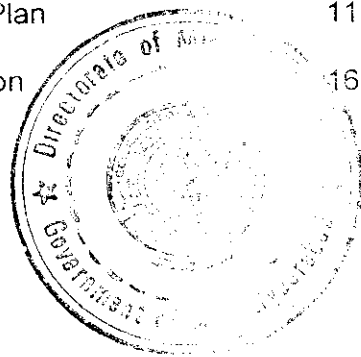

RQP 7/11

(V.T. Chander)



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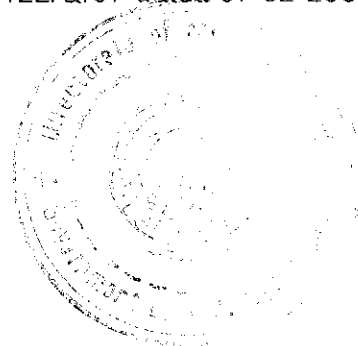


LIST OF PLATES

PLATE	TITLE	SCALE
I	Location Cum Key Plan	1 : 50,000
II	Lease Area Plan	1 : 2000
III	Surface Cum Geological Plan	1 : 1000
IV	Geological Cross Sections	1 : 1000
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LIST OF ANNEXURES

- I. Copy of the AD & DMG, Srikakulam, Proc. No. 122/Q/97 dated 07-02-2003
- II. Year Wise Production For 5 Years



MINING PLAN FOR COLOUR GRANITE
Over an extent of 5.00 Hectares in Sy. No. 53
of Tekkali (V) & (M), Srikakulam Dist. A.P.

For
M/s. Gautham Granites
Srikakulam

By

This Mining Plan is Approved subject to the
Conditions/Stipulations Indicated in the
Mining Plan Approval Letter No.....
..S.16.6/M.P.T./2003.. dated 27.11.2003

V.T Chander, Consultant Geologist & RQP

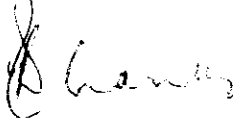
INTRODUCTION

M/s. Gautham Granite, Srikakulam, were granted Quarry Lease for Colour Granite over an extent of 5.00 Hectares in Sy. No. 53 of Tekkali Village & Mandal, Srikakulam Dist. A.P. for a period of 15 years. Vide Director, Department of Mines and Geology, Hyderabad. Proceedings No. 14078/R1-3H/94 dated 01-01-1997. The Quarry lease deed was executed by the Asst. Director, Mines and Geology, Srikakulam on 07-02-1997, vide Proceedings No. 122/Q/97 dated 07-02-1997.

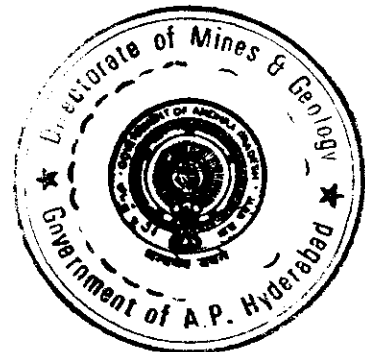
As per GCDR 1999, all existing quarries required to submit mining plans for approval.

M/s. Gautham Granites, Srikakulam, Approached Sri V.T. Chander, Consultant Geologist and RQP (RQP/DMGHyd/02/2001) For preparation of mining plan in the above mentioned quarry. Accordingly mining plan is prepared as per the guidelines given by Govt. India. Ministry of Steel & Mines, GCDR Rules 1999 under Rule 17(1).

APPROVED

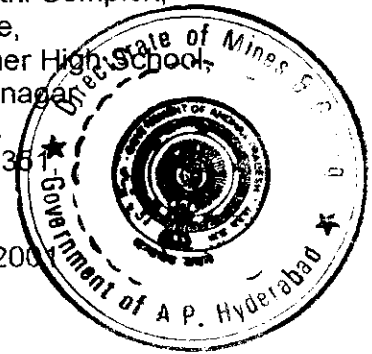


Dr. P. DAYASANKAR
JOINT DIRECTOR
DEPT. OF MINES & GEOLOGY
GOVT. OF A.P. HYDERABAD.



1.0 GENERAL

- a) **Name and address of the applicant** : M/s. Gautham Granites,
105, Surya Towers,
S.P. Road,
Secunderabad.
- b) **Status of the applicant** : Private Limited Company.
- c) **Granite Type / Colour** : Coloured Granite
- d) **Period of Quarry Lease Granted** : 15 Years (For the Period From
01-02-1997 to 31-01-2012).
- e) **Name and address of the RQP** : V.T. Chander
H.No. 10-1, Flat No. 202,
Mahalakshmi Ganapathi Complex,
Sai Baba Temple Lane,
Beside Sri Sai Grammer High School,
P & T Colony, Dilsukhnagar,
Hyderabad – 500 060.
☎ : 24068218, 55618357
☎ : 31056234
- f) **RQP Registration No.** : RQP/ DMG/HYD/02/200



2.0 LOCATION AND ACCESSIBILITY

Survey of India Toposheet No. 74 B/2 and is bounded East Longitude 84° – 12' – 00" and North Latitude 18° – 38' – 00".

