

EXECUTIVE SUMMARY

K.PITCHAMPATTI MULTI COLOURED GRANITE QUARRIES IN CLUSTER OVER AN EXTENT OF 10.90.0 Ha

At

k.Pichampatti Village, Karur Taluk and Karur District

Proponent 1
M/s.M.P.Granite
Address: No.3/173-C,Palayapuliyampatti,Chitalandur Post,Namakkal- 637 201.
Project location: K.Pitchampati Village,Karur Taluk,Karur District.s.f.No Extent
S.F.No: 353/6(P), 354/A1, 355/A, 355/B1, 355/B2, 355/B3, 355/B4, 356/1, 356/2, 356/3, 357/4 and 358/9 (P)
Extent: 4.45.0 Ha

Environmental Consultant

GEO EXPLORATION AND MINING SOLUTIONS

Old No. 260-B, New No. 17,
Advaitha Ashram Road, Alagapuram,
Salem – 636 004, Tamil Nadu, India

Accredited for sector 1, 28 & 38 Category 'A'
Certificate No :NABET/EIA/1821/RA0123

Phone: 0427-2431989,



1. INTRODUCTION –

This EIA report is prepared by considering Cumulative load of all proposed & existing quarries of K.Pitchampatti Multi Coloured Granite Cluster Quarries consisting of One Proposed and Two Existing Quarries with total extent of Cluster of 10.90.0 ha in K.Pitchampatti Village, Karur Taluk, Karur District and Tamil Nadu State, cluster area calculated as per MoEF & CC Notification S.O. 2269(E) Dated 1st July 2016.

This Cumulative EIA / EMP report is prepared to evaluate the environmental impacts of the project in line with the requirements of EIA notification SO 1533(E) dated 14.9.2006 and amendments made thereof

1.2.1 Identification of Project

TABLE 1.1: SALIENT FEATURE OF THE PROJECT

Description/Details	P1
Name of the Quarry	M/s.M.P.Granite Multicolour Granite quarry
S.F.No's	353/6(P) , 354/A1, 355/A, 355/B1, 355/B2, 355/B3, 355/B4, 356/1, 356/2, 356/3, 357/4 and 358/9 (P)
Extent	4.45.0 ha
Classification of Land	Patta Land
Village	K.Pitchampatti
Taluk	Karur
District	Karur
State	Tamil Nadu
Latitude Between	10 ^o 46'36.90" N to 10 ^o 46'48.06" N
Longitude Between	78 ^o 04'58.77" E to 78 ^o 05'05.46" E

Source: Approved Mining Plan

TABLE: 1.2: IDENTIFICATION OF THE PROJECT PROPONENT

M/s.M.P.Granite is a partnership firm and the Partnership deed executed and duly registered on 09.07.2012 with two partners under the Indian Partnership act, 1932.

S.Nos	Name	Designation
1	Tmt.N. Madhavi, W/o. G.P.Panneer, No.31, Elango Adigal street, K.K.Nagar, Madurai – 625 020	Managing Partner
2	Thiru. G.P.Panner, S/o.Palanisamy, W/o. G.P.Panneer, No.31, Elango Adigal street, K.K.Nagar, Madurai – 625 020	Partner

2. PROJECT DESCRIPTION –

Project profile and Salient Features

- The project area is located in K.Pitchampatti Village, Karur Taluk, Karur District, Tamil Nadu
- The project falls in Topo sheet No: 58- J/01
- Latitude between 10^o46'36.90" N to 10^o46'48.06" N
- Longitude between 78^o04'58.77" E to 78^o05'05.46" E
- The project area is patta land (Non-Forest Land) & does not fall within 10 km radius of any eco – sensitive zone, Wild life Sanctuary, National Park, Tiger Reserve, Elephant Corridor and Biosphere Reserves.

