

**MINING PLAN FOR COLOURED GRANITE
Over an extent of 6.00 Hectares, Sy.No 199,
Jarali(V), Saravakota(M), Srikakulam Dist. A.P.**

**For
M/s Kunnam Granite Works
Chennai.**



Prepared by

APPROVED

**V.T.Chander
Consultant Geologist & RQP
(RQP/DMG/HYD/02/2001)
#202, H.No 10-1 Mahalaxmi Ganapathi Complex,
P&T Colony, Dilsukhnagar, Hyderabad 500 60.**

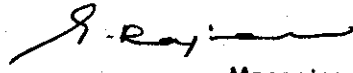
CERTIFICATE

This is to certify that Mining Plan in respect of Quarry Lease area over an extent of Over an extent of 6.00 Hectares, Sy.No 199, Jarali(V), Saravakota(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:

For M/s Kunnam Granite Works

Chennai
FOR KUNNAM GRANITE WORKS


Managing Partner



CERTIFICATE

The provision of Granite Conservation and Development Rules 1999 have been observed in the Mining Lease of COLOURED GRANITE, over extent of Over an extent of 6.00 Hectares, Sy.No 199, Jarali(V), Saravakota(M), Srikakulam Dist. Andhra Pradesh. For M/s Kunnam Granite Works, Chennai

Whenever specific permissions are required the applicant will approach the concerned authorities.

Date: 30/11/2002

Place: Hyderabad



RQP

(V.T.Chander)



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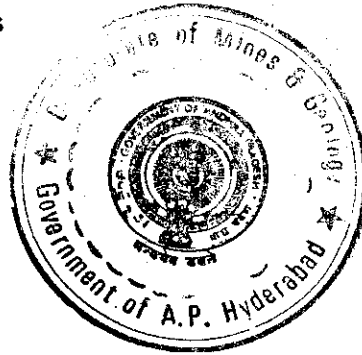


LIST OF PLATES.

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

Mining Plan Approval Letter No.....

37507/M.G.S/2002, dated 13-12-02

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MINING PLAN ON COLOUR GRANITE
Over an extent of 6.00 Hectares, Sy.No 199,
Jarali(V), Saravakota(M), Srikakulam Dist. A.P.

For
M/s Kunnam Granite Works
Chennai.

By
V.T Chander, Consultant Geologist & RQP

I. Introduction

M/s Kunnam Granite Works.Chennai , a private Firm, was granted prospecting license for colour granite over an extent of 6.00 hectares spread over in Sy.No 199 of Jarali village, Saravakota Mandal, Srikakulam Dist. A.P. Vide Director, Department of Mines and Geology, Hyderabad. Proceedings No.12126 /R1-3B/99 Dated 13-6-2000 The lease deed was executed on 31-10-2000, Vide Asst. Director, Mines & Geology Srikakula dist., proceedings No 1457/ Q /99 dated 31-10-2000.

M/s Kunnam Granite Works.Chennai. Approached Sri V.T.Chander Consultant Geologist and RQP (RQP/DMG/Hyd/02/2001) for Carrying out prospecting operations and to prepare prospecting report.

M/S Kunnam Granites works Chennai has applied for quarry lease. The Director Mines & Geology, Hyderabad after scrutinizing the application has issued a notice vide letter No36730/R1-3/2002 dated 28 -10-2002 To submit approved Mining Plan for grant of Mining lease. This Mining Plan is prepared in accordance with the GCDR rules 1999.

APPROVED

Chander
Dr. P. DAYASANKAR
JOINT DIRECTOR
DEPT. OF MINE & GEOLOGY
GOVT. OF A.P. HYD. HEAD.



II. GENERAL

- 2.1. Name and Address of the applicant** : M/s Kunnam Granite Works
22-A Malonuy Road
T.Nagar, Chennai -17
- 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
P&T colony Dilsuknagar
Hyderabad 500 060
Ph. 4068218 , 6618351
- 2.5 Name and Address of the Prospecting Agency** :M/s Kunnam Granite Works
Chennai

2.6 Details of the Area :

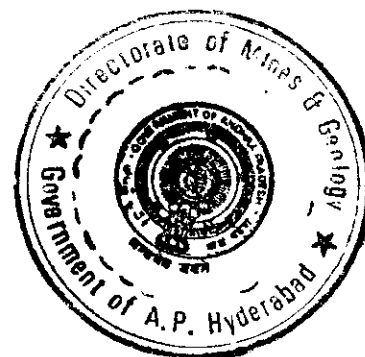
The applied area falls in the Survey of India Toposheet No.74 B/2 and is bounded East Longitude 84°- 07'-00" and North Latitude 18° - 34'-59". It is situated 1 Km South West of Jarali (V). The road leading from Tekkali – Tembur and diversion at Kothapally gate will lead to the site. The location of the area is indicated in key cum location Map (Plate I).

Table No.1 Details of the Area

Dist.	State.	Mandal	Village	S.No.	Extent	Ownership of Occupancy
Srikakulam		Saravakota	Jarali	199	6.00 Hec	Govt.Land

2.7. Period for which quarry lease required = 20 years

Cadastral Map certified by the Asst. Director of Mines & Geology, Srikakulam in favour of M/s Kunnam Granite Works is given as plate No II.



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 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 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.

Local Geology

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, 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 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.

N 45°W – S45°E is the major joint direction recorded in the area



3.3.1 Prospecting operations carried out

The following prospecting operations were carried out in lease area.

1. Geological traverses and mapping of the area on 1: 1000 scale.
2. Topographic survey using Theodolite surveying instrument was used for preparation of surface/work plan and preparation of topographic maps.
3. Exploratory mining, excavation of 1 pit for exploratory mining.

3.3.1-1. Geological traverses and mapping :

The lease area was traversed to demarcate the exposures of the colour Granite and to record the structural features in the outcrops, the data regarding litho units collected and surface geological map on 1:1000 scale prepared (plate III). 5nos of samples were collected for polishing test.

3.3.1-2. Topographic Survey :

A micro optic theodolite is used for conducting the topographic survey. An assumed benchmark of 100 M used to measure the elevation differences in the lease area and also to prepare the surface elevation contour map on 1: 1000 scale.

