

**MINING PLAN FOR COLOUR GRANITE OVER AN EXTENT
OF 1.15 HECT. IN SY. NO.1 OF ADDUKONDA VILLAGE ,
TEKKALI MANDAL, SRIKAKULAM DISTRICT OF
ANDHRA PRADESH**

(Submitted under Rule 12 of GCDR, 1999)

LESSEE

Sri. K. Tirumala Rao
2-98/3, 10-B, Block -B,
Kakatiyanagar
HYDERABAD - 500 007.

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PREPARED BY

B. Sadasiva Rao M.Sc
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Ph: No. 040 - 24241320 (R)
Reg.No.RQP/DMG/HYD/047/2002

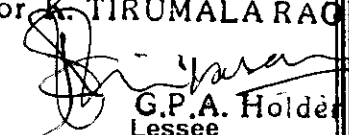
DECLARATION

Certified that the mining plan in respect of QL for Colour Granite over an extent of 1.15 Hect. at Sy. No. 1 of Addukonda Village Tekkali Mandal, Srikakulam District of Andhra Pradesh State has been prepared in consultation with me and I have understood its contents and agree to implement the same in accordance with the law.

Date :

8/12/03

For K. TIRUMALARAQ


G.P.A. Holder
Lessee

CERTIFICATE

Certify that the provision of mines Act, Rules and Regulation made there under have been observed in the mining plan in respect of QL for ColourGranite over an extent of 1.15 Hect. At Sy. No. 1 of Addukonda Village Tekkali Mandal, Srikakulam District of Andhra Pradesh State and where ever specific permissions are required, the applicant will approach the concerned authorities of Director of Mines and Geology Dept. at Hyderabad.

It is also that the information furnished in the mining plan are true and correct to the best of my knowledge.

Date :




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CERTIFICATE

Certify that the provision of mines Act, Rules and Regulation made there under have been observed in the mining plan in respect of QL for Black Granite over an extent of 1.15Hect. At Sy. No. 1 of Addukonda Village Tekkali Mandal, Srikakulam District of Andhra Pradesh State and where ever specific permissions are required, the applicant will approach the concerned authorities of Director of Mines and Geology Dept. at Hyderabad.

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**MINING PLAN FOR COLOUR GRANITE OVER AN EXTENT
OF 1.15 HECT. IN SY. NO. 1 OF ADDUKONDA VILLAGE,
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ANDHRA PRADESH**

(Submitted under Rule 12 of GCDR, 1999)

Introduction:

The mining plan is prepared with an objective of scientific exploration, exploitation and systematic development of the deposit, which includes details of conservation of the deposit and protection of environment in and around of the quarrying area.

Sri K.Tirumala Rao is an individual and also having experience in granite rough block quarrying and trading in local and abroad. The Lessee had granted quarry lease for colour granite over an extent of 1.15 Hectares in sy.no 1 of Addukonda village, Tekkali Mandal, Srikakulam District vide proceedings no:1962/R1-3/2003, Dated 01.08.2003 by the Director of Mines & Geology, Hyderabad and was executed before Asst. Director of Mines & Geology, Srikakulam request the lessee to submit mining plan under rule 12 of GCDR, 1999. Accordingly the mining plan has been prepared by Sri B.Sadasiva Rao, Geologist who is recognised by the Director of Mines & Geology vide Reg. No: RQP/DMG/HYD/047/2002.

I. GENERAL :

- a. Name of the Applicant : Sri. K.Tirumala Rao
2-98/3, 10-B, Block-B,
Kakatiyanagar, Hyderabad-7.
- b. Status of Applicant : Individual.
- c. Granite Type / Colour : Colour Granite.
- d. Period of Q.L.Granted : 20 Years (14-08-2003 - 13-08-2023).
- e. Name of the RQP : B. Sadasiva Rao M.Sc
Recognised Geologist,
C-482, N.G.O's Colony,
Vanasthalipuram,
Hyderabad - 500 070.
Ph: No. 040 - 24241320 (R)
Reg.No.RQP/DMG/HYD/047/2002

II. LOCATION & ACCESSIBILITY :

- a. Location Map : Plate - I
- b. Details of the Area : The Quarry Lease area for colour
granite is lies between
Long.N. $84^{\circ} 12' 38''$ &
Lat. E $18^{\circ} 37' 03''$ and falls on survey
of India Toposheet No.74 B/2.

