

**Applicant : Sri K. Parthasarathy**

*Mining Plan for Colour Granite over an extent of 2.00 hectares in Survey*

*Number 278 of Chinnasana Village,*

*Kotabommali Mandal, Srikakulam District, Andhra Pradesh.*  
(Period 2003-2007)

**Prepared by  
Chandra Mohan  
Consultant**

**&**

**R.Q.P.  
RQP/DMG/HYD/052/2002.**

**Hyderabad  
February, 2003.**



**APPROVED**

**Applicant : Sri K.Parthasarthy**

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**278 of Chinnasana Village, Kotabommali Mandal,**

**Srikakulam District, Andhra Pradesh.**

**(Period 2003-2007)**

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#### Appendices :

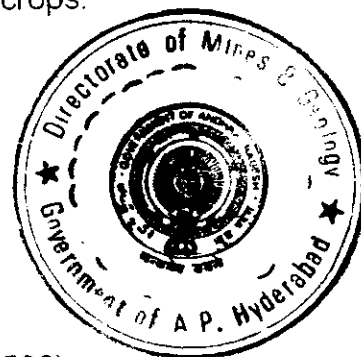
- I. Proceedings No.29086/ R 1-3 B/97 dated 02-06-2000 from the Director of Mines and Geology, Hyderabad.
- II. Proceedings No.2918/Q/2000 dated 31-07-2000 from the Assistant Director of Mines and Geology, Srikakulam.
- III. Notice No.27948/R1-3/2002 dated 19.09.2002 from the Director of Mines and Geology, Hyderabad.

#### Photographs

1. Hydraulic Excavator in Operation – Soil overburden being removed.
2. Boulders of Migmatized Charnockite opened up.
3. Vertical joints prominently exhibited in bouldery outcrops.
4. Boulder splitting into Dimensional Blocks.

#### Plates :

- I. Location Map (1:1,000,000)
- II. Lease Sketch Map
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## Certificate

This is to certify that the Mining Plan for Colour Granite over an extent of 2.00 ha in Survey No.278 of Chinnasana Village, Kotabommali Mandal, Srikakulam Dist, A.P. has been duly prepared by Sri Chandra Mohan, Consultant and RQP and I agree to follow the same in accordance with the provisions of law. I undertake to follow all the relevant Mines Safety Regulations and other rules as applicable from time to time.

6<sup>th</sup> March 2003,  
Chennai.

*W. Parathy*


(K. PARTHA SARATHY)  
Applicant



## Certificate

The provisions of Granite Conservation and Development Rules, 1999 have been observed in the Mining Plan for Colour Granite over an extent of 2.00 ha in Survey No.278 of Chinnasana Village, Kotabommali Mandal, Srikakulam District, A.P. and wherever specific provisions are required, the applicant will approach the concerned authorities.

22<sup>nd</sup> February, 2003  
Hyderabad.

  
(CHANDRA MOHAN)  
Consultant & RQP  
RQP/DMG/HYD/052/2002



**Applicant : Sri K. Parthasarathy**

Mining Plan for Colour Granite over an extent of 2.0 ha in  
Survey Number 278 of Chinnasana Village, Kotabommali Mandal,  
Srikakulam District, Andhra Pradesh.

(Period 2003 – 2007) **This Mining Plan is Approved subject to the  
Conditions/Stipulations Indicated in the**

**1.0 Introduction**

**Mining Plan Approval Letter No.....  
39421m?sl03... dated 26.3.07**

Sri K. Parthasarathy submitted an application to the Director of Mines and  
Geology for quarry lease for colour granite over an extent of 2.00 ha in Survey  
Number 278 of Chinnasana Village, Kotabommali Mandal, Srikakulam District, A.P.  
on 01.09.1997 for a period of 15 years. Mandal Revenue Officer, Kotabommali  
Mandal issued revenue clearance on 10-05-1999 and the Deputy Director of Mines  
and Geology, Visakhapatnam recommended for grant of quarry lease. Meanwhile,  
the Granite Conservation and Development Rules issued by Government of India  
came into force with effect from 1<sup>st</sup> June, 1999. Accordingly, the Director of Mines  
and Geology, Government of Andhra Pradesh after taking consent from the  
applicant issued Prospecting License for granite over an extent of 2.0 ha in  
Survey Number 278 of Chinnasana Village, Kotabommali Mandal, Srikakulam  
District, A.P. for a period of two years in favour of Sri K.Parthasarathy as per Rule  
12(5) (a) (i) & (ii) of A.P.M.M.C. Rules, 1966 and Rule 4 of Granite Conservation and  
Development Rules, 1999 (Proceedings No.2986/R1-3B/97 dated 02-06-2000  
Annexure-I). The Assistant Director of Mines and Geology, Srikakulam after  
executing the Prospecting Lease deed accorded sanction to Sri K.Parthasarathy to  
carry out Prospecting Operations for a period of two years from 31<sup>st</sup> July, 2000 to  
30<sup>th</sup> July,2002 (Proceedings NO.2918/Q/2000 dated 31.07.2000, Annexure-II).  
Accordingly, the applicant carried out Prospecting Operations between April and  
July, 2002. At the request of applicant, Sri Chandra Mohan, Consultant and R.Q.P.



**APPROVED**

*(Signature)*

**Dr. P. DAYASANKAR**  
JOINT DIRECTOR  
DEPT. OF MINES & GEOLOG  
GOVT. OF A.P. HYDRABAD

prepared and submitted Prospecting Report in August, 2002 to the Assistant Director of Mines and Geology, Srikakulam and the latter forwarded the Report to the Director of Mines and Geology, Hyderabad. The Director of Mines and Geology, Hyderabad issued notice No.27948/R-1-3/2002 dated 19.09.2002 asking the applicant to submit approved Mining Plan (Annexure-III), The Consultant, Sri Chandra Mohan accordingly prepared the Mining Plan as per the guide lines circulated by the Director of Mines and Geology.

## **2.0 General**

### **2.1 Name of the Applicant with Complete Address :**

Sri K.Parthasarathy,  
Plot No.33,  
D.No.22, Perumal Nagar,  
Nanganallur, Chennai / 600 061 (Tamil Nadu).



### **2.2 Status of the Applicant :**

The applicant, a citizen of India, is a private individual engaged in the business of Dimension Stones.

### **2.3 Mineral of Minerals which the Applicant intends to mine :**

Colour Granite

### **2.4 Name, Address and Registration Number of the Recognized Qualified**

#### **Person who prepared the Mining Plan :**

Sri Chandra Mohan,  
Consultant and R.Q.P.  
12-2-709/c/114, Padmanabha Nagar,  
Hyderabad – 500 028 (A.P.)  
R.Q.P. No.RQP/DMG/HYD/052/2002.

Residential Ph : 23510910

## **2.5 Name and Address of the Prospecting Agency :**

The Mandal Revenue Surveyor demarcated the applied area and the Assistant Director of Mines and Geology authenticated the same. The R.Q.P. carried out detailed topographic survey of the area on 1:500 scale followed by geological mapping. Exploratory opening was made in course of prospecting operations.

## **2.6 Details of the Area :**

The applied area falls in Survey of India topo sheet No.74 B/2 and is located 500m SW of Chinnaasana Village ( $18^{\circ} 34' 28''$ ;  $84^{\circ} 09' 47''$ ) and north of Kottapeta.