3.3.1-3: Exploratory Mining:

Geological mapping of the lease area revealed the Migmatites forms as a hill raising up to 90M above ground level. Therefore mining operations were carried out at central part of the area [on the peak of the hill]. The exposed sheet was drilled by Jack Hammers and A bench of 2. 5M height was developed. The quarrying advances North- South, bench facing North wards, a steep ramp is formed from North East to the quarry. The mining is of semi-mechanised type.

In the trial pit of 60x2.66x2.5 M a total of 399 or say 400 M³ rock mass was retrieved from mother rock and after secondary cutting and dressing 120 M³ of economic grade rough blocks recovered showing the recovery percentage of about 30. All rough blocks received are of Gang Saw size.

The following machines are used:

- | | |
|---------------------------|----------|
| 1. Hitachi Excavator 200 | -1no. |
| 2. Compressor CP 300 | -1no. |
| 3. Compressor Atlas Copco | -1no. |
| 4. Jack hammers | - 5 no.s |
| 5. Tipper | -1 no. |



3.4. Estimation of geological reserve

3.4.1 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.

3.4.2 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 multiplying area with the average height of 35 M.

3.4.2-1. Categorization of reserves.

The deposit is exposed on hill with an average height of 35 Mts rock is considered for computing the reserves. The deposit exposed on the surface and RL150 to RL115 in section A – B is classified under "Proved"

Total area	60,000M ²
Area covered with Soil	6,500 M ²
Area covered with Deposit	53,500 M ²
Average thickness of Deposit	35M

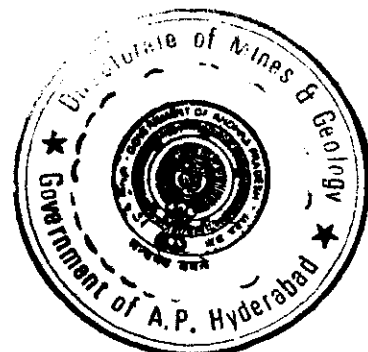
Total geological reserves estimated = 18,72,500 M³

3.4.2-2. Total Mineable Reserves : The deposit blocked under buffer zone, a corridor of 7.5 M width around the lease area boundary, and deposit blocked under roads, site services and machinery yards not available for mining. Deduction of reserves blocked above under different areas from total geological reserves indicate total mineable reserves, which are as follow.

$$\begin{aligned} \text{Total Mineral Reserves} &= \text{Total Geological reserves} - \text{Deposit} \\ &\quad \text{Blocked under Buffer zone.} \\ &= 18,72,500 \text{ M}^3 - 1,91,625 \\ &= 16,80,875 \text{ m}^3 \end{aligned}$$

3.4.2-3. 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, where as blocks with sizes of 75cm x 75cm x 50cm (2' / 2') and 70cm x 40cm (2'/1') are generally marketed locally known as marginally economic grade. Exploratory mining carried out in lease area revealed 30% of recovery of 1.2 cu.m (gang saw) size blocks only blocks. Therefore,

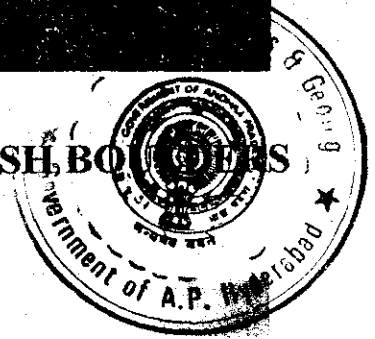
$$\text{Economic marketable reserves} = 5,04,262 \text{ M}^3$$



PHOTOGRAPH SHOWING VEIW OF THE HILL DEPOSIT



PHOTOGRAPH SHOWING THE FRESH BO



IV. MINING

4.1 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 as a hill raising upto 90M above GL. With boulders and sheet beneath it.

The following method of working is proposed:

Stage 1. Over burden removal: Consists of development which includes removal of Weathered, undersized and defective boulders using proclain/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 will be split into two or three pieces so that blocks can be made out of them. Usually, the advantage of natural joints present in the boulders is taken for splitting them or a line of drill 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 blasted with a small charge of gunpowder. Sometimes feather and wedges are placed in series of holes drilled for splitting the boulder, except a middle hole and a small quantity of gunpowder is charged and blasted after tightening with the wedges.

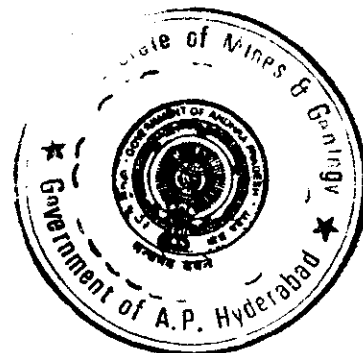
The separated pieces are examined for defects and lines, then the block or blocks are marked in clear area and holes are drilled along the line of marking, with the help of feathers and wedges the waste portions are separated forming a rectangular blocks. Any bulges are removed by drilling and wedging making it perfect blocks. A perfect block is that all the sides shall make with each other 90

SECONDARY SPLITTING:

After separation from the mother rock, it is properly checked by washing with water to identify defects and cracks. Based on this observation, the size is decided and the blocks are marked and separated by drilling and wedging.

The following methods are adopted:

1. Splitting the primary mass by controlled non-destructive blasting methods.
2. Slotting by drilling.
3. Cutting the mass with Wire Saw.



Dressing:

After primary separation the rock mass will be carefully examined to avoid hair-line 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.

i) *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.

ii) *Dressing of rough blocks quarry for domestic processing plant:*

Dressing by means of squaring and splitting is done for rough blocks of the size varying between 70x50x50 Cu.M or 70x40x40Cu.M for domestic processing plants will be taken i.e. similar fashion as for the export.

iii) *Dressing of rejected rough blocks for value addition:*

Dressing of rejected rough blocks also done for value addition anticipating future market.

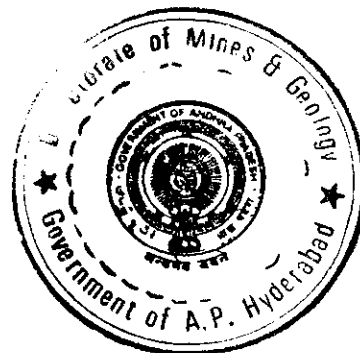
The mining operation will commence from the already existing trail pit and extend ENE and WSW.

