

MINING PLAN ON COLOUR GRANITE
Over an extent of 5.000 Hectares in Sy.No. 34
Meelisathivada (V), Tekkali (M), Srikakulam Dist. A.P.

For *Kausalya Enterprises*
M/s. **LOKESH ENTERPRISES**
Srikakulam

Prepared By

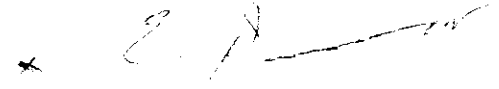
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CERTIFICATE

This is to certify that Mining Plan in respect of Quarry Lease area Over an extent of 5.000 Hectares in Sy. No. 34 of Meelisathivada (V), Tekkali (M), Srikakulam Dist. Andhra Pradesh. 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 : Srikakulam



For M/s. LOKESH ENTERPRISES

CERTIFICATE

The provision of Granite Conservation and Development Rules '1999 have been observed in the Mining Lease of Coloured Granite, over an extent of 5.000 Hectares in Sy. No. 34 of Meelisathivada (V), Tekkali (M), Srikakulam District, Andhra Pradesh, for M/s. Lokesh Enterprises, Srikakulam. Whenever specific permissions are required the applicant will approach the concerned authorities.

It is also certified that the information's furnished in the above Mining Plan are true and correct to the best of our knowledge

Date :

Place : Hyderabad


RQP
(V.T. CHANDER)

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- I Copy of the Asst. Director, Mines & Geology, Srikakulam.
Proceedings No. 1493 / Q / 2003 dated 24 - 04 - 2004.

MINING PLAN ON COLOUR GRANITE
Over an extent of 5.000 Hectares in Sy.No. 34
Meelisathivada (V), Tekkali (M), Srikakulam Dist. A.P.

For

M/s. LOKESH ENTERPRISES
Srikakulam

By

V.T CHANDER
Consultant Geologist & RQP

1.0 INTRODUCTION

M/s. Lokesh Enterprises, Srikakulam, a Private Firm, was granted Quarry Lease for 20 years for Colour Granite over an extent of 5.000 Hectares spread over in Sy.No. 34 of Meelisathivada Village, Tekkali Mandal, Srikakulam Dist. A.P. Vide Director, Department of Mines and Geology, Hyderabad. Proceedings No. 1493 / Q / 2003 dated 24-04-2004. The lease deed was executed on 24-04-2004 and permission was granted by the Asst. Director, Mines and Geology, Srikakulam Vide Proceedings No. 15370 / R1-3 / 2003 dated 11-03-2004 to commence Quarry operations for a period from 24-04-2004 to 23-04-2024.

M/s. Lokesh Enterprises, Srikakulam, have started the quarrying operations during the year '2004.

As per the GCDR Rule 17 of '1999, all the owners of the existing quarries required to submit the mining plan to the Director of Mines & Geology, Hyderabad for approval within stipulated time.

M/s. Lokesh Enterprises, Srikakulam, approached Sri V. T. Chander, Consultant Geologist and RQP (RQP / DMG / HYD / 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 for the existing quarry.

2.0 GENERAL

- 2.1 Name and address of the applicant : **M/s. LOKESH ENTERPRISES**
Prop. Sri. E. Saravanan,
D. No. 2-16,
Rotary Nagar,
Tekkali,
Srikakulam District.
- 2.2 Status of the applicant : Private Firm
- 2.3 Mineral for which applicant intends to mine : Colour Granite
- 2.4 Name and address of the RQP who prepared the Prospecting Report : **V.T. CHANDER**
RQP / DMG / HYD / 02 / 2001
H.No. 10-1, Flat No. 202,
Mahalakshmi Ganapathi Complex,
Sai Baba Temple Lane,
Beside Sri Sai Grammar High School,
P & T Colony, Dilsukhnagar,
Hyderabad - 500 060.
☎ : 32941928 24068218.
Tele Fax : 040-55618351.
☎ : 9391056234
- 2.5 Name and address of the Prospecting Agency : M/s. Lokesh Enterprises,
Srikakulam District
- 2.6 Details of the Area

The applied area falls in the Survey of India, Toposheet No. 74 B / 2 and is bounded East Longitude 84° - 12' - 00" and North Latitude 18° - 37' - 00". It is situated 4 Km North West of Tekkali. The road leading from Tekkali to Temburu will lead to the site. The location of the area is indicated in Key Cum Location Map (Plate - I).