S.No	District	Mandal	Sy.No & Village	Lease Area in Hectares	Type of Land	ADM&G, Surveyed Map	Remarks
I.	Srikakulam	Tekkali	1, Addukonda	1.15	Govt	Plate -II	Q.L granted for a period of 20 years.

Infrastructure :-

The area is accessible by through a good motorable asphalted road of Tekkali and is about 9 Km. In the direction of North West wich is connected with NH-5. The quarry lies of the cart track connecting Borigipeta and Gopalapuram. The District head quarters, Srikakulam is about 68 Km. from the lease area. The nearest railway station is located at Palasa which is at a distance of 30 Km towards North. The nearest port is Visakhaptnam. The local area have postal, telecommunication facilities and is electrified.

a) Boundaries

- North - Lessee's P.L area
- East - M/s. Trinity Granites.
- West - M/s. Gallop Granites.
- South - Agricultural lands.

III. GEOLOGY :

- a. **Topography:** Topographically the area is an undulating terrain interspersed with a number of hills and hillocks which are mostly covered by rock boulders. These boulders are of irregular shapes and vary widely in sizes and shapes. The hill feature is a result of weathering and denudation, and rise in height from the general ground level to about 120 meters. The area thus presents a rugged topography.
- b. **Regional Geology:** The area / district form a part of the eastern ghats granulite belt. And is occupied by Quartzite, Khondalite and Calc-Silicate rocks represents, intimately associated with Charnockite and Migmatic Gneisses. All the rock units exhibit unique parallelism in their tectonic grain, irrespective of lineage, i.e. sedimentary or magmatic. In terms of volume of exposure, the metasediments, predominate over charnockite and Gneiss.

Stratigraphic sequences established in the area as follows:

Cenozoic	Laterite
Pan African 1000Ma	Pegmatic & Quartz vein charnockite formed due to charnockite saturation process.
Early to Middle proterozoic	Younger Intrusives Gabbro Leptynite Porphyritic Garnatiferous Garnite,

	Migmatite group	Rapakivi granite Porphyritic charnockite Migmatite after charnockite Migmatite after hnodalite
-----Unconformity-----		
Archean	Charnockite Group	i. Medium grained, greasy, grey acid to intermediate Charnockites and charnockite gneiss
	Khondalite Group	ii. Pyroxenegrnulite iii. Calcgranulite, cordierite Silliminite, pyroxenegneiss sappirineranulite, garnetiferrous quartzofeldspathic sillimanite of gneiss. iv. Quartzite.

c. **Local Geology:** The Migmatised chornockite with more or less homogenous structures and texture is being traded as Srikakulam blue granite. The Srikakulam blue granite occures over an area of 300 sq.km in the north eastern part of Srikakulam district.

The area in and around Tekkali of Srikakulam district is occupied by a segment of the Eastern Migmatite zone of the Eastern

ghats group. It comprises Migmatite after Charnockite, Migmatite after khondalite, Charnockite and khondalite. The Migmatite after Charnockite followed by acid to intermediate Charnockite are the predominant litho units. Charnockite, and khondalite occurs as structurally controlled hill masses and rafts within the former. The contact between Charnockite and the Migmatized Charnockite is gradational.

The first phase is represented by tight appressed isoclinal folds with NNE – SSW axial traces. Moderately tight overturned folds with NNE – SSW to NE – SW axial traces constitute the second phase. Open type cross folds with NW – SE to NNW – SSE axial traces are the manifestation of the third phase of deformation. Interface of F_3 over F_1 and / or F_2 folds resulted in dome and basinal structure.

There are three sets of joints ENE – WSW ; WNW – ESE and NNE – SSW with 1 to 3 mtrs wide spacing. Besides sheeting with two three meters spacing is conspicuously seen in folial and sheet type deposits.

d. Brief Description of the Litho Units :

1. They are bold and sheeted in nature.
2. It attained commercial importance as dimension stone for its texture and colour. The wavy texture is formed due to lit-par-lit injections. Charnockite enclaves are noticed in the migmatized Charnockite, along the borders of the enclave, hypersthene blocks drawn to garnet and biotite infining retrograde metamorphic process.

3. Minerologically medium grained Migmatite gneiss composed of opalescent blue to blue Quartz, blue to blueish grey potash feldspar and plagioclase feldspar, red to pinkish red almandine garnet, Jet black coloured pyroxenes and migmatite with accessory amounts of greenish black hornblende etc. Intermixing of blue, red and black coloured minerals with sub vireous lustre imparts elegant and pleasing looks to the rock on polished surface. Presence of stromatic, wavy and ptygmatic bendings further enhance the beauty of the stone.