4.1-A Scheme of Mining:

It is proposed to carry out mining operations in the area in the following procedure During the first year developmental work will be taken up which includes clearance of bushes, formation of ram from ground level to working area on the hill from North Eastern side, following in slope of the hill and the formation 6-8 M wide plot form at the working phases for the convenience of operation of excavation and other machinery.

1 Year:

The mining operations start from the existing pit. Oriented in ENE – WSW, located in the grid east 100-150 and North 50-150 facing RL 155- 152 forming a bench height of 3 M and North bench will be advanced towards South, maintaining an average bench height of 3M. During the first year a total area of 1225 Sq.M will be utilized.



II Year:

In the 2nd year the Mining advances west of first year working in the grid east 5200 and north 5200. The mining starts at RL 160 and ends at RL 157. ENE – WSW oriented faces advance further South maintaining average of 3 M bench Height. An area of 1225 Sq.M will be covered during this year.

III Year:

In the 3rd year the mining continues further west between grids east 0-100, north 50-100 between RL 165 – 162. ENE – WSW oriented faces advance further South maintaining average of 3 M bench Height. An area of 1225 Sq.M will be covered during this year

IV Year:

In the 4th year the Mining will shift to east of first year pit in the grids east 100 – 200 north 100-150 between RL 145 and RL 142. Maintaining average of 3 M bench Height. An area of 1225 Sq.M will be covered during this year

V year:

In the 5th year the mining will continue east of 4th year pit in the grids east 150 - 200 north 100-150. The mining will continue between RL 125 – 122. Northern oriented faces advance further South maintaining average of 3 M bench Height. An area of 1225 Sq.M will be covered during this year

4.2 Year wise development for First Five Years:

The deposit in this area is exposed to a height of 90M from the surface. In the first five-year plan period the applicant proposes to produce 1102.5 Cu.Mts. of Coloured granite per year. In order to produce this quantity an area of 1225 Sq.Mts. will be utilized.

4.2.1 Year wise Production for First Five Years:

During mining operations the applicant proposes to produce 1102.5 Cu.Mts. of Coloured granite per year. In order to produce this quantity an area of 1225 Sq.Mts. will be utilized.

In the First year it is planed to produce 1102.5 M³ of economic grade rough blocks. To produce this quantity an area of 1225 {35x 35M } Sq.Mts. will be utilised. Producing 3675 Cu.M of rock from which 30% (1012.5 Cu.M) economic grade rough blocks will be obtained and 70%(2572.5 Cu.M) of waste rock will be realised.

In the Second year it is planed to produce 1102.5 M³ of economic grade rough blocks. To produce this quantity an area of 1225 {35x 35M } Sq.Mts. will be utilised. Producing 3675 Cu.M of rock from which 30% (1012.5 Cu.M) economic grade rough blocks will be obtained and 70%(2572.5 Cu.M) of waste rock will be realised.



In the third year it is planned to produce 1102.5 M³ of economic grade rough blocks. To produce this quantity an area of 1225 {35x 35M } Sq.Mts. will be utilised. Producing 3675 Cu.M of rock from which 30% (1012.5 Cu.M) economic grade rough blocks will be obtained and 70%(2572.5 Cu.M) of waste rock will be realised.

In the fourth year it is planned to produce 1102.5 M³ of economic grade rough blocks. To produce this quantity an area of 1225 {35x 35M } Sq.Mts. will be utilised. Producing 3675 Cu.M of rock from which 30% (1012.5 Cu.M) economic grade rough blocks will be obtained and 70%(2572.5 Cu.M) of waste rock will be realised.

In the fifth year it is planned to produce 1102.5 M³ of economic grade rough blocks. To produce this quantity an area of 1225 {35x 35M } Sq.Mts. will be utilised. Producing 3675 Cu.M of rock from which 30% (1012.5 Cu.M) economic grade rough blocks will be obtained and 70%(2572.5 Cu.M) of waste rock will be realised.

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

4.2.2 Drilling & Blasting:

- A) Drill hole pattern for primary and secondary smooth blasting bore holes of 3M depth will be drilled in a single row with a spacing of less than 0.3Mts and burden of 1.6Mts or more shall be maintained uniformly. This arrangement will yield rock size of 3M x 2M cross section. A bench height of 6.0Mts will be tackled in two steps.

4.3. Handing of blocks within the quarry:

Blocks from mother rock separated by excavator and since the quarry is located on the ridge, the rough blocks will be brought to the dressing yard by proclain.

Transportation of blocks from quarry to yard and to destination;

As mentioned in the para4.3, the rough blocks in the mine area handled using proclain and brought to dressing yard. Here, after proper dressing blocks are transported to destination by trucks.

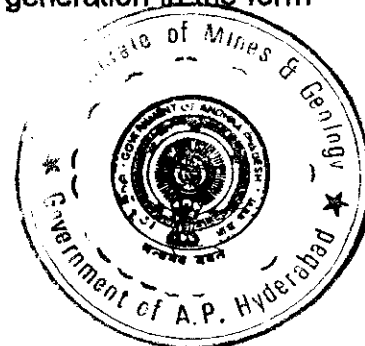
V.STORAGE AND HANDLING EXPLOSIVES:

The explosive shall be handled as per the provisions of Indian explosive act for the procurement and transportation. The proposed site for Magazine will be in the SE of the Quarry where the applicant proposes to acquire the land.[Plate V]

VI .WASTE MANAGEMENT PLAN:

6.1 Solid Waste

Mining of coloured granite is general, faces serious problem of generation huge quantity of waste rock. In the area though coloured granite occurs as exposed deposit with loose under sized boulders on the surface. With the closely spaced joints and sheared joints contribute a great extent of waste generation in the form



of side burden. Further natural defects like moles, dark patches and veins are present in the rock, effects of blasting also contribute to generation of huge waste material during coloured granite mining.

6.2. Estimated wastage quantities that will be generated over the entire the lease period

At the rate of 2572 Cu.M average generation of waste per year for 20years lease period the total volume of waste generated is estimated to be 51,440 Cu.M .