Table No.1 Details of the Area

S.No.	District	Mandal	Sy. No. & Village	Lease Area in Ha	Type of Land	AD, M & G Surveyed Map
1	Srikakulam	Tekkali	53 Tekkali	5.00	GL	Enclosed as Plate - II

Infrastructure and Communication

- The Quarry is 5 Km North West of Tekkali. The area can be approached by Road from Tekkali – Temburu will lead to Site.
- Amenities like Post & Telegraph Office, Police Station, Primary Health Center etc., are available at Tekkali.
- Tekkali is the Mandal Head Quarters.
- Vishakapatnam Port is about 150 Km from area.
- Electricity is available at the Quarry area.
- The Ground Water level is about 6 to 7.0 Mts. below ground level at the foot hill.

Further vast potential exists for the employment of unskilled labour in the existing Granite Quarries and Allied Small-Scale Industries. The area experiences Semi – arid climatic conditions with an average Annual rainfall of 1000 mm. The local day temperature varies from 25° C in November to 48° C in April & May Months. The general wind direction reported is SW to NE and SE to NW.

Boundaries

North	:	I MGC Lease Area
South	:	Raghavendra Granites
East	:	Barren Lands
West	:	Shivam Exports

3.0 GEOLOGY

3.1 Brief Description of Topography

The Quarry area is located on Hill steeply sloping due South the relief of the area is between RL15 to RL120 (i.e. 105M) with in Lease area. Vegetation is developed in between the joints and soil areas. The area is unfit for agriculture as it is strewn with boulders. The Hill is dissected by deep Valley, which drains the rainwater from the lease area into a small tank. The area lying South of the Hills are Plain and Agricultural Lands.

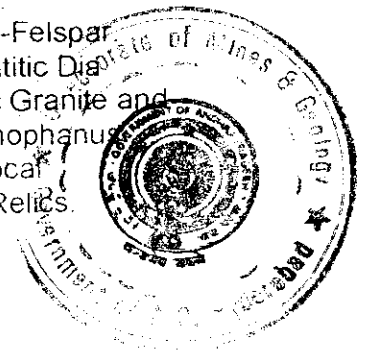
3.1.1 Regional Geology

The Eastern Ghat Mobile Belt (EGMB) is more than 600 Km in Length from Srikakulam in the North to Ongole in the South. This belt is more than 100 Km in Width in Northern Part and Tapers down to less than 20 Km in the South, it has broad arcuate trend with Westward convexity. The NNE -SSW trend in the southern part of the belt changes NE-SW in the North. EGMB is divided into 3 longitudinal zones viz

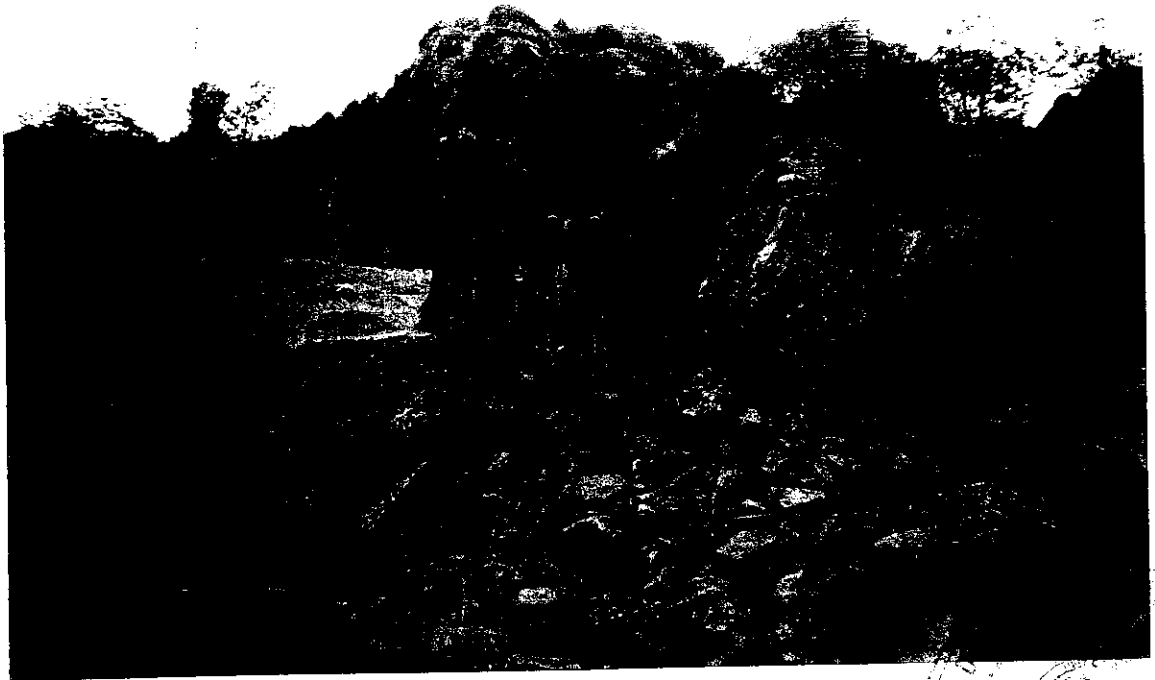
1. Western - Charnockitic Zone
2. Central - Kondalite Zone
3. Eastern - Migmatite Zone

While in the Northern parts in Srikakulam, Vizianagaram & Vishakapatnam Districts the central Khondalite Zone occupies major part of the area. where as Western Charnockite Zone occurs in the Southern part. The rocks in this belt are represented high-grade Granulite facies of Metamorphism and suffered by complex deformation. The stratigraphic succession of EGMB is as follows :