Common defects found in the Srikakulam blue granite are only pathes (undigested Charnockite pathes) black moles (Mafic mineral seggregations) white lines (Quartzofeldspathic veins), black lines (ultra mylonites), green lines (epidote veins), flowers (segregation of coarse Potash feldspars and quartz) and micro fractures.

IV. EXPLORATION / PROSPECTING :

The topological expression of the area is in the form of hills and hillocks which are medium bouldry. The boulders are of various sizes and shapes. The gapes between the boulders are filled with morram soil washed down by rain water from surface. This gives the impression that the boulders are embedded in the morram soil.

The amidst quarry lease area surrounded by existing quarry leases which are presently operated by M/s. Gallop Granites and M/s. Trinity Granites towards west and east respectively. The surface Lithology reveals from the adjacent existing Quarry Lease area indicates.

Soil and small boulders	-	Up to 2mts.
Migmatized Charnockite sheet rock	-	2 to 14mts.

No further, prospecting is proposed, except laying of ramps etc for development of Quarry.

V. RESERVES:

The Calculation of reserves of prospects, deposit and mine is done at every stage, right from preliminary to last stage of exploration and mining.

The reserves are computed basing on the available surface lithology, it reveals that the sheet rock is encountered at about 14mts depth from the top of the hillock and it may extended up to further depths 30mts. However, the colour granite reserves are calculated by cross sectional method under the three categories viz; proved, probable and possible, sectional area calculated by the graphical method.

The Q.L area forms a hill feature and raise to height of nearly 120mts from the ground level, while assessing the reserves average height of 45m from the surface as been considered Q.L. area this height for which the reserves are projected is taken as proved reserves consist of bouldry and sheet rock zones. The granite reserves which occur below the ground level to a depth of 5m is taken as probable below this upto a depth of 3m is taken as possible. The reserves are estimated by multiplying the cross sectional area with influence distance of sections. The top 2m is weathered rock and O.B. The recovery factor of 0.3 is taken leaving remaining percentage as waste which includes soil, bands of weather rock, fault rock, , joint rocks etc, the calculations of colour granite are given in the following table.

Details of Reserves and their Categorization

Category	Section	Influence Distance in mts	Section Area in M ²	Volume in m ³	Recovery Factor @30%	Reserves @30% in m ³	Rock wastage @70% m ³
		(A)	(B)	(A*B)	0.3	(A*B)0.3	(A*B) 0.70
Measured/Proved	A-A'	30	0	0	0.3	0	0
	B-B'	30	76.44	2293.2	0.3	687.96	1605.24
	C-C'	30	57.91	1737.3	0.3	521.19	1216.11
	D-D'	30	183.75	5512.5	0.3	1653.75	3858.75
	E-E'	30	311.07	9332.1	0.3	2799.63	6532.47
	F-F'	30	282.33	8469.9	0.3	2540.97	5928.93
Sub -Total						8203.5	25821.60
Indicated/Probable	A-A'	30	249.83	7,494.90	0.3	2,248.47	52,46.43
	B-B'	30	536.44	16,093.20	0.3	4,827.96	11,265.24
	C-C'	30	580.78	17,693.40	0.3	5,308.02	12,385.38
	D-D'	30	708.55	21,256.50	0.3	6,376.95	14,879.55
	E-E'	30	714.21	21,426.30	0.3	6,427.89	14,998.41
	F-F'	30	823.44	24,703.50	0.3	7,411.05	17,292.45
Sub-Total						32,600.34	76,067.46
Inferred/Possible	A-A'	30	2030.99	60,929.70	0.3	18,278.91,	42,650.79
	B-B'	30	1409.52	42,285.60	0.3	12,685.68	29,599.92
	C-C'	30	1537.20	46,116.00	0.3	13,834.80	32,281.20
	D-D'	30	1428.90	42,867.00	0.3	12,860.10	30,006.90
	E-E'	30	1074.11	32,223.30	0.3	9667.00	22,556.34
	F-F'	30	1246.98	37,409.40	0.3	11,222.82	26,186.58
Sub-Total						78,549.31	4,18,960.73
Grand-Total						1,19,353.15	4,44,859.00