TABLE 1.3: FEATURES AROUND THE CLUSTER

Nearest Village	K.Pitchampatti-2 Km-North
Nearest Town	Vellianai- 8.5 Km- North East
Nearest Roadway	(SH-74) Karur-dindigul -5 Km-North East (NH-7) 13.5 Km-North West (NH-67) Karur-Trichy Bypass road- 14 Km – North Palayam – AravanKurichi District road -3 Km-South Karur-Vedasandur road-6 Km-North West
Nearest Railway	Vellianai- 8.5 Km- North East Railway line at 100 m- West
Nearest Airport	Trichy-68 Km- East
Seaport	Trichy-68 Km- East
Interstate boundary	Nil within 10km radius
Coastal zone	cuddalore – 195 km – East
Forest	Nil within 10km Radius
Wildlife Sanctuary	Nil within 10km

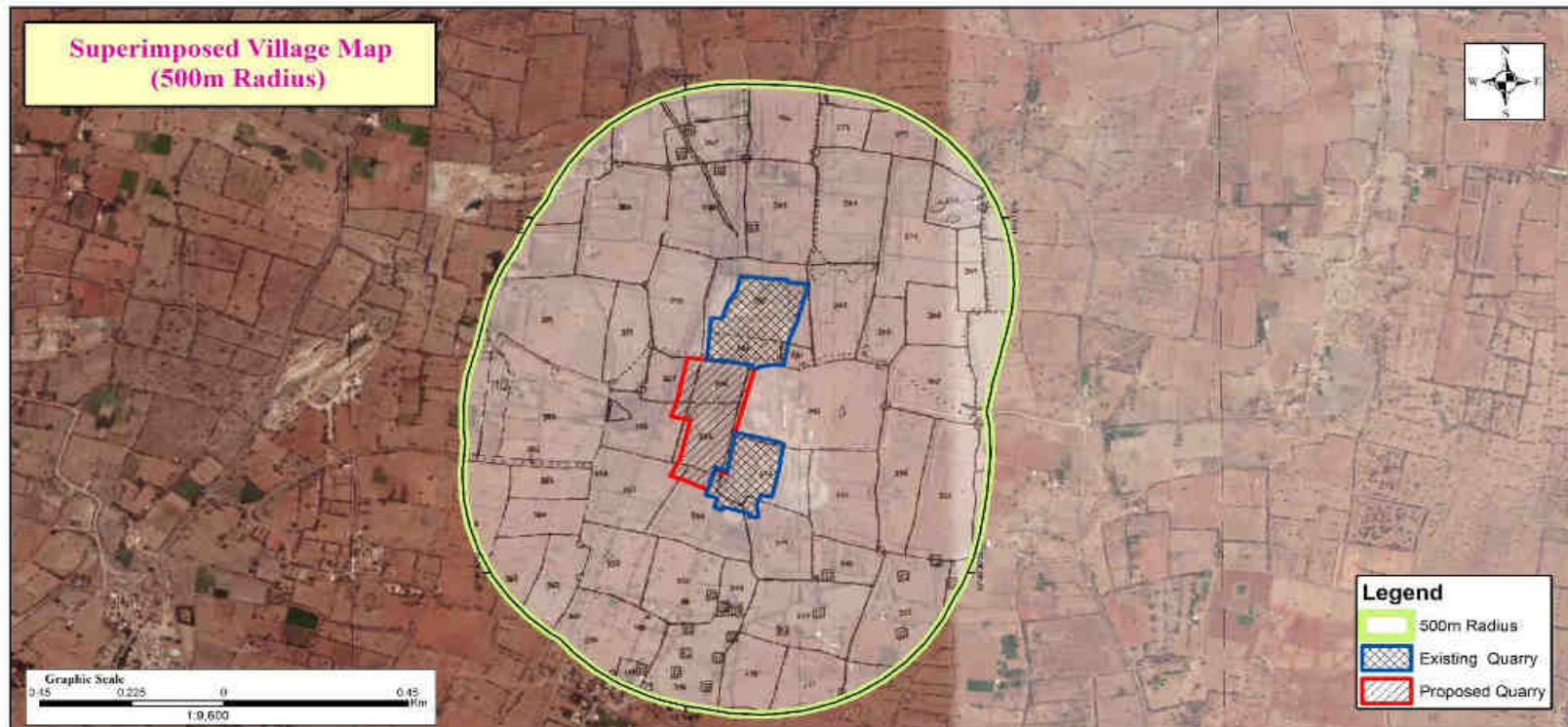
Source: Survey of India Toposheet

TABLE 1.4: RESOURCES AND RESERVES

Proposal P1						
Description	ROM in m ³	Granite Recovery @ 65% in m ³	Granite Waste @ 35% in m ³	Weathered rock in m ³	Side burden in m ³	Top Soil in m ³
Geological Resources	3,90,000	2,53,500	1,36,500	71,025	15,04,000	47,350
Mineable Reserves	2,41,370	1,56,891	84,479	37,980	2,44,220	27,008
Year-wise Production (Scheme of Mining)	60,000	39,000	21,000	15,549	8500	11,270