**Details are as follows :**

District and State	Mandal	Village	Survey Number	Area in Hectares	Ownership
Srikakulam, A.P.	Kotabommali	Chinnaasana	278	2.00	Govt. land Poramboke

## **2.7 Period for which Mining Lease is required :**

Twenty Years



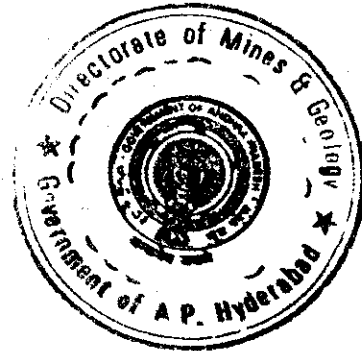
## **2.8 Accessibility and Infrastructure :**

**2.8.1. Accessibility :** The applied area is accessible from National Highway NH-5 (Chennai – Kolkata) between Kotabommali and Tekkali. 6 km to the South of Tekkali on the National Highway there is a diversion on the west and a 4 km long metalled road leads to Chinnaasana Village via Parasuramapuram. The applied area is 500m to the South West of Chinnaasana Village. The nearest rail head is Kotabommali (10km to the SSE) which is on Visakhapatnam – Haora Section of



South Eastern Railway. Srikakulam, the District Headquarter is 60 km to the South – Southeast of applied area. Visakhapatnam Port is about 200 km to the South from the subject area.

**2.8.2 Infrastructure :** The applied area is bounded by on the North by the Quarry Lease area of M/s. S.V.Granites, on the South by the Quarry Lease of Sri S.Siva Prakash, on the West by Survey Nos.280 and 281 and on the East by Survey No.275 of Chinnasana Village. Tekkali (10km NE) and Kotabommali (7km SE), the Mandal headquarter provide all essential services such as postal, telegraph, STD/ISD, Bank, Educational Institutions, Police Station, Medical, Fuel Supplies and Workshop. Power is available from transmission stations which supply electricity to the villages. A network of roads connects the villages and buses ply regularly on these routes. Drinking water is available from dug wells and tube wells. Irrigation canals supply water for agricultural purposes.



### **3.0 Geology and Reserves :**

#### **3.0 Geology :**

##### **3.2.1. Physiography :**

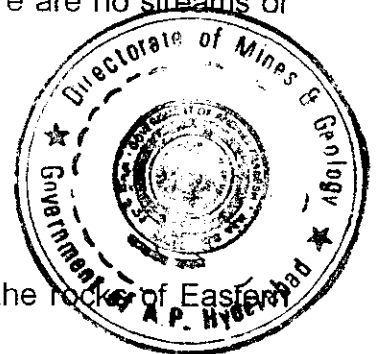
The area within 5 km radius of the applied area is designated as 'buffer zone' and the applied area as 'core zone'. The buffer zone is a part of the coastal plains lying within 15 km from the coast line of Bay of Bengal. It is marked by a generally flat to undulating country interspersed by residual hills and hillocks. The hills reach a maximum attitude of 213m from mean sea level. A GTS of 192 m is marked on a hill, 3 km to the north in Polavaram Reserved Forest.

The drainage of the area is controlled by a network of seasonal streams, the important being Garibula gedda. Other surface water bodies include tanks / ponds scattered in the region. Dug wells and bore wells constitute the main source of drinking water. The ground water table lies 10m to 15m below the ground surface. An irrigation canal passes through the middle part of the region.

The core zone forms a part of a hillock on the western side with a maximum altitude of 65m from ground level. The slopes to the north are steeper and gentler in the eastern part. The hillock is barren of thick vegetation. There are no streams or springs present in the core zone.

##### **3.2.2. Regional Geology :**

The region is a part of the Eastern Ghats underlain by the rocks of Eastern Ghat Super group of Proterozoic age. The rocks comprise mainly khondalite, charnockite (ranging from acidic to basic), granitoids and a variety of hybrid rocks developed by the interaction of the intrusive granites and the country rocks

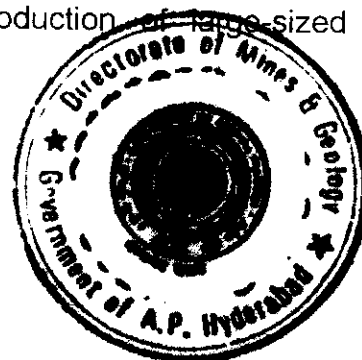


(khondalite and charnockite). The rocks have undergone multiple phases of folding and metamorphism.

The regional strike of foliation of rocks is NW-SE and veers to N-S with local variations. The dips are steeper and are mainly towards NE and rarely to SW.

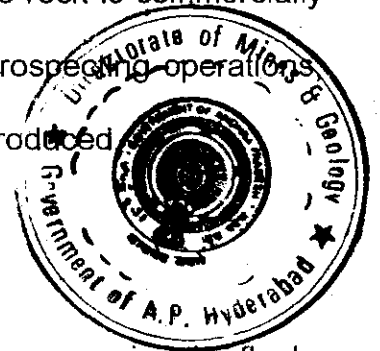
### 3.1.3 Geology of Applied Area

The applied area is the western part of hillock trending NW-SE. The hillock is covered with boulders of various sizes and shapes of migmatized charnockite. The boulders are interspersed with soil covered patches. The rock is melanocratic and medium-to coarse-grained, massive, dense and compact. The bluish grey colour is imparted by the presence of blue quartz and light grey felspar. The wavy pattern of the rock is contributed by migmatitic structures. Colour, texture and structure variations are common. The bouldery outcrops show weathering on surface and fresh rock occurs beneath. The rock, in thin section, shows hypidiomorphic granular texture. Quartz, K-felspar, plagioclase felspar, micro-perthite are major minerals followed by garnet, biotite and hypersthene. Apatite, zircon and opaques form accessory minerals. The mineral grains vary from sub-hedral to anhedral. The modal composition of rock reveals >45 percent quartz, >25 percent perthite, <6 percent myrmekite, <8 percent garnet and biotite and <1 percent accessories. Joints with vertical, horizontal and oblique disposition are common in the rock type. Sometimes, the joints are widely spaced facilitating production of large-sized dimensional blocks.



### **3.2 Prospecting Operations :**

The applied area was prospected between April and July, 2002 following the guide lines of scheme of prospecting. The area was surveyed on a scale of 1:500 with contour interval of 3m. Grid lines were drawn at intervals of 25m in N-S direction and 50m in E-W direction. A bench mark of 500m was assumed in the western corner and levels were calculated and contours drawn. An exploratory opening was made in the western part and this measured 50m in N-S direction and a maximum width of 35m in E-W direction. The depth of working is from 8m to 10m. The bouldery outcrops were opened up. The boulders range in size from 3 cu.m. to 10 cu.m. and rarely 30 cu.m. The exploratory opening confirmed the depth extension of colour granite and improvement in quality of material. The widely spaced vertical joints were taken advantage of in opening the three faces in the boulders. The rock is bluish grey and takes good polish. The rock is commercially known as "Srikakulam Blue" or 'Vizag Blue'. In course of prospecting operations about 30 cu.m. of dimensional blocks of colour granite were produced.