Reserves blocked under buffer zone:

$$\text{Length of the boundary X average width X depth} = 520.62 \times 7.5 \times 10 \\ = 39,046.5 \text{ m}^3 \times 0.3$$

$$\text{Dimensional stone reserves} = 11,713.95 \text{ m}^3$$

Reserves below 80RL i.e., presently which are = 79,557.00 m³
not possible to excavated

$$\text{Total blocked reserves} = \underline{91,270.95 \text{ m}^3}$$

$$\text{Total mineable reserves} = \text{Total reserves} - \text{blocked reserves} \\ = 1,19,353.15 - 91,270.95 \\ = 28,082.20 \text{ m}^3$$

As per the above calculations, which are mineable reserves are considered as (economic) marketable reserves. In this way a total mineable reserves of 28,082.20 m³ is available in the Q.L. area. As the mine is proposed to produce 1200 m³ in one year of operations, the life of the mine is calculated as detailed below.

$$\frac{\text{Total Mineable Reserves}}{\text{Proposed annual production}} = \frac{28,082.20}{1200} = 23.40 \text{ years.} \\ \text{(Say 23 years)}$$

VI. MINING:

a) **Type of Mining** : Open Cost – Semi Mechanized

b) **Method of Working** : To minimize the cost of production and to achieve annual target production. The quarring operation are planned to carry out partly manually and partly deploying machinery. The lessee is having well equipped machineries.

The details of machinery being utilized at mines as follows:-

Sl.No.	Type of Machinery	Capacity	Unit
01	Compressors (Cp-375)	190 cfm	2
02	Poclain	1.1 m ³	2
03	Tippers	200 sft	2
04	Slatters		2
05	Slim Drillers		2
06	Dumpers	20 mt	2
07	Wagon Drill	2 ½ " – 4 ½ "	2
08	Sump Pump	5 HP	2

Besides this the accessories and spares like jack hammers, more number of drill rods, steel elloy chain "D" Sheckles, Lubber Hose, Clamps, Feather and Wedges, Crow Bars, Apades, Iron Pans, Sledge Hammer, Pick-Axe, Hammer, Chissels etc will be used.

The removal of over burden consists of top soil, weathered rocks. The soil cover will be removed with the help of poclains. The weathered material further loosend using blasting by utilizing gun powder as explosive. During blasting adequate care will be taken to protect the dimensional granite. The loosed soil and weathered granite will be loaded in tippers and lifted to dumping yard.

Separation of Primary rocks from Mother Rocks :-

The primary cuts i.e. the lateral and horizontal cuts by diamond wire saw cuts through slaughter holes (A50m wire saw run gets around 600 sqm. Cut) and if situation permits by use of detonating cords a close spaced blast is performed (To leverage natural Joint).

Sub Division of large primary block into Secondary Blocks:-

The secondary operation of cutting marketable sizes from the large rocks mass usually carried out by feather and wedges in close spaced holes drilled by line drilling jack hammers.

Production of Commercial Blocks :-

To finally give a regular shape, dressing down the recovered blocks with a cutting polishing face and the other direction perpendicular to it. For this purpose also Jack Hammer drills and feather wedges are widely used.

Mining Program for first Five years :-

The scheme of development and production for first five years has been planned taking into consideration of nature of deposit within the lease area. It has been proposed quarrying operations from southern part laying between 78 R.L and 80 R.L. covered by larger thickness of overburden and therefore the development of the quarry is confined between 80 R.L. and 107 R.L. Projections are made for 5 years period and the year wise figure is enclosed in plate no. IV& Annexure-I.

1st year: During 1st year, operation the lessee proposed to develop southern part of the lease area. The area lies between 86 R.L. to 92.45 R.L. In this year quantity of 2,200 m³ O.B. will be scraped and removed. it covers an extent of 47.95 m². From this development , 900 m³ mass of rock will be excavated out of this 400 m³ of dimensional granite will be recovered.

2nd Year: The 2nd year operations involves cutting a bench of height 6 mts from 95 R.L. to 98 R.L. Nearly 800 m³ of O.B. scrapped and removed. A total volume of 2000 m³ of rock mass will be excavated out of which 500 m³ will be recoverable granite.

3rd year: During 3rd year, it is proposed to develop 6mts bench towards northern side. The area lies between 98 R.L. to 101 R.L. The lessee intended to recover 700 m³ of granite blocks out of which 2,700 m³ of rock mass will be excavated.

4th year: The 4th year, it is proposed from 86.45 R.L. to 92.45R.L. to be carried out quarrying operations after the second year development. It is expected that 1600 m³ rock mass will be excavated out of which 700 m³ granite will be recovered.