DETAILS OF THE AREA

District State	Mandal	Village	Sy.No.	Extent	Ownership of Occupancy
Srikakulam Andhra Pradesh	Tekkali	Meelisathivada	34	5.000	Govt. Land (Existing Quarry)

- 2.7 Period for which Quarry lease was granted = 20 years

Cadastral Map certified by the Asst. Director of Mines & Geology, Srikakulam in favor of M/s. Lokesh Enterprises, is given as Plate No. II.

2.8 Infrastructure and Communication

Availability of Water	The Ground Water level is about 6 to 7.0 Mts. below ground level at the foothill.
Availability of Electricity	Electricity is available at the Quarry area.
Communication Network	It is situated 4 Kms North West of Tekkali Town. The road leading from Tekkali to Temburu will lead to the Site. Amenities like Post & Telegraph Office, Police Station, Primary Health Center etc., are available at Tekkali.
Road Network	The Tekkali Town is located 60 Kms North of Srikakulam on NH 5 from Visakhapatnam to Calcutta. The town is well connected with the road network.
Nearest Rail Head	Nearest Rail Head is located at Amudalavalsa (Srikakulam Road Station), which is located 16 Kms from the Srikakulam and 76 Kms from Tekkali.
Port Facility	Vishakapatnam Port is about 150 Kms from area.
School	Education Facilities from Primary School to College are available in Tekkali Town.
Medical Facility	Medical Facility available in Tekkali Town.

Boundaries

North	Barren Lands
South	Barren Lands
East	Barren Land & Area surveyed to M/s. B. Chitti Babu Granite & Polishing Unit
West	Quarry Lease Area of M/s. Prameela Granites

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.

3.0 GEOLOGY

3.1 Physiography

The quarry area is located on the eastern flank of the hill; steeply sloping due South East & East i.e., the lease area almost becomes ground level with an average relief of 39 M in the grids N 200 – N 250 & E 00 – E 50. Vegetation is developed in between the joints and soil areas. The areas in the North and West are quarries and in the East agricultural lands and cashew nut plantations.

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 actuate trend with west ward 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 - Khondalite 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 Pyroxene Granulite / Amphibolites.
KHONDALITE GROUP	Calc-Sillicate-Granulites Garnet-Silliminite-Quartz-Biotite-K-Felspar- Graphite Gneiss (Khondalite) Quartzite-Garnet-Silliminite
GRANITOID SUITE	Granitoid with Mega Crystic K-Felspar Un differenciated (with Migmatitic Dia Tectite, Augen) Perferoblastic Granite and Gniesses Garnet - Biotite Homophanus Granite/Gniess Leptinite, Local Charnockite Neosomes and Relics

In Srikakulam district the EGMB is represented by vide 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 Coastline.

3.2 Geology of the Area

There are six hillocks in Meelasathivada falling in Survey No's. 27, 34, 70, 73, 112/2 and 117/10. Out of the six hillocks, Survey No's. 27, 34 and 73 occupy large extent. The hillock, which falls, is S. No. 27 produce dark blue granite blocks, which are useful for decorative purpose. The rock type contains quartz, feldspar as essential minerals with garnet and ferromagnesian minerals as accessory minerals.

The total hillock is covered under lease. The hillock is Survey No's. 34, 70 and 112/2 contains good boulders and sheet rock, but the leases have been cancelled due to non-working of quarries. It is also learnt that due to presence of colour variation and black patches (concentration of ferromagnesian minerals).

The Migmatites and Migmatized 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, Hornblends 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, which 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 – S 35° E
3. E – W

4.0 EXPLORATION / MINING ACTIVITY

4.1 Present Status

The Mining Plan is prepared for the existing Granite Mine, which is under operation since 2000 by the firm.