Source: Approved Mining Plan

FIGURE 1.1: SATELLITE IMAGERY CLUSTER QUARRIES



INDEX MAP

TAMILNADU STATE



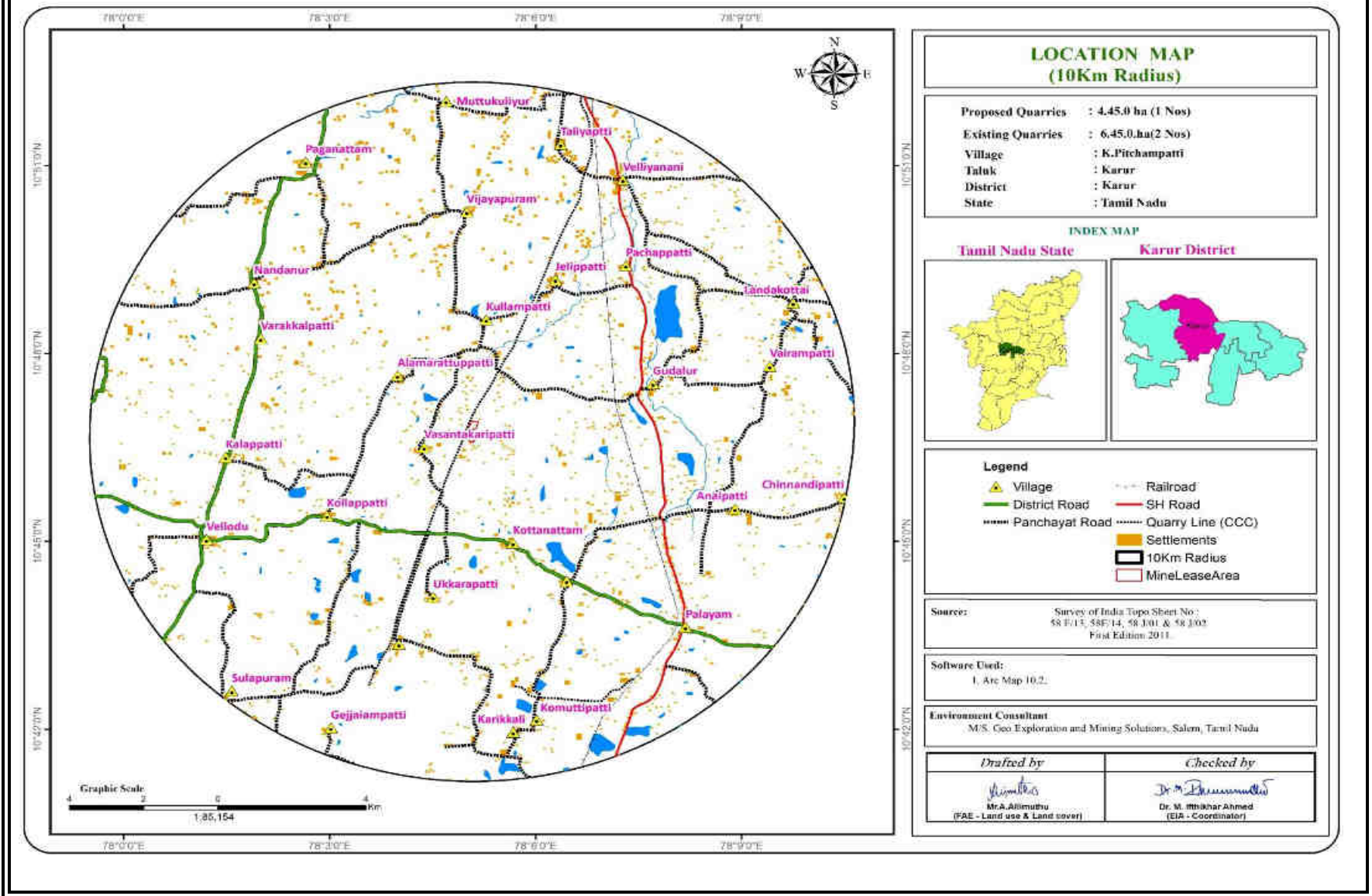
KARUR DISTRICT



Proposed Quarries	: 4.45.0 Ha (1 No.)
Existing Quarries	: 6.45.0.ha(2 Nos)
Village	: K.Pichampatti
Taluk	: Karur
District	: Karur
State	: Tamil Nadu