5th year: During 5th year it is proposed to develop the quarry from 86.45R.L. to 92.45 R.L. which is after development of 3rd year quarrying operations. During these operations it is expected that about 2,300 m³ of rock mass will be excavated out of which 1000 m³ of granite will be recovered.

The above five year operations a total rock mass will be 11,500m³ will be excavated out of which 3,224 m³ granite will be produced.

MAGAZINE TYPE & CAPACITY:

The lessee has proposed to go for a M&S type portable magazine to store explosives required for blasting. An area to locate the magazine has been demarcated by the lessee. The site is located at a safe distance from the quarry, strictly adhering to the rules and regulations laid down for safe storage and handling of the explosive as per the explosives Act the location of the magazine is shown in the plate IV. The lessee at the moment is not in possession of blasting license. However, he has applied for license and it is understood from the lessee that the papers are being processed at the appropriate level and expected to be granted license within 2 months.

Description of Processing plant if any :-

The Lessee produces only rough blocks and directly sells them to buyers from trade centres.

ORGANISATION CHART FOR THIS QUARRY :-

The applicant company has appointed following employees at their mine:

- | | | |
|----------------------|---|--|
| 1. Mines Manager | : | Diploma in Mining with Second Class
Mines Manager Certificate |
| 2. Blaster cum Mate | : | S.S.C with blaster certificate holder. |
| 3. Mines Supervisor | : | SSLC, Experience in Granite mine for 10
years |
| 4. Skilled Workers | : | Workers with experience for more than
10 years in Granite Mines – 6 |
| 5. Unskilled Workers | : | For helping the Mines Manager
and Supervisor – 3 (Water Man) |
| 6. Machine Operators | : | ITI Qualified persons |
| 7. Watch Man | : | 1 |

SITE SERVICE :

Office room , rest shelter constructed in the western side of the quarry site. Further, the rest shelter consists of first aid room and it is maintained with all first aid medicines etc. Sanitary conditions will be maintained as per rules.

VII. Scheme of Waste Management Plan (Solid and Liquid)

A huge waste dump will be built up and is likely to attain unmanageable proportion. It is necessary to plan the dumping yard as well, it will be possible to utilized the waste material for other uses like back filling of excavated area, for building roads and for some other general

purposes. From the partly weathered rocks a fair amount of unweathered rock material could be salvaged for the manufacture of flooring tiles, small ornamental and decorative pieces etc. This market exists certainly partial utilization of the salvaged material from the mine wastes, thus reducing the quantum of mine waste and management is aware of this and will make efforts for utilization of mine generated waste to the extent possible. By this way the handling of a large quantity of solid waste is expected to be minimized.

- a) **Solid waste for First five years :-** The lessee planned to produce and market 1200m³ of marketable dimensional granite in one year. Recovery, @ 30% is considered to win possible 1200 m³ of granite blocks .It will be necessarily to handle 4,800 m³ of granite. Thus about @70% of the waste amounting to about 3,600 m³ will be generated over period of one year. Such kind of waste will be dumped at dumping yard. So in the first five years the quantity of such kinds of wastes will be about 18,000 m³. Much of the solid waste will be disposed for road construction, back filling of mine excavation and some other general purpose as enunciated above.
- Dumping site particulars:-** To dump the huge solid waste generated during the quarry operation is dumped in the dumping yard which is located at North western of the Quarry Lease area.
- b) **Estimated waste quantity that will be generated over the entire period:-** During the life span of the quarry i.e. about 23 years a total of about 30,000 m³ of dimensional colour granite production is anticipated. For that material to be handled for winning this quantity will be about 1,00,000 m³. It reveals that a total of 70,000 m³ of waste quantity is generated over the entire period of quarrying operations.

VIII. Environmental Management Plan :-

In this area the granite is embedded underneath the soil cover and weathered granite. Scanty vegetation is seen in the area few thorn bushes are observed here and there. The commencement of mining activity is excellent utility of the land. The area is situated at amidst mining industry. Therefore the commencement of mining activity at this area will not harm the Ecology of area, except the degradation of the land. The soil remove from the surface has been dumped in the dumping yard systematically. The unworthy boulders and muck is being removed and shifted to the dumping yard in time to time systematically. Presently the mining is not involved any tree cutting etc. Therefore the environmental impact is anticipated to be negligible in this mine.