### **3.3 Reserves :**

The migmatized charnockite occurs as bouldery outcrops covering the flanks of hillock. In the applied are, the hillock has a relief of 50m. The in-situ geological reserves of colour granite are estimated from 545m R.L. to 405m R.L. The first 10m i.e., 545m R.L. to 535m R.L. is considered for 'proved' category, the next 15m i.e., from 535m to 520m as probably category and the remaining 25m i.e., from 520m. R.L. to 495m R.L. as 'possible' category. The in-situ geological reserves have been calculated by sectional method. This consists of drawing sections at regular intervals of 50m and estimating by graphical method the area of granite for each

section category-wise. The area so obtained is converted into volume by multiplying it with the length of influence that is the same as the distance between two end adjacent sections. For the two end sections the length of influence is calculated from the area between the section line and the lease boundary.

### Geological in-situ reserves of colour granite

Section	Sectional are (sq.m)			Influence (m)	Reserves (cu.m)				Recoverable Blocks
	Proved	Probable	Possible		Proved	Probable	Possible	Total	
A-A'	**	60	1000	40	**	2400	40,000	42,400	2,720
B-B'	70	450	1500	50	3500	22,500	75,000	101,000	30300
C-C'	**	350	1350	50	**	17,500	67,500	85,000	25500
D-D'	*8	88	1050	50	**	**	52,500	52,500	15750
E-E'	**	**	500	50	**	**	25,000	25,000	7500
F-F'	**	**	250	40	**	**	10,000	10,000	3000
				TOTAL=	3500	42,400	270,000	315,900	94,770

The total geological in-situ reserves of colour granite are 315,900 cu.m. Assuming the recovery percentage of 30 the commercial dimensional blocks are of the order of 94,770 cu.m.

#### 3.4 Mineable Reserves and Anticipated Life of Mine :

The mineable reserves are determined after deducting the quantity of granite left out in the ultimate pit slope and the quantity left behind in the mine benches from the total in-situ reserves.

(cu.m)

Total geogical in-situ reserves... 315,900

Quantity blocked within ultimate

Pit slope (60°)

Quantity left behind in mine benches : 2300

Mineable Reserves 312,300 (315,900-3600)

Recoverable Commercial Dimensional Blocks 93,690 (Recovery percentage from the run-of-mine is assumed as 30)



The applicant proposes to raise an annual production of 1000 cu.m. of Dimensional Blocks of coloured granite and at this rate of production the mine has a life of 93 years.

#### **4.0 Opening of the Quarry :**

The bouldery outcrops of migmatized charnockite occur on the surface of hillock. Open-cast method of mining will be adopted. It will be semi-mechanized and the machinery to be deployed include hydraulic excavator, jack hammer drills, air compressor, tipper and winch. Hydraulic excavator removes the overburden consisting of soil and weathered material. The soil will be stacked separately and will be used for afforestation programme. The weathered material will be stacked in dump yard for use in back – filling programme of Mine – Spoilt Area. Jack hammer drills are used for drilling holes with the aid of compressed air. Tipper is meant for carrying the blocks and waste material. Winch is used for lifting the blocks.

#### **4.1 Year-wise Production for the period 2002-2006 :**

The annual production of blocks is planned and projected for the period 2002 to 2006. Mining and production of blocks will commence with the exploitation of bouldery outcrops. The exploratory opening in the western parts of applied area proved the continuation of boulders at depth. The quarry operations will commence from 533 m R.L. and in the first year they will extend upto 527m R.L. In the second year, the quarry will be worked between, 521m R.L. and 515m R.L. In the last two years, fourth and fifth, the operations will be carried out between 515m R.L. and 509m R.L. and 509m R.L. & 503m R.L. Thus, during the five years the quarry will be operated between 533m R.L. and 503m R.L. The bench height is kept at 6m and this strike length will remain at 100m, following is the proposed production of (run-of-mine material) and Dimensional Blocks for the period 2003-2007.

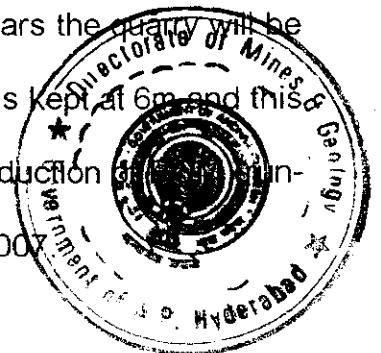


Table – 4.1 Projected Production of ROM and Marks-table Blocks for the period 2003-2007

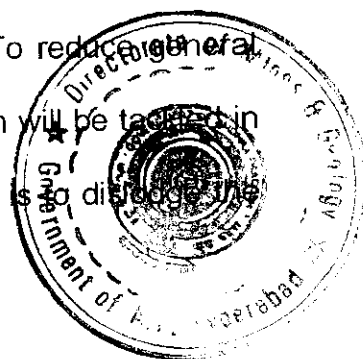
Year	R.L. (in m)	Sectional Area (sq.m)	Influence (m)	R.O.M. (in cum)	Recoverable Blocks (in.cum)	Waste material (cum)
2003	533-527	30	100	3000	900	2100
2004	527-521	30	100	3000	900	2100
2005	521-515	30	100	3000	900	2100
2006	515-509	30	100	3000	900	2100
2007	509-503	30	100	3000	900	2100
			<b>Total</b>	<b>15000</b>	<b>4500</b>	<b>10500</b>

\* Recovery percentage of Dimensional Blocks is assumed as 30 from ROM.

The total production of recoverable dimensional blocks for the first five years (2003-2007) is 4500 cu.m. with an average annual production is 900 cu.m. The waste generation for five years is 10500 cu.m.

#### **4.2 Drilling and Blasting :**

Primary cut is made by drilling and broaching method. Holes of 2cm to 3cm in diameter are made with the help of hand chisels along straight lines. The spacing of holes varies from 5cm to 15cm. The chisels are left in the holes to act as wedges. In some places deep holes are drilled with the aid of jack hammer drills using compressed air from air compressor. This results in the development of fine cracks along the rift, grain or joint and finally splitting the rock. In the jack hammer drilled holes mild explosive (special gelatine of 80 percent strength) is used with detonators. Otherwise the line drilling holes are blasted with gun powder. To reduce general ground vibration delay detonators are used. A bench height of 6m will be tackled in two stages (of 3m). After the primary cut is made the next stage is to discharge the



block from the bottom of mother rock. Floor breaks are made by driving wedges in horizontal drilled holes at the base of the block. Sub-division of the block to specified sizes is done by drilling jack hammer holes or using chisel and hammer. During the five year period mostly the boulders will be worked.

#### **4.3 Handling of Blocks within in Quarry :**

Small-sized blocks are handled with the help of hydraulic excavator. In case of large-sized blocks of more than 10 tonnes, 20 to 40 tonne capacity crane will be hired for handling the blocks. The sizes of blocks likely to be produced from the quarry may vary from 200cm to 300cm in length, 100cm to 150cm in breadth and 100 cm to 150cm in height. In such a case, the hydraulic excavator is adequate for the purpose.