Source: Google Earth Pro	
Software Used: Arc Map 10.8	
Environment Consultant M/s. Geo Exploration and Mining Solutions, Salem, Tamil Nadu	
Drafted by Mr.A. Allimuthu (FAE-Land use & Land Cover)	Checked by Dr.M. Iftikhar Ahmed (EIA-Coordinator)

FIGURE 1.2: IMAGE SHOWING SURFACE FEATURES AROUND 10 KM RADIUS FROM CLUSTER QUARRIES



3. DESCRIPTION OF THE ENVIRONMENT –

Baseline data was generated for various environmental parameters including Air, Water (surface and groundwater), Land and Soil, Ecology and Socio-economic status to determine quality of the prevailing environmental settings. The Base Line Study was conducted during winter season December 2019 – February 2020

3.1 Land Environment

Land use pattern of the area was studied through LISS III imagery of Bhuvan (ISRO). The 10 km radius map of study area was taken for analysis of Land use cover. As the mining is proposed to be carried out by opencast mechanized mining method, studies on land environment of eco-system play an imperative role in identifying susceptible issues and taking appropriate action to uphold ecological equilibrium in the region.

TABLE 3.1: LAND USE / LAND COVER TABLE 10 KM RADIUS

Sl.No.	Classification	Area in Hectares	Area in %
1	BUILTUP-URBAN	838	2.53
2	BUILTUP-RURAL	1,926.7	5.82
3	MINING	722.04	2.18
4	SHRUB LAND	975.86	2.95
5	BARREN ROCKY	135.33	0.4
6	FALLOW LAND	10611	32
7	CROP LAND	17547	53
8	WATER BODIES	316.85	0.95
TOTAL		33,074	100

Built-up area = 2764.7 ha ie., 8.35%

Agriculture land = 28,112.9 ha ie., 85%

Mining Area = 722.04 ha ie., 2.18%

This small percentage of Mining Activities shall not have any significant impact on the environment.

3.2 Soil Environment

pH is an important parameter indicative of alkaline or acidic nature of soil. It greatly affects the microbial population as well as solubility of metal ions and regulates nutrient availability. Variation in pH of the soil in the study area was found to be moderately alkaline to strongly alkaline in nature (7.96-8.72).

Electrical conductivity, a measure of soluble salts in the soil is in the range of 352-441 $\mu\text{S}/\text{cm}$.

Mostly the soils collected from different location in the study area are Clay loam in texture. The soils with low bulk density have favorable physical conditions whereas those with high bulk density exhibit poor physical conditions for agriculture crops. The bulk density of the soil in the study area ranged between 0.81 – 1.29 g/cc which indicates favorable physical condition for plant growth.

Organic carbon was found to be medium -high which is between 0.59 - 1.22%. Available Nitrogen, available phosphorous and potassium content is very low.

The important soluble cations in the soil are calcium and magnesium whose concentration levels ranged from 147-166 mg/Kg and 21.3-30.0 mg/Kg respectively.

Wilting co efficient in significant level would mean that the soil would support the vegetation. The soil properties in the buffer zone reveal that the soil can sustain vegetation. If amended suitability the core area can also withstand plantation.

3.3 Water Environment –

Surface Water

The analysis results indicate that the pH is 7.21 to 7.69, which is well within the specified standard of 6.5 to 8.5. Total hardness was observed to be 405 mg/l. The Total Dissolved Solids (TDS) concentrations were found to be 610 to 699 mg/l.

Adequate dissolved oxygen is necessary for good water quality. Oxygen is a necessary element to all forms of life. Dissolved Oxygen levels reported as 4.1 to 4.7 mg/l which reflects the good quality of water.

BOD is reported as 7.4 to 10.2 mg/l. Lower value of Biochemical oxygen demand indicates the less polluted water body.

COD found to be 20 to 27.5 mg/l indicating very low organic pollution load in terms of COD.