6.3. Measures to be adopted for solid waste:

1)Reduction of waste at source :-

a)Where the defect less and defective bands are distinct in the mine resorting to strip mining may be helpful in reduction of waste.

b) Controlled and cushion blasting may be helpful in generation of less blasting waste.

c) Employing experienced and skilled workers in the production and dressing of rough blocks may help in generation of less waste rock.

i)Utilitisation of waste if not prevented:

i)Separation of over burden and side burden in to different categories such as soil, weathered rock and dumping separately so that:

- ❖ Soil is absent
- ❖ Weathered rock if it is sufficiently soft and devoid of rock fragments can be utilized the filling of roads, side ditches, formation of approach roads to quarries, construction works etc.

ii)Waste rock of generated during production, blasting and dressing having large and medium sized can be used as break water stones, deep cut streams, river sections, for preventing the soil erosion.

iii)Recovery of waste material from the rejected block. Small size rough blocks can be obtained from large size rejected blocks and can be sold in the local market for the tiles etc.

iv) Disposal of waste as last resort:

The waste, which is useless, has to be removed and stored in separate dumps. Dumping site is year marked between east 100 – 200 North 200 – 250 in the North Eastern corner of the lease area. [Plate V]

v) Use for back fillings the quarried out mines and other landfill operation of a source of road building material etc.:



As the Coloured Granite in this area is an exposed deposit, underlain by thin veneer of overburden and as the life of the ultimate pit level will not be deep enough the waste generated during mining may be sufficient to back filling of the left over quarry. Granite waste generated during production and dressing after reducing to proper size can be utilized in the road construction, etc.

6.4 Liquid Waste:

i) Mine Drainage

The drainage system of mine in this area consists of only of surface run off generated from rainfall. As the deposit forms a ridge, the groundwater occurrence is absent, therefore mine drainage may not be a problem in this area.

ii) Run off from waste dumps and measures proposed to arrest run off. Rainfall over the lease area affected differently by waste dumps, mine pits, roads etc. The rain cuts the dumps small rills formed and there by a small amount of run off is generated.

The following measures proposed to arrest surface runoff.

- a) Garland drains around pit and waste dump
- b) Retention wall at the foot of the dump
- c) Growing vegetation on the slopes of the dumps

Excavation drainage ditches all around the quarry to direct surface drainage:

Garland drains proposed around pit to divert the runoff in to natural drainage channels.

Utilization of runoff for general surface use or discharge in to surface drainage networks only after meeting with prescribed discharge standards and further the agricultural purposes on the surface:

Surface runoff general during rainfall event cannot be utilized for the general use, hence through the garland drains proposed runoff will be diverted in to drainage network. Granite mines or dump have no pollutants or toxic substances, hence, no contamination is expected, except siltation.

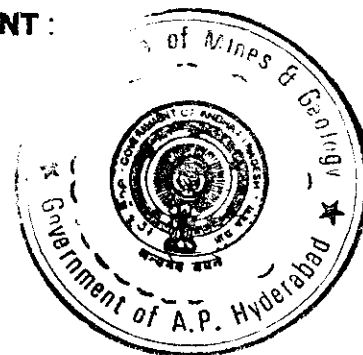
Further no agricultural lands exist surrounding the lease area hence water from the drains cannot be utilized for agricultural purpose.

Treating waste - water to obtain the desired quality for industrial use as may be required:

No industries exist in the vicinity of the lease area. Hence, no treatment is required for the runoff.

VII. DESCRIPTION OF GRANITE PROCESSING PLANT :

Not applicable.

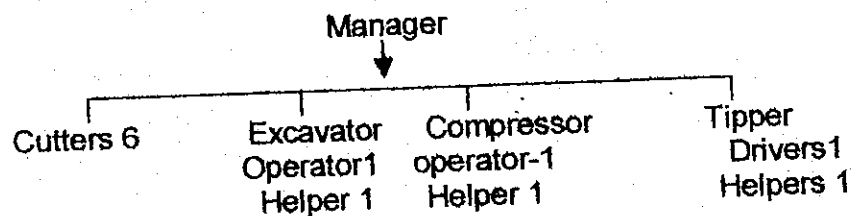


VIII. MARKET ANALYSIS

- i) Assured and expected supply contracts
During exploratory mining operation, the licensee has dispatched total of 7 cu m of economic grade to the International Market there by established the marketability of rough blocks from this mine.
- 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 :
Coloured granite of this is having very good demand in both international as well as in domestic market. The prices of rough blocks of 1.20 up size ranging between Rs.20,000 to 25,000 depending upon the colour of the rock.

IX. ORGANIZATION CHART FOR THE QUARRY AND CAPTIVE PROCESSING PLANT IF ANY AND AT THE CORPORATE LEVEL.

The organogram 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.

X. ENVIRONMENTAL MANAGEMENT PLAN:

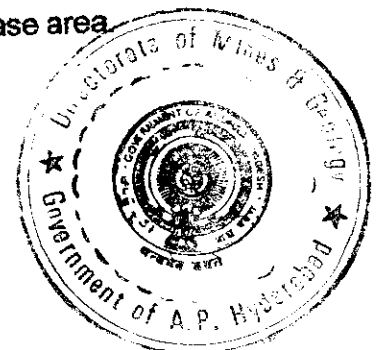
10.1 Baseline Information:

i. Existing land use pattern:

The applied area is hill land. The land is gently 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 deposit is exposed 90 M above GL and occupies entire quarry lease area.

ii. Water Regime:

No Streams or Drainage lines exist in and around Quarry Lease area



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 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 1000mm.

v) Human settlement:

The village Jarali is situated 1 Km due North East of the QL area.. The population of this village is about 1500. The village is surrounded by agricultural lands. The details of the villages in 5 Km, surrounding from the applied area is given in following table.

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

S.No.	Village	Direction	Distance	Population
1.	Jarali	North East	1 Km.	500
2.	Kottapally	East	2 Km.	2000
3.	Danta	South	1.5 Km.	1,000
4.	Ramchandrapuram	SW	2 Km.	600
5.	Tatiparti	SW	3 Km.	700

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

vi) Public building, palace and monuments:

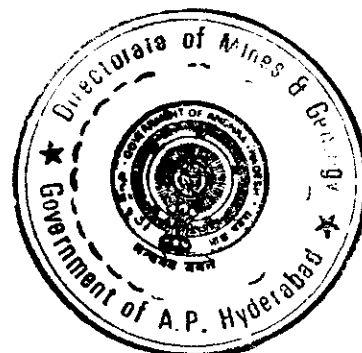
No of public buildings, palaces and monuments are witnessed in and at the vicinity of the area.