Base Line Information :

- a) **Existing Land use pattern** :The area is belonging to the government land and it is not being put to any other use save as a grazing land at times.
- b) **Water Regime**: There are no perennial sources in and around the Q.L. area with in 500m radius. The rain water flows through the slopes of the area and rained off through a seasonal storm water drain
- c) **Flora and Fauna**: The area is devoid of trees and major vegetative cover. Excepting for the presence of reptiles and other minor wild life like Rabbits, field rats etc, no major wild life exists in this area.
- d) **Quality of air, water and Ambient noise level**: The area is away from industries and human settlements. The impact of granite mining by the lessee is not likely to have any serious

adverse impact on the existing environment. Indeed mining even on a small scale does cause some environmental hazard and efforts. The management is well aware of this aspect and will take all action to mitigate the hazard.

- e) **Climatic Conditions:** The area is moulded semi arid tropical climate. Normal average temperature is ranges between 35° c - 45° c and minimum temperature is 20° c is recorded in the month of January. The annual rainfall is about 1200mm. South west monsoon contributes major rainfall to the annual rainfall.
- f) **Human Settlement:** The lease area is surrounded by 5 villages and few areas of workers concentration. The literacy of the area is very less. The details of the habitants is given in the following table.

Sl.No	Name of the Village	Location	Distance	Population
01	Gopalapuram	North	2 km	1,100
02	Borigipeta	South	3.5 km	1,000
03	Savarabanjarapeta	West	4 km	1,200
04	Raghunathpuram	East	2.5 km	1,500
05	Ramakrishnapuram	West	2 km	1,300

- g) **Public Buildings, Places and Monuments:-** There are no public buildings, places and monuments within 3 km.
- h) **Whether the area falls under notified area of water act 1974:-**
Not Applicable

Environmental Impact Assessment :-

- a) **Land Degradation :** During first 5 years there will be mound slicing over an area of about 2500 sq.mts area.

- b) **Air Quality:** Due to mining operations certain amount of dust is amounted during blasting, due to movement of vehicles lot of dust will rise, such kind of air pollution will be arrested by sprinkling water on the haul road. As the mining continuous, the ambient air quality remind almost undisturbed. The present levels are well within the permissible limits. During drilling the air will get dusted. Therefore the respirators will be given to the drilling workers.
- c) **Water Quality:** Quality of the ground water is potable. However the quarrying activity does not show any impact on the quality of the ground water in the vicinity of the lease area.
- d) **Noise Level :** The Noise produced by machinery and blasting is minimal. The noise levels are found to be tolerable (90-100 db). However, all remedial measures will be taken to reduce the same.

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

- e) **Vibrations Level (during blasting operations) :** The vibration may be caused due to blasting and shot hole drilling. The Quantity of explosives for blasting is very less and the blasting is

also carried out for few seconds. Therefore the vibrations levels to the blasting and drilling is very less.

- f) **Water Regime:** Quarrying operations will be carried out on the slop of the hill. Hence neither effect the ground water table nor surface water bodies.
- g) **Socio - Economics :** This shall have positive impact in the rural area as thee will be organized employment with social security and financial benefits.
- h) **Historical Monuments etc:** There are no historical monuments in the vicinity of the lease area and therefore their setting affected due to mining does not arise.

Environmental Management:-

- a) **Temporary Storage and Utilization of Top Soil:** The waste consist of the top soil used for back filling the quarried area and other land filling operation and as a source of road building.
- b) **Proposal for Reclamation of Land Effected by Mining:** No reclamation is proposed in the first five years period because, the mining will be continued to further depths and reclamation could be possible only after completion of mining up to the proposed depths.
- c) **Afforestation :** About 6500 sqmtr Northern buffer zone area will be planted during the first five years. Above area will be planted as below:

SI.No	Year	No. of Plants	Name of the Plants
01	I	100	Neem & Eucalyptus
02	II	150	Mango
03	III	50	Gulmohar & Mango
04	IV	100	Tamarind
05	V	150	Survey & Neem

- d) **Stabilization and Vegetation of Dumps:** The dumps are stabilized and shaped trapezoidally. The angle of repose is in such a manner that the run off is avoided. The trench will be dug around the dump to avoid run off.
- e) **Measures to Control to Erosion / Sedimentation of Watercourse :**
There will not be any erosion / sedimentation in the area because, there will not be any water discharge from mine workings.
- f) **Treatment and Disposal of Water from Mine:** No water will be discharged from the mine. However, pump sets are deployed during the monsoons and whenever it is required to vacate the water from the working pits.
- g) **Measures for Minimizing Adverse Effects on Water Regime:** No adverse effects are anticipated on water regime.
- h) **Measures for Ground Vibrations Due to Blasting:** In view of the utilization of less explosives for blasting, the ground vibrations will be minimal.
- i) **Measures for Projection of Historical Monuments and Rehabilitations of Human Settlements likely to be disturbed due to Mining Activity:** There is no Historical monument and human settlements in and around the quarrying area.
- j) **Socio Economic benefits Arising out of Mining:** Few labours will get employment. Due to mining activity, revenue will get to state exchequer.