Chloride and fluoride concentrations are found to be 174 to 210.2 mg/l and 0.18 to 0.27 mg/l respectively. Nitrates were observed to be 14.5 to 18.5 mg/l. Bacteriological studies reveal

that coli form bacteria are not present in the samples. The heavy metal content is below detectable limits.

Ground Water

All ground water samples collected for Odour test did not have any objectionable odour. Any salty or metallic taste in water samples comes only if salts or metals are present in high concentration. Here, all ground water samples have agreeable taste. Turbidity values for all samples are less than acceptable limit (5.0 NTU) as prescribed in BIS 10500:2012.

The analysis results indicate that the pH ranges in between 6.87 to 7.92, which is well within the specified standard of 6.5 to 8.5. Total hardness was observed to be ranging from 131.53 to 248.97 mg/l. The incidence of high total hardness is attributed to the composition of litho units constituting the aquifers in the district. The Total Dissolved Solids (TDS) concentrations were found to be ranging in between 492 to 628 mg/l.

Chlorides at all the locations were within the permissible limit, ranging in between 158.8 to 198.5 mg/l. Fluorides are ranging in between 0.12 to 0.29 mg/l and are found to be within the permissible limit. Nitrates were found to be in the range of from 7.8 mg/l to 10.5 mg/l. Bacteriological studies reveal that coliform bacteria is not present in the samples. The heavy metal content is below detectable limits. The parameters thus analysed were compared with IS 10500:2012 and are well within the prescribed limits

3.4 Air Environment –

It has been observed from the monitoring results that maximum concentration of PM₁₀ is ranges from 38.9 µg/m³ to 47.9 µg/m³ r. The concentration of PM_{2.5} varies from 18 µg/m³ to 25.3 µg/m³. SO₂ concentration level ranged from 4.1 - 8.6 µg/m³ and NO_x concentration ranged from 11.6 – 21.7 µg/m³ in the study area.

Toxic Metals (Lead, Nickel & Arsenic): Representative samples from all sampling stations were collected and analyzed for Toxic Metals i.e. Lead, Arsenic & Nickel. The concentrations of Toxic Metals were below detectable limit at all sampling stations.

Overall Ambient Air Quality of proposed project area and its buffer zone is good during monitoring period and there are no any abnormal values recorded. The maximum concentration

in the core zone is due to the quarrying activity of the cluster of quarries situated within 500m radius. The concentration levels of the above criteria pollutants were observed to be well within the limits of NAAQS prescribed by CPCB.

3.5 Noise Environment –

Industrial area

Noise levels recorded in core zone during day time were from 47.4 – 48.7 dB (A) Leq and during night time were from 38.0 – 39.2 dB (A) Leq. The values of noise observed in some of the areas are primarily owing to quarrying activities due to cluster of quarries within 500m radius, movement of vehicles and other anthropogenic activities.

Residential area

Noise levels recorded in buffer zone during day time were from 46.5 – 49.0 dB (A) Leq and during night time were from 36.7 – 38.3 dB (A) Leq. In rural areas wind blowing and chirping of birds would contribute to noise levels especially during the nights.

Noise monitoring results reveal that the maximum & minimum noise levels at day time were recorded in the range of 49.0 dB(A) & 46.5 dB(A) and 39.2 dB(A) & 36.7 dB(A) in night time.

The overall ambient noise quality with respect to various zones was found to be within prescribed limits by CPCB.

3.6 Biological Environment –

Ecological survey has been carried out to understand baseline ecological status, important floristic elements and fauna structure. There are No Schedule – I Species listed as per The Indian Wildlife (Protection) Act, 1972 or Threatened Species as per IUCN Red List noticed within the Study Area.

3.7 Socio Economics –

An attempt has been made to assess the impact of the mining project at Bargur Village on Socio-economic aspect of the study area. The various attributes that have been taken into account are population composition, employment generation, occupational shift, household income and consumption pattern. Implementation of the Projects will generate both direct and indirect employment. Besides, Mining operation will be legally valid and it will bring income to the state exchequer. At present seasonal agriculture is the main occupation of the people as more than half

of the population depends on it. With the implementation of the proposed mining project the occupational pattern of the people in the area will change making more people engaged in mining based activities rather in seasonal agriculture.