INTRUSIVES	Layered Anorthisites and associated Mafics and Chromiferous Ultra Mafics.
CHARNOCKITE GROUP	Charnockites with Mega Crystic K- Felspar Charnockite Two Pyroxene Granulite / Amphibolites.
KHONDALITE GROUP	Calc-Silicate-Granulites. Garnet - Silliminite - Quartz - Biotite - K - Felspar - Graphite Gneiss (Khondalite) Quartzite - Garnet - Silliminite.
GRANITOID SUITE	Granitoid with Mega Crystic K-Felspar Un differentiated (with Migmatitic Dis- Tectite, Augen) Perferoblastic Granite and Gniesses. Garnet- Biotite Homophanus Granite / Gniess. Leptinite, Local Charnockite Neosomes and Relics.



PHOTOGRAPH SHOWING SECONDARY SPLITTING AND THE QUARRY FACE



PHOTOGRAPH SHOWING THE CLEARANCE AND DEVELOPMENT OF FACE



In Srikakulam district the EGMB is represented by wide range of litho units Viz: Charnockites, Khondalites, Twopyroxene Granulites, Migmatites, Leptinites and Intrusive Porphyroblastic Charnockites. Large enclaves of Acid Charnockites, Khondalites and Meta-Basic rocks occur within Migmatites, which are largely seen in the area lying between R.Vamsadhara and Coast line.

3.2 Geology of the Area

The Migmatites and Migmatised Charnockite deposits are commercially known as "SRIKAKULAM BLUE". The Migmatite essentially consists of Blue Quartz and Bluish Grey to Light Grey Felspar with accessory minerals like Hypersthene, Hornblende and Biotite. The rock displays Wavy Banding, Ptygmatic folding of Bands, Paleosom – Mesosom – Leucosom and Minimal Lineation. A number of parallel slips trending N – S, NNW – SSE and NNE – SSW cut across the Wavy Banding, Pinching and Displacing the bandings that imparts additional beauty to the stone besides its Blue Colour. The arrested enclaves of Charnockite (Locally known as Oil Patches) and healed hairline fractures (Known as White and Coloured Lines) cutting across the Wavy Banding are considered defects.

Three sets of major joints :

1. N – S
2. N 35° W – S35° E
3. E – W

Brief Description of the Deposit

The Rock Mass exposed all along the western margin i.e. between E 00 – 150 is mostly defective with under sized boulders with fractures and fissures even to the depth of 6 M below.

The deposit between the Grids E 100 – 150 and N – 150 – 300 almost peak of the Hill show prominent sized boulders with less intensity of fracture & fissures. To reach the deposit to this height lot of clearance has to be made, as the angle of slope is almost 60°.

The Rock Mass has to be cleared and to be leveled by dumping the floating and defective boulders in the sloping area long the SW and Western boundary and the mining activity has to be taken up.

Lithology

The area is occupied single Litho – Logical Unit Migmatised Charnockites but on Weathering it has produced following litho type.

Between Grids E 00 – 150 all along the North – South
 0 – 0.5 Red Soil in between Boulders
 0.5 – 6 Weathered & Highly Fractured and Fissured Boulders
 6 M Below Fresh Boulders of Migmatised Charnockites

Between Grids E 100 – 150 & N 150 – 300
 0 – 6 M Large Size Boulders with dimensions of 10 x 6 x 5 M with intercalated defective boulders and soil.



4.0 EXPLORATION

4.1 Present Status

The mining plan is prepared for the existing Granite Mine under operation since 1997, by M/s. Gautham Granites.

The lease was granted Vide Proc. No. 14078/R1-3H/94 dated 01-01-1997 for a period of 15 Years.

The Mine is in operation since 1997. But due to operational difficulties the mining operations were discontinued and no production is achieved during 1997 – 2002.

- The Colour Granite from this area is export oriented. The entrepreneurs in the quarrying are interested in large blocks for export. Hence the small blocks were not taken into consideration. No attention was given for the local market.
- Excavation was taken up in large extent by exploring for the large defective less boulders upto 6 M below. No scientific method was implemented.

The details of Production Pits

Pit No.	Dimensions in Mtrs	Volume of Material Excavated Cu. Mtrs.	Depth	Lithology	Remarks
1	538 x 5 x 6	16,140	0 – 1.5 M 1.5 – 6 M	Weathered and Jointed Fresh Rock	During 1997-2001
2	100 x 5 x 6	3,000	0 – 2 M 2 – 6 M	Small Boulder & Soil Large Size Boulder with Side Boulder	During 2002-2003

Mining is restarted during 2002 and mining operation is in progress. 100 Mtrs Long and 6 Mtrs High Quarry face is developed facing West and aligned in N 20° W – S 20° E between grids E 100 – 200, N 100 – 150. Large Boulders are drilled and splitted. Quarry operation continued removing defective and undersized boulders.

4.2 Future Programme

Since the deposit is proved no further exploratory programme is recommended. Only quarrying the economic grade rough blocks (Discussed in the following chapters).

5.0 RESERVES

Geometry of Deposit

Geological Traverses and the study exposures on the hill facilitated to assess the shape and size of the deposit in the area. It is in irregular shape. The surface of sheet rock is wavy and irregular.