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.



10.2 Environmental Impact Assessment :

I. Land scape Changes

The mineral deposit. Is exposed, raising 90M above GL. In 5 years plan period it is proposed to produce 5,510 M³ of rough blocks. To meet this production an area of 6125 Sq.m. will be utilized. The mining will alter the shape of the present hill with the quarry pits.

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 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.

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:

No Streams or Drainage lines exist in and around Quarry Lease area.

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.

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.



ix) Socio Economic Environment:

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

x) 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.

xi) Human Settlement:

The nearest village Jarali is situated 1.0 Km from the area. Therefore there is no anticipation of adverse affect on the human settlement.

xii) Recreational Facility:

The surrounding villages people will go to Tekkali Town for purchases & recreation.

11.3. 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.

3. In case of forest programme for phased compensatory afforestation:

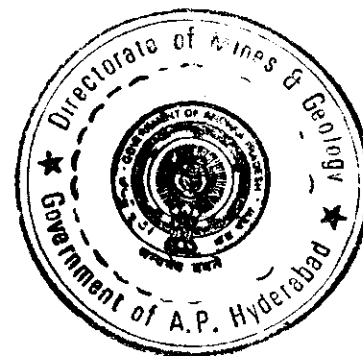
The applied area will not come under forest zone.

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.



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 and in the absence of the soil cover. Hence, soil mixed with boulders, which are unfertile, is deposited along the east margin of the lease area. Afforestation program is proposed in this region by planting suitable type with 2 M spacing.

9. Preparation of dumping ground for stacking toxic mineral substance:

No toxic minerals are present

XII.. Employment and site services:

A. Employment: Given in Para X

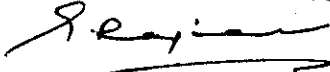
B. Site Services:

Office, Rest rooms, Store room, First-Aid room will be provided at the Quarry site. Further , Drinking water will be provided in the land proposed to be acquired by the applicant[Plate VI].


XII. 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.

For KUNNAM GRANITE WORKS

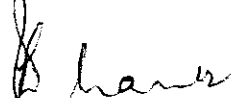


APPLICANT Managing Partner



RQP
(V.T.Chander)

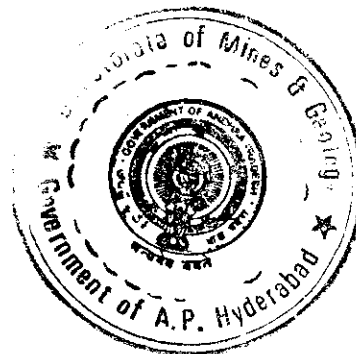
APPROVED



Dr. P. DAYASANKAR

JOINT DIRECTOR

(DEPT. OF MINES & GEOLOGY
GOVT. OF A.P. HYDERABAD.



GOVERNMENT OF ANDHRA PRADESH.
DEPARTMENT OF MINES AND GEOLOGY:: HYDERABAD.

NOTICE NO: 36730/R1-3/2002.

DATED: 28.10.2002.

Sub: Mines and Quarries - Quarry Lease application -
Extent: 6.000 Hectares - Survey Number: 199 -
Village: Jarali - Mandal: Saravakota
Dist: Srikakulam - infavour of M/s. Kunnam Granite Works
for a period of 20 years - A.M.P. Called for -
Reg.

Ref: 1. From M/s. Kunnam Granite Works, Q.L.Application
dt: 9.10.2002.
2. From the ADM&G., Srikakulam File/Lr. No.4298/Q/2002,
dt: 21.10.2002.

M/s. Kunnam Granite Works in the reference 1st cited, have applied for grant of Quarry Lease for Colour Granite over an extent of 6.000 Hectares in S.No. 199 of Jarali Village, Saravakota Mandal, Srikakulam District.

2. The Asst. Director of Mines and Geology, Srikakulam in the reference 2nd cited, has stated that the applied area is held under P.L. by the applicant. The applicant has submitted the prospecting report on the subject area. Further the Assistant Director has recommended for grant of Quarry Lease for Colour Granite over an extent of 6.000 Hectares in S.No. 199 of Jarali Village, Saravakota Mandal, in Srikakulam District in favour of M/s. Kunnam Granite Works for a period of 20 years.

3. The Director of Mines and Geology, Hyderabad after careful examination of the above proposals of the Asst. Director of Mines and Geology, Srikakulam has proposed to grant the Quarry Lease over an extent of 6.000 hectares in S.No. 199 of Jarali Village, Saravakota Mandal, Srikakulam District in favour of M/s. Kunnam Granite Works for a period of 20 years subject to the submission of Approved Mining Plan within six months from the date of receipt of this Memo.

4. Therefore, M/s. Kunnam Granite Works are requested to submit the Approved Mining Plan for the above area referred at Para 2 for a period of 20 years within a period of six months from the date of receipt of this notice for consideration of their Quarry Lease application.

5. Further, they are also informed that if they fail to submit the A.M.P. within a period of six months from the date of receipt of notice it will be presumed that they have no interest in their Quarry Lease application and further action will be taken based on the material available with the Director of Mines and Geology.

Sd/- T. Devendranath.
DIRECTOR OF MINES AND GEOLOGY

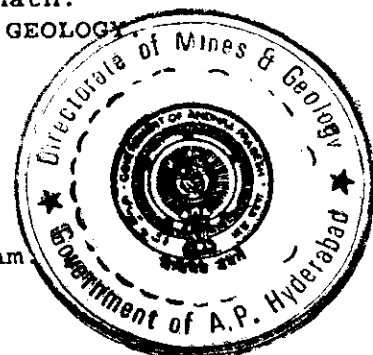
//f.c.f.b.o.//

G. Vidyasagar
SUPERINTENDENT.

To:

M/s. Kunnam Granite Works, 22-A,
Malony Road, T.Nagar, Chennai-17.

Copy to Asst. Director of Mines and Geology, Srikakulam
Copy to Approved Mining Plan Section.