4 ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES –

4.1 Land Environment:

Anticipated Impact

No release of toxic elements into the ground. No adverse impact is anticipated on land use of buffer zone associated due to the mining activity, as all the activities will be confined within the lease area. The quarrying operations will impact the land usage and land aesthetics of project area. The land degradation is unavoidable during mining activities like excavation, overburden dumping, soil extraction etc., and their associated impacts are soil erosion, loss of topsoil, change in topography, and disposal of wastes.

Mitigation measures

- The effect of land degradation due to mine excavation, waste dump formation etc. can be considerably reduced by planning to carry out timely afforestation and reclamation of waste dumps, plantation along roads, along mine peripheral premises, other unused free areas.
- Face of slope of dump will be maintained at the natural angle of repose of the material and at over all slope angle of 45°
- Green belt development will be carried out. Nearly 2050m² area is proposed for afforestation by planting. 45 Nos. of trees during every year and expected growth is around 36 no. of trees at a survival rate of 80%.
- Garland drain to be provided all around dump sites and erosion is avoided.
- Suitable drainage arrangement for smooth disposal of storm water will be maintained.

4.2 Water Environment

Anticipated Impact

- Decrease in aquifer recharge and increase in surface runoff;
- Disturbance to land drainage, overload and erosion of watercourses;
- Changes to the surface over which water flows;

- Changes to surface and groundwater resources quantity and quality due to stream blockage and contamination by particulate matter or waste;
- Contamination of aquifers due to removal of the natural filter medium

Mitigation measures

- Rainwater will be collected in sump in the mining pit and will be allowed to store and pumped out to surface setting tank of 15 m x 10m x 3m to remove suspended solids if any. This collected water will be judiciously used for dust suppression onwards and such sites where dust likely to be generated and for developing green belt. The proponent will collect and judiciously utilize the rainwater as part of rainwater harvesting
- Wastewater discharge from mine will be treated in settling tanks before using for dust suppression and tree plantation purposes.
- Desilting will be carried out before and immediately after the monsoon season.
- Regular monitoring and analyzing the quality of water in open well, bore wells and surface water.

4.3 Air Environment–**Anticipated Impact**

The air borne particulate matter is the main air pollutant by opencast mining. The mining operation will be carried out by adopting semi-mechanized methods which involves Jack Hammer drilling and blasting, wire saw cutting, excavation, loading and transportation. The pollutants from moving vehicles, residential and commercial activities are the primary sources of air pollution at present.

Mitigation measures

- Regular water sprinkling on haul roads, blasted heaps, service roads and overburden dumps at regular intervals will help in reducing considerable dust pollution
- Use of Sharp drill bits for drilling holes and charging the holes by using optimum charge and using time delay detonator
- The vehicles and machinery will be kept in well maintained condition so that emissions will minimize

- Provision of green belt all along the periphery of the lease area for control of dust
- Information on wind direction and meteorology will be considered while planning, so that pollutants, which cannot be fully suppressed by engineering technique, will be prevented from reaching the residential areas
- PPE will be provided to all workers
- Regular health check-up of workers and nearby villagers in the impacted area should be carried out and also regular occupational health assessment of employees should be carried out as per the Factories Act
- Ambient Air Quality Monitoring will be conducted on regular basis to assess the quality of ambient air.

4.4 Noise Environment

Anticipated Impact

Noise pollution poses a major health risk to the mine workers. Following are the sources of noise in the existing open cast mine project are being observed such as Drilling, Blasting, Wire Saw Cutting, Loading and during movement of vehicles.

Mitigation measures

- Use of personal protective devices i.e., earmuffs and earplugs by workers, who are working in high noise generating areas.
- Limiting time exposure of workers to excessive noise.
- Proper and regular maintenance of vehicles, machinery and other equipments.
- Speed of trucks entering or leaving the mine will be limited to moderate speed to prevent undue noise from empty vehicles.
- Providing proper noise proof enclosure for the workers separated from the noise source and noise prone equipment
- Provision of Quiet areas, where employees can get relief from workplace noise.
- The development of green belt around the periphery of the mine to attenuate noise.
- Regular medical check-up and proper training to personnel to create awareness about adverse noise level effects.

4.5 Biological Environment

Anticipated Impact

There is no Forest land, National Parks, Eco sensitive areas, Wild life sanctuaries within the radius of 10km.