Method of Estimation of Reserves

The exposed deposit is found to be irregular in shape as it is exposed on hill, the volume is computed by Hence cross sectional area reserve estimation method is adopted, taking cross sections A-A1, B-B1, C-C1, D-D1 & E-E1

Cross Section	Cross Sectional Area in M ²	Sectional Influence M	Total Volume in M ³
A - A1	652.337	45	29,355.165
B - B1	776.1	50	38,805
C - C1	803.287	50	40,164.35
D - D1	1194.87	50	59,743.5
E - E1	1777.466	40	71,098.64
Total Rock Mass Estimated			2,39,166.65

(Deposit with Defective, Undersize Boulders and Soil Creep Constitute 40%)

$$= 95,66,666.1 \text{ M}^3$$

Total Geological Reserves

$$= 2,39,166.65 - 95,66,666.1 \text{ M}^3$$

$$= 1,43,499.99 \text{ M}^3$$

Categorization of Reserves

The deposit is exposed on Hill is treated as proved deposit

Total Mineable Reserves

The deposit blocked under safety slopes along the Eastern margin are not available from sections A-A1, B-B1 & C-C1 and part of D1 section. No deposit will be blocked under part of D1 & E-E1 as the hill is almost touching the ground level.

Deduction of Reserves blocked above under different areas from Total Geological Reserves indicate Total Mineable Reserves, which are as follow :

Cross Section	Along section	Deposit Blocked under 60° Safety Slopes in M ²	Sectional Length in M	Total Volume in M ³
A - A1	A1	242.53	45	10,905.885
B - B1	B1	264.839	50	13,241.95
C - C1	C1 and Part of D1	288.323	75	21,624.225
Total Rock Mass Blocked				45,772.06

Total Mineable Reserves = Total Geological Reserves - Deposit Blocked Under Safety Slopes

$$= 1,43,499.99 \text{ M}^3 - 45,772.06 \text{ M}^3$$

$$= 97,729.93 \text{ M}^3$$

The deposit in this area is highly defective with Fissures, Hairline Cracks, Black Lines and Colour Variation. Therefore recovery % of Rough Blocks is 40%

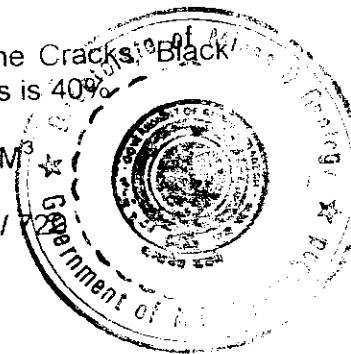
Commercial Grade Recoverable @ 40%

$$= 39,091.172 \text{ M}^3$$

Life of the Mine

$$= 39,091.172 / 722$$

$$= 54.3 \text{ Years}$$



6.0 MINING

6.A. Type of Mining

Quarrying of Colour Granite in the existing Quarry by Open Cast Semi - Mechanised Method.

6.B. Mining Operation Carried Out

The deposit was occurring as both floating boulders embedded in the soil and weathered zone and also the sheet.

The quarry was opened during the year 1997. In the first year developmental operations carried out include :

- Clearing of Bushes on the deposit, removal of Soil Cover and Small Floating Boulders.
- Laying of Roads on the deposit and developing the infrastructure at Quarry Site, such as Shelters, Office Room, Lavatory, Drilling of Bore Well for Drinking Water and Magazine etc.
- Deployment of Excavator for removal of over burden and boulders.

Pit No. 1

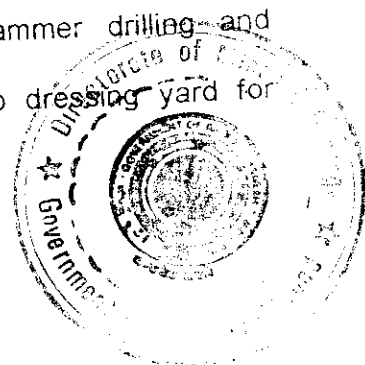
The mining operations were carried out starting from West of the lease area towards East Directions. A pit was developed in 538 x 5 x 6 Dimensional area but due to highly defective nature of the deposit production of Market Grade Blocks could not be retrieved hence the mining operations were discontinued.

Pit No. 2

During the mining period a bench of 538 M Long 6 M High 5 M developed around the steeply sloping sheet rock total 8,000 M³ of Waste Rock generated with negligible quantity of commercial grade rough, hence for the mining activity is stopped subsequently.

Proposed Mining Method

- Mining in previous years reveals most of the faces developed yielding the recovery of rough blocks due to inherent defects in the rocks.
- Therefore mining is proposed on the peak of the hill, where good quality of rock with less defects is noticed.
- Mining starts from Northern part of the area and advances towards South bench of 6 Mtrs will be proved aligned in E-W direction parallel to joint pattern of the rock. N - S & E - W Joints helps in retrieving of primary blocks from large boulders.
- Drilling of holes is followed by blasting will be taken up during primary separation, once the irregular rock mass is loosened.
- And the secondary splitting by means of jack hammer drilling and hammering will be resorted.
- After secondary splitting the block will be shifted to dressing yard for dressing.



6.C. Details Of Production So Far Mined From The Beginning Of The Quarry

The following are the details of dispatches made from the quarry, another 40 M³ of dressed blocks are available in the dressing yard.