#### **4.4 Transportation of blocks from quarry to yard and destination :**

The rough Dimensional blocks from the quarry to dressing yard will be transported by Tipper. In case of large-sized blocks crane will be deployed. The waste material from the Quarry to Waste Dump Yard will be transported by tipper. The dressed Dimensional blocks will be transported to destination (sea port) by hiring suitable high capacity trucks.

#### **5.0 Storage and Handling of Explosives :**

Since the requirement of explosives is in small quantity, local purchase of the same from Tekkali will be made and transported in metallic containers. These will be kept in a secluded place and transported to the site as and when required by vehicle. All safety precautions will be taken in storage and handling of explosives.





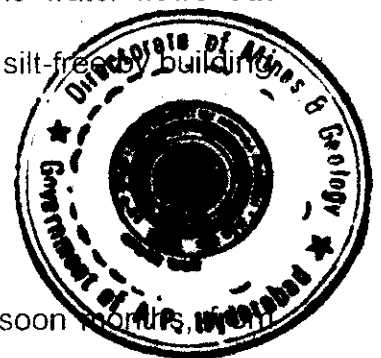
## **6.0 Waste Management :**

### **6.1 Solid Waste :**

The solid waste consists of granite blocks of various dimensions, below that of marketable / saleable blocks. Soil component will be collected and kept separately from the mine waste material. It is estimated that during the five year period about 10500 cu.m of waste material will be generated. The quantity of waste material likely to be generated during the life time of the quarry may be of the order of 218610 cu.m. The waste material will be kept in the waste dump yard. Some of the material from the waste may be sorted out and used for making tiles. Some rejected and unsorted material may find use in Civil Engineering Construction. Bulk of the waste material will be used for back-filling of the mine-spoiled area. The entire leasehold is underlain by granite and there is hardly any space for dumping the waste material. Either the material will be dumped in the area adjacent to leasehold or in the barrier Zone. The dump will have to be designed such that it will have slopes equal to the angle of repose of such material. Drains will be provided and the dump terraced. Garland drains will be constructed around the leading edge of the dump and plantation will be grown to arrest the run-off the rain water. The water flows out draining the dump into the buffer zone and this needs to be made silt-free by building check dams at the points where such water exits from the dump.

### **6.2 Liquid Waste :**

The liquid waste comprises run-off water during the monsoon from the quarry and waste dump. The rain water draining the freshly exposed rock and dust in the quarry as well as similar material in the dump is susceptible for incorporating suspended solids which may affect the fertility of the soil in the agricultural lands in the buffer zone. The silt content may pollute the drainage in the



## **8.0 Description of Granite Processing Plant :**

The applicant proposes to export dressed dimensional blocks of colour granite to various countries. He has no proposal to establish any Granite Processing Plant in the near future.

## **9.0 Market Analysis :**

The applicant has assured contracts for export. The blue colour granite is commercially known as "Srikakulam Blue' or Vizag Blue' and is in demand in European Countries. The applicant is capable of maintaining time-schedule in supplying the material to consumers.

## **10.0 Environment Management Plan :**

### **10.1 Baseline Information :**

#### **i) Existing Land Use Pattern :**

The land adjacent to leasehold in the buffer zone or the area around the Core zone within a radius of 5 km is represented by flat to undulating country with interspersed hillocks / hills. The existing land-use pattern is as follows :

(Percentage of Buffer Zone)

Reserved Forest	** 8
Surface water bodies	** 6
Built-in-area (Villages)	** 6
Hilly tract outside reserved forest	** 7
Cultivation land	** 73



In the cultivated area, paddy and bajra are grown besides cash crops such as ground nut, chillies etc. Fruit gardens especially cocoanut, mango etc are sporadically distributed in the region.

**ii) Water Regime :**

Two sources mark the water regime in the area and they are surface water regime contributed by the Garibula gedda which is a seasonal stream and the other is marked by tanks and ponds. The ground water regime is represented by the water table occurring 10m to 15m below the ground surface.

**iii) Flora and Fauna :**

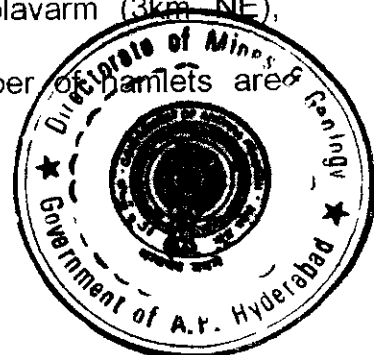
The hill ranges are covered by dry mixed deciduous tropical forest. The outer areas of forest and along lower hills are marked by degraded vegetation leading to thorny scrub type. Bears, a variety of foxes and snakes are the fauna in the forest.

**iv) Climate :**

The region is characterised by hot, humid and oppressive summer, mild winter and seasonal rain fall. A maximum temperature of 40<sup>0</sup> c is recorded in summer and a minimum temperature of 16<sup>0</sup> c is recorded in winter. The rain fall is mainly contributed by southwest monsoon and the annual rainfall is around 1100mm.

**v) Human Settlement :**

In the buffer zone, the important villages are Danta (5 km S.W.), Kurudu (3 km SW), Yerakayyapeta (2.5 km SW), Kottapalle (3km W), Polavarm (3km NE), Peddasana (2km E), and Chipurlapadu 5km SSE). A number of hamlets are



scattered in the buffer zone. Cultivation is the main stay of people. Some persons are engaged in traditional trades.

**vi) Public Buildings, Places and Monuments :**

There are no public buildings, places of interest and monuments in the area.

**vii) Quality of Air and Water :**

The air in the region is not polluted as there are no polluting industries within a radius of 10 km. The water from dug wells and bore wells is potable.

**viii) Whether the area falls under notified area of Water Act, 1974:**

No

**10.2 Environment Impact Assessment Statement :**

Any open cast working will have certain impact on the landscape, ambient air quality, water regime, noise level, ground vibration, ecological balance, occupational health of workers and socio-economic conditions of the people in the vicinity.

**Landscape :** The coloured granite occurs on a hillock and open cast method of working will not disturb the landscape in the neighbourhood.

**Ambient Air Quality :** The proposed activity of mining operations will be minimal. The ambient air quality will be within permissible limits.

**Water Regime :** Mining operations will be carried out on a hillock and this will not affect the ground water which occurs 10m to 15m below the ground level. The ground water quality will remain the same.



**Noise Level :** The noise generated by the limited machinery, drilling and blasting will be within permissible limits. The machinery will be well maintained. Blasting will be done with low explosive charge.

**Ground Vibration :** There will be hardly any impact on the ground vibration of the region as the mining operations are on small scale.

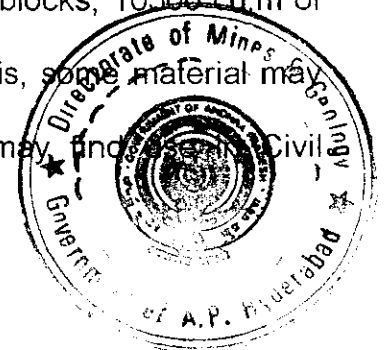
**Ecological Balance :** There will be no impact on the ecology of the region as the mining activity is on low key.

**Occupational Health of Workers :** Respirators, goggles, ear plugs, helmets etc. will be provided to the workers, where necessary. Periodical health check-up will be done by a qualified doctor.

**Socio-economic Conditions :** The mining project will have positive effect on socio-economic conditions of the people in the vicinity as there will be some employment generation.