ANNEXURE II

YEAR	RL	L X W X BENCH HEIGHT M M M	VOLUME IN M³	MARKET GRADE ROUGH BLOCKS WITH 30% RECOVERY	WASTE GENERATED IN M³
1ST	166-162	35 X 35 X 3	3675	1102.5	2572.5
2ND	160 - 157	35 X 35 X 3	3675	1102.5	2572.5
3RD	166 - 162	35 X 35 X 3	3675	1102.5	2572.5
4TH	145 - 142	35 X 35 X 3	3675	1102.5	2572.5
6TH	125- 122	35 X 35 X 3	3675	1102.5	2572.5
		TOTAL		5512.5	14362.5
		AVERAGE		1102.5	2572.5



DIST. T. SRIKAKULAM

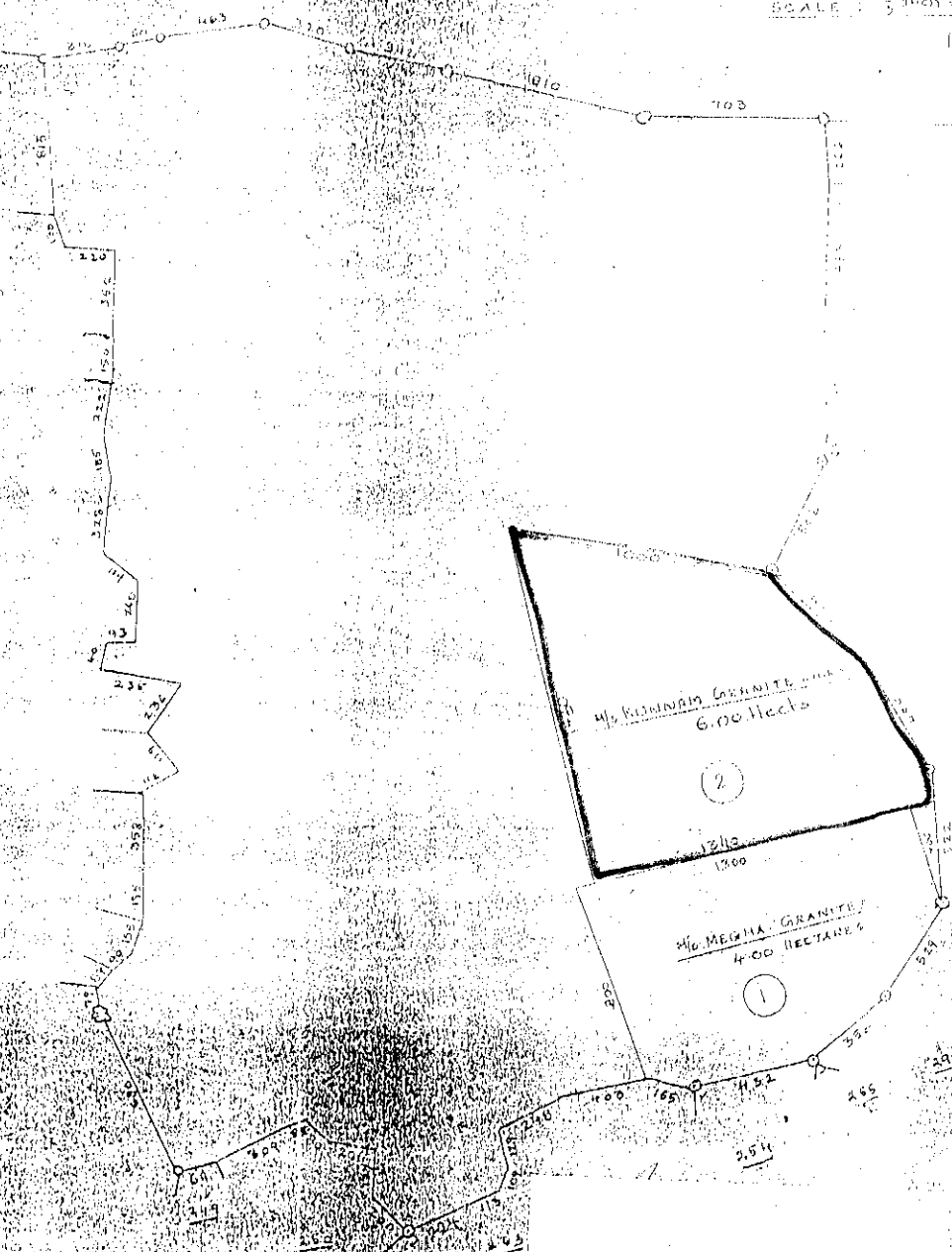
S No. 199

VILLAGE : JARALI

MANDAL : SARAVAKOTA

EXTENT : 10-00 ACRES

SCALE : 1 inch = 0.5 Chams



1. AREA SURVEYED TO M/o MEGHA GRANITE WORKS
 For KUNNAM GRANITE WORKS
 EXTENT : 4.00 HECTARES

2. AREA SURVEYED TO M/o KUNNAM GRANITE WORKS
 For MEGHA GRANITE WORKS
 EXTENT : 6.00 HECTARES