Block No.	Gross Measurement	Volume
PGT - 69	220 x 115 x 083	2.099
PGT - 50	284 x 132 x 145	5.435
PGT - 70	272 x 188 x 172	8.795
PGT - 88	296 x 192 x 154	8.752
PGT - 87	293 x 173 x 165	8.363
PGT - 82	291 x 184 x 176	9.423
PGT - 84	284 x 204 x 202	11.703
PGT - 29A	269 x 108 x 077	2.237
PGT - 29B	265 x 107 x 073	2.069
PGT - 40A	260 x 108 x 061	1.712
PGT - 40B	257 x 113 x 66	1.916
PGT - 72A	292 x 103 x 071	2.115
PGT - 72B	294 x 104 x 071	2.201
PGT - 98	237 x 123 x 86	2.506
PGT - 99	205 x 132 x 102	2.760
PGT - 100	277 x 101 x 085	2.378
PGT - 101	205 x 117 x 075	1.798
Total Dispatches		76.262

6.D. Mining Programmed For The Next 5 Years

a) Scheme of Mining & Year Wise Production

During mining operations the applicant proposes to produce 720 Cu. Mtrs of Coloured Granite per year. In order to produce this quantity an area of 300 Sq. Mtrs will be utilized.

I Year

The mining operations start from North of the existing Pit No.1 West ting aligned in N - S and the grid East 50 - 100 and North 200 - 250 forming a bench height of 6 M and the bench will advanced towards East, During the first year a total area of 300 Sq. Mtrs will be utilized.

In the first year it is planned to produce 720 M³ of Economic Grade Rough Blocks. To produce this quantity an area of 300 (20 x 15) Sq. Mtrs will be utilised. Producing 1,800 Cu. Mtrs of Rock from which 40% (720 Cu. Mtrs) Economic Grade Rough Blocks will be obtained and 60% (1,080 Cu. Mtrs) of Waste Rock will be realized.

II Year

In the 2nd year the mining advances South of first year working in the grid East 50 - 100 and North 150 - 200. Maintaining average of 6 M Bench Height. An area of 600 Sq. Mtrs will be covered during the year.

In the second year it is planned to produce 720 M³ of Economic Grade Rough Blocks. To produce this quantity an area of 300 (20 x 15) Sq. Mtrs will be utilised. Producing 1,800 Cu. Mtrs of Rock from which 40% (720 Cu. Mtrs) Economic Grade Rough Blocks will be obtained and 60% (1,080 Cu. Mtrs) of Waste Rock will be realized.

III Year

In the 3rd year the mining will start from second year Pit between grids East 50 – 100 and North 150 – 200 E – W oriented faces advance further South maintaining average of 6 M Bench Height. An area of 30 Sq. Mtrs will be covered during this year.

In the third year it is planned to produce 720 M³ of Economic Grade Rough Blocks. To produce this quantity an area of 300 (20 x 15) Sq. Mtrs will be utilised. Producing 1,800 Cu. Mtrs of Rock from which 40% (720 Cu. Mtrs) Economic Grade Rough Blocks will be obtained and 60% (1,080 Cu. Mtrs) of Waste Rock will be realized.

IV Year

In the 4th year the mining will continue North to South from third Pit in the grids East 50 – 100 North 100 – 200. Maintaining average of 6 M Bench Height. An area of 300 Sq. Mtrs will be covered during this year.

In the fourth year it is planned to produce 720 M³ of Economic Grade Rough Blocks. To produce this quantity an area of 300 (20 x 15) Sq. Mtrs will be utilised. Producing 1,800 Cu. Mtrs of Rock from which 40% (720 Cu. Mtrs) Economic Grade Rough Blocks will be obtained and 60% (1,080 Cu. Mtrs) of Waste Rock will be realized.

V Year

In the 5th Year the mining will extend further South of 4th Year Pit in the grids East 50 – 100 North 100 – 150. North oriented faces advance further South maintaining average of 6 M Bench Height. An area of 300 Sq. Mtrs will be covered during this year.

In the fifth year it is planned to produce 720 M³ of Economic Grade Rough Blocks. To produce this quantity an area of 300 (20 x 15) Sq. Mtrs will be utilised. Producing 1,800 Cu. Mtrs of Rock from which 40% (720 Cu. Mtrs) Economic Grade Rough Blocks will be obtained and 60% (1,080 Cu. Mtrs) of Waste Rock will be realized.

The mine layout for production of Coloured Granite Rough Blocks first five years is showed in Plate No. V and VI.

b) Quantum of Excavation

In the first five years it is proposed to produce a total of 3,600 Cu. Mtrs of Commercial Grade Rough Blocks to obtain this at the rate of 40% recovery, a Huge Mass of Rock Waste will be generated. It is estimated that a total of 5,400 Cu. Mtrs Waste will be generated for the first 5 Years period with an average of 1,080 Cu. Mtrs of Waste / Year at this rate for balance lease period it estimated that 9,720 M³ of Waste is expected to be generated. Since this is an operating mine not much of the over burden expected to be generated.

c) Production Schedule

The production of Colour Granite continuous to through out year expect during monsoon. That is 10 Working Months, 20 Working Days Per Month are considered. The production of 720 Cu. Mtrs per year can be easily achieved in a single shift with sufficient men and machinery.