### **10.3 Management Plan :**

- i) Storage and Preservation of Soil : Soil occurs interspersed with bouldery outcrops of migmatized charnockite. About 30,000 cu.m. of soil will be available and this will be stacked separately for use in afforestation programme.
- ii) Land degradation and reclamation : The mining area is all rocky. During the five year period (2003-2007) in area of about 7000 sq.m. will be worked out. After recovering 4500 cu.m of commercial dimensional blocks, 10500 cu.m of waste material will be stacked in dump yard. Out of this, some material may be sorted out for use as tiles and some material may find use in Civil



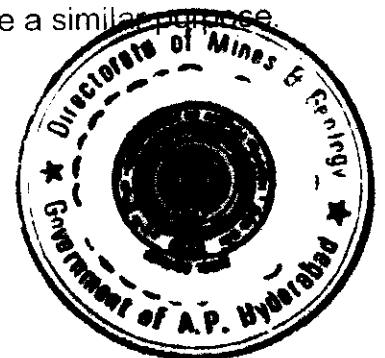
Construction. The balance material will be used for back-filling programme at the end of mining operations.

- iii) Afforestation : Each year, some part of the barrier zone will be subjected to Afforestation and suitable species will be planted.
- iv) Measures for Dust Suppression : Haulage roads, loading and unloading points, dump area etc will be regularly sprinkled with water. Dusk masks will be provided to the workers in the dressing yard.

**Measures to Minimize noise and ground vibrations** : The quantity of explosives to be used in blasting operations is low and this does not cause ground vibration. The noise levels will be within permissible limits. Ear plugs will be provided to the workers engaged in drilling and blasting operations.

**Stabilization and Vegetation of Dumps** : The dump will have an angle of repose to arrest creep of material. The dump will be terraced and subjected to vegetation by growing bushes and creepers. Garland drain and siltation tank will be constructed at the bottom periphery of the dump.

**Treatment and Disposal of Water from the Dump** : The water draining the dump will be channelled through a single spot where a siltation tank will be constructed for silt deposition. Silt free water will be allowed to pass into the surrounding environment. The garland drain around the dump also will serve a similar purpose.



**11.0 Employment and Site Services :**

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

**11.1 Employment :**

394.S.I.M.8.II.2, dated 26.3.02

Following personnel will be deployed for quarrying operations :

Quarry Manager..one

Air compressor helper..one

Quarry Supervisor..one

Skilled workers..six

Poclain operator..one

Un-skilled workers..six

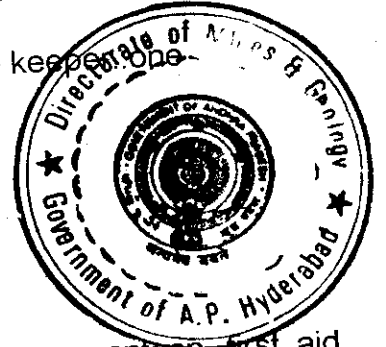
Poclain helper..one

Office clerk-cum-store keeper..one

Air Compressor Operator..one

Tipper Driver..one

Tipper Helper..one



**11.2 Site Services :**

The site services include mine office, rest shelter, stores, canteen, first aid etc. Rough blocks will be dressed in Dressing yard. Dressed Dimensional blocks will be stored in Stock yard for despatch to various destinations.

**12.0 Any other Relevant Information :**

The blue colour granite has export market and the applicant proposes to export the dressed dimensional blocks to European Countries. The applicant will follow scientific and systematic methods of mining to improve the recovery of Dimensional blocks and reduce the waste material. Safety measures will be adopted to ensure safety of to the workers. All steps will be taken by the applicant to safeguard the environment and preserve the ecology of the area.

**APPROVED**

*[Handwritten signature]*

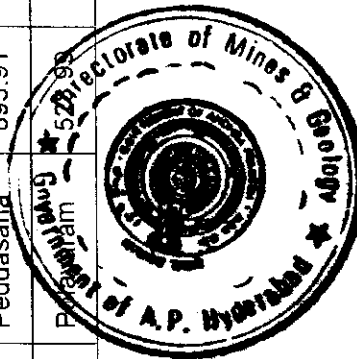
*[Handwritten signature]*  
(Chandra Mohan)  
Consultant & R.Q.P.  
RQP/DMG/HYD/052/2002.

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

TABLE 10.1

DEMOGRAPHIC DATA OF VILLAGES

S.No.	Village	Area (in HA)	Number of House Hold	Population			Literate		Total main worker		Cultivator		Agricultural labourers	
				Total	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
1.	Chinnasana	341.55	204	935	455	480	137	65	273	269	138	136	114	130
2.	Chipurlapadu	302.70	327	1701	878	823	159	39	532	365	257	187	159	158
3.	Danta	455.67	296	1359	650	709	174	101	384	286	148	85	180	192
4.	Kottapalle	520.02	634	2965	1537	1428	611	281	844	400	211	59	406	313
5.	Peddasana	893.91	350	1494	737	757	269	92	1132	142	130	46	160	80
6.	Peddapalem	523.99	425	1906	969	937	511	201	427	242	144	107	165	107



(CENSUS HAND BOOK, SRIKAKULAM)



GOVERNMENT  
PROCEEDINGS OF THE  
(PRESIDENT - S. J. M. CHITRA)

PROCEEDINGS NO. 2094/97

MINES AND QUARIES  
Granite over an extent of  
2000 Hectares in S.No. 290 of  
Chinnarayana Village, Kotaboinali  
District - Andhra Pradesh  
Prospecting License  
Orders - I

Prospecting License for  
2000 Hectares in S.No. 290 of  
Chinnarayana Village, Kotaboinali  
District - Andhra Pradesh  
for a period of 10 years

- 1. Quarry Lease application No. 19/1997 from Sri K. Parthasarathy.
- 2. D.S.M. & G. Visakhapatnam, D.No. 3802/Q/97, dated 25.5.99.
- 3. Lr.No. Res. No. 174/99 dated 10.5.1999 from the M.R.O., Kotaboinali, S. Godavari District.
- 4. This office Notice No. 20/1-38/97, dated 31.3.2000.
- 5. Letter Dated 23.2.2000 received from K. Parthasarathy.
- 6. G.O. Ms. No 227, Ind. & Chem. (M.I) Department, dated 23.3.2000.



Through the reference 1st cited, Sri K. Parthasarathy has filed Quarry Lease application for grant of 2000 Hectares in S.No. 290 of Chinnarayana Village, Kotaboinali Mandal, S. Godavari District, for a period of 10 years. The said Quarry Lease application was received in this office on 1.9.1997 and the same was referred to the Deputy Director of Mines and Geology, Visakhapatnam and District Collector, Srikakulam (through the Deputy Director of Mines and Geology, Visakhapatnam) for their reports respectively.

Through the reference 2nd cited the Deputy Director of Mines and Geology, Visakhapatnam has recommended grant of quarry lease to the applicant. His report states that the rock is a coarse grained bluish-coloured quartzo felspathic gneiss containing quartz, felspar, pyroxene etc. which are hard and tough in texture, useful for cutting and polishing.

reference 4<sup>th</sup> cited, to give consent for converting quarry lease application into Prospecting Licence application. The applicant have submitted the consent duly notarised for conversion of Quarry lease application in to PL application through the reference 5<sup>th</sup> cited. Through reference 6<sup>th</sup> cited, the Government have issued amendments to the A.P.M.M.C.Rules, 1966, according to which the undersigned is competent to grant the P.L. for granite.