Mining Operations Carried Out

The deposit was occurring as both floating boulders embedded in the soil and weathered zone. The quarry was opened during the year 1999. 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, and Drilling of Borewell for Drinking Water etc.
- Deployment of Excavator for removal of over burden and boulders.

Pit

The mining operations were carried out starting along the Eastern boundary of the lease area towards North West direction. A pit of 6 M was developed in 290 x 30 M dimensional area from which 2,000 M³ of Rough Blocks of Market Grade were retrieved from this pit.

The average production of this quarry is only 400 M³ per year this is due to the highly defective rock mass and poor recovery.

The Details of Production Pit :

Pit No.	Dimensions (M)	Volume of Material Excavated (M ³)	Lithology	Remarks
1	290 x 30 x 6	52,200	0 – 1.5 M	Weathered & Joint Rock Mass
			1.5 – 6.0 M	Fresh Boulders

The Srikakulam Blue Granite is having international demand and exported only in Gang Saw Size. It is reported out of 2,000 M³ dispatched, since the inception of quarry about 40% are the blocks with sizes ranging 300 x 200 x 200 and 270 x 140 x 150 and the balance 220 x 150 x 100 & 180 x 100 x 100. Therefore, all the above produced and dispatched rough blocks of this size only.

Year	Dispatches (M ³)
19-06-2004 to 14-12-2004	227.893
04-01-2005 to 24-12-2005	820.749
21-01-2006 to 09-02-2006	64.925
Total	1113.567

About 80 M³ of undressed rough blocks are available at the quarry site

The following machines are used :

1. Excavators - 2 No's.
2. Compressor - 4 No's.
3. Tractor - 1 No.
4. Tipper - 1 No.

The following labour employed :

1. Supervisors - 4 No's.
2. Drillers - 24 No's.
3. Cutters - 15 No's.
4. Non Master Labour - 4 No's.

4.2 Future Programme

Since the deposit is already proved during the mining in the previous years, no further exploratory programme is recommended.

5.0 RESERVES

5.1 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.

5.2 Method of Estimation of Reserves

The exposed deposit is found to be irregular in shape as it is exposed on hill. The Cross Sectional method was adopted for estimation of reserves. Plano Meter was deployed for estimation. 4 cross sections A-A1 to D-D1 were drawn at equal intervals for estimation (Plate - IV).

5.3 Categorization of Reserves & Total Mineable Reserves

The deposit is exposed in the lease area. The deposit exposed on the surface is classified under "Proved"

i) Insitu Reserves

Section	Sectional Area (M ²)	Sectional Influence (M)	Total Rock Mass (M ³)
A - A1	5827.20	70	4,07,904
B - B1	7389.00	70	5,17,230
C - C1	4393.30	70	3,07,531
D - D1	4018.50	70	2,81,295
Total Insitu Geological Reserves :			15,13,960

ii) Recoverable Deposits

As undersize boulders, defective boulders, soil creep form 60% of the Rock Mass. Hence deduction of the waste from insitu reserves from recoverable reserves (40% Recovery)

$$= 15,13,960 \times 0.60 = 9,08,376 \text{ M}^3$$

Since, the lease area falls a part of the hill and rising above the ground level, no deposit will be blocked under safety slopes.

iii) Market Grade Reserves

@ 20% Recovery of Market Reserves from recoverable reserves.

$$= 9,08,376 \times 0.2 = 1,81,675.2 \text{ M}^3$$

Since buyers prefer only Gang Saw Size hence total Market Grade Reserves considered as Economic Grade Reserves.

Life of the Mine = 1,81,675.2 / 1,500
= 121 Years

5.4 Economic Marketable Reserves

The Granites, having good export market, rough blocks free of defects like Fractures, Joints, Shears, Hair Line Cracks, Segregation Veins, Drastic Colour variation and having 120 up size (Gang Saw size) are mostly preferred by Exporters and International Buyers, These are known as Economic or Market Grade. The recovery in future is anticipated as 20% from the Total Recoverable Deposits 1,81,675.2 M³

Economic Marketable Reserves = 1,81,675.2 M³

6.0 MINING

6.1 Type of Mining

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

Opening of Mine

The Colour Granite in this area is proposed to be mined by Open Cast, Semi-Mechanized method the Granite deposit in this area is exposed on a hill with a maximum height rising upto 135 M above Ground Level (E 150 – E 200 & N 150 – N 200) with boulders.