For KUNNAM GRANITE WORKS

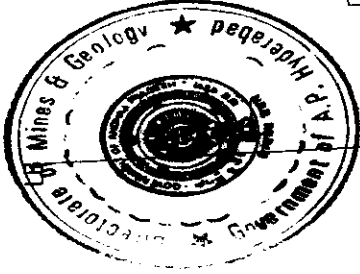
J. Ray
Managing Partner

For KUNNAM GRANITE WORKS

J. Ray
Managing Partner



APPROVED



INDEX

LB

LEASE AREA BOUNDRY

APPROVED

PROVED RESERVES

LB

150

145

140

135

130

125

120

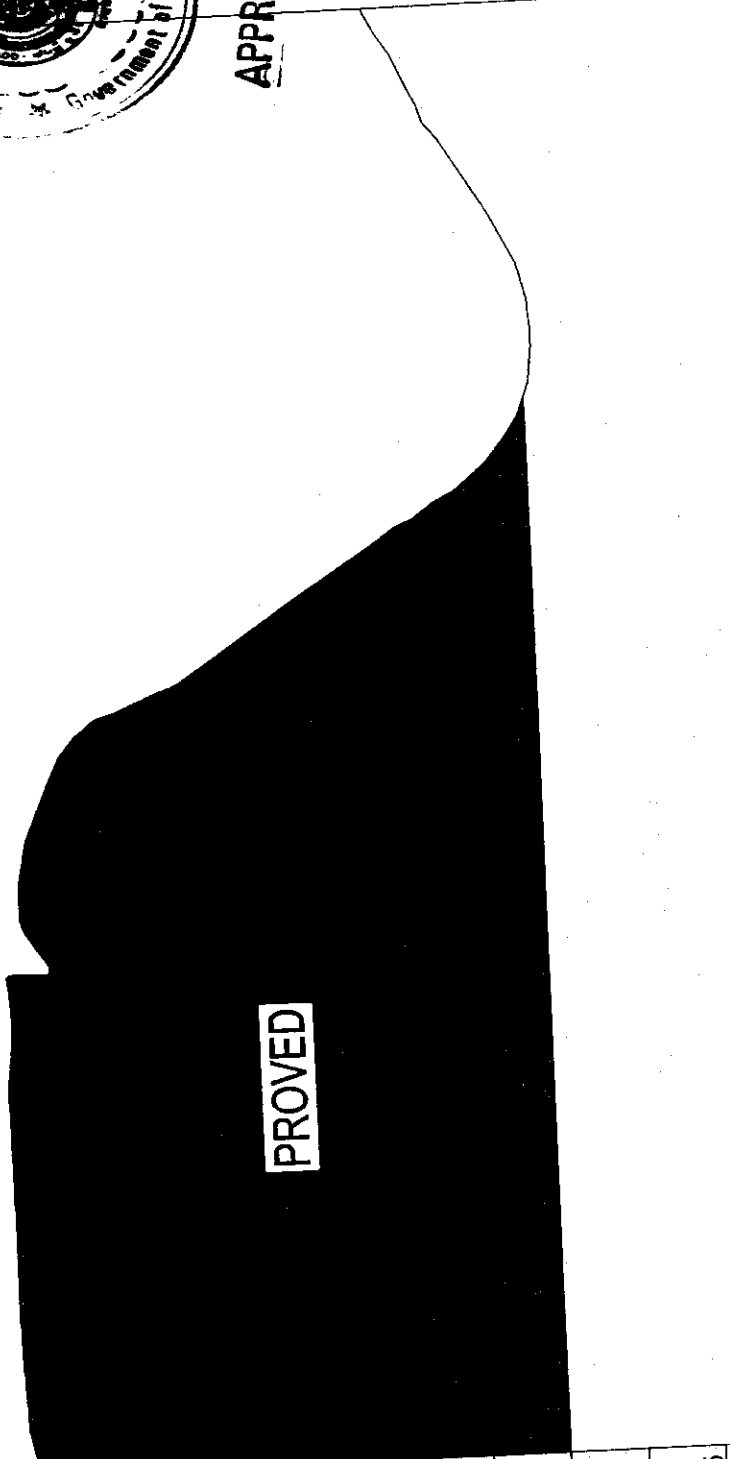
115

110

105

100

A



PROVED

B

For KUNNAM GRANITE WORKS

APPLICANT: *S. Ray* Managing Partner

RQP: *V.T. Chander*

MINING PLAN FOR COLOUR GRANITE

IN SURVEY No. 199 - JARALI (V)
SARAVA KOTA (M), SRIKAKULAM Dist.

GEOLOGICAL CROSS SECTIONS

APPLICANT: M/s KUNNAM GRANITES WORKS

HOR. SCALE: 1:1000 VERTICAL SCALE 1:200

V.T. CHANDER, RQP/DMGHYD/02/2001

C.C. GEO ENGINEERING CONSULTANTS PVT. LTD.,
202, Mahalakshmi Ganapathi Complex, PAT Colony,
Dilsukh Nagar, Hyderabad - 50.