d) **Market Analysis**

The Company has established its deposit in the international market. The Coloured Granite rough blocks of gang saw size are having good demand in the international market with prices ranging from \$ 500 – 600.

e) **Magazine Type and Capacity**

Since the quarry was a non functional from the grant of mining lease. The applicant will now apply for the explosive license.

f) **Description of Processing Plant**

The firm doesn't possess granite-processing plant

g) **Organizational Chart**

Man Power at Quarry

Manager	1 No's
Supervisors	2 No's
Compressor Operators	2 No's
Tipper Drivers	2 No's
Hitachi Operators	1 No
Rig Operator	1 No
Crane Operator	1 No
Drivers	2 No's
Helpers	2 No's
Watch Man	2 No's
Cutters	14 No's
Drillers	25 No's

Besides 20 No's Unskilled Labourers are employed on daily wages

Machinery Proposed

Excavator (300)	1
Tipper	1
Compressors	2
Jack Hammers	6
Tractor with Tanker	1
Power Generator 125 – Kv	2
Crane – Suka – 12 Tones	1 No.
Welding Machine	1 No.



h) **Site Services**

Rest Rooms, First Aid Room, Shelters, Lavatory, Bore Well for Drinking Water are available at Quarry Site.

7.0 **SCHEME OF WASTE MANAGEMENT PLAN (SOLID & LIQUID)**

- i) **Solid waste for the first Five Years** : The granite body exposed to the surface. Hence, the weathering on the surface of the rock closely spaced joints and shears along with inherent defects like Moles, Dark patches and acidic veins contribute a large extent of waste generation during the mining.

It is estimated that in the next five years a total of 5,400 Cu. M of waste is expected to be generated with an average of 1,080 Cu. M per annum. (The year wise waste generation in next 5 years is as follows :

Year	Waste Generation in Cu. M.
I	1,080
II	1,080
III	1,080
IV	1,080
V	1,080

ii) **Dumping Site Particulars :**

For dumping of waste generated during mining will be dumped along the North Eastern margin of the lease area.

iii) **Estimated Waste Quantity that will be generated in the Entire Period :**

At the rate of 1,080 Cu. M per year the volume of waste generated in balance lease period i.e., 9 Years is estimated to be 9,720 Cu. M.

iv) **Utilisation of Waste if not Prevented :**

- Soil can be utilised for reclamation of degraded area.
- Weathered rock if it is sufficiently soft and devoid of rock fragments can be utilised for roads, filling of road side ditches, formation of approach roads to quarries, construction works etc.
- Large and medium sized waste rock can be used as revetment for deep cut stream sections from preventing from soil erosion.
- The waste generated during the mining will also be used for back filling of the mine pit after completion of mining.

8.0 **ENVIRONMENTAL MANAGEMENT PLAN**

8.1 **Baseline information**

i) **Existing Land Use Pattern**

The applied area is a hill, which is steeply sloping due East. The whole area is covered by sparse vegetation. The soil existing in the applied area is boulder and unfertile.

ii) **Water Regime**

Streams or Drainage lines exist in Quarry Lease area will flow as run-off to the down stream.

iii) **Flora & Fauna**

The whole area is occupied by scattered sparse vegetation of thorny trees and small bushes. In the applied area no wild animals are witnessed as per the statements collected from the local population, since 50 Years.



iv) **Climatic Conditions**

The area is falling under semi-arid tropical zone. The area is having dry climate. The temperature recorded in this area is 25° C in winter and about 48° C in summer seasons. The wind direction is in SW to NE. The average annual rainfall of the area is 1000 mm.

v) **Human Settlement**

The village Tekkali is situated 2 Km due South of the QL area. The population of this village is about 10,000. The village is surrounded by agricultural lands. The details of the villages in 2 Kms surrounding from the applied area is given in following table.

Table No. II : Human Settlement (Plate No. I)

S.No	Habitation	Direction & Distance	Population
1	Tekkali	2 Km South	10,000
2	Gopalapuram	2 Km North West	500
3	Sanyasinuapuram	1 Km North East	300
4	Gudem	1.5 Km North East	500
5	Anjanapuram	1.5 Km South West	300

The main occupation of the local population is Agriculture and Sheep Raring / Breeding.

vi) **Public Buildings, Palaces & Monuments**

No of public buildings, palaces and monuments are witnessed in and at the vicinity of the area.

vii) **Quality of Air and Water**

The air and water of the area are free from any kind of pollution, since no industries are established in the area.

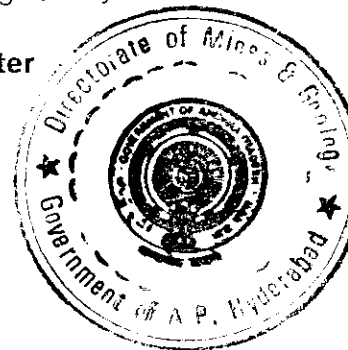
viii) **Whether The Area Falls Under Notified Area Under Water Act. 1974**

The area will not fall under notified area under Water Act. 1974.

ix) **The samples are collected for polishing from the existing working Quarry.**

x) **Does area (Partly or Fully) fall under notified area under water (Prevention and control of pollution) Act 1974.**

Not Applicable



8.2 Environmental Impact Assessment

i) Landscape Changes

The mineral deposit is exposed raising 105 M above GL in 5 years plan period it is proposed to produce 3,600 M³ of Rough Blocks. To meet this production an area of 1,500 Sq. M. will be utilized. The mining will alter the shape of the present hill with the quarry pits reduction of height of same point.