IX. Any Other Relevant Information :

- a) The applicant company will strictly follow Mineral Concession Rules and Metaliferrous Mines Regulation Act of 1961 and Mines Rules of G.C.D.R, 1999 while carrying out quarrying activity.
- b) The management will ensure good production and there is good revenue to the Government of Andhra Pradesh and Government of India through taxes. The industry is an asset to the nation.
- c) The mining plan is prepared by recognized geologist to fulfill the requirement of rule 12 of the Granite Conservation and Development Rules 1999.

X. Photos:

Photo No: 1

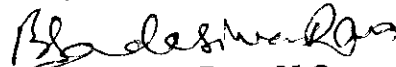
Photo No: 2

Signature of the applicant

~~For~~ **K. TIRUMALA RAO**


G.P.A. Holder

Prepared by



B. Sadasiva Rao M.Sc

Recognised Geologist,

C-482, N.G.O's Colony,

Vanasthalipuram

Hyderabad - 500 070.

Ph: No. 040 - 24241320 (R)

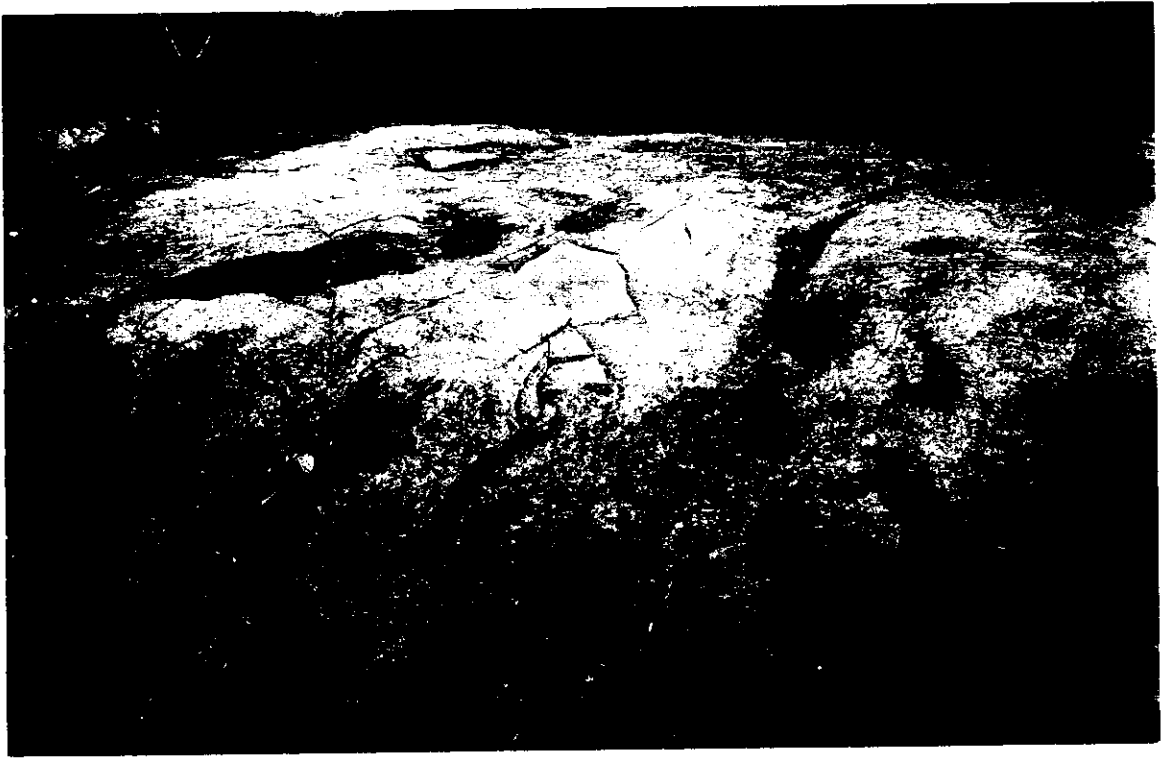
Reg.No.RQP/DMG/HYD/047/2002

Date : 8/12/15

Place : Tekkali

SCHEME OF YEAR WISE DEVELOPMENT AND PRODUCTION CALCULATION FOR FIRST FIVE YEARS FOR COLOUR GRANITE OVER AN EXTENT OF 1.15 HECT. IN SY. NO. 1 OF ADDUKONDA VILLAGE, TEKKALI MANDAL, SRIKAKULAM DISTRICT OF ANDHRA PRADESH. LESSEE: SRI K.TIRUMALA RAO

Year	Section	RL'S Between	Influenced distance	Section Area	Volume of total excavated material in m	Volume of Granite reserves @30% in m	Volume of intercalated wastage@70% in m	Wastage		Total
								Width in m	Volume (width X Influenced Distance	
I	X - X	86 - 92.45	72.5	21.5	1558.75	467.625	1091.125	30.12	2183.7	3274.825
II	X - X	95 - 98	72.5	22.62	1639.95	491.985	1147.965	10.84	785.9	1933.865
III	X - X	98 - 101	72.5	32.42	2350.45	705.135	1645.315	14.62	1059.95	2705.265
IV	X - X	86.45 - 92.45	72.5	30.89	2239.525	671.8575	1567.6675	-		1567.6675
V	X - X	86.45 - 92.45	72.5	44.46	3223.35	967.005	2256.345	-		2256.345
Total						3303.6075	7708.4175			11737.9675



Proceedings of the Assistant Director of Mines and Geology
Present: Sri K. Tirumala Rao, I.B.S.
ASST. DIRECTOR

Proceedings No. 1067/2003

Date: 14-08-2003

Sri K. Mines and Quarries - Quarry lease for Colour Granite over an extent of 1.15 Hectares in S.No.1 of Addukonda village, Tekkali Mandal, Srikakulam District. Granted in favour of Sri K. Tirumala Rao.