PLATE-IV

For KUNNAM GRANITE WORKS
 S. Jayaram
 Managing Partner

LOCATION OF THE AREA

TANK

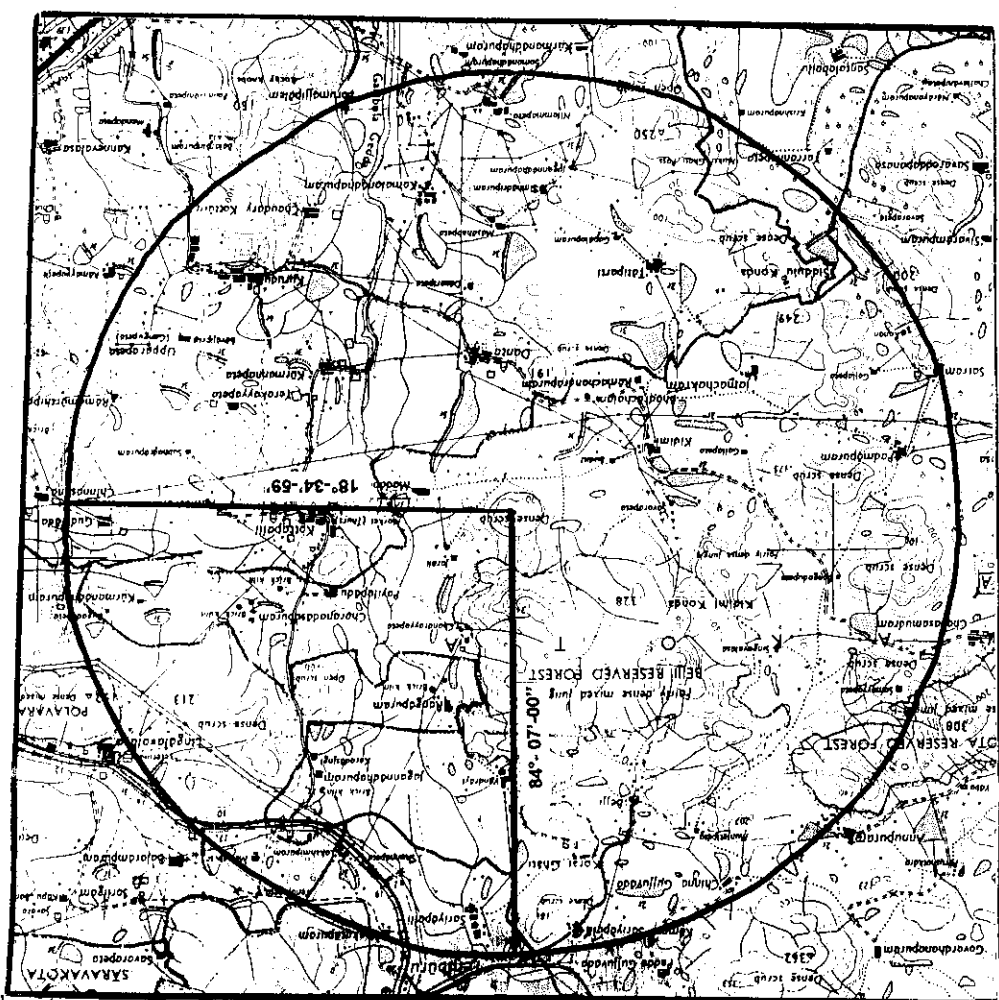
VILLAGE

ROAD

STREAM

CORRECTNESS CERTIFIED
 (V. T. CHANDER)
 BOP/DMG/HYD/02/2001

LEGEND



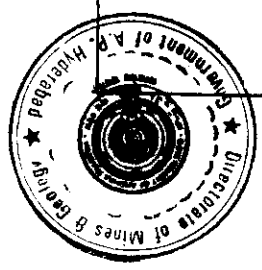
Part of Toposheet No. 74B/2
 Scale 1:50,000

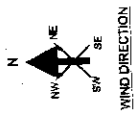
JARALI (V), SARAVAKOTA(M), SRIRAKULAM DISTRICT
 KUNNAM GRANITE WORKS

KEY cum LOCATION MAP
 OF
 COLOUR GRANITE
 OF



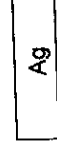
PLATE I

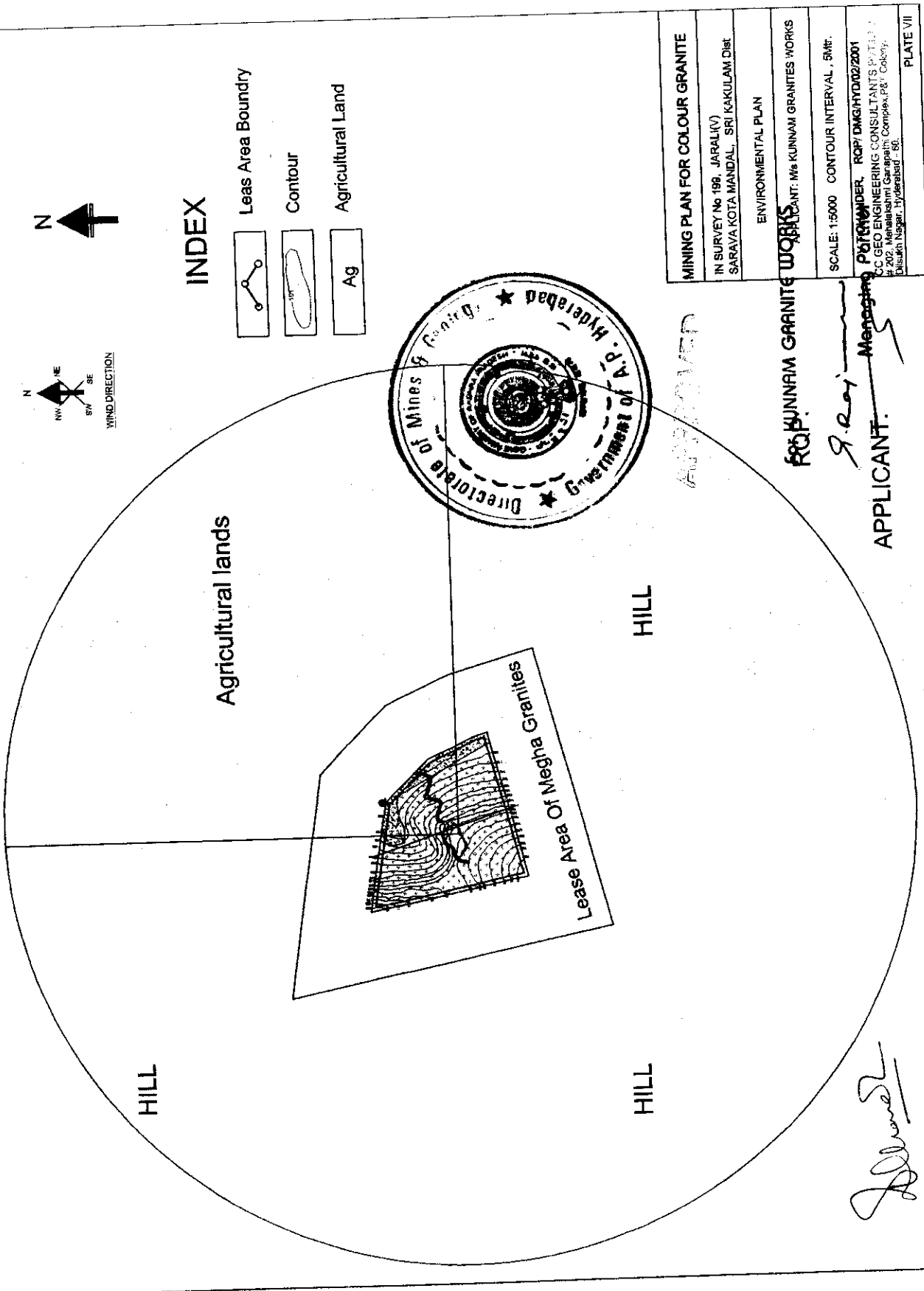
APPROVED





INDEX

-  Leas Area Boundary
-  Contour
-  Agricultural Land



MINING PLAN FOR COLOUR GRANITE
IN SURVEY No 196, JARALI(V) SARAVA KOTA MANDAL, SRI KAKULAM DIST.
ENVIRONMENTAL PLAN
APPLICANT: M/s KUNNAM GRANITES WORKS
SCALE: 1:5000 CONTOUR INTERVAL, 5Mtr.
PROJECT NUMBER, ROP/DMG/HYD/02/2001
PREPARED BY: C.C. GEO ENGINEERING CONSULTANTS PVT.LTD. Plot No. 10, Gandapathi Complex, PRT Colony, Banjara Nagar, Hyderabad - 50.
PLATE VII

APPROVED

ROBINNAM GRANITE WORKS

S. Raj
Managing
APPLICANT.

[Signature]