In view of the circumstances, stated above a Prospecting Licence for Colour Granite over an extent of 2,000 Hectares in S.No. 278 of Chinnasana Village, Kotabommali Mandal, Srikakulam District is hereby granted for a period of two years in favour of Sri K.Parthasarathy as per Rule 12(5)(a) (i) & (ii) of APMAC Rules, 1966 and read with Rule 4 of Granite Conservation and Development Rules, 1999.

The grantee shall pay the following amounts before execution of the Prospecting Licence deed.

- |  |   |   |
|--|---|---|
| (a) Prospecting Fee  | : | Rs: 15,000/- per Hectar per annum.                      |
| (b) Land Assessment  | : | As per the rates prescribed by the Revenue authorities. |
| (c) Taxes on Land Assessment                               | : | At the rate of 0.37 paise per rupee of Land Assessment. |
| (d) Security Deposit.                                      | : | Rs: 10,000-00 per hectare.                              |
| (e) Money charges of the differential amount of Rs. 2445/- | : |   |

Note: The grant is liable for cancellation should it be found that it is grossly inequitable or was made under a mistake of fact or owing to misrepresentation or fraud or in excess of authority.



Sd/- T.V.CHOWDARY  
DIRECTOR OF MINES AND GEOLOGY.

Encl:- (AF & J.D.C.)

// ATTESTED //

for DIRECTOR OF MINES AND GEOLOGY

To:-

1. Sri K.Parthasarathy, Plot No. 33,  
Door.No.22, Perumal Nagar, Nanganallur,  
Chennai - 600 061. ( By RPAD).
- 2) Copy to the Dy. Director of Mines and Geology, Visakhapatnam.
- 3) Copy to the Asst. Director of Mines and Geology, Srikakulam.  
alongwith Record of Enquiry and D.D. ( By RPAD).

GOVERNMENT OF ANDHRA PRADESH  
DEPARTMENT OF MINES AND GEOLOGY

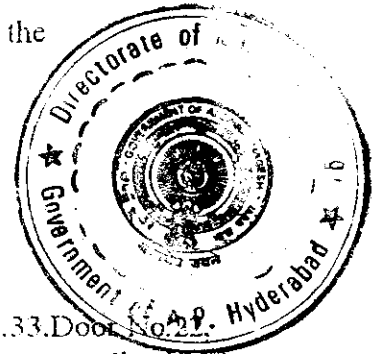
PROCEEDINGS OF ASST.DIRECTOR OF MINES AND GEOLOGY::SRIKAKULAM  
(PRESENT:SRI D.SANTHAPPA,M.Sc.)  
ASST.DIRECTOR

Proceedings No.2918/Q/2000

Dated 31-07-2000.

Sub: MINES AND MINERALS – Prospecting Licence for Colour Granite over an extent of 2.000 Hectares in S.No.278 of Chinasana Village, Kotabommali Mandal, Srikakulam District for a period of 2 years in favour of Sri K.Parthasaradhi - Lease Deed Executed – Orders – Issued – Reg.

- Ref: 1. Quarry lease application dt. 1.9.1997 From Sri K.Partha Saradhy.  
2. Proc.No. 29086 RI-3B/97, dt. 02.06.2000 of the Director of Mines & Geology, Hyderabad.  
3. Letter dt. 31.7.2000 from Sri K.Parthasaradhy.



ORDER:

Through the reference 1<sup>st</sup> cited, Sri K.Pardhasarathy, Plot No.33, Door No.22, Perumal Nagar, Nanganallur, Chennai - 600 061, have filed a quarry lease application for grant of colour granite over an extent of 2.000 Hectares in S.No.278 of Chinasana Village Kotabommali Mandal, Srikakulam District.

The Govt. vide Memo.No. 12077/M-1(2)/99, dt.13.1.2000 have issued orders authorising the Director of Mines and Geology, Hyderabad, to convert the pending granite quarry lease applications into Prospecting Licence applications as per rule (4) of Granite Conservation and Development Rules, 1999, with the prior consent of the applicants. Accordingly, the applicant company have submitted the consent duly notarised for conversion of quarry lease application into Prospecting Licence application to the Director of Mines and Geology, Hyderabad.

In the reference 2<sup>nd</sup> cited, the Director of Mines and Geology, Hyderabad granted a Prospecting Licence for colour granite over an extent of 2.000 Hectares in S.No.278 of Chinasana Village, Kotabommali Mandal, Srikakulam District in favour of Sri K.Pardhasarathy, Plot No.33, Door No.22, Perumal Nagar, Nanganallur, Chennai - 600 061 for a period of 2 (two) years subject to the condition the grantee should furnish an undertaking to the effect that whatever modification or changes effected by the Government to the A.P.M.M.C.Rules, 1966 in the context of Granite Conservation and Development Rules, 1999 and other levies like fees, taxes etc., payable will be automatically binding and applicable and if necessary a supplementary deed will be executed.

Accordingly, Sri K.Pardhasarathy, Plot No.33, Door No.22, Perumal Nagar, Nanganallur, Chennai - 600 061 vide reference 3<sup>rd</sup> cited, have submitted an affidavit duly notarised and also paid Prospecting fee of 10,000/- Vide Challan No.2696 Dt.31.7.2000 and an amount of Rs 20,000/- vide Pass Book Account No.778631 Dt.31.7.2000 of Head Post Office, Srikakulam towards security deposit in accordance with the G.O.Ms.No.227, dt.26.3.2000 issued by the Government.

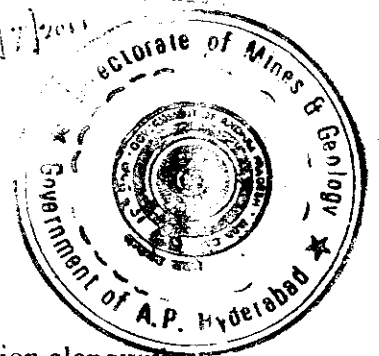
Sanction is hereby accorded to Sri K.Pardhasarathy , Plot No.33,Door No.22, Perumal Nagar, Nanganallur, Chennai - 600 061 ,to commence prospecting operations over an extent 2.000 Hectares in S.No.278 of Chinasana village, Kotabommali mandal, Srikakulam District, for a period of 2 (two ) years from 31-07-2000 to 31-07-2002 subject to provisions contained in the granite conservation and Development Rules,1999 and also fulfillment of special conditions specified in the annexure appended to the granted.

The grantee should submit a scheme of prospecting to the Director of Mines and Geology, Hyderabad within a period of 60 days from the date of execution of this deed under intimation to this office.

The Licensee should maintain all the records and accounts in the form prescribed by the Government. The Licensee should submit quarterly returns in form-C to the concerned authorities.