The following method of working is proposed :

Stage 1

Over Burden / Talus / Side Burden Removal :

Consists of development which includes removal of Weathered, Undersized and Defective Boulders using Proclaim / Excavator and using Tipper, this waste is dumped at dumping yard. A ramp already constructed during exploratory Mining will be further developed to reach the working pits.

Stage 2

Extracting Boulder and Cutting them into Blocks with Conventional Methods :

- After removal of Weathered, Undersized and Defective Boulders the fresh boulders exposed.
- These boulders will be wedged out (Removed) from the insitu condition with the help of excavator and will be rolled to the lower area for further processing.
- If the boulder is large then it will be split into two or three pieces so that blocks can be made out of them.
- As the production is only for gang saw size, the boulders are split to the required size at the insitu stage.

- The undersized and defective blocks are removed. Usually, the advantage of natural joints present in the boulders are taken for splitting them or a line of shot holes are drilled vertically and horizontally at 10 – 15 Cm distance and the primary blocks will be wedged out or split it with the help of feathers and wedges.
- If the boulder or big enough one or two holes are drilled and wedged out using chemical compound AGFRACT.
- The separated blocks are examined for defects and lines, then the block or blocks are marked in clear area and holes are drilled along the line of marking, with the help of feathers and wedges.
- The waste portions are separated forming a rectangular blocks.
- Any bulges that are present are removed by drilling and wedging making it perfect blocks.
- A perfect block is that all the sides shall make with each other 90°.

Dressing

After primary separation the rock mass will be carefully examined to avoid hairline cracks, mineral segregation's and veins etc. The dressing of the rough blocks will be made by chipping the edges and geometrically equating the edges of the block at the dressing yard. The rough blocks obtained after primary cut it will be dressed for obtaining good geometric shape of coloured granite.

Dressing of dimensional rough blocks for export :

Dressing is the final phase of mining operation, wherein the secondary rough blocks are squared into regular perfect rectangular sizes, thereby avoiding uneven bulge or cavities and other defects. Jackhammers with compressor, feather end wedges and sledgehammers are the equipment generally used for dressing the block.

6.2 Mining Programme for the next 5 Years

6.2.1 Scheme of Mining & Year Wise Production

As the North Eastern flank has already proved the recovery, the applicant proposes to continue the mining operations in extension of the present workings towards West.

During mining operations the applicant proposes to produce 1,200 M³ of Coloured Granite Per Year. In order to produce this quantity an area of 1,000 M² will be utilized.

1st Year :

The mining operations will commence from Northern part of the existing Pit No. 3 forming a bench height of 6 M and the bench will advance towards South in the grids N 100 – N 200 & E 150 – E 250. During the first year a total area of 1,000 M² will be utilized.

In the first year it is planned to produce 1,200 M³ of economic grade rough blocks. To produce this quantity an area of 1,000 M² (50 x 20 M) will be utilised. Producing 6,000 M³ of rock from which 20% (1,200 M³) economic grade rough blocks will be obtained and 80% (4,800 M³) of waste rock will be realised.

2nd Year :

In the 2nd year the mining continues South of the first year working pit. The mining continues towards South with North oriented faces advance maintaining average of 6 M bench height in the N 100 – 200 & E 150 – E 250. An area of 1,000 M² will be covered during this year.

In the second year it is planned to produce 1,200 M³ of economic grade rough blocks. To produce this quantity an area of 1,000 M² (50 x 20 M) will be utilised. Producing 3,000 M³ of rock from which 20% (1,200 M³) economic grade rough blocks will be obtained and 80% (4,800 M³) of waste rock will be realised.