Execution of Lease Deed - Work orders issued - For info.

Ref: - Proceedings No. 1902081-3/2003 dtd. 14-08-2003 of the Director of Mines and Geology, Hyderabad

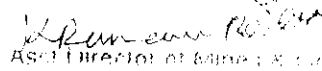
1. D.O. No. 207/MG/1007/10-99 dt. 10-11-99
2. Letter of 14-8-2003 from Sri K. Tirumala Rao.


ORDER:-

The Quarry lease for colour granite granted in favour of Sri K. Tirumala Rao, 2-98/3, 10-B, Block-B, Kakatiyanagar, Hyderabad - 7, in Survey No. 1 of Addukonda village, Tekkali Mandal, Srikakulam District, over an extent of 1.15 Hectares, for a period of 20 years, has been executed on 14-08-2003 by the undersigned. The Quarry lease is valid for a period of 20 years from 14-08-2003 to 13-08-2023.

The Grantee through their letter 37/03 dtd. 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 Sri K. Tirumala Rao, 2-98/3, 10-B, Block-B, Kakatiyanagar, Hyderabad - 7, for the quarry lease granted area.

Sri K. Tirumala Rao, 2-98/3, 10-B, Block-B, Kakatiyanagar, Hyderabad - 7, is hereby permitted to enter and work the Quarry area for colour granite in Survey No. 1 of Addukonda village, Tekkali Mandal, Srikakulam District, over an extent of 1.15 Hectares for a period of 20 years under the provisions of APMMC Rules, 1965 and Granite Conservation & Development Rules, 1999 and conditions laid down in G.O Ms No 317 Industries & Commerce Department dtd. 07.10.92 and subsequent instructions issued on the matter from time to time. The Grantee should submit the quarterly returns and the progress reporting and other documents to the concerned District Industries Center, the Assistant Director of Mines and Geology, Tekkali and 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 reserves the right to cancel the quarry lease granted and executed under APMMC Rules 1965 and Granite Conservation & Development Rules 1999 without assigning any reasons and on short notice and the conditions imposed in the quarry order and appendices.


ASST. DIRECTOR OF MINES & GEOLGY
Tekkali, Srikakulam District


Sri K. Tirumala Rao,
2-98/3, 10-B, Block-B
Kakatiyanagar, Hyderabad - 7

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 Mandal Revenue Officer, Tekkali, for information