ASST.DIRECTOR OF MINES AND GEOLOGY  
SRIKAKULAM

To  
Sri K.Pardhasarathy ,  
Plot No.33  
Door No.22,  
Perumal Nagar,  
Nanganallur, Chennai - 600 061



Copy submitted to:-

1. The Director of Mines and Geology, Hyderabad for favour of information alongwith License Deed.
2. The Dy. Director of Mines and Geology, Visakhapatnam for favour of information along with License Deed.
3. The Dy. Director of Mines Safety, Hyderabad for information.
4. The Regional Controller of Mines, Hyderabad. for favour of information.

11/09/2002

GOVERNMENT OF ANDHRA PRADESH,  
DEPARTMENT OF MINES AND GEOLOGY, HYDERABAD-63.

NOTICE NO. 27948/11-1/2002.

DATED: 19.09.2002.

**Sub:** Mines and Quarries - Quarry Lease application - Extent: 2,000 Hects -  
S.No. 278 - Village: Chinnasana - Mandal: Kotabonmali - Dist: Srikakulam -  
infavour of Sri. K. Partha Sarathi for a period of 20 years - Approved  
Mining Plan called for - Reg.

**Ref:** 1. From Sri. K. Partha Sarathi, Q.L. Application dt: 26.7.2002.  
2. From the ADM&G, Srikakulam Lr. File No. 3706/Q/2002, dt:31.7.2002.

\*\*\*\*

Sri. K. Partha Sarathi in the reference 1<sup>st</sup> cited, have applied for grant of Quarry Lease for Colour Granite over an extent of 2,000 Hectares in Sy. No. 278 of Chinnasana Village, Kotabonmali Mandal, Srikakulam District.

2. The Asst. Director of Mines and Geology, Srikakulam in the reference 2<sup>nd</sup> cited, has stated that the applied area is held under Prospecting Licence by the applicant. Further, the Asst. Director has recommended for grant of Quarry Lease for Colour Granite over an extent of 2,000 Hectares in S.No. 278 of Chinnasana Village, Kotabonmali Mandal, in Srikakulam District in favour of Sri. S.K. Partha Sarathi for a period of 20 years.

3. The Director of Mines and Geology, Hyderabad are 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 2,000 Hectares in Sy. No. 278 of Chinnasana Village, Kotabonmali Mandal, Srikakulam District in favour of Sri. S.K. Partha Sarathi 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, Sri. K. Partha Sarathi are requested to submit the Approved Mining Plan for the above area referred to 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.

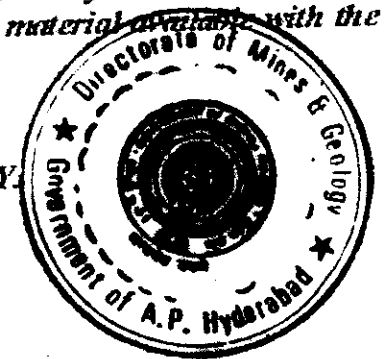
5. Further, they are also informed that if they fail to submit the Approved Mining Plan within a period of six months from the date of receipt of notice it will be presumed that they have no interest in their Quarry lease application and further action will be taken based on the material available with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

Sd/- T. DEVENDRANATH,  
DIRECTOR OF MINES AND GEOLOGY

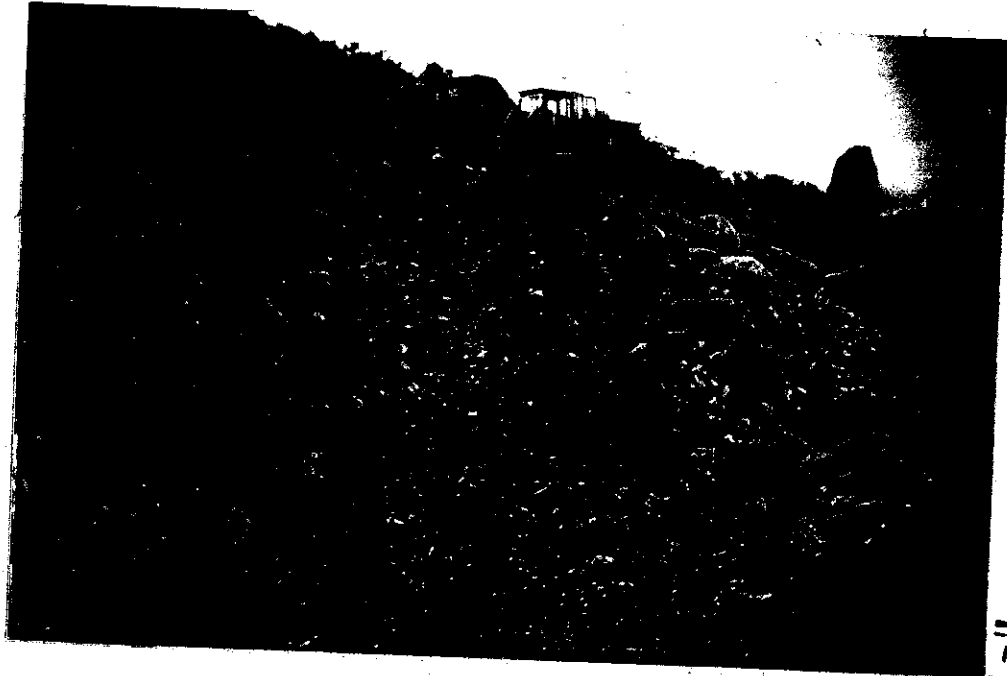
//F.C.F.B.O.//

*G. V. dya. Sagar*  
SUPERINTENDENT.

To:  
Sri. K. Partha Sarathi, Plot. No. 33, Dr. No. 22,  
Perumal Nagar, Nanganallur, Chennai-061.  
Copy to Asst. Director of Mines and Geology, Srikakulam  
Copy to Approved Mining Plan Section.