3rd Year :

In the 3rd year the mining will continue West of 1st year pit with North oriented faces advance further North maintaining average of 6 M bench height in the N 100 – N 150 & E 200 – 250. An area of 1,000 M² will be covered during this year.

In the third year it is planned to produce 1,200 M³ of economic grade rough blocks. To produce this quantity an area of 1,000 M² (50 x 20 M) will be utilised. Producing 3,000 M³ of rock from which 20% (1,200 M³) economic grade rough blocks will be obtained and 80% (4,800 M³) of waste rock will be realised.

4th Year :

In the 4th year the mining will continue North of 3rd year workings and West of 2nd year workings in the grids N 50 – N 150 and E 200 – E 250 of working pit. Maintaining average of 6 M bench Height. An area of 1,000 M² will be covered during this year

In the fourth year it is planned to produce 1,200 M³ of economic grade rough blocks. To produce this quantity an area of 1,000 M² (50 x 20 M) will be utilised. Producing 3,000 M³ of rock from which 20% (1,200 M³) economic grade rough blocks will be obtained and 80% (4,800 M³) of waste rock will be realised.

5th Year :

In the 5th year the mining will continue North of 4th year pit. South oriented faces advance further North maintaining average of 6 M bench height in the N 50 – N 150 & E 150 – E 250. An area of 1,000 M² will be covered during this year.

In the fifth year it is planned to produce 1,200 M³ of economic grade rough blocks. To produce this quantity an area of 1,000 M² (50 x 20 M) will be utilised. Producing 3,000 M³ of rock from which 20% (1,200 M³) economic grade rough blocks will be obtained and 80% (4,800 M³) of waste rock will be realised.

YEAR WISE PRODUCTION FOR NEXT FIVE YEARS

Year	Dimensions L x W x Bench Height (M)	Volume (M ³)	Market Grade Rough Blocks @ 20% (M ³)	Waste Generation @ 80% (M ³)
1 st Year	50 x 20 x 6	6,000	1,200	4,800
2 nd Year	50 x 20 x 6	6,000	1,200	4,800
3 rd Year	50 x 20 x 6	6,000	1,200	4,800
4 th Year	50 x 20 x 6	6,000	1,200	4,800
5 th Year	50 x 20 x 6	6,000	1,200	4,800
Total :		30,000	6,000	24,000
Average :		6,000	1,200	4,800

The mine layout for production of coloured granite rough blocks first five years is showed in Plate No. V.

6.2.2 Quantum of Excavation

To retrieve 6,000 M³ of Market Grade Rough Blocks a quantum of 30,000 M³ of Rock Mass has to be excavated out of which 24,000 M³ is waste in the form of under size boulder, defective boulder, soil creep and rock debris generated during production of Rough Blocks.

6.2.3 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 1,200 M³ per year can be easily achieved in a single shift with sufficient men and machinery.

a) Magazine Type and Capacity :

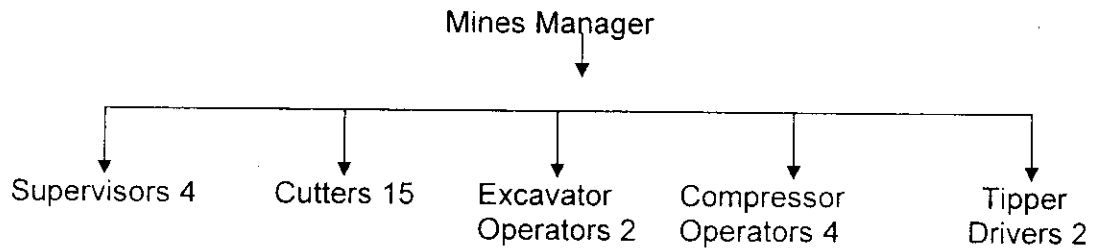
Not Applicable. (No permission for storing the blasting material will be granted by the District Administration). The applicant proposes to use AGFRACT Chemical Compound whenever required.

b) Description of Processing Plant :

M/s. Lokesh Enterprises, doesn't possess Granite Processing Plant

c) **Organizational Chart :**

The organ gram of the quarry in this area is as follows :