ii) Aesthetic Environment

There is no Aesthetic Environment prevailing in and around the applied area.

iii) Soil and Land Use Pattern

The soil cover is absent in the high – elevated area. However, soil mixed with boulders, which are unfertile, is deposited along the NE margin of the lease area. Hence, the land is not being used for agriculture purpose. Therefore the mining in this area will initiate utility of the land.

iv) Agriculture

The applied area is barren land and far away from agricultural lands. Therefore there is no adverse effect on agriculture.

v) Forest

The applied area is not coming under forest zone. However, the applicant is proposing to undertake afforestation in the area.

vi) Vegetation

The applied area is covered with scattered vegetation of small shrubs, herbs and thorny bushes. However, no cutting of trees is involved in mining activity.

vii) Water Environment

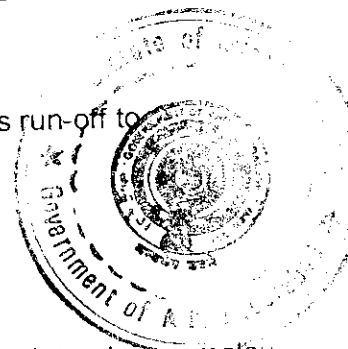
Streams or Drainage lines exist in Quarry Lease area will flow as run-off to the down stream.

viii) Air Environment

a) Noise

The mining activity in this area involves blasting. The applicant intends to employ low explosive and the quantity of charge and number of blast holes will be very less to win the required production. Therefore, the probable noise will be negligible in this area.

The noise generated by compressors, drilling & machinery like Proclaim / Excavators and Tippers will be high. The workers in the quarry area will be provided suitable headgear and noise reducing protective gear (like Cotton Mufflers etc.)



The noise levels for various activities are

1. Compressor - 84 to 98 dB(A)
2. Tipper Empty- 88 to 91 dB(A), Tipper Loaded - 95 – 103 dB(A)
3. Proclaim - 90 to 96 dB(A)
4. Blasting - 89 to 95 dB(A)

Permissible noise exposure for different period of time is given below :

Duration Per Day (Hrs)	Sound Level dBA
16	80
8	85
4	90
2	95
1	100
½	105
¼	110
1/8	115

The lessee for protecting will maintain suitable precautions. The workers by providing suitable protective gear. And the machinery will be properly maintained.

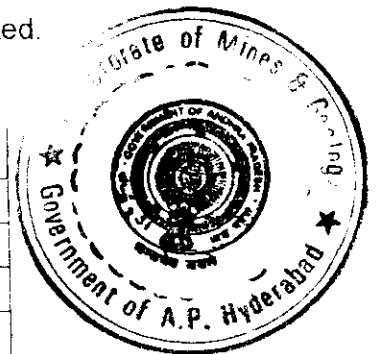
b) **Air**

The mining in this area does not involve any dust creation. The air pollution occurred due to transportation in summer season would be suppressed by sprinkling the water on the roads.

Air quality will not be disturbed, as the quarrying is very limited.

AIR QUALITY

Base Level	Alloable Level
SPM = 140 μ g/m ³	360 μ g/m ³
RSPM = 60 μ g/m ³	120 μ g/m ³
SO ₂ = 40 μ g/m ³	80 μ g/m ³
NO ₂ = 40 μ g/m ³	80 μ g/m ³
CO = 1.0 μ g/m ³	5.0 μ g/m ³



c) **Water Regime**

The mining of Coloured Granite, no adverse effect is anticipated on the water regime of the area.

IS 10 500 – 1944

Sl.No.	Characteristic	Desirable Limit	Maximum Permissible Limit
1	Colour	5	25
2	Order & Taste	Un Objectionable	
3	Turbidity	5 NTU	10 NTU
4	pH Value	6.5 to 8.5	No Relaxation
5	TDS	500 mg per ltr.	2000 mg per ltr.
6	Total Hardness	300 mg per ltr.	600 mg. Per ltr

d) Vibration Levels

It is proposed to use low explosives and less quantity to minimise the effects so that the vibration generated will be feeble within 8 Hz

e) Socio Economics

The applied area is surrounded by many villages within a distance of 2.5 Kms. Agriculture is important profession of the people living in the village besides involving themselves in Quarrying activity.

f) Socio Economic Environment

5 Villages fall within a distance of 2 Kms surround the applied area. The main occupation of villagers is agriculture and sheep rearing. The commencement of mining activity in this area improves the socio – economic status of the local people by creation of employment.

g) Occupation Health and Safety

The mining in this area does not involve any hazardous methods. The mining is simple and open cast mining method. In this the possibilities of small injuries is anticipated. This applicant will be providing First Aid facilities at quarry site.

h) Human Settlement

The nearest village Sanyasunuapuram is situated 1 Km from the area. Therefore there is no anticipation of adverse affect on the human settlement.

i) Recreational Facility

The surrounding villages people will go to Tekkali town for Purchases, Medical & Recreation.

8.3 Management Plan

1. Soil Conservation Methods

The soil cover is absent. However, soil mixed with boulders is unfertile. Hence, the land is not being used for agriculture purpose. Therefore the mining in this area will initiate utility of the land.