# PHOTOGRAPHS



1. Hydraulic Excavator in Operation – Soil overburden being removed.



2. Boulders of Migmatized Charnockite opened up.



3. Vertical joints prominently exhibited in boundary outcrops.



4. Boulder splitting into Dimensional Blocks.

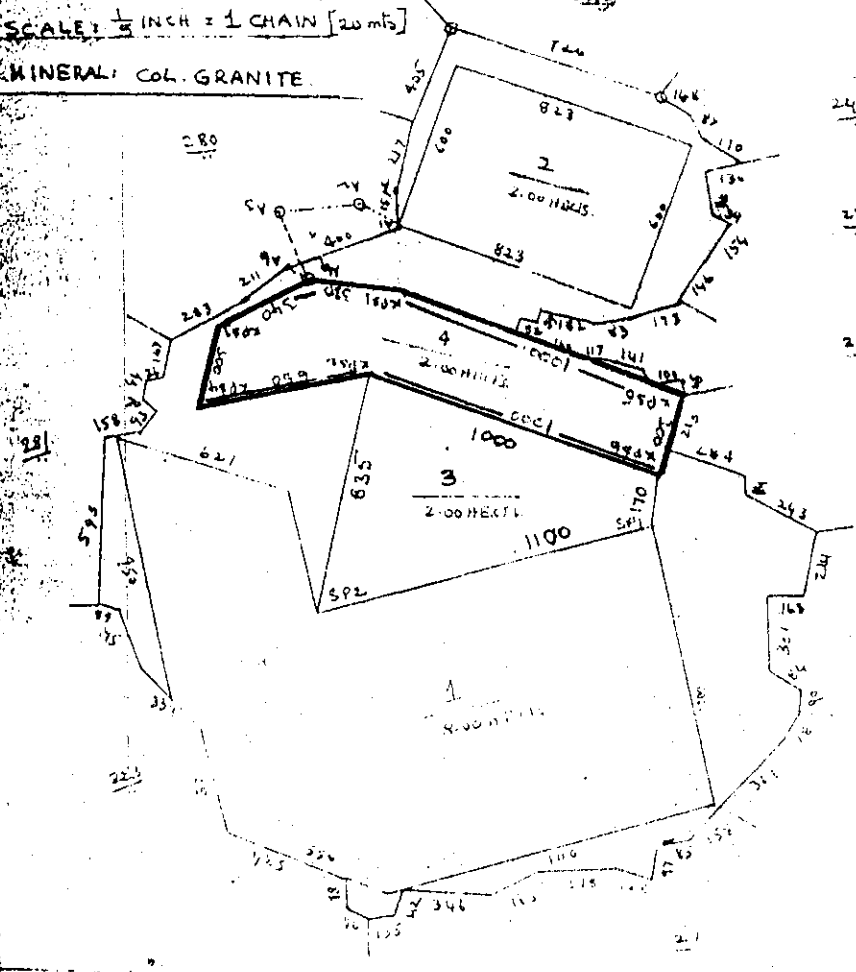
DISTRICT: SRIKAKULAM.  
 Mandal: KOTABOMMALI.

FIELD NO. 278.

VILLAGE: CHINASANA.  
 EXTENT: 46.99 A.CS.

SCALE: 1/8 INCH = 1 CHAIN [20 mts]

MINERAL: CO. GRANITE



- 1 Q.L. AREA OF M/S ZEN GRANITES EXT. 8.55 HECTS
- 2 Q.L. AREA OF M/S S.V. GRANITES EXT. 2.00 HECTS
- 3 AREA SURVEYED TO SH. S. SHIVA PRAKASH EXT. 2.00 HECTS
- 4 AREA SURVEYED TO SH. K. PARTHASARATHI EXT. 1.00 HECTS

Station	Horizontal Angle	Distance	Remarks
A <sub>1</sub> to A <sub>2</sub>	115° 30'	101	AA, MURRY Street, 100' to the East
AA, AL	291° 0'	142	KP, KP'S, KP'S

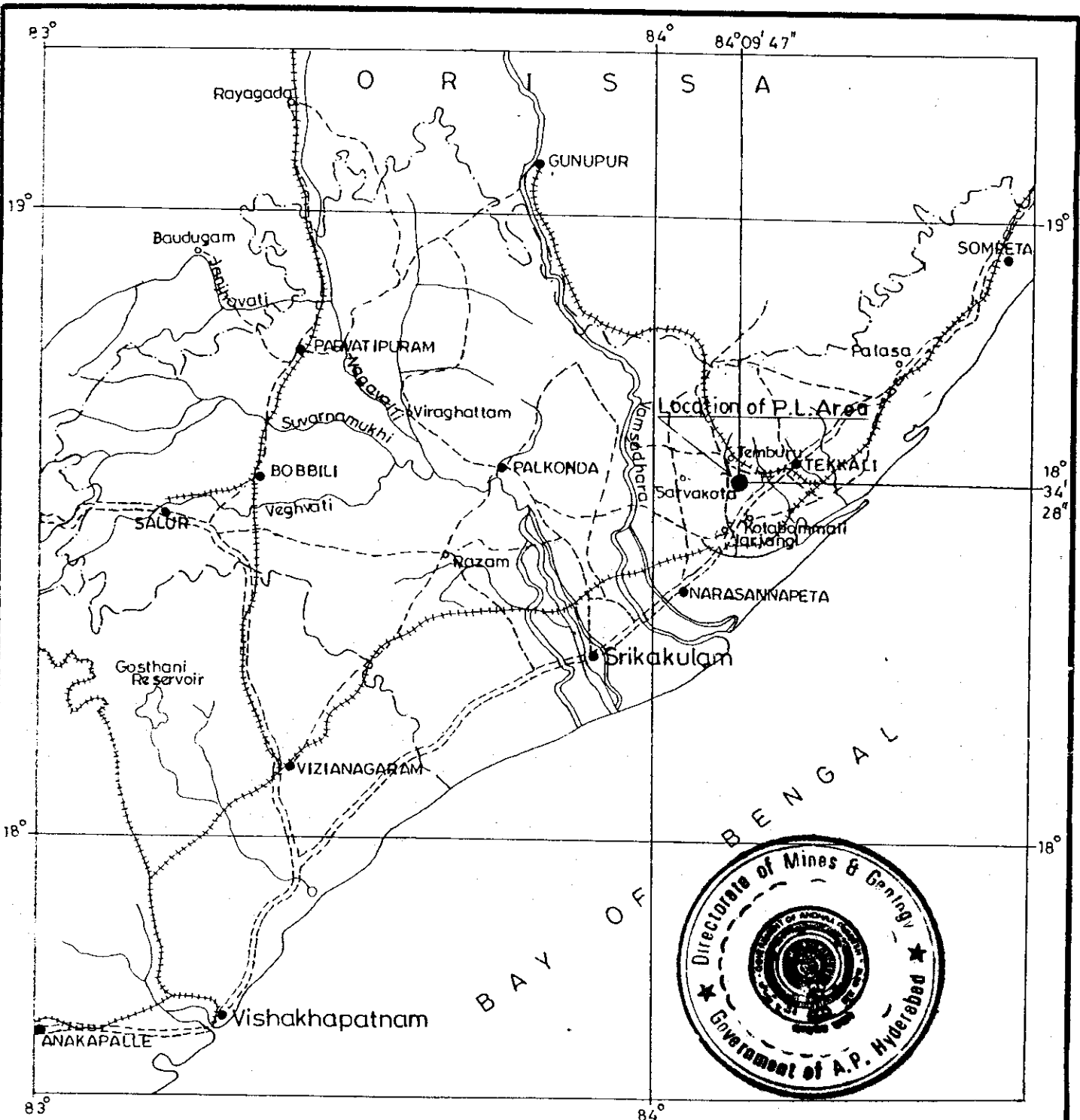
*Manally*  
 APPLICANT

*Chandrababu*  
 Chandrababu  
 MINING CONSULTANT  
 IBM-RQP/HYD/174/09/A  
 RQP/DMG/HYD/052/2002



**APPROVED**











**LOCATION PLAN**

**APPROVED**

**I N D E X**

-  P.L. AREA
-  ROADS
-  RAILWAY LINE
-  DISTRICT BOUNDARY
-  STATE BOUNDARY
-  RIVER / STREAM

Applicant: - Sri.K. PARTHASARATHY  
 Mining plan for colour granite  
 IN S.No.278 OF CHINNASANA VILLAGE,  
 Kotabommali Mandal, Srikakulam Dist.,  
 A.P.

SCALE: - 1:1,000,000 R.F.

*Sri K Parthasarathy*  
**APPLICANT**

**CHANDRAMOHAN**  
 RQP

*Chandramohan*  
 Chandramohan  
 MINING CONSULTANT  
 101/1, CHINNA VILLAGE, SRIKAKULAM DIST.,  
 AP. PIN - 531 002