Besides above managerial and skilled staff

- Semi-Skilled of about 10 members.
- Unskilled workers 4 members are required for the quarry work.

d) **Site Services :**

The company at Quarry Site (in the Patta Land purchased adjacent to the lease area) has already provided Rest Rooms, First Aid Room, Shelters, Lavatory and Bore well for Drinking Water (Plate – V).

e) **Market Analysis :**

i) Assured and expected supply contracts

Mining activity in the adjacent quarries has revealed that only Gang Saw Size of (Economic Grade) Rough Blocks of 2.4 x 1.4 x 1.2 & 3 x 1.9 x 1.8 sizes are required by exporters and will be dispatched to different exporters in Bangalore & Mumbai. The applicant has dispatched 1113.567 M³ to the market.

ii) Ability to supply consumer in time

Licensee is having sufficient men and machinery, besides huge and good quality rock at shallow depth. Therefore he is able to supply the material to the consumer in time.

iii) Pattern of demand

Srikakulam Blue Granite/ Bahama Blue of Srikakulam district is having very good demand in the international market. The prices of rough blocks of gang Saw size ranging between Rs. 8,000 to Rs.10,000 depending upon the colour of the rock.

Therefore, the material is having good demand and market is already established for the material from this mine.

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 24,000 M³ of waste is expected to be generated with an average of 4,800 M³ per annum. The year wise waste generation in 5 years is as follows :

Year	Waste Generated (M ³)
1 st	4,800
2 nd	4,800
3 rd	4,800
4 th	4,800
5 th	4,800
Total :	24,000

- ii) **Dumping site particulars** : For dumping of waste generated during mining will be dumped on the existing dumps located in the grids N 00 – N 50 & E 100 – E 250 in the buffer zone and also in the Patta Land procured by the firm along the Eastern margin of the lease area (Plate – V).
- iii) **Estimated waste quantity that will be generated in the entire period** : At the rate of 4,800 M³ per year the volume of waste generated in balance lease period i.e., 10 years is estimated to be 48,000 M³.
- iv) **Utilisation of waste if not prevented** :
- Soil will be utilized for reclamation of degraded area.
 - Weathered rock if it is sufficiently soft and devoid of rock fragments can be utilized 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 hill. The land is steeply sloping due North and East. The whole land is covered by sparse vegetation. The soil existing in the applied area is bouldery and unfertile. The hill is exposed 39 M above Ground Level and occupies entire quarry lease area. The surrounding hill areas are active with mining and the foot hills and valleys are agricultural lands.

ii. Water Regime

No Streams or Drainage lines exist in and around Quarry Lease area. Excepting the sheet flows during rainy days

iii. Flora and 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. Quality of Air, Ambient Noise Level and Water

- Air quality is good but at quarries it is filled with dust, due to haulage on the road, blasting etc
- The noise generated mostly due to blasting, drilling, vehicular traffic
- Granite mining will not effect water quality.

v. 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.

vi Human Settlement

The village Gopalapuram is situated 2 Km due South East of the area. The population of this village is about 500. The village is surrounded by agricultural lands. The details of the villages in 2 Km, surrounding from the applied area is given in following table.

HUMAN SETTLEMENT (PLATE NO - I)

S. No.	Village	Direction	Distance (Km)	Population
1.	Gopalapuram	South East	2	500
2.	Kothuru	North West	1.2	500
3.	Bheempuram	North West	2	500
4.	Dubbaguddi	North	1	300
5.	Sidipeta	South West	1.75	300

The main occupation of the local population is agriculture and sheep rearing / Breeding.

vii Public Building, Palace and Monuments

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

viii. 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.

ix. Whether the area falls under notified area under water act. 1974

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

8.2 Environmental Impact Assessment

i. Landscape Changes

i) Land Degradation

Granite mining will alter the physiographic scene; a small portion of the hill will alter its shape in the Eastern boundary the hill will be sliced by 6 M covering an area of 5,000 M² and a huge rock debris in the form of dump (Defective, undersized boulders).

ii) Air Quality

Air quality is good but at quarries it is filled with dust, due to haulage on the road, blasting etc. but it will be within the permissible limits by sprinkling water on roads and covering the drill rods with cloth.