2. Proposed for Reclamation of Land affected by Mining activity during and at the end of mining.

Even after 20 years the hill remains except the reduction of elevation and slopes by the pits that will be formed. No reclamation is proposed.

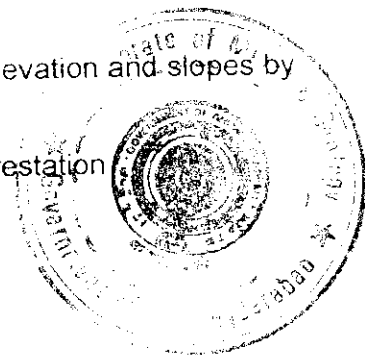
3. In case of Forest Programme for Phased Compensatory Afforestation

The applied area will not come under forest zone.

4. Measures for Dust Suppression

The mining will not involve dust rising methods.

- The dust anticipated during dry seasons by transportation on road will however be suppressed by sprinkling water on roads. For this purpose, tractor mounted sprinklings will be deployed at this place.



- The dust rises during blasting will be negligible because of less production and rare blasting.
- The dust generated during the drilling will be suppressed by covering the drill rods by gunny cloth and dust extractors will also deployed.

5. Measures to minimum use Vibrations due to Blasting and check Noise Pollution

- It is proposed to use low explosive and less quantity to meet the production requirement and also to minimize the affects & feeble vibration generated during blasting.
- The noise generated by compressors, drilling and machinery like Proclain / Excavators and Tippers will be high. The machinery will be properly maintained so the generation of noise will be within the permissible limits.
- The workers in the quarry area will be provided suitable headgear and noise reducing protective gear (like Cotton Mufflers etc.)

6. Treatment and Disposal of Water from the Mine at Beneficiation Plant

Granite Mines does not require beneficiation.

7. Measures for minimizing adverse effect on Water Regime

Streams or Drainage lines that exist in Quarry Lease area will flow as run-off to the down stream. In this area, the mining is confined to elevated place. Therefore no adverse effect is anticipated to water regime.

8. Afforestation Programme

Since the entire Quarry Lease area is occupied by the deposit and in the absent of Soil case. No afforestation program is proposed in this region.

9. Preparation of Dumping Ground for Stacking Toxic Mineral Substance

No toxic minerals are present.

This Mining Plan is Approved subject to the Conditions/Stipulations Indicated in the Mining Plan Approval Letter No.....

9.0 Any Other Information

8166/mf.I/2003, dated 27.11.2003

No Other Information worth mentioning.

2003-04-01 10:11:23

[Handwritten Signature]

For M/s Gautham Granites

APPROVED

[Handwritten Signature]

Dr. P. DAYASANI
JOINT DIRECTOR
DEPT. OF MINES & GEOLOGY
GOVT. OF A.P., HYDERABAD.

[Handwritten Signature]
 7/11

RQP

(V. T. Chander)



ANNEXURE I

GOVERNMENT OF ANDHRA PRADESH DEPARTMENT OF MINES AND GEOLOGY

PROCEEDINGS OF ASST. DIRECTOR OF MINES AND GEOLOGY: SRIKAKULAM.

(PRESENT: Sri C.V. RAGHAVA RAO, M.Sc., Tech.,)
Asst. Director.

Proc.No. 122/Q/97.

Dated - 02-97.

Sub: MINES AND QUARRIES - Quarry Lease for colour granite over an extent of 5.00 Hectares in S.No.53 of Tekkali Village and Mandal, Srikakulam District - Granted in favour of M/s Gautham Granites - Execution of Lease Deed - M.O. Orders - Issued - Regarding.

DESPATCHED

No.

38 to 386

Signature
Date.

Ref: 1. Proc. No. 1078/Elis 3/94, dated 1-1-97 of the Director of Mines and Geology, Hyderabad.
2. D. Dis. No. 15/94, dt. 1-7-94 of the Dt. Collector, Srikakulam.
3. Application dated -2-96 of M/s Gautham Granites.

ORDER:

The Quarry Lease granted in favour of M/s Gautham Granites, Secunderabad for colour granite in S.No.53 of Tekkali Village and Mandal, Srikakulam District over an extent of 5.00 hec., for a period of 15 years has been executed on -2-97 by the undersigned.. The Quarry Lease is valid for a period of 15 years from -2-1997 to 31-12-2012.

M/s Gautham Granites, Secunderabad is hereby permitted to enter and work the quarry area under the provisions of A.P.M.M.C. Rules, 1966 and conditions laid down in G.O.Ms.No.317, Industries and Commerce Department, dated 9-7-92 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 Govt. reserve the right to cancel the quarry lease granted and executed under A.P.M.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 Gautham Granites,
105, Surya Towers,
S.P. Road,
SECUNDERABAD.



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 Sarpanch, Tekkali Village and Mandal, Srikakulam Dt for information.

ANNEXURE - II

YEAR	L x W x Bench Height M M M	Volume in M ³	Market Grade Rough Blocks with 40% Recovery	Waste Generated in M ³
1 st	20 x 15 x 6	1,800	720	1080
2 nd	20 x 15 x 6	1,800	720	1080
3 rd	20 x 15 x 6	1,800	720	1080
4 th	20 x 15 x 6	1,800	720	1080
5 th	20 x 15 x 6	1,800	720	1080
Total		9,000	3,600	5,400
Average		3,000	720	1080