There are no migratory corridors, migratory avian-fauna, rare endemic and endangered species. There are no wild animals in the area. No breeding and nesting site were identified in project site. No National park and Wildlife Sanctuary found within 10km radius. The dumps / bunds around the mine itself act as a good barrier for entry of stray animals. In the post mining stage, barbed wire fencing is proposed all around the mined-out void to prevent fall of animals in the mine pits.

Mitigation measures

To reduce the adverse effects on natural flora/fauna status of the area due to deposition of dust generated from mining operations, water sprinkling and water spraying systems will be ensured in all dust prone areas to arrest dust generation. Methodical and well-planned plantation scheme will be carried out.

4.6 Socio Economic Environment.

Anticipated Impact

Employment generation due to the project will provide direct employment for about 91 persons.

Mitigation Measures

- Good maintenance practices will be adopted for plant machinery and equipment, which will help to avert potential noise problems.
- Green belt will be developed in and around the project site as per Central Pollution Control Board (CPCB) guidelines.
- Appropriate air pollution control measure will be taken to minimize the environmental impact within the core zone.
- For the safety of workers, personal protective appliances like hand gloves, helmets, safety shoes, goggles, aprons, nose masks and ear protecting devices will be provided as per mines act and rules.
- Benefit to the State and the Central governments through financial revenues by way of royalty, tax, DMF, NMET etc, from this project directly and indirectly.

5 ANALYSIS OF ALTERNATIVES (TECHNOLOGY AND SITE)

The site has been selected based on geological investigation and exploration as below:

- Occurrence of minerals at the specific site.
- Transportation facility for materials & manpower.
- Overall impact on environment and mitigation feasibility
- Socio – economic background.

The mineral deposits are site specific in nature; hence question of seeking alternate site does not arise for this project.

6 ENVIRONMENT MONITORING PROGRAM –

Usually an impact assessment study is carried over short period of time and the data cannot bring out all variations induced by natural or human activities. Hence regular monitoring program of Environmental parameters is essential to take into account the changes in the Environment. The Objective of Monitoring -

- To check or assess the efficiency of the controlling measures;
- To establish a data base for future impact assessment studies.

7 ADDITIONAL STUDIES - RISK ASSESSMENT & HAZARD –

The components associated with risk and hazard in this mining case movement of heavy earth moving machineries and tippers. Measures to reduce and avoid any incidents occurring from the above-mentioned components shall be planned and implemented as soon as the mine starts commissioning; this includes measures to avoid the above discussed risk factors. Proper risk management plan will be proposed to avoid any kind of accident/ disaster.

8 PROJECT BENEFITS –

The K.Pitchampatti Multi Coloured Granite Quarry project located in K.Pitchampatti Village of Karur District has well established roads, communications and other facilities. The impact on the civic amenities substantially will increase due to mining activity.

The project envisages a direct job opportunity to the local persons, and this includes both technical and non-technical persons. Literacy is future expected to increase because of increase income and awareness amongst the people. Part of the royalty is given to local bodies by the

State Govt. for the welfare and development of the village. District Mineral Fund @30% of the Royalty shall be given to the Dept. of Geology and Mining, Erode District. The State Government will also benefit directly from the mine, through increased revenue from royalties, excise duty and etc.,

9 ENVIRONMENT MANAGEMENT PLAN –

The Proponent of the respective quarries shall consolidate an Environment Monitoring Cell which is responsible for the management and implementation of the environmental control measures. Basically, this department shall supervise the monitoring of environmental pollution levels like Ambient Air quality, Water quality, Soil quality and Noise level by appointing approved external agencies.

Occupational Health and Safety:-

The working condition in the quarry is governed by the enactments of the Director General of Mines Safety (DGMS). Necessary precautions regarding health and safety of workers will be strictly followed as per the guidelines of the Mines Act, sanitary facilities will be provided within the proposed project area and periodic health check-up will be carried out to all the workers.

10 CONCLUSION –

It can be concluded from overall assessment of the impacts, in terms of positive and negative effects on various environmental components, that the mining activities will not have any adverse effect on the surrounding environment.

To mitigate any impacts due to the mining activities, a well-planned EMP and a detailed post project monitoring system is provided for regular monitoring and immediate rectification at site. Due to the cluster quarrying activities, socio economic conditions in and around the project site will be improved substantially. Hence, the Prior Environmental Clearance shall be granted at the earliest.