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

AIR QUALITY

Base Level	Allowable Level
SPM = 140 $\mu\text{g}/\text{m}^3$	360 $\mu\text{g}/\text{m}^3$
RSPM = 60 $\mu\text{g}/\text{m}^3$	120 $\mu\text{g}/\text{m}^3$
SO ₂ = 40 $\mu\text{g}/\text{m}^3$	80 $\mu\text{g}/\text{m}^3$
NO ₂ = 40 $\mu\text{g}/\text{m}^3$	80 $\mu\text{g}/\text{m}^3$
CO = 1.0 $\mu\text{g}/\text{m}^3$	5.0 $\mu\text{g}/\text{m}^3$

Air quality is good but at quarries it is filled with dust, due to haulage on the road, blasting etc., but it will be within the permissible limits by adopting the following:

- The dust rising due to drilling will be controlled by covering the drill rods with cloth, dust extractors will also be employed.
- Dust suppression on Haul road with sprinkling of water with chemical additives.
- Proper functioning of dust suppression arrangements in the equipment

iii) No water course is passing through the area excepting run off streams during monsoon.

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

S.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.

iv) Noise Levels

The blasting and the haulage and the drilling of boreholes generate Noise. However, the probable noise level will be within the permissible limits and will not cause harm the applicant will provide suitable protective gear to the workers for minimizing the noise pollution and the machinery will be well maintained. 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. Poelain - 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 haulage, machinery and the drilling of drill holes generate Noise. However, the probable noise level will be within the permissible limits with in 100 d B (A) and will not cause harm.

- The machinery will be maintained properly to reduce the noise
- The protective noise reducing gear like earmuffs, the company will provide earplugs.
- Proper maintenance of equipment

v) 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

vi) Aesthetic Environment

There is no aesthetic environment prevailing in and around the applied area.

vii) Soil and Land Use Pattern

The soil cover is absent in the high-elevated areas. However, soil mixed with boulders, which are unfertile, is deposited along the east 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.

viii) Agriculture

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

ix) Forest

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

x) 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.

xi) Socio Economic Environment

5 villages 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.

xii) 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.

xiii) Human Settlement

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

xiv) 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 end of the lease period (5 Years) the hill remains except the reduction of elevation and slopes by the pits that will be formed along the Eastern margin.

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.

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 & machinery like proclain / 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.)

6. Treatment and disposal of water from the mine at beneficiation plant

Granite Mines does not require beneficiation.

7. Measures for minimising adverse effect on water regime

No Streams or Drainage lines exist in and around Quarry Lease area. 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 except along the Eastern margin of the applied area (Buffer Zone) with soil mixed with boulders is deposited Afforestation program is proposed in the land procured by the firm by planting suitable type with 2 M spacing. (Plate V).

9. Preparation of dumping ground for stacking toxic mineral substance
No toxic minerals are present

9.0 ANY OTHER RELEVANT INFORMATION

All the statutory provisions applicable to granite mining leases, such as Mines & Mineral Concessional Rules, Granite Conservation and Development Rules 1999, Mineral and Mining rules, Indian explosive act, Payment and Wage act, Workmen Welfare act, Employees Provident fund act shall be adhered.

x

APPLICANT

RQP

(V. T. CHANDER)

GOVERNMENT OF ANDHRA PRADESH
DEPARTMENT OF MINES AND GEOLOGY

Proceedings of the Assistant Director of Mines and Geology, Tekkali
(Present: Sri K.Ramamohana Reddy, B.Sc.)
ASST. DIRECTOR.

Proceedings No.1493/04/2003

Date: 24-04-2004.

Subj:- Mines and Quarries - Quarry lease for Colour Granite over an extent of 5.000 Hectares in S.No. 34 of Meelasathiwada village, Tekkali mandal, Srikakulam District - Granted in favour of M/s Lokesh Enterprises, Prop: Sri E.Saravanan - Execution of Lease Deed - Work orders issued - Regarding.

ESPATCHED
3-883 to 888
W
Sri E.Saravanan
Date 24/4/04

- Ref:- 1. Proceedings No.15370/R1-3/2003 dt 11.3.2004 of the Director of Mines And Geology, Hyderabad.
2. D.Dis.No. 832/98 dt 4.7.1998 and L.Dis no. 258/99-A. dt 15.4.1999. of the MRO, Tekkali
3. Letter dtd. 24.04.2004 from M/s Lokesh Enterprises.

ORDER:-

The Quarry lease for colour granite granted in favour of M/s Lokesh Enterprises, Prop: Sri E.Saravanan, D.No.2-16, Rotary Nagar, , Tekkali, Srikakulam District , in Survey No.34 of Meelasathiwada village, Tekkali Mandal, Srikakulam District, over an extent of 5.000 Hectares, for a period of 20 years, has been executed on 24-04-2004 by the undersigned. The Quarry lease is valid for a period of 20 years from 24-04-2004 to 23-04-2024.

The Grantee through their letter 3rd cited, has submitted all necessary documents and challans for execution of the Quarry lease Deed and requested for execution of the Quarry lease deed in favour of M/s Lokesh Enterprises, Prop: Sri E.Saravanan, D.No.2-16, Rotary Nagar, , Tekkali, Srikakulam District, in the granted area.

M/s Lokesh Enterprises, Prop: Sri E.Saravanan, D.No.2-16, Rotary Nagar, , Tekkali, Srikakulam District, is hereby permitted to enter and work the Quarry area for colour granite in Survey No. 34 of Meelasathiwada village, Tekkali Mandal, Srikakulam District, over an extent of 5.000 Hectares, for a period of 20 years under the provisions of APM&C Rules,1966 and conditions laid down in G.O.Ms.No.317 Industries & Commerce Departenunt. dtd. 9.7.1992 and subsequent instructions issued on the matter from time to time. The lessee should submit the quarterly returns and the progress in cutting and polishing unit to the concerned District Industries Center, the Assistant Director of Mines and Geology, Tekkali, the Dy. Director of Mines and Geology, Visakhapatnam and the Director of Mines and Geology, Hyderabad. This work order is issued subject to the conditions that the Government reserve the right to cancel the quarry lease granted and executed under A.P.M.M.C. Rules, 1966 and various clauses of the & Development Rules, 1999, without assigning any reasons and giving notice and the conditions imposed in the grant order and appendix.

Recd DEED
B. Jagan

O/c

[Signature]
Asst. Director of Mines & Geology,
Tekkali, Srikakulam District

TO:
M/s Lokesh Enterprises,
Prop: Sri E.Saravanan,
D.No.2-16, Rotary Nagar,
Tekkali, Srikakulam District

Copy submitted to :

1. The Director of Mines & Geology, Hyderabad for favour of information
2. The Dy. Director of Mines and Geology, Visakhapatnam for favour of information.
3. The District Collector, Srikakulam for favour of information.
4. The H. R. O, Tekkali for information.

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March '2006

To

The Director
Department of Mines and Geology
8th Floor, BRKR Offices Complex
Hyderabad - 063.

Sir,


Sub : Mining Plans - Submission of Draft Mining Plan for Colour Granite over an extent of 5.000 Hectares spread over in Sy. No. 34 of Meelisathivada Village, Tekkali Mandal, Srikakulam District, Andhra Pradesh - Submitted for approval - Reg.

Ref : DMG Proceedings No. 1493 / Q / 2003 dated 24-04-2004.

With reference to the proceedings above we are here with submitting the Draft Mining Plan for Colour Granite over an extent of 5.000 Hectares spread over in Sy. No. 34 of Meelisathivada Village, Tekkali Mandal, Srikakulam District, Andhra Pradesh for approval.

Thanking you,

Yours faithfully,


For : **M/s. LOKESH ENTERPRISES**
Prop. Sri. E. Saravanan,
D. No. 2-16,
Rotary Nagar,
Tekkali,
Srikakulam District.

Handwritten signature